

ECONOMIC REFORMS AND THE HEALTH SECTOR IN INDIA

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Economic Reforms and the Health Sector in India

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Preface

The last decade of the previous century has been significant in more than one respect so far as India's socio-economic development is concerned. One of the most significant developments in the country's history, which is comparable to the industrial revolution of 17th and 18th centuries in the currently developed countries is introduction of the economic reforms consisting of major restructuring of not only functioning of the economic system but also of **the very ethos of the researchers** and policy makers about the basic economic values. Just as Keynesian revolution of 1930s emphasized the importance of effective demand as a motivating force for lifting the economy from depression to expansion, the supply side economics of 1960s and thereafter emphasized the role of supply side factors as basic motivating forces for development. The economic reforms visualized much earlier but implemented in India with effect from 1990s are linked to the philosophy of supply side economics with a major emphasis on liberalization, privatization and globalization. That the reforms have far reaching implications for all the sectors of the Indian economy and all the states of the country has been now amply recognized. In this background the Centre for Multi-disciplinary Development Research was planning to study the implications of the reforms for different sectors of the Indian economy. It is at this juncture that the Centre got an opportunity to undertake a comprehensive study of Economic Reforms and Health Sector in India. Since the Centre has been emphasizing the need for integrating basic, empirical and action research approaches in its studies it visualized the study on Economic Reforms and Health Sector as an exercise in an empirical and action research.

The Centre expresses its grateful thanks to United Nations Development Programme (UNDP) and the Department of Economic Affairs, Ministry of Finance, Government of India for giving it this opportunity for undertaking this major study under the series of studies on economic reforms that they initiated. The study was supported by the financial assistance from UNDP and Government of India. I am particularly grateful to Mr.Suresh Sundareshan, former Joint Secretary, UN, Shri S.Behura- Former Joint Secretary (Japan, UN & PSE), Shri P.K.Dev-Joint Secretary (Japan, UN & PSE), Dr. Rakesh Mohan, Chairman, Programme Management Board, Ministry of Finance, UN Section, Govt. of India, New Delhi, Ms. Dorothy G. Gordon-Deputy Resident Representative (P), Dr.A.Sudarshan, Former Asst. Resident Representative and Senior Economist, UNDP, Dr.Pradeep Sharma-Asst. Residence Representative, Mr.G.Padmanaban, former Programme Officer, UNDP, Mr. Ashok Malhotra, former Programme Officer, UNDP, Dr.Neeraja Kulkarni-Programme Officer, Dr. Dharmendra Sharma, former Director, DEA, Shri Sumeet Jarath-Director, DEA and other Govt. of India and UNDP officials.

The Centre is thankful to Prof. V.R. Panchamukhi, Chairman, ICSSR, New Delhi for the initiative and constant encouragement during the project. We are also thankful to Dr.Vijay Kelkar, the then Finance Secretary, Ministry of Finance, Govt. of India, New Delhi for his support.

I express my very affectionate and grateful thanks to my colleagues in the Centre who shouldered the responsibility of undertaking the various studies included in this volume. My special thanks are due to Prof. G.K. Kadekodi, Dr. Arabinda Mishra, Shri V.B. Annigeri, Smt. Nayanatara S Nayak for the initiative that they have taken in completing various studies. Prof. G.K. Kadekodi particularly took keen interest in coordinating a number of studies undertaken under the volume.

A number of scholars from outside the Centre were also requested to contribute their special research studies on the selected themes under the project. We received scholarly studies from Dr.Rama Vaidyanathan Baru, Faculty, Jawaharlal Nehru University, New Delhi, Dr.Nagesh Kumar, Senior Fellow, RIS, New Delhi, Dr.Jaya Prakash Pradhan, RIS, New Delhi, Dr.Aravind Badiger and Dr.Manoj Kumar Dash, Director, SEVAK, Orissa. On behalf of the Centre, I wish to express our grateful thanks to them.

A Project Advisory Committee was constituted to guide the development of the study. I wish to express my thanks to Dr. N.H. Antia, Chairman and Director, Foundation for Research in Community Health, Pune, Dr. P.K. Umashankar, Retd. Director, IIPA, Chennai, Dr. N.S. Deodhar, consultant in Health Science, Audh, Pune, Dr. Amar Jesani, Trustee and Consultant, CEHAT, Mumbai, Dr. K. Seeta Prabhu, Chief, HDRC, UNDP, New Delhi, Dr. K.R. Madi, Member, CMDR Governing Council, Dharwad, Dr. K.R. John, Dept. of Community Health, Christian Medical College, Vellore, Dr. Ravi Duggal, Coordinator, CEHAT, Mumbai, Dr. Sailabala Debi, Reader, Dept. of Analytical and Applied Economics, Utkal University, Orissa, Dr. H. Sudarshan, Chairman, Task Force on Health and Family Welfare, Bangalore, Director General of health Services, Shastri Bhavan, New Delhi, Dr. A.R. Nanda, Secretary, Govt. of India, Dept. of Family Welfare, Ministry of Health and Family Welfare, New Delhi, Dr. Anil Gumber, Senior Economist, NCAER, New Delhi, Dr. Srinath Reddy, Professor of Cardiology, Dept. of Cardiology, All India Institute of Medical Sciences, New Delhi, Dr. Ramesh Bhat, Professor of Finance, Indian Institute of Management, Ahmedabad, Dr. A.B. Bose (representative of IAMR), Formerly Advisor, Planning Commission, New Delhi, Dr. B.B.L Sharma, Reader Health Economics & Acting Head, Dept. of Planning and Demography, New Delhi and Dr. Alakh Sharma, Director, IHD, New Delhi, members of PAC.

I am also grateful to Prof.Aasha Kapur Mehta, Indian Institute of Public Administration, the professional editors of this volume before sending it for publication.

Our thanks are due to UNDP also for making the publication grant.

To a large number of Investigators, Research Assistants, Statistical Assistants in different states and administrative and support staff in the Centre, I wish to express my special appreciation and thanks. But for their hard work and sincere efforts such a comprehensive study could not have been completed.

On a number of occasions, we had the opportunity of making presentations of these studies in the national workshops and Steering Committee Meetings of Government of India. To all the participants in these workshops, seminars and meetings our special thanks are due.

A number of studies completed under the project were brought out by the Centre as Monographs under its Monograph Series and were disseminated earlier. But when put together these monographs in an edited version as chapters present a comprehensive perspective about the Reform and Health Sector. The rationale behind the studies was discussed on several occasions in the Centre and this debate made our approach more focused. I express my thanks to all the participants in these preliminary discussion meetings.

I wish to emphasize that this is one of the modest efforts to undertake an intensive study of the implications of the economic reforms for the health sector. In case it arouses interest of researchers and policy makers in an in depth inquiry into the implications of the reforms for the other sectors and also into the unexplored aspects of the health sector itself then we feel that our efforts are amply rewarded.

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ECONOMIC REFORMS AND THE HEALTH SECTOR IN INDIA

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Economic Reforms and the Health Sector : An Action Research Project

Introduction

Economic reforms initiated in India during the early 90's of the previous century have significant implications for the development of different components of the social sector. If properly implemented the comprehensive reforms covering economic and social goals should have favourable implications for the people. The economic reforms are likely to have the following types of effects so far as health sector is concerned :

An Illustrative Chart of Effects of Economic Reforms on the Health Sector

| Components of Economic Reforms | What aspects of Health Care Sector will be affected | Effects likely to be Favourable or Unfavourable? |
|--|--|--|
| 1. Economy in Govt. Expenditure (especially Non-Plan Expenditure) | Health Sector Outlays | Likely to be Unfavourable unless special efforts are made to protect them. |
| 2. Deficit Reduction | Health Sector Outlays | Likely to be Unfavourable unless special efforts are made to protect them |
| 3. Privatization | Access and Utilization of Health Services by the Vulnerable groups | Distributional Effects Likely to be adverse, unless countervailing measures are taken |
| 4. Privatization and Liberalization | a) Drug industry | i) Drug prices likely to rise ii) Drug quality likely to improve iii) Range of drugs likely to expand |
| | b) Composition of Health Care: Eg. Composition of Primary care Secondary and Tertiary Care | i) Tertiary Care likely to be favoured. ii) Medicare likely to be costlier iii) Medicare process likely to be more elongated with tests-orientation. |
| | c) ISM | Likely to be unfavourable |
| 5. Economic reform initiatives by the Union Govt., (as developed so far) | Federal Ethos in the health care sector | Likely to be unfavourable unless state governments take special initiatives. |

In this background, a study was undertaken by the Centre for Multi-Disciplinary Development Research to examine the experiences of a developing country like India regarding the linkages between the economic reforms and the health sector. This study had the following objectives :

1. To analyze the effects of Economic Reforms on the Health Care Sector in different socio-economic situations of the country and to suggest practicable measures for overcoming adverse effects, if any. This involved situation analysis of economic reforms and health sector in India with a particular focus on the experiences of sample of a developed state, a less developed and a medium developed state of the country.
2. Action intervention oriented towards equity in access and utilization of health care facilities with a purpose of exploring the possibility of beneficiary financing of health care services in rural areas. Based upon the action, to explore whether the strategy involved in this action can be replicated in other regions of selected states.

It would be useful to develop meaningful insights about the linkages between the reforms and different sub-sectors of the social sector if experiences of other countries undertaking reforms are also examined. In this background of international experience the experiences of India as a whole can be analyzed with macro level information. These analyses can be further supplemented by examining the experiences of different states of the country, for health happens to be a state subject according to the Indian Constitution. Since states have diverse background in terms of level and pace of socio-economic development and also the stages of economic reforms themselves, the state specific analyses should provide further insights about how the linkages between health sector and reforms operate.

Obviously, health sector has many aspects, which might be affected by the reforms. For example, provision, access and utilization of health care facilities, combination of preventive care, curative care and promotive care, the role of the profit sector and the government in the provision of health care facilities, geographical distribution of the facilities, rural-urban inequities in their distribution, pricing of different aspects of health care services, particularly the prices of drugs, composition of expenditures on infrastructure, manpower, research and development etc. in health care sector, unique features of this composition in the case of public provision and private provision, effects of international developments like WTO etc. on Indian health care sector, changes in the technology of provision of health care services during the reform, the role of health insurance in a country like India, community participation in health care financing, etc. are the crucial issues, which deserve a special focus in such a study of the effects of economic reforms. The present study undertaken by CMDR has tried to focus on some of the above issues.

The present study consists of *Sixteen Chapters*, which have been authored by different scholars. As a result, the depth of analyses, the style of presentation and the data mastered for the purpose of examining a selected issue, have all differed from chapter to chapter. However, after going through the entire study the scholars and policy makers would be in a position to form a judgment about how the economic reforms have been impinging upon health sector as a whole and different components of the health sector in India in particular.

In the following paragraphs major issues conclusions of respective chapters are briefly outlined.

All the 16 studies are grouped according to their focus. Thus Part I consists of studies with a macro focus on morbidity, health facilities and public efforts. Part II has a micro focus on the above issues using primarily the micro level data and information. Studies with macro and micro perspectives on Drugs and Pharma Sector, which is highly vulnerable during reforms, are grouped under Part III.

A Study of Economic Reforms and Health Sector : Some Lessons from International Experience covered the experiences of four countries where reforms were introduced with different degrees of intensity and at different points of time. Chile a Latin American country, which embarked on economic reforms as early as 1973, China and Srilanka, which implemented the new economic policies in late 70's and Russia having major changes introduced with effect from 1989, present a diverse picture about the effects of reforms on government health expenditures, privatization, liberalization in the health sector, employment and decentralization. Generally, while for Chile government health expenditures were adversely affected during the reforms for other three countries selected for the direction study such an effect was not clear. Generally, in all the countries with the entry of the private sector in the health care provision during economic reforms the medicare costs were found to be rising and the poor were feeling left out from access to medicare services. In all the countries economic reforms were associated with innovations in administration in terms of decentralization. The countries faced newer challenges both from economic reforms and decentralized administration and their implications for the health sector. On the whole, the study tried to bring home the point from the analysis of international experiences that a developing country like India needs to closely monitor the developments in different components of health sector during the reforms process.

The period of reforms witnesses a significant increase in the role of the external agencies in the health sector of many countries. In order to examine how this particular development has brought about changes in the health sector of India a specific study of the Impact of External Assistance in Health Sector with a Special Focus on a Less Developed State like Orissa was initiated. The study found out that the external agencies have invested particularly in creating health infrastructure in the state. However, the supplementary support for recruiting persons to manage the infrastructure so created was not adequately available from the external agencies. It was also noticed that the district level health authorities experienced reduced control over the resources when external agencies increased their involvement in the health sector. There is no clear picture about whether the increased involvement of the external sector has adversely affected the availability of the health care services in rural areas. The study also highlights the need for increased governmental involvement in provision of health care services particularly to ensure a better equity and geographic access. New initiatives also are felt necessary to promote partnerships with a variety of stakeholders, differential charging of health services, full cost recovery from beneficiaries etc. in the background of less effective role

of the external sector for comprehensive development of the health care services in the state.

An inter-state study about the Status of Health and Medical Care in India revealed that the reform process has distinctly brought changes in the growth of health man power and health infrastructure, which obviously are mutually linked. It is revealed from the study that the manpower growth is not responsive to the infrastructural growth causing an element of concern about the utilization of the infrastructure created during the reforms both with the national initiative and also through the assistance received from external agencies. The study showed that the public expenditure on health sector is inversely related to the rate of change in health infrastructure. The change in health delivery is directly related to levels of health manpower indicating that the development of health manpower plays a crucial role in health care delivery system. This macro study also dispelled the general contention that the central budgetary allocations to the health sector have reduced during the reforms process though the same cannot be said so far as the state budgetary allocations are concerned. The study highlights that during the reform there are signs of growing dependence of the health care sector on advanced technology on the flow of foreign capital, imports of drugs etc. There is a subtle concern expressed by the authors about this dependence from the point of view of promotion of indigenous players of the health care sector in the country. The National Health Policy of 2002 seems to have raised similar concerns. What is however required is a consistent follow-up of the developments and introduction of countervailing measures to protect the indigenous health care sector.

Another study having interstate perspectives about economic reforms and health sector focused specifically on Government Finances and Public Spending on Social Sector in general and health sector in particular during the reforms period. The econometric study of government expenditures on health sector in different states during the reform period showed that in the case of low-income states the reforms have caused the most adverse effect. There has been a structural shift in public social spending system during the reform period for all categories of states. There is also an interesting conclusion from the study that social services such as health and family welfare tend to gain (in terms of greater resources allocated to them) when the deficit constraint expands outwards meaning that with increased fiscal deficits government spending on health is likely to increase. The study also brings out that there is a possibility of exploiting substantial scale economics within the health sector if the government expenditures expand.

A study entitled “Changes in Health Care Infrastructure Manpower and Performance in Three States During Economic Reforms” attempted to analyze the changes in the public and private health care expenditures in the selected states of Maharashtra, a developed state, Karnataka, a medium developed state and Orissa, a less developed state during the reform period. The study for the three selected states brought out that during the reform period there is a declining trend in all these states so far as the health performance index based upon different indicators of health are concerned. Health manpower index for Maharashtra, and Karnataka has shown a declining trend while for Orissa it has increased. Health infrastructure index for Orissa and Maharashtra has

shown an increase whereas for Karnataka it has declined. These developments during the reform period provide a broad indication about where further inputs are necessary in the three categories of states.

Health Accounts is considered in recent years as a major tool for policy making with regard to allocation of the scarce resources of the economy to different sub-heads of health and medical care sector. Though the United Nations System of National Accounts (SNA 1993) has highlighted the importance of this tool the initiatives to develop health accounts for India are still in a nascent stage. Obviously, the exercise of developing health accounts requires very detailed data about the sources of funds, uses of funds, the nature of activities under the health care sector, with clear specification of the players in the sector etc. Since such data are not available particularly for the private health care sector an attempt was made under the present study to develop only public health accounts for three major states of Maharashtra, Karnataka and Orissa with a focus only on the flow of funds from budgetary sources. The study showed that after the 73rd and 74th amendments to the Constitution increasing quantum of sources of the health sector are flowing into the decentralized units of administration. As expected, salaries constitute a major share of total government expenditures in all the states. A less developed state like Orissa is spending larger proportion of public resources on MCH and FWP, prevention of diseases and curative care than in the case of the relatively better off states like Karnataka and Maharashtra.

During economic reforms significant changes seem to have been witnessed with regard to morbidity conditions and utilization of health care services across different states. Instead of macro level data about health performance indicators it would be insightful to study the micro level experiences at the level of households with regard to access and utilization of health care services and health care status of different population groups. An attempt was made to study the data of three rounds of NSS – 28th, 42nd & 52nd Rounds relating to 1961-62, 1986-87 and 1995-96. This information for about 35 years showed that while during 1961-62 to 1986-87 morbidity has showed a decline during 1986-87 to 1995-96 it has increased particularly in rural areas. There is a substantial increase in dependence on private sector for outpatient and inpatient care and particularly in the urban areas private sector has been growing very fast, faster than in rural areas. Though there is a relative decline in the use of government facilities during the past decade the poor in all the states and all the people in hilly states still depend largely upon the government facilities for both inpatient and outpatient care. There is a reduction in the level of subsidized health care, the problem of such publicly provided health care becoming more acute on account of scarcity of medicines and other facilities in public hospitals, relative non availability of health care services throughout the day and night in these hospitals, poor functioning of the primary health care centres, existence of large vacancies of both medical and support staff in the public health care institutions etc. The study also showed that child and aged morbidity is increasing particularly during the recent years of economic reforms in all the states, calling for greater attention particularly of the government to the health care needs of the children and the aged.

Under the present study a major field investigation consisting of household survey in three selected states of Maharashtra, Karnataka and Orissa was undertaken with a

purpose to understand the morbidity status, utilization and cost of treatment in recent years and assessment of respondents about the changes during the reform period. The study entitled Morbidity Status, Utilization and Cost of Treatment : A Comparative Study in the Selected States reports the results of a large scale primary survey conducted in three states. The survey covering 23,973 persons from these three states brought out interesting insights in this connection. Some of the results from this survey are consistent with those from the NSSO Rounds. Newer insights were also developed from the CMDR survey. The cost of hospitalization is found to be higher in a less developed state of Orissa than in a developed state of Maharashtra! In this state a large number of people were reported to have borrowed money to meet even the cost of outpatient services. The impact on medical expenditures on households is severe as the agricultural activities, purchase of household article, house construction etc are adversely affected. It was also found from the survey that communicable diseases are still dominant even during the recent period of economic reforms. This micro level study of large number of respondents highlights the need for continued governmental support for health care services particularly from the point of view of the vulnerable sections of the society.

More than the numbers derived from regular surveys of NSSO or ad hoc surveys as initiated under different research projects the voices of the people regarding the access and utilization of the health facilities in the public and private domain convey a more realistic and a clearer story. Focus group discussions in selected sites and states would therefore be very useful sources of information for understanding the status and the trends in health care facilities available to the people. A study entitled What Do the People Say about Health Care Facilities brought out interesting insights from the FGDs conducted in three states. The FGDs revealed that morbidity status has improved in both Orissa and Karnataka while it has worsened in Maharashtra during the recent period of economic reforms. According to the people's assessment availability of the health care facilities has improved substantially in Orissa and Maharashtra but moderately in Karnataka. Nutritional support improved in all the three states. Agriculture related health problems also seem to have gone up in all the three states. Even in a less developed state like Orissa people were in favour of developing a health care cooperative for meeting the health care needs by self-initiatives.

Economic Reforms in general highlight the increasing role for the private sector in economic activities. In the background of the detailed analyses of the role of the public sector in the health care delivery as reviewed in the earlier paragraphs a study of Privatization of Health Care in India : A comparative analyses of Orissa, Karnataka and Maharashtra States included in the volume assumes a special significance. In terms of provisioning of health care services Maharashtra has both a strong public and private presence, followed by Karnataka and then Orissa. The utilization of private services is higher in Maharashtra and Karnataka as compared to Orissa. The same conclusion holds good for the vulnerable groups of population as well. Such a pattern raises questions about equity in health care delivery and access. It also suggests that for the purpose of inter-regional and inter-population group equity strengthening of public provisioning, regulation of the private sector, public insurance schemes are necessary.

In this background, two studies were initiated – one to review the health insurance as a scheme for equitable provisioning of health care services and another to examine the participation of the community in provision and management of health care services in order to help a better access for the poor.

A review of the existing practices regarding health insurance in some of the other countries as well as in India showed that though it is a desirable mechanism to help the poor there are many questions about its feasibility and the entry of the private sector, external sector etc. in the Indian context. The limited information available from the NSS Rounds shows that health insurance has not taken firm roots in India particularly in the rural areas. Since insurance is considered to be a losing business the role of the government in strengthening this institution needs no over emphasis.

A study of People's Participation in Health : Prepayment Mechanism through Health Care Cooperatives examined the experiences of selected countries including some experiments in the Indian context with regard to people's participation in health care and proposed a concrete plan of people's involvement through health care cooperatives for a district in Karnataka. The thrust of the proposal was that any scheme of people's involvement should recognize the principle of cross subsidization of services and also differential pricing of the services. Under the project on Economic Reforms and Health Sector a number of attempts were made through focus group discussions to understand the workability of different schemes of people's participation in different villages of Karnataka. Finally the project implemented an action programme in a village called Morab in Dharwad district. The experiences of CMDR with regard to constituting a Primary Health Management Group (PHMG) in the village are documented in a brief paper on People's Participation in Health Care Delivery. This experiment brought out that people in the villages are willing to be organized for taking care of their own health care needs and they are also willing to pay for the health care services though through small contributions. What is necessary is that some leadership needs to take the initiative in mobilizing the people for the purpose. A system of monitoring the development of people's participation for at least a period of 4-5 years is necessary till the principles of cooperation and willingness to pay for the services are firmly ingrained in the minds of the people and community participation is sustained.

As reported in one of the studies under the present research project in the other countries also during economic reforms the modus operandi of health care delivery by the providers had undergone a change in the light of technological advancement and also in the background of increasing awareness of the consumers of medical care services about their rights. Such a change is expected particularly in the case of private medical practitioners. A quick study based upon a small sample of medical practitioners in one of the study states showed that smaller investments by the practitioners are preferred during the economic reforms. The medical practitioners have borrowed funds from the financial institutions largely for construction purposes or for the purchase of cars and very little financial assistance is taken for setting up of the clinics during the reform period. The

fees charged by the private medical practitioners are found to be much higher than those during the pre-reform period, the result, which is consistent with the results of other surveys and focus group discussions. Despite the small coverage of the private medical practitioners in the field investigation the results seem to be quite interesting for assessing the implications of reforms for the health sector at the micro level from providers' side.

Another major effect of reforms, which is likely to be felt relates to the Drug and Pharmaceutical industry having implications for the drug policy making in the country. Studies entitled Economic Reforms, WTO and Indian Drugs and Pharmaceuticals Industry : Implications of Emerging Trends and Economic Reforms and Drug Policy : A Micro Level Analysis revealed useful insights about how the reforms are impinging upon the drugs and pharmaceutical sectors in particular. It clearly brought out that the liberalization of the industrial, trade and price policies has started to affect the prices of medicines. The adoption of product patent by the end of 2004 as a part of the WTO's TRIPS agreement is likely to worsen the situation still further. Since India is a signatory of these agreements what is required is an expedient response to these developments to countervail the adverse implications. Some of the policy options consist of strengthening of R&D activity and new product development, exploiting the market potential of Indian system of medicines, consolidation of market position in the off the patent / generics markets, countervailing measures in connection with the threat of the foreign takeover, price controls for essential drugs, etc. A supplementary micro level study of individual drugs also emphasized the importance of countervailing measures for facing the challenges of liberalization. The study also showed that the rise in prices is mainly in respect of non-essential drugs. It sounds a word of alert that if suitable countervailing measures are not introduced the comparative advantage of drugs and pharmaceutical industries of the country established till about 1980s could be lost during the period of reforms particularly after the beginning of 2005.

On the whole, the number of studies completed under the project on Economic Reforms and Health Sector highlight that the economic reforms have sweeping implications for different aspects of the health care sector, such as, government's initiative, public private mix, for profit sector's growth in health care delivery, costs of health and medical care services, equity in access and utilization of services, growth of drugs and pharmaceuticals industry in India, development of the indigenous system of medicine, etc. By and large, the equity aspects of health care delivery seem to have worsened during reforms, with costs of services raising both in rural and urban areas of the country. Drugs and pharmaceutical industries are facing newer challenges under IPR regime necessitating restructuring of their investment priorities for newer drugs. The studies also highlight the need for increased governmental initiatives in health care delivery, innovative approaches for community participation through, say health care cooperatives, health insurance with people's involvement and similar innovative strategies in order to safeguard the interests of the poor in meeting their health care needs. They also suggest that at the same time the gains involved in liberalization and privatization in terms of orienting the entire sector towards performance at higher efficiency levels need to be exploited more fully.

Epilogue

Economic reforms consist of liberalization, privatization and globalization. They have had mixed results in different countries so far as the efficiency of performance of the entire economy and equity are concerned. Generally, they are found to help the countries, which have reached certain levels of economic development with fairly equitable geographical and inter-population group distribution of goods and services. They are also found to be more effective with regard to economic services rather than social services. Their effectiveness is also contingent upon for how long they are in force in a particular economy. Since the reforms have quick spread effects in a highly inter-dependent world, their effectiveness also depends upon how intimate and cordial are the socio-economic and political relations amongst the countries. This factor plays a particularly significant role because the liberalization and globalization are essentially negotiation driven among countries under the reform process. Such developments have therefore raised many question marks in the minds of analysts and policy makers about the economic reforms *per se*. A number of research studies conducted on the philosophy of reforms and the experiences of different countries with regard to the reform process have highlighted the subtleties of the philosophy of the reforms and their relevance in the contexts of different stages of development of the countries. They have also suggested that the reforms might not have uniformly favourable implications for all the sectors of the economy just as they would not have uniformly favourable implications for all the economies. It is in this background that the sectoral studies of the linkages between reforms and different aspects of the individual sectors of the economy would be pertinent.

The present study undertaken by CMDR tries to address to the question of what are the implications of reforms for the health sector in India. Since India consists of several regions of different levels and pace of development a study of economic reforms and health sector has to be based upon the experiences of different states. In order to develop a feel about the linkages between the reforms and the social sector in general and health sector in particular, a study of international experiences of the past was quite helpful. Insights from the study of international experiences cannot be straight away imported in the Indian context, for, India presents its own unique characteristic features. A macro study for India as a whole, studies based upon disaggregated state level information, micro studies based upon field level investigations, studies of the quantitative data and qualitative perceptions of the people about the implications of the latest developments consisting of new policy thrusts for access and utilization of health care services etc. were thus naturally all part of this inquiry about the economic reforms and health sector.

Unlike in the usual studies based upon library research the present study undertaken by CMDR consisted of an action component to field test the insights derived from the library based research, when these insights are actually translated in terms of concrete action initiatives. One such initiative for action research was to test whether community participation can act as a supplementary initiative in the background of expected declining and changing governmental role in health care delivery system. This action research had to examine whether people are prepared to organize themselves as a

supplementary institutional mechanism to the existing governmental and / or for profit private sector initiatives and whether they are prepared to take upon themselves the implications of such an alternative institutional mechanism, such as meeting the costs based upon different levels of willingness to pay among the beneficiaries, mobilizing the services of the health care providers at less than market rewards for services, reorganizing the indigenous health care system so as to suit the needs and conveniences of the people particularly the poor etc. The action research initiative brought home the point that a leadership induced mobilization of people's involvement can come into existence in the field of health care system, particularly curative care, and that such a system of community participation can sustain only if it is nurtured and its developments suitably monitored with occasional correctives for at least four to five years till the philosophy of self help gets ingrained in the minds of the people. The action experiment also revealed that people are not averse to pay for the health care services that they receive if these services match their needs. The willingness to pay of the people varies from one income group to another income group and also among different population groups. A suitable policy of user charges needs to keep in mind these variations. It was evident that community managed system of health care needs to be evolved through people's own initiatives and then it is likely to sustain in future and is likely to be more effective.

The study revealed that just as the responses of the people within the same region are not alike the responses of the people from different regions are definitely non-comparable. This was broadly brought out by the focus group discussions held in different villages and different states of the study regarding people's perceptions about the existing health care delivery system and about the innovations proposed to be implemented. From this point of view a perfectly replicable strategy of people's participation in health care delivery may be unrealistic. However, the insights developed from the study as outlined above should provide a useful guideline for both the governmental and the NGO interventions for meeting the needs of the poor.

An unequivocal conclusion emerging from the study covering the diverse aspects of the theme chosen is that the government should not think of reducing its involvement in health care sector nor should it allow unregulated play of market forces and private sector in the case of health. The study also suggests that in the course of liberalization and opening up of the economy under the new economic regime a watchful monitoring of the entry of external players in the health care sector is extremely necessary. In fact, a close study of experiences of other countries shows that each country, howsoever strong advocate of economic reforms it may be, has actually some inbuilt mechanism of developing its own indigenous system and controlling the entry of external players. In fact, through the negotiation table under the framework of WTO such assertions from the developed countries to safeguard their own self-interest have come to the notice of analysts. In the case of the health care sector the protection of the self-interest becomes a topmost priority, particularly in the background of the implications of IPR for our erstwhile well-developed drugs and pharmaceutical industry.

The present study on Economic Reforms and Health Sector in India has also brought home the point that such sectoral studies for the other sectors like education, environment, power, etc. in the context of different states in varying stages of reform process, would be necessary. One need not expect identical conclusions from the studies undertaken by different researchers with regard to the same sector. This only shows that there can be shades of views about the implications of the reforms for the sector under consideration. In the present study also we have not ironed out the differences in the views of the respective researchers studying different components of the reforms and their implications for different aspects of the health sector. We may conclude with an insightful remark in this connection by Dr. Rabindranath Tagore, "Life's line is not a straight line. It is a zigzag". And to supplement this observation we add, 'this zigzag appears differently to different people'.

C h a p t e r – 1

ECONOMIC REFORMS AND HEALTH SECTOR: SOME LESSONS FROM INTERNATIONAL EXPERIENCE

Puttaswamaiah S

1: Introduction

Several developing countries implemented economic reforms since 1970s to overcome economic problems generated due to external and internal factors and achieve economic growth. Exogenous economic factors like oil price shocks of early 1970s and extreme hike in world interest rate in the late 1970s adversely affected many of these economies. Meanwhile, majority of these countries were facing internal economic difficulties at both macro and micro level. Thus the external and internal economic problems resulted in low economic growth. In order to resolve these problems many developing countries adopted new economic policies based on neo-liberal principles. The advocacy and adoption of neo-liberal economic policies came contrasting against the policies followed earlier. After the Second World War most of the economies practised a development approach based on capital accumulation coupled with technical progress, through economic policies of inward-looking and promotion of import-substitution industries, and with increased government involvement in economic activities. In the 60s, the development approach changed towards promoting human resources to achieve economic growth. It was realised that promoting both inputs i.e. physical and human capital are indispensable for development. Growth oriented policies based on capital accumulation - with trade, import substitution as major instruments, and developing human resources – through social sectors like education, health, nutrition, etc. increased government's role in economic activities. Market failure in allocating resources efficiently and promoting overall development necessitated more public intervention in economic decision-making. Rapid economic growth achieved by socialist countries particularly after the Second World War also paved way for concentration of economic activities under government, as a result public intervention was seen in all spheres of economic activity.

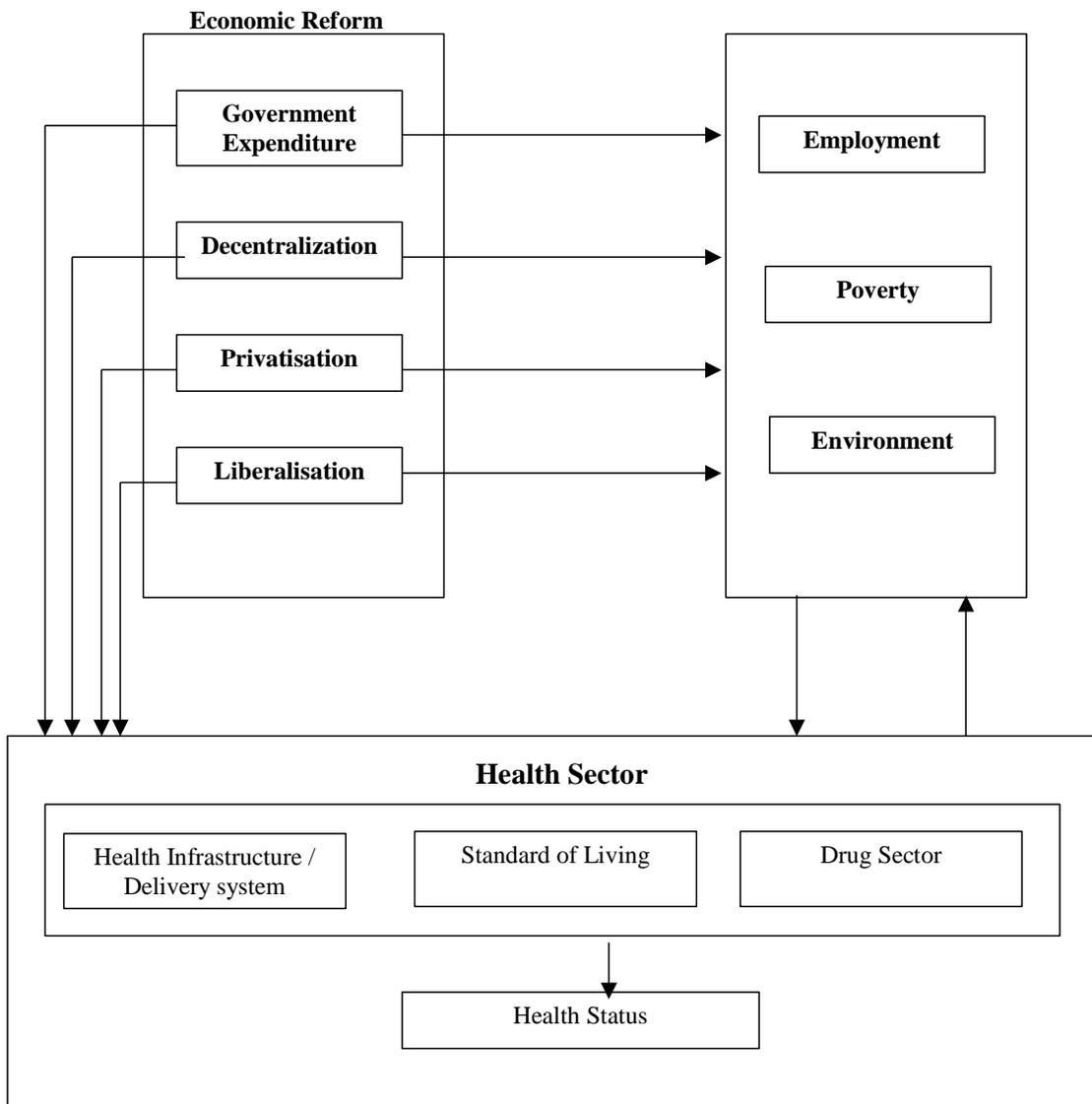
With the experience from the changed international economic scenario, since the 70s an opinion that more public intervention alone might not promote development started growing. Several countries implemented a variety of policy changes in their economies. The new policies based on neo-liberal principles included redefining government's role, privatisation, liberalisation, changes in monetary and fiscal policies, etc., to bring stabilisation and structural adjustment in the economy. These new economic policies of stabilisation and structural adjustment have been termed as economic reforms or structural adjustment programmes. Structural adjustment programme can be defined as “a process of market oriented reforms in policies and institutions, with the goals of restoring a sustainable balance of payments, reducing inflation, and creating conditions for sustainable growth in per capita income” (Corbo and Fisher 1995). It involves drastic policy changes to move towards marketisation and liberalisation away from public control and command policies of the governments.

Implementation of economic reforms brought several policy changes in the economic structure, which has its impact on all sectors of the economy. Here an attempt is made to study the impacts of economic reforms on health sector, an important component of social sector. Health sector, having wide links with other economic sectors (Figure 1), experienced drastic

financial and administrative structural changes. Experience of four countries namely Chile, China, Sri Lanka and Russian Federation is reviewed in the study.

The countries under study implemented new economic policies at different points of time. As early as in 1973 Chile, a Latin American country, embarked upon economic reforms with the onset of Augusto Pinochet’s rule. China and Sri Lanka implemented the new policies in late seventies. Russia experienced drastic policy changes from 1989 onwards with *perestroika* and *glasnost* policies. Many of these countries adopted the market oriented economic principles in the backdrop of severe external and internal economic problems faced prior to the new phase. Several measures were undertaken to remove problems of deficit in balance of payments, declining foreign capital flow, increasing fiscal deficit and rising inflation, etc., which had obstructed the economic growth of these countries. These policy measures although implemented at various points of time have made their impact on health sector also. A study of the effects of various reform measures like privatisation, liberalisation, decentralisation and others can provide guidelines to correct the policies towards implementing economic reforms with a human face. In the section to follow, various facts of the reforms process and their effects on the health sector are analysed for the four countries mentioned above. The last section draws some lessons that follow for India.

Figure 1: Linkages between Economic Reforms and Health Sector



2: Government Expenditure and Health Sector

Increasing government expenditure during 1970s is one of the important factors called for introducing economic reforms. Increased expenditure, which was met through deficit financing, had brought in high inflation and instability in many economies. For instance, Chile had a government deficit of 24.5 per cent of its GDP and hyperinflation of 900 per cent during 1975 (Sherman Website). With the advent of the reform process it was necessary to restore stability with reduced inflation. Several countries introduced measures to cut down government spending. This measure has its repercussions on all sectors of the economy including the social sector. Considering the fact that components of social sector are merit goods requiring continuous government support let us see the effect of economic reforms on government expenditure; total health expenditure, public and private health spending; and changes in the constituents of health financing in the selected countries (Box 1).

2.1: Government Expenditure

In the pre-reform period, all countries under consideration had huge government expenditure owing to their wide spread responsibilities. For instance, just before implementation of economic reforms the government of Chile was spending more than 41 per cent of its GDP in 1972 (World Bank 2000a), similarly government expenditure was about 31 per cent of GNP during 1978 in China (Jun Ma Website). Chile and China were under communistic principles before embarking upon economic reforms, where the government concentrated planning and financing in the economy. As a result government expenditure was high. Similarly Sri Lanka had a total expenditure of nearly 39 per cent of GDP in 1978 (World Bank 2000a). But after introducing reforms the share of government expenditure reduced drastically in all these countries. While Chinese government expenditure dropped to about 12 per cent of GNP in 1995, Chile and Sri Lankan governments, respectively had an expenditure of 21.5 and 25 per cent of GDP in 1998 (World Bank 2000a). The decline in government expenditure is the result of various factors along with expenditure curtailing measures. In the process of economic reforms financial structure of these countries changed drastically. For instance, China had introduced “*fiscal responsibility system*”¹, which established a fiscal contract between centre and provinces for revenue sharing through negotiations. But, in the new system revenue of the government declined. For instance, revenue-GNP ratio, which was over 31 per cent in 1978 dropped to 10.89 per cent in 1995 (Jun Ma Website). The financial structure in Russia was also altered which reduced the consolidated budget share of federals. In Chile, the Chicago Boys² advised President Pinochet to reduce government expenditure to the minimum level in order to restore stability in the economy.

Box1: Reforms and Government Expenditure

| Area of Change | Chile (since 1974) | China (since 1978) | Sri Lanka (since 1980) | Russia (since 1989) | Lessons for India |
|---|---|--|---|--|---|
| Government Total Expenditure | Declined | Declined | Declined | Declined | |
| Public Health Expenditure | Declined | No decline | No Decline | No Decline | Public expenditure on health needs to be maintained |
| Health Infrastructure (Hospital beds, health personnel) | Health infrastructure adversely affected; Health personnel increased | Health infrastructure improved; Health personnel improved | Health infrastructure not affected due to special measures; Health personnel marginally improved | Health infrastructure was adversely affected; Health personnel improved | Special efforts are required for developing health infrastructure |

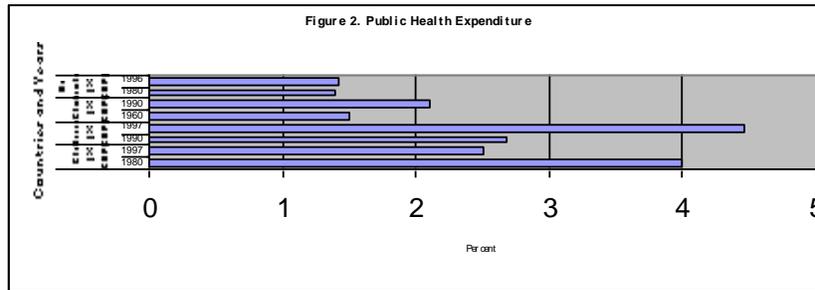
2.2: Social Expenditure

What is the impact of fiscal contraction on social sector in general and health sector in particular? In China, although the total government expenditure was reduced, social expenditure as a percentage to government's total expenditure did not decline. In fact, the Chinese government stepped up its expenditure on social sector from 11.6 per cent to 23.6 per cent (as total budget) between 1978 and 1995 (Jun Ma Website). This indicates that social expenditure as per cent to total government spending is not declined during reforms period in China. Similarly, governments of Chile and Sri Lanka seem to have increased their spending on social services³ (World Bank 2000b) at aggregate level. Social services expenditure constituted about 57.6 per cent of total expenditure during 1980 in Chile, which increased to 63.9 per cent during 1990 and further to 71.3 per cent during 1998. Sri Lankan government also pushed more funds to social services, which was 33 per cent of government expenditure in 1998, increasing from 24.3 per cent in 1980. All these indicators show that the government expenditure on social services as a whole has not declined in these countries during reform period.

2.3: Government Health Expenditure

Let us now examine the pattern of public health expenditure for Chile, Russia and Sri Lanka. The changed pattern of government expenditure during reforms did not reduce health spending in Russia, China and Sri Lanka, but it adversely affected the health spending in Chile. During the reform period Russian government raised its expenditure on health from 2.68 per cent to 4.48 per cent of GDP between 1990 and 1997, and in China public health spending increased to 2.1 per cent of GDP in 1990 from 1.3 per cent in 1960 (UNDP 1999), while Sri Lanka maintained a public health expenditure around 1.5 per cent of GNP (Table 1). On the Contrary, public health expenditure in Chile, as a percentage to GDP, declined continuously from 4 per cent in 1980 to 2.5 per cent in 1997 with a sharp fall to

1.96 per cent during 1990. As a result the social expenditure per capita on health in Chile reduced from 86.6 in 1974 to 63.6 in 1985 (1970=100, as quoted in Dreze and Sen 1989).



2.4: Shifts in Health Financial Structure

Reform measures changed the financial structure in majority of countries. Alteration in financial structure has its impact on health spending. In Russia adjustments of financial structure in terms of allowing federals to finance health sector adversely affected health spending at federal level. The consolidated budget share of federals declined from 20 per cent in 1990 to 12 per cent in 1994 (Rand Website). It is important to note here that in the changed environment health institutions were asked to generate revenue through user fee, which brought shifts in financial sources of health sector. Similarly, during the reform period financial source of health sector has shifted towards patient fees in China (Table 2). Local government expenditure has declined from 24 per cent of total health expenditure to 12 per cent between 1980 and 1992. Similarly the rural collective fund or co-operative medical care system that had covered about 90 per cent of villages in the pre-reform China, dropped to 5 per cent of villages in 1985, due to dismantlement of agricultural collectives (Xing-Yuan and Sheng-Lan 1999). An interesting point to note from Table 2 is the increase in the percentage share of labour insurance and also of patient fees. China introduced patient fee system in 1980 along with dismantlement of agricultural communes. As a result revenue from patient fees constituted about 37 per cent of the total health expenditure, which is almost equal to the contribution by labour insurance. This shift in financial sources reveals that for those who are not covered with any insurance scheme, medical care cost has increased particularly for peasants in the reform period (Xing-Yuan and Sheng-Lan 1999).

In summary, it can be stated that implementation of economic reforms has not reduced government health spending in countries under study, except Chile. The importance assigned to health sector was not diverted in these countries and even Chile implemented specially targeted welfare programmes.

3: Privatisation and Health Sector

Another major instrument of economic reforms is privatisation, oriented towards reducing the role of government and increasing market mechanism in economic activities. Privatisation aimed at curtailing the number of public sector units and allowing for more private sector participation in production activities, covering all sectors of economy i.e. agriculture, industry and social services. Introduction of privatisation has shown far-reaching impacts on health sector in all the countries under study (Box 2).

3.1: Restructuring of Health Delivery

Privatisation of production activities in China disrupted the primary health care system, particularly in rural areas. In China, rural health sector which was developed under agricultural communes, collapsed after the dismantlement of communes. Privatisation of agricultural activities reduced financial source to rural health sector and hence the cooperative medical care system collapsed as its coverage fell to 5 per cent of villages in 1985. Similarly, the well-served 'barefoot doctor' system grown under the cooperative medical system disappeared and paved way for new system called 'village doctor' through privatisation of rural health institutions since 1980. Under privatisation policy public health institutions were transferred to private sector, to generate revenue from health services delivered by changing user fee and drug costs. Doctors in public institutions were allowed to perform private practice to supplement their income. The Chinese government privatised village health clinics, which resulted in transferring of ownership of about 60 per cent of village clinics to village doctors or jointly to village doctors and village health aides by 1990 (quoted in Geyndt 1992).

Sri Lanka opted for a different route. In order to widen up health services, Sri Lankan government without privatising public health institutions allowed private sector to deliver health services, along with public sector, The Sri Lankan government is now proposing to introduce user fees to the non-poor people (Perera Website) to bring efficiency and proper utilization of health services.

The Pinochet government in Chile on the other hand, restructured the health sector on the basis of market principles since 1980s. The process of restructuring covered both institutional and financial aspects of health sector i.e. decentralisation and privatisation of health administration and finances. In order to manage health responsibility of people the government allowed both public and private sector.

Box 2: Effects of Privatisation on Health Sector

| Area of Privatisation | Chile | China | Sri Lanka | Russia | Lessons |
|------------------------------------|--|--|---------------------------------|---|---|
| Privatisation of production | Health seeking behaviour was | Cooperative rural health system | | | Government financial support is |
| Privatisation of health facilities | Increase in the number of private health care institutions; Affected the poor and unemployed severely | Enlarge in the number of private medical health care institutions; Adversely affected the poor due to increased prices | Increased the health facilities | Affected the poor and unemployed | Poor and unemployed should be protected |
| Introduction of User fee | Medicare cost increased; Adversely affected the poor | Medicare cost increased; Adversely affected the poor | | Financial strength of health sector adversely affected; Medicare cost increased affecting the poor severely | User fee needs to be regulated and downtrodden sections should be protected |
| Private Health Insurance | Widened health services; Poor, old and unemployed people left out due to the practice of skimming policies | | | | Measures should be taken to include all people in health insurance scheme |

3.2: Introduction of User Fee

Most of the governments have seen user fee as a source of revenue to health sector during reforms period. Particularly in China health services were charged to cover the cost of delivery owing to the increased medical care expenditure. This was partly possible due to rise in the income of people during the reform period (between 1980 and 1990 the national per capita income increased at 7.3 per cent per annum (quoted in Xing-Yuan 1999)). Income derived from user fees became one of the sources of financing for worker's bonuses, housing and retirement benefits (World Bank 1993), which indicates the growing importance of user fees in Chinese health financing.

Implementation of user fee has shown both positive and negative effects of privatisation and has changed the health seeking behaviour of people in China, Chile and also in Russia. User fee and privatisation of health services increased the choices and quality of health care services, particularly in Chile and China. Consumption of western medicines increased and people demanded for quality medical care in China during reforms. In Sri Lanka the private sector has assumed an important role in providing health care (Perera Website), though it is not developed in an organized manner (Fernando 2001). While majority of the outpatient care services are sought from private sector (Fernando 2001), most of the inpatient care is received at public hospitals. Government doctors too have been permitted to perform private practicing after their duty hours. In the changed scenario, private health sector has been enabled to undertake investments and also import necessary equipments. For instance, the Sri Lankan government has foreign investment and participation government has encouraged in health sector (Perera Website).

However, application of user fee for medical services has depicted more adverse effects than benefits in the countries under study. In Russia privatisation policies placed health care

system on market forces, but health care system which was dependent on State support for long could not manage in the market-based environment. This introduced financial problems to health sector. Introduction of privatisation and user fees and terming them as a source of revenue made the Russian federals to reduce health expenditure, which further deteriorated financial strength of health institutions. Privatisation and user fee have kept poor people away from health facilities as medical care costs have increased rapidly. Over the years the percentage of people required to pay for health services is rising. For instance, in China about 14 per cent of urban population and 93 per cent of rural population required paying for services (Xing-Yuan and Sheng-Lan 1999). In Russia publicly owned medical institutions are adopting commercial practices to resolve their financial problems which is affecting health services received by poor sections of the society.

3.3: Urban Bias and Insurance under Privatisation

An important outcome or message from privatisation is its urban bias. The process of privatisation has allowed for concentration of health facilities in urban areas thus depriving rural people of health services. For instance, in Sri Lanka privatisation has not helped establishment of private health facilities at rural area on a larger scale, as most of the facilities are situated in urban areas. At present, in private sector there are 85 hospitals with 2300 beds, 662 retail pharmacies and a few diagnostic laboratories and about 1000 general practitioners, most of which are located in urban areas (Parera Website).

The experience of Chile provides some important lessons with regard to implementing private health insurance companies. Chile introduced private health insurance by asking people to contribute 7 per cent of their monthly salary to meet health needs. Private insurance companies (ISAPREs⁴) in Chilean health sector, although increased health services, concentrated on people of high income and young age (e.g. more than 70 per cent of affiliates of ISAPREs are less than 40 years of age). The ISAPREs neglected poorer sections of the society by following skimming policy, leaving the sick and elderly to be cared by public health insurance i.e. FONASA⁵ (World Bank 1993). The ISAPREs curtail medical services to certain diseases, which restricts its affiliation with more number of people. Further, the services of ISAPREs are limited because of the condition that insurance purchasers need to pay regular premiums to avail full benefits. But, unemployment and decreased income of workers restricted them to avail more benefits. Hence, privatised health insurance system has helped the rich and regular income-earning people, while for working class it is not much beneficial as revealed by Chilean experience.

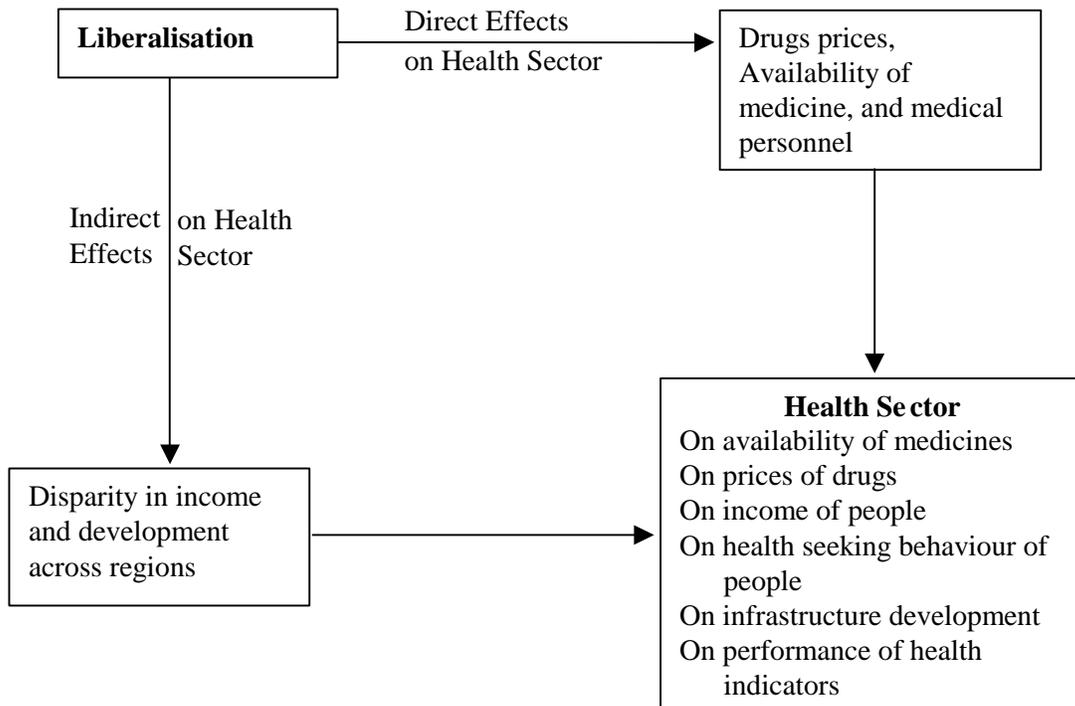
What are the major lessons from privatisation? In the new market environment, medical organisations that were supported by the government, faced financial strain and resorted to user fee and health insurance system. Introduction of user fee, practices of exclusion, skimming policies and conditions of regular payment for health insurance, etc., adversely affected the poor and kept them away from using health services. Secondly, in order to reduce the expenditure, health institutions provided simpler and cheaper treatment at the cost of quality. Thirdly, several developmental activities such as construction of new buildings and other basic investments were affected. Service charging simultaneously with reduction of budgetary support for medical organisations resulted in low technological development and cut in expensive services. This has raised the Medicare cost combined with poor quality service as observed in Russia, against a wise social policy. Fourthly, rural poor have not been able to meet the increased Medicare cost, and that too on serious diseases like tuberculosis as happened in China (World Bank 1993). Finally, the private sector is not spread to rural areas, which is not a healthy trend in catering health services to all. Eradication of these problems and maintaining health services to poor and

protecting them from severed economic conditions during the reform process requires public action.

4: Liberalisation and Health Sector

Liberalisation is a measure of economic reforms opening up economy for foreign trade and foreign investment. Freeing international trade and investment restrictions, adopting flexible exchange rate system, etc., allow easy flow of capital, goods and services and thus liberalisation can be used as an engine for economic growth. While promoting economic growth in countries under study, liberalisation has affected health sector directly and indirectly (Figure 3); and also both positively and negatively (Box 3). The direct effects of liberalisation are on drugs price, availability of foreign medicine in domestic market, and indirect effects include increased disparity in income and development across regions, influencing health sector.

Figure 3 – Liberalisation and Health Sector



| Box 3: Effects of Liberalisation on Health Sector | | | |
|---|---|--|--|
| Liberalisation policies | China | Russia | Lessons for Indian policy making |
| Trade liberalisation | Supply of foreign medicine increased; Consumption of western medicine increased; Prices of drugs increased | Medicine availability decreased; Prices of drugs increased. | Adequate supply of medicines should be ensured; Prices of drugs to be regulated |
| Liberalisation of investment policies leading to foreign investment | Regional disparity increased; Adversely affected health sector in poor regions in terms of infrastructure and affordability.' | Regional disparity increased; Reduced income adversely affected the health seeking behaviour of people | Policy measures to reduce regional disparity to be pursued; Health requirements of people in poor regions must be taken care of. |

In the liberalised market atmosphere in Russia, prices of pharmaceuticals and the cost of treatment increased. This compelled poor people to forgo or postpone medicine consumption, and health institutions adopting cheap medicines for treatment. But in China, opening up of market allowed for more influx of foreign medicines and consumption of western medicines also increased. Hence, the quantum of health services based on western medicine increased in China. Besides, mobility of health personnel increased resulting in migration of more health personnel from China (Zhou 2000).

The liberalisation policies have aggravated regional disparity and income distribution, which have direct effects on health. For instance, in China and Russia policies like creation of special economic zone, foreign trade corporations and encouraging investment in selected regions have increased economic growth of those particular regions, while other regions are deprived of these benefits. In Russia liberalisation policies seems to have helped regions that are endowed with more resources than resource scarce regions (Gimpelson Website).

The impact of disparity in regional development on health sector can clearly be seen in China. The first effect was in the form of budget allocation between the center and province. In the new revenue sharing system, allocation is decided on several criteria like growth of the region, special responsibilities attached to the province by the center and personal contact of the provincial leaders with the central government. These criteria restricted the negotiating power of poorer regions for budget allocation. Thus the new revenue sharing principles affected the financial source of poor regions, which in turn influenced government spending particularly on the social sector. The effect of disparity in regional income distribution and health spending can be seen in the relative position of the health infrastructure across regions in China. As can be seen in Table 3, the rich provinces report over supply of medical staff, while poor provinces are facing shortage of medical personnel.

The second impact is that increased income inequality among people and also across regions affected the health seeking behaviour of people due to variation in medicare costs. For instance, the health care cost varied widely across regions as shown in Table 4. As can be seen from the table, in poor provinces people spend more on medical items as percentage of non-food expenditures, while the rich spend relatively less. This indicates that along with disproportionate income distribution the health care cost is also more to poor people.

The disparity in spending on health differentiated the progress of health status across regions in China. As shown in Table 5 for the period between 1983-93 the disparity in health

outcomes- in terms of infant mortality and maternal mortality rates-has widened across regions. The mortality rate had declined at a faster rate in the wealthier provinces than in the poorer provinces, which indicates the positive effect of income on status of health.

5: Economic Reforms, Employment and Health Sector

Among the several factors employment and income have direct effects on health status of people (Box 4). Unemployment and low income may force people to postpone or not meeting certain health needs. Hence it is necessary to examine the effects of economic reforms on employment, and in turn on health. The process of economic reforms increased unemployment in Chile, China and Russia. For smooth conduct of free market policies many governments are adopting measures to reduce labour size, suspending rights of labourers like right to strike, collective bargaining and right to organise. Privatisation and simplifying labour laws have increased the vulnerability of labour class to unemployment. All these policies have adversely affected the labour class. Since employment determines income and in turn health, increased unemployment and decreased income alter the health seeking behaviour of people. For instance, in Chile economic policies like privatisation of public enterprises and government services resulted in increased unemployment, from 9.2 per cent in 1974 to 22.2 per cent in 1983 (Souther Website). It looks like in Chile unemployment is a deliberately maintained phenomenon, thinking that market forces would correct unemployment with increased competition for jobs and reduced wages. But with wages falling profits of businessmen increased, thus raising inequality in society. China too experienced unemployment increase during reforms period. Particularly rural labour force faced severe unemployment problem after privatisation of agricultural communes that had recruited rural labour force in several activities (Patnaik and Sriram 2000). In Russia also unemployment is increasing, particularly with the youths. In early 1995 a total of 10 million out of 75 million economically active people were unemployed or underemployed (Bonnell Website). Reduction in employment level has brought down the income of people. Majority of Chilean workers earned less during Pinochet’s reform period than what they earned before (huppi.com). In the process, living condition of workers got worsened. This indicates that the privatisation policies did not help in curbing unemployment problem rather aggravated.

Box 4: Employment and Health Sector During Reform Period

| Area of Change | Chile | China | Russia | Lessons |
|--------------------------|--|--|---|--|
| Unemployment | Increased | Rural unemployment increased | Increased | Employment increasing measures required |
| Effects on Health Sector | Adversely affected health seeking behaviour of people; Private health insurance did not support unemployed and low income people; Consumption level decreased and hence health status of people deteriorated | Rural-urban migration increased Migration related health problems increased | Adversely affected health-seeking behaviour of people; Increased health care cost adversely affected poor and low income people Consumption pattern changed towards low and cheap commodities | Health requirement of unemployed need and to be met Necessary to cover people of all categories of income under health insurance; Income generating activities need to be promoted |

Increased unemployment and decreased income adversely affected the health related aspects of people. For instance, China experienced rural-urban migration, associated with migration related health problems (Patnaik and Sriram 2001), while constrained income affected the health seeking behaviour of people in Chile and Russia. Further, under private insurance system, the insurance holder required paying regularly to the insurance company in order to derive full benefits, but unemployment and lower wages restricted the ability to pay of workers and proved disaster for them, as they could not pay regularly in Chile. Due to decrease in income diet practices of people changed towards low and cheap commodities in Russia, which affected the health status of people.

6: Economic Reforms, Poverty and Health Sector

The new economic policies seem to have increased poverty and income inequality in countries under study. During Pinochet period Chile experienced an increase in the extent of poverty (Figure 4). Between 1970 and 1989 the proportion of people below poverty line increased from 20 per cent to 26.3 per cent (Sherman Website). In Russia poverty is increasing ever since reforms are introduced, where 26.8 per cent of Russian population lived below poverty line in early 1994 (Klugman 1995). Another feature in Russia is feminisation of poverty since 1991. In the initial period of reforms, China experienced decline in the extent of poverty, but not in later stage. The percentage of poor dropped from 33 per cent in 1978 to 11 per cent in 1984, but then onwards it is hovering around 11 per cent (Jun Ma Website).

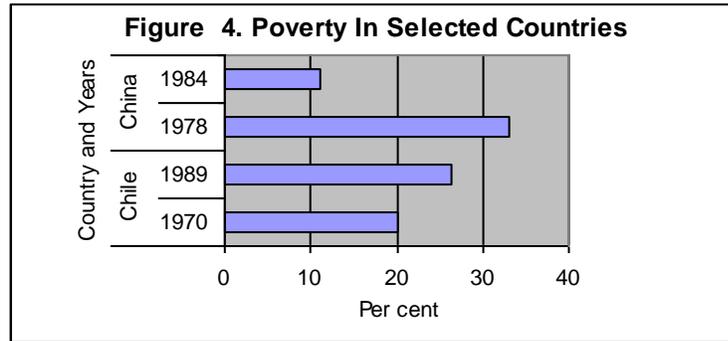
In Chile, the per capita income of people showed a very marginal increase even after 17 years of reform process, i.e. it increased from \$229 per capita GNP in 1973 to \$279 per capita GNP in 1989. Hence, the quality and quantity of diet went down particularly among the middle class people who consumed less than what they were consuming in 1960s or early 1970s. In addition, the disparity in income distribution increased. For instance, the richest 10 per cent of Chilean population increased their share of national income from 37 to 47 per cent between 1978 and 1988, where as the share of poorest population fell to 4 per cent from 5 per cent during the same period (Sherman Website). The disparity in income distribution affected the living standards of working class. Level of consumption, an indicator of standard of living fell for the poorest section of the society by 3.2 per cent in 1989 from 7.6 per cent in 1970, while that for the richest increased to 54.6 per cent in 1989 from 44.5 per cent in 1970 (huppi.com). Poor people experienced a fall in the daily diet from 2019 calories in 1970 to 1629 calories in 1990 (quoted in huppi.com). Further the percentage of people living without adequate housing increased from 27 per cent to 40 per cent between 1972 and 1988. The increased unemployment, unequal distribution of income and wealth etc., aggravated poverty, which is the product of neo-liberal policies pursued in Chile.

7: Experience of Co-operatives in Health Service Delivery

Globalisation with its wings of privatisation and liberalisation has increased the quality and quantity of medical care, but they also caused for increase in drug prices, medicare cost along with widening up the rural-urban inequality in terms of health care facilities. Increased medicare cost compounded with reduced income and poverty during reforms have forced the poor and rural people to either curtail or stop consulting health facilities for medical treatment. Further, the health insurance, which is developed as a financial security to meet health expenditure, failed to serve the health requirements of the poor and people with irregular income.

How did different countries deal with this emerging situation? In this context, the experience of China in implementing the co-operative medical care schemes gives some

important lessons. In China the co-operative medical care scheme was developed in association with the agricultural communes since 1950s. The co-operative medical care system provided basic health facilities to a large section of population particularly in rural China. For instance, towards mid 1970s over 90 per cent of villages were provided health services with co-operative medicare system. This co-operative medical care system in China was able to contain medicare cost with ensured optimal utilisation, equitable access and people's participation in health initiatives (Nayar 2000).



The co-operative system provided basic health care services for majority of rural people at a reasonable cost (Xing–Yuan and Sheng-Lan 1999). For instance, the annual outpatient visit per peasant was 3.7 in co-operative system, which is relatively higher than in other systems (Table 6). The annual medical cost per peasant was less than half of that in labour insurance and public services. Further, the table reveals that unmet inpatient care is much less in cooperative system compared to the people depending upon self-payment. However, this well served co-operative medical care system started disappearing with the collapse of agricultural communes after privatisation of agricultural activities during the reform period.

Recognising the significant contributions of the co-operative medical care scheme in providing basic health needs of rural areas, the Chinese government is encouraging to rebuild the rural health service delivery system on the basis of co-operative medical scheme or rural health insurance scheme (Xing–Yuan and Sheng–Lan 1999) by adjusting to the requirements of problems emerged after introduction of economic reforms (Hao et al 1998). The Chinese central government has extended full support to develop the cooperative medical care system in most of the rural areas. This move of the government is strengthened by the experience of the co-operatives survived even during the reforms period in certain parts of China. These co-operatives have illustrated that health care services could be provided to a larger section of population at *reasonable lower costs*. This fact was further proved by the co-operatives developed on experimental basis during 1994-96 in certain regions of China (Hao et al 1998). For instance, a co-operative medical care scheme implemented in Guangxi province demonstrated that the fees paid by the members for outpatient services in 1997 was lower than that paid in 1994. At village health station the outpatient fee was 17.2 Yuan during 1994 and it declined to 9.4 Yuan in 1997 to the members of the co-operative medical society. Meanwhile, for non-members it increased from 17.8 Yuan to 20.2 Yuan (Table 7). Further, utilisation of health facility was found to be more among members compared to non-members when they fall sick. For instance, while among the members 13.7 people per 100 people visited the service, it was 8.6 persons for 100 among non-members (Hao et al 1998). *This indicates that having membership with co-operative medical care scheme increases the accessibility to and utilisation of health delivery units.*

Rebuilding of co-operative medical care scheme along with health insurance to provide rural health services in China has again demonstrated that the system can deliver basic health

services with low cost and efficiency. Although, the rural people have benefited from the scheme, the participation of poor people is relatively low as observed at the experiment of co-operative at Guangxi. In this co-operative only 3 out of 32 low income households became members, even at a low premium (Hao et al 1998). Further, enjoining co-operative medical care with health insurance can keep away poor and low-income people from approaching health services (Nayar 2000). *These drawbacks call for government protection to poor people even in co-operative medical care system.* Since, the co-operative health system is more advantageous in terms of containing costs, increased access and utilisations, it enlarges the efficient health services in rural areas. Considering these positive benefits of co-operatives the Chinese government is promoting the co-operative medical care system by providing additional support. The Chinese experience of co-operative medical care system can be used as a model to develop basic health services especially in rural areas in order to provide increased and efficient utilisation at reduced costs, by averting some of the problems generated in health sector with economic reforms. But, in this system also the government support is required to involve poor peoples' participation, to secure enlarged and efficient health services.

8: Economic Reforms, Decentralisation and Health Sector

8.1: Decentralisation and Efficiency of Health Sector

In several countries under study economic reforms seem to have coincided with structural changes in institutions, for easy implementation. For instance, Chile and Russia adopted decentralisation system as a measure to reduce government's role and increase participation of local institutions in administration. The decentralisation system was also introduced in health care systems of Chile and Russia. The process of decentralisation has its own impacts on health sector as presented below and in Box 5.

Chilean government decentralised the municipalities by transferring the responsibilities of basic health and education services to municipalities. Transferring health responsibility to municipalities helped to achieve improvement as viewed by few health indicators like increase in number of clinics (from 142 in 1977 to 369 in 1988) and health post (a health unit under municipality, from 719 to 1034 between 1977 and 1988) in Chile. Under the supervision of municipalities medical consultation for children under 15 increased rapidly. During the reconstruction period Russia also adopted a decentralisation measure to restructure and improve health care system by shifting health financing and administration to federal government. Decentralisation of health finance to regional and local institutions was viewed as a measure to reduce pressure on national budget (Klugman et al Website). In order to increase efficiency, structure of health sector was altered establishing Territorial Medical Organisations (TMOs), and increasing the role of polyclinics. While TMOs play an important role in resource allocation, polyclinics are responsible to provide preventive, primary and secondary health care services. With this transfer of health responsibility to local institutions central governments aimed at controlling cost and increasing consumer choice of health needs.

Box 5: Effects of Decentralisation on Health Sector

| Chile | Russia | Lessons |
|---|--|---|
| Health sector responsibility transferred to municipalities | Polyclinics assumed more health responsibility | Local level institutions can be used for delivering health services |
| Due to lack of finance municipalities could not contribute significantly | Efficiency in terms of attending to patients at polyclinics increased | Financial position of local institutions need to be strengthened |
| Development of health infrastructure adversely affected | Hospital service was affected due to changed financial structure of health sector | Improvement of health infrastructure and service delivery required |
| People suffered due to improper treatment by health personnel | Health institutions adopted cheap and simpler health services due to financial problem | Supervision and management of local institutions is necessary |
| Patients were referred to higher hospitals for treatment without treating at municipality level | Number of referrals to higher institutions reduced | |

8.2: Decentralisation and Financing Health Care

Decentralisation affected the financial strength of health sector. The health sector in Chile was not well funded by central government; hence with decentralisation responsibility of supplying more funds to health sector fell on municipalities. Funds starved municipalities could not meet the increasing health expenditures. This adversely affected the health infrastructure, where under municipality administration in Chile, the number of doctors per 1000 population did not increase (0.43 and 0.42 per 1000 people in 1977 and 1988) and the health care system experienced decline in number of beds per thousand people from 3.4 to 2.6 in the above said period. In Russia the federal government curtailed funds to health sector quoting user fee as a source of revenue, which affected the financial strength of health sector. In order to reduce expenditure health institutions provided simpler and cheaper treatment. Several developmental activities such as construction of new buildings and other basic investments were stopped.

In the decentralised health system in Chile people are not happy with health services provided by municipalities, as they faced problems such as long waiting at clinics, improper treatment by doctors and non-medical staff, etc. In addition, municipalities reduced adult health care by concentrating more on children services. According to a study by the World Bank (1993) the municipal health services were not responsive to local needs as the members were appointed by central government and they did not give much importance to local demands. Moreover the municipalities over referred patients to hospitals funded by central government in order to reduce their own cost. In certain cases the municipalities prescribed high cost curative services to get more revenue as they can get reimbursed the amount spent. Transfer of health responsibilities to municipalities improved the health service system in terms of creating more clinics and catering to child health care. But shortage of financial resources limited the health services of municipalities.

In Russia also the decentralisation system has certain disadvantages, which can impede health service delivery system at polyclinics and hospitals levels. For instance, in the new financial structure the polyclinics require to reimburse the cost of patients referred to hospitals. In order to reduce the cost, polyclinics may not refer more cases to hospitals, which may sometimes have the needy patients. Further, the mechanism of hospitals getting reimbursed the expenditure from lower polyclinics has caused resentment among the medical personnel at hospital which might adversely affect services to the clients referred by polyclinics.

The above experience shows that in the decentralisation process organisational defects need to be removed along with devolution of powers and financial resources thus strengthening the local level institutions to meet the increasing demands. While formulating health programmes priority should be given to local health needs for delivering efficient health services.

9: Economic Reforms, Environment and Health

During the reform period practice of laissez-faire policy contributed to heavy environmental pollution which in turn affected the health status, as it happened in Chile. Absence of anti pollution laws, unregulated establishment and functioning of enterprises in the new market-based scenario polluted resources like water, land and air. As a result the number of people suffering with pollution related diseases increased drastically. Particularly, the capital city of Chile, Santiago is the worst hit area due to environmental pollution. In 1992 Santiago registered the fifth worst air pollution of any city in the world, with levels three to four times higher than the upper limits suggested by the WHO (quoted in huppi.com). Reduction in spending on sanitation projects, cuts in sanitary inspection and regulation increased unhygienic condition in public places led to the spread of the epidemics such as typhoid and hepatitis A. In addition unregulated discharge of effluents to the rivers by industrial establishments infected the irrigated crops with contaminated water. Consumption of this food increased the susceptibility of people for diseases (huppi.com). This experience suggests that approach to economic development should consider environmental factors also.

10: Economic Reforms and Performance of Health Sector

Health sector being an integral part of economic system influences economic activities both directly and indirectly. During economic reforms health system has changed to a larger extent in Chile, China, Sri Lanka and Russia. New economic policies of stabilization and structural adjustments introduced several alterations in financial and administrative structure of health system. Measures of bringing fiscal austerity did not impinge upon health spending of the governments studied, except Chile. Particularly Chinese and Russian governments increased their expenditure on health sector, even during reforms period, but Chile curtailed health expenditure. The policy shifts while improving the health system in few countries like China, and Sri Lanka in terms of quantity and quality of health services delivered, have adversely affected health delivery system in other countries like Chile. It is pertinent to note that under new policies of privatisation, liberalization, and decentralization the poor sections of the society suffered the most. In the liberalization era availability of different kinds of medicines increased with huge inflow of foreign medicine to domestic market, but at increased prices. In many countries, therefore, poor people either postponed seeking health needs or dropped half way through owing to high cost of medicine and treatment. New economic policies helped to restore economic stability and achieve economic growth, but in the process, these countries faced with increased poverty and unemployment problems, which directly affected the health status of people. In the presence of user fee, medical insurance, poverty and unemployment the health-seeking behaviour of people changed in many countries. The impacts have influenced the development of health sector, in

terms of performance of health infrastructure and health indicators. In this context a study of few relevant indicators in selected countries is attempted here.

10.1: Development of Health Infrastructure

Health infrastructure is very crucial in delivering health services. Development of health infrastructure depends upon various factors like finance, administrative policies, etc. The reform measures have altered both financial and administrative set up of health sector as observed earlier. Here an attempt is made to see the impact of reform measures on health infrastructure by selecting two indicators namely (i) number of beds per thousand people and (ii) number of physicians per thousand people.

The fact that government financial support has positive effect on the development of health infrastructure has been revealed from the experience of countries studied. Information presented in Table 8 on number of beds per thousand people illustrates that Chile, which curtailed budget assistance to health sector experienced decline in the number of beds per thousand people in the reform period. Chile had a strength of 3.77 beds per thousand people in 1970 which was reduced to 2.7 in 1996. In China, on the other hand beds per thousand people increased from 2 in 1980 to nearly 3 in 1998 owing to increased health expenditure; while Sri Lanka did not experience any changes in the number of beds as it maintained the expenditure throughout the reform period. All these facts clearly show that government financial support is essential to develop health infrastructure. But Russia depicts a different picture of decrease in number of beds against increased government health expenditure. This is because of huge infrastructure created already in the pre-reform period. Although Russia experienced reduction, still its capacity in terms of beds per thousand people is comparatively higher than in other countries as shown in Table 6.

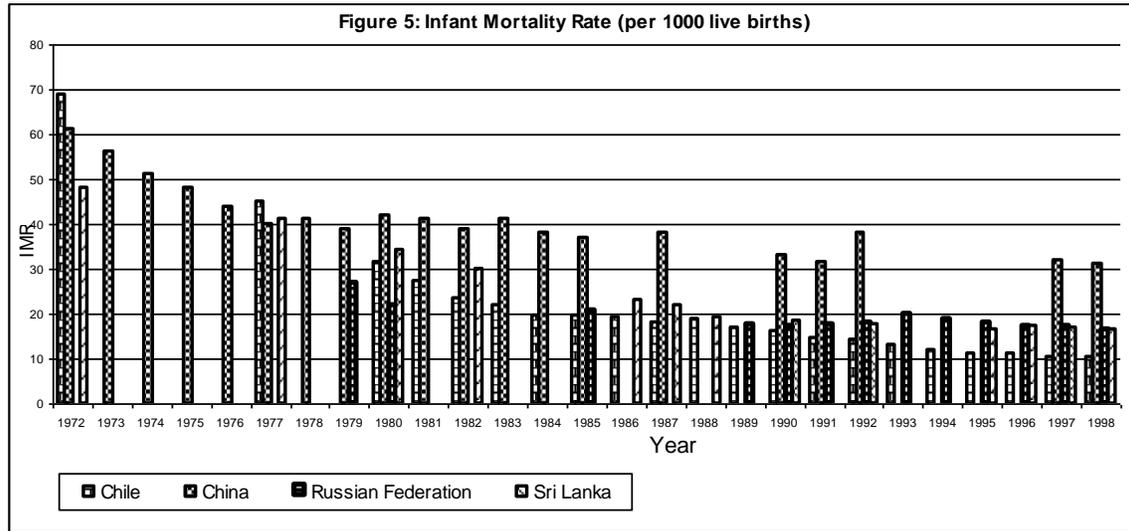
Meanwhile health personnel i.e. number of physicians per thousand people registered an increment during reforms period. As can be seen from Table 9, in China, the number of physicians increased significantly from 0.9 per thousand people in 1980 to 2 per thousand people in 1998. This might be due to the effects on health sector by privatization and liberalization policies, which increased the health demands with rising income of people. While in Chile and Sri Lanka the health personnel show a marginal increase, in Russia in the initial period of reforms the number of physician per thousand people declined, but in the later stage it is showing an increase. During 1997 Russia had a high capacity of health personnel of 4.62 physician per thousand people, which is relatively higher than in other countries. The overall experience shows that during reforms period health personnel increased in these countries.

10.2: Performance of Health Indicators

Let us now examine how these effects have influenced the health status of people. For this purpose three indicators viz., infant mortality rate (IMR), life expectancy at birth (total) and crude death rate (CDR) are considered.

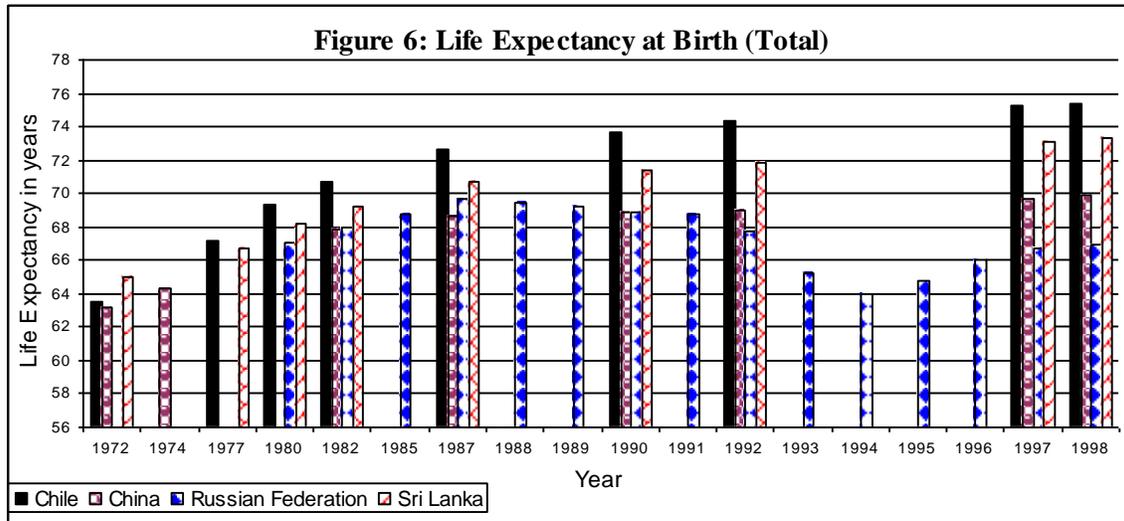
In the reform period infant mortality rate (IMR) has declined in all countries as shown in Figure 5 (details in Table 10). For instance, in Chile the infant mortality dropped from 69 per thousand live births in 1972 to 10.2 per thousand live births in 1998. Although, Chile saw drastic policy changes, which affected the health sector and health-seeking behaviour of people due to increased prices, poverty and reduced income, the infant mortality rate declined drastically. This is because of specially targeted programmes launched by the government to reduce infant mortality rate (Dreze and Sen 1989). Similarly Sri Lanka has experienced fall in infant

mortality rate from 41 to 16.4 between 1977 and 1998 again owing to government health programmes.

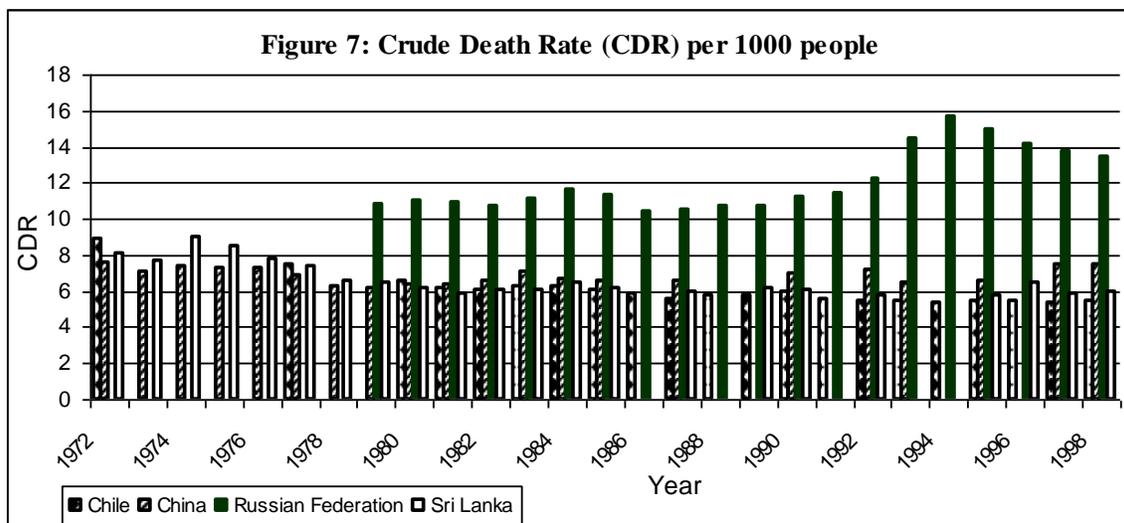


Though experiencing decline in infant mortality China and Russia show a different picture than other countries. While the infant mortality rate declined, from 42 per thousand live births in 1980 to 31 in 1998, in 1990 the IMR experienced stagnation around 32 per thousand live births in China. In Russia the infant mortality rate shows a mixed trend, i.e., in the initial period of reforms IMR increased (to nearly 20 per thousand live births in 1993) and towards end of 1990s showed a decreasing trend. But the over all performance of IMR seems to have not changed during the reform period. A cross country comparison indicates that Sri Lanka and Chile have performed well in bringing down the infant mortality rate due to the health programmes implemented by these governments. This experience suggests that public health programmes are necessary in reducing the infant mortality rate.

Information presented on life expectancy at birth in Figure 6 (details in Table 11) reveals that during the reform period Chile and Sri Lanka observed an increase in life expectancy. During 1977 both Chile and Sri Lanka had a life expectancy at birth of around 67 years. The concerted efforts by governments increased the life expectancy at birth to 75.36 years in Chile and to 73.28 years in Sri Lanka during 1998. While China experienced a marginal increase in life expectancy at birth, the same in Russia declined from 69 years in 1989 to 66.9 years in 1998. The effects of reform like reduced income and consumption; increased prices of medicine; along with reduced government programmes severely affected the health status of people in Russia, which has perhaps pushed down the life expectancy.



Mortality in terms of crude death rate per thousand people in the selected countries is shown in Figure 7 (for details Table 12). Decline in crude death rate is not affected during reforms. Chile and Sri Lanka recorded a crude death rate per thousand people at 5.46 and 6, respectively in the year 1998, which declined from around 7.5 in 1977 in both the countries. But after introduction of reforms, crude death rate in Russia deteriorated with its increase from 10.7 per thousand people in 1988 to 13.5 in 1995 with a peak of 15.7 people during 1994. This increase in death rate might be due to the changed scenario in standard of living, medicines availability, affordability, etc., which have direct effects on health status of people. The crude death rate per thousand people shows a mixed picture in China during the reform period. China had already achieved a crude death rate of 6.25 per thousand people in 1978 and this rate did not change much till 1987, but after 1987 it is on an increasing trend. During 1998, China had a crude death rate of 7.52 people per thousand, which is much higher than that at the beginning of reforms in China.



11: Lessons for India

Economic reforms have been implemented by many economies to overcome the difficulties and to achieve economic growth with stability. In the changed circumstances of world economic environment, implementation of stability and structural adjustment measures was inevitable. These policy measures have brought far-reaching impacts on those economies. The role of government is reduced, private sector is given more importance, and economy is opened for foreign competition in production activities, all of which ushered economic growth in few countries. In many of such countries policy measures also covered the health sector both directly and indirectly. The analysis presented in this study has some important lessons to be noted while practicing new economic policies. Some important lessons are listed below.

1. In their attempt to minimize the role of government several countries did not necessarily reduce expenditure on health sector drastically. Hence, health infrastructure, and performance of health status sustained or improved. Chile though deferred from the above paradigm, adhered to implement specially targeted welfare programmes. These findings indicate the feasibility of governments continuing its financial support to health sector.
2. It is generally observed that the role of the government is indispensable to protect poor sections of the society from the effects of economic reforms.
3. While privatisation enlarges health services and improves quality of services, it keeps away the poor from health system. Hence, it is necessary to ensure sustained health services to poor people, by introducing carefully designed programmes.
4. In this context better-administrated health care co-operatives or insurance schemes can be some alternates. The experiments from Karnataka and also the recent decision of the Karnataka Government to invite NGOs in a big way to join the government in the management of primary health centres in rural areas are in line with the National Health Policy - 2002, and the experience at the global level.
5. Participation of private sector in delivering health needs should also increase rural health institutions, instead of concentrating in urban areas alone.
6. Privatisation, while increasing the per capita income in few countries, changed the health seeking behaviour of people, which increased the cost. This process affected poor and unemployed people severely in terms of seeking their health needs. So, it is necessary to safeguard the health requirements of poor and unemployed.
7. Introduction of user fee increases the cost of medical care and medicines, which constrains the poor people from seeking health needs. This requires regulation of user fee and providing health services at lower costs to poor people. In this case, differential user fee may be an alternative.
8. Health insurance helps in widening health services and providing financial security. But, practices of skimming and concentrating on few segments of the society, deprives health care needs of large number of people. Therefore, it is essential to design health insurance to cover all section of people.
9. Liberalization process improved the economic growth but with increased disparity in regional development. Since inequality in development across regions affects health sector, economic reform measures should also aim at reducing regional disparity.
10. While liberalization increases drug availability, it can also cause rise in prices, as happened in few countries and hence drug prices need to be regulated.
11. Decentralization of health sector increased the health service delivery system. But local institutions need to be strengthened financially. Besides, planning of health programmes should be developed considering local needs of people for efficient services.

12. Since environment has direct effects on health status of people, implementation of environment regulatory measures is necessary while allowing private and market-based forces in the economy.
13. Considering the advantages on the economy in general and health sector in particular; by minimizing the disadvantages and protecting the poor with a human face, and proper involvement of government, new economic policies can be used for economic growth and for social welfare.

| Year | Russia (% of GDP) | | Chile (% of GDP) | Sri Lanka (% of GNP) |
|------|---------------------------|--------------------------|---------------------------|---------------------------|
| | Public Health Expenditure | Total Health Expenditure | Public Health Expenditure | Public Health Expenditure |
| 1960 | .. | .. | .. | 2.2 |
| 1965 | .. | .. | .. | 2.1 |
| 1970 | .. | .. | .. | 2.1 |
| 1972 | .. | .. | .. | .. |
| 1974 | .. | .. | .. | 1.3 |
| 1976 | .. | .. | .. | 1.6 |
| 1978 | .. | .. | .. | 1.5 |
| 1980 | .. | .. | 4 | 1.4 |
| 1981 | .. | .. | .. | 1.2 |
| 1982 | .. | .. | .. | 1.3 |
| 1983 | .. | .. | 3.3 | .. |
| 1984 | .. | .. | .. | .. |
| 1985 | .. | .. | .. | .. |
| 1986 | .. | .. | .. | .. |
| 1987 | .. | .. | 2.6 | 2.1 |
| 1988 | .. | .. | .. | 2.3 |
| 1989 | .. | .. | .. | 1.6 |
| 1990 | 2.68 | 3 | 1.96 | 1.54 |
| 1991 | 2.41 | 2.6 | 2.15 | 1.41 |
| 1992 | 2.48 | 2.61 | 2.3 | 1.59 |
| 1993 | 3.32 | 3.52 | 2.46 | 1.64 |
| 1994 | 5.16 | 5.82 | 2.55 | 1.55 |
| 1995 | 4.47 | 5.71 | 2.36 | 1.36 |
| 1996 | 4.21 | .. | 2.53 | 1.42 |
| 1997 | 4.48 | .. | 2.5 | .. |

Source: World Bank, World Development Report (Various Issues)

| Year | Current Prices | | | 1987 Prices | | | Percentage | |
|-------------------------|----------------|---------|----------------|-------------|---------|----------------|------------|---------|
| | Public | Private | National Total | Public | Private | National Total | Public | Private |
| 1983 | 10686 | 7153 | 17839 | 8271 | 5536 | 13807 | 59.9 | 40.1 |
| 1984 | 12248 | 8591 | 20839 | 9970 | 6993 | 16963 | 58.8 | 41.2 |
| 1985 | 14309 | 8867 | 23176 | 12921 | 8007 | 20928 | 61.7 | 38.3 |
| 1986 | 18116 | 9612 | 27728 | 17138 | 9093 | 26231 | 65.3 | 34.7 |
| 1987 | 20844 | 12789 | 33633 | 20844 | 12789 | 33633 | 62 | 38 |
| 1988 | 26556 | 16716 | 43272 | 23711 | 14925 | 38636 | 61.4 | 38.6 |
| 1989 | 30886 | 20422 | 51308 | 25111 | 16603 | 41714 | 60.2 | 39.8 |
| 1990 | 35814 | 23798 | 59612 | 27132 | 18029 | 45161 | 60.1 | 39.9 |
| 1991 | 41047 | 30435 | 71482 | 29173 | 21631 | 50804 | 57.4 | 42.6 |
| 1992 | 48690 | 35850 | 84540 | 33077 | 24355 | 57432 | 57.6 | 42.4 |
| 1993 | 52076 | 37801 | 89877 | 36673 | 26620 | 63293 | 57.9 | 42.1 |
| Average | 28297 | 19276 | 47573 | 22184 | 14962 | 37146 | 60 | 39.8 |
| Source: Hossain Website | | | | | | | | |

| Province by quintile of per capita income | Relative Personnel Ratio (RPR) | | | | |
|---|--------------------------------|---------------|--------------|-------|---------|
| | Doctor | Special Nurse | Asst. Doctor | Nurse | Midwife |
| I | 0.81 | 0.77 | 0.82 | 0.67 | 0.74 |
| II | 0.94 | 0.95 | 1.07 | 0.9 | 0.61 |
| III | 1.34 | 1.23 | 1.34 | 1.26 | 1.05 |
| IV | 0.86 | 1.15 | 1.24 | 1.16 | 1.4 |
| V | 1.9 | 2.38 | 1.76 | 2.48 | 1.33 |

RPR= (provincial staff/Provincial Population)/(National Staff/National Population)

RPR exceeding one indicates oversupply and less than one indicates undersupply of medical personnel

Source: Hossain Website

Table 4: China: Affordability: Per Capita Household Expenditure on Medical and Health Care, 1992 (As percentage of Non-food per capita expenditure)

| | Quintiles of household per capita income | | | | | Expenditure Elasticity |
|---------------------|--|------|------|------|------|------------------------|
| | I | II | III | IV | V | |
| Instrument | 0.04 | 0.04 | 0.31 | 0.41 | 0.44 | 0.85 |
| Primary Health Care | 0.96 | 0.11 | 0.12 | 0.14 | 0.13 | 1.45 |
| Drugs | 5.65 | 4.23 | 4.08 | 3.68 | 2.91 | 8.11 |
| Herbal Medicine | 0.47 | 0.42 | 0.44 | 0.45 | 0.5 | 6.63 |
| Service charges | 2.05 | 0.92 | 0.62 | 0.76 | 0.6 | 1.15 |
| Others | 0.11 | 0.08 | 0.09 | 0.1 | 1.05 | 0.94 |
| Total | 9.28 | 5.81 | 5.66 | 5.54 | 5.63 | |

Source: Hossain Website

Table 5: China: Percent Change in Health Indicators by Provinces, 1983-93 (Provinces ranked by per capita income)

| Quintile of Province | Percent change | | | | |
|----------------------|-----------------------|-------------------------|-------------|------------|------------|
| | Infant Mortality Rate | Maternal Mortality Rate | Coverage of | | |
| | | | DPT3 | Sanitation | Safe Water |
| Poorest I | -4.1 | -4.3 | 68.8 | 58.6 | 89.1 |
| II | -21.8 | -4.4 | 58.9 | 85.4 | 90.2 |
| III | -20.3 | -10.7 | 50.2 | 77.4 | 59.9 |
| IV | -30.1 | -17.3 | 67.1 | 77.3 | 73.1 |
| Richest V | -32.5 | -18.3 | 57.3 | 38.2 | 35.4 |

Source: Hossain Website

Table 6 : Comparison of Rural Health Financing System in China

| | Self Payment | Co-operative | Labour Insurance, Public service |
|-------------------------------------|--------------|--------------|----------------------------------|
| Annual outpatient visit per peasant | 3.1 | 3.7 | 3.6 |
| Unmet outpatient care (%) | 20.1 | 10.7 | 16.6 |
| Annual admission rate (%) | 2.7 | 3.7 | 5.4 |
| Unmet inpatient care (%) | 20.5 | 10.3 | 3.1 |
| Annual medical cost per peasant | 14.5 | 15.8 | 37.2 |

Source: Xing – Yuan and Sheng - Lan (1999)

| | 1994 | | 1997 | |
|------------------------|---------|-------------|---------|-------------|
| | members | non-members | members | non-members |
| Village health station | 17.2 | 17.8 | 9.4 | 20.2 |
| Township health centre | 7.9 | 14.6 | 21.3 | 14.6 |
| Total | 16.9 | 15.7 | 10.1 | 14.3 |

Source: Hao et al (1998)

| Year | Chile | China | Russian Federation | Sri Lanka |
|------|-------|-------|--------------------|-----------|
| 1960 | 3.67 | .. | .. | 3.14 |
| 1961 | .. | .. | .. | .. |
| 1962 | .. | .. | .. | .. |
| 1963 | .. | .. | .. | .. |
| 1964 | .. | .. | .. | .. |
| 1965 | .. | 1.11 | .. | .. |
| 1966 | .. | 1.11 | .. | .. |
| 1967 | .. | .. | .. | .. |
| 1968 | .. | .. | .. | .. |
| 1969 | .. | .. | .. | .. |
| 1970 | 3.78 | .. | 11.27 | 3.02 |
| 1971 | .. | .. | .. | .. |
| 1972 | .. | .. | .. | .. |
| 1973 | .. | .. | .. | .. |
| 1974 | .. | 1.67 | .. | .. |
| 1975 | .. | 1.67 | 12.29 | 3.33 |
| 1976 | .. | 1.67 | .. | .. |
| 1977 | .. | .. | .. | .. |
| 1978 | .. | .. | .. | .. |
| 1979 | .. | .. | 12.83 | .. |
| 1980 | 3.41 | 2 | 12.96 | 2.94 |
| 1981 | .. | 2 | 13.08 | 2.94 |
| 1982 | .. | 2 | 13.21 | .. |
| 1983 | .. | 1.99 | .. | .. |
| 1984 | .. | 1.99 | 13.41 | .. |
| 1985 | .. | 1.98 | 13.47 | .. |
| 1986 | .. | 1.98 | 13.54 | .. |
| 1987 | .. | .. | 13.63 | .. |
| 1988 | .. | .. | 13.72 | .. |
| 1989 | 3.18 | .. | 13.86 | 2.4 |
| 1990 | 3.2 | 2.3 | 13 | 2.7 |
| 1991 | .. | 2.3 | 12.7 | .. |
| 1992 | .. | 2.3 | 12.2 | .. |
| 1993 | 3.1 | 2.4 | 12 | .. |
| 1994 | .. | 2.8 | 11.8 | .. |
| 1995 | .. | 2.8 | 11.7 | .. |
| 1996 | 2.7 | 2.9 | .. | .. |
| 1997 | .. | 2.9 | 12.1 | .. |
| 1998 | .. | 2.9 | .. | .. |

Source: World Bank (2000a)

Table 9: Physicians (per 1,000 people)

| Year | Chile | China | Russian Federation | Sri Lanka |
|------|-------|-------|--------------------|-----------|
| 1960 | 0.56 | .. | .. | 0.22 |
| 1961 | .. | .. | .. | .. |
| 1962 | .. | .. | .. | .. |
| 1963 | .. | .. | .. | .. |
| 1964 | .. | .. | .. | .. |
| 1965 | 0.47 | 0.63 | .. | 0.17 |
| 1966 | .. | 0.59 | .. | .. |
| 1967 | .. | .. | .. | .. |
| 1968 | .. | .. | .. | .. |
| 1969 | .. | .. | .. | .. |
| 1970 | 0.46 | .. | 2.9 | 0.17 |
| 1971 | .. | .. | .. | .. |
| 1972 | .. | .. | .. | .. |
| 1973 | .. | .. | .. | .. |
| 1974 | .. | 0.67 | .. | .. |
| 1975 | .. | 0.71 | 3.49 | 0.17 |
| 1976 | .. | 0.77 | .. | .. |
| 1977 | .. | .. | .. | .. |
| 1978 | .. | .. | .. | .. |
| 1979 | 0.52 | .. | 3.92 | .. |
| 1980 | .. | 0.91 | 4.03 | 0.14 |
| 1981 | .. | .. | 4.14 | 0.13 |
| 1982 | .. | 1 | 4.26 | 0.13 |
| 1983 | .. | 1 | .. | .. |
| 1984 | 0.82 | 0.99 | 4.42 | .. |
| 1985 | .. | 0.99 | 4.5 | 0.18 |
| 1986 | .. | 0.99 | .. | 0.14 |
| 1987 | .. | .. | 4.65 | .. |
| 1988 | .. | .. | 4.69 | .. |
| 1989 | .. | .. | 4.72 | 0.15 |
| 1990 | 1.1 | 1.54 | 4.06 | .. |
| 1991 | 1.07 | 1.54 | 4.04 | .. |
| 1992 | .. | 1.54 | 3.86 | .. |
| 1993 | .. | 1.55 | 3.89 | 0.15 |
| 1994 | .. | 1.88 | 3.77 | 0.23 |
| 1995 | 1.08 | 1.92 | 3.8 | .. |
| 1996 | .. | 1.94 | .. | .. |
| 1997 | .. | 1.99 | 4.62 | .. |
| 1998 | .. | 2 | .. | .. |

Source: World Bank (2000a)

| Table 10: Infant Mortality Rate (per 1,000 live births) | | | | |
|---|-------|-------|--------------------|-----------|
| Year | Chile | China | Russian Federation | Sri Lanka |
| 1960 | 112.6 | 132 | .. | 69.4 |
| 1961 | .. | 236 | .. | .. |
| 1962 | 109 | 88 | .. | 65 |
| 1963 | .. | 96 | .. | .. |
| 1964 | .. | 96 | .. | .. |
| 1965 | .. | 90 | .. | .. |
| 1966 | .. | 84 | .. | .. |
| 1967 | 89 | 81 | .. | 61 |
| 1968 | .. | 77 | .. | .. |
| 1969 | .. | 73 | .. | .. |
| 1970 | 77 | 69 | .. | 53.2 |
| 1971 | .. | 66 | .. | .. |
| 1972 | 69 | 61 | .. | 48 |
| 1973 | .. | 56 | .. | .. |
| 1974 | .. | 51 | .. | .. |
| 1975 | .. | 48 | .. | .. |
| 1976 | .. | 44 | .. | .. |
| 1977 | 45 | 40 | .. | 41 |
| 1978 | .. | 41 | .. | .. |
| 1979 | .. | 39 | 27.1 | .. |
| 1980 | 31.6 | 42 | 22.1 | 34.4 |
| 1981 | 27.2 | 41 | .. | .. |
| 1982 | 23.6 | 39 | .. | 30 |
| 1983 | 21.9 | 41 | .. | .. |
| 1984 | 19.6 | 38 | .. | .. |
| 1985 | 19.5 | 37 | 20.7 | .. |
| 1986 | 19.1 | .. | .. | 23 |
| 1987 | 18 | 38 | .. | 22 |
| 1988 | 18.9 | .. | .. | 19.4 |
| 1989 | 17.1 | .. | 17.8 | .. |
| 1990 | 16 | 33 | 17.4 | 18.5 |
| 1991 | 14.6 | 31 | 17.8 | .. |
| 1992 | 14.3 | 38 | 18 | 17.6 |
| 1993 | 13.1 | .. | 19.9 | .. |
| 1994 | 12 | .. | 18.7 | .. |
| 1995 | 11.1 | .. | 18.1 | 16.5 |
| 1996 | 11.1 | .. | 17.4 | 17.3 |
| 1997 | 10.5 | 32 | 17.2 | 17 |
| 1998 | 10.2 | 31 | 16.5 | 16.4 |

Source: World Bank (2000a)

| Year | Chile | China | Russian Federation | Sri Lanka |
|------|-------|-------|--------------------|-----------|
| 1960 | 57.3 | 36.32 | .. | 62.31 |
| 1961 | .. | 40.52 | .. | .. |
| 1962 | 58.03 | 54.09 | .. | 63.5 |
| 1963 | .. | 50.17 | .. | .. |
| 1964 | .. | .. | .. | .. |
| 1965 | .. | .. | .. | .. |
| 1966 | .. | .. | .. | .. |
| 1967 | 60.65 | 59.58 | .. | 64.23 |
| 1968 | .. | .. | .. | .. |
| 1969 | .. | .. | .. | .. |
| 1970 | 62.4 | 61.74 | .. | 64.68 |
| 1971 | .. | .. | .. | .. |
| 1972 | 63.57 | 63.18 | .. | 64.98 |
| 1973 | .. | .. | .. | .. |
| 1974 | .. | 64.33 | .. | .. |
| 1975 | .. | .. | .. | .. |
| 1976 | .. | .. | .. | .. |
| 1977 | 67.17 | .. | .. | 66.71 |
| 1978 | .. | .. | .. | .. |
| 1979 | .. | .. | .. | .. |
| 1980 | 69.3 | .. | 67.11 | 68.2 |
| 1981 | .. | .. | .. | .. |
| 1982 | 70.72 | 67.82 | 68.02 | 69.2 |
| 1983 | .. | .. | .. | .. |
| 1984 | .. | .. | .. | .. |
| 1985 | .. | .. | 68.78 | .. |
| 1986 | .. | .. | .. | .. |
| 1987 | 72.67 | 68.67 | 69.68 | 70.7 |
| 1988 | .. | .. | 69.48 | .. |
| 1989 | .. | .. | 69.28 | .. |
| 1990 | 73.7 | 68.87 | 68.92 | 71.42 |
| 1991 | .. | .. | 68.77 | .. |
| 1992 | 74.38 | 69.01 | 67.76 | 71.9 |
| 1993 | .. | .. | 65.24 | .. |
| 1994 | .. | .. | 64.03 | .. |
| 1995 | .. | .. | 64.82 | .. |
| 1996 | .. | .. | 65.99 | .. |
| 1997 | 75.23 | 69.66 | 66.71 | 73.1 |
| 1998 | 75.37 | 69.86 | 66.96 | 73.29 |

Source: World Bank (2000a)

| Table 12: Crude Death Rate, (per 1,000 people) | | | | |
|--|-------|-------|--------------------|-----------|
| Year | Chile | China | Russian Federation | Sri Lanka |
| 1960 | 12.6 | 25.43 | .. | 9.06 |
| 1961 | .. | 14.24 | .. | .. |
| 1962 | 12.2 | 10.02 | .. | 8.5 |
| 1963 | .. | 10.04 | .. | 8.6 |
| 1964 | .. | 11.5 | .. | 8.8 |
| 1965 | .. | 9.5 | .. | 8.2 |
| 1966 | .. | 8.83 | .. | 8.3 |
| 1967 | 10.4 | 8.43 | .. | 7.5 |
| 1968 | .. | 8.21 | .. | 7.9 |
| 1969 | .. | 8.03 | .. | 8.1 |
| 1970 | 9.5 | 7.6 | .. | 7.5 |
| 1971 | .. | 7.32 | .. | 7.7 |
| 1972 | 8.9 | 7.61 | .. | 8.1 |
| 1973 | .. | 7.04 | .. | 7.7 |
| 1974 | .. | 7.34 | .. | 9 |
| 1975 | .. | 7.32 | .. | 8.5 |
| 1976 | .. | 7.25 | .. | 7.8 |
| 1977 | 7.5 | 6.87 | .. | 7.4 |
| 1978 | .. | 6.25 | .. | 6.6 |
| 1979 | .. | 6.21 | 10.8 | 6.5 |
| 1980 | 6.6 | 6.34 | 11 | 6.2 |
| 1981 | 6.2 | 6.36 | 10.9 | 5.9 |
| 1982 | 6.1 | 6.6 | 10.7 | 6.1 |
| 1983 | 6.3 | 7.08 | 11.1 | 6.1 |
| 1984 | 6.3 | 6.69 | 11.6 | 6.5 |
| 1985 | 6.1 | 6.57 | 11.3 | 6.2 |
| 1986 | 5.9 | .. | 10.4 | .. |
| 1987 | 5.6 | 6.6 | 10.5 | 6 |
| 1988 | 5.8 | .. | 10.7 | .. |
| 1989 | 5.8 | .. | 10.7 | 6.2 |
| 1990 | 6 | 6.96 | 11.2 | 6 |
| 1991 | 5.6 | .. | 11.4 | .. |
| 1992 | 5.5 | 7.2 | 12.2 | 5.8 |
| 1993 | 5.5 | 6.5 | 14.5 | .. |
| 1994 | 5.4 | .. | 15.7 | .. |
| 1995 | 5.5 | 6.57 | 15 | 5.8 |
| 1996 | 5.5 | .. | 14.2 | 6.5 |
| 1997 | 5.4 | 7.5 | 13.8 | 5.9 |
| 1998 | 5.4 | 7.52 | 13.5 | 6 |

Source: World Bank (2000a)

End Notes

¹ Fiscal responsibility had three types of revenue sharing principles; central-fixed revenues, local-fixed revenues and shared-revenues.

² A group of economists in Chile trained at Chicago School of Economics

³ Social service expenditure comprises expenditure on health, education, housing, welfare, social security, and community amenities. It also covers compensation for loss of income to the sick and temporarily disabled; payments to the elderly, the permanently disabled, and the unemployed; family, maternity and child allowances; and the cost of welfare services such as care of the aged, the disabled and children. Many expenditures relevant to environmental protection, such as pollution abatement, water supply, sanitation, and refuse collection, are included indistinguishably in this category (World Bank 2000b, Pg. 281).

⁴ ISAPREs – Instituciones de Salud (Private Health Insurance Companies)

⁵ FONASA – Fondo Nacional de Salud (National Health Fund)

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C h a p t e r – 2

EXTERNAL ASSISTANCE FOR HEALTH SECTOR: TRENDS AND IMPACT DURING ECONOMIC REFORMS, WITH A SPECIAL REFERENCE TO ORISSA

**Dr. Manoj K. Dash
Dr. Arabinda Mishra**

1. Introduction

External assistance to the Indian health sector is not new. Considering the under-developed nature of health services in many parts of the country, major external donor agencies with a strong health sector commitment have been assisting in areas that range from systemic processes/institutions (like increasing infrastructure for primary health care, improvement of second-tier health system, etc.) to specific disease-oriented interventions (like eradication of leprosy and tuberculosis, blindness control, HIV/AIDS control, etc.).

1.1 Statement of the Research Theme and Its Relevance to Economic Reforms

From the discussions that follow, it will come to one's knowledge that during 1990s, the number of external agencies making health sector intervention in India, at both the national and state levels, steadily increased. Correspondingly, the volume of funds from these external sources has grown substantially. Immediately, the question that comes to one's mind is that why this has happened and whether there a link between the economic reforms process in the country and the increase in external assistance for the social sector. Going further, one would be interested to know whether there has occurred any perceptible improvement in the performance of the sectors that have been externally assisted in a major way during the reforms period? In case of the social sectors, where it is hard to evaluate performance in quantitative terms, has there been any change in service quality or delivery mechanism because of externally assisted projects? Has this led to any improvement in crucial process-related and performance indicators? Do the external donor agencies set any priorities before giving funds to the state governments? How the funds from the donor agencies flow to the states? Considering the focus of the present study, the above concerns translate themselves to the basic research theme of an analysis of the trends and impacts of external assistance to the health sector during the economic reforms period, i.e. the post 1991 scenario. The analysis is almost exclusively based on the experiences of the health sector in Orissa. *Besides being one of the least developed states in the country, the experience of Orissa is unique in the sense that it has received a lot of attention from a major donor agency and that this involvement on the part of the donor so far covers a period of over 20 years and it will continue at least for another 7 years.*

1.2 Methodology, Objectives and Outline of the Study

The data and information for this study has been generated from secondary sources, interviews and discussions. Secondary sources include Annual Reports of the Union Ministry of Health and Family Welfare, Evaluation Reports of Various Health Sector Projects in Orissa, External Assistance Brochure of the Department of Economic Affairs, Family Welfare Yearbook of the Union Ministry of Health and Family Welfare, etc. A number of health sector professionals – medical and non-medical – were contacted

to gather a lot of unwritten/unrecorded information. With Orissa as the state under reference, the specific objectives of the study are:

- i. To identify the sources of external assistance to Orissa's health sector and the procedure and steps involved with obtaining external assistance;
- ii. To analyse the trends in the flow of external funds during the reforms period as compared to that during pre-reforms period;
- iii. To highlight reforms period 'shifts', if any, in approaches of donor agencies for assisting the health sector of Orissa;
- iv. To profile linkages between economic reforms, external assistance and health sector reform initiatives, if any, during the last decade at the state level; and
- v. To evaluate the impact of external assistance on the health sector of the state in terms of selected input and output indicators.

It is very important to mention here that detailed information pertaining to externally assisted projects/programmes is hard to obtain, particularly at the state level. There is one External Assistance Brochure (2000-2001) prepared by the Department of Economic Affairs (DEA), Ministry of Finance, which claims to have given the information pertaining to all the projects supported by external assistance source-wise since the first Five Year Plan. But the difficulty is, the amount of grant/loan given by each agency/country has been reflected in terms of its own currency (say, Dollar or Yen or Franc). Thus, for any year, a comparison of the levels of assistance from different countries/agencies requires a conversion of the stated amounts to rupee terms, which in turn, needs the data relating to the exchange rates of rupee in terms of different currencies for that particular year. Moreover, though this Brochure claims that data pertaining to all externally assisted projects has been profiled, it is actually not so. The researchers have found out at least a couple of cases where particular externally assisted projects have not been mentioned in the document.

One would usually expect that each year's Annual Report of the Union Ministry of Health and Family Welfare would profile the amount of external assistance given to various States for different projects during that particular year. But there has been no attempt by the Ministry to give data in a coherent form. Although some data is given, the presentation is very confusing. In fact, when one of the researchers approached one 'Section Officer' (International Health Division) of the Ministry to obtain some data, the 'Section Officer' advised the researcher to approach the DEA and confided that in order to answer a relevant Parliament Question, they themselves had to approach the DEA. Although the 'Officer' showed some data on external assistance obtained from the DEA, he refused to part with it citing breach of secrecy. Actually, many officials sitting at various ministries show a very difficult attitude in sharing information that should by all accounts be in the public domain. But there are a few who offered ready help.

Collecting data on Orissa's health sector initiatives was a very difficult affair. Maintenance of records or documenting information is a great problem in the State and even if some information is available, the custodians of such information struggle to share it. But some good people in the Government set up gave very encouraging response and shared some of the available information.

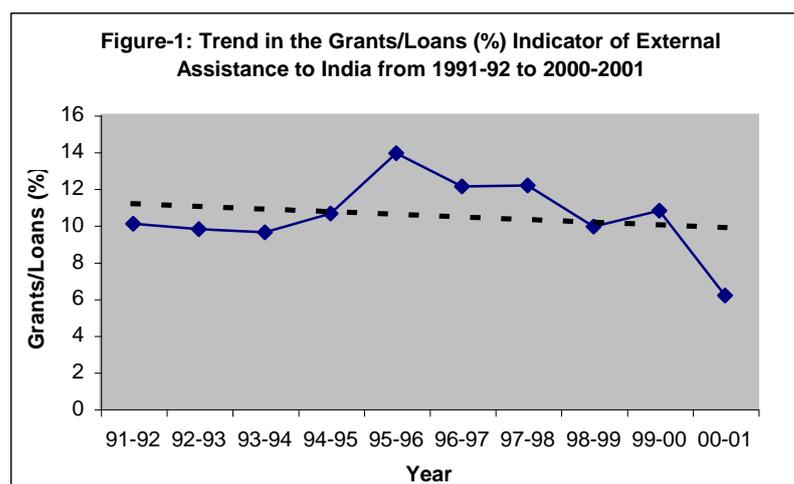
2. Economic Reforms and External Assistance: General Trends in the Indian Context

If one glances through the External Assistance records of the Department of Economic Affairs, Ministry of Finance and Annual Reports of the Ministry of Health and Family Welfare, one would come to know that prior to the launching of the economic

reforms programme in India¹, only a few countries provided financial assistance for health sector projects in the country. Notable among them are, Denmark (DANIDA), United Kingdom (ODA/DFID) and the United States of America (USAID). But the number of countries investing in the health sector of India has increased after the economic reforms programme in India took off in a big way in the early part of the 1990s. Now, countries like Canada, Germany, Japan, Netherlands, and the European Union have come forward to fund health sector programmes in our country. International agencies, especially those belonging to the UN System, like the WHO and the UNICEF always invested in the health sector of India as they are doing now. However, WHO operates only through the Ministry of Health & Family Welfare, Government of India, while UNICEF operates through the Ministry of Health & Family Welfare of the Centre and the States, Department of Women and Child Development of the Centre as well as of the States and also through NGOs at the national and state levels.

2.1 Trends in the Flow of External Assistance

Table-1 presents a summary picture relating to the loan component of the year-wise external assistance flows to the account of the Central government from all sources for the period 1991-92 to 2000-2001. While the summary table does not provide any sector-specific particulars, still there is enough information to draw some important insights on the general trends in the flow of external assistance to the country. First, it is important to note that, for the period 1991 to 2001, the grants component of external assistance relative to the loan part shows a slowly declining trend in the country (Figure-1). This may be representative of the donor agencies' attempts to apply a squeeze on the softer side of their assistance to the country during the reforms period. An issue that emerges out of this for further research is that whether the external donors have followed a pattern in this regard, and if so, which are the sectors that have been favoured or discriminated against.

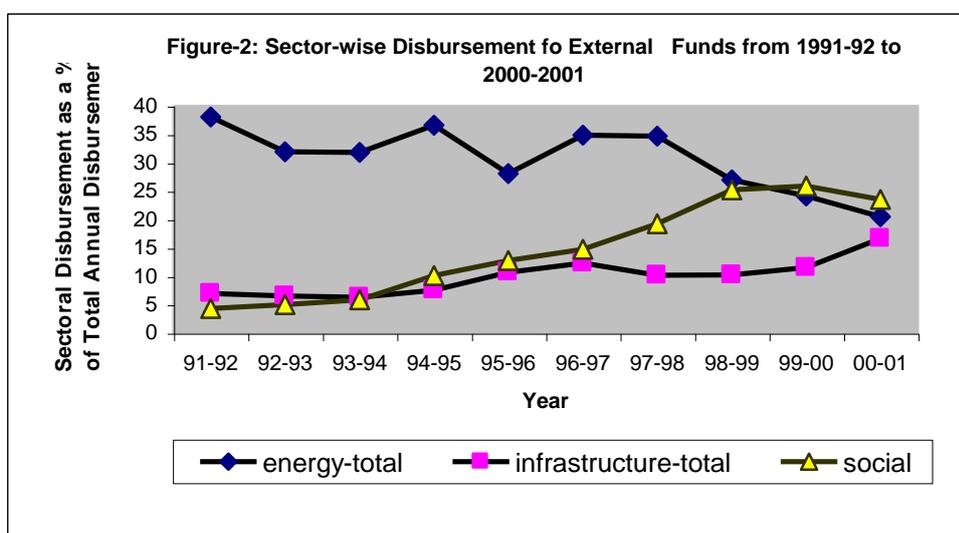


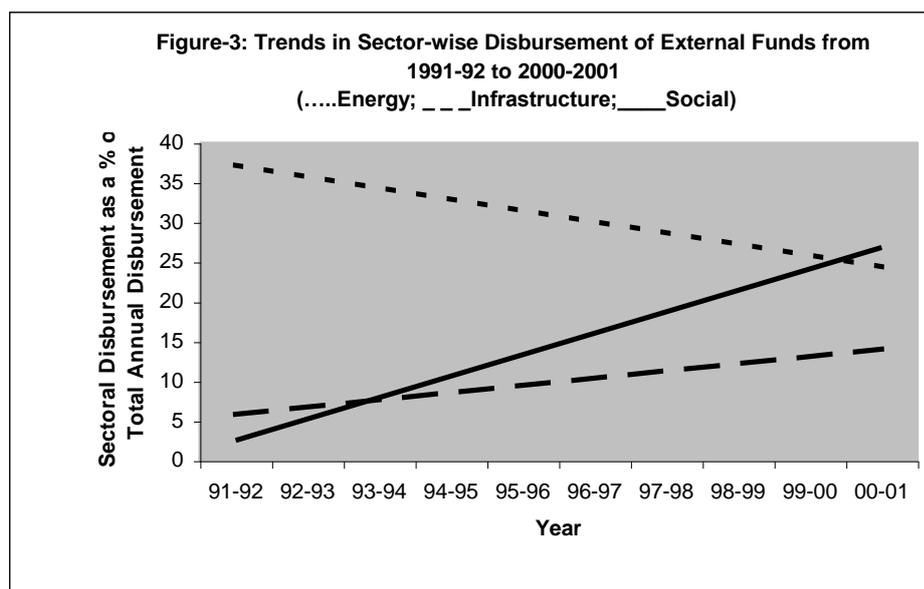
The second insight that one may draw from Table-1 relates to the trend in the average interest rate in the last decade. From a level of 4.17 in 1991-92, the average interest rate on the external loan assistance to the Government of India is seen to have experienced an almost continuous decline to the level of 2.53 in 2000-2001. While this

¹ The present study takes 1991 as the dividing year to distinguish between the pre-reforms and reforms periods. Though the roots of the reforms process in India can be traced way back to the 1970s, it is generally accepted that comprehensive and large-scale structural adjustment measures were introduced in 1991.

may have acted as an incentive for the central government to give the go-ahead signal to the state governments or central-line ministries in their quest to try for more and more external assistance over the years, one should also take note of the simultaneous decline in the average maturity (in terms of years) on new loan commitments by the donors (Table-1).

Sector-specific data on the central government's disbursement of loans and grants obtained from external sources are presented in Table-2. Unfortunately, for the social sector, the data is available for all the services taken together and hence, there is no way to analyse the trends in the flow of external funds to the health sector in particular. Still, it is interesting to note that during the reforms period, external assistance to the social sector as a whole has increased sharply, particularly in the later half of the 1990s. In Figure-2, the annual disbursement of external assistance to social sector (as % of the total annual disbursement of external funds) for the period 1991-92 to 2000-2001 is compared with similar percentage figures derived for the energy and infrastructure – two major non-social sectors to have benefited from external assistance. As the trend lines corresponding to the three sectors reveal in Figure-3, during the reforms period, the social sector has experienced a dramatic increase in the external funds disbursed to it as against the declining trend in case of the energy sector and relatively slowly increasing trend for the infrastructure sector.





2.2 External Assistance to the Health Sector in India

Besides the increase in the number of external donors providing assistance to the health sector in the country, there has also occurred a significant increase in the range of their activities within the sector itself. This is illustrated with reference to one major donor agency – the World Bank. Prior to the 1990s, the World Bank had provided health related assistance to only one project (which was implemented in several phases) in India in the name of India Population Project (IPP). The Bank’s assistance under this programme is still continuing and so far 9 such projects have been completed in various states and cities like West Bengal, Delhi, Karnataka, Maharashtra and Tamil Nadu. However, it is very interesting to note from the available records (Table-3) that after the launching of the economic reforms process in India, the Bank (through its human development wing – IDA) has started financing a number of national level projects like Child Survival and Safe Motherhood Programme, AIDS Control Programme, Family Welfare (Urban Slum) Project, Cataract Blindness Control Project, Leprosy Elimination Project, Secondary Level Health Systems Development Project (in 8 States), Malaria Control Project, Reproductive and Child Health Project and Woman and Child Development Project.

Table-3: World Bank Aided Health Sector Projects in India over the Years

| Sl. No. | Name of Project | Year |
|---------|----------------------------------|------|
| 1. | IPP-I | 1972 |
| 2. | IPP-II | 1980 |
| 3. | IPP-III | 1984 |
| 4. | IPP-IV | 1985 |
| 5. | IPP-V | 1988 |
| 6. | IPP-VI | 1989 |
| 7. | IPP-VII | 1990 |
| 8. | Integrated Child Development-I | 1990 |
| 9. | Child Survival & Safe Motherhood | 1992 |
| 10. | National AIDs Control-I | 1992 |
| 11. | Integrated Child Development-II | 1993 |

| | | |
|-----|--|------|
| 12. | IPP-VIII | 1993 |
| 13. | IPP-IX | 1994 |
| 14. | Family Welfare (Urban Slum) | 1994 |
| 15. | National Leprosy Elimination | 1994 |
| 16. | Cataract Blindness Control | 1994 |
| 17. | AP Health System Development | 1994 |
| 18. | Karnataka Health Systems Development | 1996 |
| 19. | National Malaria Control | 1997 |
| 20. | Reproductive & Child Health | 1997 |
| 21. | Orissa Health Systems Development | 1998 |
| 22. | National AIDS Control-II | 1999 |
| 23. | Women & Child Development | 1999 |
| 24. | Maharashtra Health Systems Development | 1999 |

Source: Brochure on 'External Assistance' 2000-2001, Ministry of Finance, GoI.

The flows of external assistance to the health sectors in different states of the country differ in terms of (i) the number and profiles of the donor agencies involved; (ii) the magnitude of assistance; and (iii) the range of activities/systems assisted within the sector. It would be enlightening to know the specific influences working on a donor agency's decision to invest in the health sector of a particular state/region. In the absence of any specific information on this, the next best thing would be to study the patterns of external assistance at the state level over a period of time by a particular donor and from it to draw certain pertinent insights. In this context, it is thought useful to present a comparative picture of the trends in external assistance to the health sectors of three states of the country – Maharashtra, Karnataka and Orissa – which differ significantly from each other in terms of the level of economic development. While Maharashtra ranks among the most developed states in the country in terms of its per capita State Domestic Product (SDP), Orissa comes across as one of the least developed and Karnataka in the middle category on the basis of the same development indicator. It is thought relevant to examine the possible links between external assistance to a social sector such as health and the level of development of a state.

Table-4 gives the details of health sector projects implemented with external assistance in the three states, i.e. Orissa, Karnataka and Maharashtra. It is very important to mention here that the projects given in Tables-4 & 5 have been carried out with the help of the respective sponsoring agencies directly in the three states. However, external assistance routed through the Ministry of Health & Family Welfare, Government of India in the form of Central Assistance are also provided to the states through normal budgetary support. This kind of support has especially been provided in case of National Programmes like Pulse Polio, TB Control, Leprosy Control, Blindness Control, etc. However, it was very difficult to track the external assistance data for individual states with respect to the National Programmes, because it has not been reflected in any relevant government document.

Table-4: Details of Externally Aided Health Sector Projects (completed and on-going) in Orissa, Karnataka, and Maharashtra

| Sl. No. | Name of Donor Agency | Name of Project | State | No. of Districts | Project Cost (in Rs. Crores) | Period of Operation |
|---------------------------|----------------------|-----------------------------------|-------------|------------------|------------------------------|---------------------|
| Completed Projects | | | | | | |
| 1. | World Bank | IPP – I | Karnataka | 5 | 9.83 | 1973-80 |
| 2. | USAID | - | Maharashtra | 3 | 15.83 | 1980-86 |
| 3. | ODA (UK) | OHWFP – I | Orissa | 5 | 33.67 | 1980-87 |
| 4. | World Bank | IPP – V | Maharashtra | Mumbai | 71.45 | 1988-96 |
| 5. | ODA (UK) | OHWFP – II | Orissa | 5 | 77.25 | 1989-96 |
| 6. | World Bank | IPP – VIII | Karnataka | Bangalore | 39.23 | 1993-98 |
| 7. | World Bank | IPP – IX | Karnataka | State-wide | 114.75 | 1994-2001 |
| 8. | UNFPA | - | Maharashtra | 5 | 38.36 | 1989-96 |
| 9. | KFW & GTZ (Germany) | - | Maharashtra | 4 | 47.90 | 1996-2001 |
| 10. | DFID | OHWFP – III | Orissa | 2 | 23.30 | 1997-2002 |
| 11. | World Bank | Secondary Health System Programme | Karnataka | State-wide | 546.00 | 1996-2001 |
| Ongoing Projects | | | | | | |
| 12. | UNFPA | IPD | Maharashtra | - | 33.67 | 21-12-98 Onwards |
| 13. | UNFPA | IPD | Orissa | - | 25.20 | 04-06-99 Onwards |
| 14. | World Bank | RCH | Orissa | 1 | 15.00 | - |
| 15. | World Bank | RCH | Karnataka | 1 | 15.05 | - |
| 16. | World Bank | RCH | Maharashtra | 1 | 13.78 | - |
| 17. | KFW (Germany) | Sec. Hosp. Programme | Karnataka | 4 | 45.00 | 1997-2002 |
| 18. | DANIDA (Denmark) | T. B. Programme | Orissa | - | 31.95 | - |
| 19. | World Bank | Secondary Health System Programme | Orissa | State-wide | 41.60 | 1998-2003 |
| 20. | World Bank | Secondary Health System Programme | Maharashtra | State-wide | 72.70 | 1999-2004 |

Source: Annual Reports of 1996-97 & 2000-01, Ministry of Health & Family Welfare, GoI.

Table – 5: Donor-wise Break-up of Externally Aided Health Sector Projects in the 3 States (completed and on-going)

| Sl. No. | Name of Donor | State | No. of Projects |
|---------|---------------|-------------|-----------------|
| 1. | World Bank | Karnataka | 5 |
| | | Orissa | 2 |
| | | Maharashtra | 3 |
| 2. | USAID | Maharashtra | 1 |
| 3. | ODA/DFID | Orissa | 3 |
| 4. | UNFPA | Maharashtra | 2 |
| | | Orissa | 1 |
| 5. | KFW & GTZ | Karnataka | 1 |
| | | Maharashtra | 1 |
| 6. | DANIDA | Orissa | 1 |
| 7. | 6 Donors | 3 States | 20 Projects |

2.3 Procedure and Guiding Principles for Getting External Aid and Role of Centre & States

The procedure for getting external assistance has remained the same over all these years. For availing external assistance, the procedure is the same irrespective of the nature of assistance (loan or grant) or the nature of the recipient organization (State/Central Government Ministry or PSU). The project proposal has to be initiated by the recipient organization. After necessary clearances from the Planning Commission regarding inclusion of the project/scheme in the Plan, the proposal is sent to DEA with recommendations of the Central Line Ministry for taking up with the external agency.

In case of a scheme or project of the State Government, the Government of India (GOI) takes the loan or the grant and passes it on to the State Government in the form of Additional Central Assistance (ACA) for Externally Aided Projects. The repayment liability to the external agency is that of the GOI which bears the entire foreign exchange risk. For normal category states, the ACA is given in the form of 30% grant and 70% loan. The loan part of ACA at present carries interest rate of around 11–12 % and is repayable over 20 years by the State Govt. For special category states (N-E states, J&K, etc.), ACA consists of 90% grant and 10% loan. For the schemes of Central Line Ministries, the funds are released in the form of grants only and the repayment to the external agency is done by the Ministry of Finance.

The Central Health Ministry implements programmes like Malaria Control Programme, National Aids Programme, etc. as national programmes and the funds in this regard flow to the State Governments in the form of grant. However, the implementation of these schemes generally involves a state government's share. There is no difference on the terms and conditions of ACA being given to the state governments for externally aided projects in different sectors.

3. Orissa's Health Sector at a Glance

3.1 Development of the Public Health Services System in Orissa

Prior to the establishment of allopathic hospitals in Orissa in the early 19th century, people generally had either no access or were reluctant to accept modern medical systems due to educational backwardness and blind beliefs regarding infectious diseases. Witchcraft and sorcery were rampant. However, *Ayurveda* played a vital role in more

systematic treatment at that time. A network of hospitals and dispensaries doing primarily curative work using modern medicine existed before independence. The hospitals were under the district boards. The growth of modern medical institutions in a more widespread manner and the increasing faith of the people in modern systems happened after independence.

The State of Orissa was formed on 1st April 1936 and had only 6 Districts at that time. The Public Health Act and Rules of Madras Presidency were in force till 1939 in the southern part of Orissa. The major milestones in the development of health services in Orissa from 1939 onwards are presented in Table-6 below.

Table- 6: Milestones in the Development of Health Services in Orissa

| YEAR | EVENT |
|---------|--|
| 1939 | Orissa Service Code in force. Post of Director, Health Services and cadre of Civil Surgeons established. |
| 1944 | Cuttack Medical College established. |
| 1959-60 | Burla Medical College came into being. |
| 1962-63 | Establishment of Berhampur Medical College. |
| 1964 | State Family Planning Officer post created; basic health services scheme introduced. |
| 1970 | Registration of Birth and Death Rules came into force. It became the responsibility of the Health and Family Welfare Department. |
| 1977 | 1/3 of PHCs converted to upgraded PHCs. Ayurvedic and Homeopathic Doctors attached to the upgraded PHCs. |
| 1981 | Phase – I of External Assistance by Overseas Development Assistance (ODA), United Kingdom. |
| 1985 | Dispensaries converted to single doctor PHCs. |
| 1989-90 | Phase - II of External Assistance by Overseas Development Assistance (ODA), United Kingdom. |
| 1997 | Phase – III of External Assistance by Overseas Development Assistance (ODA), United Kingdom. |

The total number of health institutions (allopathic) is 1702 which includes 3 Medical College Hospitals, 31 District headquarter hospitals, 157 Community Health Centres, 1351 Primary Health Centres (old & new) – as per 1997 data. The Doctor (in government service) to population ratio is 1:7440 and the population served per medical institution is 21,600.

Public sector expenditure on health is about 1.2% of the Gross State Domestic Product and about 3% of the annual budget. A large proportion of the funds is spent on the tertiary sector. The sustained increase in the wage and salary component in the health budget has made the non-salary portion shrink over the years.

3.2 Health Performance of the State

Orissa's population (provisional) according to the 2001 census is 36,706,920, which is 3.57% of the country's population. The state appears to be close to achieving population stabilization with an annual growth rate of 1.59% (2001 Census), as against the all-India growth rate of 2.13%. The Crude Birth Rate (CBR) has declined substantially from 34.6 per 1000 population in 1971 to 33.1 in 1981 and 24.1 in 1999 (rural: 24.6, urban: 20.3 and all-India: 26.5). The gender ratio (females per 1000 males) of 972 (in 1991 and 2001) compares favourably with the national level figure of 933. Life expectancy at birth for 1996-2001 is projected as 58.30 years (58.5 years for males and

58.1 years for females), which is below the national figure of 62.90 years, but still marks an improvement for the state from the 1981-86 figures of 54.1 and 51.9 years for males and females, respectively. The Maternal Mortality Rate (MMR) is 367 in the State whereas the corresponding national figure stands at 407 (SRS, 1999). The percentage of children fully vaccinated is 63.4 as against the national figure of 63.3 (ICMR, 1999).

As against the above achievements, issues of concern still persist. While the Infant Mortality Rate (IMR) in the state has declined from 135 in 1981 to 97 in 1999, it is still the highest in the country, much above the national average of 70. Infant mortality accounts for nearly one-third of the total deaths during a year. The major causes of infant mortality are associated with prematurity, birth injuries, diarrhoea and congenital malfunctions. In the case of maternal mortality, the most important cause is identified to be delivery related complications.

The disease burden in the State is high, but when considered along with indicators of nutritional status among women and children, there is reason to believe that a substantial proportion of morbidity and mortality is *preventable*. Communicable, pregnancy related and childhood ailments account for about 65% of the diseases. Rural-Urban differences remain in the state with respect to many of the health indicators (for instance, in 1999, rural IMR was 100 as against the urban IMR of 65; similarly, while the rural CDR is 11.1, the urban CDR stands at 7.1).

Table –7: Selected Health Performance Indicators for the State of Orissa

| Indicator | Up to year 2000 | | Source |
|---|-----------------|-------|----------|
| | ORISSA | INDIA | |
| IMR | 97 | 72 | SRS 1999 |
| MMR | 367 | 407 | SRS 1999 |
| U5MR | 104.4 | 94.9 | NFHS II |
| CBR | 24.1 | 26.5 | SRS 1999 |
| CDR | 11.1 | 9.0 | SRS 1999 |
| TFR | 2.5 | 3.07 | NFHS II |
| CPR | 39 | 44 | DHS 1998 |
| % Children 0-3 years malnourished | 54.4 | 47 | NFHS II |
| % Coverage of pregnant woman with TT | 74.3 | 66.4 | NFHS II |
| % Institutional deliveries | 22.6 | 33.6 | NFHS II |
| % Children (12-24 months) fully immunized | 43.7 | 42.0 | NFHS II |

3.3 State Health Administration: Existing Structure

The Minister, Health and Family Welfare, is in overall charge of the State's health administration. The Secretary, Health and Family Welfare, is the Chief Executive of the Department. The Secretary advises and guides the Minister in all major policy and administrative decisions.

The Department is divided into six separate Directorates, each headed by a Director. The Directorates are Directorate of Health Services (DHS), Directorate of Family Welfare (DFW), the Directorate of Medical Education and Training, the State Institute of Health and Family Welfare (SIHFW), the Directorate of Indian Systems of

Medicine and Homeopathy (ISMH), and the Office of the Drug Controller (DC). At present, medical professionals head all the Directorates, except the last two. The Director, ISMH, is a person with administrative background and the DC is a trained professional in Pharmacy.

The DHS is the 'Chief Technical Advisor' to the State government on matters relating to preventive and curative health services at the primary and secondary levels and is responsible for supervision, monitoring and implementation of all health activities in the State. The SIHFW imparts health education to all kinds of professionals and in-service training to paramedics.

At the District level, the Chief District Medical Officer (CDMO) is the head of the District health administration and is assisted by 3 Assistant District Medical Officers (ADMOs) and occasionally, by other Programme Officers.

At the Block level, the health care activities are looked after by the Community Health Centre (CHC) Medical Officer or the Medical Officer of the Block Primary Health Centre (PHC). She/he is assisted by a team of doctors, paramedical and ancillary staff. The CHC or the Block PHC is usually set up for a population of approximately 80,000 to 1,20,000. Below the CHC or Block PHC is the single doctor institution known as the Primary Health Centre (New). This is meant to cater to a population of 30,000 in plain areas and 20,000 in tribal and hilly areas. Below the PHC (New) are several Sub-centres. Each Sub-centre, which is set up for a population of 5000 in plain areas and 3,000 in tribal and hilly areas, is staffed by paramedical professionals, viz. a female Multipurpose Health Worker (MHW) or Auxiliary Nurse Midwife (ANM) and a male MHW.

4. Flow of External Assistance to Orissa

Funds from foreign donor agencies are routed to the state government through the Govt. of India in the form of Additional Central Assistance (ACA)² and constitute an important segment of the State Plan. Like normal State Plan Assistance, ACA consists of 70% loan and 30% grant. Irrespective of the rate of interest charged by the donor agencies to Govt. of India, the loan component of the ACA carries the same rate of interest as the loan component of the normal State Plan Assistance (which, at present, carries the rate of interest of 12.5% per annum). Some of the external assistance is on nominal interest ranging from 0.5 – 4%, but the state government has no way of benefiting since the central government charges the same rate of interest on all types of assistance.

4.1 External Aid Flow to the Health Sector of Orissa in the Pre-reforms Period

The Ministry of Health and Family Welfare, Orissa prepared a plan in 1980 to increase and strengthen facilities for the delivery of Health and Family Welfare Services in an integrated manner in accordance with the approach outlined in the Sixth Plan (1980–85). According to the Sixth Plan, the strengthening of infrastructure was perceived as the main key to achievement of various health goals in the country. Accordingly, a plan was made to achieve the goal of better infrastructure in some selected districts of major States within a period of five years. These selected interventions came to be known as

² Important projects assisted by major donor agencies (such as, the World Bank, Japan Bank for International Cooperation, Kreditanstalt für Wiederaufbau of Germany, etc.) are usually financed by the state government initially, and on the basis of eligible expenditure, reimbursement is claimed from the Govt. of India. The amount so reimbursed is called Additional Central Assistance.

‘Area Projects’. For achieving this, partial assistance from International/Bilateral donor agencies was sought.

The ultimate objectives of these projects were to improve Health and Family Welfare infrastructure in these areas, which was thought to contribute to reduction in fertility, maternal and child mortality and morbidity. In Orissa, the project was operated in the name of Orissa Health and Family Welfare Project (OHFWP) and was assisted by the Overseas Development Assistance (ODA) of the United Kingdom, which has now become the Department for International Development (DFID).

4.1.1 Phase I of ODA Assistance (1981-88)

The first donor agency to come to Orissa for providing assistance for improvement of infrastructure was the ODA. In the first phase of the ‘Area Project’ plan, five districts of Orissa out of a total of 13 districts were selected. These districts were: Cuttack, Ganjam, Kalahandi, Phulbani and Puri.

In this project, infrastructure was given the major thrust³ although some resources were devoted to training of personnel, strengthening of referral system at the primary level, i.e. from PHCs to CHCs, and putting a Management Information System (MIS) in place.

For building of infrastructure at the PHC and Sub-centre level (1,400 buildings were built or upgraded during this phase), the State’s Public Works Department (PWD) was given the responsibility. Most of the construction took place in 1986-87, almost coinciding with the end of Phase I⁴. But due to lack of supervision and monitoring of the work done by the PWD, the buildings were of very poor quality and there was rampant pilferage of resources at the local level. Another disturbing feature of the buildings was their location. The Health Department decided that the buildings are to be built on available government land or by purchasing land from the private parties. Ultimately, when the buildings were constructed there were no takers for the infrastructure because they were located at places, which the users did not like. At the PHC level, wherever the staff quarters were not built around the PHC, the staff of the PHC faced difficulty in attending the centres because of lack of convenient transport or distance from their place of residence. At the Sub-centre level, the ANMs found it very difficult to come to the centre especially if their places of residence were located at a distance from the Sub-centre. People also found it difficult to attend to the Sub-centre because of the distance factor or its inconvenient location. The buildings were lying unused for long and many of them collapsed because of lack of care and maintenance. There was almost no community involvement in the entire process of infrastructure building.

³ The proposed pattern of expenditure was (in terms of percentages of the total proposed budget):

| | |
|--|--------|
| (i) Construction | : 43.1 |
| (ii) Staff Salaries | : 29.2 |
| (iii) Drugs, Equipment & Furniture | : 16.2 |
| (iv) Transportation | : 6.6 |
| (v) Training and making of Teaching Aids | : 4.9 |

⁴ In fact, the slow pace of construction activities during Phase I of the OHFWP is symptomatic of the confrontational interface between different state departments, in this case the Dept. of Health and Family Welfare and the Orissa Public Works Dept. The 1994 Strategic Review Report makes a brief mention of “the difficulties to make the OPWD implement the plan for construction” (p-69).

Vehicles were also purchased during the project. But these vehicles were soon rendered useless due to lack of provision for their maintenance. Many hospital equipment were also purchased for providing better service to the public. However, due to lack of proper maintenance and timely repair, they were also rendered dysfunctional. The State government washed off its hands by citing the strong reason of lack of adequate resources for the maintenance of vehicles and equipment.

In many cases, drivers and technicians were recruited with investment from the project resources. But it became very difficult for the State Government to support these additional staff beyond a point. Therefore, due to lack of personnel to handle the vehicles and equipment, these became redundant.

Training was also imparted to the paramedics, field health workers, Traditional Birth Attendants (TBAs) and doctors in this programme. One Information, Education and Communication (IEC) Unit was established at Bhubaneswar for facilitating capacity building. Training programmes were organized within the State, outside the State and outside the country as well. But all these capacity building exercises were not used optimally because the concerned personnel did not undertake enough outreach services. A large number of people also could not get the information due to inadequate IEC activities regarding the improved capacity of the health personnel. Therefore, the benefit of all the training and capacity building exercises could not reach the majority of the population in the targeted districts.

For building an effective Management Information System (MIS), efforts were also made. A lot of information was generated from the lowest level, i.e. the ANM. The ANMs were asked to give detailed information on the progress of various health programmes. But due to difficulties in travelling to various places in the Sub-centre area and due to lack of provision of adequate travelling allowance to the ANMs, they usually cooked up data in the reports submitted to the upper levels. Even if the information was correct, the MIS was never made a two-way process for facilitating better functioning of the system.

However, since infrastructure was the dominant feature of the project it was primarily favoured by the politicians because of the visibility of such infrastructure. Even if 'hardware' was poorer in quality, the politicians could claim that they have ensured progress by building PHC or Sub-centre buildings for the people of the area. But the problem of the people remained unsolved to a large extent⁵.

According to some health professionals who were associated with the project, there was large-scale discontentment among the health sector professionals regarding the whole issue of infrastructure building because their opinion was never taken into consideration while the work was being undertaken even though they were ultimately to use such infrastructure.

4.2 External Aid Flow to the Health Sector of Orissa During the Reforms Period

In spite of the obvious lacunae of an infrastructure dominated 'Area Project' scheme, it was a favourite among many vested interests because of its visibility and the scope it offered to ensure 'leakage' of resources. Therefore, the second phase of the project was introduced in the State in another 5 districts of the still uncovered 8 districts

⁵ Strangely enough, the 1988 official evaluation (by the state government and the ODA Final Review Team) of the Project was quite favourable and the conclusion made was that the Project had been generally successful in meeting its objectives. This was in conflict with the evaluation findings reached by a number of independent consultants during the same time.

(the State had a total number of 13 districts). These districts were Dhenkanal, Sambalpur, Sundargarh, Mayurbhanj and Keonjhar. For better management of the project a 'Project Management Unit' (PMU) was created with one 'Engineering Unit' and one 'Finance Unit' inside the PMU. This was done to ensure better degree of efficiency and effectiveness.

4.2.1 Phase II of ODA Assistance (1989-96)

Though the predominance of infrastructure creation remained intact in the second phase of the OHFW Project, the infrastructure creation process witnessed some major changes that were meant for the better. One, the PWD was not given the contract of building infrastructure. Instead, a more professionally managed agency, the Infrastructure Development Corporation of Orissa (IDCO) was given the responsibility. Two, the monitoring of the infrastructure building process was made rigorous because of the presence of engineering people in the PMU itself to oversee the progress of the work. Three, this time around, local people were involved in site selection and construction. This brought in a lot of innovation in the process of construction and ensured community contribution in terms of labour and resources. The famous environment friendly and cost effective 'Lauri Baker'⁶ style of infrastructure was built at many places. All these factors combined together contributed to the building of comparatively better quality infrastructure.

As far as training was concerned, this phase came up with some bold outcomes. It contributed to the strengthening of Rural Health Centres at Atabira, Digapahandi and Jagatsinghpur. These three centres were the rural training and exposure centres meant for Doctors passing out from the Burla (Sambalpur), Berhampur and Cuttack Medical Colleges, respectively. However, these centres did not have any interactive programmes among the Medical Colleges nor the State Health and Family Welfare Department ever thought of utilizing their infrastructure for in-service training. There was also the problem of reporting. The Principals of the respective Medical Colleges had absolute control over them and it was difficult for the other health officials of the State government to pass orders to these centres for undertaking various training activities. However, the IEC Centre set up during the earlier phase of the project was upgraded to the State Institute for Health and Family Welfare (SIHFW). Some suitable administrative decisions were taken as a result of which, SIHFW became the apex training institution in the State and other training units were directed to schedule various training programmes in consultation with the SIHFW. Besides, Health and Family Welfare training centres also came up at Cuttack and Sambalpur during this period. Apart from this District Training Units (DTUs) also came up for facilitating training of the ANMs at the district level.

Various training programmes were organized for clinical, managerial and nursing staff inside and outside the State as well as outside the country. Thousands of staff were trained for improved service delivery to the people. The training component was extended to all over the State for better coverage.

One Health Equipment Maintenance Unit at Bhubaneswar was established during this period for ensuring one-time repair of all the equipment that were lying unused due to lack of funds in the State government for their repair.

A Family Health Card maintenance system was also introduced in the project districts to facilitate better monitoring of critical areas in mother and child health.

⁶ Lauri Baker is a famous architect of Kerala and his style of buildings are becoming very famous in many areas of the country for its simple, environmentally suitable and low-cost approach.

But after the end of the project cycle around 1996, many serious loopholes were identified in the implementation of the programmes. Maintenance of infrastructure was a big problem during this period also because the State government did not have enough funds. The State government was also not prepared to bear additional burden of maintaining the SIHFW, although it was important for training and re-training of health personnel. MIS was again functioning as mostly a one-way process and was ANM centred. At one point of time it was discovered that one ANM had to maintain 37 registers for generating required data. So, where was the time and energy left for her to undertake outreach services?⁷

The Family Health Card system was discontinued because of problems of maintenance by the ANMs. The District Training Units specifically established for training the ANMs also became non-functional in due course of time.

4.2.2 Phase III of ODA Assistance (1997-2002)

The OHFWP has been in operation in Orissa since 1981. But it was realized after the end of the two phases of the programme that the inputs of infrastructure and training have not ensured the expected increase in quality of services made available to the people⁸. Some of the buildings produced by the project were already falling down due to lack of maintenance, outreach services suffered due to lack of support for transport of personnel and drugs were often in short supply. Systems failure was widely seen to be the underlying cause (for instance, failure of the system to allocate funds for maintenance, drugs and transport). A number of obstacles were identified for the delivery of quality services⁹. These obstacles included:

- Lack of resources in three vital areas: maintenance of buildings and equipment; supply of medicine and reimbursement of mobility (travel) allowance.
- Lack of local planning and management.
- Lack of quality training and uneven work distribution.

Lack of Resources

Only 10-20% of expenditure at the PHC and Sub-centre level was spent on non-salary costs such as drugs, travel and repair of buildings and equipment. This was inadequate and created a number of problems.

⁷ The supply-driven (rather than user-driven) nature of health sector information systems has been commented upon in a number of studies (ASCIH, 1989; Martinez et al, 1994). The reason attributed to the increased burden of data collection on the primary level health staff is the 'verticalisation' of many health programmes over the years and the creation of new divisions. The new proformas and other data collection devices have tended to add to, rather than replace, the existing ones.

⁸ The 1994 Strategic Review and the 1996 Impact Assessment study acknowledge that though Phase I and II contributed substantially to the provisioning of buildings, equipment and training at the primary health care level, their impact in terms of increased *use* or improved *quality* of health services has not been significantly felt.

⁹ The 1996 Impact Assessment study indicates that the users of sub-centres, PHCs and CHCs perceive quality to consist, in part, of buildings in good repair and the availability of drugs and health workers, especially doctors. Further, 'quality of health services' includes other factors such as the inter-personal relations between providers and patients, health workers' clinical skills, clinic opening hours, and the availability of services that meet people's priority needs.

- Centre's infrastructure and accommodation was poorly maintained and dirty.
- Equipment was either missing or was dysfunctional because of poor repair.
- Essential drugs were not available in sufficient quantity.
- Travel allowances were not always paid in full or in time.

Without proper accommodation and facilities to carry out their work, the staff become demotivated and were less willing to stay in their place of posting. Dirty facilities in poor condition discouraged people from using them. Non-provisioning for travel costs led to discontinuance of outreach programmes and supervising tours. The 1996 Impact Assessment Study estimated that, in order to deliver effective services, the state government would need to more than double its budget for non-salary costs at Sub-centres. Similar or even greater gaps are likely to exist at other levels of the primary health system coming under the public sector¹⁰.

Lack of Local Planning and Management

The 1994 Strategic Review Report identified the lack of policy and planning capacity in the state as a major constraint in developing a health service that is responsive to local needs. Within the districts there was little opportunity for health staff to alter services in response to the local needs. Indeed a lot of priority was given to target driven and centrally sponsored services, such as family welfare and immunization and this may not be locally appropriate. For example, if respiratory infections and malaria kill many children in a district, health workers promoting sterilization and immunization will seem irrelevant. Therefore, the public will not automatically value the services provided at the primary level and will go to the secondary level. As a result the secondary systems will be overcrowded and the primary system will be under-utilized and opportunities are lost for health education and preventive practices.

Lack of Quality Training

Doctors and health workers complained that the training they received was not adequate for the tasks they were expected to do and there are few opportunities for further in-service training. Many doctors having post-graduate training in a clinical specialization that was suitable for secondary level services were working in primary services without receiving training in public health or management. Practical skills' training for health workers was of low quality both in clinical and communication skills.

Systems Failure: The Underlying Causes

The underlying causes of the obstacles discussed above are often due to systems failure. This means that the mechanisms by which the government brought personnel and resources together to get things done were inefficient. For instance, while discussing its attempts to obtain a comprehensive staffing profile of the health sector in the state, the 1994 Strategic Review Report records the lack of information with the finance department of the state and comments that "... it is significant that the agency responsible for the allocation of recurrent budgets to health facilities *has no information on staffing patterns on which to base such decisions*" (p-18; emphasis added). Without reform of inefficient and poorly funded systems, further investment in such things as new buildings

¹⁰ The Project Memorandum of Phase III of the OHFW Project (1997) gives an estimate of the additional non-salary resources required for the whole state to the extent of Rs.390 million per year, equivalent to 15% of the total health budget of the state or 0.7% of the total state expenditure of Rs.55 billion.

was unlikely to benefit the general people. An example of how systemic obstacles affected conditions in a clinic is given in the box below.

A PROBLEM WITH THE MAINTENANCE SYSTEM

A leaking roof had damaged the wall of a PHC and short-circuited the electrical wiring.

Indents were submitted requesting repair and after 3 weeks someone arrived to fix the wiring. The roof was still leaking, however, so electrical work cannot be done and the electrician returned to the HQ. Five days later the rural works department fixed the roof and plasters the wall.

The electrician is recalled and he replaced the old wiring. Unfortunately, the new plaster is damaged by the work so another indent was sent to the rural works department to repair the plaster. The Medical Officer was told that there was no money left in the budget for further repairs and he should send another request next April.

Shortly after the electrician finished his work, the Medical Officer entered his room to begin the clinic. He tried to switch on the light, but the bulb was fused. He was annoyed to find out that there was no more petty cash to buy a new one. So once more he held the clinic in the dim twilight of the unlit room.

4.2.3 Involvement of other Donor Agencies with Orissa's Health Sector in the Reforms Period

It would be pertinent here to mention that the ODA/DFID project is the only externally aided project implemented in the State of Orissa that has cut across the pre-91 and post-91 periods, the dividing line being introduction of large-scale economic reform measures in the country in the year 1991. A number of external agencies came to the state to invest in its health sector in the post-1995 period. These agencies have played their own part in introducing and accelerating the reform process in the health sector of the state. They have been successful in persuading the state government that initiating reform measures would usher in more public satisfaction and better resource mobilization. The names of these agencies and the areas of their intervention are given below in Table-8.

Table-8: Externally Aided Health Sector Projects In Orissa at Present

| AGENCY | PROGRAMME/PROJECT |
|------------|---|
| World Bank | Orissa Health Systems Development Project (OHSDP) – development of district level hospitals |
| World Bank | RCH Programme, Malaria Programme, HIV/AIDS Programme and Blindness Control Programme |
| DFID | Primary Health Sector Reform Programme |
| DANIDA | Leprosy Programme, TB Programme |

| | |
|---------------------|--|
| Lepira India (UK) | Leprosy Programme |
| UNFPA | IPD Programme |
| UNICEF | Immunization Programme, Sanitation Programme |
| European Commission | Sector Investment & Reform Programme |
| CARE India (USA) | Specific Area Intervention in Nutrition & Health |

5. Health Sector Reforms in Orissa and Role of External Assistance

The role of external assistance in determining the pace and content of health sector reforms in Orissa has been crucial. The DFID, in particular, has had a significant influence in shaping the reforms agenda of the state, obviously owing to its long presence and the magnitude of its commitments in the region's health sector. In fact, as will be discussed below, Stage 1 of Phase III of the OHFW Project was designed to dovetail into a comprehensive reforms programme at the state level.

5.1 DFID-Sponsored Initiatives in Orissa's Health Sector: Phase III of ODA Assistance (1997-2002) and the three Ms

In Phase III of the OHFW Project, the ODA (by now it had become DFID) decided not to fund any more the construction of buildings without bringing about some systemic changes in the health sector of the state¹¹. Therefore, it was communicated by the DFID to the Government of Orissa that it would provide resources for introducing reforms in three areas of concern: Medicines, Maintenance and Mobility (known as 3 M's). Phase 3 of the OHFWP was to have two stages: stage 1 and stage 2. In stage 1, the 3 systems to be given emphasis were:

- System of supply of medicines.
- System for supply of travelling allowance for ensuring mobility.
- System for maintenance of buildings and equipment.

The DFID decided not to support reform in these systems in the remaining 3 uncovered districts of Bolangir, Balasore and Koraput of the earlier ODA projects. However, by this time the districts had been reorganized in Orissa in 1993 and the previous 13 districts had become 30 districts. Because of the reorganization, the uncovered 3 districts of the ODA's project (OHFWP) became 8. The DFID decided to experiment the reform process of 3 M's in two selected districts of Bhadrak (newly created) and Keonjhar.

In addition to the main three activities of reform, the project also aimed at considering as to how to improve community participation and suggest how services might be made more responsive to local needs by altering the service mix. Attempts were also to be made by the health sector staff to work more closely with other social sector organizations and institutions such as the Panchayati Raj Institutions (PRIs).

At the State level it was also thought to undertake some intense research to find the best ways to successful initiatives within the two experimental districts, i.e. Bhadrak and Keonjhar. It was envisaged that, using the results of the DFID-sponsored initiatives in these two districts and policy research, the State would draw up a programme of policy

¹¹ This policy shift on the part of the DFID may be linked to a series of evaluative studies on the functioning of OHFWP and investigations on the constraints hindering the development of Orissa's health sector. The two most influential investigations have been the Strategic Review Report of the health sector carried out in 1994 by the Liverpool Associates in Tropical Health, and the Impact Assessment Study carried out in 1996 by the Institute for Health Service Development.

reform to be incorporated into the project plan for stage 2 (for the remaining old 3 districts which had then reorganized into 8 districts). During stage 1, management and training skills were to be strengthened with the initiatives to be undertaken by the SIHFW.

It was made very clear by the DFID that stage 1 would be counted a success only if the following two conditions were met:

- There was demonstrable improvement in quality and utilization of health services as a result of increased funding and local management.
- The State has put in place feasible programmes of policy reform, which is likely to succeed in introducing changes to all districts in sustainable manner.

With these future programmes in mind, the experimentation in 3 M's (medicine, mobility and maintenance) in the two experimental districts of Bhadrak and Keonjhar started. But soon after, the experimental steps taken in the two districts ushered in reforms in the entire state.

5.1.1 Changes in Medicine Procurement

The objective of this initiative was to make sufficient and good quality drugs available to patients in all public health institutions. Prior to the DFID-sponsored experiment under Phase III of the OHFW Project, the procedure relating to purchase of drugs for the State health institutions involved a mechanism for finalizing the list of drugs, prices and suppliers *at the State level*, allotting funds to the districts and thereafter allowing the CDMOs to manage the procurement and distribution. The system was time taking and cumbersome, the medicines were costly, there was no essential drug list, medicines were ordered by brand name, there was no quality test and there were many irregularities in purchases. Some irregularities observed by one of the medical professionals associated with the DFID are presented in the box below.

IRREGULARITIES IN THE MEDICINE PROCUREMENT SYSTEM

The CDMOs of the districts were allocated funds to purchase medicines. They were supplied with an approved list of medicine suppliers and they could choose any of them for supply of specific medicines.

The CDMOs used to purchase medicines not as per the needs of individual PHCs in their districts. More often than not, this led to a mismatch between the demand for and supply of medicines. For example, the medicine for a particular disease was supplied to a PHC that had no need for the same. The medicine supplied will not be used and this will be a dead-weight wastage. Moreover, this will result in corruption in the sense that the unrequired medicine will be sold in the market and the money will be pocketed by the hospital staff.

The CDMOs usually entered into unholy alliances with the medicine suppliers. They will ask the medicine suppliers to quote higher prices and give false bills for medicines not purchased at all. This benefited the CDMOs, local politicians and the medicine suppliers.

In order to do away with the irregularities and ensure more and quality supply of drugs, a new centralized procurement system largely borrowed from Tamil Nadu was introduced and it brought in several welcome changes.

An essential drug list was drawn up listing drugs in generic names. This was further classified into three categories for the primary, secondary and tertiary level institutions. Thereafter, orders for the drugs were placed and while payments were made centrally, the supplies were delivered at the district level with the cost of supply incurred by the suppliers. Before the orders were finally placed, a secret quality check from well-known laboratories of the country was made at the expense of the suppliers. Each institution was informed of its entitlement of drugs (by value) and was given a passbook. It can make its own selection, constrained only by the essential drug list and the overall entitlement. Quality was insisted upon with proper packing, logos and quality testing. For emergency purchases, only 20% of the drug budget was paid to the CDMOs.

5.1.2 Improvements in Mobility

Earlier the health personnel did not have adequate petty cash at their disposal to meet the necessary travel expenses to carry out outreach activities. In the two DFID-sponsored project districts, sufficient provisions were made to meet this need. Further, to ensure better mobility, emphasis was laid on efficiency savings and rationalization of vehicle use.

Vehicles were available with many block level PHCs or CHCs. The Medical Officers of the concerned PHCs/CHCs were asked to declare their tour plan in the area much in advance so that other personnel in need of travelling to those specified places could travel by the same vehicle. This not only resulted in rationalization of vehicle use but also saved money and time.

In some other cases, vehicles were used when special camps were organized at remote areas. The vehicles that carried equipment and personnel to the camp site stood unutilised at the site for many hours. In such cases it was decided that other personnel would plan their schedule in such a way so that the vehicles could be used for outreach programmes in and around the campsite during the time they were lying idle. This is another small but significant instance of optimising use of available vehicles for ensuring better 'mobility'.

The provisioning for travel expenses in the two project districts led to a feeling of inequality among the staff of other non-project districts. Therefore, the State government decided to do something at the State level to meet this problem. However, the State government did not have adequate funds to meet the travel needs of all the health personnel. *Therefore, a policy decision was made to provide travelling allowance/mobility support to the most important staff in the entire set up, i.e. the ANM.* It is the ANM who always remains in touch with the people and works at the grassroots level. Therefore, the ANM's requirement was considered paramount.

5.1.3 Improvements in the Maintenance System

All building maintenance work, including petty and annual maintenance, as well as special repairs had been the responsibility of three government engineering departments, the Works Department (for urban areas), the Urban Development Department (for urban water supply and sanitation) and the Rural Development Department (for rural areas). Since these departments have personnel only at the district or at best block headquarters level, and since health department buildings were scattered far and wide, most of the institutions did not get attended to at the time dire requirement. Petty repairs, which may cost a few hundred and few thousand rupees, were almost never taken up in time. The matter therefore needed to be addressed.

Under the DFID-sponsored initiative, the project districts were given the necessary assistance. But, very soon, realizing the importance of the matter, the State government decided to identify hundred block CHCs / PHCs and the in-charge Medical Officers were given Rs. 10,000 each annually to take up petty repairs. They were asked to undertake urgent minor repair works following simple procedures. The impact of this programme was immensely beneficial for the concerned CHCs/PHCs. This initiative is being extended to the whole state shortly, remarked some top government officials.

5.2 Health Sector Reform Initiatives Undertaken in Orissa by the Government

Interest in health sector reform at the government level began to gather strength in Orissa in the mid-1990s. Two events heralded the beginning of this process. First, the formation of a Committee of the Orissa Legislature chaired by the Health Minister (called the House Committee) which looked into three important aspects of health care, and advised on (i) raising additional resources for health care activities by introduction and retention of user charges in the medical colleges and district hospitals; (ii) granting greater autonomy to the major hospitals; and (iii) the abolition of private practice by government doctors. The second event was the evaluation done by the DFID (earlier ODA) of its two health and family welfare projects in Orissa which concluded that further capital investment in the health sector of the state would be inadvisable unless certain systemic changes were undertaken.

In the 5 years or so following these two events, a number of reforms, both large and small have been introduced in the health sector in Orissa. Some of them relate to changes in administrative and operational systems, some to changes in personnel policies including skill development for better service delivery and some are aimed at giving a minimum health guarantee to the people. The reforms have had varying degrees of success. The DFID-sponsored reform initiatives relating to drug procurement, mobility of medical personnel and maintenance of buildings in the project districts and the subsequent adoption of these steps by the state government have been already discussed. The salient features of some of the other principal reform measures are described briefly below in tabular form.

| Sl.no. | Nature of Reforms in the Health Sector | Introduced | Objective | Applicability | Expected and Realized Impact |
|--------|---|------------|--|---|--|
| 1. | User Charges | 1997 | <i>To raise resources for the health institutions from people able to pay and utilize it for the improvement of the hospital and the benefit of the patients.</i> | <i>All tertiary, district and block level government hospitals in the State in case of diagnostics, special accommodation and transportation.</i> | <i>By making funds available at the hospital level for day-to-day working capital and emergency needs, the scheme is expected to greatly benefit the public. Financial decisions can be taken at the district level, thereby ensuring greater autonomy, high motivation and increased interest in improving the hospitals among the health sector personnel.</i> |
| 2. | Privatization of Cleaning in Hospitals | 1998 | <i>To ensure cleanliness in public hospitals.</i> | <i>Undertaken as a pilot project in a few district level and tertiary hospitals in the State.</i> | <i>An indication of the felt need for, and popularity of cleanliness. Some district hospitals have contracted out the cleaning work, using their own funds without waiting for government funding.</i> |
| 3. | Mandatory Pre-PG Rural Service | 1999 | <i>To ensure the presence of doctors in remote and difficult areas and also to provide better rural orientation to young doctors.</i> | <i>To the whole State.</i> | <i>For the doctors, this scheme has its plus points in that the assignment is for a limited period only and is linked to something that is highly desired (a PG degree). Since the scheme involves young doctors who have freshly qualified, greater acceptance of the rural assignments among them is obviously expected. Senior doctors are supposed to be spared from such assignments. However, as per newspaper reports, there appears to have been no improvement in the ground situation in remote and difficult areas as far as the presence of doctor is concerned.</i> |
| 4. | Pancha Byadhi Chikitsa (5 Diseases' Treatment Scheme) | 1999 | <i>To ensure that every patient who goes to a public hospital is guaranteed treatment at government cost for 5 major diseases (malaria, leprosy, diarrhoea, acute respiratory disorders, and</i> | <i>The whole State – a pilot project</i> | <i>The scheme has created a health entitlement and risk protection guarantee for the poor, because it has been kept out of the user fee collection system.</i> |

| | | | | | |
|----|---|------|--|-------------------------|---|
| | | | <i>scabies). It is estimated that 70% of the patients who attended public health institutions came for treatment of one or the other of these diseases. Two more diseases, TB and Helminthiasis (parasitic infestation) are soon to be added to this list.</i> | | |
| 5. | State Health and Family Welfare Society | 1998 | <i>To create a simple, problem free method for making funds available for health care activities, as and when required, for specific programmes.</i> | <i>The whole State</i> | <i>Easy access to funds, flexibility of use and better adaptability to crises and contingencies are the expected benefits of this reform measure. It is to lead to less dependence on the State's finance department which had control over funds (that was given by the Centre for specific programmes) amalgamated in the State budgetary resources.</i> |
| 6. | Amalgamation of District Health Societies | 1999 | <i>To have a composite district health society for better management instead of having separate societies for central or donor funded programmes on blindness, leprosy, TB, malaria, etc. but with separate earmarked funds for each programme.</i> | <i>The whole State</i> | <i>The setting up of Zilla Swasthya Samiti – ZSS (District Health Society) is aimed at facilitating better management and systematic functioning. It has also paved the way for shifting the responsibility of ZSS to the Zilla Parishads from the over-burdened hands of Collectors. But the total transfer of such responsibility has not been possible so far.</i> |
| 7. | Formation of District Cadres for Paramedics | 1998 | <i>To create smaller and more manageable cadres for lower level functionaries.</i> | <i>The whole State.</i> | <i>This scheme is expected to lead to better availability of paramedics in difficult areas, less hardship for personnel due to long-distance inter-district transfers and consequently better service to the public. However, there is</i> |

| | | | | | |
|----|------------------------------|------|--|--|---|
| | | | | | <i>no evidence to suggest that it has achieved the desired impact.</i> |
| 8. | Handing over of PHCs to NGOs | 1997 | <i>To allow remote PHCs to be better managed, give better health care to the public.</i> | <i>A pilot project in 2 districts.</i> | <i>The experiment did not run for very long, as the NGOs did not have the resources and ability to run the institutions. However, fresh attempts are in the offing in this direction.</i> |

5.2.1 Analysis of the Impact of Two Selected Reform Measures

Although the state government in the past decade has undertaken many reform initiatives, this paper tries to evaluate the effects of two selected reform initiatives related to (a) user charges and (b) drug management system.

a. User Fee Collection

Even before 1997, the user fee collection from patients was in existence in government hospitals of Orissa but it was restricted to certain items such as accommodation in air-conditioned cabins, use of ambulance, x-ray and few other medical investigations. The House Committee constituted by the Orissa Legislative Assembly to review the health care system recommended collection of ‘user charges’ in all district headquarters hospitals, all three medical colleges of the state and a few other hospitals. This was done with effect from 01/07/1997 (vide a government order dated 24/06/1997) “in order to generate additional resources to supplement the budgetary allocation with a view to improve and extend the medical facilities”. The government order revised the existing rates and covered new areas for levy of fees/charges in respect of accommodation, transportation, radio-diagnosis, and medical investigation. However, the order exempted patients from poor families living below poverty line from any such fees/charges, with the condition that there must be a recommendation of the treating physician and the CDMO/Superintendent of the concerned hospital. To make the system easier for the poor people, the order made it clear that the authorities should not insist on production of records and documents as a matter of proof that the user household resides below the poverty line. At the same time, the number of exemption cases should not exceed 40% of the total patients from whom charges are collected.

The government order provided for the formation of a society at the level of each hospital so that the funds collected could be utilized for the “maintenance and improvement of the respective hospitals and for ensuring qualitative health care facilities without being deposited in the concerned treasuries”.

A 1999 study on ‘user charges in Orissa’ reports that the user charge collection system introduced in the government hospitals in Orissa has substantially benefited both the hospitals and the patients. The hospital authorities were able to mobilise resources at their disposal for otherwise neglected activities of the hospitals thereby improving the health service delivery system. Many hospital authorities were able to feel a sense of belongingness to the institution and motivated to take up initiatives for improving the service performance. The patients in general accepted the system. Those who had to pay user fees were of the opinion that it is affordable and associated it with improvements in the quality of health care services.

However, the study does report isolated incidents of non-cooperation and sabotage by health personnel and professionals. There were also problems like collecting fees from poor patients, over charging and non-payment of balance, delayed bank remittance, utilization of collection without depositing in the bank, not giving proper receipt, delaying results etc. These are problems specific to the individuals and can be controlled. A more damaging revelation by the study relates to the tendency on the part of some Medical Officers to prescribe and direct patients to use the diagnostic services located outside even when such facilities are available in the hospital. The reason usually cited is that the privately maintained facilities are better in terms of quality and reliability. However, how this quality of private facilities could be guaranteed by the Medical Officers, when they themselves were given the opportunity to improve the quality of the services provided by them (using the user fees), is a nexus not fully explored.

According to available figures, the fee collection from 1/7/97 to 31/3/99 was Rs. 2.98 Crores, which amounted to roughly 1% of the then total government expenditure on health in the state. Out of this amount, a major portion (Rs. 1.13 Crores) was collected from the SCB Medical College, Cuttack. Though these figures reveal the potential of user fee collection as one of the major areas for resource mobilization, some serious information gaps exist with regards to who is paying for what, the economic impact of the charges on the users, and the extent to which such charges have affected quality and accessibility of public health care services/facilities.

b. Drug Inventory Management System (DIMS)

A change in the pharmaceutical policy was effected by the Orissa Health & Family Welfare Department from early 1998. The changes were intended to restructure drug procurement and distribution system. The underlining principle of the reform measure was to make available and accessible the maximum possible types of quality drugs, optimizing the existing financial resources, rational drug management and improved prescribing practices.

The major features of this policy comprised:

- A rational drug list containing essential items of drugs in generic names only.
- Freedom of institutions to choose any drug in any quantity, constrained only by a given budget and essential drug list.
- Centralized drug procurement from manufacturers only, to ensure best competitive prices.
- Twenty percent of the drug budget made available to the district and peripheral institutions for emergency purchase and meeting expenditure towards transport.
- Online inventory control system that connects 33 warehouses and one central drug store attached to the main office to the central office.

The benefits of the new system were many. The essential drug list in generic names cut down the purchase of many unnecessary drugs and resulted in rational drug prescription. Bulk purchase, central payment and adherence to a strict schedule of payment resulted in economies of scale and greater value for money (for example, IV fluids earlier supplied at the district level at Rs. 16 per bottle came down to Rs. 6). This may have contributed to the decrease in the annual drug budget of the State in recent years (Table-9). Strip packing increased the acceptability of drugs by the public. Quality testing and blacklisting of sub-standard drug suppliers resulted in good quality drugs being supplied. The institutions had the freedom to select their own drugs and, most important of all, drugs were available in plenty in all institutions. Because of introduction of a centralized drug procurement and supply mechanism, a computerized on-line inventory control system could be put in place. This resulted in improved monitoring of drug availability at the district level at any point of time and better transparency and accountability.

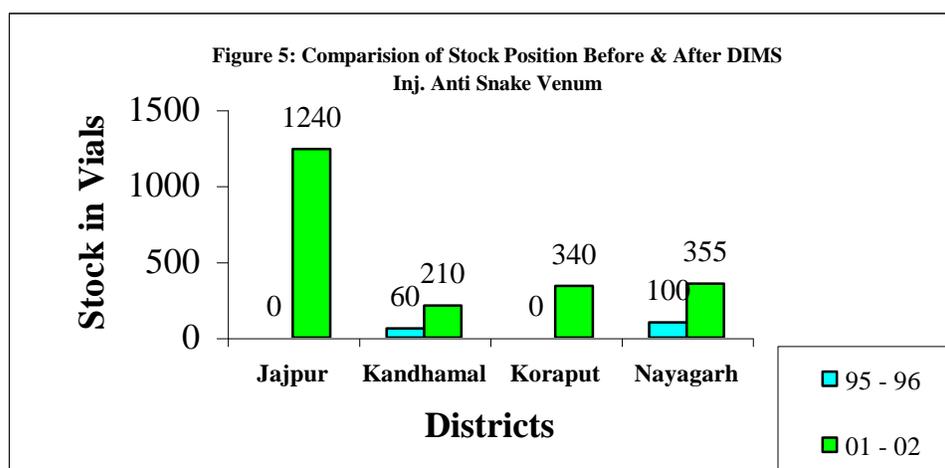
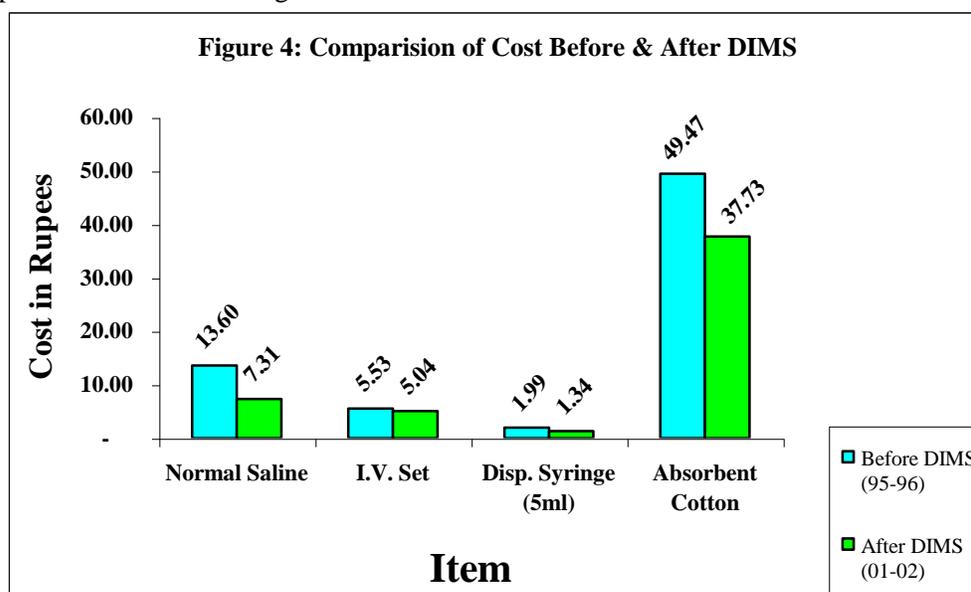
Table – 9: Budget of Allopathic Medicine in Orissa
(Rs. in Lakhs)

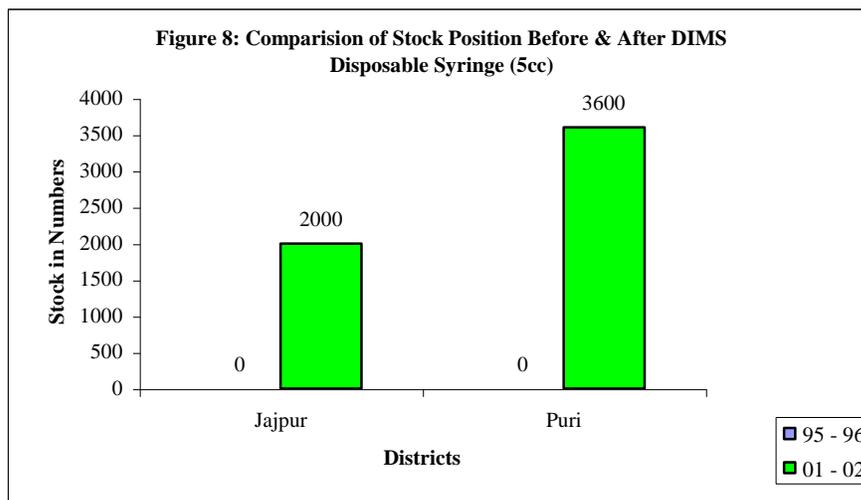
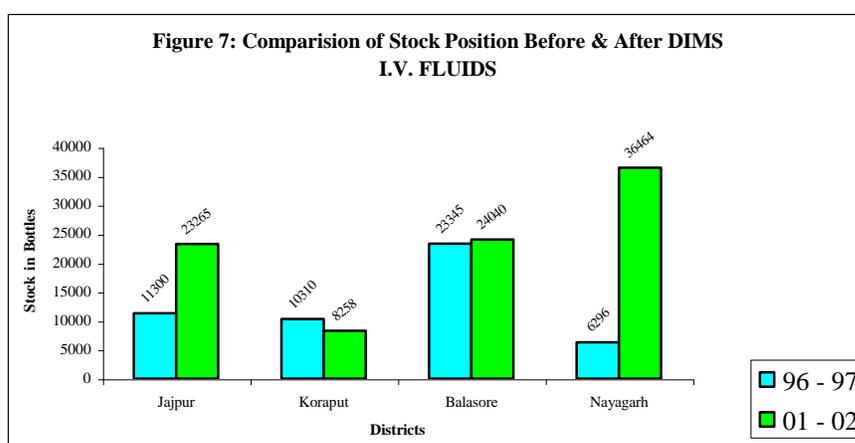
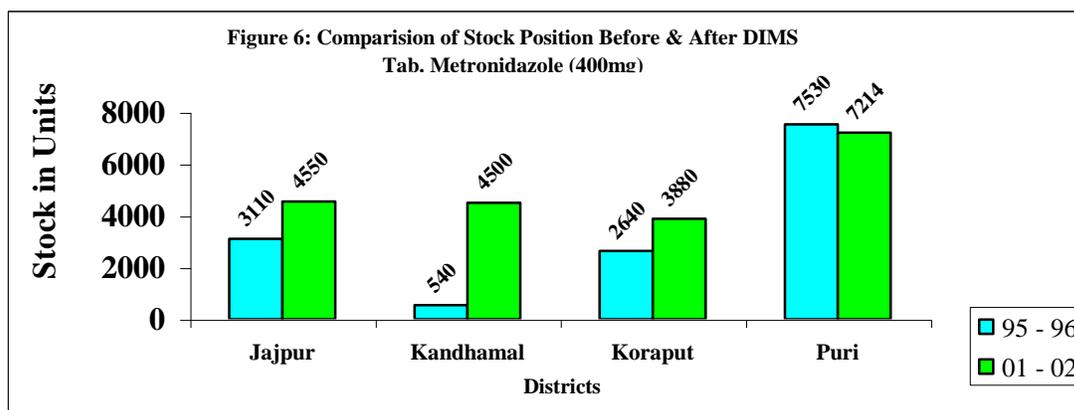
| Year | Sector | | Total |
|-------------|-----------------|-------------------|---------|
| | <i>Non-Plan</i> | <i>State Plan</i> | |
| 1997 - 98 | 787.17 | 333.11 | 1120.28 |
| 1998 – 99 | 813.64 | 617.53 | 1431.17 |
| 1999 – 2000 | 813.79 | 287.55 | 1101.34 |

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| | | | |
|------------------------------|--------|--------|---------|
| 2000 – 2001 | 761.30 | 109.09 | 870.39 |
| 2001 – 2002 (Provisional) | 760.25 | 297.42 | 1057.67 |
| 2002 – 2003 (Provisional) | 760.75 | 408.80 | 1169.55 |

It is likely that because of competition and maintenance of transparency in the drug procurement system, drug prices have remained more or less unchanged over the years. A comparison of the cost of various drugs and the stock position of drugs at various hospitals before and after the DIMS was introduced gives the following figures. The comparison by and large shows that the newly introduced system has produced positive results as far as costs and stock positions of various drugs are concerned.





6. Other Impacts of External Assistance on Health Sector of Orissa

Apart from the reform measures mentioned above, some other effects of external assistance to the health sector of Orissa is also witnessed. These are summarized below.

6.1 Community Participation

In the OHFWP (Phase – III) Project, the project memorandum clearly indicates the options for: (i) increasing the involvement of communities in health services management and delivery; (ii) ensuring equity for disadvantaged groups in consultation with those groups; and (iii) consulting with service users, their representatives and other stakeholders for greater community involvement. There is no mention of seeking or prompting initial investments by the communities for provision/delivery of health services.

But in the “Norm-based guidelines for the preparation of district plan of operation”, or in the document “An outline of procedure for undertaking activities contained in the district plan of operation”, nothing has been mentioned as to how the objectives for community involvement will be achieved.

Expectedly, no attempt has been made in any of the above directions and there is no evidence to suggest that a participatory approach has ever been adopted either to address the problems specific to the disadvantaged groups (women, children, scheduled castes, scheduled tribes, etc.) or to take their opinion for making suitable changes in the service delivery mechanism.

As far as accepting community contribution as a norm for future health service activities, nothing has been initiated and the issue remains as sensitive and touchy as ever and the politicians are afraid of making any move in this direction.

6.2 Preventive, Curative & Promotive Aspects of Health Care

There are three aspects of the health service delivery scenario: preventive, curative and the promotive. There are three tiers in the health system: primary, secondary and tertiary. The primary health care (consisting of PHCs, CHCs and Sub-centres) tier is more preventive and promotive in nature in Orissa than curative. It is largely oriented towards MCH and in particular to meet physical targets. Although, the strongly felt need of the people is for curative care, it is not met to a satisfactory extent at the primary level. The ODA project in its initial two phases played a vital role in creating infrastructure and provided physical accessibility to the unreached. Physical accessibility was assumed to be the most important factor determining provision of health services. But it is now being increasingly recognized that simply providing a facility is not enough and that demand generation is also required, particularly for promotive and preventive services as those provided by the government.

The first curative facility in the government structure is the single-doctor PHC covering a population of 25–30,000 population. It is common knowledge that most of these doctors do not reside near the PHCs and rather they prefer to stay in nearby towns. They commute to the PHC and are not able to give the full time of the day to attend to the patients who come for getting curative care. They also remain absent in spite of several measures taken by the government in the recent years. At the sub-centre level, very little is provided by the ANMs in the way of curative services. ANMs have a very limited selection of drugs available and are rarely present at the sub-centre since they are supposed to spend most days in visiting nearby villages.

Since the people are not very sure that they will receive the desired curative treatment at the PHC level, they prefer to travel to the CHC in the nearby town or to district hospitals, i.e. the

secondary tier. Realizing that people are more dependent upon these hospitals for curative purposes, the Government of Orissa has started an ambitious Secondary Health System Development Project in the State with the help of World Bank. This is also aimed at lessening the excessive pressure on the tertiary level hospitals, i.e. Medical College Hospitals. It is needless to mention here that the tertiary tier mostly provides curative services and also creates trained manpower for providing these services.

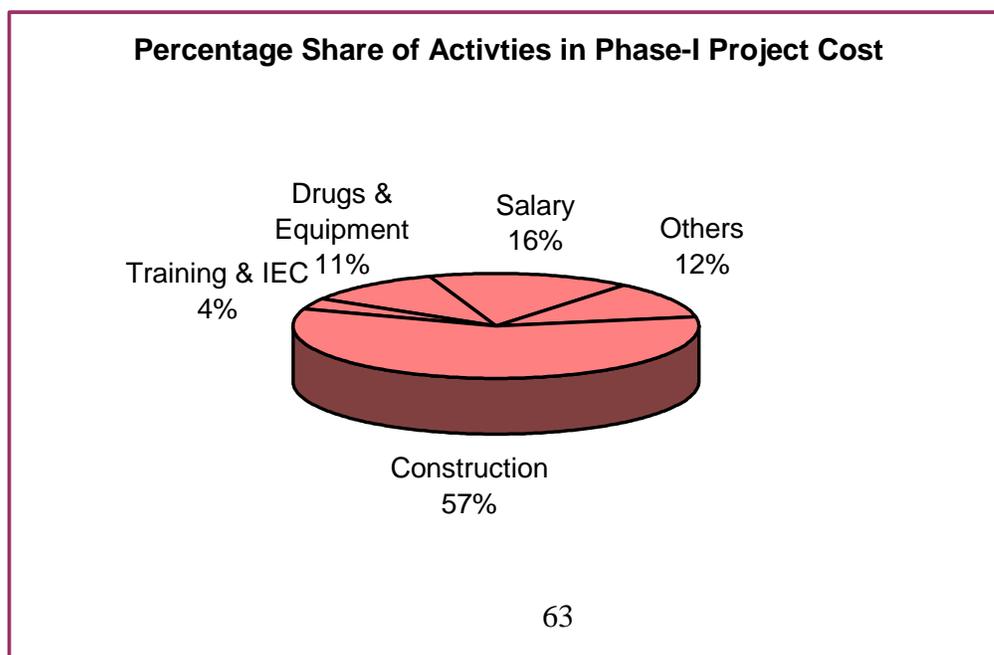
In the recent years, the World Bank has provided financial support to the Government of India to launch many National Programmes, which has reinforced the importance of the preventive mechanism in health services. For meeting the needs of the National Programmes, the vast physical network of PHCs and Sub-centres have been helpful to a great extent.

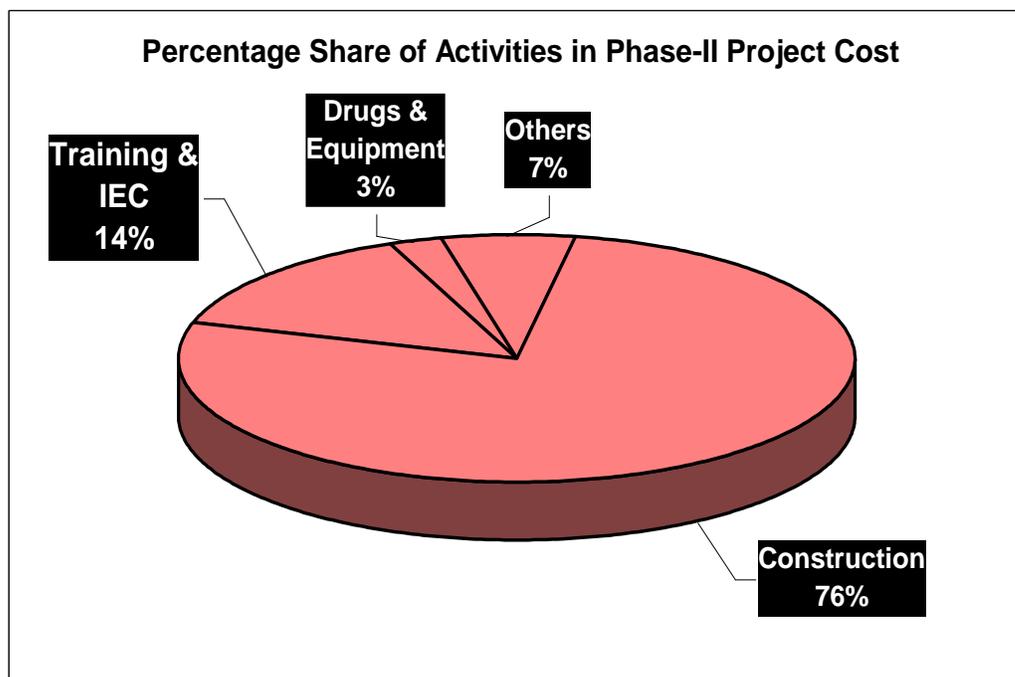
Whilst the main causes of health problems in India indicate a clear need for a major investment in health education and health promotion, not enough was done in the past to boost the promotive aspect. However, in the recent years IEC activities have been given importance by the government as well as by the Non Government Organizations being supported by the National and International Agencies such as the UNICEF, Plan International, Family Planning Association of India, National AIDS Control Organization, Parivaar Seva Sanstha, Voluntary Health Association of India, CARE, etc. One can now-a-days see the practical outcome of such efforts in the form of billboards, posters, awareness campaigns, and advertisements in newspapers, radio programmes and the television. Over the recent years the role of promotive campaigns has increased. Moreover, the independently run National Programmes on TB, Malaria, Leprosy, HIV/AIDS, etc. have greatly contributed to the promotive aspect.

Therefore, there is no evidence in general to suggest that any of the three aspects of health services – preventive, promotive and curative – has got special attention or received more importance in relation to the other aspects.

One project, i.e. the ODA supported OHFWP programme ran both in the period before the economic reforms programme in India started and also after it. If one looks at the available project documents to know which of the activities dominated the project cost estimates, then the following picture emerges.

Note: Phase-I of the ODA Project was implemented in the pre-reform period.





Note: Phase-II of the ODA Project was implemented in the pre-reform period as well as after the reforms started.

The above two pictures give an idea that the preventive aspect, i.e. through the construction of new PHC, CHC and Sub-centre buildings has got a boost in the concerned project in the Phase-II than in the Phase-I. The curative aspect, i.e. drugs and equipment has nose-dived in Phase-II, while the promotion aspect, i.e. training and IEC activities has got more importance in Phase-II, in comparison to Phase-I.

6.3 External Funding in Health Sector & Project Performance in Terms of Input & Output Indicators

Actually, in the past and also at present, there is no health sector programme in Orissa, which is directly funded or initiated by the State Government. The Government of Orissa always implemented the programmes initiated by the Union Health Ministry and followed the National Health Policy guidelines. Until recently (September 2000) it did not have a Health Policy of its own, although it is still in a draft stage and is awaiting the approval of the State legislature.

The first two phases of the ODA project did not have any reference to the input and output indicators of the projects. But the Phase-III of the project reflects a well-defined input and output indicators' list in the form of a logical framework. Some of them are reflected in the table below.

Table – 9: Input And Output Indicators Of Phase-III ODA (DFID) Project

| Sl. No. | Input Indicators | Output Indicators | How Far Realized |
|---------|--|---|---|
| 1. | Govt. of Orissa (GoO) continues to support sector-reform | Government orders or legislation issued for continued | The Draft Health Policy document was ready by |

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| | | | |
|----|--|---|--|
| | programme politically and financially. | implementation of sector reform by August 2000. | September 2002. But it still awaits approval by legislature. |
| 2. | District managers have necessary levels of delegated authority for personnel, decision-making and budgets and expenditure. | Health Worker absenteeism reduced to agreed target level. IEC activities and products meet health sector needs. | No available data to suggest that health worker absenteeism has reduced. |
| 3. | GoO generates support for and contains opposition to reform, e.g. from health workers, professional organizations, unions and politicians. | Significant increase in user satisfaction. Physical environment meets defined standards of cleanliness and repair. | No satisfactory advancement has been made in all the tiers of health delivery system in the State. |
| 4. | Users have influence in priority setting and in the accountability of local health service providers. | SC/ST and women are significantly higher in proportion of people served. | Increase in user numbers. But no certainty regarding the proportion of SC/ST & women. |
| 5. | No significant delay in passing orders or legislation for health sector reform. | Directorates of Health & Family Welfare contribute to policy analyses. | Delay in passing orders is the norm in Government sector. |
| 6. | Current working practices will not constrain officials' ability to introduce change. | Improvements in indicators of quality, equity and priority setting as a result of maintenance systems and health worker availability. | Management manpower is not in response to the needs of the people. No marked improvement in maintenance systems. |

The Secondary Health System Development Project supported by the World Bank and being implemented at present in the State has also very clearly mentioned input and output indicators in the project document. Now it becomes quite evident that the projects that are initiated of late by external agencies always insist on a clear mention of input and output indicators and working on those lines.

As far as centrally sponsored programmes, there is no evidence to suggest that the input and output indicators are taken as the guiding lights for project implementation. But the World Bank and other agencies now-a-days finance most of the nationally implemented programmes. One only hopes that due to insistence of external donors such indicators are accepted as guidelines for implementation of such projects.

6.4 Effects on Health Financing

Over the years the percentage of health budget in relation to the total budget of the State has declined. Although, ascertaining the reasons of this decline needs a deeper analysis, one of the reasons could be the flow of external assistance to the State. If this is indeed one of the reasons then the State authorities must formulate long term plans from now to keep the budget increasing even after the external assistance in various activities are withdrawn in future. A glance at the following table will make the picture of the declining health budget clear.

Table – 10: Health Budget as a Percentage of State Budget

| Year | Health Budget as %age of state Budget |
|-----------|---------------------------------------|
| 1990-91 | 3.61 |
| 1991-92 | 2.92 |
| 1992-93 | 2.98 |
| 1993-94 | 2.96 |
| 1994-95 | 2.74 |
| 1995-96 | 2.86 |
| 1996-97 | 3.00 |
| 1997-98 | 2.67 |
| 1999-2000 | 3.00 |
| 2000-2001 | 2.98 |
| 2001-2002 | 3.05 |

As in the case in many other states of India, a major problem in the health budget of the state is the growing mis-match between salary-related expenditures and expenditures on commodities. The health sector salary-related expenditures increased from 71% of total expenditure in 1974-78 to 81% in 1985-88. Over the same periods, the expenditure on commodities fell from 27% to around 14%. When translated in terms of the ratio of salary-related expenditures to commodity-related expenditures, the lopsided growth of the budget is strikingly evident – from 2.6:1 in 1974-78 to 5.6:1 in 1985-88. This trend in the health sector expenditure pattern continues in the present period also. Very serious thought on finding sustainable sources of finance for health services delivery must be made in order to avoid difficult situations in future.

7. Tracking the Flow of Funds at the District, Block and PHC Levels

One of the researchers went on a field trip to the Keonjhar District of Orissa, i.e. one of the districts where health reforms started for the first time in Orissa with the financial assistance of DFID. The researcher interviewed the Chief District Medical Officer (CDMO) regarding the subjects whether they are able to know what fund comes from which source and whether they maintain separate accounts for each separate source of funds differentiated by the purpose of such funds. The facts that emerged from the interview are the following:

- a. At least little more than a decade back, the funds which came from the State Government for different purposes like, building PHCs, Sub-centres, residential quarters for Medical Officers and health personnel, malaria eradication programme, leprosy eradication programme, etc. were not being kept separately for each purpose. This used to create difficulties for the district administration to spend the money rationally and for the purpose it was allocated. When everything was kept together, certain issues used to suffer. This also used to lead to unnecessary expenditure on not-so-important heads. For example, certain amount has been provided for new construction, repair and maintenance. If the amounts are not kept separately, this would invariably lead to over expenditure on construction and as a result, crucial needs for petty maintenance and repair would suffer.
- b. Further, for example, the allocation for leprosy programme was overspent because the funds for many programmes were kept together. This would mean less expenditure for malaria programme or TB programme. When funds are earmarked for separate programmes in separate accounts, the usual tendency is to rationalize and economize expenditure and to manage within the given limits. But when funds for various purposes are kept together, usually one purpose is served at the cost of another.

- c. However, for the last 6/7 years, with the formation of Zilla Swasthya Samiti (ZSS) – district health committee – the funds for various purposes are being kept separately. The donors also make it a point to ensure that the purpose for which their fund is given is not diluted and the entire allotment is exclusively spent on the specific programme.
- d. At least in case of the DFID funded reform package in the Orissa Health & Family Welfare (Phase-III) Programme - OHFWP - the funding agency always insisted for separate accounts at the Block level, i.e. Community Health Centre. But this did not pave the way for maintenance of separate accounts for other programmes/activities.
- e. At the PHC level, one can see the trace of the investments made by the ODA, during the OHFWP Phase – I and Phase – II for construction of PHC buildings, expansion of the existing structure or construction of new ones for providing additional beds, construction of residential quarters, etc. even if in most cases the buildings have deteriorated due to low quality of material used during the construction process.

8. Concluding Remarks and Policy Implications

Health sector reforms in Orissa represents a classic case of external assistance propelled initiative, with DFID playing the role of a catalyst. *Although the researchers have not yet found any document establishing concretely as to why DFID (the erstwhile ODA) chose Orissa as its destination, it can be safely guessed that the relative backwardness of Orissa's economy and the large scale underdeveloped nature of Orissa's health service delivery mechanism must have prompted the external donor agency to invest in creating health infrastructure in the state more than two decades back.* Accessibility of people in general to some kind of a system at a reachable distance where a doctor and other paramedics are available was seen as a key determinant for delivering health services.

It became a different story altogether when the Orissa government approached the DFID (new avatar of ODA) to give funds for Phase III of the predominantly infrastructure-oriented project to cover the remaining 3 districts of Orissa (uncovered by earlier ODA projects). Infrastructure creation was the best option for the political bosses to show tangible results to their constituency. *The DFID on its own made certain conditions to be realized before it made any commitments for the development of the health sector in the state. This opened the gates for reform initiatives.* The Government of Orissa (GoO) also went beyond the 3M's and initiated many other measures for ensuring a better health delivery mechanism in the state.

But when we measure the success of such initiatives, there seems to be little reason for celebration. *The number of externally assisted projects in Orissa has increased. It has certainly created a better impact in terms of removing the immediate worry of the GoO to search for sources of funds to address the health of the people of the state. But this opportunity has not been utilized to find out alternative and sustainable sources of finance for financing the health sector needs in future.*

It has certainly created more buildings, equipment, beds, medical and paramedical staff, vehicles, volume of drugs, etc. But putting these hardware to good use and thereby meeting peoples' needs in this poor state has remained far from satisfactory. Here a clear distinction between 'process' and 'performance' indicators has become glaring vis-à-vis reform outcomes. *The process outputs have been encouraging. But there seems to be no trace of a perceptible increase in the performance of the health sector.*

The 'hardware' in any given situation will show good results only when it is put to rigorous use. But the persons responsible to put them into good use must be adaptable to the changed scenario and the new demands. There is in fact a lack of internalization of the reform measures by the health sector personnel themselves. A retired health sector professional remarked very aptly during an interview that *'although the wherewithal to ensure better health service delivery has been by and large put in place through external support, the persons suitable to implement the same cannot unfortunately be supplied by the external agencies. They have to be our local people or those who are already inside the system. Unless they internalize the prerequisites of a broad based reformed structure, how can we expect better results from them in the field?'*

Realizing this need, a sectoral investment programme (by EC) specially designed for reforming people who are manning the state's health sector has already begun. A case in point is the initiative of the Orissa government to send young doctors pursuing their P.G. courses in the 3 Medical Colleges of the state to remote areas for serving the people in the remote/rural areas. This was mooted as a solution to the perpetual problem of large-scale absence of doctors in those areas. Doctors who have a family or children never wanted to be posted in rural areas because of the fear of their family being left out of the modern facilities that are available in the towns or their children lagging behind others for want of good educational institutions in a rural set up. To overcome this problem it was thought that if young people were posted in rural areas then a long-term solution could be effected to this complex problem. Even to encourage such people and also to have a safeguard, it was decided to award some marks to such people in their P.G. Degree examination in lieu of their service in the rural areas. But this also has not resulted in any good result. Numerous newspaper reports suggest that this system has not worked and the people at the helm of affairs in the Directorate of Health Services also admit that this system has been a great failure and the doctors posted in rural areas find out their ways to remain absent for a large part of the month.

In order to effectively check this large scale absence of doctors in rural areas the State Health Department decided in January 2003 that the doctors cannot go on leave unless they take permission from the concerned Panchayat Samiti. *This decision was reported to have been taken after much insistence of the external donors like the DFID.* But as soon as this news was out, the doctors started giving warnings to the state government for 'mass leave' or 'mass resignation' if they were asked to report to such people as the Chairperson of the concerned Panchayat Samiti. It shows very firm reluctance on the part of health professionals when community control over health issues is put in the agenda. This raises a larger question in the health service delivery system. What is the way to ensure community participation when community based institutions like the *Panchayats* are prevented from having a say in the health issues? *The most crucial factor in ensuring proper health service inside the government system to the poor who cannot afford 'private health service systems' is the doctor's ready availability at the health centre for consultation. If the doctor is missing or is unwilling to cooperate with the community evolved mechanism, then what is the way out? Is there any other mechanism that can work satisfactorily to ensure the doctor's presence in rural areas?* This remains one of the points in the unfinished agenda of the reform process.

There are reports regarding satisfaction of people with the 'user charges' collection system. *Some places like 'Jeypore' in Koraput District have become the ideal cases for emulation in user fee collection, their proper utilization and delivering expected services to the people.* However, in most of the cases this option has not been tried out with commitment by the health

professionals in spite of the fact that it has great potential for raising crucial resources for the health sector. With a little more commitment the facility user can go back being more satisfied and that will eventually increase the chances of more user fee collection. *Some health administrators sitting at the headquarters also express their unhappiness with the system simply because they have lost control over some finances. They are skeptical of the proper utilization of resources that are raised at the hospital level because they think that they are always the better managers of public funds. Their 'heartburn' can be understood from the fact that even for petty expenditure the district health administrator used to come to them asking for allocations. They are obviously annoyed because their role in control over resources has more or less decreased.* They spare no opportunity to dub the new system as people's welfare retarding. This is another crucial point to cite the unpreparedness of health sector personnel to accept the newer nuances of reforms.

The ordinary health service user somehow has not been put high on the agenda during this period although clear indications are there on behalf of the donor agencies asking the government to introduce systems for such changes. *The health system has somehow become a hostage to the needs and aspirations of the personnel who are getting paid for their work. There is more concern among these people when attempts are made to make them more accountable or to deliver the goods properly. Their voices get shriller whenever they think that their interests are going to suffer on account of attempts for bettering the system in favour of the rural people.* The political class has never been able to convince them to do the needful or accept the change. How after all the people are to be given better service if their voices are not heard or they are not made party to decisions that ultimately affect their future? What kind of reform measure needs to be taken to ensure a people-centric approach? The answer is not unavailable. There are instances in our own country in states like Kerala and Andhra Pradesh where the rural health service delivery mechanism has been linked with the *Panchayat* systems of governance. The time has now come for taking the right initiatives for achieving desired changes that percolate to the lowest level.

Somehow or the other, the finer messages of economic reforms have not percolated well in the health sector. The efforts for systemic changes, less government intervention, facilitating community involvement in deciding the nature of primary health service delivery mechanism, searching for alternative and viable sources of resources within the system, raising performance levels of the health sector professionals have not been made at all.

The 'Vision Document – 2010' recently developed by the GoO and the 'Draft Health Policy' document reflect a very tall order for the achievements to be made in the future as a part of the overall reforms initiatives. Obviously, there has been enough indication in the document regarding the crucial role of external assistance for achieving a 'reformed health sector'. The following are some of the key highlights of the future agenda of action in the health sector of Orissa.

- i. Substantial reduction in IMR, MMR, communicable disease burden and effective check on non-communicable diseases.
- ii. Better distribution of public provided services in terms of equity and geographic access.
- iii. Partnership with private providers in comprehensive health care.
- iv. Professionally managed hospitals with personnel skill upgradation and staff motivation.
- v. Differential charging of health services.
- vi. A mix of financing options including community financing, health insurance and government financing keeping in view the increasing fiscal constraints.

- vii. Health and Family Welfare services to be charged at cost for people above a particular income level.

Some of these long-term objectives can only be achieved through a broad-based reform initiatives and the key to the successful achievement of these is a larger role for the people's participation. These objectives also reflect user cost collection as a crucial input for financing the health sector needs. *Wide ranging partnerships with a variety of stake holders, differential charging of health services, full cost recovery from some targeted population, equity and geographic access are very crucial elements for any health sector initiatives and these action points are very well in tandem with the overall reform process of the economy as a whole.* The future of health service and achieving the ultimate goal of 'health for all' will only be a reality if strong and determined steps are taken by all the key players in the health sector.

In order to achieve these, it is recommended that a serious attempt for fusion of initiatives by the health providers, community leaders, health administrators, health sector researchers and non-government organizations should be made to achieve the long-term goals. For this a further identification of research goals in the areas of user fee collection, networking for public-private domain partnerships, scope, feasibility and methodology of differential fee collection and areas for greater community involvement is necessary to give further impetus to policy making and targeting of achievable and deliverable goals within a reasonable span of time.

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1. Ms. Meena Gupta, Principal Secretary, Department of Health & Family Welfare, Government of Orissa.
2. Dr. Suresh Mishra, Consultant, OHSDP (World Bank Project) & Former Project Officer, OHFWP (ODA Project).
3. Dr. Jyotsna Pattnaik, Project Officer, OHFWP (ODA/DFID Project).
4. Dr. Anusuya Das, Consultant, European Commission's Sector Investment Project & Former Project Officer, OHFWP (ODA/DFID Project)
5. Dr. Vijay Pillai, Consultant, DFID, Orissa
6. Ms. Supriya Pattnaik, Head of Orissa State DFID, Bhubaneswar.
7. Dr. Siba Kumar Rath, Consultant, European Commission's Sector Investment Project & Former CDMO of Cuttack and Bolangir Districts.
8. Dr. P. K. Acharya, Former Director, Health Services, Government of Orissa.
9. Dr. Ranjana Kar, Assistant Director, SIHFW and Former Statistician, OHFWP (ODA/DFID Project).
10. Mr. N. G. Bal, Statistical Advisor, OHSDP (World Bank Project) & Former Assistant Director, Statistics, Government of Orissa.
11. Mr. Ajay Seth, Director, DEA, Government of India.
12. Dr. Seba Mahapatra, Director, Health Services, Government of Orissa.
13. Mr. S. K. Naik, Secretary, Health, Government of India.
14. Dr. B. P. Mahapatra, Head, Orissa State Unit, UNFPA.
15. Dr. A.C. Dey, CDMO, Keonjhar District, Orissa.
16. Dr. R. K. Paty, Deputy Director, Orissa Drug Management Unit, Bhubaneswar.

Chapter - 3

STATUS OF HEALTH AND MEDICAL CARE IN INDIA A MACRO PERSPECTIVE

Gopal Kadekodi
Keerti Kulkarni

1. Macro-economic aspects of Health and Medical Care Sector : The context of Economic Reforms in India.

The Economic Reforms Process was set in motion in India since 1991. In a widely circulated document from the Ministry of Finance, Bhagwati and Srinivasan (1993) summarized the rationale for such a reforms process for the benefit of the public. Some excerpts are important to note.

'The economic reforms initiated by the government in June 1991 have an excellent rationale. The 'macroeconomic' situation, both external (the balance of payments) and internal (the fiscal deficit), was unsustainable.....The cutting of developmental expenditure appears to us to be little beyond what appears prudent: growth later may be compromised by this, so the government needs to examine this question carefully. On the other hand, the Finance Minister has been accused of cutting 'Social Expenditure', thus stabilizing the economy at the expense of budgetary cuts in spending on the poor.' (pp. (ii) of the report).

While arguing for the much needed economic reforms, Bhagavati and Srinivasan have cautioned on the need for maintaining long term development expenditures. This was followed by a major study by Joshi and Little (1996). After arguing in favour of what all went in during 1991 to 1996 in terms of reforms in India, they seem to agree that some thing must be done for the poor. To quote their own words:

'However, the major reforms we have applauded or advocated may have serious differing effects on different social and economic classes. These, especially the effects on the poor, cannot be ignored. Indeed the objective of any reform must be to benefit society, and this surely precludes reforms which harm many poor people belonging to that society.' (pp. 219)

'In the long run, expenditure on primary education and primary health care may be more poverty-reducing than other more immediate measures-provided always that the economic, social, and legal systems are not biased against employment.' (pp. 243)

The tone of the emphasis on process of economic reforms as the pace setter in development has been changing over the last one decade. This debate is very widely documented in various studies and publications (Guhan,1996; Gupta,1995; Seeta Prabhu, 1994; Ahluwalia and Little, 1998; Srinivasan, 2000) In particular, on the effects of the reforms process on the social sector in general and on the health sector in particular, once again a number of scholars have exercised their mind (Sengupta, 1996;Duggal, 1997;EPW Editorial, 1992; Panchamukhi, 2001 “Refashioning the New Economic Order”). One of the most recent view on this link between economic reforms and the health sector is best available from the following excerpts from Dreze and Sen (1995):

‘...Bhagwati and Srinivasan’s (1993) lucid discussion of the challenge of economic reforms is entirely silent on the subject of education and health....Education and health can be seen to be valuable to the freedom of a person in at least five distinct ways: Intrinsic importance, instrumental personal role, instrumental social role, instrumental process role, and empowerment and distributive role’: Extracted from Dreze and Sen (1995), pp.13-14.

No wonder, Srinivasan (2000) in his most recent book writes that ‘we cannot any longer afford to exclude health and education from the reform agenda. **They have to become an integral part of it**’(pp. 45, underlined by us). Therefore, this study is aimed to put the health sector back in the mainstream of reforms process in India. That is why the role of the government, the growth of privatization, the macro-links between the health and other sectors are all looked into.

Talking about macro-economic links and activities, ‘Health and Medical’ is treated as a social sector, just as several others like Education, Real estate and housing. According to Central Statistical Organisation (CSO) it includes all medical and health services, as deliverable to people. The sector is made up of activities emanating from professional and research institutions, hospitals, and clinical services rendered by the medical professionals for the better health care of people of the country. Drug and Pharmaceuticals is another sector, which is very closely linked to the Health sector. It is defined as manufacture of drugs and medicines-including allopathic, ayurvedic, unani, homoeopathic and others. Basically this sector deals with production of drug intermediates, formulations, medicines and medical accessories (and not retailing)¹. Both these sectors (leaving away the retailing) are very closely linked to several other macro-economic sectors in the following ways.

- Both these sectors require inputs from various other sectors of the economy (including themselves) in their production and service activities, or in maintaining activities such as providing advocacy, preventive, curative and promotive health services. The inputs into these sectors basically include chemicals, herbal and medicinal plants and animals, human capital in the form of medical professionals and practitioners, medical workers, technicians, scientists, and infrastructures such as hospitals, laboratories, medical instruments, bio-chemicals, radiological equipments and so on. Broadly speaking all these can be grouped as (1) intermediate inputs, (2) capital inputs and (3) human resource inputs.
- Both these sectors provide services and products to many other sectors of the economy, in the form of medical and health care to the people.
- These sectors depend upon the external (i.e., trade) sector for the imports of materials and technical skill and other knowledge.
- They may also be exporting drugs and pharmaceuticals, and medical assistance and technical/medical skills.

All these sectoral links are symbolically shown in Box 1.

¹ Needless to mention at the outset that such a macro analysis is not complete without state , regional , and district level, and even village level linkages. These are addressed separately in other monographs from CMDR.

Box 1: Matrix of Macro-structural Linkages

| Health related Sectors | Receiving Inputs from | Providing Inputs and services to | Importing items such as | Exporting item such as |
|------------------------------------|---|---|--|--|
| Medical and Health Services Sector | Sectors such as Drugs and Pharmaceuticals; Transport; Electricity; Communication; Trade; Electrical appliances; Medical Human Resources and so on | Treating People and providing health and medical care; providing services to a large number of other production sectors such as Railways, Defense, etc. | Chemicals and drugs; electronic and electrical items | Medical manpower such as doctors, nurses and physiotherapists. |
| Drug and Pharmaceutical Sector | Trade; Chemicals; Transport; Electricity; Plastics Technical Human Resources and so on | Supply of drugs and pharmaceuticals to the Health sector | Plastics, chemicals, drug intermediaries | Drug intermediates, chemicals and drugs. |

Box 1: Matrix of Macro-structural Linkages

With such a framework of sectoral linkages, these two sectors at the national level are analysed here at the macro level². The macro-economic analysis is framed in the context of the Economic Reforms Process, which is currently on in India since 1991. The following major questions are raised in this analysis.

- Have the governments at the Central and state levels changed their pattern of allocating the financial resources on the Health and Medical Care sector significantly? As the policy of the Reforms Process, the role of the state is likely to go down in the management of the economy's investment activities in general. This is done with the withdrawal of public investments and allowing private sectors to take over some of the investment and management activities. However, health being, part of the social sectors of the economy, may have its own public good characteristics, making it necessary to move in this direction in a calibrated way.
- Have the people of the country accepted privatization in the Health Care sector? In terms of affordability and acceptability, is the private medical care a good substitute for the public health care management?
- How is the performance of the Health and Medical Care sector in the post 1991 period as compared to the previous period, both in the public and private domains?
- What lessons do we have in the liberalised (or more generally stated as globalised) situation? Are the export and import linkages shifted significantly to increased exports and imports or they have shrunk in the post 1991 period?

These and many such macro-economic questions are addressed in this study.

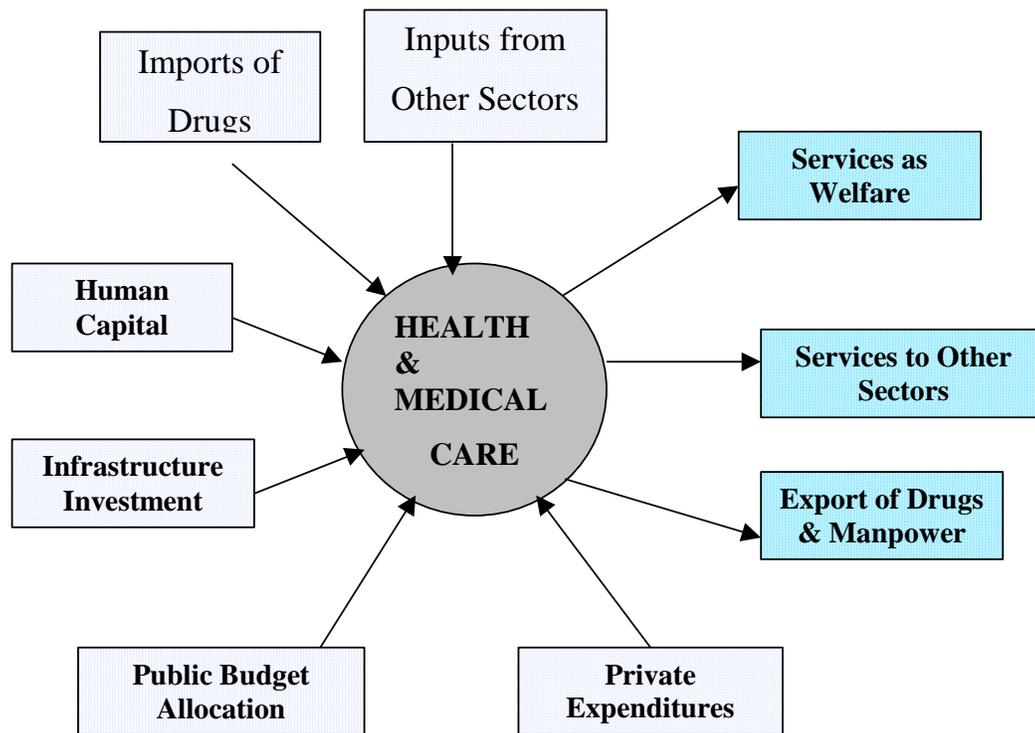
2. Analysis of Public Expenditure on Health and Medical Care in India:

Even today, India is a mixed economy in many walks of life (Baru, 1995), particularly so in the health sector. Both the central and state governments spend in the form of capital resource allocations and revenue expenditures on the health sector. How are the public expenditures in India related to health care deliveries in India? Answer to this question is not easy in an economy

with a mix of public and private health delivery systems working simultaneously²; and not referring to indigeneous knowledge and direct access to medical care in kind through the supply of herbal and medicinal plants and roots³. None the less, the broad channels or groups that incur monetary expenses on health and medical care are:

- The state (central and state governments) as public expenditure
- The people by themselves as part of their personal expenditures⁴

The first one consists of all the government expenditures on Health and Family Welfare, at the Central and State government levels on medical education, research, hospitals, PHCs, ANM Services and so on. This also includes, by the very definition, the government expenditure as subsidy indirectly on the people. Examples are, subsidy through CGHS, medical reimbursements etc.



² As one goes beyond the macro level, to micro level, the disaggregated information is more and more difficult to get. For instance, do we know how many patients in India are financed by some relative for tuberculosis treatment, as against by insurance schemes?

³ According to the National Biodiversity Strategy and Action Plan, about 40% of medical requirements in India are directly met from biological resources (herbal and medicinal plants and animals).

⁴ This is analysed in next section.

The pattern of expenditures of the central and state governments and their analysis on per capita and per GDP basis in constant 1993-94 prices are shown in Tables 1 and 2. Basically three distinct indicators of public expenditures are analysed here.

- State and Central govt. expenditures on health care, as percentage of their respective total governmental budgets,
- State and Central government expenditures expressed as percentage of GDP (all in constant prices),
- Per capita public expenditures on health care by Central and State governments (all in constant prices).

It is important to note here that the share of public expenditures on health and medical care (i) out of total public expenditure, and (ii) as a ratio of GDP are two important macro-economic fiscal indicators. The per capita public expenditure allocation however, is a useful indicator, but only when juxtapositioned with per capital private expenditures. It will then reflect the degree of privatization in the economy.

The public expenditure on this sector shows several distinct patterns over the last two decades, which are worth noting.

Table : 1 : Pattern of Public Expenditure on Health Care

| Year | Revenue Expenditure | | | | Capital Expenditure | | | |
|---------|-----------------------------------|-------------|-----------------------|-------------|-----------------------------------|-------------|-----------------------------------|-------------|
| | Central | | State | | Central | | State | |
| | As % of total Revenue Expenditure | As % of GDP | As % of total Revenue | As % of GDP | As % of total Capital Expenditure | As % of GDP | As % of total Capital Expenditure | As % of GDP |
| 1980-81 | 0.729 | 0.088 | 9.39 | 1.136 | 0.083 | 0.007 | | |
| 1981-82 | 0.788 | 0.087 | 9.862 | 1.176 | 0.109 | 0.009 | 0.312 | 0.019 |
| 1982-83 | 0.8 | 0.097 | 9.94 | 1.262 | 0.088 | 0.007 | 0.359 | 0.02 |
| 1983-84 | 0.756 | 0.093 | 11.302 | 1.301 | 0.013 | 0.001 | 0.492 | 0.022 |
| 1984-85 | 0.718 | 0.096 | 9.765 | 1.327 | 0.067 | 0.006 | 0.362 | 0.02 |
| 1985-86 | 0.602 | 0.09 | 9.846 | 1.38 | 0.027 | 0.002 | 0.371 | 0.019 |
| 1986-87 | 0.71 | 0.116 | 9.805 | 1.435 | 0 | 0 | 0.436 | 0.02 |
| 1987-88 | 0.582 | 0.095 | 9.621 | 1.481 | 0.102 | 0.006 | 0.417 | 0.021 |
| 1988-89 | 0.643 | 0.103 | 8.728 | 1.292 | 0.077 | 0.005 | 0.39 | 0.016 |
| 1989-90 | 0.549 | 0.104 | 9.058 | 1.331 | 0.073 | 0.005 | 0.315 | 0.013 |
| 1990-91 | 0.643 | 0.103 | 8.672 | 1.303 | 0.006 | 0 | 0.306 | 0.012 |
| 1991-92 | 0.602 | 0.093 | 7.904 | 1.232 | 0.069 | 0.004 | 0.372 | 0.015 |
| 1992-93 | 0.647 | 0.099 | 8.062 | 1.23 | 0.037 | 0.002 | 0.388 | 0.014 |
| 1993-94 | 0.651 | 0.1 | 8.314 | 1.241 | 0.036 | 0.002 | 0.379 | 0.013 |
| 1994-95 | 0.685 | 0.1 | 8.08 | 1.196 | 0.207 | 0.009 | 0.365 | 0.014 |
| 1995-96 | 0.839 | 0.121 | 8.022 | 1.156 | 0.052 | 0.002 | 0.418 | 0.014 |
| 1996-97 | 0.834 | 0.119 | 7.495 | 1.102 | 0.154 | 0.006 | 0.451 | 0.013 |
| 1997-98 | 1.026 | 0.14 | | | 0.077 | 0.003 | | |
| 1998-99 | 1.193 | 0.162 | | | 0.088 | 0.003 | | |

Table 2:
Per Capita Public Expenditure on Health and Family Welfare (in Rs.)
(in constant 1993-94 Prices)

| Year | Revenue Expenditure | | Capital Expenditure | |
|---------|---------------------|---------|---------------------|---------|
| | All states | Central | All states | Central |
| 1980-81 | 20.48 | 1.59 | 0.12 | |
| 1981-82 | 22.07 | 1.64 | 0.16 | 0.35 |
| 1982-83 | 23.87 | 1.84 | 0.13 | 0.38 |
| 1983-84 | 26.08 | 1.86 | 0.02 | 0.44 |
| 1984-85 | 27.02 | 1.95 | 0.12 | 0.4 |
| 1985-86 | 28.62 | 1.87 | 0.04 | 0.4 |
| 1986-87 | 30.39 | 2.46 | 0 | 0.43 |
| 1987-88 | 32.02 | 2.05 | 0.14 | 0.45 |
| 1988-89 | 30.25 | 2.4 | 0.11 | 0.38 |
| 1989-90 | 32.63 | 2.55 | 0.13 | 0.31 |
| 1990-91 | 32.95 | 2.59 | 0.01 | 0.31 |
| 1991-92 | 30.81 | 2.32 | 0.09 | 0.37 |
| 1992-93 | 31.76 | 2.55 | 0.05 | 0.37 |
| 1993-94 | 33.42 | 2.69 | 0.04 | 0.35 |
| 1994-95 | 34.08 | 2.85 | 0.26 | 0.4 |
| 1995-96 | 34.69 | 3.62 | 0.06 | 0.41 |
| 1996-97 | 34.94 | 3.78 | 0.18 | 0.42 |

Source for Tables 1 and 2

RBI Bulletin

Currency & Finances Various Issues (RBI Publication)

Data Regarding Health Sector Expenditures of Central Govt_ relate to
only Developmental Expenditures.

- **Reflections on Per capita Revenue expenditures on Health and Medical care:**
 - The per capita revenue expenditures by the central government have shown a slow increasing pattern. It rose from Rs. 1.59 in 1980-81 to Rs.3.78 in 1996-97 registering an annual growth rate of 5.23%.
 - The per capita total revenue expenditures by all the states taken together have been quite high at Rs. 20.48 in 1980-81, also rising to Rs. 34.94 by 1996-97. This implies a rate of growth of 3.19 percentage annually.
 - Taken together at the all India level, the total per capita public expenditures on health and medical care seem to be on the increase from Rs. 22.07 in 198-81 to Rs. 38.27 in 1996-97.
- **Reflections on Public expenditures on Health and Medical Care, as relating to GDP**
 - As a percentage of the GDP, the public expenditures on health and medical care reflect some degree of efficiency in maintaining the health delivery system.
 - These ratios were very low at 0.088% for central revenue expenditures in 1980-81. They rose to 0.162% by 1998-99. On the contrary, the all states revenue expenditures as a ratio of GDP have remained fairly the same all through the last two decades. It was 1.136% in 198-81, and remained at 1.102% in 1998-99. This gives the impression that the states have been withholding any growth in maintaining the health infrastructures and man-power. Even in the case of the central revenue allocations, the growth rate in this ratio is just about 3.4%.
 - The capital expenditures on the health sector as a ratio of GDP show two revealing facts. First, at the Central government level, they are fluctuating annually quite a bit, slowly declining from 0.007% in 1980-81 to 0.003% in 1998-99. Second, the same for the all

states taken together have been declining consistently, from 0.019% in 1980-81 to 0.013% in 1996-97.

- **Reflections on the share of public expenditures on health and medical care**
- The central and state governments have to make the allocations of their total public funds between the social and other economic sectors taking in to the role that the governments have to play in the over all developmental strategies set for themselves.
- Viewed from this angle, one gets the impression that while the central government public revenue allocations have shown a decline (as a share of total public revenue expenditures) till about 1991-92, the same started showing an upward trend from then onwards. This share was 0.719% in 1980-81, which declined to 0.602% by 1991-92. Subsequently, it has been rising, rather quite remarkably to 1.193% by 1998-99.
- On the other hand, the states have shown a consistent declining rate in their share. The share of all states revenue expenditures in total public expenditures was 9.39% in 1980-81. The same has slowly declined to 7.495% by 1998-99. The share was fairly constant till 1987-88, but subsequently started declining slowly.
- The indicators of shares of capital expenditures reveal that (a) at the central government level they have been fluctuating considerably over the years, but remained fairly the same; (b) at the all states level, they have been less fluctuating but remained fairly constant.

The foregoing analysis of pattern of public expenditures seem to indicate that, while the central government allocations have adhered to some degree of support to this vital social sector, the state governments have not been able to maintain the same at the same rate. Their allocative policies seem to have weakened, which is more pronounced in the period 1988-89 onwards. The shrinkages at the state governmental levels in maintaining the rural and urban health delivery systems through PHCs, CHCs, sub-centres etc. is a matter of concern⁵

Against these findings the recent observations made by different scholars may also be useful to note. Seeta Prabhu (2001, pp.135) notes that 'State and central governmental allocations to the Social sector seem to have gone up from around 6 per cent of aggregate disbursements in the years 1990-91 to 1992-93, to 8-9 per cent subsequently. Despite this increase, the government's expenditure on these sectors constituted less than 2 percent of GDP even in the year 1996-97'. According to her, in states like Maharashtra and Tamil Nadu, revenue expenditures on health and family welfare as a ratio of total revenue expenditures in 1995-96 were 5.18 and 6.14 percentages, respectively (pp. 185-86). The same as a ratio of respective state domestic products were 0.67 and 1.21, respectively.

One can only say that, in the early period of 1990's if the share of public allocations to social sectors have shown marginal improvement, they did not reflect in the health sector, but perhaps have subsumed in education, nutrition, PDS and such other social commitments of the governments.

In another independent study, Berman (1996, pp. 335) shows that in India the public expenditure on health care is just about 1.3% of GDP in 1990-91, private expenditure out of pocket is 4.5% of GDP⁶. This amounts to public expenditures being just about 25% and rest being met through private sources. Krishnan (1996, pp. 944) quoting from a study by Reddy (1995) states that in India public expenditure in India including preventive care forms a mere 2

⁵ This issue will be addressed in greater detail, in another monograph.

⁶ Our own data also show the same.

percent or less than of GDP. Krishnan goes on to say that these are much lower than the rates observed in China and other east Asian countries.

3. Analysis of Private Expenditure on Health and Medical Care in India:

The second major chunk of expenditure on health care is incurred by people themselves, either out of pocket or through some insurance schemes. There are two major sources of information on this at the macro level. One, from Central Statistical Organisation (CSO), and second by the National Sample Surveys (NSS). In both the sources of data, by *personal expenditures* it is meant to imply the expenditures incurred by the people as personal consumption expenditures.

Let us examine the data from the CSO first. On per capita terms, the private expenditures will reflect the trend of privatisation as well as the ability (and to some extent) 'willingness to pay' for medical care. Table 3 shows the macro-scenario of the personal expenditures on health and medical care in India from 1970 to 1999. At the aggregate level, the private expenditures on health care are about 4.39% (in current prices) of the total of all private consumption expenditures in India in 1998-99, or about 3.36% of total disposable income of the people of India. These aggregated shares in the past, have shown a growing trend over time.

Two major observations can be made on the basis of the pattern of private expenditures.

- First, as a share of total private consumption expenditure as well as that of total disposable income (not shown in this table), the private expenditure on health and medical care has been consistently decreasing (both in current prices and in constant prices). In constant prices the share of private expenditures on health care out of total private consumption expenditures were 3.03% in 1980-81, which declined slowly to 2.03% by 1996-97.
 - Second, while the private expenditures in current prices have shown a remarkable trend growth, from Rs. 44.32 in 1980-81 rising to Rs. 173.42 in 1996-97 (at annual growth rate of 8.9%), they are fairly constant at Rs. 44 on average during the 1980 to 1997 period.
 - The average elasticity of private expenditure on health care vis-à-vis total private expenditure before and during current reforms period are almost the same at - 0.046.
- As a share of disposable income, the private expenditures on health care have been declining from 2.43% in 1985-86 to 1.53% in 1996-97.
 - The growth rate in private expenditure on health from 1971 to 1996 period has been just about 0.012%; whereas the growth rate in per capita disposable incomes has been 0.119%.
 - The elasticity of private expenditure on health with respect to disposable income is 0.1019 (=0.0121/0.1187) during the same 25 years period, which is much less than unity, indicating a very slow uptake on the health front, in sharing the responsibility of health care privately.
 - However, in the reforms period (i.e., after 1990), the per capita private expenditure on health care have been marginally declining at a rate of 0.16%; but the per capita disposable incomes have been increasing at much faster rates than in the earlier period. Growth rate of per capita expenditure on health (in constant prices) during 1971-1990 was 1.58%, whereas the same during 1991-99 was -0.16%. Per cap. disposable income growth rate in 1971-91 was 11.17%, which increased to 14.23% during 1991-99 period.

Table 3: Per capita Personal Consumption Expenditure on Medical and Health Care in India

| Year | Per Capita Private Expenditure on Health & Medical Care in Rs | | Per Capita Private Health Expenditure as %of PFCE | |
|-------------------------|---|--------------------|---|--------------------|
| | In Current Prices | In Constant Prices | In Current Prices | In Constant Prices |
| 1980-81=100 | | 1980-81=100 | | |
| Old Series | | | | |
| Prior to Reforms | | | | |
| 1971-72 | 13.29 | 32.55 | 2.1 | 2.46 |
| 1972-73 | 15.26 | 34.92 | 2.24 | 2.69 |
| 1973-74 | 17.54 | 35.31 | 2.18 | 2.71 |
| 1974-75 | 20.15 | 35.13 | 2.11 | 2.75 |
| 1975-76 | 23.14 | 34.3 | 2.43 | 2.6 |
| 1976-77 | 26.59 | 35.37 | 2.74 | 2.67 |
| 1977-78 | 30.56 | 37.17 | 2.8 | 2.66 |
| 1978-79 | 34.66 | 38.93 | 2.98 | 2.68 |
| 1979-80 | 39.32 | 45.87 | 3.2 | 3.33 |
| 1980-81 | 44.32 | 44.32 | 3.04 | 3.03 |
| 1981-82 | 50.4 | 44.31 | 3.07 | 2.95 |
| 1982-83 | 57.3 | 44.28 | 3.25 | 2.93 |
| 1983-84 | 65.14 | 44.22 | 3.2 | 2.78 |
| 1984-85 | 65.93 | 44.15 | 3.01 | 2.73 |
| 1985-86 | 67.95 | 44.1 | 2.89 | 2.68 |
| 1986-87 | 69.93 | 44.01 | 2.7 | 2.6 |
| 1987-88 | 75.64 | 43.94 | 2.66 | 2.56 |
| 1988-89 | 90.73 | 43.94 | 2.82 | 2.47 |
| 1989-90 | 93.1 | 43.95 | 2.64 | 2.41 |
| 1990-91 | 98.69 | 43.87 | 2.49 | 2.37 |
| Reform Period | | | | |
| 1991-92 | 106.69 | 44.34 | 2.37 | 2.4 |
| 1992-93 | 114.33 | 44.24 | 2.29 | 2.34 |
| 1993-94 | 124.77 | 44.13 | 2.22 | 2.27 |
| 1994-95 | 145.82 | 44.14 | 2.29 | 2.19 |
| 1995-96 | 155.31 | 44.07 | 2.2 | 2.11 |
| 1996-97 | 173.42 | 43.97 | 2.21 | 2.03 |
| New Series | | | | |
| 1993-94 | 222 | 222 | 3.43 | 3.43 |
| 1994-95 | 283.98 | 241.48 | 3.9 | 3.61 |
| 1995-96 | 329.88 | 262.63 | 4.03 | 3.77 |
| 1996-97 | 370.56 | 285.57 | 3.88 | 3.82 |
| 1997-98 | 438.03 | 311.57 | 4.3 | 4.13 |
| 1998-99 | 509.34 | 334.42 | 4.43 | 4.29 |

Source : National Accounts Statistics 2000 (CMIE)

Notes: The estimates based on Old series and the New Series are not directly comparable. This is because, CSO has revised the methods of estimating National income etc., to a new base year of 1993-94 from the old method of referring to 1980-81 as the Base.

The second important source of data on private health and medical care expenditures is the National Sample Surveys. On the basis of available NSS data for the recent period, a segregation of expenditures by individuals on hospitalisation and out-patient expenses vis-a-vis total private expenditures are compiled on per capita basis. Table 4 and 5 show the same for the urban and rural, at the all India levels. Details of expenditure on medical care are available for the year 1988 and 1992 onwards till 1998.

Table 4: Pattern of Private Expenditure on Medical and Health Care (Rural)

| Year | Total Medical Expenditure | | Total Consumer Expenditure | Medical Expenditure as % of Total Expenditure | | |
|-----------------|---------------------------|------------------|----------------------------|---|------------------|-------|
| | institutional | Noninstitutional | | institutional | Noninstitutional | Total |
| July-June88 | 7.01 | | 158.1 | 4.43 | | |
| Jan-Mar92 | 12.27 | | 247.21 | 4.96 | | |
| July 93-June 94 | 2.58 | 12.76 | 281.4 | 0.92 | 4.53 | 5.45 |
| July 94-June 95 | 3.72 | 11.71 | 309.43 | 1.2 | 3.78 | 4.98 |
| July 95-June 96 | 2.44 | 11.56 | 344.29 | 0.71 | 3.36 | 4.07 |
| Jan-Dec 97 | 6.23 | 16.3 | 395.01 | 1.58 | 4.13 | 5.71 |
| Jan-June 98 | 6.1 | 14.74 | 382.07 | 1.6 | 3.86 | 5.46 |

Table 5: Pattern of Private Expenditure on Medical and Health Care (Urban)

| Year | Total Medical Expenditure | | Total Consumer Expenditure | Medical Expenditure as % of Total Expenditure | | |
|-----------------|---------------------------|------------------|----------------------------|---|------------------|-------|
| | Institutional | Noninstitutional | | Institutional | Noninstitutional | Total |
| July-June88 | 8.14 | | 449.93 | 1.81 | | |
| Jan-Mar92 | 8.14 | | 449.93 | 1.81 | | |
| July 93-June 94 | 5.54 | 15.51 | 458.04 | 1.21 | 3.39 | 4.6 |
| July 94-June 95 | 5.28 | 12.28 | 508.07 | 1.04 | 2.42 | 3.46 |
| July 95-June 96 | 7.3 | 15.03 | 599.26 | 1.22 | 2.51 | 3.72 |
| Jan-Dec 97 | 12.41 | 20.58 | 645.44 | 1.92 | 3.19 | 5.11 |
| Jan-June 98 | 17.62 | 20.1 | 684.27 | 2.58 | 2.94 | 5.52 |

Four major observations can be made on the basis of this data and information.

- First, when it comes to expenditures on medical care, there is a significant contrast between the rural and urban population. On average the urban population spend a higher amount.
- Second, over the years the expenditure incurred by the urban population is rising faster than that for the rural population. It was Rs. 8.14 per capita in 1988, which rose to Rs. 37.72 by 1998. The same for the rural population were Rs. 7.01 and 20.84, respectively.
- Thirdly, both in absolute terms and as a share of total private expenditure, the outpatient expenditures are more than that on hospitalisation expenditures.
- Fourth, while the share of medical expenditures in total private expenditures remained fairly constant for the rural population (4.43% in 1987-88, and 5.46% in 1998), for the urban population it escalated from 1.81% in 1987-88 to 5.52% in 1998. The rate of growth for urban population was 11.8% as against 2.1% for rural population. Clearly, in the recent years, the growth of private medical care systems is visible more in the urban areas.

- During the same period, as a share of total private expenditure, the outpatient expenditures are more than that on hospitalisation expenditures in both the rural and urban areas.
- One notices a significant jump in medical expenditures incurred by the rural and urban population between the 1987-88 period to 1992 period. But after the 1992 period, the trend seems to have settled.

The pattern of spending on health and medical care also differs by different income or expenditure classes. Using NSS data for the years 1992 and 1998, two separate questions are asked⁷. How the people below poverty line (BPL population) spend on medical care? How do the top 10 percent of people in the country spend on medical care? Table 6 is deduced from NSS data for the rural population. In order to estimate the expenditure patterns by percent of people, a log-normal distribution is assumed for the medical expenditure as well as total private expenditure data⁸.

It can be observed from Table 6 that:

Table 6 : Rural Income Distributional Pattern of Expenditure on Medical Care

| Medical Care | 1992 | 1998 |
|--|--------|--------|
| % of population below poverty line | 30.87 | 27.09 |
| Av. Per capita monthly expenditure on medical care | 2.83 | 7.05 |
| Av. Per capita total monthly expenditure | 123.8 | 249.99 |
| % share of expenditure on medical care | 2.29 | 2.82 |
| Top 10 % Expenditure Class | 10 | 10 |
| Av. Per capita monthly expenditure on medical care | 53.1 | 103.91 |
| Av. Per capita total monthly expenditure | 588.19 | 895.19 |
| % share of expenditure on medical care | 9.03 | 11.61 |

Sources: 1. NSSO, Sarvekshana, various issues; 2. Report of the Expert Group on Estimation of Proportion and Number of Poor (Planning Commission).

⁷ Expenditure distribution wise data are available from 1992 onwards.

⁸ However, this could not be estimated for the urban population in 1992 as such data are not available for urban population in the 48th Round of NSS (period January-March 1992).

- The people below poverty line in the years 1992 and 1998 spend just about 2-3 percent of their total consumption expenditure on health care. The top 10 percent people on the other hand, switched upwards from 9% to 12 percent.
- The per capita expenditures per month were low for the BPL population in 1992 as well as in 1998 (just about Rs. 2-3 in 1992, and Rs. 7 in 1998). The same for the top 10 percent of people were Rs. 53 and Rs. 104, respectively.

4. A Close Look at Health Care Performance, and Processes in India

How to analyse the linkages between performance of the health sector in India vis-à-vis (a) the expenditures by the central and state governments, private or personal expenditures on health and medical care, (b) various medical facilities and infrastructures existing in the country in this sector and finally, (c) the quantum of medical man-power resources that are available?

Answer to this question can come only after identifying atleast the major indicators of performance of the health sector, the health care facilities and infrastructural inputs, and human resources⁹. This identification process at the macro level is based, by and large, on the availability of such data over a long period of time. Box 2 shows the major indicators for each of them, selected for this macro analysis. Tables 7-10 show the corresponding data on them for about 17 recent years. The public expenditures on health care (i.e., the central and state governments expenditures on health and family welfare) and private expenditures by people are already viewed (in Sections 2 and 3) as two important indicators of expenditures.

Box 2: Health Sector Related Indicators at the Macro-level

| Health Performance Indicators | Input or Process Indicators | |
|-------------------------------|-----------------------------|------------------|
| | Infrastructure | Human Resources |
| 1. Crude birth rate | 1. No. of hospitals | 1.No. of doctors |
| 2. Crude death rate | 2. No. of Beds | 2. No. Dentists |
| 3. Infant mortality rate | 3. No. of PHCs | 3. No. Nurses |
| 4. Life expectancy | 4. No. of Sub-centres | |
| 5. Couple protection rate | 5. No. of Comm. H.Centres | |

Note: While all the performance indicators are expressed as rates (except for Life expectancy), the infrastructure and human resource indicators are expressed per million of population.

⁹ This question is particularly important, since none of them can be captured by any unique indicator, and alternative indicators are not as homogeneous in measurement as the health care expenditures. Stated simply, they are just not additive.

As can be seen from the Table 7, the birth rates in India have been going down consistently during the last two decades. It was as high as 34 per thousand population in the 80's. The same has come down to about 26 by the late 90's. On comparison with countries such as China, Chile and Sri Lanka, Indian crude birth rate is still quite high (Refer table 8). But the rate of its decline has been higher in the recent years (going down from -1.18% in the pre-1990's to -1.41% after the 90's). As compared to many developing countries (also going through the reforms processes), this rate of decline in birth rate is still moderate. For instance, Chile registered a declining rate of -3.61% during 1990-98 period; China showed a rate of decline of -2.28%; and our neighboring country Sri Lanka experienced a -2.36% decline during the same period (Ashtekar, 1999;)

Table 7: Health Performance Indicators
:All India Level

| YEAR | CBR | CDR | IMR | LE | CPR | GPLE | GPCPR |
|--------------------------------|--------------|--------------|--------------|-------------|-------------|-------|-------|
| 1980 | 33.7 | 12.6 | 114 | 52.84 | 22.8 | 32.16 | 77.2 |
| 1981 | 33.9 | 12.5 | 110 | 50.4 | 23.7 | 34.6 | 76.3 |
| 1982 | 33.8 | 11.9 | 105 | 54.19 | 25.9 | 30.81 | 74.1 |
| 1983 | 33.7 | 11.9 | 105 | 55.4 | 29.5 | 29.6 | 70.5 |
| 1984 | 33.9 | 12.6 | 104 | 55.54 | 32.1 | 29.46 | 67.9 |
| 1985 | 32.9 | 11.8 | 97 | 56.22 | 34.9 | 28.78 | 65.1 |
| 1986 | 32.6 | 11.1 | 96 | 56.89 | 37.5 | 28.11 | 62.5 |
| 1987 | 32.2 | 10.9 | 95 | 57.57 | 39.9 | 27.43 | 60.1 |
| 1988 | 31.5 | 11 | 94 | 57.7 | 41.9 | 27.3 | 58.1 |
| 1989 | 30.6 | 10.3 | 91 | 58.3 | 43.3 | 26.7 | 56.7 |
| 1990 | 30.2 | 9.7 | 80 | 58.7 | 44.1 | 26.3 | 55.9 |
| 1991 | 29.5 | 9.8 | 80 | 59.4 | 43.6 | 25.6 | 56.4 |
| 1992 | 29.2 | 10.1 | 79 | 60.8 | 43.5 | 24.2 | 56.5 |
| 1993 | 28.7 | 9.3 | 74 | 60.3 | 45.5 | 24.7 | 54.5 |
| 1994 | 28.7 | 9.3 | 74 | 62.29 | 45.8 | 22.71 | 54.2 |
| 1995 | 28.3 | 9 | 74 | 62.97 | 46.5 | 22.03 | 53.5 |
| 1996 | 27.4 | 8.9 | 72 | 63.64 | 45.4 | 21.36 | 54.6 |
| 1997 | 27.3 | 8.9 | 64.1 | 64.32 | 45.4 | 20.68 | 54.6 |
| 1998 | 27 | 9 | 63 | 63 | 51.32 | 22 | 48.68 |
| 1999 | 26.404 | 8.23 | 58.61 | 65.67 | 52.74 | 19.33 | 47.26 |
| 2000 | 25.965 | 8 | 55.86 | 66.34 | 54.17 | 18.66 | 45.83 |
| growth rate before 90's | -1.18 | -2.38 | -2.86 | 1.27 | 7.19 | | |
| growth rate after 90's | -1.42 | -2.17 | -3.99 | 1.12 | 2.33 | | |
| Combined growth rate | -1.46 | -2.26 | -3.4 | 1.16 | 3.78 | | |

NOTES: CBR = crude birth rate per 1000 popn_
 CDR = crude death rate per 1000 popn_
 IMR = infant mortality rate per 1000 popn_
 LE= life expectancy
 CPR=couple protection rate
 Gple is a transformed variable defined as: 85-life expectancy
 Gpcpr is a transformed variable defined as:100-cpr

Both these indicators are created, for purposes of further Analysis of the sectoral performance
 Growth rates (in %) are based on exponential growth models

Source: Health Monitor 1994 (FRHS DATA)

Table 8: A Comparative Picture Among Developing Countries

| Country | CBR | | CDR | | LE | | IMR | |
|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| | Early 80's | Late 90's |
| Chile | 23 | 18 | 7 | 5 | 69 | 75 | 32 | 10 |
| China | 18 | 16 | 6 | 8 | | 70 | 42 | 31 |
| Sri Lanka | 28 | 18 | 6 | 6 | 68 | 73 | 34 | 16 |

The crude death rate also has been declining from 13 per thousand population in the 80's to 8 in the late 90's. This decline is comparable with the countries such as Chile, China or Sri Lanka. As was the case with these countries, the rate of decline of this in India has been lower in the 90's (-2.17%) , as compared to the pre-90 period (-2.38%). It is important to take note of the better performance of India here. Chile for instance, showed a decline in CDR at -0.36% during 1991-98 period; Chile at positive 0.97%; and Sri Lanka , a declining rate of -0.14%.

A remarkable downward shift has been observed in India in the rate of infant mortality, from 114 per thousand population in the 80's, going down to 56 in the late 90's. But the performance at home is far more behind the countries such as Chile, China or Sri Lanka. However, as compared to its rate of decline of -2.88% in the 80's and early 90's, it has significantly dropped downwards in the late 90's (-3.99%)¹¹

¹⁰The two declining rates are statistically quite significant.

One of the most striking performance in the health sector front seems to be the family welfare programme, though much is desired in the future. The couple protection rates which were just about 23 per hundred eligible couples in the 80's, has gone up to 54% by the late 90's. The rate of its increase has however, gone down from 7.12% in the pre-90's to 2.33% in the late 90's.

As against these health status records, the life expectancy in India has not been going up as remarkably as the other performance indicators. For instance, it was 54 years in the early 80's, which rose to 66 by the late 90's. The overall rate of its increase is 1.16%. As against these, in the countries like China , Chile or Sri Lanka they have crossed 70's. In Chile LE has grown at a low of 0.29%, in China at 0.18% or in Sri Lanka at 0.33% during 1991-98 period.

Thus, one gets the impression from the foregoing analysis that comparison with a large populous country such as China or small countries such as Chile or neighbouring Sri Lanka, Indian performance in the health care sector during the recent reform period seems to be encouraging but lot more attainable. Secondly, the health sectoral performance in India seems to have a minimal link with public expenditure pattern, both at the central and state governmental levels. This fact will call for further analysis to be carried out with proper identification of flow of funds to specific health care facilities and amenities and programmes.

The sum and substance of these performances on the health front convey the following major messages for the future planning for this sector.

¹⁰ The two declining rates are statistically quite significant.

- The health and medical care sector will have to gear up further to enhance the life expectancy rates in the country.
- The slowing down of family welfare programmes in the post 90's should be taken as a warning for the future planning on the health front.
- The relatively high crude birth rate still persisting calls for some more promotive and preventive health care measures in the future.
- Through providing better health care and enabling transparency and information on the medical front (specifically from curative to preventive and promotive aspects), it is still possible for the Indian population to attain much better health status in terms of birth and death rates.

The medical man-power resources be analysed now. As can be seen from Table 9, one notices that as compared to the previous period, since the 90's there has been an alarming growth in the dental and nursing human resources in the country. However, as compared to an increasing rate of 4.12% in the pre-90 period, the availability of doctors seem to be declining slowly (at the rate of -1.46% It is marginally declining.) during the recent periods.

Table -9: Human Capital Inputs in Health Sector :All India Level

| YEAR | DENTISTS | NURSES | DOCTORS |
|-------------------------|----------|--------|---------|
| 1981 | 8642 | 143883 | 268700 |
| 1982 | 8656 | 161044 | 271500 |
| 1983 | 8801 | 157372 | 284200 |
| 1984 | 8725 | 168024 | 296500 |
| 1985 | 9598 | 193907 | 308200 |
| 1986 | 9725 | 205489 | 320300 |
| 1987 | 9750 | 217375 | 331800 |
| 1988 | 9796 | 245386 | 355600 |
| 1989 | 10475 | 258167 | 368600 |
| 1990 | 11011 | 304137 | 381900 |
| 1991 | 10751 | 334900 | 394000 |
| 1992 | 11300 | 383632 | 410800 |
| 1993 | 19523 | 451240 | 379300 |
| 1994 | 21720 | 512135 | 391200 |
| 1995 | 23953 | 556859 | 405200 |
| 1996 | 25762 | 566213 | 360100 |
| 1997 | 27707 | 620361 | 367198 |
| Growth rate before 90's | 2.66 | 7.93 | 4.12 |
| Growth rate after 90's | 16.8 | 10.1 | -1.45 |
| Combined growth rate | 7.69 | 9.8 | 2.45 |

Five different health facilities and infra-structural amenities available in the country are analysed here, both on per capita and total levels. They are, the number of hospital and all other beds, number of hospitals, PHCs, CHCs and sub-centres in the rural areas, as shown in Table 10. Invariably, one gets the impression that they are increasing over time, but at much slower rates in the 90's than in the period before. For instance, the growth in number of PHC's, Sub-centres and CHC's have come down drastically from 16.40%, 10.30% and 18.10% in the period before the 90's, to 1.71% , 5.5% and 3.78%, respectively, in the post 90 period.

Table10: Facilities and Infrastructure inputs in the Health Sector : All India Level

| YEAR | BEDS(ALL) | PHC'S | SUBCENTRES | CHC'S | HOSPITALS |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|
| 1981 | 569495 | 5740 | 51405 | 349 | 6804 |
| 1982 | 583773 | 5851 | 57975 | 471 | 6897 |
| 1983 | 599074 | 5959 | 65643 | 553 | 7189 |
| 1984 | 624769 | 6375 | 77236 | 649 | 7369 |
| 1985 | 656850 | 7284 | 84590 | 761 | 7474 |
| 1986 | 694121 | 12934 | 92483 | 915 | 8067 |
| 1987 | 706471 | 14281 | 101549 | 1100 | 9803 |
| 1988 | 751091 | 16449 | 109644 | 1322 | 10840 |
| 1989 | 794712 | 18811 | 120767 | 1589 | 11079 |
| 1990 | 806409 | 18981 | 130336 | 1910 | 11571 |
| 1991 | 810548 | 20450 | 130958 | 2069 | 11174 |
| 1992 | 834650 | 20719 | 131464 | 2187 | 13692 |
| 1993 | 859640 | 21030 | 131384 | 2273 | 14867 |
| 1994 | 863969 | 21206 | 131586 | 2332 | 15033 |
| 1995 | 870161 | 21536 | 131795 | 2387 | 15097 |
| 1996 | 896875 | 21853 | 132778 | 2420 | 15982 |
| 1997 | 924409 | 22960 | 136800 | 2708 | 16918 |
| growth rate before 90's | 4.15 | 16.4 | 10.3 | 18.1 | 6.72 |
| growth rate after 90's | 1.97 | 1.71 | 0.55 | 3.78 | 5.6 |
| combined growth rate | 3.12 | 9.94 | 5.88 | 12.7 | 6.34 |

Notes: All growth rates are derived from exponential growth functions, expressed in %.

Secondly, the number of hospitals have been growing fairly at a constant rate (around 5.6 to 6.7%) before the Reforms and during the current periods. However, the rate of growth of hospital beds have not been increasing at the same rate as the number of hospitals. Rather their growth rate has come down in the past 90's. This seems to be sending a message about the increased shortage of bed availability in the hospital systems in the current periods, as compared to the pre-90 periods¹¹.

We have already seen from the analysis of the governmental expenditures and that of private expenditures, that over the years, they have not shown any remarkable shift. Rather, several those indicators suggest that very poor role of the 'State' in the Health Care Sector.

5. Linking the Performance, and Process Inputs of the Health Sector

An attempt is made here to link the various indicators of the health and medical sectors presented in the above two Sections.

The basic questions posed are :

- Is there any evidence that with the onset of the economic reforms process in India, the process of health delivery or performance (to be denoted as HP= Health performance) took the course of substituting more and Medical Facility and Infrastructures (to be denoted as HI= Health infra-structural capital), replacing the Medical Human Capital (to be denoted as HC= Human capital)?
- Have the overall health delivery rate been going down vis-à-vis the rate of population growth, particularly after the introduction of the reforms process?
- Treating health and medical care as an indicator of welfare, how does one calibrate the performance of Indian Health Sectoral Performance vis-à-vis the overall indicator of welfare such as GDP growth?

¹¹ At this point, it may be useful to take a look at the norms of health sectoral inputs or allocations. A summary these are provided in Annex 1.

All these questions need to be addressed in the context of reforms process in India. These are very fundamental questions to be addressed at all levels, be it at the macro economic and micro (regional, district, or village) levels.

For this purpose, an exercise of Factor Analysis is carried out. Major steps involved or employed for this exercise are summarily stated here.

- In order to get composite picture of the Health Performance (HP), Health related Human Capital (HC) and Health Facilities and Infrastructures (HI) in India, separate Composite Indices on HP, HC and HI are constructed.
- While doing so, it is necessary to ensure monotonicity of all the variables entering in the composite indices¹². Observations on all the variables under Health Facility and Infrastructure (Table 10) and Human Capital (Table 9) are monotonically increasing. But in the case of Health Performance variables (Table 7) while CDR, CBR and IMR are declining over the years, the LE and CPR are increasing over the same years.
- Therefore, for purposes of constructing a Composite Index on HP, a transformation of LE and CPR are made. For this, two new variables $GP_{LE} = 85 - LE$, and $GP_{CPR} = 100 - CPR$ are considered. GP_{LE} is then interpreted as gap in full life expectancy of 85 years (normally recommended in HDI computations). Similarly, GP_{CPR} is gap in achieving 100% CPR. Obviously, without any loss of information for the health sector, these two variables are also declining over the years, just as CDR, CBR and IMR (as can be seen from Table 7). However, the declining rates of all these variables are indicative of improvements in health performances over the years.
- Next, the Composite Indices on HP, HI and HC are estimated using factor analysis (based on Principle Component Method) using all the variables shown in the Table 7 - 10. In the case of Human Capital (HC) and Facilities and Infrastructure (HI), two different Composite Indices are estimated. They are (a) at the 'aggregate' levels as shown in Table 9 and 10, and, (b) On 'per million population' basis. Since the estimated indices monotonically increase from -ve to +ve values, for purposes of further presentation a linear transformation the of these has been done by adding 2.0 uniformly to all the estimated indices.
- Note that, with all the five variables under Health Performance decreasing, its Composite Index is also be declining over the years (which, of course, indicates overall improvements in the health sectoral performance).

¹² This is just a mathematical requirement. Otherwise, variables such as CBR and CDR decreasing over the years and CPR increasing over the same years, can not be added (even after suitable weights obtained from Factor analysis).

- Finally, in order to have an increasing composite index of health performance, the estimated composite index is further transformed linearly as : Final Composite Index for HP= 1/ [2-estimated composite index]. Note that, there is no loss of information for analyzing the health performance vis-à-vis health infrastructure and human resources, under any of these linear transformations. The final set of Composite Indices are shown in Table 11.

Table 11: Linkages between Health Sectoral Growth in India

| Year | Composite Indices of Health | | | | |
|-------|-----------------------------|--------------------------------|--------------------------|--------------------|--------------------------|
| | Performance (HP) | Facility & Infrastructure (HI) | | Human Capital (HC) | |
| | | Aggregate | On per Mill. Popl. basis | Aggregate | On per mill. Popl. basis |
| 80-81 | 0.28 | | | | |
| 81-82 | 0.27 | 0.45 | 0.37 | 0.74 | 1.09 |
| 82-83 | 0.31 | 0.56 | 0.46 | 0.8 | 1.13 |
| 83-84 | 0.32 | 0.68 | 0.58 | 0.89 | 1.1 |
| 84-85 | 0.32 | 0.85 | 0.79 | 1 | 1.11 |
| 85-86 | 0.36 | 1.02 | 1.01 | 1.19 | 1.29 |
| 86-87 | 0.39 | 1.39 | 1.49 | 1.31 | 1.32 |
| 87-88 | 0.42 | 1.66 | 1.78 | 1.42 | 1.34 |
| 88-89 | 0.43 | 1.97 | 2.19 | 1.65 | 1.44 |
| 89-90 | 0.49 | 2.28 | 2.55 | 1.81 | 1.53 |
| 90-91 | 0.56 | 2.48 | 2.7 | 2.04 | 1.73 |
| 91-92 | 0.59 | 2.55 | 2.65 | 2.19 | 1.79 |
| 92-93 | 0.61 | 2.78 | 2.87 | 2.45 | 1.99 |
| 93-94 | 0.7 | 2.92 | 2.97 | 2.85 | 2.89 |
| 94-95 | 0.72 | 2.96 | 2.89 | 3.2 | 3.26 |
| 95-96 | 0.78 | 3 | 2.82 | 3.52 | 3.56 |
| 96-97 | 0.86 | 3.12 | 2.84 | 3.33 | 3.58 |
| 97-98 | 0.96 | 3.35 | 3.04 | 3.62 | 3.86 |
| 98-99 | 1.16 | | | | |
| 99-00 | 2.01 | | | | |
| 00-01 | 2.98 | | | | |

Notes: The Health infrastructure and human capital composite indices are computed both at the total sectoral level as well as on per million population basis. The pattern of the two will remain the same, though the indices will differ.

The correlation between the three indicators before and during the reforms period is a useful information to infer regarding the nature of their linkages. They are shown in Table 12.a.

Table 12.a.: Correlations between health sector composite indices

| | Between 19 80-90 | | Between 1991-98 | | Between 1980-98 | |
|----|------------------|------|-----------------|------|-----------------|------|
| | HC | HI | HC | HI | HC | HI |
| HP | 0.98 | 0.97 | 0.92 | 0.62 | 0.96 | 0.87 |
| HC | | 0.95 | | 0.6 | | 0.76 |

As can be seen from the stylized correlation coefficients in (i) the pre-reforms period, (ii) during the reforms period and (iii) the total period, it can be said that:

1. There is a high association between health performance (HP) and Health sectoral infrastructure (HI) and Health man-power (HC) in the period 1980 to 1990. This strong link is broken in favour of, 'between health man-power and health sector performance only' during the latter period.
2. In the period 1991 onwards, basically it is the man-power growth that has kept the health performance quite high.

As can be seen from the graphs and the Table 11, there seems to be some kind of relationship between these performance and process indicators, requiring some further analysis. In the light of the questions posed at the beginning of this Section, the following inferences and observations can be made on the effects of the reforms process on the health sector in India.

- As far as the Health Performance is concerned, the overall performance has just doubled during the period of 1980-81 to 1990-91. HP indicator was 0.28 in 1980-81, rose to 0.56 in 1990-91. But in the subsequent Reforms period, it has more than quadrupled! There may be many reasons for this remarkable performance revealed during the 90's. Health improvements being a long run phenomenon, the investments and efforts carried out in the earlier period might be showing the positive results now. It is also likely that this remarkable performance during 1991 to 2000 may as well be due to the kinds of reforms in the health sector itself.
- The Aggregate Health Infra-structural growth, as viewed from its composite index HI gives the impression that during the pre- 1990-91 period, it had grown fivefold in 10 years (from 0.45 in 1980-81 to 2.48 by 1990-91; but during the period 1990-91 to 2000-01, it has increased by just about 35% . Therefore, the high rate of health infra-structural development prior to 90's be noted.
- If one considers the Aggregate Human Capital growth, it has shown an increase by about 175% during 1980-90 period. During the reform period, over about 7 years, it has increased by about 77%.
- One notices that the growths of the Infrastructure and Human Capital suggest different degree of importance attached to them in different sub-periods. As can be seen from **Chart 'A' and Chart 'B'** three sub-periods are discernible. For instance, till about 1985, Health infrastructures were growing faster than Health related Human Capital. Between 1985 to 1993, the infra-structural growth was getting sluggish, whereas that of human capital was rising faster. In the period 1994 onwards the Health manpower kept on growing still faster where as the infrastructure growth was sluggish (and even declining in the year 1994-95 and 1995-96). As can be seen from **Chart 'A'** till about 1991, the health infra-structure growth has been over-registered as compared to health man-power. Subsequently, the growth in health man-power over-shadowed the growth in infra-structure.
- The remarkable growth of Health performance during the 1990-2000 period can be then understood as mainly due to high infra-structural growth during pre-1990 period and high health man-power growth in post 1990 period. The setback in the growth of health manpower during the reforms period has certainly affected the health sectoral overall performance. Much of the health manpower has either shifted from public sector to private sector during the period, or they have also registered increased growth in migration abroad.
- As far as the role of public investment and expenditure on the health sector is concerned, it seems to have had very little influence on the performance of the health sector as a whole. However, they may have played certain specific role in certain states or districts, which is a matter of further investigation (in other Monographs). This can be stated emphatically on the basis of both central and state level allocations on the health sector

vis-à-vis (i) the total budget, (ii) as a share of GDP and, (iii) on per capita terms. **Figures 1 - 6** highlight the same.

- The major conclusions thus can be reached are:
 - *Budgetary allocations on health sector played the role of 'baby-sitting' in Indian economy, by maintaining it with very little emphasis on the role of the 'state' that has to be performed in the wake of economic reforms in India.*
 - *The development in the health sector took place mainly due to qualitative and technical changes that took place in health care facilities and infra-structure and man-power.*

It may be useful at this stage to link the health performance indicators during the pre-reforms and during the reforms periods, with fiscal reforms indicators analysed earlier. This is attempted with an econometric model of the health sector at the macro level.

The following variables are considered in this model¹³ :

- PUCE= Ratio of state and central public capital expenditures to total public capital expenditures
- HC= Composite Index of Health Human Capital
- HI= Composite Index of Health Infrastructure
- HP= Composite Index of Health Sectoral Performance
- D₉₀ = 'Reforms' Dummy variable, representing the effects of reforms process; it takes a value equal to zero during the pre-reforms period, and equal to unity during the reforms periods.

The basic objectives of the econometric model are to study the following:

- Is there any clear indication that the health manpower (HC) and health infrastructure developments (HI) have shown distinct patterns during the two phases of the reforms process, namely before and during the reforms?
- Is there any systematic relation visualized between health infrastructure (HI) and health manpower (HC) growth?
- Is there any patters being followed in allocating public resources on the health sector?
- Can the overall performance of the health sector (HP) be explained by the health manpower, health infrastructure and public investment policies?

In order to study the effects of reforms process itself, a dummy variable D₉₀ is introduced. Alternative forms of the relationships have been estimated, and only the statistically significant ones are summarized in Table 12.b.

¹³ Public Revenue expenditures at the state and central levels were also considered to be used in the model. But no significant econometric relations could not be established between this and health performance indicators.

Table 12.b.: Macro-Econometric model of Health Sector

| Dependent Variable | Explanatory Variables | | | | |
|--------------------|-----------------------|----------------|-----------------------|--------------------|------------------|
| | Constant term | HI | HC | AHI | D ₉₀ |
| HI -0.81 | 1.247* | | | | 1.572* (0.35) |
| HC -0.805 | 1.261* | | | | 1.424* -0.33 |
| HC -0.75 | 0.562 | 0.683* -0.7 | | | |
| PUCE -0.439 | 0.217* | | | -0.112* (-0.09) | |
| ΔHP -0.54 | 0.00696 | | 0.0164* -0.82 | | |
| ΔHP -0.521 | -0.00545 | | @ 0.0226* -1.14 | | |

Notes: 1. Figures in brackets under the dependent variables are the R values; 2. Figures in brackets under explanatory variables are estimated elasticities; 3. @: Here, instead of observed HC, estimated from another regression equation is used.

In summary, maintaining health manpower growth systematically is very crucial to perfect the health delivery system in the reforms period.

The following conclusions can be drawn on the basis of the econometric model:

- The reforms process has distinctly brought changes in the growth of health manpower and health infrastructure. This is also visible from **Chart ‘A’ and Chart ‘B’**. The ‘reforms’ dummy variable is significant and has a positive coefficient, indicating significant shift in these two major performance indicators of the health sector in the reforms period.
- Secondly, the growth in health manpower and health infrastructure seem to be linked, a fact, perhaps obvious from the experience of the performances. However, the elasticity of health manpower growth with respect to health infrastructure is just about 0.70 (i.e., inelastic). This suggests that man power growth is lagging behind the infrastructural growth.
- Thirdly, public expenditure on health sector seems to be inversely related to the rate of change in health infrastructure. If health infrastructure grows beyond the normal growth rate, then, public investment expenditures are cut. On the other hand, if the health infrastructure growth is lagging behind the normal growth, then, public investment expenditures are enhanced. This seems to be a prudent public finance management.
- Fourthly, change in health delivery (HP) is directly related to the levels of health manpower. In other words, development of health manpower is most crucial for the good health delivery system.
- Finally, the revenue expenditures at the states and central levels seem to be determined by considerations outside of the health sector, as both the health infrastructure and health manpower growths do not seem to explain the allocations.

6. Production and Consumption Linkage Analysis of Health Sector

Because of multi-sectoral linkages referred to in Box 1, one can also analyse their inter-dependencies linkages. However, data and information on all the aspects mentioned there are not available on an yearly basis (except for imports and exports). The Central Statistical Organisation, an organ of Ministry of Planning in the Central Government, has been compiling them for selected years. They are typically put in a matrix of commodity (including services) flows in value terms for a large number of sectors of the economy. This matrix is generally called 'Input-Output Transactions Matrix' of the economy. In the most recent Transactions Matrix for the year 1993-94, the economy is divided into 115 sectors.

The Sectoral linkage between the health related and other sectors of the economy are viewed in terms of value of various inputs in to these sectors and presented in Tables 13 to 16¹⁴.

¹⁴ These are presented in value terms, for the simple reason that at the macro-economic level, it is not easy and feasible to present the same in physical units such as kgs of medicines, or litres of saline or thousands of syringes and so on.

Table 13: Backward, Forward, Total Production Linkage and Final Demand Linkage Indices :Service and Utility Sectors

| Sector | 1973-74 | | 1989-90 | | 1993-94 | | 1993-94 | | |
|-------------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|--|------------------------------------|--|
| | Forward Linkage | Backward Linkage | Forward Linkage | Backward Linkage | Forward Linkage | Backward Linkage | Total Direct & Indirect Linkage Effect Index | Direct & Indirect Inducement Index | Total Linkage Coeff. For final Demand (Relative) |
| Electricity | 0.7662 | 0.5082 | 0.917 | 0.6199 | 0.9084 | 0.6416 | 4.9506 | 1.1063 | 0.322 |
| Gas | 0.0418 | 0.2304 | 0.3327 | 0.5325 | 0.0897 | 0.2668 | 0.4983 | 0.6956 | 0.0378 |
| Water Supply | 0.3685 | 0.308 | 0.3626 | 0.4481 | 0.4768 | 0.2939 | 0.5854 | 0.8043 | 0.065 |
| Railway Transport | 0.524 | | 0.6837 | 0.4546 | 0.689 | 0.4488 | 1.6875 | 0.9511 | 0.3291 |
| Other Transport | 0.4076 | 0.3887 | 0.5135 | 0.4295 | 0.5009 | 0.5189 | 4.553 | 1.0074 | 0.0948 |
| Storage & Warehousing | 0.9949 | 0.1922 | 0.9898 | 0.2889 | 0.9908 | 0.3184 | 0.5524 | 0.7882 | 0.0004 |
| Communication | 0.3144 | 0.1298 | 0.6682 | 0.1752 | 0.6545 | 0.1612 | 1.0869 | 0.654 | 0.1583 |
| Banking | 0.7398 | | 0.8115 | 0.2027 | 0.7817 | 0.1471 | 3.2556 | 0.6089 | 0.0351 |
| Insurance | 0.3464 | 0.0606 | 0.9544 | 0.1189 | 0.9539 | 0.1701 | 1.0557 | 0.6584 | 0.0126 |
| Ownership of dwellings | 0 | 0.0796 | 0 | 0.1564 | 0 | 0.0553 | 0.4948 | 0.555 | 1.6076 |
| Education & Research | 0.0001 | 0.3281 | 0.0037 | 0.0923 | 0.004 | 0.1119 | 0.5016 | 0.6045 | 1.0783 |
| Medical & Health | 0.0462 | 0.6835 | 0.1249 | 0.5383 | 0.1178 | 0.5157 | 0.6348 | 1.0402 | 1 |
| Other Services | 0.5362 | 0.0625 | 0.6201 | 0.4059 | 0.4555 | 0.2406 | 2.5756 | 0.9551 | 1.7309 |
| Public Administration | 0 | 0 | 0 | 0 | 0 | 0 | 0.4948 | 0.4948 | 1.3219 |
| Trade | 1.058 | 0.4987 | 0.715 | 0.6364 | 0.6024 | 0.6532 | 0.8691 | 1.1859 | - |
| Drugs & Pharmaceuticals | 0.3613 | 0.1468 | 0.4673 | 0.267 | 0.4479 | 0.2333 | 5.9201 | 0.7221 | - |

Notes : Forward

Linkages = $\sum x_{ij}$

X_i

Total Direct & Indirect Linkage Effect Index = $\sum \sum C_{ij}$

Linkage Effect Index = $\sum \sum C_{ij}$

Total Linkage Coefficient for

final demand (relative) = $(\sum C_{kj})/f_j$

Backward Linkages = $\frac{\sum x_{ij}}{D_{ij}=X_j+M_j}$ Direct & Indirect = $n \sum X_{ij}$

Inducement Index = $\sum \sum C_{ij}$

Source : Input-Output Transaction Tables, 1973-74, 1989-90, 1993-94

In Tables 14 only the most important and major inputs in value terms into the Health and Medical Sector are shown. The input values are then converted into a ratio of the gross output (or total value of services from the Health sector itself) to obtain an input/output coefficient. The coefficients then reflect the relative importance of the various inputs. For instance, it can be viewed that in 1993-94, for every rupee of services provided by the health sector in India, the drug and pharmaceutical inputs required are to the tune of Rs. 0.28. Likewise, all the inputs are to be interpreted. The total inputs from all sector taken together to provide one rupee of services from the health sector is Rs. 0.52. In a sense, this is an indicator of direct backward dependency of the Health sector. This dependency was as high as 0.68 in 1973-74. The direct inputs material in the health sector seems to have been going down. The implication is that the man-power costs in the health sector in turn have been increasing.

Likewise, from Table 15, it can be viewed that, in 1993-94, the direct backward dependency of Drug and Pharmaceutical Sector on all sectors of the Indian economy was to a tune of Rs. 0.66. Out of this, the inputs from the Drug and Pharmaceutical sector itself was for Rs. 0.18. In the drug and pharmaceutical sector the direct inputs seem to be going up over time (from 0.52 in 1973-74 to 0.66 in 1993-94).

Table 16 shows the import dependency of the two sectors for the most recent period. The import dependency of the Health sector is quite minimal, amounting to only Rs.0.015 per rupee of its service activity. The Drug and pharmaceutical sector however has a larger dependency on the imports amounting to Rs. 0.078 per rupee of gross output.

Several indicators can be computed to reflect the degree of linkages between the two sectors and all other sectors of the economy. They are based on the methodology of Input-Output Transactions Table, referred above. Five major indicators used here are :

- Forward Linkage :
- Backward Linkage
- Total Direct & Indirect Linkage
- Direct & Indirect Inducement
- Total Linkage with Final Demands

The definitions of these indicators, their computational methods are shown in Table 13 along with their estimates for the three distinct periods under study, namely, 1973-74, 1989-90 and 1993-94¹⁵. The question before us, the role and relevance of Health Sector among major service sectors of the country. This is best answered by the Total Linkage Coefficient for Final Demand (computed for the year 1993-94 only). For this purpose, the total linkage index in respect of Final demands for the Health and Medical Care sector is set as a numeraire (i.e., unity). Then the relative indicators for several other service and utility sectors reflect their relative importance. Notice that except for Education, Other Services and Public Administration, all other sectors have very low final demand linkages.

¹⁵ The choice of the three periods is simply based on the availability of Input-Output Transactions Tables.

Table 14 : Changing Structure of Inputs into Medical and Health Sector

(Rs. In Lakh)

| Rank | 1973-74 | | | 1989-90 | | | 1993-94 | | |
|-------------|---------------------------|---------------|---------------|-----------------------|---------------|---------------|-----------------------|----------------|---------------|
| | Sector | Value | Coeff. | Sector | Value | Coeff. | Sector | Value | Coeff. |
| I | Drugs and pharma | 55830 | 0.478 | Drugs & pharma | 288211 | 0.336 | Drugs & pharma | 493567 | 0.2808 |
| II | Trade | 10870 | 0.0931 | Trade | 64287 | 0.0749 | Trade | 143118 | 0.0814 |
| III | Other transport services | 3109 | 0.0266 | Medical & health | 19763 | 0.023 | Other transport | 91764 | 0.0522 |
| IV | Communication | 1582 | 0.0135 | Other transport | 19333 | 0.0225 | Medical & health | 54817 | 0.0312 |
| V | Other services | 1482 | 0.0127 | Misc. manufac. | 14229 | 0.0166 | Other services | 33239 | 0.0189 |
| VI | Electricity | 990 | 0.0085 | Other crops | 7407 | 0.0086 | Construction | 18724 | 0.0107 |
| VII | Construction | 969 | 0.0083 | Electricity | 5995 | 0.007 | Electricity | 8582 | 0.0049 |
| VIII | Other livestock products | 591 | 0.0051 | Construction | 5803 | 0.0068 | Misc. manufacturing | 8548 | 0.0049 |
| IX | Misc. metal products | 566 | 0.0048 | Other services | 5294 | 0.0062 | Communication | 7381 | 0.0042 |
| X | Railway transport serv. | 540 | 0.0046 | Hotels & restaurants | 4085 | 0.0048 | Milk & milk prods. | 5726 | 0.0033 |
| XI | Misc. manufacturing | 374 | 0.0032 | Milk & milk prods. | 4070 | 0.0047 | Water supply | 5200 | 0.003 |
| XII | Hotels & restaurants | 310 | 0.0027 | Railway transport | 4039 | 0.0047 | Other chemicals | 5121 | 0.0029 |
| XIII | Misc. food products | 284 | 0.0024 | Wheat | 3607 | 0.0042 | Petroleum prods | 4576 | 0.0026 |
| XIV | Milk & milk products | 264 | 0.0023 | Paddy | 3422 | 0.004 | Other livestock prods | 3870 | 0.0022 |
| XV | Other crops | 253 | 0.0022 | Petroleum prods | 2096 | 0.0024 | Paddy | 3188 | 0.0018 |
| XVI | Electrical appliances | 10 | 0.0001 | Electrical appliances | 71 | 0.0001 | Electrical appliances | 506 | 0.0003 |
| XVII | Total of the Above | 78024 | 0.6681 | | 451712 | 0.5265 | | 887927 | 0.5051 |
| | All other inputs | 1810 | 0.0155 | All other inputs | 461836 | 0.5383 | All other inputs | 906601 | 0.5157 |
| | TOTAL INPUTS | 79834 | 0.6836 | TOTAL INPUTS | 461836 | 0.5383 | TOTAL INPUTS | 906601 | 0.5157 |
| | Gross Output | 116788 | | Gross Output | 857896 | | Gross Output | 1757861 | |

Source : Input-Output Transaction Tables, 1973-74, 1989-90, 1993-94

Table 15 : Changing Structure of Inputs into Drugs and Pharmaceuticals Sector

(Value in Lakhs of Rupees)

| Rank | 1973-74 | | | 1989-90 | | | 1993-94 | | |
|------------|-----------------------------------|--------------|---------------|-----------------------------------|---------------|---------------|-----------------------------------|----------------|---------------|
| | Sector | Value | Coefficient | Sector | Value | Coefficient | Sector | Value | Coefficient |
| I | Organic heavy chemicals | 5310 | 0.0914 | Drugs & Medicines | 151315 | 0.2282 | Drugs & Medicines | 246586 | 0.1772 |
| II | Trade | 3368 | 0.0579 | Trade | 56606 | 0.0854 | Trade | 122625 | 0.0881 |
| III | Drugs & medicines | 3169 | 0.0545 | Organic heavy chemicals | 25316 | 0.0382 | Organic heavy chemicals | 92362 | 0.0664 |
| IV | Inorganic heavy chemicals | 2786 | 0.0479 | Paper, paper products & newsprint | 25052 | 0.0378 | Other transport services | 89247 | 0.0641 |
| V | Non-ferrous basic metals | 2170 | 0.0373 | Other Chemicals | 23240 | 0.035 | Other chemicals | 51921 | 0.0373 |
| VI | Other crops | 1688 | 0.029 | Electricity | 18250 | 0.0275 | Paper, paper products & newsprint | 0 | 0 |
| VII | Other services | 1574 | 0.0271 | Forestry & logging | 15375 | 0.0232 | Banking | 48859 | 0.0351 |
| VIII | Other non-metallic minerals | 1540 | 0.0265 | Other transport | 15301 | 0.0231 | Electricity | 47584 | 0.0342 |
| IX | Other chemicals | 1416 | 0.0244 | Inorganic heavy chemicals | 11328 | 0.0171 | Inorganic heavy chemicals | 32070 | 0.023 |
| X | Paper, paper products & newsprint | 1124 | 0.0193 | Other Services | 10870 | 0.0164 | Inorganic heavy chemicals | 19071 | 0.0137 |
| XI | Other transport services | 715 | 0.0123 | Banking | 9795 | 0.0148 | Plastic products | 17422 | 0.0125 |
| XII | Electricity | 654 | 0.0113 | Sugar | 8037 | 0.0121 | Plastic products | 0 | 0 |
| XIII | Banking | 582 | 0.01 | Misc. Manufacturing | 7368 | 0.0111 | Forestry & logging | 14843 | 0.0107 |
| XIV | Plastic products | 504 | 0.0087 | Non-ferrous basic metals | 6035 | 0.0091 | Non-ferrous basic metals | 12976 | 0.0093 |
| XV | Wood & wood products | 405 | 0.007 | Plastic Products | 5951 | 0.009 | Misc. textile products | 11137 | 0.008 |
| XVI | Total of the Above | 27005 | 0.4646 | | 389839 | 0.5879 | | 825916 | 0.5934 |
| | All other inputs | 3369 | 0.058 | All other inputs | 48461 | 0.0731 | All other inputs | 99635 | 0.0716 |
| | Total Input | 30374 | 0.5226 | Total Input | 438300 | 0.661 | Total Input | 925551 | 0.665 |
| | Gross Output | 58120 | | Gross Output | 663104 | | Gross Output | 1391850 | |

Source : Input-Output Transaction Tables, 1973-74, 1989-90, 1993-94

Table 16 : Imports into Health Related Sectors (1993-94)

(Value in Lakhs of

| S. No. | Sectors | Drugs & Pharmaceuticals | Coeff. | Medical & Health | Coeff. |
|--------|-----------------------------------|-------------------------|---------|------------------|--------|
| 1 | Other livestock products | 885 | 0.0006 | | |
| 2 | Khandsari, boora | 34 | 0.00002 | | |
| 3 | Miscellaneous food products | 923 | 0.0006 | | |
| 4 | Wood and wood products | 106 | 0.00007 | | |
| 5 | Paper, paper prods. & newsprint | 8364 | 0.0061 | 534 | 0.0003 |
| 6 | Petroleum products | 2087 | 0.0015 | 1660 | 0.0009 |
| 7 | Inorganic heavy chemicals | 6091 | 0.0043 | | |
| 8 | Organic heavy chemicals | 54812 | 0.0393 | | |
| 9 | Paints, varnishes and lacquers | 20 | 0.00001 | | |
| 10 | Drugs and medicines | 25025 | 0.0179 | | |
| 11 | Synthetic fibers, resin | 149 | 0.0001 | | |
| 12 | Other chemicals | 4110 | 0.0029 | | |
| 13 | Other non-metallic mineral prods. | 6126 | 0.0044 | | |
| 14 | Hand tools, hardware | 322 | 0.0002 | | |
| 15 | Miscellaneous manufacturing | | | 4067 | 0.0023 |
| 16 | Other services | | | 20957 | 0.0119 |
| 17 | Public administration | | | | |
| | Total Imports | 109055 | 0.0783 | 27218 | 0.0154 |
| | Gross Output | 1391850 | | 1757861 | |

Source : Input-Output Transaction Tables, 1993-94

Like wise, all the indicators can be compared across the sectors. Based on such a methodology the following major conclusions can be drawn:

- The Forward linkage of the Medical and Health Care Sector has increased over time, whereas the Backward linkage has declined.
- In the case of Drug and Pharmaceutical Sector, both the Forward and Backward linkages have been increasing.
- In 1993-94 (the most recent year for which the I-O Table data is available), the Forward linkages of health and medical Care sector is higher than for Education.
- The Backward linkage for the health and medical Care sector in the year 1993-94 is quite high as compared to Education, Insurance, Other Services or Banking.
- The Direct and Indirect Inducement Index for health sector is quite high (comparable to Transport sector, Trade or Electricity etc.)
- Drug and pharmaceutical sector has, in comparison to Other Service and Utility Sectors, relatively quite high Forward and Backward linkages.

7. Conclusions

The analysis of sectoral linkages between the Health and Medical Sectors with other sectors of the economy (Section 6 in particular), as well as the role it has to play as a Social Sector (Dreze and Sen, 1995) ascertain that the health and medical sectors seem to have assumed their right place in India as a major Social sectors, having to do with the development of human capital. Its development in the context of Reforms Process therefore, is all the more necessary. As argued by Srinivasan (2000) the question is how to internalize it, rather than doing without it.

The performance of the health sector in India over the last two decades have been reviewed at the macro-economic level in this study. They provide a variety of messages for reforming the health and medical sector in India. The major findings and the relevant policy options and corrections at the macro-economic level are summarised here.

There is some evidence to say that the central budgetary allocations have not been reduced in the health sector, be it at the per capita level, or per GDP or even as a ratio of total revenue budgetary allocations. In fact, invariably they have shown some increasing trend, however marginal they may be. But the same can not be said about the allocations out of state revenue budgets. Clearly, the state's budgetary allocations have declined as a share of allocations out of total revenue budget, remained fairly constant in terms of per GDP basis, but on per capita terms seem to be going up slowly. Since health care delivery is a state subject in India, it is extremely important that states maintain their budget allocations on this vital sector on a growing path of at least 5-6 percent.

The growth of health man-power and infrastructure is another matter of concern. The analysis shows that while the emphasis was heavily loaded on infrastructural development in the decade of 1980's, the same has shifted to man-power development in the 90's. It may be economically an efficient way of managing the development of the health sector in such a phased manner over the plan periods. But such a development will amount to, at times having infrastructure but not doctor and vice-versa. Certainly, such phasing of development of the two arms of the health sector may not be in the best interests of the people to whom health care delivery is important. Health being a matter of social relevance, more than economic relevance, it is important to maintain some kind of balance in the development of both infrastructure and man-power. In terms of policy, quite often, such developments are driven by external fundings. Then the government should be more careful to see that the health care delivery system is not affected by the funding mechanisms.

Finally, the link between the health sector and the rest of economic sectors should also be kept in mind, for better resource allocation and management. The linkage analysis shows that health sector's backward linkage has been declining and that of forward linkage increasing. This will mean that the development of this sector will depend more and more on advancement of technology, inflow of foreign capital, imports of drugs etc. Rather, it is necessary to recognize the traditional and indigenous knowledge and techniques and find a place for them in the health sectoral development. On the other hand, in the case of drug and pharmaceuticals, both the forward and backward linkages are on the increase over time. Still, one notices that rather than backward linkage, it is the forward linkage which is quite high. Once again, Indian drug and pharmaceutical sectors are becoming more and more dependent upon exporting, imports of foreign drug intermediaries and technologies. This may not be in the best interest of promoting this sector in the country, particularly with a large number of small scale units in this sector.

It is now time to take a close look at the National Health Policy-2002. The findings and observations made in this study are confirmed by this policy document. They have already recognized that:

- As compared to China (24.9%) or Sri Lanka (45.4%), India spends just about 17.3% of total health expenditure on public health.
- The central budgetary allocation for health over the period 1990 to 1999, as a percentage of the total central budget has been stagnant at 1.3 percent, while that in the states has declined from 7.0 percent to 5.5 percent.
- The annual per capita public health expenditure in the country is no more than Rs. 200.

- The National Policy document therefore, recommends to increase central allocations to 6 percent of GDP, with 2 percent of GDP being contributed exclusively as public health investment.
- The state governments are required to commit to raise the allocation to 7 percent of their budget till 2005, and later by 8 percent.
- So far access to and benefits from public health system have been very uneven. These need to be corrected.
- It is estimated that the short fall in SCs/PHCs/ CHCs is going to be about 16% (as against the norms).
- Inadequate public health facilities are such that less than 20 percent of population which seek OPD services and less than 45 percent of that which seek indoor treatment, avail of such services in public hospitals. This is the telling story coming from imbalanced development of the public health man-power and infrastructure in India.
- Accordingly, the policy document suggests to raise allocation on public health infrastructure to a tune of 55 % specifically on primary health sector, 35% to secondary and 10 percent to tertiary sectors.
- The policy document also recommends to encourage handing over of public health service outlets at any level for management to NGOs and other institutions of civil society. It is this aspect of health cooperative that CMDR has been promoting on an experimental basis (described in another monograph), as part the action and policy research.

Chart - A

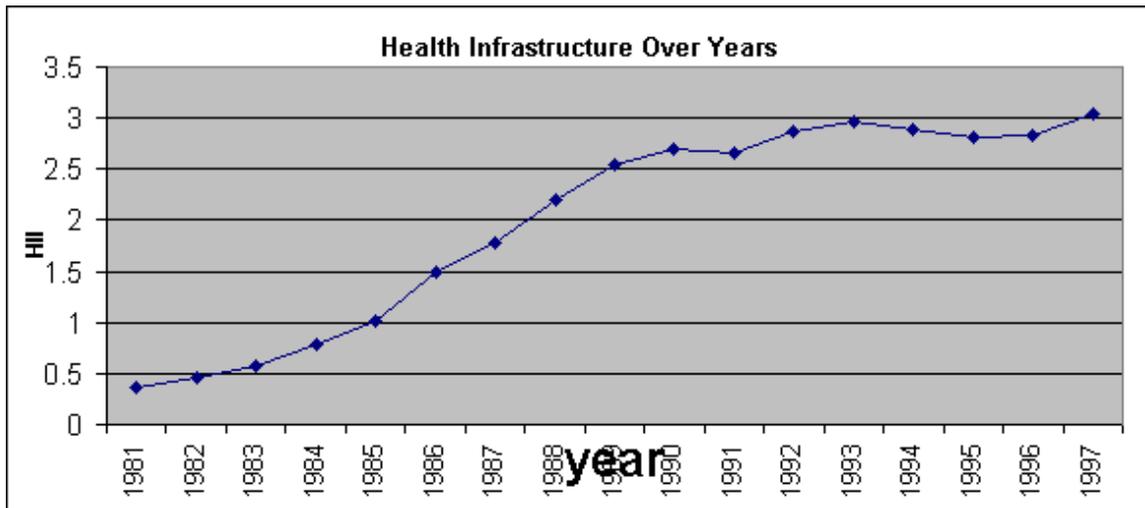


Chart - B

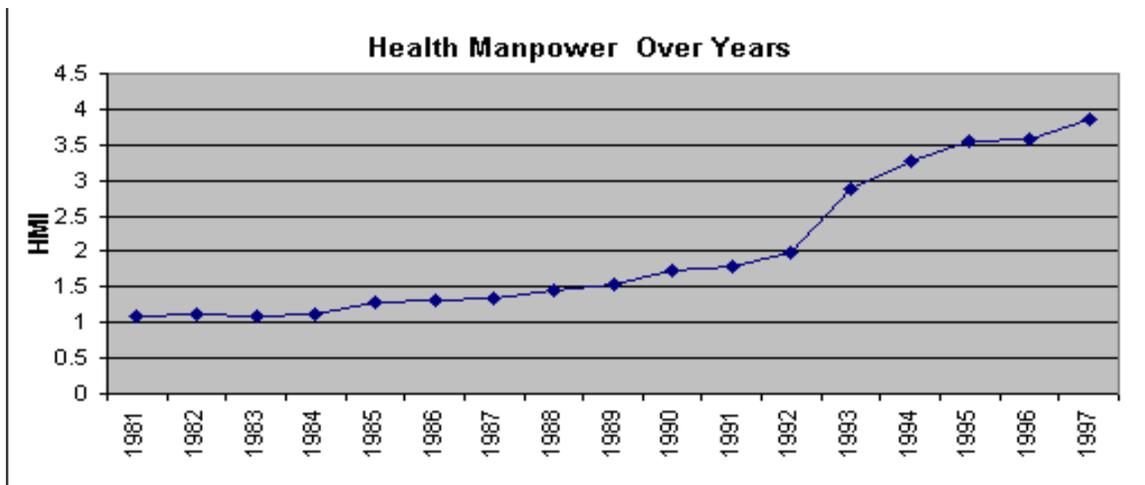


Chart - C

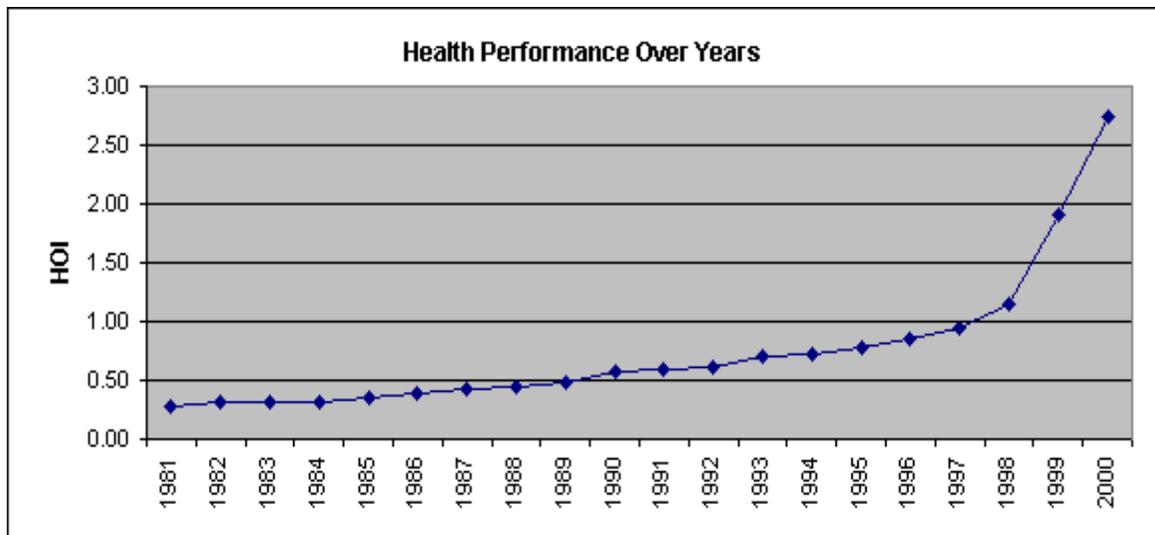


Figure 1 Central Revenue Expenditure on Health Sector As % of GDP

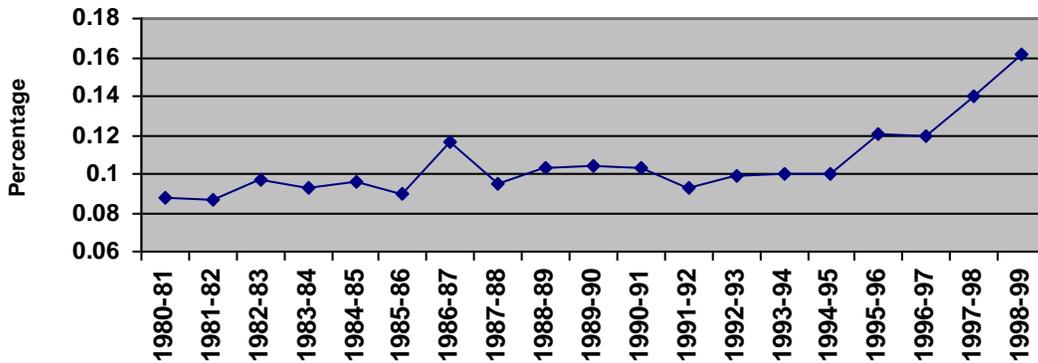


Figure 2 State's Revenue Expenditure on Health Sector As % of GDP

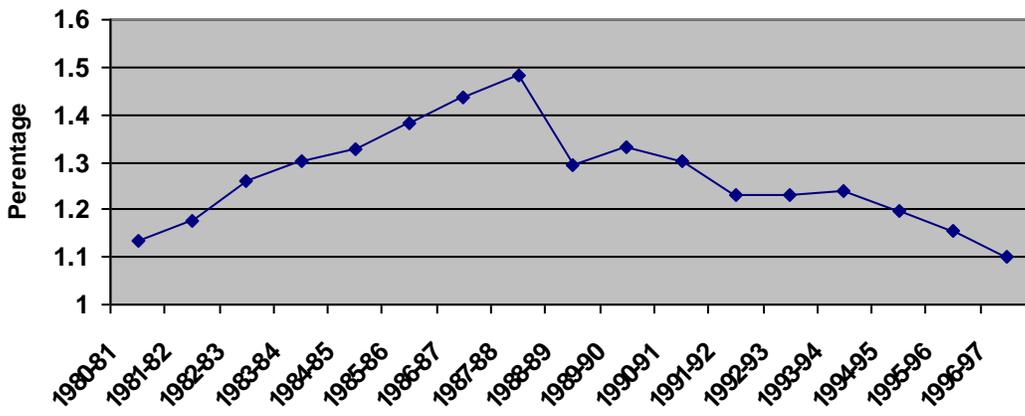


Figure 3 Central Revenue Expenditure on Health Sector As a % of Total Revenue Expenditure

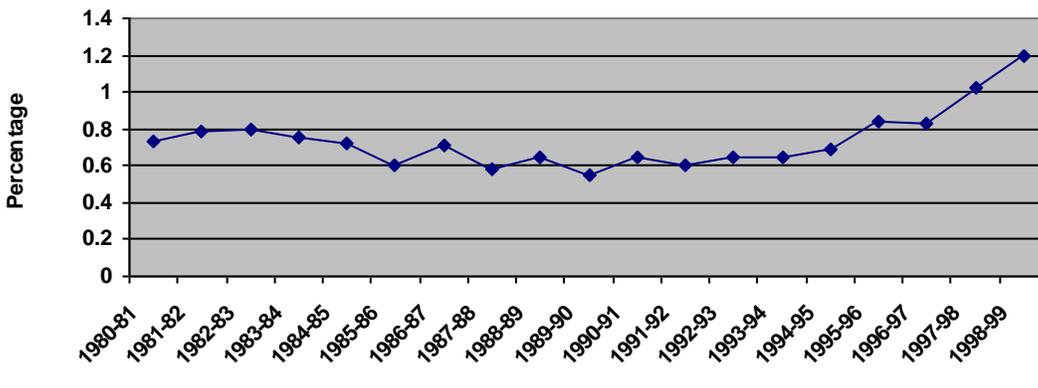


Figure 4 State's Revenue Expenditure on Health As % of Total Revenue Expenditure

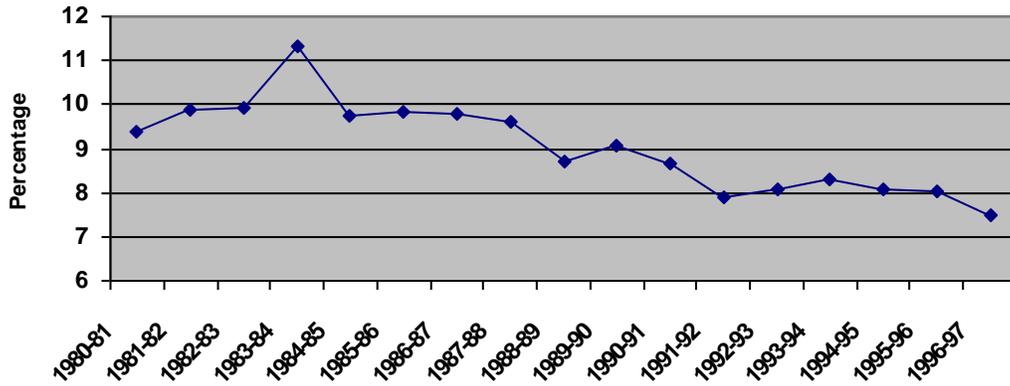


Figure 5 Per Capita All States Revenue Expenditure on Health & Family Welfare in Constant Prices

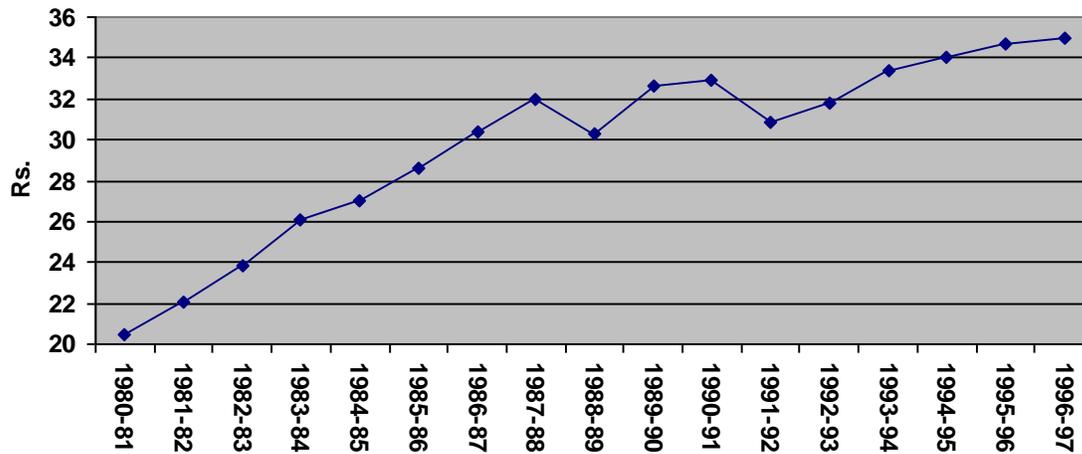


Figure 6 Per Capita Central Revenue Expenditure on Health & Family Welfare in Constant Prices

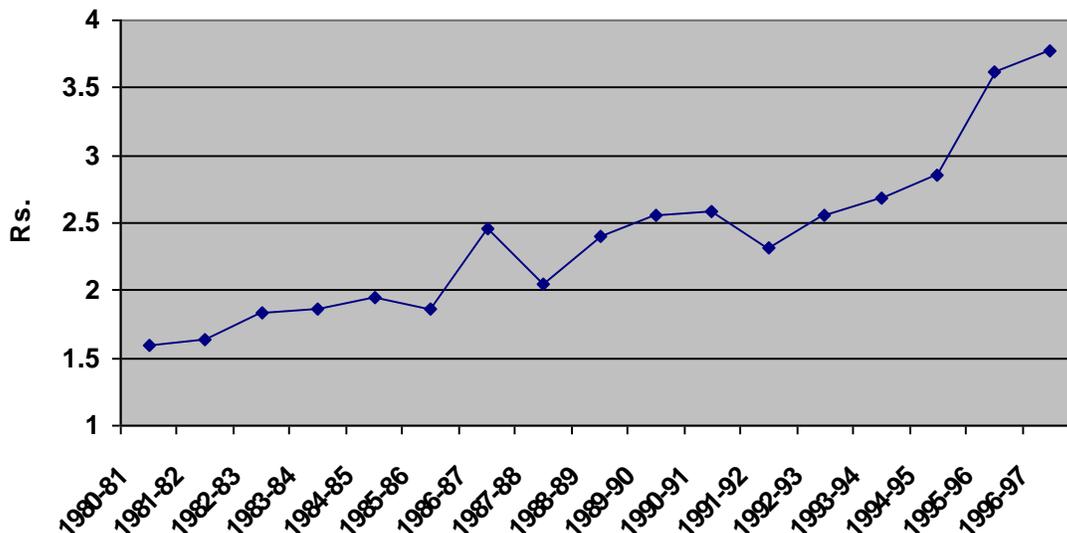


Figure 7 Per Capita Private Expenditure on Health & Medical Care in Constant Prices

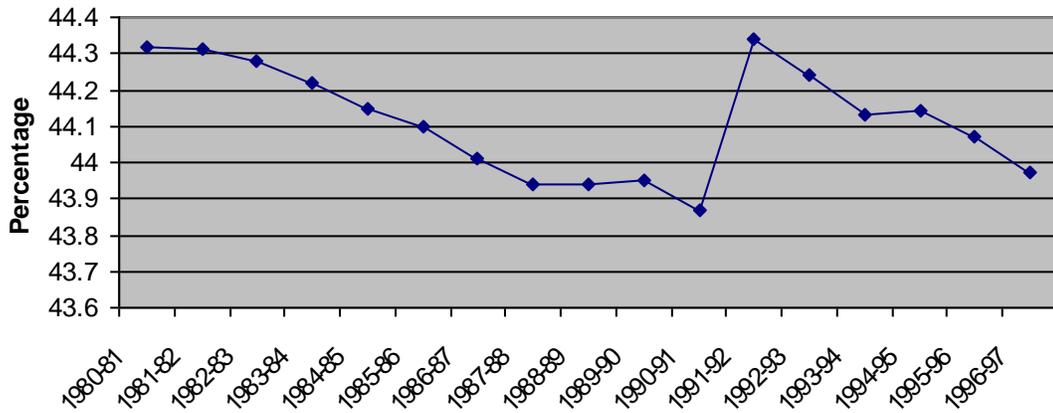
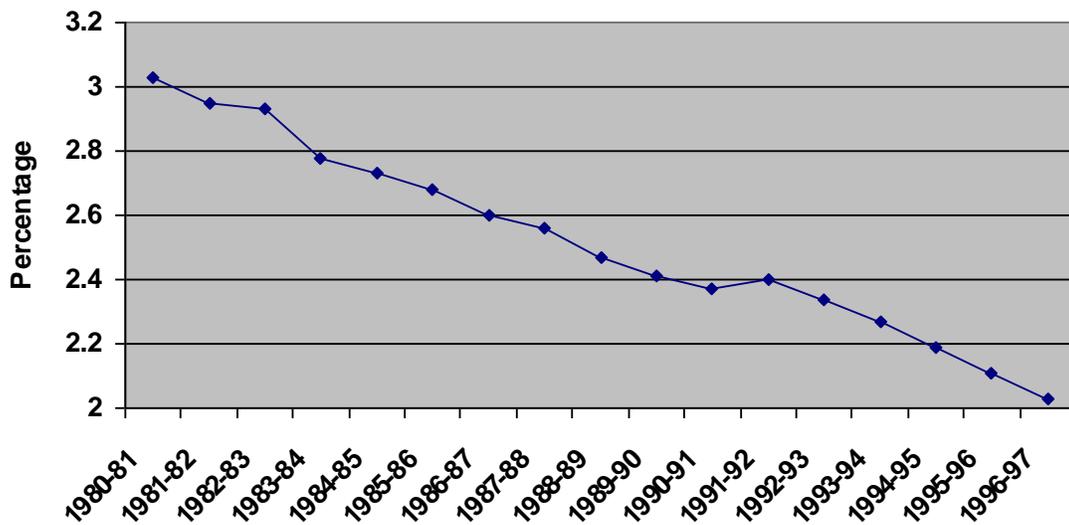


Figure 8 Per Capita Private Health Expenditure as % of PFCE



Annex 1: Broad notional definitions and norms for setting up of Health Facilities

1. PHC serves app. 30,000 population by year 2000 A. D. PHC will be supplied with drugs worth Rs. 30,000 annually. (All India Norm). A PHC will have one doctor.

Subcentres serves app. 5,000 people in plain areas and 3,000 in hilly and tribal areas. Subcentre is managed by Junior Health Assistant (Female) Junior Health Assistant (Male), (All India Norm).

2. CHC serves 1 Lakh population. Generally one CHC is attached to 4 PHCs. It is the policy of government to upgrade all taluka level institutions to 30 bedded hospitals and talukas located at sub-divisional headquarters into 50 bedded hospitals. (All India Norm).

3. District Hospitals are defined at each district head quarters. The district hospital will have following specialists :

1. Medicine
2. Surgery
3. Obstetric and Gynaecology
4. Paediatric
5. Orthopaedic
6. Ophthalmology
7. Ear, Nose and Throat
8. Pathology and Bacteriology
9. Skin and STD
10. Radiology
11. Anaesthesia
12. Dental

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C h a p t e r - 4

ECONOMIC REFORMS, GOVERNMENT FINANCES AND PUBLIC SPENDING ON SOCIAL SECTOR

An Analysis of the Health Sector in India

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Assisted by

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Keerti Kulkarni

Section - i

Introduction

Fiscal adjustment as a means to achieve macro-economic stability has been a global phenomenon since the beginning of the 1980s. Goals of sustainable fiscal balance were built into the structural adjustment programmes adopted in many developing countries facing mounting debt burdens, high rates of inflation and severe balance of payments problems. By their very nature, such economic reform measures involve a paradigm shift in the role of the state vis-à-vis the economy. The two dictums underlying this shift are that of 'fiscal efficiency' and 'fiscal prudence'. While the dictum of efficiency prompts the government to reorient its resource allocation, that of prudence makes it obligatory on the part of governments to remain committed to a deficit constraint. The repercussions of such fundamental changes in economic policy are wide-ranging and unlikely to remain limited to the conventional spheres of economic activity. Of particular concern is the 'spillover' of the impact of reform measures to human welfare and development. The likely conduit of such a spillover is public spending on social services.

1.1 The Indian Context

1.1.1 Fiscal Basis of the 1991 Crisis:

In 1991, India faced a macro-economic crisis in the form of a drastic fall in foreign exchange reserves (to about \$ 1 billion, equal to meet two weeks imports), accompanied by cut off in foreign private lending that swiftly followed the sharp downgrading of the country's credit rating. At a more fundamental level, and one that required sustained structural correctives, inflation was high (at 12 per cent) and rising, both fiscal and current account deficits were unsustainably large (approximately 10 per cent and 3 percent of GDP, respectively), and there was unmistakable evidence of the country moving into a debt trap. The Gulf War, which erupted in August 1990, sparked off a chain of events that ultimately proved too much for the already strained Indian economy. Oil prices increased and with it so did the annual import bill; remittances from the middle east dipped; the current account position worsened with exports suffering from stagnation in industrialized nations; and, suddenly, there was a 'crisis of

confidence' as international lenders began fearing of an economic 'meltdown'. Political instability in the country compounded the severity of the situation.

While the immediate cause of the 1991 crisis may have been exogenous, its roots can be traced back to the fiscally imprudent 1980s. Indian economy recorded a commendable GDP growth rate of 5.5 per cent per annum during the decade of 1980-1990 (as compared to the near stagnation of the economy at 3.6 per cent per annum growth rate during the 1965-1980 period). Part of the growth can be attributed to policy measures adopted during the period, especially with regard to import liberalisation. However, much of the growth was due to a systematic strategy pursued by the government during the period that involved large deficits financed by commercial borrowings from abroad. At the central government level, gross fiscal deficit as a ratio of GDP increased from an average of 4.5 percent during the 1975-80 period to 8.5 percent by 1985-86, and stayed at that level thereafter till the end of the decade. The gross fiscal deficit of the central and state governments taken together averaged 9.5 percent of GDP during 1985-90 and touched 10.1 percent in 1990-91. What made this increase in fiscal deficit ominous, was the trend in its revenue deficit component. As a ratio of the central governments' gross fiscal deficit, revenue deficit nearly doubled from an average of 17.0 percent in 1980-85 to 31.5 percent in 1985-90. Over the entire decadal period (1980-1990), revenue deficit as a ratio of the combined gross fiscal deficit of all state governments averaged at a high level of 15.02 percent (moving from an average surplus position of -16.8 percent in 1980-85 to an average deficit value of 8.1 percent in 1985-90).

The implication of a growing revenue deficit component of the fiscal deficit is that the rise in fiscal deficit is not due to any increase in the share of public investment, but largely because of a decline in the share of public savings. When increase in fiscal deficit is confined to non-capital expenditure over a prolonged period, the induced growth of the economy becomes unsustainable and is likely to run into an inflationary barrier, sooner or later. Thus, the fiscal basis of the 1991 crisis was in the making throughout the 1980s.

The sources of the fiscal imbalances of the 1980s lay in the disproportionate rise in public sector expenditures. Though revenues (both tax and non-tax) of the government improved steadily throughout the period, it was far outstripped by the growth rate of current expenditure. Transfers were the dominant component in this growth, increasing from 29.5 percent of total government expenditure in 1975 to 36.5 percent in 1980, 41.7 percent in 1985 and 47.0 percent in 1989. Within transfers, the single most important element contributing to growth of public sector expenditure was interest payment on debt, followed by subsidies.

1.1.2 Economic Reforms:

Economic policies in India began their orientation towards deregulation and liberalization from the mid-1970s. This move was particularly evident in exchange rate management. However, two oil shocks, a severe drought and political instability during the later half of the 1970s prevented policy makers from carrying out a comprehensive reform process. With political stability back in the early 1980s, the IMF supported adjustment programme of 1981 was initiated as probably the first systematic attempt at introducing economic reforms as a policy package in the country (Sengupta, 2000). This marked the beginning of an "incremental approach to reforms" (Ahluwalia, 1994), involving relaxation of quotas and ceilings, broad banding of industrial investments and import liberalization. Except for a few large investors, most of the industrial investments were effectively delicensed.

The success of the policy changes in stimulating industrial investment and improving resource allocation was quite visible in terms of increased outputs and efficiencies (Joshi and Little, 1994), and created a climate for further change. Consequently, the Rajiv Gandhi government (with an unprecedented electoral mandate for support) introduced the New Economic Policy (NEP) in 1985 that contained many of the features of the 1991 reforms programme. The explicit focus of the 1985 NEP was on economic efficiency and its components related to the dismantling of the control regime, liberalization of foreign trade and foreign investment and privatizing public sector enterprises. The 1985 Long Term Fiscal Policy (LTFP) aimed at a drastic restructuring of the fiscal system, particularly of the existing tax regime.

Thus, it is clear from the above discussion that, the reforms programme introduced in the aftermath of the 1991 crisis, with liberalization, privatization and globalization as its cornerstones, in no way spelled a radical departure from the past. However, what made the 1991 reforms programme different from earlier attempts was the transparency of the policies and their simultaneous application over a broad front (Patel, 1998). In fact, the thesis that the 1991 reforms process is only a continuation of earlier efforts gets corroborated when one looks at the areas *not* affected by policy reform. There are many common areas, which experienced very little policy changes, both during the 1980s and the 1990s. Examples may be given of the agriculture sector, banking and the financial sector, transport and communication.

1.1.3 Government Finances during 1990s:

As it happened in the later half of the 1980s, much of the post-1991 period witnessed major slippages in fiscal containment, both at the central and state government levels. At the central government level, gross fiscal deficit as a ratio of GDP averaged 6.7 percent during 1990-95 and 5.1 percent in 1995-1998. The corresponding values of the gross fiscal deficit for all states taken together during the two periods are 2.9 and 3.5 percents, respectively. In 1999-2000, the combined gross fiscal deficit of all states amounted to 4.9 percent of GDP (revised estimate), and the total outstanding debt to GDP ratio was 21.5 percent. As a ratio of the central government's gross fiscal deficit, revenue deficit increased from an average of 48.1 percent in 1990-95 to 55.3 percent in 1995-2000. Corresponding average values in case of all states put together are 24.7 and 42.5 percents, respectively, for the periods 1990-95 and 1995-2000.

Two factors seem to have contributed to the failure of the fiscal containment programme in India. First, though the 1991 reforms programme introduced major policy changes relating to the tax system, very little was done to improve its administration. This may explain the fact that tax reforms have failed to improve the collections, both at the center and state levels. While at the central government level tax revenue as a ratio of total revenue expenditure for the periods 1990-95 and 1995-2000 averaged as 56.5 and 53.7 percents, respectively, corresponding averages for the states taken all together are 62.2 and 61.4 percents.

The second factor contributing to worsening government finances in the post-1991 period has been the non-implementation of reform measures relating to control of public expenditure. The trend growth rates of non-plan expenditure and non-plan non-developmental expenditure, both at the central and state government levels, illustrate this point. For instance, with all states taken together, non-plan revenue expenditure as percentage of aggregate gross disbursement (NPEAGD) recorded an increase from an average of 72.0% in 1990-1995 to 73.9% in 1995-2000. Similarly, averages of non-plan non-developmental expenditure on the revenue account as a ratio of total non-plan revenue expenditure (NPNDENPE) increased from 37.8% in 1990-1995 to 43.3% in 1995-2000 for all states taken together.

1.2 Some Issues for Research

The discussion in the above sections is intended to underline some basic features of government finances in India and how they are related to macro-economic performance. Firstly, since the mid-1980s, fiscal profligacy has been the underlying theme of fiscal (mis)management in India. Secondly, despite expressions to the contrary, very little has been done to contain, if not roll back, unproductive public expenditure in the post-1991 period. Thirdly, reforms in the tax domain have failed to boost public revenues, mainly due to deficiencies left un-addressed in the administration system. Fourthly, worsening fiscal health of the governments, especially at the state levels, is likely to build pressure on the public authorities to adopt hard options involving fiscal retrenchment and adjustment. Lastly, the *content* of such a fiscal containment programme will be having significant implications for macro-economic performances in economic as well as social sectors of the economy.

Keeping in view the above issues, the following research questions are deemed to hold great significance to the understanding of health sector performances of the country in a reforms-based regime and the drawing up of appropriate policy responses.

1.2.1 Research Questions:

1. What has been the impact of economic reforms, spearheaded by a programme for fiscal retrenchment and adjustment, on public spending on the social sector in general, and the health sector in particular?
2. Has there been significant reallocation of resources within the social sector itself during the reforms period that is indicative of changed allocational priorities of the government?
3. Is there evidence of the hypothesized links between economic reforms, public spending and health sector performance in the Indian context?

1.3 Economic Reforms and Public Expenditure on Social Sector: A Brief Review of Literature

Empirical studies on the impact of economic reforms on public social sector spending present evidence that points to significantly differing experiences across countries. Cornia et al (1987), in their seminal study on the social impact of economic reforms, highlighted the adverse repercussions of structural adjustment policies on the condition of children in sub-Saharan Africa. The 'human face' that they proposed for the conventional World Bank policies of structural adjustment in developing countries, involved measures that impose upon the state a commitment to incorporate the human dimension in the basic design of both macro and meso policies. The experiences of countries in sub-Saharan Africa, Latin America and South East Asia relating to the incorporation of a 'human' dimension to ongoing reform measures have been found to be influenced by 3 factors: (i) initial macro-economic conditions; (ii) growth performances of the countries during reforms; and (iii) the level of political commitment to social sectors (Prabhu, 2001). While the first two factors are important, it is the degree of political commitment to social sectors that ultimately determines the extent to which public sector allocations to these sectors are protected during a period of stringent fiscal conditions. Stewart's (1992) comparison of relative allocations to education and health in different countries underscore the importance of the political factor. In South-East Asian countries, higher political commitment to social sectors coupled with robust macro-economic performances have resulted in increasing the average shares of education and health expenditure in total government expenditure from 14.9% in 1980-81 to 16.7% in 1985-87.

In contrast, for 9 Latin American countries taken together (all scoring low in terms of both political commitment and macro-economic performance), the corresponding shares of these 2 sectors fell from 24.4% in 1980-81 to 18.4% in 1985-87. Similarly, for 13 countries in Sub-Saharan Africa taken together, the shares declined from 20.2% in 1980-81 to 18.9 % in 1985-87.

The positive experiences of south-east Asian countries in maintaining or even improving public sector allocations to social services during a period of economic reforms also finds support from the study by Jayarajah et al (1996). Working with more recent data, the study replicates the findings obtained from Stewart's study. Countries in Latin America and Sub-Saharan Africa again turn out to be poor performers compared to South-East Asian countries in ensuring a 'human face' to their structural adjustment programmes.

In the Indian context, the aftermath of the 1991 macro-economic crisis imposed increasing financial stringency at the Central level which have had adverse implications for the rate of resource devolution to states, thereby aggravating their already precarious finances. Placed in such a context, Prabhu's (1996) study points out that social sector expenditures by state governments are crucially dependent as much as on their success at additional resource mobilization as the political commitment towards goals of human development. Her analysis, covering the first 4 years of structural adjustment in India, utilizes 3 indicators: (i) SAR (Social Allocation Ratio: proportion of total revenue expenditure of the state governments that is devoted to social services), (ii) SPR (Social Priority Ratio: proportion of revenue expenditure on social services that is devoted to areas of social priority) and (iii) PAR (Public Allocation Ratio: ratio of revenue expenditures on sectors of social priority to total revenue expenditure). Of the 15 major states sampled, the majority showed a declining SAR, while the trend in SPR failed to expose any significant shift in allocational pattern within the social sector favouring the priority sectors of elementary education, public health, water supply and sanitation, maternal and child health services and nutrition. However, the PAR did reveal a distinct declining trend in 9 out of 15 states sampled, including Kerala for which SAR and SPR were found to be high. The declining trend of the PAR was interpreted by Prabhu as evidence of the adverse impact of structural adjustment programme on the levels as well as patterns of social sector expenditure by state governments. Further evidence on the retargeting of social sector spending within the priority sector itself is established from the study's examination of allocational changes relating to components of education and health sectors. However, there is no clear pattern in the allocational shifts. With respect to health, 6 of the 15 states showed a clear increase in the share of public health, whereas in case of education, 5 out of 13 states recorded an increase in the allocational share of elementary education. Significantly, among the LIG states, it is elementary education which was found to have received significant priority attention from at least 2 states – Orissa and Madhya Pradesh, while it is only for Madhya Pradesh that the share of public health remained more or less the same. For the other Low Income Group (LIG) states, Orissa, Bihar, Uttar Pradesh and Rajasthan, the allocational share of public health declined in the adjustment period, with Bihar recording the sharpest decline.

Sen (1993) examines data on public expenditures over a 15-year time period (1974-75 to 1989-90) to identify the extent of governmental involvement in human development in India and to locate possible shifts in emphasis over the chosen time period. At the aggregated level, with public expenditure of the Centre and States combined together, the trend in the SAR was found to be growing over time, though at a slow rate. Within social services, education and allied functions accounted for a reasonably steady percentage of total expenditure of around 10 per cent, with small fluctuations. Health and related areas accounted for a lower share but were found to have assumed increased significance over time. In real per capita terms, nearly all the social service items were found to have grown at rates greater than 5% per annum between 1974-75 and

1989-90, with education and public health putting up impressive performances at 5.84 and 6.27 per cents, respectively. Despite their rising trends, expenditures on human development sectors remained at low levels by international standards over the 15-year period analysed, both in terms of their share in total expenditure and in real per capita terms.

Disaggregated analysis at the states' level exposes the inter-state variations in the trends in public expenditure on social services. Significantly, the study finds evidence of an inverse relationship between SDP and the ratio of SDP spent by governments on social services on the one hand, and a positive correlation between per capita SDP and per capita outlay on social services on the other. For the two sub-periods 1980-85 and 1985-90, the states were observed to have spent on an average 7.23 and 8.49 per cents, respectively, of their SDP on social services. For both sub-periods, while Kerala, Andhra Pradesh, Orissa, Rajasthan and Tamil Nadu exhibit ratios above averages, less than average ratios were found for Haryana, Maharashtra and Punjab. The pattern is seen to be reversed when per capita expenditure on social services form the basis of comparison. The highest levels of per capita expenditure on social services were observed for Punjab, Kerala, Gujarat, Maharashtra and Haryana, whereas Bihar and Uttar Pradesh recorded low values. The pattern within the social sector exhibits broadly the same picture as observed for the social services in their entirety. In all respects, Rajasthan was found to have attached a much greater weight to health and related services compared to all other states.

At the individual states' levels, Prabhu's (2001) study draws some interesting inferences relating to two important components of social policy: (i) fiscal allocations for the provision of social services and (ii) social sector delivery systems. The study concentrates on two states, Maharashtra and Tamil Nadu, which are though comparable in terms of social sector attainments, differ significantly in terms of their social policies and political orientations. For the reforms period, it was found that allocational priorities in the two states did not experience any substantial shifts. In Maharashtra, the state maintained the share of social services in total revenue expenditure at pre-reform levels, but was found to have reduced social spending when relative allocations were considered in terms of share in net SDP. In the case of Tamil Nadu, though the share of social services in total revenue expenditure was found to be higher than that in Maharashtra for most of the reform years, relative allocations to social services were found to have declined both in terms of their shares in total revenue expenditure and net SDP. Within the social sector, the study failed to find any significant evidence of restructuring of allocational priorities towards basic facilities.

Section - ii

Reforms, Government Finances and Public Spending on Social Services

Among the Indian states, there is great disparity in terms of fiscal strength and stability. This is in large measure a reflection of inter-state differences in economic performance and fiscal governance. With a broad categorization of the 14 states into High Income Group (HIG), Middle Income Group (MIG) and Low Income Group (LIG) states¹, it seems intuitively appropriate to hypothesize that fiscal reforms would have made their effects felt at different points of time for the three groups of states. Further, the pattern revealed at the group level is expected to hold true at the level of 3 individual states, Maharashtra, Karnataka and Orissa, belonging respectively to the HIG, MIG and LIG categories. At a hypothetical level, it is likely that fiscal responsiveness of Indian states, either at the group level or individually, is directly associated with the respective level of economic development.

As mentioned earlier, the focus of the present study is on the impact of economic reforms, specifically on public social sector spending at the state level. For this purpose, it seems justified that an effort is made to identify the exact points of time at which the effects of reforms began to be felt by different states. While the usual practice in reforms related studies of the Indian economy is to identify the period beginning from 1991-92 (the year of introduction of the structural adjustment programme) as the 'reforms period', it is widely recognized that the reforms process can be traced back as early as to the policy initiatives of late-1970s.

2.1 Identifying the 'Reforms Period'

2.1.1 The Cluster Approach:

Fiscal responsiveness of a state to economic reforms involves the analysis of its revenue and expenditure performances, both during reforms, and the period prior to reforms. Reforms induced changes in revenue and expenditure performances of the state governments are likely to define the degree and direction of shift in their fiscal structures.

The swiftness of change in fiscal structure of a state yields a measure of its degree of fiscal responsiveness. The direction of change may be termed positive if the changes in revenue and expenditure performances conform to reforms expectations.

This study utilizes a set of twelve general fiscal indicators to carry out a cluster analysis (CA) for the three groups of states (HIG, MIG and LIG), as well as for three individual states belonging separately to the groups (Maharashtra, Karnataka and Orissa). The cluster method is a multivariate statistical procedure that starts with a data set containing information about a sample of entities and attempts to reorganize these entities into relatively homogeneous groups. It is expected that with the chosen set of revenue and expenditure indicators, CA will reveal the pattern of structural shifts in state finances over the time period 1980-81 to 1999-2000. Table-2.1 lists the twelve general fiscal indicators along with the expected direction of shift in their values due to reform measures (in the Indian context). Identifying the "pre-reforms" and "reforms" clusters is the pre-requisite to carrying out inter-state comparative analysis on the effects of economic reforms on public spending on Social Services in general, and the Health Services in particular.

2.1.2 “Reforms” and “Pre-Reforms” Clusters for HIG, MIG and LIG States:

Table-2.2 summarizes the results obtained from CA for the 3 groups of states. Year-wise cluster membership definitely establishes that structural shifts have occurred in the finances of all 3 groups of states. The pattern of shifts conforms to the intuitive proposition that reforms would have had a much earlier impact on the finances of HIG states as compared to the other two state groups. Thus, while 1985-86 appears as the “shift point” for HIG states, for the MIG and LIG states the years 1987-88 and 1990-91, respectively, appear to have witnessed shifts in their fiscal structures. The revealed pattern of structural shifts is indicative of the states' relative fiscal responsiveness to changes in policy at the central level as well as at their own levels. Rigidities in the fiscal frameworks of LIG states is a probable reason behind their late response to reforms at the central level, while lack of political will could have delayed implementation of complementing measures at their own levels. In case of the HIG and MIG states, their relatively higher levels of economic development is likely to have given the governments of these states the required flexibility to implement early state-level fiscal reform measures, following the central initiatives.

For analysis purpose, the present study identifies the period prior to the respective “shift points” of the 3 groups of states as the ‘pre-reforms’ period, and the period after it (inclusive of the year of shift) as the “reforms” period.

2.1.3 Nature of the Impact of Reforms on Government Finances:

Table-2.3 provides the cluster means from which inferences can be derived relating to the direction of shift in the fiscal structures of the 3 state groups consequent upon the introduction of reform measures. The general pattern that emerges for all the 3 groups is typified for the reforms period by :

- (i) Higher deficits
- (ii) Reduced revenue receipts
- (iii) Greater public spending

The percentage changes in the mean values of the fiscal indicators for the reforms period over the corresponding values in the pre-reforms period point to a highly disappointing, if not perverse, picture of the effectiveness of fiscal reforms in India at the level of the states. For all 3 groups of states, the deficit indicators GFDAGD and RDGFD show substantial increases in mean values in the reforms period. Revenue deficit, particularly, is seen to have undergone a dramatic shift from a surplus position to a deficit for all the 3 groups. For MIG and LIG states, there is an increased emphasis on financing the GFD through market borrowings in the reforms period. In general, however, all 3 state groups appear to have suffered deterioration in their revenue positions in the reforms period. While for HIG states, both tax and non-tax revenue indicators show nearly equal percentage declines in the reforms period, for the MIG and LIG states, it is the non-tax revenue indicator, which appears to have borne to a greater extent the adverse impact of tax restructuring measures. Judging from the revenue performances of the states in the reforms period, it is hard to give credence to the Laffer argument that is conventionally advanced in support of economic reform measures in India. As far as public spending is concerned, barring the capital outlay indicator (COGFD), all the other expenditure related indicators show increased mean values in the reforms period for all 3 state groups. While interest payments appear to have increased substantially after the introduction of reforms, capital outlays in all states seem to have suffered because of the pressure to reduce the gross fiscal deficit. This is an especially worrying feature of economic reforms in India because of its implications for the economic development of the country. Cut-backs in capital outlays by the states are indicative of the tendency to choose the

“soft option” in which future growth needs are compromised for the sake of present compulsions. In the long run, this is a strategy that runs contrary to the canon of fiscal sustainability.

The above discussion leads to the clear conclusion that reforms in India have definitely exerted pressures on the revenue and expenditure sides of states’ finances, but not in the directions that are usually expected, following the rationale behind economic reforms. The arguments rationalizing fiscal reforms invariably run in terms of revenue expansion and expenditure (of the non-investment type) contraction in the public sector domain. From available evidence, it can in no way be asserted that fiscal reforms in India have had their desired impact.

2.2 Economic Reforms and Public Spending on Social Services

2.2.1 Reforms and Expenditure Compression in the Social Sector:

Economic reforms in India have consistently given topmost priority to expenditure compression, particularly expenditures that are non-plan and non-developmental in nature. Expenditure compression, it is rationalized, is a comparatively more efficient way of constraining the deficit to remain within the prescribed limit than longer term measures of tax rationalization and harmonization. What is generally glossed over is that the cut backs in expenditure are likely to impact more directly and heavily on allocations for social services, thereby adversely affecting human development. Ravallion and Subba Rao (1992) point out that the impact on social sector spending may take place through 3 processes: (i) a proportionate reduction in allocations to all sectors including the social sector, (ii) a reduction in proportionate spending on other- than- social sectors, keeping allocations for social sectors intact and (iii) a more than proportionate reduction in social sector allocation, keeping spending on other sectors intact. For poor states, scenarios (i) and (iii) are likely to be disastrous as far as human development is concerned. With social indicators exhibiting low levels of performance in these states, further reductions in public spending on social services are likely to cause significant deterioration in the quality of life with ultimate adverse consequences for labour productivity and economic growth in the long run. Even maintaining the existing level of public expenditure on social services (scenario ii) may not be enough to counter the retarding influences on human development, since gains from research and superior technology cannot be realized without improved allocations.

2.2.2 Sectoral Indicators of Public Expenditure:

The present investigation utilizes a set of fiscal indicators relating to different categories of public services provided at the state level. The sectors for which the fiscal indicators have been chosen relate to:

- (a) Social Services (SS)
- (b) Economic Services (ES)
- (c) Medical and Public Health, Family Welfare, Water Supply and Sanitation, and Nutrition (H)
- (d) Other-than-Health Services within the general category of Social Services (OH)
- (e) Education, Sports, Art and Culture (ED)

The two broad categories of fiscal indicators chosen for the above five services provided by the public sector are in terms of:

- (i) sector-specific non-plan expenditures (NPSS, for instance, stands for non-plan expenditure on Social Services) on the revenue account that are normalized with respect to total public spending (termed as “aggregate gross disburse-ments”, AGD, and equals the sum of total revenue expenditure and total disbursements on capital account) and total non-plan revenue expenditure (NPE); and

- (ii) sector-specific revenue expenditures (TRESS, for instance, stands for revenue expenditure on Social Services) that are normalized with respect to total public spending (AGD) and total revenue expenditure (RE).

For computation of the group-level (HIG, MIG and LIG) values of the expenditure indicators, sector-wise data available for the states belonging to a particular group have been aggregated.

2.2.3 Structural shifts in Public Expenditure on Social Services:

Before going into the detailed analysis of trends in public expenditure, sector-wise and by type, a general question that needs to be answered is : **Has the introduction of economic reforms in India led to a structural shift in government spending on social services?** It is expected that cluster analysis of a chosen set of fiscal indicators related to the Social Services sector will be able to provide the answer, both for the aggregated level of state groups (HIG, MIG and LIG) and the individual levels of the three sample states (Maharashtra, Karnataka and Orissa). Box-2.1 gives the list of expenditure indicators used for cluster analysis and Table-2.4 presents year-wise cluster membership for the three state groups.

At the aggregated level of state groups, it is clearly established that there has been a structural shift in public social sector spending during the reforms period for all 3 state groups (Table-2.4). However, the sequence of shift does not conform to that observed for the 3 state groups with general fiscal indicators (i.e., beginning from HIG to MIG to LIG states). For the HIG and LIG states, the shift appears to have established itself on a permanent basis since 1991-92, whereas for the MIG states, the shift occurs a couple of years later, i.e., in 1993-94.

2.2.4 Nature of Shift in Public Spending on Social Services:

The issue under examination at this point of the study requires answers to the following questions:

- (i) Whether economic reform measures have resulted in significant expenditure compression by the government on social sector services in general, and on health services in particular?
- (ii) What has been the impact of economic reforms on the pattern of public spending within social sector itself?

The answers to these questions are sought from an analysis of the changes in state government sectoral expenditures on the revenue account. Capital account expenditures are left out because it is difficult to identify any trend pattern from them. Further, among the different types of revenue expenditures, the present analysis limits itself to sector-specific non-plan expenditure. It is reasonably safe to assume that non-plan expenditure is more likely to be targeted by a fiscal containment programme than plan expenditure. Sector-specific non-plan expenditures (NPE), when normalized with respect to total public sector spending (denoted by AGD: aggregate gross disbursements), are expected to reveal the relative ***trend impact*** of reform measures on public spending on these services. In contrast, indicators obtained by normalizing sector-specific non-plan expenditures with respect to the total non-plan expenditure on all services taken together are expected to reveal relative ***sectoral impact*** of reforms on public spending on different services. Box-2.2 gives the broad categories of sectoral indicators utilized in the analysis to follow.

Social Vs. Economic Services:

For the Social and Economic Services sectors, Table-2.5 presents the average values of the sectoral expenditure indicators obtained for the 3 groups of states (HIG, MIG and LIG) and corresponding to their respective “pre-reforms” and “reforms” clusters. The “trend” indicators (NPRESSAGD and NPEESAGD) do reveal a pattern in the relative impact of reforms on the levels of public non-plan spending on Social and Economic Services across the 3 state groups. For the HIG states, percentage changes in the mean values of the indicators for both sectors are positive, but greater in the case of Social Services. In case of MIG states, levels of public spending increase in the reforms period (positive % change in average values of NPRESSAGD and NPEESAGD indicators), but the amount of increase is greater for Economic Services. In contrast to the HIG and MIG states, LIG states appear to have experienced a “trade-off” between Social Services and Economic Services. While the % change in average value of the indicator related to Social Services (NPRESSAGD) is positive, that of Economic Services (NPEESAGD) turns out to be negative. The “trade-off” implies the possibility of a reforms-caused resource constraint in LIG states. The increased level of public non-plan spending on Social Services by LIG states is likely to have occasioned from increasing compulsions of backwardness and deteriorating social sector performances.

Within the non-plan expenditure domain, for the HIG and LIG states, non-plan expenditures on the two developmental sectors (NPRESSNPE and NPEESNPE) appear to have suffered in the reforms period (% change figures are negative), but the Social Services sector seems to have suffered less in terms of a decline in non-plan expenditures compared to the Economic Services sector. However, in case of MIG states, non-plan expenditures on both developmental sectors are seen to have increased during reforms, the percentage increase being marginal for Social Services (0.30%) but significant for Economic Services (7.40%). Box – 2.3 provides a summing-up of the above analysis.

Health vs. Other-than-Health Services:

In order to examine the impact of economic reforms on public spending within the social sector, Social Services have been divided into two categories: Health (H) and Other-than-Health (OH) Services. Health Services include (i) Medical and Public Health; (ii) Family Welfare, (iii) Water Supply and Sanitation; and (iv) Nutrition. All other social services are placed under the OH category.

Table-2.6 presents the average values of expenditure indicators relating to Health (H) and Other-than-Health (OH) Services sectors and corresponding to the pre-reforms and reforms clusters for the 3 state groups. As far as the levels of non-plan expenditure are concerned, all 3 state groups are seen to display the same pattern for reforms period, i.e., higher levels of spending for Health Services compared to the Other-than-Health Services. The extent of increase in public non-plan spending on Health Services (NPEHAGD) is highest in MIG states and is followed by LIG and HIG states, in that order.

With regard to sectoral changes in public non-plan spending, both HIG and LIG states are observed to have experienced the same pattern. In both the state groups, average values of non-plan expenditure on Health and Other-than-Health Services (NPEHNPE and NPEOHNPE) decline in the reforms period, when considered in relation to the total non-plan spending on the revenue account in each of these two states. This implies that in the non-plan category of public expenditure, the extent of increase in level of public spending on social services is outstripped by that on other items not belonging to the social sector.

In case of non-plan expenditures on Health and Other-than-Health Services, relative to the total non-plan expenditure (NPEHNPE and NPEOHNPE), extent of decrease in the indicators is greater for Other-than-Health Services in both HIG and LIG states, when compared with the quantum of decrease in non-plan expenditure on Health Services. MIG states again prove to be the exception, displaying increased non-plan expenditure on Health Services as against a decline in that category of public spending for Other-than-Health Services.

Thus, it is only in case of the MIG states that public non-plan spending is seen to have increased on Health Services, both in relation to total public spending and total non-plan expenditure, during reforms. In HIG and LIG states, non-plan expenditure on Health Services display a positive impact only in relation to total public spending (the “trend” impact), but turn out to have suffered from reduced expenditures when viewed in relation to total non-plan expenditure. Box –2.4 presents the results in summary form.

Health vs. Education Services:

Within the social services category, Health and Education constitute the two most important items. It seems pertinent to compare the relative effects of economic reforms on public spending by state governments on these two categories of social services. Table-2.7 gives the pre-reforms and reforms period mean values of the expenditure indicators related to Health (H) and Education (ED) Services for the 3 state groups.

In the case of HIG states, when compared in relation to total public spending, non-plan expenditure on Education Services (NPEEDAGD) is observed to have increased by a greater extent during reforms, as compared to the increase in corresponding expenditure on Health Services (NPEHAGD). In sectoral terms also, Education appears to have received better attention compared to Health in the reforms period. Average non-plan expenditure on Education as a ratio of total non-plan expenditure (NPEEDNPE) increases in sharp contrast to the decline of the corresponding indicator on Health (NPEHNPE).

For MIG states, it is a case of Health having received better attention compared to Education, as far as public non-plan spending is concerned, in the reforms period. The percent changes in the average values of the expenditure indicators are positive and greater for Health Services (NPEHAGD and NPEHNPE), as compared to that for Education (NPEEDAGD and NPEEDNPE). Average non-plan expenditure increases for both services during reforms and the extent of its increase in case of Health exceeds that on Education.

In case of LIG states, it is a mixed picture. As a ratio of total public spending, average non-plan expenditure on Health (NPEHAGD) shows a greater increase during reforms, compared to that on Education (NPEEDAGD). Within the non-plan expenditure category itself, while both services show declines in average values of respective service-specific non-plan expenditures in the reforms period, the extent of decline is marginally higher in the case of Education. Box –2.5 presents a summary picture of the above analysis.

2.3 Fiscal Impact of Reforms at the Individual State Level:

The analysis of the preceding sections hold true at an aggregated level, where states with differing fiscal strengths have been grouped together solely on the basis of their economic performance. It is possible that within a particular state group, there are individual exceptions to the general pattern. To test this, the study applies the earlier analysis to three selected states, one from each state group, namely, Maharashtra (from HIG), Karnataka (from MIG) and Orissa (from

LIG). Hypothetically, the inferences drawn for the three state groups relating to public spending on Health Services sector are expected to be validated at the corresponding individual state levels.

Starting with Cluster Analysis of the same set of social sector indicators as given in Sec.-2.2.3 (Box- 2.1), but now relating to the individual states under consideration, the year-wise cluster membership for the three sample states are presented in Table-2.8. With a 3 – cluster specification³, the pattern of year-wise cluster memberships establishes with a fair degree of certainty, the existence of a “shift point” in the reforms period for the three individual states. However, for ease of comparison, the earlier division of the study period into ‘pre-reforms’ and ‘reforms’ sub-periods, as applied at the group-level, is adopted for the analysis of individual sample states.

Maharashtra, belonging to the HIG category, provides evidence of a ‘shift’ in values of expenditure indicators for the Social Services sector in the year 1986-87, which also marks the beginning of the reforms period at the aggregated group level (reforms period for HIG states: 1986-87 to 1999-2000). For Karnataka, from the MIG category, clustering yields two shift points in the years 1986-87 and 1994-95. Earlier, in Sec.2.1.2, the impact of economic reform measures on general fiscal indicators was found to have taken effect from 1987-88 for the MIG states as a whole. Further, as seen from Table-2.4, for the group as a whole, the shift in values of sector-specific expenditure indicators occurs onwards of 1993-94. The shift from 1994-95, observed for the state of Karnataka, is possibly indicative of the state having changed its resource allocations in favour of social sector (since the shift is from a lower cluster to a higher one). Orissa, representing the LIG states, is found to have experienced the impact of reforms on expenditure in the social sector since 1990-91, which also marks the beginning of reforms period for the group as a whole.

Thus, as was observed in the case of the three groups of states at the aggregated level, for the individual sample states also, there is evidence of a shift having taken place in public sector social spending during the period in which fiscal positions of the states experienced the effects of economic reform measures.

Regarding the nature of shift, the focus as in case of the three state groups, is on public non-plan spending on different sectors. The indicators chosen for the purpose are also, as before, sector-specific non-plan revenue expenditures normalized with respect to: (i) aggregate gross disbursements (AGD), to reflect the relative “trend” impact; and (ii) total non-plan expenditure on the revenue account (NPE), to reveal the relative “sectoral” impact of economic reforms.

For the state of Maharashtra, taking 1980-81 to 1985-86 and 1986-87 to 1999-2000 as the pre-reforms and reforms periods, respectively, average values of the sectoral expenditure indicators are given in Table-2.9. It is clear from the above table that, within the non-plan expenditure domain at least, public spending in Maharashtra has favoured the Social Services sector during reforms period. Percentage changes in the mean values of expenditure indicators for Social Services sector (NPESSAGD and NPESSNPE) are high and positive (11.30 and 8.02 percents, respectively), in contrast to high and negative percentage changes of the indicators for Economic Services sector (percentage changes in reforms period mean values of NPEESAGD and NPEESNPE are, respectively, -6.35 and -7.90). Within the social sector, in relation to total public spending as well as total non-plan expenditure, resource allocations of the Maharashtra government are observed to be strongly in favour of Education Services sector in the reforms period (increases in the mean values of NPEEDAGD and NPEEDNPE are, respectively, of the order of 20.00 and 15.91 percents during 1986-2000). During the same time, public non-plan

spending on Health Services is seen to have been significantly downsized, with the NPEHAGD and NPEHNPE indicators recording declines in their reforms period average values to the extent of –16.79 and –18.29 percents, respectively.

Table-2.10 presents the average values of the sectoral expenditure indicators for the state of Karnataka, with 1980-87 as the pre-reforms period and 1987-2000 as the reforms period. Both Social Services and Economic Services are seen to have gained near-equal percentage increases in public non-plan spending on them in the reforms period. However, increased public non-plan spending on Social Services, both as ratio of total public spending and that of total non-plan revenue expenditure (increases in average values of NPSSAGD and NPSSNPE during the reforms period are, respectively, by 4.70 and 5.55 percents) does not seem to have favoured Health Services sector in the state. While the MIG states taken together give evidence of increased public non-plan spending on Health sector in the reforms period, for the state of Karnataka, it is just the reverse with both indicators (NPEHAGD and NPEHNPE) showing percentage declines in their average values for the same period (by –7.14 and –6.22 percents, respectively). As in the case of Maharashtra, it is again Education Services, which appear to have received beneficial attention from the state, recording high and positive percentage changes for its non-plan expenditure indicators in the reforms period (NPEEDAGD by 11.88 percent and NPEEDNPE by 12.68 percent).

For Orissa, one gets a dismal picture relating to the impact of reforms on government spending on Social Services in general, and on Health Services in particular. In contrast to the mixed results obtained at the group level for LIG states taken together, in the individual case of the state of Orissa, there is clear evidence of the government having cut back its non-plan spending on *all* categories of Social Services in the reforms period (expenditure indicators for Social Services and its constituent categories record percentage declines in their average values for reforms period; Table-2.11). Compared to the cut back in Education Services (by –6.52 and –12.91 percents for NPEEDAGD and NPEEDNPE, respectively), the decline in public non-plan spending on Health Services is greater (by –10.05 and –15.77 percents for NPEHAGD and NPEHNPE, respectively), indicating that the impact of reforms has been more severe on Health sector in the state.

Thus, for all three individual states, one gets a clear impression that economic reforms have led to fiscal containment measures in the Health Services sector (Figure 2.1). Even for the states of Maharashtra and Karnataka, where public spending on Social Services (taken together) appears not to have been affected by reforms, resource allocations within the social sector reveal a bias in favour of Education Services, at the expense of Health Services sector. The results obtained for the individual states also underscore the fact that, exceptions to the general pattern fail to get reflected in the analysis at the aggregated group level.

Section - iii

Economic Reforms and Allocational Priorities of the Public Sector

Deficit reduction through expenditure compression of the public sector is likely to cause a rearrangement of the allocational priorities of the government. The typical policy emphasis of governments in developing economies on realizing short-term targets of higher growth rates influences their allocational prioritization in favour of investments that yield visible and short-run gains than invisible and long-run achievements. Greater allocations on social services like health, nutrition and education can make their impact felt only in the long-run, say, for example, in the form of a more efficient and skilled labour force. The degree and direction of change in priorities will be influenced by the extent of compression in public spending induced by reform measures and the reflection of people's preferences at the political level.

3.1 Fiscal Compression and 'Crowding Out': A Simple Model

Assumptions:

- (i) The government is a single homogeneous entity without the hierarchical levels of authority that form the basis for division of responsibilities.
- (ii) There are only two types of public sector activities-Directly Productive Activities (DPA) and Social Services (SS).
- (iii) There exists constant marginal rate of transformation between spending on the two activities.
- (iv) Social preferences/indifference between the two activities is captured by Social Indifference Curves (SIC), which are stable over time and known to the public authority.

In Fig-3.1, E1 represents a matching of social wants with available public resources and is one of the equilibrium points that constitute the expansion path t1 of public sector spending. The t1 expansion path with its 45 degree angle at the origin is a reference line and obviously based on the assumption of social indifference between the two types of public sector activities. However, with skewed social indifference curves that favour DPA over SS (not drawn in figure), one may obtain expansion paths such as t2 consisting of equilibrium points like E2. For the government to provide public services that will be able to yield social welfare consistent with the level denoted by SIC, it will be necessary for the government to shift the budget frontier forward, possibly through deficit financing, thereby reaching the desired higher welfare level at E3. Now if there is a deficit reduction induced by reform measures, the budget frontier AB would shift backwards to a position such as GH. With this budget constraint, the government is able to provide q2 of DPA and s2 of SS, the magnitudes corresponding to E4 point. At the same time, a change in allocational priorities may shift the expansion path t2 further downwards to a position such as t3. The altered priorities would change the equilibrium from E4 to E5, compelling the government to provide proportionately lesser amount of social services relative to the increase in DPA. The shift from E3 to E4 is the effect of the deficit cut on the level of public spending on SS, whereas the movement from E4 to E5 signifies a change in the pattern of public spending.

3.2 Factor Analysis

Factor analysis is a widely used method of data reduction based on the assumption that co-variation among a set of variables can be explained by some underlying common factors. Exploratory factor analysis attempts to reduce a set of say, ten variables into two or three (commonly called as Common Factors/Principal Components extracted), without losing much of the information inherent in the data. In the present context, the analysis is applied to two sets of sector-specific expenditure indicators in different cases where one sector is paired with another

for purpose of comparison. The idea behind such an exercise is to derive Principal Components that may be associated with the expenditure indicators belonging to specific sectors.

3.2.1 Principal Components:

Tables-3.1 to 3.3 (presented at the end of this chapter) present the results obtained for sectoral expenditure indicators from a factor analysis. The sector-specific expenditure indicators selected for factor analysis are the same as those explained in Chapter II. The distribution pattern of factor loadings given by the principal components (PCs) is expected to reveal the association of a particular PC with a specific set of sectoral expenditure indicators. For this purpose, following Kaizer criteria, only those PCs having Eigen values greater than unity have been taken into consideration.

(i) Social vs. Economic Services:

Table-3.1 presents the factor loadings given by PCs that are extracted from a factor analysis of expenditure indicators relating to Social Services (SS) sector and Economic Services (ES) sector. The results are presented for the three state groups - HIG, MIG and LIG. For the HIG states, the 1st PC (explaining 45.3% of total variance in the values of the indicators) gives high and positive factor loadings to Economic Services sector indicators, whereas the 2nd PC (with a lesser explanatory power of 37.8%) is found to be associated with Social Services sector indicators.

In the case of the MIG states, it is again the 1st PC (explanatory power: 39% of total variance) that is found to be associated with Economic Services sector indicators. The 2nd PC (explanatory power: 34.2% of total variance) gives high and positive loadings to three of the four Social Services sector indicators and is taken to be associated with that sector. The 3rd PC displays an explanatory power of only 19.6 % of total variance and is ignored, as the loadings given by it do not reveal any specific pattern of distribution.

For the LIG states, the 2nd PC (explanatory power: 31% of total variance) favours the Social Services sector indicators. As far as the Economic Services sector is concerned, both the 1st and 3rd PCs (explanatory powers: 31.5% and 23.8% respectively, of total variance) are found to be relevant. While the 1st PC gives high and positive loadings to the Economic Services sector expenditure indicators normalized with respect to aggregate gross disbursements (NPEESAGD and TREESAGD), the 3rd PC favours the other two expenditure indicators that are normalized with respect to their respective aggregate values (NPEESNPE and TREESRE).

(ii) Health vs. Other-than-Health Services:

As is revealed in Table-3.2, high and positive factor loadings given by the 1st PC are associated with the Other-than-Health Services sector indicators in case of both HIG and MIG states. While, for HIG states, the 1st PC has an explanatory power of 35 % of total variance, for MIG states, its explanatory power is slightly higher at 36.2% of total variance. In case of both state groups, the 2nd and 3rd PCs are seen to be associated with Health Services sector expenditure indicators. For HIG states, the 2nd PC (explanatory power: 32.7% of total variance) gives high and positive loadings to the revenue expenditure indicators related to Health Services sector, while the 3rd PC (explanatory power: 24.1% of total variance) favours the non-plan expenditure indicators of the same sector.

For MIG states, the association of the 2nd and 3rd PCs with the Health Services sector expenditure indicators is inferred from the high and positive loadings given to non-plan

expenditure indicators by the 2nd PC (explanatory power: 34.9% of total variance) and to revenue expenditure indicators by the 3rd PC (explanatory power: 20.1% of total variance).

In case of LIG states, the 1st PC (explanatory power: 33.4% of total variance) gives high and positive loadings to two of the Other-than-Health Services sector indicators, NPEOHAGD and TREOHAGD. The remaining two Other-than-Health Services sector indicators, NPEOHNPE and TREOHRE, get high and positive loadings from the 3rd PC (explanatory power: 26.9% of total variance). The 2nd PC (explanatory power: 29.9 % of total variance), with its high and positive loadings in favour of the Health Services sector indicators, is taken to be associated with that sector for LIG states.

(iii) Health vs. Education Services:

The distribution pattern of loadings observed in the comparison between Health and Other-than-Health Services sectors also holds true in case of the comparison between Health and Education Services sectors (Table-3.3). For both HIG and MIG states, the 1st PC with more than 40% explanatory power in each case is observed to be associated with Education Services sector indicators. As in the previous comparison, the 2nd and 3rd PCs are seen to be associated with Health Services sector expenditure indicators in case of the two state groups.

In case of LIG states, the 2nd PC (explanatory power: 29.6% of total variance) gives high and positive loadings to Health Services sector indicators. The 1st PC (explanatory power: 35.3% of total variance) as well as the 3rd PC (explanatory power: 25.2% of total variance) are found to be associated with Education Services sector indicators.

3.2.2 Factor Scores:

Factor scores of the principal components (PCs) extracted for different sectors are presented in Tables-3.4 to 3.6 (presented at the end of this chapter) relating, respectively, to the HIG, MIG and LIG states. For a particular sector, the year-wise estimates of factor scores are expected to act as indices of the degree of allocational priority given to that sector over the period under consideration. Such an interpretation of factor score estimates follows from the assumption that the common factor influencing values of a set of sectoral expenditure indicators over the chosen period is the priority given by state governments in allocating resources to that particular sector. Since economic reforms are expected to impose restraint on government spending, targeting particularly non-plan public spending, it would be reasonable to hypothesize that the reforms period may be witness to significant changes in government-level prioritization of different sectors for purpose of resource allocation. An analysis of trend movements in factor score estimates over the study period is expected to reveal a significant and secular shift in resource allocation priorities during the reforms period.

Factor scores are estimated for a particular sector from the PC that is identified to be associated with that sector. In cases where more than one PCs are found to be associated with a sector (ex: 1st and 3rd PCs associated with Health Services sector for HIG and MIG states), a weighted aggregation of the factor score estimates corresponding to the relevant PCs is carried out to obtain year-wise aggregated indices. The weights used in such aggregation procedure are the respective explanatory powers (i.e., % of total variance explained) of the concerned PCs.

Figures - 3.2.a to 3.7.c (presented at the end of this chapter) present the actual growth paths and derived trend lines of factor scores estimated for different sectors over the study period 1980-81 to 1999-2000 and relating to the 3 state groups.

High Income Group (HIG) States

In Figure-3.2.a, year-wise changes in factor score estimates for Social Services and Economic Services sectors in the case of HIG states reveal that up to the year 1990-91, resource allocation priorities of the government for the two sectors have moved more or less in tandem from one year to another, particularly in the late 1980s. From 1990-91 onwards, factor score estimates for Economic Services sector fluctuate sharply, but with a clear downward trend. In contrast, factor score measures of the degree of allocational prioritization to the Social Services sector reveal a declining trend in the first half of the 1990s (1990-91 to 1994-95), but make a complete about-turn in the latter half (1994-95 to 1999-2000) to yield a sharply rising trend. When viewed over the entire study period (Figure-3.3.a), resource allocation priorities relating to both the sectors are observed to have followed a declining trend, though the rate of decline of the trend path in case of Social Services sector is less sharp relative to the case of Economic Services sector. Declining trends of public sector priorities to both Social Services and Economic Services sectors in HIG states over the last two decades are indicative of the failure of governments of these states to restructure allocation patterns in favour of developmental purposes, by containing and rolling back non-developmental public spending (particularly, spending on interest payments).

Within the Social Services sector itself, government's priority to Health Services sector for purpose of resource allocation is contrasted with that relating to Other-than-Health Services sector and Education Services sector, respectively, in Figures-3.2.b and 3.2.c. The noteworthy feature of the growth pattern of factor score estimates relating to Health Services sector in case of HIG states is the sharp and persistent decline from 1985-86 to 1995-96, a decade. It may be recalled that cluster analysis of general fiscal indicators (Sec.2.1 of chapter II) revealed the reforms period to have started in the case of HIG states since the year 1985-86. From 1995-96 onwards, there is an improvement in the growth path of factor score estimates for Health Services sector. However, a sharp down turn in the last year of the study period yields a factor score estimate that is the lowest for the entire period under consideration.

On the other hand, for both the Other-than-Health Services sector in general, and the Education Services sector in particular, factor score estimates yield growth patterns that closely match the one obtained for the entire Social Services sector. In case of both these non-Health Services sector categories, resource allocation priorities are observed to have declined in the first half of the 1990s much sharply than the decline in case of Health Services sector. Similarly, the upturn in government prioritization for the two non-Health sector categories during the later half of the 1990s is much more sharper compared to the modest improvement in case of Health Services sector. However, in the last year of the study period (1999-2000), the Social Services sector as a whole as well as its non-Health and Health Services constituent sectors are observed to have experienced a sharp fall in allocational priority, in contrast to the increase in the same for Economic Services sector. **If the downturn in prioritization for Social Services sector turns out to be the start of another declining phase, it carries grave implications for human resources development in HIG states in the coming years.**

Middle Income Group (MIG) States

Figure-3.4.a gives the growth patterns of factor score estimates for Social Services and Economic Services sectors in case of MIG states over the study period 1980-81 to 1999-2000. For Economic Services sector, 4 distinct phases may be identified in the growth pattern of its factor score measures of allocational prioritization by the government - (i) 1980-81 to 1985-86: a period of decline; (ii) 1985-86 to 1988-89: a period that is witness to a sharp upturn; (iii) 1988-89 to

1994-95: a period of modest fall; and (iv) 1994-95 onwards a period that has experienced sharp fluctuations, but with a distinct downward trend. For the Social Services sector, on the other hand, year-wise factor score estimates display a general downward movement for the period 1982-83 to 1988-89 and again from 1990-91 to 1997-98. The downward shift is sharper during the period 1990-91 to 1997-98, compared not only to the earlier trend during 1982-83 to 1988-89, but also relative to the fall in factor score estimates for the Economic Services sector during the period 1988-89 to 1994-95. It seems pertinent to point out that the period 1990-91 to 1997-98, during which factor score estimates give a sharply declining trend for Social Services sector, belongs to the reforms period identified for MIG states (1987-88 to 1999-2000) from the Cluster Analysis carried out in Sec.2.1 of Chapter II. Interestingly, from 1997-98 onwards, for the last 3 years of the study period, factor score measures of resource allocation priorities for Social Services sector move up in sharp contrast to declining values for Economic Services sector. Over the entire period under consideration, Figure- 3.5.a reveals an increasing trend of allocative prioritization for Social Services sector, while the priority assigned to Economic Services sector appears to have remained more or less unchanged.

Within the Social Services sector (Figure-3.4.b and 3.4.c), factor score estimates for Health Services sector appear to have been subject to a "**displacement effect**" at 3 points of time during the period under consideration. In these 3 years - 1985-86, 1990-91 and 1995-96 - estimated values of the factor scores for Health Services sector are observed to move up sharply (much more sharply in 1985-86 and 1995-96 compared to the shift in 1990-91)¹. However, as against to these upward shifts, after each such movement, factor score estimates start declining, so that the overall trend of allocative prioritization to Health Services sector over the study period, through increasing, appears to have experienced a dampening effect to some extent (Figure-3.5.b). It is possible that the inability of MIG states to maintain public spending on Health Services sector at higher levels for longer periods was due to stringent fiscal conditions in these states.

For the Other-than-Health Services sector, two phases of decline in the growth pattern of factor score estimates may be identified - from 1982-83 to 1988-89 and from 1990-91 to 1997-98. The rate and extent of decline in the estimates is much greater in the later period. During the last 3 years of the study period, 1997-98 to 1999-2000, public sector priority to Other-than-Health Services sector appears to have improved quite sharply as against the decline in case of Health Services sector. However, over the entire study period, the declining trend of allocative prioritization for Other-than-Health Services sector, along with the increasing trend for Health Services sector (Figure- 3.5.b), may be indicative of a "trade off" within the Social Services sector, as far as public sector resource allocations are concerned. Again, it is because of stringent fiscal conditions that the governments of these states might have been compelled to opt for such a "trade off".

One encouraging aspect is that the Education Services sector appears to have been spared from a prioritization "trade off" with Health Services sector in the MIG states. This is inferred from the matching, upward sloping trend lines derived for Education Services and Health Services sectors and given in Figure- 3.5.c. In Figure- 3.4.c, factor score measures of allocative prioritization for the Education Services sector reveal a sharp and persistent upward trend from 1984-85 to 1990-91, matched by an equally sharp decline during 1990-91 to 1997-98. From 1997-98 onwards, prioritization of Educational Services appears to have improved compared to that of Health Services sector.

Low Income Group (LIG) States

For LIG states, year-wise factor score measures of allocational prioritization for both Social Services and Economic Services sectors yield a more or less common growth pattern from 1980-81 up to the year 1992-93 (Figure- 3.6.a). From 1993-94 to 1998-99, there is a sharp fall in factor score estimates for the Social Services sector. Thus, as in the cases of HIG and MIG states, for LIG states too, public sector resource allocation priority to Social Services sector appears to have been adversely affected, soon after the fiscal positions of these states started experiencing the strain of economic reform measures (as revealed from Cluster Analysis - given in Sec.2.1 of Chapter II - shifts in fiscal indicators reveal the reforms period to have started in LIG states since 1990-91). In contrast, the growth path of factor score estimates relating to Economic Services sector is observed to steadily move upwards from 1992-93 onwards (excepting for a major downward deviation in the year 1995-96). In Figure-3.7.a, the trend lines of factor score estimates for the two 'developmental' sectors (Social Services and Economic Services) reveal a picture of stagnation for Economic Services sector and one of decline for Social Services sector.

Within the Social Services sector itself, factor score measures of allocational priority to Health Services sector give a sharply rising trend from 1980-81 to 1984-85 (Figure - 3.6.b). However, from 1984-85 onwards, the consistency in assigning priority to the Health Services sector appears to have been lost in the LIG states. While, for the period 1984-85 to 1990-91, factor score estimates for the Health Services sector yield a fluctuating pattern of growth, from 1990-91 onwards, the increased severity of fluctuations in the measures of allocational priority is perhaps indicative of a random approach to public sector resource allocation to a sector that is of crucial importance to human resource development. For the Other-than-Health Services sector, on the other hand, a declining trend in factor score estimates during the first half of the 1990s appear to have been reversed in its second half, starting from 1995-96. In the period prior to the onset of fiscal impact of economic reforms (since 1990-91 for LIG states), the general direction of change in the factor score estimates for Other-than-Health Services sector is downwards, particularly from 1982-83 to 1989-90.

During the reforms period (from 1990-91 to 1999-2000), the growth pattern of factor score estimates for Education Services sector closely resembles the pattern observed for Other-than-Health Services sector - declining from 1990-91 to 1995-96 and moving consistently upwards since 1995-96 (Figure-3.6.c). For the period prior to reforms, resource allocation priority to Education Services sector in LIG states is observed to have experienced a steady improvement from 1980-81 to 1985-86, but a sharp downturn thereafter takes it back to the level it started from in 1987-88. There appears to have occurred a "displacement effect" for the sector in 1989-90, resulting in a significant upward shift in factor score estimates. Viewed over the entire study period (Figure-3.7.c), the upward rising trend line relating to factor score measures of allocational prioritization for Education Services sector is in contrast to the near stagnation for Health Services sector.

3.2.3 Allocational Priorities in Individual States

The factor analysis exercise carried out at the aggregated group level is repeated for the individual states of Maharashtra, Karnataka and Orissa, representing respectively, the HIG, MIG and LIG states. The sector-specific expenditure indicators used for the purpose are similar to the ones applied earlier. However, instead of the three cases chosen earlier for comparison (Social Services Vs. Economic Services, Health Services Vs. Other-than-Health Services and Health Services Vs. Education Services), at the level of individual states the exercise is limited to deriving factor score indices for the Health Services sector only. Consequently, the factor analysis

technique is applied only to the case of Health Services Vs. Other-than-Health Services to identify the principal component associated with the Health sector, and to estimate factor scores for that principal component.

The patterns of factor loadings given by the principal components (Table-3.7: presented at the end of this chapter) reveal their association with a particular sector. For Maharashtra, the 1st principal component (explanatory power: 47.1 percent of total variance) gives high and positive factor loadings to Other-than-Health Services, whereas both the 2nd and 3rd principal components (explanatory powers: 25.0 and 24.2 percents of total variance) favour the Health Services sector. In case of both Karnataka and Orissa, the 1st principal component (explanatory powers: 49.8 percent for Karnataka; 45.1 percent for Orissa) is identified to be associated with the Health Services sector.

Year-wise factor scores estimated for the Health sector in the three states are given in Table-3.8(presented at the end of this chapter). Since both the 2nd and 3rd principal components are associated with the Health sector in case of Maharashtra, the weighted aggregation procedure is followed (explained in Sec.3.2.2 of Chapter II) for computing factor score indices. Figures-3.8.a to 3.8.c (presented at the end of this chapter) present the growth patterns and trend lines of factor score measures of the degree of allocational prioritization to Health Services in the three states.

For Maharashtra (Figure-3.8.a), the persistent decline in factor score estimates for Health sector from 1985-86 to 1995-96 closely resembles the growth pattern of the same obtained for all HIG states taken together (Figure-3.2.b). Since 1995-96, there appears to have occurred an improvement in the state government's prioritization to the Health sector. Over the entire period under study, the estimated factor scores yield a downward trend that is indicative of the secular deterioration in government's resource allocation priorities to Health Services.

In the case of Karnataka, the evidence relating to government's prioritization of Health Services sector is in sharp contrast to that observed for the MIG states taken together. At the group level (Figure-3.5.b), the trend line of factor score estimates for Health sector has a positive slope, indicating improvement in allocation priorities to the sector over the period under consideration. In contrast, at the individual level of the Karnataka state, the trend line obtained for factor score measures of allocational prioritization to Health sector is a sharply falling one. However, from 1985-86 to 1994-95, a period associated with reforms, the growth pattern of factor scores reveals a slightly rising trend (Figure-3.8.b). Since 1997-98, factor score estimates again yield an improving pattern.

For the state of Orissa, the stagnating trend line of factor score estimates for Health sector that was observed for the LIG states taken together (Figure-3.7.b), gives way to a declining one over the entire study period (Figure-3.8.c). The decline in allocative priority to the Health sector is in line with the earlier finding (Chapter-II) related to the state's secular cutback in non-plan spending on this sector. The general impression that is obtained from looking at the fluctuating growth pattern of factor score estimates is the absence of a consistent approach in resource allocations to the Health sector.

Section - iv

Reforms, Government Intervention and Health Performance

In an economy in which public and private health delivery systems function side by side, it is not easy to isolate the relative contribution of public sector health facilities to the health status of the people. Generally, health sector performance is judged on the basis of indicators of the health status of people. A linking up of policy changes with improvements/deteriorations in health status requires selection of such indicators that are more sensitive to public health and sanitation measures. Indicators such as the infant mortality rate, maternal mortality rate, couple protection rate, birth rate and 'disease specific survival rates' are more likely to be directly and immediately affected by changes in government policy, than other indicators like Body Mass Index, height for weight across different age groups, etc. (Panchamukhi, 2001). Assuming that such a set of health status indicators is properly indicative of overall performance of the Health sector, it seems pertinent to explore the links between economic reform measures, government spending on health services and health sector performance.

4.1 A Simultaneous Equation Model

The basic purpose behind the construction of a simultaneous equation model is to link up in one integrated framework the relationships between:

- Public sector provision of health services and "health performance";
- Reforms-imposed expenditure constraints and government prioritization in allocation of resources;
- Shifts in allocational priorities and changes in supply of health services in the public sector domain; and
- Demand for health services and health performance.

"Health performance" (HP) is an aggregate index measure of indicators such as infant mortality rate, crude birth rate, crude death rate, life expectancy and couple protection rate (Box-4.1 and Table-4.1). Assuming for simplicity that there are no response lags, HP of a country in time t is likely to be determined by both demand-side and supply-side factors. On the demand side, per capita personal expenditure on health and medical care (in real terms; CSO data) is taken as a measure of the demand for health services (DHS) that are provided by both private and public sectors. In order to isolate the relative contribution of the public sector to aggregate health performance of the country, on the supply side we have a measure of public sector health facilities in terms of the human capital in health sector (HC) relative to health infrastructure (HI). Thus, the basic **health performance function** may be specified as:

$$HP_T = F_1 (HC:HI_T, DHS_T) \quad (1)$$

A consistent finding of empirical studies on health care expenditure is its strong association with income levels. Besides income, other quality of life variables (such as, standard of living, the level of education, urbanization, etc.) have also been found to be significant determinants of health care expenditure. In the absence of specific individual-level data on the quality of life variables, a simple proxy may be utilized involving a trend variable (t) that is expected to act as a "catch all". The underlying assumption is that quality of life variables improve with time because of their strong linkage with the process of economic development. The **demand function for health care services** may, therefore, be formulated as:

$$DHS_T = F_2 (PCDI_T, t) \quad (2)$$

where PCDI is per capita disposable income.

Since the study seeks to establish a link between public spending on health services and the health performance of a country, the supply side focus is on the public sector provision of health facilities. As in the case of the "health performance" variable, the study utilizes year-wise aggregated indices of the human capital (HC) and physical infrastructure (HI) in the public sector domain of health services (Box-4.1 and Table-4.1). The ratio of these two supply side variables (HC:HI) is interpreted as a measure of the level of functional efficiency of public sector health facilities. Government's priority to health sector in any year (PRIORH_T) is assumed to be indicated by the ratio of its expenditure on health and family welfare to total expenditure and is included as a determinant of the efficiency variable. In addition, a lagged variant of the demand variable (DHS_{T-n}) is also included as an argument in the functional specification under the assumption that higher demand for health care exerts a pressure on the government to give greater attention to the functioning of public sector health facilities. Thus, the third functional specification relating to **functional efficiency of public sector health facilities** becomes:

$$HC:HI_T = F_3 (PRIORH_T, DHS_{T-n}) \quad (3)$$

A change in government's priority to health sector, reflected through shifts in resource allocation, is likely to be influenced by macro-level health performance and the efficiency needs of public sector health facilities. Assuming that the government is able to respond in this year's budget to an evaluation of past year's performances, a one year lag is introduced in the performance (HP) and efficiency (HC:HI) determinants of public spending on health. Along with these admittedly optimistic relationships, another influence on public spending on health that is more realistic comes in the form of the deficit constraint on government finances. Economic reform measures basically involve downsizing of non-productive public spending and require the government to restrict its fiscal deficit to a sustainable level. Forced to operate with such a deficit constraint, governments are likely to rearrange their resource allocations in accordance with their changed priorities. Since the revenue deficit component of the fiscal deficit is linked to fiscal sustainability, the present model utilizes a revenue deficit measure (RDGDP: ratio of revenue deficit to GDP) to capture the impact of economic reforms, if any. The functional specification relating to **resource allocation priorities of the government** is, therefore, stated as:

$$PRIORH_T = F_4 (RDGDP_T, HP_{T-1}, HC:HI_{T-1}) \quad (4)$$

Box-4.2 presents the basic structure of the "reforms - public spending - health performance" model, as outlined in the above discussion.

4.2 An Application of the Model:

The simultaneous equation model of public sector spending and health performance is empirically tested with all-India data on the relevant variables (Table-4.2). The non-availability of data on per capita private expenditure on health services (the measure adopted for the demand variable, DHS, in the model) at the state level excludes the possibility of applying the model to the state-level situation. However, since the basic purpose behind the construction of such a model is to examine the links between health performance, health sector inputs and public spending on health services, it is expected that relationships derived from an application of the model to all-India data will suffice to draw inferences relating to situations at the state levels. For the country as a whole, CSO estimates of per capita expenditure on health services are taken to serve as values for the demand variable (Table-4.2).

The model outlined in Sec.4.1 requires the estimation of composite index measures relating to health performance (HP), health sector human capital (HC) and health sector infrastructure (HI), with the last two indicators intended to serve the public sector domain only.

Such indices have been derived elsewhere using Factor Analysis and the present exercise utilizes these available measures. Box-4.1 shows the indicators for health performance, manpower and infrastructure that have been subjected to factor analysis. Table-4.1 gives the computed estimates of composite indices for the three variables.

4.2.1 Regression Results:

The econometric fitting of the simultaneous equation model is carried out using the two-stage least squares (2SLS) method. From (2), the OLS estimates of the DHS variable are obtained to be used in the argument side of (1). Similarly, OLS estimates of the PRIORH variable obtained from (4) are used in (3) along with the lagged DHS variable to yield estimates of the efficiency variable HC:HI to be used in the health performance specification (1). It is assumed that the functional specifications (1) to (4) are of the double-log linear forms.

Table-4.3 presents the results of applying OLS regression method to the functional specification of demand for health services as given in (2). The income variable (PCDI) expectedly turns out to be positively associated with the demand for health services (DHS) over the study period. **The income elasticity of demand for health services is observed to be low (0.007), with a fair level of statistical significance.** The "catch all" trend variable (t) yields a negative coefficient, reflecting the secular decline in per capita personal expenditure on health services, which is the measure used for the DHS (demand for health services) variable.

OLS regression method when applied to the specification given in equation (4) yields estimates that are presented in Table-4.4. The efficiency variable related to the Health sector (HC:HI), and with one-year lag, is found to be significantly and positively associated with the government's resource allocation to the Health sector (PRIORH). **However, the coefficient estimate is less than unity (0.456), perhaps indicative of the inherent inflexibility of government budgets with respect to social sector resource allocation.** The lagged health performance variable (HPT-1) is found to yield a positive coefficient estimate, but with very low statistical significance. A noteworthy finding is the high statistical significance of the deficit variable (RDGDP) as an explanatory variable with a positive but less than unity (0.552) coefficient estimate. **This in a way reaffirms the hypothesis that social services such as health and family welfare tend to gain (in terms of greater resources allocated to them) when the deficit constraint expands outwards.** Conversely, the implication is that when cutbacks in public expenditure take place, these services may be the first to feel the adverse impact.

Regressions carried out for equations (3) and (1) follow the 2SLS procedure. For (3), the lagged demand for health services variable (DHS_{T-n}) takes its highest explanatory power when fitted with a 4-year lag period, but is still statistically insignificant as an explanatory variable (Table-4.5). However, as expected, it is public spending on health services ($PRIORH_T$) that is seen to have a strong positive influence on the level of efficiency of public sector health facilities ($HC:HI_T$). **The high positive elasticity of the manpower-capital ratio in health sector (HC:HI) with respect to government spending on health ($PRIORH_T$) suggests that there may exist substantial scale economies to exploit in the public sector domain of the health sector.** Such an interpretation seems justified when one looks at the growth patterns of the aggregated HC and HI indices over the study period (Table-4.1). From 1980-81 to 1990-91, HI increases at a rate (trend growth rate: 0.26) that is much higher than that of HC (trend growth rate: 0.15). It is only after 1990-91 that growth in HC (trend growth rate: 0.24) overtakes the growth in HI (trend growth rate: 0.12). **However, it is possible that there still exists sufficient scope for**

more efficient utilization of the public sector health facilities by improving the manpower-capital ratio.

Table-4.6 presents the 2SLS regression estimates for the functional specification (1), relating to health performance (HP). Including a dummy variable (D) that is expected to capture the shift impact of economic reforms, if there is any, on health performance expands the basic specification. *Scatter plots of the health performance indices with values of the explanatory variables interestingly reveal 1990-91 to be a year of transition, and hence, the reforms dummy (D) is assigned unitary values for 1990-91 and the succeeding years.* All the explanatory variables are observed to have a positive association with the HP variable. There appears to have definitely occurred a positive shift in health performance during the reforms period as indicated from the statistically significant positive estimate of the dummy coefficient. **The weak link between health performance (HP) and the efficiency variable (HC:HI), reflected in the form of a low and statistically insignificant coefficient estimate of the latter, is suggestive of the need to improve functional efficiency of public sector health facilities.** The high coefficient estimate of the DHS variable is perhaps due to other influences on the HP variable that are strongly related to the demand variable but not captured in the specified model. (For instance, when a time trend is added to the specification, the coefficient estimate of DHS falls sharply with slight changes in the other estimates).

4.2.2 Linking up the Relationships:

The flowchart given in Figure-4.1 links up the impact of economic reforms on public sector spending on health services with health performance, through its effect on the level of functional efficiency of public sector health facilities. The positive association between the reforms-related deficit variable (RDGDP) and public sector spending on health services (PRIORH) suggests that social sector services stand to gain (in terms of increased resource allocations) with larger deficits. **By implication, when economic reform measures require deficits to be constrained or reduced, it is the social services that are likely to feel the adverse impact first.** Such a tendency spells unfortunate consequences for the efficient functioning of public sector health facilities. Over time, functional deficiencies and/or inefficiencies in the public domain of the health sector are likely to contribute to poor health performance.

Section - v

Conclusions and Policy Implications

Economic reforms in India have definitely led to structural shifts in the fiscal frameworks of all categories of states – HIG, MIG and LIG. The pattern of shifts is consistent with the intuitive proposition that there would be a specific ordering of the ‘impact points’ of reform measures across the three state groups, with HIG states displaying the greatest ‘responsiveness’, compared to other two state groups. Thus, while 1985-86 appears as the impact/shift point for HIG states, for the MIG and LIG states it is in 1987-88 and 1990-91, respectively, that reform measures appear to have disturbed their fiscal frameworks.

While the timing of the structural shifts may have varied across the three state groups, content-wise all of them appear to have experienced the same fiscal malaise during the reforms period, characterized by: (i) higher deficits; (ii) reduced revenue receipts; and (iii) greater public spending. Reform measures appear to have failed in inducing state governments to contain and roll back non-plan and non-developmental expenditures. On the contrary, reforms induced pressure to cut back public expenditure is seen to have affected capital outlays in all the three state groups, thereby signaling adverse implications for the longer term economic development of the states. Contributing to the precariousness of the state finances is the fact that revenue performances have failed to follow the Laffer growth path.

The research issues taken up in the present study need to be viewed in the above context. A major concern is the impact of fiscal containment and retrenchment measures on public spending on the social sector in general, and on health sector in particular. At a deeper level, reforms-induced reorientation of allocational priorities are likely to be revealed in significant resource allocation adjustments within the social sector. Given the links between public spending on health services and health sector performance, the impact of economic reforms on the former is deemed to hold great significance for human resource development in a developing country like India.

Analysis is carried out both at the aggregated group level of states (HIG, MIG and LIG) and the level of individual sample states (Maharashtra, Karnataka and Orissa). The period of study is from 1980-81 to 1999-2000.

5.1 Conclusions

5.1.1 Economics Reforms and Public Spending on Social Services:

The impact of reforms on public sector spending on social services is established from the observed shift in a chosen set of sector-specific expenditure indicators during the reforms periods, both at the aggregated group level (HIG, MIG and LIG), and the level of individual sample states (Maharashtra, Karnataka and Orissa). The nature of the shift is examined on the basis of non-plan expenditure indicators related to the sectors under consideration. The impact of reforms, if any, is expected to be picked up by non-plan expenditure more forcefully than any other category of public spending.

Broadly, two types of reforms-induced changes in public sector spending on social services are taken up for study: one, the change in non-plan expenditure on different services in relation to total public spending; and, second, the change in non-plan expenditure on different services in relation to total non-plan expenditure on the revenue account. While the first type of change is expected to reveal the ‘trend’ impact of reforms on public non-plan spending, the second type of change is likely to be indicative of the impact of reforms on relative ‘sectoral’ allocations within the non-plan expenditure domain itself. The major conclusions arrived at for social services in general, and health services in particular, are given below.

- As an indicator of the ‘trend’ impact of reforms, non-plan expenditure on Social Services as percentage of total public spending is found to have increased in the reforms period for all three state groups. **However, in the case of LIG states, the increased level of public non-plan spending on Social Services is associated with reduced spending on Economic Services in the reforms period.** It is possible that the ‘trade off’ is a forced one for LIG states, arising from reforms-induced resource constraints in these states. For HIG and MIG states, increased levels of non-plan expenditure in the reforms period on both categories of developmental services (Social Services and Economic Services) indicate that the pressure to contain public spending is yet to gather strength in these states.
- The increased levels of non-plan expenditure on Social Services during reforms period for all three groups of states seem to paint a rosy picture of the social sector having escaped the ‘reforms axe’ in India. However, the ‘sectoral’ impact of reform measures within the non-plan expenditure domain reveals that fiscal containment has taken place for developmental services (Social and Economic, both) in case of HIG and LIG states. Such an inference is drawn from the decline in average values of non-plan expenditure (as % of total non-plan spending on revenue account) for both Social and Economic Services in the HIG and LIG states, during their respective reforms periods. The above result needs to be reconciled with an earlier finding that total non-plan expenditure on revenue account increased during reforms for all three state groups. The implication derived is that, in the HIG and LIG states, much of the increased public spending in the non-plan domain of the revenue account has been on non-developmental services (such as interest payments). **Thus, relatively speaking, in the HIG and LIG states, developmental services appear to have experienced a containment effect of economic reforms on the non-plan public spending on them, with Economic Services bearing a greater impact than Social Services. MIG states prove to be the exception, with both Social and Economic Services experiencing greater allocations within the non-plan expenditure domain.**
- Within the Social Services sector, Health Services in all three state-groups are observed to have experienced increased levels of non-plan expenditure (as % of total public spending) in the reforms period, as compared to the spending on Other-than-Health Services. **However, when sectoral allocations within the non-plan expenditure domain are taken into account, the containment effect of economic reforms is again evident for both categories of social services (Health and Other-than-Health), in HIG and LIG states.** The extent of increase in levels of public non-plan spending on social services (Health and Other-

- than-Health) appears to have been outstripped by that on items not belonging to the social sector. **MIG states are again the exception.**
- Between Health and Education Services, while Education appears to have received better attention in the reforms period in HIG states, it is Health in the case of MIG states. For LIG states, it is a mixed picture.
 - **Thus, in a hierarchical sense, the impact of reforms on public sector spending on social services appears to have been most severe for LIG states, followed by HIG and MIG states. The same ordering of the three state groups holds for impact of reforms on Health sector spending by the government.**
 - In the selected sample states of Maharashtra, Karnataka and Orissa, there is clear evidence of economic reform measures having led to fiscal containment in the Health Services sector. **For all the three states, public non-plan spending on Health Services is seen to have been significantly downsized during reforms period. The most adverse impact of reform measures on public social spending appears to have taken place in Orissa, for which there is evidence of the government having cut back its non-plan spending on all categories of social services.** For the states of Maharashtra and Karnataka, though public spending on Social Services taken together is not affected by reforms, resource allocation pattern within the social sector reveal a bias in favour of Education Services, at the expense of Health Services sector.

5.1.2 Economics Reforms and Resource Allocation Priorities of State Governments:

It is assumed that public sector allocation of resources to different services follow from a priority matrix, which is sensitive to economic reform measures. Factor analysis is applied to a set of expenditure indicators to estimate year-wise factor scores. The factor score estimates are expected to serve as indices of the degree of allocational priority assigned to a particular sector in a given year. An analysis of the growth pattern of factor scores over the study period reveals a significant and secular shift in resource allocation priorities during the reforms period for the three state-groups.

- Allocational priorities across sectors and within the social sector itself have been definitely influenced by the introduction of reform measures. **The general pattern that emerges is that, while the HIG and LIG states may have reoriented their allocational priorities in a way that have adversely affected their relative social sector expenditures, in the case of MIG states there may have been efforts to maintain the status quo or even to improve allocations to social services.**
- The MIG states clearly emerge as the best performers as far as allocational prioritization in favour of Health Services is concerned. For the HIG states, the onset of impact of reform measures on the states' finances coincides with a sharp and persistent decline in resource allocation priorities to Health sector. In the case of LIG states, fluctuating estimates of factor scores are a possible reflection of an inconsistent approach to allocation of resources for Health Services.

- There is evidence of the Health sector in MIG states having been subject to a “**displacement effect**” at various points of time in the study period. However, reforms-induced fiscal stringency may have restricted the states’ ability to sustain higher levels of public spending on the sector.
- Between Health and Education Services, for both HIG and LIG states, the growth paths of resource allocation priorities move in opposite directions. Viewed over the entire study period, the increasing trend of allocational prioritization for Education Services in both state groups contrasts sharply with a falling trend for Health in HIG states, and near-stagnation for the same in LIG states. For MIG states, the Education Services sector appears to have been spared from a prioritization “trade off” with Health Services sector.
- For all the three sample states, viewed over the entire study period, factor score measures of the degree of allocational priorities to Health Services yield falling trend lines. While for Maharashtra and Karnataka, there is some evidence of the Health sector gaining some priority in resource allocations in the more recent years (1997-98 onwards), in the case of the state of Orissa, a consistent approach seems to be lacking.

5.1.3 Economic Reforms, Public Spending and Health Sector Performance:

A simultaneous equation model is applied to country-level data in an effort to examine the links between health performance, health sector inputs and public spending on health services. The impact of economic reforms on public spending is accounted for in the model by including a revenue deficit based indicator as an explanatory variable. In addition, a reforms dummy is included to capture any shift in macro-level health sector performance.

The regression results establish a positive shift in health performance during the reforms period. On the supply-side, in the public sector domain of health service facilities, the level of functional efficiency (defined in terms of the ratio of manpower to infrastructure) is positively and strongly linked to public spending on Health Services. The elasticity of manpower-capital ratio in health sector with respect to government spending on health turns out to be 2.081, with a high level of statistical significance. The high elasticity value is suggestive of possible presence of unexploited scale economies in public sector health facilities. This is consistent with the low and less-than-unity elasticity estimate (0.248) of the health performance variable with respect to functional efficiency of public sector health facilities. A sub-optimal manpower-capital ratio in public sector health facilities would result in functional inefficiency and account for its weak link with health performance. Deficits in public spending (at the central government level) are found to be significantly and positively associated with health sector resource allocations. However, it must be acknowledged that health being the State subject, more meaningful relationships would be with respect to state level data.

5.2 Policy Implications

The path to sustainable development requires economic growth accompanied by social advancement. The most common justification for government intervention in provisioning of social services is with reference to the imperfect nature of the market for such services. In the health services sector, the presence of significant externalities ensures that the conditions for complete privatization are never satisfied. Further, studies have revealed that the most adversely affected under a private health-provisioning regime are the rural population, the poor and the chronically sick, since the cost of private medical care is generally higher. Thus, even if the privatization options were politically feasible and economically efficient, there would still be a strong need for government intervention in health sector on grounds of equity.

Keeping in mind that the role of the public sector in providing basic health services cannot be challenged, the need is to bolster its contribution to the health status of the people. Reforms-related stress on state finances and the consequent squeeze on health sector expenditures runs contrary to the above requirement. In a country like India, with a large population below poverty line, the impact of curtailed public spending on such a vital input to quality of life as health services would be most adverse on human development. The policy requirements for government intervention in such a context may be discussed in terms of its Quantum, Content and Quality (Q-C-Q) dimensions.

Quantum of Public Sector Intervention

Taking into account the gap in health care facilities, the National Health Policy (NHP), 2002 plans for increasing health sector expenditure by state governments from the present 5.5 percent of their total budget to 7 percent by the year 2005, and further to 8 percent by 2010. Any policy prescription that calls for an increased quantum of budgetary support to health sector by state governments need to take into account the ground realities relating to their capacity for: (i) additional resource mobilization; (ii) prudent fiscal management; and (iii) setting resource allocation priorities.

- State governments have limited capacity to raise extra resources. This constraint acts with varying degrees of severity on public investment programmes for different states. For the LIG states, especially, the need for Central support through additional resources is more pressing. **While increasing its budgetary commitment¹ to the health sector, the Central government should take into account inter-state disparities, both in terms of health facilities and health status.**
- The state governments cannot sustain a higher level of public investment in the health sector unless they work towards restoring the fiscal balance in their budgets. The requirements of prudent fiscal management should be dovetailed into public sector health expenditure programmes. **A basic pre-requisite to this is the proper identification of public expenditure items that can be contained/cut-back (as part of the reforms programme), without affecting adversely the level and efficacy of public provisioning of health services.**

- Resource allocations of the state governments to social sector in general, and health services in particular, reflect the priority given to these sectors by the political establishment². State governments generally tend to follow the easy option of cutting down on social sector spending, when forced to work with a deficit constraint. This puts down the status of social services as an ‘afterthought’ in the priority matrix of the policy makers. **Reversing the tendency requires from the state governments clearly stated long-term budgetary commitments, after taking into account the gaps and imbalances in the health sector.**

Content of Public Sector Intervention

Government provisioning of health services is justified on equity grounds. However, such intervention itself may turn out to be discriminatory and contribute to aggravation of inequities if decision-making is captured by powerful interest groups within the government (Birdsall and James, 1990). When this happens, the consequent distortion in government intervention is reflected in biased resource allocations, favouring urban areas, developed regions, top-end specialized health care services, perks and privileges to health department functionaries³. Thus, while advocating increased public spending on health sector, the rider that it is the ‘content’ and incidence of such spending which matters should be kept in mind.

- The equity objective of public sector provisioning of health services can be more effectively met when resource allocations are consistent with region-specific and people-specific needs. **This calls for institutionalizing a reliable system by which localized needs are identified and targeted by the policy makers through appropriate budgetary provisions.**
- Chances of powerful interest groups influencing and distorting public sector resource allocations can be minimized through **greater transparency in budgetary decision-making, impact and incidence analysis of the components of government spending and monitoring of resource flows to different heads of health sector.**

Quality of Public Sector Intervention

A major issue in public provisioning of health care services relates to their quality. The decline in budgetary support to public sector health facilities has been aggravating the problem of declining standards of health care and this has its severest impact on the poor.

Inadequacy of financial resources has prompted many state governments to pursue a strategy of involving the private sector in the provisioning of clinical and non-clinical health care services. Collaborative arrangements with industry (e.g., Tamil Nadu: industries adopting PHCs around their plants with the responsibility of building, maintaining and equipping the facility; staff and medicine from state government) and NGOs (e.g., Gujarat: management of the entire PHC services in a district by SEWA Rural) have also been tried out as

viable options. **While these experiments are aimed at improving efficiency and quality of health care services of public sector facilities, the basic objective of equity requires the establishment of appropriate monitoring mechanisms, multi-stakeholder participation, mechanisms of coordination and information-sharing, and transparency in the whole process.** In the long run, it is only people's participation in the management of public health care facilities that holds the promise of their effective and sustainable functioning.

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C h a p t e r – 5

CHANGES IN HEALTH CARE INFRASTRUCTURE MANPOWER AND PERFORMANCE IN THREE STATES DURING ECONOMIC REFORMS

Vinod B. Annigeri

I. Introduction:

Consumers demand the commodity 'health' because of its consumption and investment features. Good health is also one among many precious assets. Everyone wishes to be away from disease, disability and premature death; on the positive side everyone desires to live, to be well and to maintain full command over one's physical and mental faculties. Health is treated as a merit good based on the Musgravian approach (Musgrave, 1959). In the recent past it is also being considered as a durable good (Grossman, 1992), which keeps on depreciating over the period of time. This depreciation needs to be compensated in the form of medical care expenditure.

The interest generated by World Development Report 1993 (World Bank, 1993) on treating health expenditure as an investment has been responsible for attracting funds for the promotion of health world over. The debate, which was the outcome of this report, has also been responsible for the reforms in general, and in health sector in particular that could improve the equity and efficiency of resource uses.

As India is a signatory to the Alma-Ata declaration there is a need to evolve such policies, which would strive to achieve the health for all goal. When a mention is made about the goal, one would certainly ask the question as to what would be the financial implications for attaining this goal.

In the Indian context both public and private sectors carry out the provision of health care services. Private sector's involvement may be based on both for 'profit' and 'non-profit' motivations. In the wake of economic policy changes that are being initiated in the recent years, one cannot expect an increasing role from the public sector in view of the compression and withdrawal of public resources for the provision of health services. Being a merit good the compression of resources for health sector is not fully endorsed by researchers (Hicks and Kubisch 1983), but it is very much evidenced in the Indian context (Panchamukhi 1993, Tulsidhar 1993).

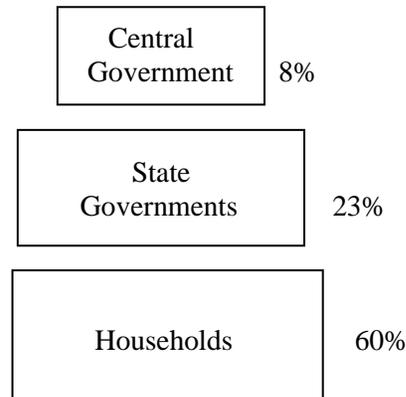
In this background the paper attempts to examine the following broad objectives.

- ❖ Analysis of budgetary expenditures on Revenue Account for these three states in respect of Medical & Public Health and Family Welfare Programmes
- ❖ Analysis of expenditure by households on medical care (from NSSO data for two different rounds i.e., 1993 and 1999)
- ❖ Analysis of the trends of input and output indicators of health sector over the period of time and their linkages

1.1 Health Expenditures in India:

If the achievement of 'Health for All' is based on the Alma-Ata philosophy of primary health care; under the existing resource base we need to search for innovative methods for the best use of available resources. Apart from this, even the extent of available resources in a given region needs to be analysed for its effectiveness, an exercise which would help in planning of health service development in future.

The pattern of flow of resources for the health sector in India resembles the following picture.



Source: Adapted from Berman Peter (1991)

World Development Report 1993 has stated that the private sector in India has more than 50 percent share in the health care delivery system of the country. However some of the Indian studies, which have addressed to this issue have come out with estimates of much larger share for the private sector. Survey findings on utilization patterns indicate the high dependence of health care seekers on the private sector (Duggal and Amin 1987). The study by Chatterjee (1988) has indicated that despite widespread infrastructure, a higher proportion of health service is provided by the private sector than by the government facilities. Jesani and Anantaram (1989) estimate that private sector accounts for as much as 70 percent of the total health expenditures in the country. The same estimate was to the tune of 82 percent from a district of Maharashtra (Duggal and Amin 1989). A study by IIM Ahmadabad in 1987 estimated this to be around 63 percent. The message that emerges from this is that the presence of private sector is quite significant in the health sector of our economy. This fact is even substantiated by the NCAER study (1992), which estimated that 55 percent of the illness cases received private treatment.

The recent attempts, which have tried to analyze health care financing in the Indian context, do provide some basis for the compression of resources through public sources. A paper by Seetha Prabhu (1999) tries to show that; the series of measures being implemented in the economy with IMF-World Bank assistance have affected union government finances. There seem to be two different phases in the response of the union government. First, comprising the first two years of adjustment, when the government was seriously concerned with reducing the fiscal deficit, and second, the subsequent two years when, the fiscal discipline was lax. The data presented in the paper does not cover the subsequent periods of the current reforms.

* The squares represent major source of funds approximately proportional to their relative size of contribution. The figures do not add up to 100 per cent due to the fact that other minor shares from corporate bodies and local governments have not been depicted in the picture

No doubt, there has been an increase in central government revenue expenditure on social sector, but its share in total revenue expenditure has declined in the first two years of adjustment and subsequently it has increased its share (Seetha Prabhu, 1999). She also finds that the structural adjustment programme being implemented and consequent fiscal compression at the central government level have further affected the finances of state governments. Her findings show that states have suffered on account of deceleration of tax revenues, and plan and non-plan grants from the central government. The stringency in finances of the states has usually led to deceleration in social sector expenditure in general and real per capita health expenditure.

Kadekodi (CMDR Monograph No. 38) while discussing about the status of Medical Care in India observes that, the Central budgetary allocations in real terms have not been reduced in health sector, be it at per capita level, or per GDP or even as a total revenue budgetary allocations. However he observes that states' budgetary allocations have declined as a share out of total revenue budget, and in terms of per capita seem to be going up very slowly.

Rama Baru (1999) has tried to examine the health sector scenario using the 42nd round of NSSO data during the year 1989. Her paper shows that, in economically backward states like Bihar, Orissa and Uttar Pradesh, there has been very little growth of hospitals in rural areas. In few states like Kerala, Maharashtra, Gujarat and Andhra Pradesh there is a higher proportion of institutions and beds in the private sector. Based on the NSSO data she concludes that majority of non-government institutions are located in urban areas. She also concludes that it is the relatively more developed states that have a higher concentration of private and voluntary services. But in majority of the states including the backward states, public sector continues to be the major provider of services especially in the inpatient care. Her findings show that poor people utilize public institutions in Karnataka and Maharashtra, while rich people utilize public facilities to a greater extent in the state of Orissa. Thus, she calls for the continued support of public health services without making any financial cuts on them, because, evidence shows that with the cut back of public services, the private and voluntary sectors will not immediately move in to fill the gap.

Krishnan T.N. (1999) also analyzes the NSSO data for the years 1986 and 1992, while examining access to health and burden of treatment. His findings show that, at the all India level, 60 per cent of the inpatients get treated at government health care institutions. The proportion is similar in both rural and urban sectors. Broadly speaking about 80 per cent or more of inpatients receive treatment from public health care system in the less developed states while the corresponding proportion is 40 per cent in the more developed states. Private health care institutions account for a much smaller proportion of illness treated in backward states. For example percentage of patients treated in public hospitals for rural areas in Maharashtra is 40 per cent, about 50 per cent in Karnataka and in Orissa about 90 per cent. The respective figures for urban areas are 42, 43 and 80. He concludes that, cost and burden of treatment are closely tied to access to health care and cost of treatment and growth of public health infrastructure are inversely related. Burden of treatment seems to be higher for the poor. Increase in BPL population across the states especially in rural areas puts greater burden on the families on account of morbidity. Thus, he also cautions against privatization of health care services in the Indian context.

We may observe from the above discussion that, there seem to be a declining trend with regard to the public resources towards health sector, and greater dependence of poor people on public health services. Thus, there seems to be a demand for enhancing the public role in the delivery of health care services. In the monograph, the following major health sector related issues are raised in respect of three specific states.

The states chosen for analysis are Maharashtra, Karnataka and Orissa. In terms of status of overall development Maharashtra falls under the category of a developed state, Karnataka as a medium and Orissa as a low developed one.

The paper tries to address the following major questions

- What is the pattern of budgetary expenditures on health in each of these states?
- Is there any pattern of such expenditures prior to the reforms and during the reforms period?
- What is the growth pattern of Human Resources for health for the periods prior to the reforms and during reforms?
- Similarly, what is the status of health infrastructure development in these states for these two periods?
- Considering the inputs indicators in terms of manpower and infrastructure, how the output indicator of health status is influenced in these states?

II. Budgetary Health Expenditures in Selected States:

2.1 The state level budgetary expenditures have been examined for the period 1980-81 to 1998-99. The period from 1991-92 has been considered as the reforms period and 1980-81 to 1990-91 is considered as the period prior to reforms. Budgetary expenditures in these states have been examined in the following manner.

- Total Revenue Expenditures (all sectors) as percentage of SDP – indicates total spending effort on revenue account.
- Total Revenue Expenditures on Medical and Public Health (MPH) as percentage of SDP – indicates spending quantum on health.
- Total Revenue Expenditures on MPH as percentage of total revenue expenditure – indicates priority attached to MPH spending within the revenue account.
- Total Revenue Expenditures on Family Welfare Programme as percentage of total revenue expenditure – indicates priority attached to FWP spending within the revenue account.
- Per Capita Revenue Expenditure on MPH and FWP at constant prices – indicates population based norm of spending.

The total revenue expenditure on all sectors as a percentage of SDP for the state of Orissa shows that, from 1980-81 to 1981-82 it has declined marginally and again increased in the immediate next year. For the period 1983-84 to 1989-90 it has marginally increased and just one year prior to reforms it has shown moderate increase. Throughout the reforms period, it has almost remained stable with an ultimate decline for the year 1998-99. Thus in a less developed state like Orissa, the overall spending effort by the state has not been very encouraging especially in the current reforms period. The same indicator for Karnataka has shown slowly increasing trend prior to the reforms period. During reforms, it has marginally declined in the early stages and finally for the year 1998-99, it has indicated a further declining pattern. We can also note that the overall spending efforts are not so encouraging. In Maharashtra the spending effort on the revenue account has steadily increased up to 1986-87. From then onwards, it has been steadily declining with a marginal increase for the year 1998-99. In a developed state like Maharashtra we can note that as the reforms have progressed the state is trying to increase its overall spending effort.

If one looks at the expenditure on MPH as a percentage of SDP, the following picture emerges. Prior to the reforms period the expenditure on MPH as percentage of SDP has remained fairly constant in Karnataka and seems to be declining in Maharashtra and there is a slight improvement in Orissa. But during the reforms period the same indicator has marginally shown decreasing trends for Maharashtra and Orissa, while it has remained fairly constant in Karnataka.

In the second level of data analysis the expenditure on MPH and FWP is considered as a percentage of total revenue expenditure. We can observe here that for all the three states this percentage has shown a decline prior to the reforms period. But during the reforms, only the state of Maharashtra has shown a decreasing pattern though marginally and in the states of Orissa and Karnataka the expenditure's on MPH have shown marginal improvement. We can also note that the state of Maharashtra is spending less on MPH as compared to Orissa and Karnataka both during and prior to the reforms period.

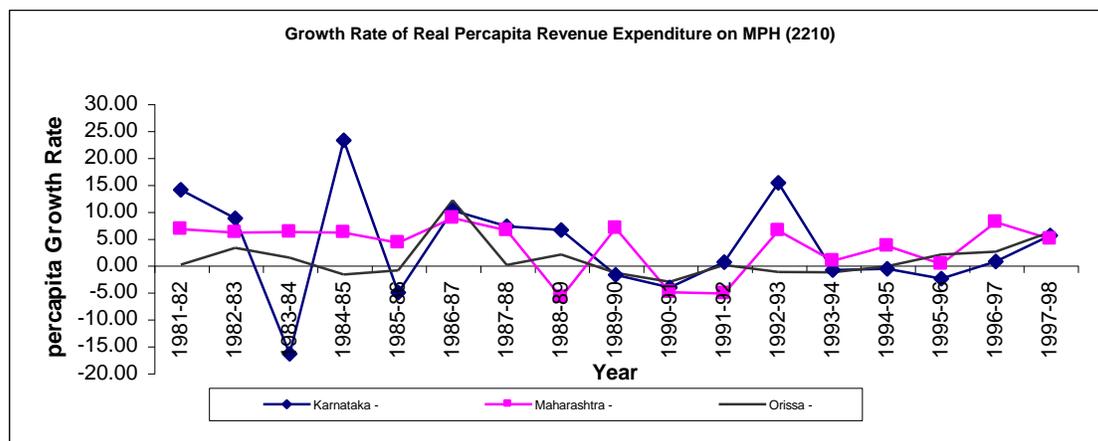
With regard to the expenditure on FWP as a percentage of total revenue spending the state of Orissa has spent more resources on FWP as compared to the other two states. This is true for the period prior to as well as during the current reforms. We may also note that resources on FWP have shown a declining trend in the reforms period for the states of Maharashtra and Orissa, while in Karnataka there is a somewhat insignificant improvement.

If we look at the per capita expenditure on MPH, we can see that Orissa is spending less as compared to Maharashtra and Karnataka. This is true for the reforms as well as prior to the reforms period. However with regard to the per capita expenditure on FWP, we can note that Karnataka is spending more, followed by Orissa and Maharashtra. But in the reforms period all the three states have shown declining trends with regard to the real per capita expenditure on FWP, which is definitely a cause for concern.

2.2 Growth Rates of Real Per Capita Expenditures:

The growth rate of real per capita expenditure on MPH for these states shows that there is a lot of variation over the years. Just after the beginning of the reforms period we can note that the growth rate has been negative for all the three states. The growth rates have improved for Maharashtra and Karnataka after 1995-96 and for Orissa it has shown improvement after 1996-97. But on the whole improvement seems to be very marginal. In the pre reform period, Karnataka had registered negative growth rates for several years, and the same trend continued till 1995-96, after which it started with a positive growth rate.

Graph 1

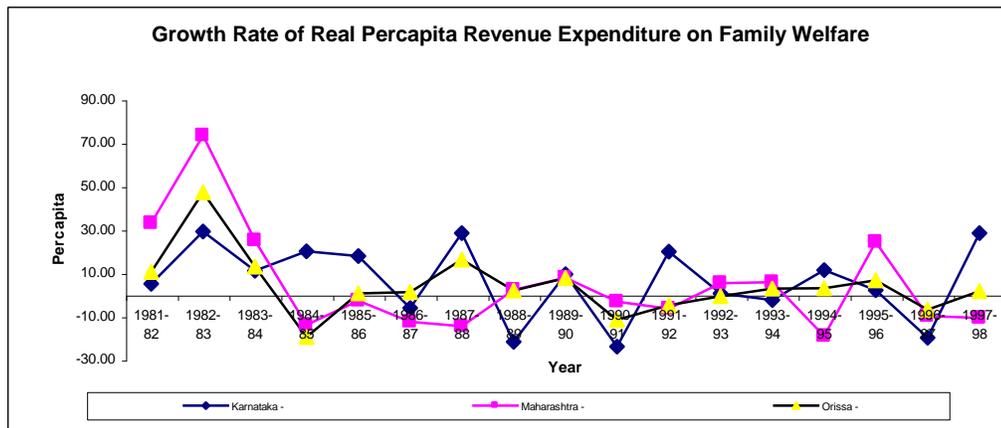


The growth rates of real per capita revenue expenditure on FWP show that for the states of Maharashtra and Karnataka they showed negative trends well before the reforms period. The situation slightly improved immediately after the reforms were introduced and again in the latter period of reforms the negative growth has occurred. But in the state of Orissa after 1985-86 the growth seems to be fairly constant with few exceptions, where we see negative growth. Karnataka has been consistently showing widely fluctuating growth rates with quite often negative in the pre reforms period.

The message that emerges from the discussion is that, though a state is spending more on revenue account with increasing trends over the period of time, it does not necessarily mean that expenditures on health are also going up. Priority attached to MPH in the state budgets show that less developed state like Orissa has given lesser priority to this component as against Karnataka and Maharashtra. However, developed state like Maharashtra has reduced importance to FWP in the total spending and a less developed state of Orissa has increased its spending on FWP. The real per capita expenditures on MPH show that, the better off states like Maharashtra and Karnataka are spending more than Orissa. In the ultimate analysis, the population based norm does indicate that higher the level of development, more would be spent in per capita terms on health.

The observations made here are graphically presented in the graphs in appendix

Graph -2



III. Household Expenditure on Medical Care

Here an attempt is made to examine the private expenditure on medical care using the NSS data for the period of 1993 to 2000 (50th to 55th round of NSSO) Discussion on different facets of household expenditure is presented in the following pattern.

- Medical expenditure of the households in the Total Private Consumption Expenditure (TPCE).
- Average Monthly Per Capita Expenditure on Medical care and TPCE.
- Institutional and Non-institutional per capita Medical Care Expenditure.
- Elasticity of Medical Care Expenditure by households.
- Medical Care Expenditures for people below poverty line and people in the top 10 per cent expenditure class.

3.1 Based on the data on total consumer expenditure from the above surveys, we have tried to look at the proportions of resources spent on medical care by the households. The analysis pertains to the per capita private expenditure on medical care, and total consumer expenditure. The average expenditure for the reference period from 1993 to 2000 reveals the following picture:

Medical Expenditure as Percentage of
Total Consumer Expenditure
Average for 1993-2000

Table - 1

| State | Rural | Urban |
|-------------|-------|-------|
| Karnataka | 3.7 | 3.9 |
| Maharashtra | 6.8 | 4.8 |
| Orissa | 5.9 | 3.0 |

A look at the proportions of resources spent on medical care by the households shows that people in Maharashtra spend more on medical care both in rural and urban areas. In rural Orissa they spend higher than the people in rural Karnataka. However in urban areas people in Karnataka spend more than the people in Orissa. Range of medical care expenditure in these three states lies between 3.0 to 6.8 per cent, in the total expenditure.

3.2 If we look at the average monthly per capita medical care expenditure, it is clear that people in Maharashtra spend double the amount as compared to the people of urban Orissa. In rural areas people spend less in Karnataka as compared to Orissa and Maharashtra.

Table - 2

Average Monthly Per Capita Expenditure during 1993-94 to 1999-2000 (Rs)

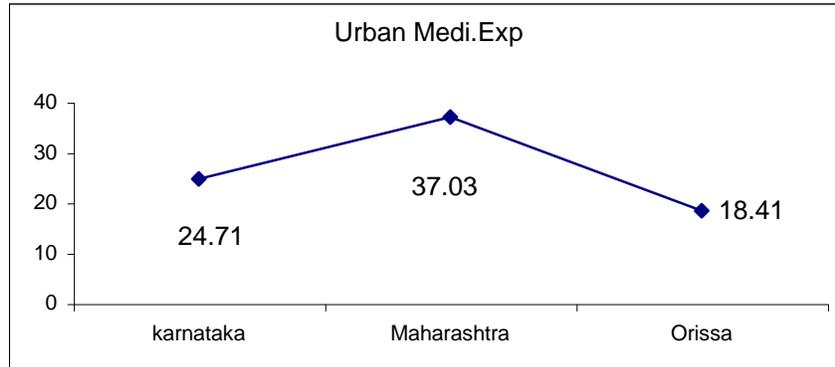
| State | Rural | | Urban | |
|-------------|----------|--------------|----------|--------------|
| | Medi.Exp | Tot.Cons.Exp | Medi.Exp | Tot.Cons.Exp |
| Karnataka | 13.86 | 346.42 | 24.71 | 614.28 |
| Maharashtra | 25.2 | 366.25 | 37.03 | 761.17 |
| Orissa | 15.11 | 254.11 | 18.41 | 583.9 |

Source: NSS "Sarvekshana" Series and NSS Reports

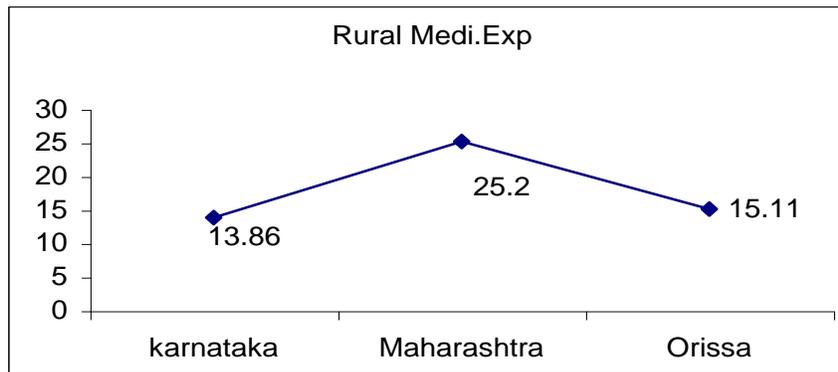
We can also note that people in a developed state spend more on medical care than the medium developed and less developed states. This may reflect on greater spending capacity as well as good network of health care facilities available to the people in more developed states. Graphs below show the average of monthly per capita expenditure on medical care for rural and urban areas in the three states.

Graph 3

Average of Monthly Per Capita Expenditure on Medical Care



Graph 4

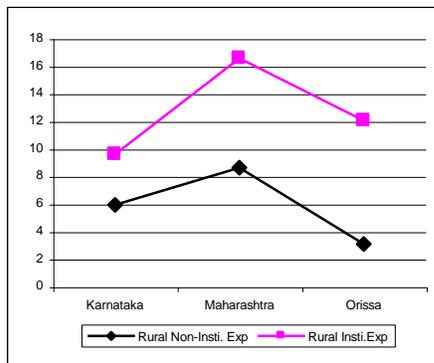


3.3 Institutional and Non-institutional Expenditures:

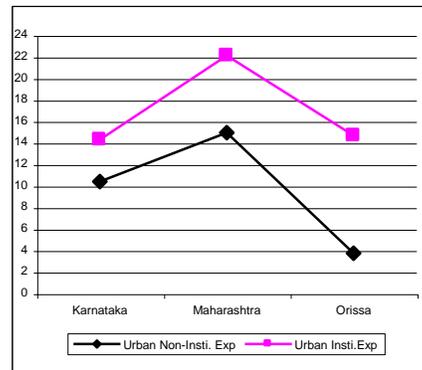
We may notice that in all the three states institutional expenditure is greater than non-institutional expenditure. Among the three states people of Maharashtra incur high institutional expenditure on medical care. Perhaps this reflects on the availability of better facilities and infrastructure. Orissa spends less on institutional medical care expenditure. This may probably reflect inadequate institutions for hospitalisation. For the state of Maharashtra we also find much difference between institutional and non-institutional expenditure on medical care for both urban and rural regions. This is not so in case of Karnataka, which probably indicates less costs to the patients in case of hospitalisation. Higher costs would also reflect on the private sector's role in the delivery of health care services, which is reflected in the state of Maharashtra. Graph below indicates such expenditures.

Average of Monthly Per Capita Institutional & Non- Institutional Expenditure on Medical Care during 1993-94 to 1999-2000: Rs

Graph 5



Graph 6



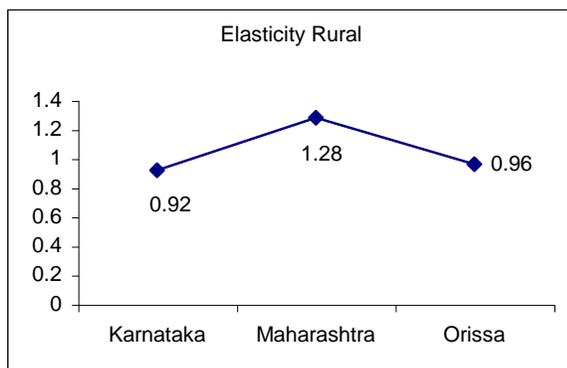
Source: NSS "Sarvekshana" Series and NSS Reports

3.4 Elasticity of Expenditure

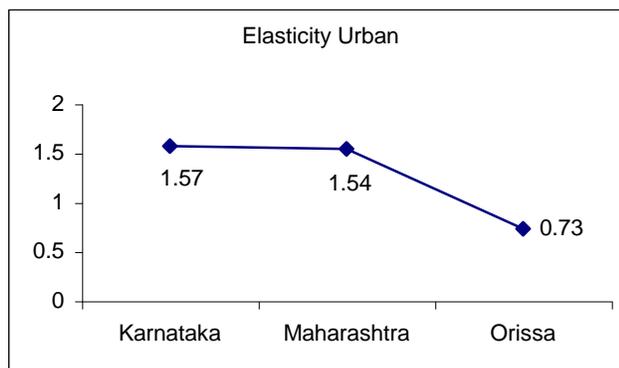
The following graphs show average elasticity of expenditure on medical care in rural and urban regions of selected states for the period 1993-94 to 1999-2000.

Average Elasticity of Expenditure on Medical Care of Rural and Urban Regions of Three States for the Period 1993-94 to 1999-2000

Graph 7



Graph 8



Source: NSS "Sarvekshana" Series and NSS Reports

From the graphs we can note that rural people of Maharashtra spend more elastically on medical care as compared to the other two states. More developed a region with greater opportunities for earning income would facilitate people to spend more on medical care. We can note that elasticity of expenditure is greater in urban areas except in the state of Orissa where it is higher in rural areas. Lower degrees of elasticity would probably indicate lower levels of meeting the needs of the people with regard to utilization of medical services. This may also probably reflect on the willingness of the people to pay for medical care services.

3.5 Share of medical care expenditure to total consumer expenditure for two distinct income groups:

With a view to understand the pattern of private expenditure by people with different income levels, we tried to analyze the NSSO data from 50th and 55th rounds. Using the data from these rounds the percentage share of monthly per capita expenditure on medical care to total consumer expenditure is calculated for two groups of households as shown below.

- a. people below poverty line
- b. for the people of top 10 percent expenditure class

The data from the survey show that the percentage of poor has declined in all the three states except in rural Orissa. Reduction in poverty seems to be quite significant in both Karnataka and Maharashtra. In rural Karnataka it got reduced to 17.3 from 29.8 and the respective figures for Maharashtra are 23.7 and 37.9. In urban areas the percentage of people below poverty line came down to 25.2 from 40.1 in Karnataka and in Maharashtra it got reduced to 26.8 from 36.1. Unfortunately for a less developed state like Orissa the reduction in poverty estimates were not very significant in urban areas (49.7 to 48.0). However in rural areas of Orissa it actually increased marginally from 41.6 to 42.8. Tables below would give us the pattern of private expenditure on Medical Care, People below the poverty line and People in the Top 10 per cent expenditure class.

Table 3
Pattern of Private Expenditure on Medical Care in 1993-94

| Karnataka | | | Karnataka | | |
|--|-------|-------|--|-------|---------|
| | Rural | Urban | | Rural | Urban |
| % of People Below Poverty Line | 29.88 | 40.14 | Top 10 % of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Expenditure on Medical Care (Rs) | 4.29 | 6.73 | Average Per Capita Monthly Expenditure on Medical Care (Rs) | 47.30 | 83.36 |
| Average Per Capita Monthly Total Consumer Expenditure (Rs) | 147.6 | 216.7 | Average Per Capita Monthly Total Consumer Expenditure (Rs) | 621.5 | 1053.54 |
| % Share of Medical Expenditure to Total Consumer Expenditure | 2.91 | 3.11 | % Share of Medical Expenditure to Total Consumer Expenditure | 7.71 | 7.91 |
| Maharashtra | | | Maharashtra | | |
| % of People Below Poverty Line | 37.93 | 36.16 | Top 10 % of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Expenditure on Medical Care (Rs) | 6.81 | 10.06 | Average Per Capita Monthly Expenditure on Medical Care (Rs) | 74.95 | 125.17 |
| Average Per Capita Monthly Total Consumer Expenditure (Rs) | 145.8 | 234.6 | Average Per Capita Monthly Total Consumer Expenditure (Rs) | 705.8 | 1449.7 |
| % Share of Medical Expenditure to Total Consumer Expenditure | 4.64 | 4.29 | % Share of Medical Expenditure to Total Consumer Expenditure | 10.62 | 8.63 |
| Orissa | | | Orissa | | |
| % of People Below Poverty Line | 49.72 | 41.64 | Top 10 % of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Expenditure on Medical Care (Rs) | 3.64 | 7.45 | Average Per Capita Monthly Expenditure on Medical Care (Rs) | 61.82 | 91 |
| Average Per Capita Monthly Total Consumer Expenditure (Rs) | 147.2 | 215.5 | Average Per Capita Monthly Total Consumer Expenditure (Rs) | 478.7 | 964.68 |
| % Share of Medical Expenditure to Total Consumer Expenditure | 2.45 | 3.46 | % Share of Medical Expenditure to Total Consumer Expenditure | 12.91 | 9.43 |

Source: NSS "Sarvekshana" Series and NSS Reports and Planning Commission Report on Poverty Estimates 1999-2000

Table - 4

Pattern of Private Expenditure on Medical Care in 1999-2000

| Karnataka | | | Karnataka | | |
|--|-------|-------|--|--------|---------|
| | Rural | Urban | | Rural | Urban |
| % of People Below Poverty Line | 17.38 | 25.25 | Top 10 % of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Expenditure on Medical Care (Rs) | 6.69 | 14.28 | Average Per Capita Monthly Expenditure on Medical Care (Rs) | 78.78 | 148.20 |
| Average Per Capita Monthly Total Consumer Expenditure (Rs) | 259.3 | 396.4 | Average Per Capita Monthly Total Consumer Expenditure (Rs) | 1078.9 | 2258.20 |
| % Share of Medical Expenditure to Total Consumer Expenditure | 2.58 | 3.6 | % Share of Medical Expenditure to Total Consumer Expenditure | 7.3 | 6.56 |
| Maharashtra | | | Maharashtra | | |
| % of People Below Poverty Line | 23.72 | 26.81 | Top 10 % of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Expenditure on Medical Care (Rs) | 9.82 | 16.54 | Average Per Capita Monthly Expenditure on Medical Care (Rs) | 116.98 | 195.06 |
| Average Per Capita Monthly Total Consumer Expenditure (Rs) | 258.5 | 402.6 | Average Per Capita Monthly Total Consumer Expenditure (Rs) | 1067.6 | 2662.2 |
| % Share of Medical Expenditure to Total Consumer Expenditure | 3.8 | 4.11 | % Share of Medical Expenditure to Total Consumer Expenditure | 10.96 | 7.33 |
| Orissa | | | Orissa | | |
| % of People Below Poverty Line | 48.01 | 42.83 | Top 10 % of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Expenditure on Medical Care (Rs) | 7.72 | 12.41 | Average Per Capita Monthly Expenditure on Medical Care (Rs) | 73.81 | 126.53 |
| Average Per Capita Monthly Total Consumer Expenditure (Rs) | 243.6 | 379.5 | Average Per Capita Monthly Total Consumer Expenditure (Rs) | 760.16 | 1592.9 |
| % Share of Medical Expenditure to Total Consumer Expenditure | 3.17 | 3.27 | % Share of Medical Expenditure to Total Consumer Expenditure | 9.71 | 7.94 |

Source: NSS "Sarvekshana" Series and NSS Reports and Planning Commission Report on Poverty Estimates 1999-2000

The percentage share of medical expenditure to total consumption expenditure for the BPL population in these states shows that its share has increased in rural Orissa during 1993 to 2000. For both the rounds of NSSO periods, poor people of Maharashtra in rural areas are spending more on medical care than the people in Karnataka and Orissa. However, for BPL population in urban areas the share of medical care expenditure in all the three states has come down though very marginally. People of Maharashtra are spending higher proportion of money on medical care.

If we look to the data for the share of medical care expenditure with regard to the top 10 per cent expenditure class, the following picture emerges. In rural Orissa the share has come down from 12.9 to 9.7 and for Maharashtra and Karnataka it has remained more or less the same. But in urban areas it has decreased in Orissa and Karnataka.

This shows that urban poor people were required to spend more on medical care as compared to rural poor in all the states. The greater burden was in the state of Maharashtra. The percentage increase with regard to the average per capita monthly expenditure on medical care in total consumption expenditure over the period throws some light on the pressures the families below poverty line are facing to finance the medical expenditure.

For the people belonging to top 10 percent expenditure class, in rural areas, the percentage of average per capita medical care expenditure in total expenditure was 56 in Maharashtra, 64 in Karnataka and 19 in Orissa. For urban regions the respective figures were 56,78 and 38.

This may probably indicate that rich people were to spend more in Karnataka and Maharashtra. Poor people were required to spend more in 1999-2000 as compared to the expenditure in 1993-94.

One may infer from the foregoing analysis that the pressures on poor people in less developed states are more with regard to the financing of medical care expenditure. The increasing expenditures on medical care especially by poor people show that as the time is progressing the pressure on poor to buy medical services is increasing. The budgetary expenditures indicate that by and large the public spending on health is not so encouraging in these states. The private expenditure shows that, the poor people are spending more on medical care. Such financial inputs are likely to influence the health sector indicators measured in terms of inputs and outputs. The following discussion presents the analysis of input and output indicators in these three states.

IV. Analysis of Health Inputs & Outputs:

The public expenditure as well as private expenditure and a host of other factors are likely to be relevant in analysing the performance of the health sector. Such indicators would help us to understand our progress towards achieving better health status of the community. Here an attempt is made to look at the input indicators as well as output indicators. Number of health care institutions and Human Resources for Health have been taken as input indicators influencing the health status. Some of the demographic indicators and other health status related indicators have been considered as output indicators. The behaviour of such indicators and their interpretations over the period of time would help us to know the probable impact of expenditures on health status of the community. As inputs and outputs, a number of indicators are estimated for the period 1983-1997. The Indicators have been grouped in the following manner.

1. **Health Infrastructure Indicators (HI):** An aggregated index of the health infrastructures is constructed using the data for the period 1983- to 1996. Different indicators used here are

1. No of Dispensaries
2. No of Hospitals
3. No of Subcentres
4. No of PHCs
5. No of hospital Beds

2. **Health Man Power Indicators (HM):** Likewise another aggregated index has been constructed using the data for the same reference period based on the following indicators.

1. Doctors at PHC
2. Health workers – Male
3. Health workers – Female
4. Pharmacists
5. Health Assistant Male
6. Health Assistant Female
7. Lab Technicians
8. Nurse / Midwives

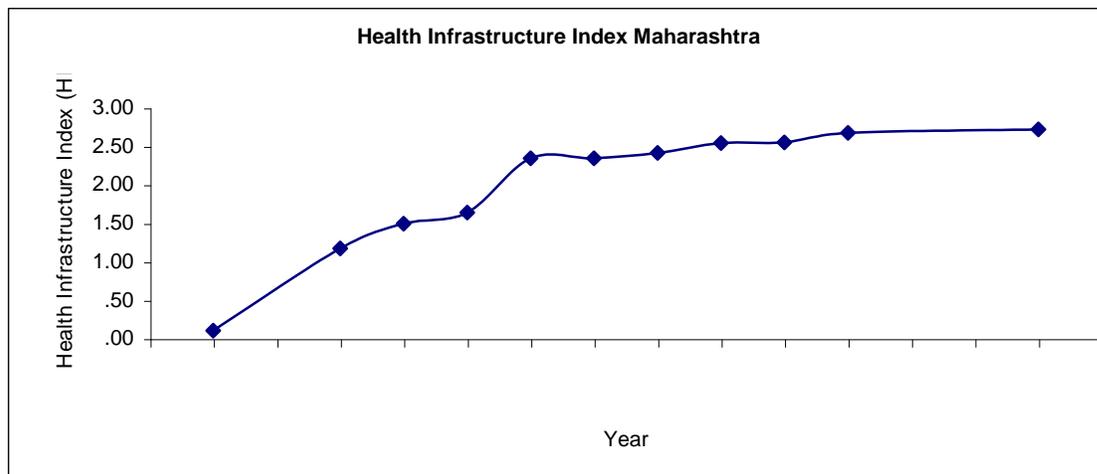
3. **Health Performance Indicators (HP):** An aggregated index of health performance is constructed for the period 1985-1996. Different inputs for this indicator are

1. Crude Birth rate
2. Crude Death rate
3. Net Growth rate
4. Infant Mortality rate
5. Total Fertility rate
6. Couple Protection ratio

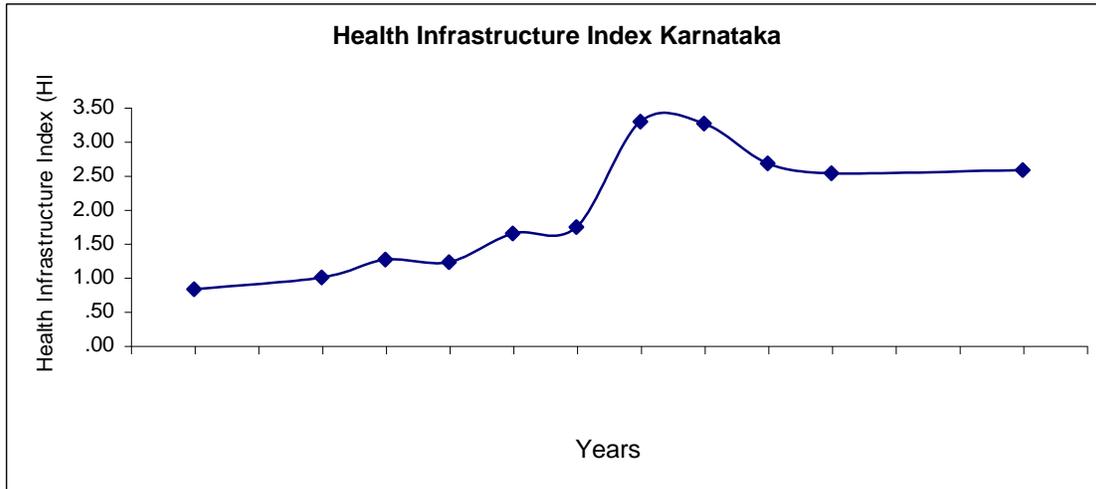
The aggregated indices for the above set of three groups of indicators were worked out by transforming some of the indicators in such a way that all the indicators become uni-directional in nature. Using the factor scores for different set of indicators, the aggregated indices have been worked out. These indicators are analyzed in the ensuing discussion.

4.1 A look at these sets of indicators shows that in the case of Maharashtra the aggregate health infrastructure indicator has shown a rising trend till 1986 and then onwards it has almost stabilized. This is indicative of the growth of infrastructure for the delivery of health service not having improved especially during the reforms period. In Karnataka also it improved till 1990 and then onwards declined and remains stable in the reforms period. But interestingly in the state of Orissa this indicator has shown a steady improvement throughout. This may indicate that even during the reforms period Orissa state has been able to maintain its growth in health infrastructure. There is every likelihood that in addition to revenue expenditure, the state of Orissa must have spent more on capital account, which might have resulted in the steady increase in health infrastructure.

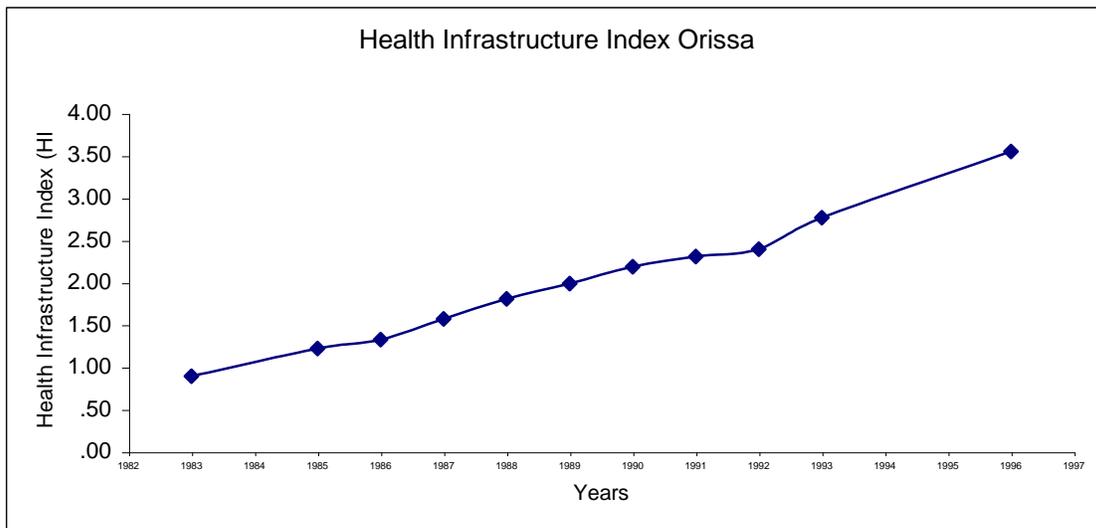
Graph 9



Graph 10

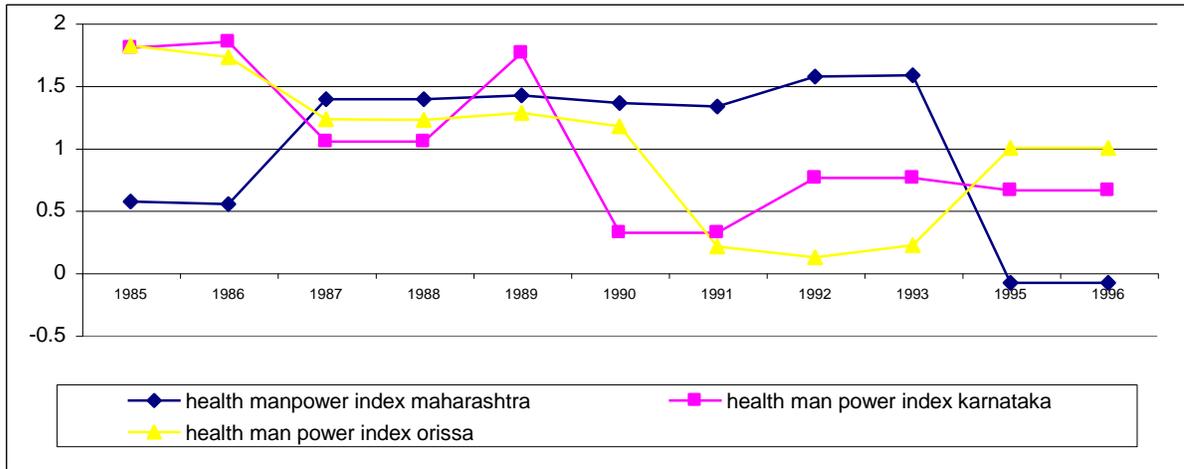


Graph 11



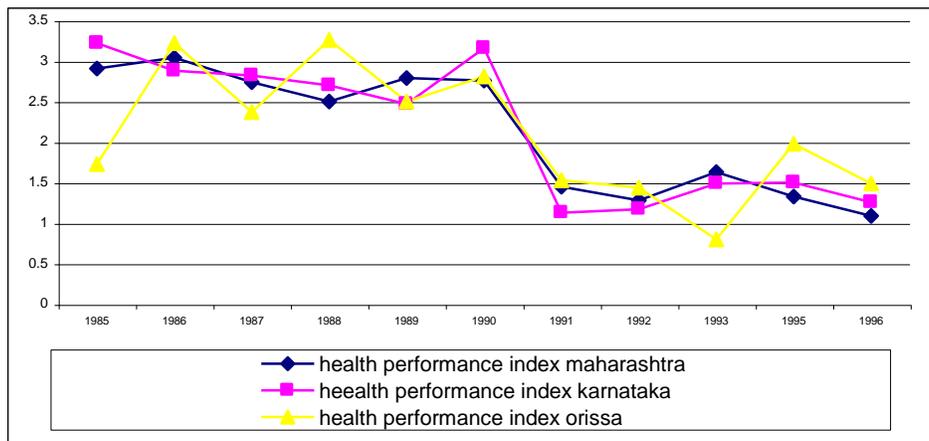
4.2 The aggregative health manpower indicator increased sharply in Maharashtra from 1986–87 and from 1988 onwards it remained stable till 1993 and suddenly then onwards it has been showing a declining trend. This is indicative of continued shortfall of manpower for the provision of health care services in the state in the recent period. In Karnataka also it has declined from the year 1989 and it has never improved its position from 1992 onwards. But in the state of Orissa though it declined prior to reforms, in the current reforms period it has considerably improved. Once again, this can be attributed to higher weightage given to health care in their budgeting. From this one may infer that the input indicators have shown encouraging development in a backward state while they have shown declining trends in medium and developed states.

Graph 12



4.3 In the background of such messages coming from input indicators, if we examine the health performance or out put indicators we may observe that in Maharashtra, especially during the reforms period the aggregate indicator of health performance has been declining which is causally related to declining manpower and infrastructures. In the state of Karnataka also we can notice that the health performance indicator has been swinging up and down for the early years but finally it has shown a declining trend. Surprisingly enough, for the backward state of Orissa also the health performance indicator has behaved somewhat erratically and finally showing a declining trend. The message that emerges from this analysis of output indicators is that health sector has not been performing so encouragingly especially during the reforms period, be it a developed state or a backward state. However, it may not be possible to attribute economic reforms directly to the declining trend of health sectoral output performance. But in the background of overall resource compression during the reforms and more so in the health sector, one finds distinct declining trends of health care input indicators. This in turn has its effect on the status of health sectoral performance of the states.

Graph 13



In order to understand the relationship between all these indicators and per capita expenditure on Medical & Public health and Family welfare an attempt was made to link them under certain assumptions.

For the purposes of further analysis, the productivity of health infrastructure is taken as a major indicator of performance of the sector. This depends upon the inputs such as health manpower and infrastructure, both of which are dependent upon the revenue and capital budget allocation.

As has already been analyzed by Kadekodi (CMDR Monograph No. 38, pp. 25), before the 1990s there was a phase of high growth of health infrastructure (HI) at the all India level; the trend reversed in favour of health man-power (HM) growth during the current reforms period. In other words, there has been some degree of substitution between these two major health sector related inputs. Stated the other way, the ratio of health man-power (HM) to health infrastructure (HI) is an indicator of this substitution possibility, quite often referred to as *scale factor* in health productivity performance (HP). Likewise, the amount of public spending (PC) per unit of health sectoral infrastructure (HI) is an *allocative efficiency factor or variable* to be reckoned with. Both the scale and the allocative efficiency factor can explain the performance of the health sector (HP).

With this analytical background, the following sets of new variables are defined for the purpose of estimating the productivity models for the three states, using the time series-wise estimated composite indicators of HI, HM, PC and HP.

Definitions of the variables:

- Input Scale Factor (ISF) = Health Man-power/Health infrastructure (HM/HI);
- Health performance scaled (HPI) = Health performance/health infrastructure (HP/HI);
- Budget allocative efficiency (PCHI) = Per capita spending on health /Health infrastructure (PC/HI); in addition, the HP and PC are also used as additional variables.

Two types of econometric models have been attempted:

$$(1) \quad HPI = a + b \text{ ISF} + c \text{ PCHI}$$

$$(2) \quad HP = a + b \text{ ISF} + c \text{ PC}$$

These models estimated (using OLS methods, with linear and log-linear specifications) are analyzed, and the relevant ones are presented in Table 5. The coefficients of the input related variables tell the story of their relevance and relative importance. Using these estimated models, the implied elasticities of health performance with respect to per capita budget allocation and the scale or efficiency factor are worked out, and presented in Table 6.

As can be seen from the estimated models, the role or relevance of the scale factor is lowest in Maharashtra, followed by Karnataka and quite high for Orissa. This gives the impression that in terms of efficiency in the use of manpower and infrastructural developments in the public health delivery systems, the developed states are ranking the lowest as compared to the less developed state such as Orissa. Secondly, in terms of allocative efficiency of public expenditures, once again, as compared to the less developed state of Orissa, developed state such as Maharashtra or medium developed state such as Karnataka have much lower returns. The elasticity of performance of the health sector with respect to the budget allocation is quite high at 5.561 for Orissa, as compared to 1.005 for Karnataka or Maharashtra of 1.865. The health sectoral performance is however very inelastic with respect to the scale factor. This suggests that

public sector management of the health sector, though responds quite well to budget allocation, suffers from its internal management problems, of balancing the manpower and infrastructural development, a finding also observed in Kadekodi (2002).

Table 5

Health Performance- Productivity model

Karnataka

Dependent Variable= HPIK

| unstandardised coefficients | | | Standardised Coefficients | t | Sig |
|-----------------------------|--------|-----------|---------------------------|--------|-------|
| | B | Std.Error | Beta | | |
| (Constant) | -0.513 | 0.461 | | -1.111 | 0.303 |
| ISFK | 0.755 | 0.435 | 0.457 | 1.737 | 0.126 |
| PCHIK | 0.055 | 0.028 | 0.519 | 1.975 | 0.089 |
| R- Square= 0.903 | | | | | |

Maharashtra

Dependent Variable= HPIM

| unstandardised coefficients | | | Standardised Coefficients | t | Sig |
|-----------------------------|--------|-----------|---------------------------|--------|-------|
| | B | Std.Error | Beta | | |
| (Constant) | -1.232 | 0.309 | | -3.981 | 0.005 |
| ISFM | 0.444 | 0.342 | 0.143 | 1.300 | 0.235 |
| PCHIM | 0.084 | 0.010 | 0.936 | 8.477 | 0.000 |
| R- Square= 0.915 | | | | | |

Orissa

Dependent Variable= HPO

| unstandardised coefficients | | | Standardised Coefficients | t | Sig |
|-----------------------------|---------|-----------|---------------------------|--------|-------|
| | B | Std.Error | Beta | | |
| (Constant) | -10.340 | 3.109 | | -3.326 | 0.013 |
| ISFO | 1.175 | 0.305 | 0.076 | 3.857 | 0.006 |
| PCO | 0.346 | 0.090 | 0.702 | 3.839 | 0.006 |
| R- Square= 0.777 | | | | | |

Table 6

Health Performance with input factors

| States | Elasticity of Health Performance/ Health Infrastructure (HPI) with respect to | |
|-------------|---|---|
| | PCHI= Percapita Public Spending on Health Health Infrastructure | ER = Health Manpower Health Infrastructure |
| Karnataka | 1.0046 | 0.3756 |
| Maharashtra | 1.8647 | 0.1965 |
| States | Elasticity of Health Performance (HP) with respect to | |
| | Per capita Public Spending on Health (PC) | ER = Health Manpower Health Infrastructure |
| Orissa | 5.561 | 0.3304 |

V. Concluding Observations

In this study a modest attempt in understanding the budgetary expenditures on health in the selected three states is made. The real per capita expenditure on MPH and FWP have marginally increased in the current reforms period. But the growth rates of these expenditures have shown negative signs, which is a cause for concern. As the reforms have been progressing the revenue expenditures on health seem to be declining relatively. On the whole it may be noted that the budgetary support for health either has stabilized or marginally declined in the reforms period, except for the backward state of Orissa.

This trend in public sector seems to have been made up by the growth in private health care system. Household expenditure on health based on NSSO data shows that people in economically better states like Maharashtra and Karnataka spend more on health care than the people in Orissa. Institutional expenditure is greater than Non-Institutional expenditure in all the three states, be rural or urban. However, income category wise expenditures show that poor are required to spend relatively more over the period of time. Thus the burden of expenditure on medical care during the current reforms period for the poorer segments of the society seems to have increased.

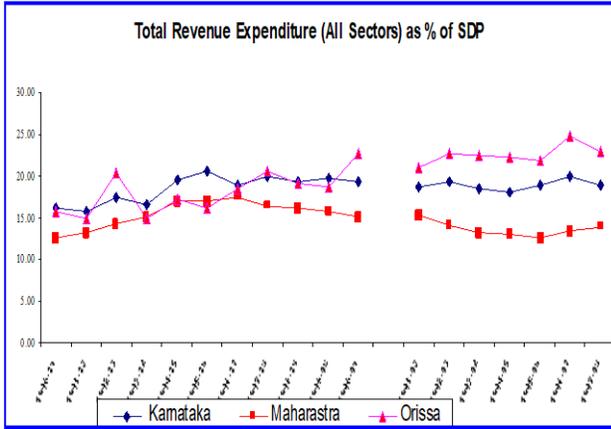
The analysis of input and output indicators of health sector in these states reveals that over the period of time, the health infrastructures have not shown signs of improvement in developed states like Maharashtra and Karnataka. In Orissa, it has not worsened over the period of time, but at the same time it has also not shown considerable improvement. Provision of health manpower has also been declining in Maharashtra and Karnataka, but interestingly it has improved during the reforms period in a less developed state like Orissa. The effect of these two inputs on the health status shows that the health performance has more or less exhibited a declining trend in both Maharashtra and Karnataka. But in the case of Orissa, though the health care inputs did not show any significant decline, the health performance has registered a declining trend. This suggests the need for strict maintenance as equally important as creation of health care facilities and infrastructure. One may say that the health performance is likely to be affected by a host of other factors, requiring improvements. There is also a need to properly plan the development of health infrastructure and health manpower inputs so as to get better results in health performance.

The manpower and infrastructure input mix in public health delivery system needed some fresh thinking and management interaction. The more advanced states seem to have much lower concern about efficient use of such public health inputs. Even the returns (measured in terms of health performance) to budget allocations are much lower than in less developed states such as Orissa. Monitoring budget allocation, deployment of manpower and balancing of infrastructural and manpower growth are much needed policy interventions.

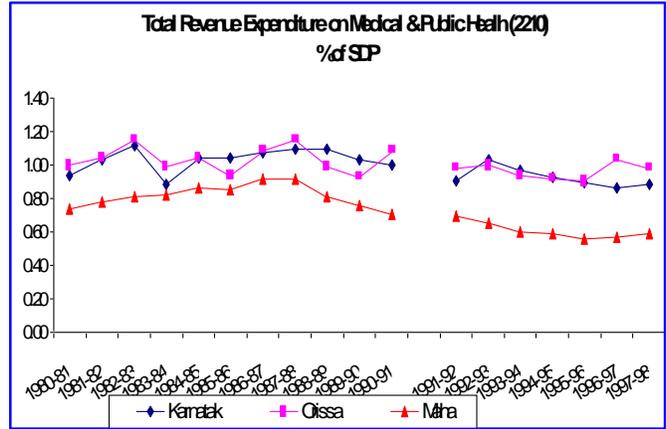
In order to bring a turn around in the declining health performance indicator in these states, there is need to reexamine the budgetary support for health so as to protect the poor. This is considered important in the background of the fact that poor are spending more than rich on medical care needs. Coupled with this, better and efficient use of inputs in terms of adequate manpower backup to health infrastructure created would also result in bringing improvement in the health status of the community.

APPENDIX

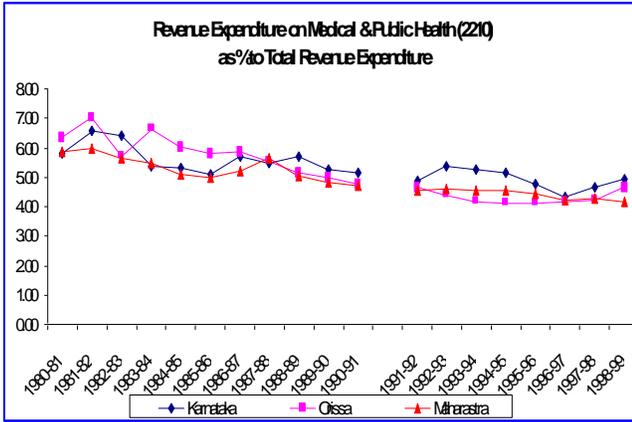
Graph 14



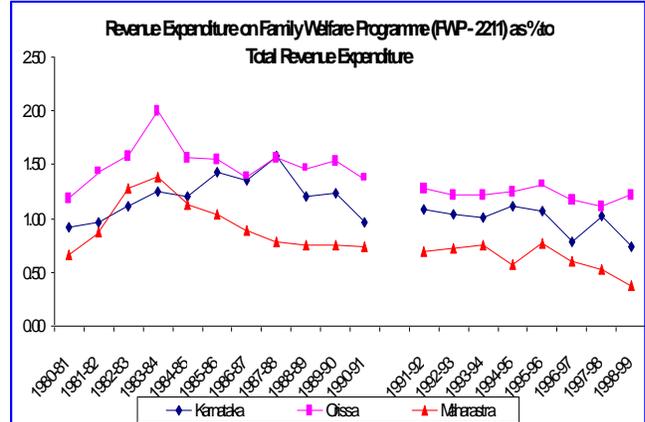
Graph 15



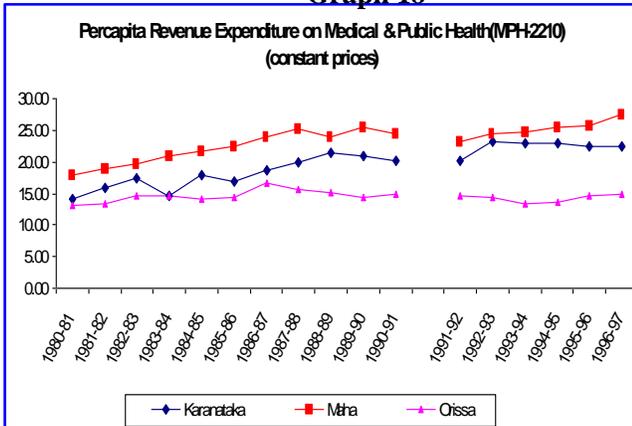
Graph 16



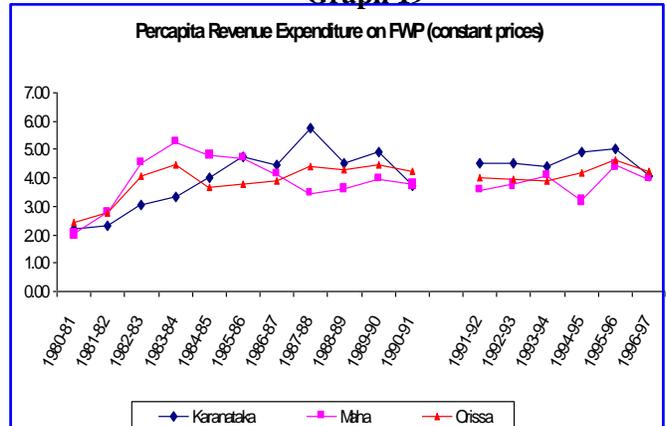
Graph 17



Graph 18

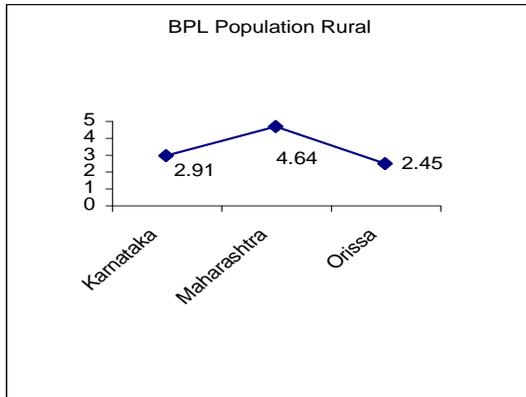


Graph 19

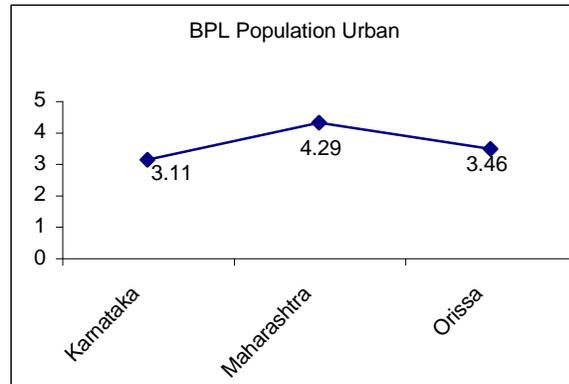


Share of medical care expenditure to total consumer expenditure BPL– 1993-94

Graph 20

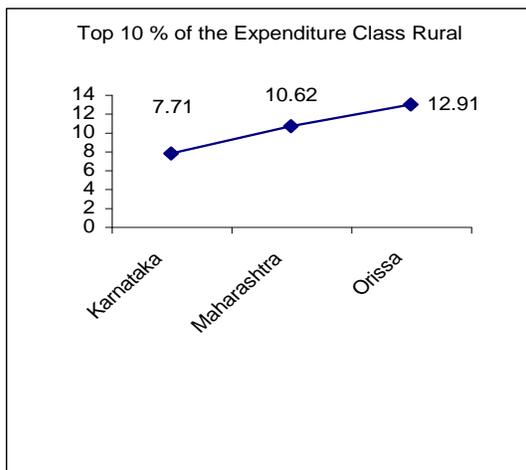


Graph 21

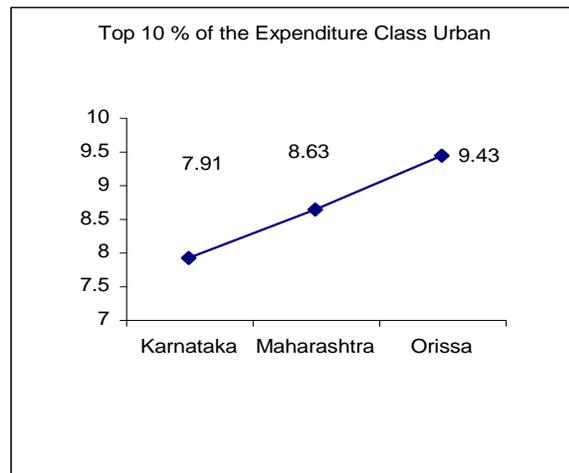


Share of medical care expenditure to total consumer expenditure- Top 10% Expenditure Class 1993-94

Graph 22

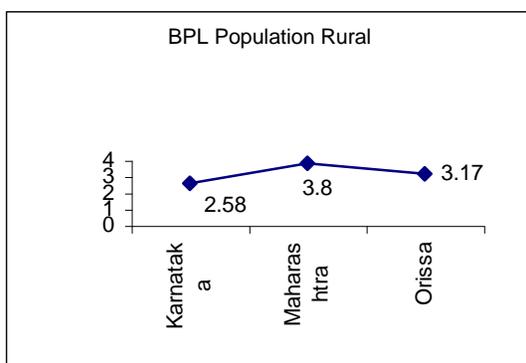


Graph 23

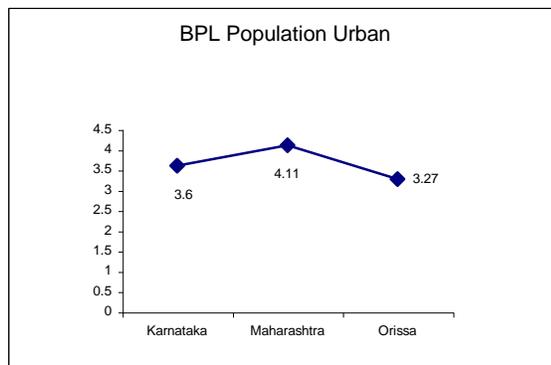


Share of medical care expenditure to total consumer expenditure BPL– 1999-2000

Graph 24

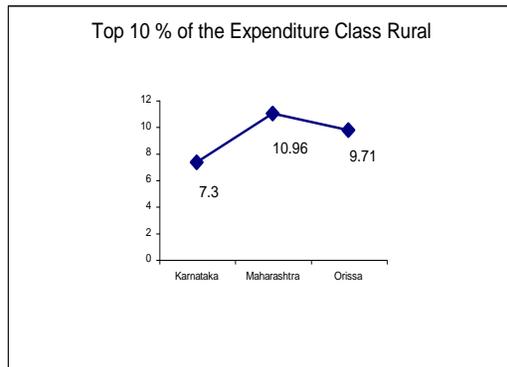


Graph 25



Share of medical care expenditure to total consumer expenditure- Top 10% Expenditure Class 1999-2000

Graph 26



Graph 27

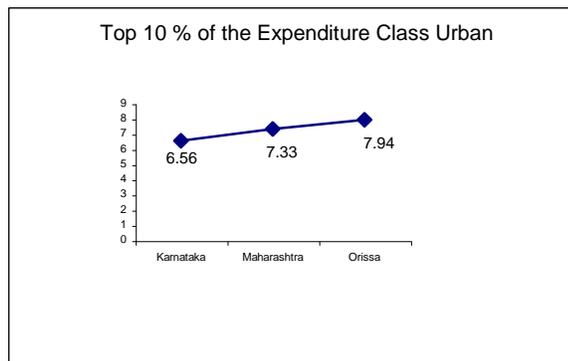


Table 6

Health Infrastructure Index Orissa

| YEAR | DISPENSARIES | HOSPITALS | BEDS | SUBCENTRE | PHC | CHC | HI |
|------|--------------|-----------|-------|-----------|------|-----|------|
| 1983 | 301 | 304 | 11494 | 3487 | 320 | 16 | 0.89 |
| 1985 | 294 | 319 | 12271 | 3787 | 325 | 42 | 1.22 |
| 1986 | 280 | 311 | 12223 | 4326 | 362 | 42 | 1.32 |
| 1987 | 280 | 311 | 12395 | 4326 | 662 | 53 | 1.57 |
| 1988 | 259 | 295 | 12510 | 4826 | 717 | 83 | 1.81 |
| 1989 | 209 | 298 | 12859 | 5291 | 789 | 83 | 1.99 |
| 1990 | 198 | 287 | 13588 | 5426 | 924 | 84 | 2.19 |
| 1991 | 196 | 287 | 13988 | 5426 | 1024 | 84 | 2.31 |
| 1992 | 195 | 282 | 14463 | 5426 | 1029 | 89 | 2.39 |
| 1993 | 232 | 284 | 14494 | 5927 | 996 | 152 | 2.77 |
| 1996 | 1144 | 430 | 14884 | 5927 | 1056 | 157 | 3.55 |

Table 7

Health Infrastructure Index Karnataka

| YEAR | DISPENSARIES | HOSPITALS | SUBCENTRE | PHC | CHC | BEDS | HI |
|------|--------------|-----------|-----------|------|-----|-------|------|
| 1983 | 1489 | 233 | 3752 | 305 | 41 | 32597 | 0.82 |
| 1985 | 1554 | 236 | 4442 | 352 | 43 | 34040 | 1.00 |
| 1986 | 1554 | 238 | 4964 | 402 | 57 | 34540 | 1.26 |
| 1987 | 1506 | 249 | 5164 | 502 | 65 | 35478 | 1.22 |
| 1988 | 1379 | 249 | 5714 | 545 | 105 | 35352 | 1.64 |
| 1989 | 1234 | 286 | 5714 | 629 | 126 | 35041 | 1.74 |
| 1990 | 1023 | 286 | 7793 | 1133 | 146 | 34819 | 3.29 |
| 1991 | 842 | 288 | 7793 | 1133 | 146 | 35074 | 3.26 |
| 1992 | 835 | 293 | 7793 | 1173 | 169 | 38007 | 2.67 |
| 1993 | 830 | 293 | 7793 | 1312 | 193 | 38819 | 2.53 |
| 1996 | 830 | 293 | 7793 | 1459 | 224 | 39358 | 2.57 |

Table 8
Health Infrastructure Index Maharashtra

| YEAR | DISPENSARIES | HOSPITAL | SUBCENTRE | PHC | CHC | BEDS | HI |
|------|--------------|----------|-----------|------|-----|--------|------|
| 1983 | 3701 | 1085 | 5041 | 476 | 86 | 79944 | 0.1 |
| 1985 | 6189 | 1367 | 6391 | 1343 | 146 | 88690 | 1.17 |
| 1986 | 7259 | 1540 | 7711 | 1343 | 147 | 93866 | 1.49 |
| 1987 | 7259 | 1545 | 8911 | 1343 | 147 | 93938 | 1.64 |
| 1988 | 9132 | 1881 | 9238 | 1539 | 277 | 95004 | 2.34 |
| 1989 | 9135 | 1881 | 9238 | 1539 | 277 | 95326 | 2.35 |
| 1990 | 9135 | 1881 | 9248 | 1646 | 283 | 95326 | 2.41 |
| 1991 | 9202 | 2104 | 9364 | 1647 | 283 | 113846 | 2.54 |
| 1992 | 9202 | 2104 | 9377 | 1650 | 285 | 113838 | 2.55 |
| 1993 | 8143 | 3115 | 9377 | 1683 | 296 | 80542 | 2.67 |
| 1996 | 8143 | 3115 | 9725 | 1695 | 295 | 80542 | 2.72 |

PHC-Primary Health Centres

CHC-Community Health Centres

HI- Health Infrastructure Index

Table 9

| Health Manpower Index Maharashtra | | | | | | | | | |
|--|---------|--------|----------|-------------|--------|----------|--------|----------|-------|
| YEAR | DOCTORS | HWMALE | HWFEMALE | PHARMACISTS | HAMALE | HAFEMALE | LABTEC | NURSEMID | HM |
| 1985 | 4852 | 7125 | 5426 | 2220 | 2836 | 1045 | 1124 | 1665 | 0.57 |
| 1986 | 5488 | 7684 | 5820 | 2220 | 2950 | 1239 | 1124 | 1665 | 0.55 |
| 1987 | 3041 | 7929 | 10826 | 2220 | 2888 | 1062 | 1124 | 1665 | 1.39 |
| 1988 | 3058 | 7929 | 10826 | 2220 | 2888 | 1062 | 1124 | 1665 | 1.39 |
| 1989 | 2504 | 7835 | 11005 | 2220 | 3428 | 999 | 1098 | 1771 | 1.42 |
| 1990 | 2947 | 7967 | 11185 | 2242 | 3734 | 1179 | 1082 | 1779 | 1.36 |
| 1991 | 2853 | 7589 | 11142 | 2181 | 3238 | 1182 | 1409 | 2225 | 1.33 |
| 1992 | 2741 | 7349 | 10852 | 2181 | 3390 | 4156 | 1409 | 1806 | 1.57 |
| 1993 | 2741 | 7349 | 11158 | 2181 | 3450 | 4156 | 1409 | 1806 | 1.58 |
| 1995 | 2771 | 4325 | 12386 | 1847 | 3878 | 1894 | 502 | 2445 | -0.08 |
| 1996 | 2771 | 4325 | 12386 | 1847 | 3878 | 1894 | 502 | 2445 | -0.08 |

Table 10

| Health Manpower Index Karnataka | | | | | | | | | | |
|--|---------|--------|----------|-------------|-----|--------|----------|--------|----------|------|
| YEAR | DOCTORS | HWMALE | HWFEMALE | PHARMACISTS | BEE | HAMALE | HAFEMALE | LABTEC | NURSEMID | HM |
| 1985 | 2720 | 8301 | 7201 | 1670 | 319 | 2825 | 2187 | 709 | 397 | 1.8 |
| 1986 | 3071 | 8301 | 7201 | 1670 | 334 | 2947 | 2311 | 709 | 397 | 1.85 |
| 1987 | 3071 | 5873 | 7928 | 1818 | 294 | 1127 | 1020 | 507 | 397 | 1.05 |
| 1988 | 3071 | 5873 | 7928 | 1818 | 294 | 1127 | 1020 | 507 | 397 | 1.05 |
| 1989 | 3071 | 3095 | 4687 | 1818 | 244 | 877 | 1165 | 770 | 1216 | 1.76 |
| 1990 | 1104 | 4762 | 8443 | 1437 | 340 | 678 | 1286 | 344 | 317 | 0.32 |
| 1991 | 1104 | 4762 | 8443 | 1437 | 340 | 678 | 1286 | 344 | 317 | 0.32 |
| 1992 | 1104 | 4958 | 8053 | 1497 | 298 | 689 | 1910 | 498 | 317 | 0.76 |
| 1993 | 1104 | 4958 | 8053 | 1497 | 298 | 689 | 1910 | 498 | 317 | 0.76 |
| 1995 | 1354 | 3253 | 7699 | 1165 | 298 | 799 | 979 | 513 | 2950 | 0.66 |
| 1996 | 1354 | 3253 | 7699 | 1165 | 298 | 799 | 979 | 513 | 2950 | 0.66 |

Table 11

| Health Manpower Index Orissa | | | | | | | | | | |
|------------------------------|---------|---------|-----------|-------------|-----|---------|-----------|--------|----------|-------|
| YEAR | DOCTORS | HWMAL E | HWFE MALE | PHARMACISTS | BEE | HAMAL E | HAFEMAL E | LABTEC | NURSEMID | HM |
| 1985 | 1741 | 4256 | 2530 | 714 | 312 | 1373 | 400 | 416 | 433 | 1.818 |
| 1986 | 1889 | 4457 | 3870 | 714 | 312 | 1373 | 443 | 416 | 433 | 1.727 |
| 1987 | 945 | 4457 | 4850 | 714 | 319 | 1223 | 837 | 416 | 433 | 1.23 |
| 1988 | 905 | 4457 | 4850 | 714 | 319 | 1223 | 837 | 416 | 433 | 1.223 |
| 1989 | 905 | 4532 | 4887 | 878 | 319 | 1135 | 762 | 416 | 1920 | 1.28 |
| 1990 | 548 | 4223 | 5225 | 878 | 316 | 1135 | 808 | 416 | 1920 | 1.172 |
| 1991 | 418 | 708 | 5731 | 248 | 329 | 170 | 760 | 108 | 386 | 0.21 |
| 1992 | 418 | 708 | 6241 | 248 | 329 | 170 | 859 | 108 | 386 | 0.124 |
| 1993 | 418 | 535 | 6241 | 1416 | 329 | 170 | 859 | 108 | 386 | 0.22 |
| 1995 | 2351 | 337 | 6944 | 1735 | 284 | 168 | 998 | 338 | 386 | 0.999 |
| 1996 | 2351 | 337 | 6944 | 1735 | 284 | 168 | 998 | 338 | 386 | 0.999 |

Note: HWMAL E = Health Workers male
 Health Assistants Male
 HWFEMALE = Health Workers Female
 Assistants Female
 LABTEC = Laboratory Technicians
 NURSEMID = Nurses/Midwives
 HM = Health Manpower Index
 BEE = Block Extension Educators

HAMAL E =
 HAFEMAL E = Health

Table 12

| Health Performance Index Maharashtra | | | | | | | | | | |
|--------------------------------------|-------|------|-------|-------|------|-------|-------|---------|--------|------|
| YEAR | CBR | CDR | NGR | IMR | TFR | CPR | TRCPR | LIFEEXP | TRLIFE | HP |
| 1985 | 29.00 | 8.40 | 20.60 | 68.00 | 3.50 | 51.80 | 48.20 | 60.70 | 39.30 | 2.91 |
| 1986 | 30.10 | 8.40 | 21.70 | 63.00 | 3.60 | 53.10 | 46.90 | 62.20 | 37.80 | 3.04 |
| 1987 | 28.90 | 8.30 | 20.60 | 66.00 | 3.50 | 54.90 | 45.10 | 62.20 | 37.80 | 2.74 |
| 1988 | 29.40 | 8.90 | 20.50 | 68.00 | 3.50 | 54.70 | 45.30 | 62.20 | 37.80 | 2.50 |
| 1989 | 28.50 | 8.00 | 20.50 | 59.00 | 3.40 | 55.10 | 44.90 | 62.20 | 37.80 | 2.79 |
| 1990 | 27.50 | 7.40 | 20.10 | 58.00 | 3.20 | 54.40 | 45.60 | 62.20 | 37.80 | 2.76 |
| 1991 | 26.20 | 8.20 | 18.00 | 60.00 | 3.00 | 56.20 | 43.80 | 64.80 | 35.20 | 1.45 |
| 1992 | 25.30 | 7.90 | 17.40 | 59.00 | 2.90 | 55.50 | 44.50 | 65.20 | 34.80 | 1.28 |
| 1993 | 25.20 | 7.30 | 17.90 | 50.00 | 2.90 | 53.20 | 46.80 | 65.20 | 34.80 | 1.63 |
| 1994 | 25.10 | 7.50 | 17.60 | 55.00 | 2.90 | 54.00 | 46.00 | 65.20 | 34.80 | 1.47 |
| 1995 | 24.50 | 7.50 | 17.00 | 55.00 | 2.90 | 54.10 | 45.90 | 65.20 | 34.80 | 1.33 |
| 1996 | 23.40 | 7.40 | 16.00 | 48.00 | 2.80 | 53.50 | 46.50 | 65.20 | 34.80 | 1.09 |
| 1997 | 23.10 | 7.30 | 15.80 | 47.30 | 2.73 | 51.00 | 49.00 | 65.20 | 34.80 | 1.01 |

Table 13

| Health Performance Index Karnataka | | | | | | | | | | | |
|---|-------|------|-------|-------|------|------|-------|-------|--------|------|--|
| YEAR | CBR | CDR | NGR | IMR | TFR | CPR | LIFEX | TRCPR | TRLIFE | HP | |
| 1985 | 29.60 | 8.80 | 20.80 | 69.00 | 3.60 | 32.0 | 60.70 | 68.00 | 39.30 | 3.22 | |
| 1986 | 29.00 | 8.70 | 20.30 | 73.00 | 3.50 | 36.3 | 61.10 | 63.70 | 38.90 | 2.88 | |
| 1987 | 28.90 | 8.70 | 20.20 | 75.00 | 3.40 | 39.7 | 61.10 | 60.30 | 38.90 | 2.82 | |
| 1988 | 28.70 | 8.80 | 19.90 | 74.00 | 3.40 | 42.3 | 61.10 | 57.70 | 38.90 | 2.70 | |
| 1989 | 28.00 | 8.80 | 19.20 | 80.00 | 3.30 | 44.2 | 61.10 | 55.80 | 38.90 | 2.47 | |
| 1990 | 28.00 | 8.10 | 19.90 | 70.00 | 3.20 | 46.0 | 61.10 | 54.00 | 38.90 | 3.16 | |
| 1991 | 26.90 | 9.00 | 17.90 | 77.00 | 3.10 | 46.9 | 62.50 | 53.10 | 37.50 | 1.13 | |
| 1992 | 26.30 | 8.50 | 17.80 | 73.00 | 2.90 | 48.3 | 62.90 | 51.70 | 37.10 | 1.17 | |
| 1993 | 25.50 | 8.00 | 17.50 | 67.00 | 2.90 | 48.2 | 62.90 | 51.80 | 37.10 | 1.49 | |
| 1994 | 25.00 | 8.30 | 16.70 | 67.00 | 2.80 | 50.3 | 62.90 | 49.70 | 37.10 | 1.05 | |
| 1995 | 24.10 | 7.60 | 16.50 | 62.00 | 2.70 | 52.7 | 62.90 | 47.30 | 37.10 | 1.50 | |
| 1996 | 23.00 | 7.60 | 15.40 | 53.00 | 2.60 | 54.3 | 62.90 | 45.70 | 37.10 | 1.26 | |
| 1997 | 22.70 | 7.60 | 15.10 | 53.00 | 2.49 | 55.6 | 62.90 | 44.40 | 37.10 | 1.15 | |

Table 14

| Health Performance Index Orissa | | | | | | | | | | | |
|--|-------|-------|-------|--------|------|-------|-------|--------|-------|----------|------|
| YEAR | CBR | CDR | NGR | IMR | TFR | LIFEX | CPR | TRLIFE | TRCPR | COMINDEX | HP |
| 1985 | 30.70 | 14.00 | 16.70 | 132.00 | 3.80 | 53.00 | 32.80 | 47.00 | 67.20 | -.27 | 1.73 |
| 1986 | 32.50 | 13.00 | 19.50 | 123.00 | 4.20 | 54.40 | 34.70 | 45.60 | 65.30 | 1.22 | 3.22 |
| 1987 | 31.00 | 13.10 | 17.90 | 126.00 | 3.70 | 54.40 | 36.40 | 45.60 | 63.60 | .37 | 2.37 |
| 1988 | 31.90 | 12.30 | 19.60 | 122.00 | 3.80 | 54.40 | 37.50 | 45.60 | 62.50 | 1.26 | 3.26 |
| 1989 | 30.50 | 12.70 | 17.80 | 121.00 | 3.60 | 54.40 | 39.60 | 45.60 | 60.40 | .50 | 2.50 |
| 1990 | 30.00 | 11.70 | 18.40 | 122.00 | 3.50 | 54.40 | 40.70 | 45.60 | 59.30 | .81 | 2.81 |
| 1991 | 28.80 | 12.80 | 16.00 | 124.00 | 3.30 | 56.50 | 41.00 | 43.50 | 59.00 | -.47 | 1.53 |
| 1992 | 27.80 | 11.70 | 16.10 | 115.00 | 3.10 | 56.50 | 40.30 | 43.50 | 59.70 | -.56 | 1.44 |
| 1993 | 27.20 | 12.20 | 15.00 | 110.00 | 3.10 | 56.50 | 38.10 | 43.50 | 61.90 | -1.20 | .80 |
| 1994 | 28.00 | 11.20 | 16.80 | 103.00 | 3.30 | 56.50 | 39.00 | 43.50 | 61.00 | -.23 | 1.77 |
| 1995 | 27.80 | 10.80 | 17.00 | 103.00 | 3.30 | 56.50 | 40.60 | 43.50 | 59.40 | -.02 | 1.98 |
| 1996 | 27.00 | 10.80 | 16.20 | 96.00 | 3.10 | 56.95 | 40.60 | 43.05 | 59.40 | -.51 | 1.49 |
| 1997 | 26.50 | 10.90 | 15.60 | 96.25 | 3.03 | 56.95 | 39.50 | 43.05 | 60.50 | -.89 | 1.11 |

Note: CBR= Crude Birth Rate
 CDR= Crude Death Rate
 NGR= Net Growth Rate
 IMR = Infant Mortality Rate
 TFR = Total Fertility Rate
 CPR = Couple Protection Ratio
 LIFEX= Life Expectancy at Birth
 HP = Health Performance Index

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C h a p t e r - 6

ANALYSIS OF BUDGETARY HEALTH EXPENDITURES USING THE HEALTH ACCOUNTING FRAMEWORK: REFLECTIONS FROM MAHARASHTRA, KARNATAKA AND ORISSA

Vinod B. Annigeri

1. Introduction:

A careful understanding of financial flows of the health sector seems to have emerged as an important policy tool in the recent times. Earlier attempts in developing countries were restricted to estimation of health expenditures from the public sector only. This was obviously due to data limitations experienced in such countries. In the light of the limited availability of resources to the health sector a judicious use of resources assumes utmost significance. To have a comprehensive picture about health expenditure we must take into account not only public sector spending but private sector contributions also in this regard. This gives us a form of accounts for the health sector, which may be the national health accounts.

Both national income accounts and national health accounts are similar, in the sense that what national health accounts describe for the health sector is being done by national income accounts for the economy as a whole. Both these estimates agree to the fact that money payments or transfers should not be double counted and a distinction to be maintained between capital and current expenditures. With regard to the health sector, the national health accounts is a recent addition and in most of the developing countries the efforts are still in infancy. Some studies have indicated that the methodology adopted for the estimation of national income accounts may not act as a useful tool for the national health accounts. (Foulon 1982, Petre 1983). It is argued that the categories adopted in the estimation of national income estimates may not be useful for health sector analysis. This may be due to the fact that it is difficult to define what are the constituents of the health sector. Added to this the framework of national income accounts focuses mainly on tangible activities rather than on services like health.

In the present day context health accounts are in the process of development across the globe. The need for such an accounting has risen due to increased complexity of health care systems and the need to keep track of the resources of the health sector per se. The 1993 revision of United Nations System of National Accounts (SNA 1993) has extended the boundaries of national income accounting to sectoral accounts. Objectives of SNA are to provide a cross-national and stable framework for the consistent compilation and structuring of macro economic data. Thus SNA provides broad contours of economic activities across the whole economy. In so doing SNA lays less emphasis on defining in greater detail the specific activities that occur within each sector of the economy. But at the same time the SNA may not be so useful to understand in greater detail the transactions that occur in specific sectors of the economy, and in this context the concept of satellite accounts emerged. . These sector specific accounts were separate in nature but were linked to the central framework.

Health Accounts have a methodology of their own and the attempts in estimating them have demonstrated that they are likely to be different from the central framework of SNA. NHA have developed independently for the most part from the SNA and satellite accounts. They have been compiled in response to the needs of health sector managers. The first set of NHA estimates was compiled in the United States only 40 years ago (Rice and Reed 1964). Only in recent years many countries have begun work in this direction. The basic function of the NHA is to show and link between the sources and uses of health care expenditures. The aim of NHA is to measure the total volume of financial expenditures and present them in such a way that the flow of resources between different units in a health care system are immediately visible to the managers of the health sector. The emphasis in NHA is to describe in an integrated way who pays, how much and for what, separating who from what.

2. National Health Accounts:

NHA would consist of a set of tables, which would display various aspects of nation's health expenditure. The basic objective of NHA is thus to address the following set of questions.

- How are resources mobilized and managed for the health system?
- Who pays and how much is paid for health care?
- Who provides goods and services, and what resources do they use?
- How are health care funds distributed across the different services, interventions and activities that the health care system produces?
- Who benefits from health care expenditure?

Though NHA is said to be having many benefits, we need to be careful in understanding and reading the information supplied by the NHA. This is because, though NHA is considered as useful tool to organize and present financial information about the health system, it may not be effective in answering many questions related to health policy. This is because; health accounts focus on the financial dimension of the health system. The health accounts themselves do not distinguish between effective and ineffective expenditures. **Hence in this background the NHA information must be combined with non-financial data from sources such as epidemiological studies, population surveys and the like.**

The Guide to Producing National Health Accounts (WHO 2003) has relied on the SHA of the OECD to help the developing countries in evolving the National Health Accounts. The guide has set out the following tables to be produced as part of the exercise to evolve the NHA.

- Health expenditure by type of financing agent and type of provider
- Health expenditure by type of provider and type of function
- Health expenditure by type of financing agent and type of function
- Health expenditure by financing source and type of financing agent
- Cost of resources used to produce health goods and services
- Health expenditure by age and sex of the population
- Health expenditure by socio-economic status of the population
- Health expenditure by health status of the population
- Health expenditure by geographic region

3. Issues of Classifying Budgetary Health Expenditures:

The present study tries to develop a table on **health expenditures by financing source and type of function** using the budgetary health expenditures. In this context the line items as presented in the health budgets of the states were classified according to the functional classification as presented in the Guide to Producing National Health Accounts (WHO 2003). But in so doing we were confronted with certain problems in classifying line items as presented in the study. Following are some of such issues which deserve attention.

Our budgets do not give the expenditure on inpatient and outpatient curative care with greater specificity. Hence we have classified the expenditure on major hospitals, specialized hospitals as that of inpatient care with outpatient care. This is because major hospitals will be having Out-Patient Department (OPD).

In the similar fashion the PHCs though have some beds, for all practical purposes they provide only the outpatient care. Hence we have included them under the outpatient care with the provision of inpatient care.

Dispensaries and clinics have been grouped as providing outpatient care only.

In the state level budgets, certain line items do not give details about the nature of expenditure, for example resources transferred to the district level bodies, other expenditure, lump sum and secret expenditure. Such expenditures have been classified as **expenditure not specified by kind**. For the resources transferred to the districts, one is required to get the details from the concerned district itself and we have not considered such an attempt in the present exercise.

4. Scope of the Present Study:

In order to generate all the above tables there is a need for exhaustive database covering all the facets of the health accounts. At present, however an attempt is made in the present exercise to develop one of the tables (Health Expenditure by type of Financing Agent and type of Function) by analyzing the budgetary expenditures of health sector in the states of Maharashtra, Karnataka and Orissa.

Though the concept of NHA encompasses various dimensions of the financial aspects of the health system, the present study restricts itself to the public expenditure on health in the selected three states. The budgetary expenditure on health in these states covering the following broad categories has been considered for analysis.

- Account head 2210 covering Medical and Public Health
- Account Head 2211 covering Family Welfare Programme

A true health accounts exercise must consider the flow of resources from the private sector also, which should include both for profit and non-profit flows. In this background the present analysis can be considered an attempt in evolving '**Partial Health Accounts**'. Out of the several tables listed in the NHA framework, the present study tries to develop one table using budgetary expenditures on health at the state level. The table that the study focuses is, **Health Expenditure by Type of Financing Agent and Type of Function**.

A number of line items of the state government budgets related to health (Account Heads 2210 and 2211) have been classified into various functional categories as shown in the NHA

guide (WHO 2003). Financing agents have been classified as, State government, Central government and Rest of the World (ROW), which includes resources flowing from outside the country. Depending on the availability of the data the ROW column is presented.

Objectives of the Study:

1. To present the analysis of the budgetary expenditures on health using the national health accounting framework in each of the selected states. We have selected one of the developed states of the country, namely Maharashtra, one of the medium developed states, namely Karnataka and one of the less developed states, namely Orissa.
2. To present health care function wise and financing agent wise expenditures on health for the selected years during the pre-reforms and reforms period.

The following discussion presents the health expenditures classified according to the health care functions as per the health accounting framework.

5. Health Expenditures in Karnataka – Pre Reforms Period:

For the year 1985-86, the functional classification of budgetary expenditures on health shows that the Central government is providing the funds to the extent of about 10 per cent in the total expenditure on health. This only means that the major responsibility of providing the health services rests with the state government. Out of the total expenditure, the major share went to the category of 'HC.7.1.1A', which includes salaries to the officers and staff including the dearness and other allowances. This category accounted for about 35 per cent of the total resources spent on health. Next priority was given to the expenditure category of 'HC.6.3', which is meant for the Prevention of Communicable Diseases. The next in the priority list was Outpatient Curative Care (including inpatient care), which accounted for about 9 per cent of the resources (HC.1.3A). About 8 per cent of resources were spent on HC.5.1, which includes the supply of Pharmaceuticals and other medical non-durables. Prevention of non-communicable Diseases and Inpatient Curative care received about 2 per cent of the resources. Rest of the other functional categories got very insignificant resources, which only means that the health expenditures have given priorities to salaries of the staff ignoring the other crucial components in the provision of health services. The expenditure category HC.nsk., which refers to the Health Care expenditure, not specified by kind accounted for about 2 per cent of the resources. This category includes the resource transfers to the district level Panchayat and Municipal bodies for carrying out health related responsibilities at the decentralized level. As the break-up of such expenditures is not available in the state budgets, functional category classification of such resource transfers is not attempted in the present exercise. The following table gives the expenditure details as per the ICHC functional category for the year 1985-86.

Table-1

| Health Expenditures in Karnataka 1985-86 (In Percentages) | | | | |
|---|--|-----------------|-----------------|------------------|
| ICHC-CODE | Functional Category | State | Central | Total |
| HC.1 | Services of curative care | | | |
| HC.1.1 | Inpatient Curative Care | 1.78183 | 0.00000 | 1.78183 |
| HC.1.1A | Inpatient Curative Care which also includes outpatients - non allopathy | 0.06744 | 0.00000 | 0.06744 |
| HC.1.1B | Mental hospitals | 0.00197 | 0.00000 | 0.00197 |
| HC.1.3.4 | All other outpatient curative care | 1.52281 | 0.00000 | 1.52281 |
| HC.1.3A | Outpatient curative care (including IPC) | 8.74244 | 0.42345 | 9.16590 |
| HC.1.3B | Outpatient curative care non – Allopathy | 0.57698 | 0.00000 | 0.57698 |
| HC.4 | Ancillary services to medical care | | | |
| HC.4.1 | Clinical Laboratory | 0.81959 | 0.00000 | 0.81959 |
| HC.4.9 | All other Miscellaneous ancillary services | 0.50157 | 0.00000 | 0.50157 |
| HC.5 | Medical goods dispensed to outpatients | | | |
| HC.5.1 | Pharmaceuticals and other medical non-durables | 8.25212 | 0.00093 | 8.25305 |
| HC.5.2.4 | Medico-technical device, including wheelchairs | 2.58853 | 0.00000 | 2.58853 |
| HC.5.2.9 | All other Miscellaneous medical goods | 0.32710 | 0.00000 | 0.32710 |
| HC.6 | Prevention and public health services | | | |
| HC.6.1 | Maternal and child health; family planning and counseling | 0.95908 | 4.73691 | 5.69599 |
| HC.6.2 | School health services | 0.14196 | 0.00000 | 0.14196 |
| HC.6.3 | Prevention of communicable disease | 8.17752 | 3.92911 | 12.10664 |
| HC.6.4 | Prevention of non-communicable disease | 1.44104 | 0.90141 | 2.34244 |
| HC.6.9 | All other miscellaneous public health services | 0.00000 | 0.04327 | 0.04327 |
| HC.7 | Health administration and health insurance | | | |
| HC.7.1.1 | General government administration of health (except social security) | 5.90269 | 0.00000 | 5.90269 |
| HC.7.1.1A | General government administration of health (Salaries, DA etc) | 35.99641 | 0.00000 | 35.99641 |
| HC.7.1.1B | General government administration of health (including office and allied expenses) | 0.17300 | 0.00000 | 0.17300 |
| HC.nsk | HC expenditure not specified by kind | 2.49800 | 0.00000 | 2.49800 |
| HC.R.1 - 5 | Health - related functions | | | |
| HC.R.1 | Capital formation for health care provider institutions | 0.95119 | 0.01434 | 0.96553 |
| HC.R.2 | Education and training of health personnel | 6.64252 | 0.25767 | 6.90019 |
| HC.R.2B | Teaching institutions non- Allopathy | 0.00954 | 0.01705 | 0.02658 |
| HC.R.3 | Research and development in health | 0.23343 | 0.00000 | 0.23343 |
| HC.R.4 | Food, hygiene and drinking water control | 1.36360 | 0.00000 | 1.36360 |
| HC.R.5 | Environmental health | 0.00349 | 0.00000 | 0.00349 |
| Total | | 89.67585 | 10.32415 | 100.00000 |

For the year 1990-91, the functional classification of expenditures reveals the following. The category HC.7.1.1A consisting of salaries and allowances has reduced its share from 35 per cent in 1986-87 to about 30 per cent. As the year 1990-91 happens to be the initial year of introduction of economic reforms, the role of the government in curbing the expenditure seems to have been indicated by the government by reducing the share of the expenditure on salaries. It is interesting to note for the year 1990-91 that the share of the expenditure category HC.nsk. got the maximum share with about 47 per cent. This particular category mainly consists of resource

transfer to the district level governments. The share of this category in 1985-86 was just about 2 per cent. The major jump in this category must have occurred due to the fact that after 1985 onwards the state government has been giving greater support for the process of decentralization. Again we can note that during this year also major functional categories received very insignificant share of resources. For example the supply of pharmaceuticals and other medical non-durables got about 3 per cent of the total resources. Out of the total the state government spent about 97 per cent of the resources, which again shows the very little role played by the central government in the provision of health services. The following table shows the expenditures on major heads of expenditures during the year 1990-91.

Table-2

| Health Expenditure in Karnataka- 1990-91 (In Percentages) | | | | |
|--|--|-----------------|----------------|------------------|
| ICHC - CODE | Functional Category | State | Central | Total |
| HC.1 | Services of curative care | | | |
| HC.1.1 | Inpatient Curative Care | 0.34711 | 0.00000 | 0.34711 |
| HC.1.3.3 | All other specialized medical services | 1.29340 | 0.00000 | 1.29340 |
| HC.1.3A | Outpatient curative care (including IPC) | 0.01914 | 0.00000 | 0.01914 |
| HC.4 | Ancillary services to medical care | | | |
| HC.4.1 | Clinical Laboratory | 0.02190 | 0.00000 | 0.02190 |
| HC.4.2 | Diagnostic Imaging | 0.01947 | 0.00000 | 0.01947 |
| HC.4.9 | All other Miscellaneous ancillary services | 0.13647 | 0.00000 | 0.13647 |
| HC.4.9A | Blood Bank and Allied Services | 0.02610 | 0.00000 | 0.02610 |
| HC.5 | Medical goods dispensed to outpatients | | | |
| HC.5.1 | Pharmaceuticals and other medical non-durables | 3.14210 | 0.00000 | 3.14210 |
| HC.5.2.4 | Medico-technical device, including wheelchairs | 1.56024 | 0.29129 | 1.85154 |
| HC.5.2.9 | All other Miscellaneous medical goods | 0.87359 | 0.00000 | 0.87359 |
| HC.6 | Prevention and public health services | | | |
| HC.6.1 | Maternal and child health; family planning and counseling | 0.12000 | 0.95119 | 1.07119 |
| HC.6.2 | School health services | 0.00461 | 0.00000 | 0.00461 |
| HC.6.3 | Prevention of communicable disease | 2.63370 | 0.00671 | 2.64041 |
| HC.6.4 | Prevention of non-communicable disease | 0.00185 | 0.79677 | 0.79863 |
| HC.7 | Health administration and health insurance | | | |
| HC.7.1.1A | General government administration of health (Salaries, DA etc) | 30.42137 | 0.00000 | 30.42137 |
| HC.7.1.1B | General government administration of health (including office and allied expenses) | 6.97213 | 0.00000 | 6.97213 |
| HC.nsk | HC expenditure not specified by kind | 47.34438 | 0.00000 | 47.34438 |
| HC.R.1 - 5 | Health - related functions | | | |
| HC.R.1 | Capital formation for health care provider institutions | 0.13581 | 0.00370 | 0.13951 |
| HC.R.2 | Education and training of health personnel | 0.44180 | 0.03833 | 0.48012 |
| HC.R.2B | Teaching institutions non- Allopathy | 0.04014 | 0.00000 | 0.04014 |
| HC.R.3 | Research and development in health | 0.08987 | 0.00000 | 0.08987 |
| HC.R.4 | Food, hygiene and drinking water control | 2.26682 | 0.00000 | 2.26682 |
| Table Total | | 97.91200 | 2.08800 | 100.00000 |

5.1 Health Expenditures in Reforms Period:

Similar attempt for the year 1997-98 shows that, the role of the central government has increased to some extent and for this year its share of resources has gone up to 8 per cent of the total expenditure. Resource transfers to the districts have been around 39 per cent. We can note that during this year the share of salaries has drastically reduced to about 20 per cent indicating the mind set of the government to curb the expenditure, especially during the reforms period. Role of the central government has increased because of the enhanced resources to the Family Planning programme. Inpatient curative care has registered an increase of 6 per cent, while there is a marginal decline in the resources for the supply of pharmaceuticals and other medical non-durables. Host of the other important components have received very insignificant proportion of resources. The following table shows share of different expenditures for the year 1997-98.

Table-3

| Health Expenditure in Karnataka-1997-98 (In Percentages) | | | | |
|--|--|-----------------|----------------|------------------|
| ICHC - CODE | Functional Category | State | Central | Total |
| HC.1 | Services of curative care | | | |
| HC.1.1 | Inpatient Curative Care | 7.25341 | 0.00000 | 7.25341 |
| HC.1.3.3 | All other specialized medical services | 0.03472 | 0.00000 | 0.03472 |
| HC.1.3A | All other outpatient curative care | 2.01942 | 0.00000 | 2.01942 |
| HC.1.3B | Outpatient curative care non – Allopathy | 0.03584 | 0.00000 | 0.03584 |
| HC.4 | Ancillary services to medical care | | | |
| HC.4.1 | Clinical Laboratory | 0.00605 | 0.00000 | 0.00605 |
| HC.4.2 | Diagnostic Imaging | 0.02800 | 0.00000 | 0.02800 |
| HC.4.9 | All other Miscellaneous ancillary services | 9.02496 | 0.00000 | 9.02496 |
| HC.5 | Medical goods dispensed to outpatients | | | |
| HC.5.1 | Pharmaceuticals and othe medical non-durables | 2.41795 | 0.00000 | 2.41795 |
| HC.5.2.4 | Medico-technical device, including wheelchairs | 4.34215 | 0.00000 | 4.34215 |
| HC.5.2.9 | All other Miscellaneous medical goods | 0.06055 | 0.00000 | 0.06055 |
| HC.6 | Prevention and public health services | | | |
| HC.6.1 | Maternal and child health; family planning and counseling | 1.55664 | 7.63665 | 9.19329 |
| HC.6.3 | Prevention of communicable disease | 0.00513 | 0.00000 | 0.00513 |
| HC.6.9 | All other miscellaneous public health services | 0.00000 | 0.14394 | 0.14394 |
| HC.7 | Health administration and health insurance | | | |
| HC.7.1.1A | General government administration of health (Salaries, DA etc) | 20.89299 | 0.00000 | 20.89299 |
| HC.7.1.1B | General government administration of health (including office and allied expenses) | 1.50050 | 0.00000 | 1.50050 |
| HC.7.2.1 | Health Insurance (ESI) | 0.00000 | 0.57866 | 0.57866 |
| HC.nsk | HC expenditure not specified by kind | 39.36573 | 0.00000 | 39.36573 |
| HC.R.1 – 5 | Health - related functions | | | |
| HC.R.1 | Capital formation for health care provider institutions | 0.36082 | 0.00000 | 0.36082 |
| HC.R.2 | Education and training of health personnel | 1.33736 | 0.00000 | 1.33736 |
| HC.R.3 | Research and development in health | 0.66354 | 0.00000 | 0.66354 |
| HC.R.4 | Food, hygiene and drinking water control | 0.73500 | 0.00000 | 0.73500 |
| Table Total | | 91.64075 | 8.35925 | 100.00000 |

6. Health Expenditures in Maharashtra: Pre-reforms Scenario

In a developed state like Maharashtra, the state government spent about 78 per cent of the resources and the central government contributed 21 per cent of the total resources spent on health for the year 1984-85. MCH services including family planning accounted for about 15 per cent of the resources spent on health. Outpatient curative care including inpatient care received 7 per cent of the resources and specialized medical services got 4 per cent of the total. But the major share was devoted to HC nsk. Category, which includes health care expenditure, not specified at the state level. The major items included in this category are the grant-in aids to the district level bodies and certain other line items, which do not give any clear indication of the nature of expenditure, like lump sum or secret service and things like that. An important observation about the share of different categories is that, the major and very crucial expenditure needs of the health sector like inpatient and outpatient curative care, supply of drugs and other non drug inputs to the health care institutions, preventive care and training of personnel have received very little resources. This only speaks of the wrong direction of expenditure, which needs to be corrected. The following table shows the share of expenditures on health in Maharashtra during 1984-85.

Table-4
Health Expenditures in Maharashtra-1984-85

| ICHC CODE | Functional Category | Percentage to Total | | |
|-----------------|---|---------------------|---------------|----------------|
| | | State | Central | Total |
| HC.1 | Services of Curative Care | | | |
| HC.1.1 | Inpatient Curvative Care | 0.024 | 0.000 | 0.024 |
| HC.1.1A | Inpatient Curative Care which also includes outpatients-non allopathy | 0.065 | 0.000 | 0.065 |
| HC.1.1B | Mental Hospitals | 3.026 | 0.046 | 3.073 |
| HC.1.3.3 | All Other Specialized Medical Services | 4.146 | 0.000 | 4.146 |
| HC.1.3.4 | All Other Outpatient Curative Care | 0.167 | 0.000 | 0.167 |
| HC.1.3A | Outpatient Curative Care (Including IPC) | 7.035 | 0.000 | 7.035 |
| HC.4 | Ancillary Services to Medical Care | | | |
| HC.4.1 | Clinical Laboratory | 1.868 | 0.019 | 1.887 |
| HC.4.9 | All Other Miscellaneous Ancillary Services | 0.914 | 0.000 | 0.914 |
| HC.5 | Medical Goods Dispensed to Outpatients | | | |
| HC.5.1 | Pharmaceuticals and Other Medical Non-durables | 0.952 | 0.000 | 0.952 |
| HC.6 | Prevention and Public Health Services | | | |
| HC.6.1 | Maternal and Child Health; family planning and Counseling | 15.345 | 0.000 | 15.345 |
| HC.6.3 | Prevention of Communicable Disease | 6.802 | 19.734 | 26.536 |
| HC.6.4 | Prevention of Non-Communicable Disease | 4.855 | 1.467 | 6.322 |
| HC.6.9 | All Other Miscellaneous Public Health Services | 0.306 | 0.000 | 0.306 |
| HC.7 | Health Administration and Health Insurance | | | |
| HC.7A | ESIS | 0.009 | 0.000 | 0.009 |
| HC.7.1.1A | General Government Administration of health | 4.894 | 0.000 | 4.894 |
| HC.nsk | HC Expenditure not specified by kind | 23.243 | 0.000 | 23.243 |
| HC.R.1-5 | Health Related Functions | | | |
| HC.R.1 | Capital Formation for Health Care Provider Institutions | 2.604 | 0.000 | 2.604 |
| HC.R.2 | Education and training of health personnel | 1.047 | 0.000 | 1.047 |
| HC.R.2A | Teaching Institutes | 0.910 | 0.135 | 1.045 |
| HC.R.2B | Teaching Institutions-Non Allopathy | 0.036 | 0.012 | 0.048 |
| HC.R.3 | Research and Development in Health | 0.335 | 0.000 | 0.335 |
| Total | | 78.586 | 21.414 | 100.000 |

For the year 1989-90 there seems to be a significant change in the share of the State and Central governments in the total spending on health. During this year the state government spent about 91 per cent of the resources while the role of the central government was restricted to just about 8 per cent. This may be probably hinting at the withdrawal symptoms of the central government as far as spending on health is concerned. The salary head was to the extent of about 48 per cent followed by the expenditure on Employees State Insurance Scheme (ESIS), which accounted for 17 per cent of the expenditure. Teaching institutes claimed 12 per cent and MCH and family planning services go about 7 per cent of the resources. During this year also we can note that crucial inputs like inpatient and outpatient curative care and medical and drug supplies suffered with very insignificant share of resources. The following table shows the share of expenditures on health in Maharashtra during 1989-90.

Table-5
Health Expenditures in Maharashtra-1989-90

| IHC CODE | Functional Category | Percentage to Total | | |
|-----------------|---|---------------------|--------------|----------------|
| | | State | Central | Total |
| HC.1 | Services of Curative Care | | | |
| HC.1.1 | Inpatient Curative Care | 0.839 | 0.000 | 0.839 |
| HC.1.1A | Inpatient Curative Care which also includes outpatients-non allopathy | 0.567 | 0.000 | 0.567 |
| HC.1.1B | Mental Hospitals | 2.208 | 0.020 | 2.228 |
| HC.1.3.4 | All Other Outpatient Curative Care | 0.304 | 0.000 | 0.304 |
| HC.1.3A | Outpatient Curative Care (including IPC) | 0.132 | 0.000 | 0.132 |
| HC.1.3B | Outpatient Curative Care non-Allopathy | 0.003 | 0.000 | 0.003 |
| HC.4 | Ancillary Services to Medical Care | | | |
| HC.4.1 | Clinical Laboratory | 1.291 | 0.021 | 1.311 |
| HC.4.9 | All Other Miscellaneous Ancillary Services | 1.684 | 0.000 | 1.684 |
| HC.4.9A | Blood Bank and Other Allied Services | 0.017 | 0.000 | 0.017 |
| HC.5 | Medical Goods Dispensed to Outpatients | | | |
| HC.5.1 | Pharmaceuticals and Other Medical non-durables | 0.711 | 0.000 | 0.711 |
| HC.6 | Prevention and Public Health Services | | | |
| HC.6.1 | Maternal and Child Health; family planning and counseling | 7.466 | 0.000 | 7.466 |
| HC.6.3 | Prevention of Communicable Diseases | 5.889 | 8.022 | 13.911 |
| HC.6.4 | Prevention of Non-Communicable Diseases | 2.838 | 0.174 | 3.012 |
| HC.6.9 | All Other Miscellaneous Public Health Services | 12.379 | 0.000 | 12.379 |
| HC.7 | Health Administration and Health Insurance | | | |
| HC.7A | ESIS | 17.763 | 0.361 | 18.124 |
| HC.7.1.1A | General Government Administration of Health | 16.320 | 0.000 | 16.320 |
| HC.nsk | HC Expenditure not specified by kind | 6.420 | 0.000 | 6.420 |
| HC.R.1-5 | Health Related Functions | | | |
| HC.R.1 | Capital Formation for health care provider institutions | 0.345 | 0.000 | 0.345 |
| HC.R.2 | Education and Training of Health Personnel | 0.849 | 0.000 | 0.849 |
| HC.R.2A | Teaching Institutes | 12.061 | 0.018 | 12.079 |
| HC.R.2B | Teaching Institutions non-allopathy | 0.579 | 0.014 | 0.593 |
| HC.R.3 | Research and Development in Health | 0.443 | 0.000 | 0.443 |
| HC.R.4 | Food Hygiene and Drinking Water Control | 0.262 | 0.000 | 0.262 |
| Total | | 91.370 | 8.630 | 100.000 |

6.1 Health Expenditures in Reforms Period:

If we examine the pattern of expenditure in the reforms period in Maharashtra we can note that marginally (0.17 per cent) the external sources have entered into the health sector of this state. However, the share of central government has declined to 8 per cent which about 21 per cent during 1984-85. The state government is shouldering 91 per cent of the health expenditures. Salaries accounted for about 50 per cent of the total expenditure. One significant improvement during the reforms period was that the shares of inpatient curative care which has gone up to 21 per cent. But this increase has proved to be costly for the ESIS and MCH and family services where considerable ahs occurred. Drugs supply and outpatient curative care again have received very insignificant proportion of resources. Health expenditure not specified by kind accounted for about 20 per cent of the resources. Salaries and health expenditure not specified by kind together accounted for about 70 per cent of the total resources, which means that there was very little available for other inputs in the delivery of health services. The following table shows the share of expenditures on health in Maharashtra during 1998-99.

Table-6
Health Expenditures in Maharashtra-1998-99

| IHC Code | Functional Category | Percentage to Total | | | Total |
|-----------------|---|---------------------|---------|-------------------|---------|
| | | State | Central | Rest of the World | |
| HC.1 | Services of Curative Care | | | | |
| HC.1.1 | Inpatient Curative Care | 21.262 | 0.000 | 0.000 | 21.262 |
| HC.1.1A | Inpatient Curative Care which also includes outpatients-non allopathy | 0.368 | 0.000 | 0.000 | 0.368 |
| HC.1.1B | Mental Hospitals | 1.946 | 0.000 | 0.000 | 1.946 |
| HC.1.3.4 | All Other Outpatient Curative Care | 0.123 | 0.000 | 0.000 | 0.123 |
| HC.1.3A | Outpatient Curative Care (including IPC) | 0.276 | 0.000 | 0.000 | 0.276 |
| HC.4 | Ancillary Services to Medical Care | | | | |
| HC.4.1 | Clinical Laboratory | 1.309 | 0.032 | 0.000 | 1.341 |
| HC.4.9 | All Other Miscellaneous Ancillary Services | 0.525 | 0.000 | 0.000 | 0.525 |
| HC.4.9A | Blood Bank and Other Allied Services | 0.000 | 0.006 | 0.000 | 0.006 |
| HC.5 | Medical Goods Dispensed to Outpatients | | | | |
| HC.5.1 | Pharmaceuticals and other medical non-durables | 0.744 | 0.000 | 0.000 | 0.744 |
| HC.6 | Prevention and Public Health Services | | | | |
| HC.6.1 | Maternal and Child Health; family planning and counseling | 3.833 | 0.636 | 0.000 | 4.469 |
| HC.6.2 | School Health Services | 0.173 | 0.000 | 0.000 | 0.173 |
| HC.6.3 | Prevention of Communicable Disease | 8.492 | 3.921 | 0.000 | 12.413 |
| HC.6.4 | Prevention of Non-communicable Disease | 1.705 | 0.151 | 0.163 | 2.020 |
| HC.6.9 | All Other Miscellaneous Public Health Services | 0.543 | 0.000 | 0.000 | 0.543 |
| HC.7 | Health Administration and Health Insurance | | | | |
| HC.7A | ESIS | 6.955 | 0.000 | 0.000 | 6.955 |
| HC.7.1.1A | General Government Administration of Health | 8.752 | 0.000 | 0.000 | 8.752 |
| HC.nsk | HC expenditure not specified by kind | 20.724 | 3.920 | 0.011 | 24.656 |
| HC.R.1-5 | Health Related Functions | | | | |
| HC.R.1 | Capital Formation for Health Care Provider Institutions | 0.017 | 0.000 | 0.000 | 0.017 |
| HC.R.2 | Education and Training of Health Personnel | 0.753 | 0.000 | 0.000 | 0.753 |
| HC.R.2A | Teaching Institutes | 11.702 | 0.002 | 0.000 | 11.704 |
| HC.R.2B | Teaching Institutions non-allopathy | 0.485 | 0.000 | 0.000 | 0.485 |
| HC.R.3 | Research and Development in Health | 0.120 | 0.000 | 0.000 | 0.120 |
| HC.R.4 | Food, Hygiene and Drinking Water Control | 0.350 | 0.000 | 0.000 | 0.350 |
| Total | | 91.157 | 8.669 | 0.174 | 100.000 |

7. Health Expenditures in Orissa: Pre reforms Period

In a less developed state of Orissa the role of the external funds in the provision of health care services can be observed for the period prior to the reforms as well. The expenditure shares of different budgetary classifications show that for the year 1984-85 the external funds accounted for about 12 per cent of the total and state government spent about 86 per cent while the central government's role was very limited. The external funds seem to be concentrating on a less developed state, because we don't observe such proportion of external resources either in Maharashtra or Karnataka. Out of the total resources spent salaries were to the extent of 58 per cent. MCH and family planning services consumed 28 per cent of the resources. Prevention of communicable diseases also got reasonably good share, which was to the extent of 15 per cent. Capital formation for health care provider institutions got nearly 4 per cent of the resources primarily because of flow of external funds into the state. Curative care, both inpatients and outpatients got about 13 per cent of the resources. However the drugs supply was again neglected in this state also, but at the same time supply of medico-technical devices got about 6 per cent of the resources. Teaching institutions in medicine got 5 per cent of the total funds. The following table gives this picture for the year 1984-85.

Table-7
Health Expenditures in Orissa-1984-85

| IHC Code | Functional Category | Percentage to Total | | | |
|-----------------|---|---------------------|--------------|---------------|----------------|
| | | State | Central | ROW | Total |
| HC.1 | Services of Curative Care | | | | |
| HC.1.1 | Inpatient Curative Care | 6.912 | 0.000 | 1.010 | 7.922 |
| HC.1.1A | Inpatient Curative Care which also includes outpatients non-allopathy | 1.694 | 0.000 | 0.000 | 1.694 |
| HC.1.3A | Outpatient Curative Care (including IPC) | 6.089 | 0.000 | 0.000 | 6.089 |
| HC.4 | Ancillary Services to Medical Care | | | | |
| HC.4.1 | Clinical Laboratory | 1.412 | 0.000 | 0.000 | 1.412 |
| HC.4.9 | All Other Miscellaneous Ancillary Services | 1.051 | 0.000 | 0.000 | 1.051 |
| HC.5 | Medical Goods Dispensed to Outpatients | | | | |
| HC.5.1 | Pharmaceuticals and Other Medical non-durables | 0.155 | 0.000 | 0.000 | 0.155 |
| HC.5.2.4 | Medico-technical device, including wheel chairs | 6.648 | 0.000 | 0.000 | 6.648 |
| HC.6 | Prevention and Public Health Services | | | | |
| HC.6.1 | Maternal and Child Health; family planning and counseling | 27.299 | 0.000 | 1.123 | 28.422 |
| HC.6.2 | School Health Services | 0.123 | 0.000 | 0.000 | 0.123 |
| HC.6.3 | Prevention of Communicable Disease | 15.312 | 0.000 | 0.000 | 15.312 |
| HC.6.4 | Prevention of Non-communicable Disease | 2.232 | 0.000 | 0.000 | 2.232 |
| HC.6.9 | All Other Miscellaneous Public Health Services | 7.938 | 0.000 | 0.000 | 7.938 |
| HC.7 | Health Administration and Health Insurance | | | | |
| HC.7.1.1A | General Government Administration of Health (Salaries, DA, etc.) | 1.456 | 0.000 | 0.000 | 1.456 |
| HC.nsk | HC expenditure not specified by kind | 0.128 | 0.962 | 6.443 | 7.532 |
| HC.R.1-5 | Health Related Functions | | | | |
| HC.R.1(UK) | Capital formation for health care provider institutions | 0.000 | 0.000 | 3.750 | 3.750 |
| HC.R.2 | Education and Training of Health Personnel | 2.050 | 0.000 | 0.603 | 2.653 |
| HC.R.2A | Teaching Institutes | 5.403 | 0.000 | 0.000 | 5.403 |
| HC.R.2B | Teaching Institutions non-allopathy | 0.203 | 0.000 | 0.000 | 0.203 |
| HC.R.3 | Research and Development in health | 0.005 | 0.000 | 0.000 | 0.005 |
| Total | | 86.109 | 0.962 | 12.929 | 100.000 |

7.1 Beginning of the Reforms Period:

If we look to the pattern of expenditure for the year 1990-91, the salary expenditure accounted for 50 per cent of the total expenditure. The shares of the external funds remained similar as was in 1984-85. However the share of the state government declined by about 5 per cent, which was compensated by a similar increase in the funds, provided by the central government. The break up of other functional classifications reveals that, MCH and family planning services stood first among others with a share of 25 per cent. Next to follow was the curative care with about 17 per cent share followed by prevention of communicable diseases, which accounted for 11 per cent of the resources. We can also note that the capital formation has been getting about 6 per cent of the resources, which have originated from the external sources. The following gives share of different expenditures in the state for the year 1990-91.

Table-8
Health Expenditures in Maharashtra-1990-91

| IHC Code | Functional Category | Percentage to Total | | | |
|-----------------|---|---------------------|--------------|---------------|----------------|
| | | State | Central | ROW | Total |
| HC.1 | Services of Curative Care | | | | |
| HC.1.1 | Inpatient Curative Care | 8.326 | 0.000 | 0.000 | 8.326 |
| HC.1.3A | Outpatient Curative Care (including IPC) | 9.165 | 0.000 | 0.000 | 9.165 |
| HC.1.3B | Outpatient Curative Care non-allopathy | 0.597 | 0.000 | 0.000 | 0.597 |
| HC.4 | Ancillary Services to Medical Care | | | | |
| HC.4.1 | Clinical Laboratory | 2.702 | 0.000 | 0.000 | 2.702 |
| HC.4.9 | All Other Miscellaneous Ancillary Services | 4.328 | 0.000 | 0.000 | 4.328 |
| HC.5 | Medical Goods Dispensed to Outpatients | | | | |
| HC.5.1 | Pharmaceuticals and Other Medical Non-durables | 0.299 | 0.000 | 0.000 | 0.299 |
| HC.5.2.4 | Medico-technical device, including wheelchairs | 6.872 | 0.000 | 0.000 | 6.872 |
| HC.6 | Prevention and Public Health Services | | | | |
| HC.6.1 | Maternal and Child Health; family planning and counselling | 25.483 | 0.000 | 0.120 | 25.602 |
| HC.6.3 | Prevention of Communicable Disease | 11.464 | 5.307 | 0.000 | 16.770 |
| HC.6.4 | Prevention of Non-communicable Disease | 2.709 | 0.000 | 0.000 | 2.709 |
| HC.6.9 | All Other Miscellaneous Public Health Services | 0.402 | 0.000 | 0.000 | 0.402 |
| HC.7 | Health Administration and Health Insurance | | | | |
| HC.7.1.1A | General Government Administration of Health (Salaries, DA, etc) | 1.247 | 0.000 | 0.326 | 1.573 |
| HC.nsk | HC expenditure not specified by kind | 0.630 | 0.131 | 6.904 | 7.664 |
| HC.R.1-5 | Health Related Functions | | | | |
| HC.R.1(UK) | Capital formation for health care provider institutions | 0.000 | 0.000 | 6.055 | 6.055 |
| HC.R.2 | Education and Training of Health Personnel | 1.561 | 0.000 | 0.258 | 1.819 |
| HC.R.2A | Teaching Institutes | 5.025 | 0.000 | 0.000 | 5.025 |
| HC.R.2B | Teaching Institutions non-allopathy | 0.086 | 0.000 | 0.000 | 0.086 |
| HC.R.3 | Research and Development in Health | 0.005 | 0.000 | 0.000 | 0.005 |
| Total | | 80.900 | 5.438 | 13.662 | 100.000 |

Few Observations:

The functional classification of expenditure attempted as part of the present study reveal the following as far as the health expenditures in the states of Maharashtra, Karnataka and Orissa are concerned.

In the state of Karnataka, prior to the reforms period, the shares of resource transfers to the districts were very less in proportion to other expenditures. However in the reforms period, share of such transfers has gone up to 40 per cent, which only indicates the importance attached to the process of decentralization in the state. Major chunk of the expenditures go to the salaries and other allowances and to the office expenses. Real needs of the health sector like prevention of communicable diseases, supply of vital medical and other non medical inputs, blood banks services, training of the personnel, Inpatient and outpatient curative care do not get greater share of resources.

In Maharashtra, we can note that the expenditure on salaries were around 50 per cent of the total expenditure on health. In the pre reforms scenario, the services related to MCH & FWP and outpatient curative care got considerable share in the total resources. However, in the reforms period MCH & ESIS received lesser proportions as compared to the pre reforms expenditure. This may probably indicates that needy segments of the population did not receive the same amount of resources as they received prior to the reforms period. The major and very crucial expenditure needs of the health sector like inpatient and supply of drugs and other non drug inputs to the health care institutions, preventive care and training of personnel have received very little resources.

In the state of Orissa, we notice that external funds are flowing into the state on a larger scale than in Maharashtra and Karnataka. In the reforms period, the states' share has marginally declined in provision of health services, which has been compensated by the increased expenditure by the central government. It seems that a less developed state like Orissa is spending larger proportion of resources on MCH & FWP, prevention of diseases and curative care which is not the case in either Maharashtra or Karnataka.

To sum up, one can say that salaries accounted for greater share of resources in all the three states. Though this is justified on the basis of the fact that greater manpower is required for the delivery of health services, the expenditure on salaries need to be effectively supported by greater expenditure on other inputs of the health sector. Only when such a balance is maintained, we can hope to get greater mileage out of the health sector spending.

End Note:

Health care functional categories as noted below have adapted from the WHO manual (WHO 2003) to suit the Indian budgetary line items.

HC 1.1.A

HC 1.1.B

HC 1.3A

HC 1.3B

HC4.9A

HC 7.1.1A

HC 7.1.1B

HC R 2.B

**Explanatory Note on Classification of Expenditures
ICHC - Health Function Category**

HC.1 Services of Curative Care

HC.1.1

Hospitals

HC.1.1A

In-patient Curative Care which also includes Outpatient Curative Care (OPC)

Taluk Hospitals

Up gradation of Hospitals

Ayurvedic and Unani Hospitals

Increasing Bed Strength of Hospitals

Strengthening of PHCs and PHUs

HC.1.1B

Mental Hospitals

HC.1.3A

Out-patient Curative Care -Non Allopathy

Out-patients Curative care (including IPC)

Out -patient Curative Care including IPC –CSS

State Plan

HC.1.3B

Out-patient Curative Care -Non Allopathy

HC.1.3.3

Special Hospitals

HC.1.3.4

All other out patients curative care

Dispensaries

Clinics

Mobile Health Units

Rural Medical Practitioners

Sub-Centres

PHCs

Health Care facilities in tribal groups

HC. 4. Ancillary Services to Medical Care

HC.4.1

Laboratories

Post Partum

HC.4.2

X-Ray Films

HC.4.9

Printing and Publication
Services and Supplies
Fuel and Oil Expenses
Repairs of Motor Vehicle
Maintenance
Transport
Repairs

HC.4.9A

Blood Bank and allied services
Drugs and Chemicals
Other Public Health Services

HC.5 Medical Goods Dispensed**HC.5.1**

Drugs and Chemicals

HC.5.2.1

Chemical and Glassware

HC.5.2.2

Orthopedic Appliances

HC.5.2.4

Equipments and Apparatus

HC.5.2.9

Materials and Supplies

HC. 6 Prevention and Public Health Services**HC.6.1**

Compensation
Incentives
FWP
Mother and Child Health

HC.6.2

School Health

HC.6.3

Vaccine
Communicable Disease Control
Immunization

HC.6.4

Non Communicable Disease Control

HC.6.9

Other Public Health Services
Financial Assistance to Prof. Organizations- NGO's
All other Miscellaneous Public health Services (Yoga)
Janata Health Funds
Public Health
Village Health Guide Scheme

HC. 7.**Health Administration and Health Insurance****HC.7A**

Employees State Insurance Scheme (ESIS)

HC.7.1.

General Government Administration of health (Direction and Administration)

HC.7.1.1

Travel Expense
Office Expenses
Telephone Charges
Electricity and Water Charges
Other Charges
Rents, Rates and Taxes
Establishment of Offices
State Directorates

HC.7.1.1A

Salaries – Officers
Salaries – Staff
Interim Relief
Dearness Allowance
Other Allowances
Lump sum
Stipend
Exgratia

HC.nsk**Not specified by Kind**

Grant-in-aid
Secret Service Expenditure
Grant-in -aid to ZP
Other Expenditure

HC.R. 1-5

Health Related Functions

HC.R.1

Selected Area Programme Buildings
Capitation Grant
Foreign (Building)
Purchase of Vehicles
Buildings
IPP
Acquisition of Land

HC.R.2

Scholarships and Stipend
Fees Concession
Allopathy
Capitation Grant
State Plan
Training
Health Education

HC.R.2A (Allo)

Teaching Hospitals (Medical Colleges)

HC.R.2B

Teaching Hospitals –ISM

HC.R.3

Libraries and Periodicals
Library Charges
Research
Health Statistics & Evaluation

HC.R.4

Diet Expenses
Public Health (Prevention of food adulteration)

HC.R.5

Environmental Health

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C h a p t e r – 7

PRIVATISATION OF HEALTH CARE IN INDIA : A COMPARATIVE ANALYSIS OF ORISSA, KARNATAKA AND MAHARASHTRA STATES.

Rama Vaidyanathan Baru

The mix of private and public health care provision has always been a major topic in health policy debate. The changing trend has invited attention of both the government and academia. The term privatisation refers to the growth of the 'for profit' sector and its inter relationship with the public sector. It also includes the introduction of market principles in the public sector viz. user fees, contracting out and private insurance schemes. While the private sector existed even at the time of independence, it has grown and diversified over the years. The study explores the characteristics, trends and the social basis of private sector growth. This part of the study is based on available studies and data of the Ministry of Health and Family Welfare. The trends in privatization are analyzed in terms of increase in private institutions and beds relative to public provisioning across rural and urban areas and states.

It further explores the manner in which this sector has grown during the nineties after the introduction of Structural Adjustment Programme (SAP). During this period there was not only growth of 'for profit' health care but the public sector was being increasingly restructured with the introduction of market principles. This kind of a trend has been promoted in the context of states facing a fiscal crisis and therefore opting for loans and grants from multilateral and bilateral agencies who have advocated policies for making the public sector generate its own resources. The net effect of such a restructuring process on the utilization patterns for out patient and in patient care across states and income fractiles are analyzed in relation to the structures of provisioning.

The organization of the sections in this paper is as follows :

Section two locates the privatization debate in a global context. Section three examines the phases in the growth of the private sector in India through an analysis of various Committee reports and other relevant studies. Section four examines studies and available data to capture the trends, characteristics and social basis of the private sector at the primary, secondary and tertiary levels of care across the three states namely, Orissa, Karnataka and Maharashtra. The last section examines the utilisation patterns for outpatient and in patient care across rural / urban and the selected states.

2. Globalisation and Health Services: An Overview

The most significant and widespread global trend in health care over the past decade and more has been the increasing share of 'for profit' health care and its marketization across societies. This process in the health care sector has paralleled the process of economic globalization and is intrinsically linked to it.

While private medical practice and the dispensation of medical care for a price have been known for a long time, the commercialisation, corporatisation and marketisation of health care are a phenomenon of the last quarter of the 20th century. The process received a boost during the

late seventies and early eighties due to global recession, which enveloped both developed and developing countries, imposing a fiscal constraint on government budgets and encouraging them to cut back on public expenditure in the social sectors. This increased the space for the growth of the private sector in provisioning of health care, which was accelerated during the eighties and nineties with the growth of the pharmaceutical and medical equipment industries and their seeking out markets for their products.

In this process of globalization multinational corporations have systematically targeted them for policy influence, defining priorities for disease control programmes, provisioning of health care, and medical research at the national level. Typically these MNCs have influenced national policies in key areas as provisioning and research in health care through multilateral agencies like the World Bank, World Health Organisation and the World Trade Organisation. They have influenced development funding in the social sectors, securing focus for programmes with a higher curative content. Rather than focus on public health and preventive programmes they have encouraged funding of curative and drug-based programmes. Through the WHO they have not only pursued this strategy but have also sought to promote policy awareness in areas where the pharmaceutical industry has greater interests. Once again preventive programmes and public health have taken a back seat. Through the WTO the policy framework for intellectual property protection aimed at protecting pharmaceutical company bottomlines and helping them generate super profits have been put in place. Such policy interventionism has ensured the funding of specific programmes, the creation of a market for drugs and equipment and the freeing of state controls on the market. During the nineties, the WHO has increasingly gone in for partnerships with industry especially for the tropical disease research programmes. (Brundtland:2000)

The increased influence of global drug multinationals in the nineties has been facilitated by the recent trend towards mergers and the increased concentration of selling power within the pharmaceutical industry. As a result of these mergers a few corporations account for the bulk of pharmaceutical sales in the world. Many of these companies export drugs, vaccines and biological instruments to developed and developing countries. The major pharmaceutical, equipment and insurance related multinational companies are based in the United States. During the nineties they have expanded their markets across several developing and developed countries. This process has also been accompanied by the increased importance given to the growth of 'for-profit' healthcare.

2.1 : International Experience with Marketization of Health Care

The trend towards marketisation of healthcare cuts across the developed and developing countries. While the United States has been a leader of the 'market model', the phenomenon is spreading even to "socialist" societies. Market forces have largely controlled financing, provisioning and research in the healthcare sector in the U.S. Financing has been largely managed through insurance companies, provisioning by large hospital corporations and research by pharmaceutical and medical equipment companies. The government's role has been minimal which includes providing public insurance to the elderly and poor, regulatory guidelines for the private sector and giving subsidies for private medical care. (Brown, 1984). The marketised model of American medical care came under severe criticism during the Eighties which essentially focussed on the rising costs of medical care, excessive emphasis on curative and high technology care, the dominance of the medical technology and pharmaceutical industries in medical care. The critics further argued that these trends marginalised sections of the middle and working classes from access to health care which was corroborated by the increase in both the uninsured and under insured persons during the eighties and the nineties. The uninsured consumers of health services were largely drawn from the working class and even some sections

of the middle class. (Carrasquillo et al:1999) Given the high cost of medical care the uninsured were effectively denied access to health care. However, efforts to introduce universal public insurance and other progressive reforms were resisted both by the pharmaceutical companies and the for-profit healthcare providers.

Despite the problems faced by the US health care system, most countries have been moving towards the American model of care where the private sector plays a dominant role. This undoubtedly is a consequence of globalization and the influence of the U.S. experience on other countries, an influence which has been partly communicated through the media and public perceptions of what is acceptable, and partly imposed by multilateral lending agencies like the World Bank. These agencies have strongly advocated privatisation measures in health care as part of the structural adjustment programmes. This position was well articulated in the World Development Report 1998, that was entitled, 'Investing in Health'.(Rao:1999)

Countries in Europe, Africa, Latin America and Asia that had built state supported health services during the sixties and seventies, have now encouraged privatisation both as a response to the fiscal crisis of the public sector and to fulfill conditionalities linked to multilateral lending programmes (Jara & Bossert:1995). The erstwhile Soviet Union and several central and eastern European countries have gone through a process of marketisation and the subsequent weakening and in some cases even dismantling of state services. Similarly, China has also been marketising its health services and is encouraging MNCs to enter the health care market. Studies show that increasing marketisation of health care has pushed up cost of medical care and has contributed to increased inequality in access to services across regions and classes in China. (Acharya et al:2001)

Similar trends are visible in UK, several West European countries and in East Asia. In UK, several American hospital and insurance companies have entered the market during the eighties. During the same period efforts were made to restructure the National Health Service in order to reduce government spending. Several other countries in Africa and Asia have followed similar paths, with reduction in government spending on health care and an increased push for privatization. This has meant shifting of responsibility to individual households to pay for care (Price:1989). The consequences of marketization have been well documented for Latin America and Africa as in the case of some Asian countries. These studies show that access to care has reduced for the poor, costs of drugs are high and the private sector serves only those who can pay.

2.2 : Consequences of Marketization: Some Global Trends

What have been some of the consequences of marketisation in terms of cost, equity and universal access? Available data from both developed and developing countries show that marketisation has had serious consequences for equity. It has resulted in those who are poor being denied access or often getting poor quality of care. In many third world countries, paying for care has meant indebtedness for the household. During the decade of the eighties, in the US, the percentage of uninsured had risen by 30 percent and during the nineties the number of uninsured rose by 15.6 %. In 1998 approximately 44 million young persons were uninsured in the US and these included ethnic minorities, poor, elderly and women.(Carrasquillo et al:1999) Lack of insurance meant that these people could not access preventive services and treatment for chronic illnesses was also beyond their reach. As a result, very often they had to delay seeking medical care and hospitalization. If this is the situation in an affluent country then it is bound to be much worse in poorer countries where a larger proportion of the population are poor. The nature of privatization has varied across countries in terms of the extent and nature of private sector growth.

Across the world the process of privatization share some common features specially due to the influence of the pharmaceutical and technology industries coupled with the policies of multilateral organizations. However the extent and nature of privatization varies across countries which is influenced by the specific socio-political context.

3. Private Health Services in India : An Overview

In the following section we attempt to trace the evolution of the private sector and explore its characteristics for India and the specific states under study. It is well known that the private sector in health care in India is represented by plurality in terms of systems of medicine and the forms of practice. Even before independence the single largest category of providers consisted of private practitioners across allopathic, ayurveda, unani, siddha and homeopathy. (Baru: 1994) The private sector in all these systems are dominated by individual practitioners and the growth of nursing homes and hospitals was largely confined to allopathic system of medicine from the seventies. Other indigenous systems of medicine did not witness a similar kind of growth at the secondary and tertiary level health care. Clearly the growth of the private secondary and tertiary levels of care were confined largely to urban areas and rural areas where there was agrarian prosperity. The relationship between economic development and growth of private services is obvious and this has been empirically shown in a study of a comparison of poorer and richer districts in Andhra Pradesh (Baru:1994). This study empirically showed that the number of private institutions at the secondary level of care was skewed in favour of the developed districts as compared to the poorer ones. This kind of a trend has been observed across other states as well.

The three states under study represent varying levels of development, private medical care and public health services. Maharashtra represents a developed state, Karnataka, a middle level and Orissa a poorly developed state. Given these variations, one would like to examine the growth of the public sector and the private sector in these three states. Given the paucity of data on the private sector we are relying on published sources to discern the broad trends for essentially secondary and tertiary levels of care. The data on primary level care is not available but we have made use of published and unpublished studies that give us some insight into the numbers and characteristics of the providers in the private sector at this level. Utilisation of services for both out patient and in patient care is examined in the context of the structures of provisioning. This analysis will be done to study the variations across selected states, across income groups and also the vulnerable social groups, namely, the schedule caste and schedule tribes. Since NSS data is available for the mid eighties and the nineties, it is possible to study if there has been any shift in utilization patterns. All these three states have opted to go for reforming health systems project as a part of the World Bank financed project, which is part of 'soft loans' that several states have opted for.

If one examines the trends in death and infant mortality rates (IMR) for these three states one finds that the latter reflects the levels of development. In 1995, Maharashtra, which falls in the category of well-developed state, has an infant mortality of 55 per 1000 live births, followed by Karnataka with 62 and Orissa with 103. Interestingly the rural-urban differential is not very much in the infant mortality rates. It is also important to note that both Maharashtra and Karnataka have IMR lower than the All India average while Orissa is significantly above it. (Table 1). The death rates show a similar trend with both Maharashtra and Karnataka having Crude death rates of 7.4 and 7.6 per 1000 population, respectively while Orissa has 11.2. While Maharashtra and Karnataka have death rates below the All India average, Orissa's rates are higher than the All India average. (Table 2). Thus one can see that the overall socio-economic development seems to show variation in health status indicators as well as the provision of health services. The objectives of this section, specifically are:

1. To examine the trends in health services development in the private sectors relative to the public sector in terms of bed strength at the primary, secondary and tertiary levels.
2. To examine the utilisation patterns for outpatient and inpatient care in these states – across income and social groups.

In order to address the first objective relevant data on macro picture put forth by the Central Bureau of Health Intelligence (CBHI) and other available studies on the private sector are made use. For the second objective the 42nd and 52nd Rounds of the NSS and the latest NFHS data are utilized. This analysis is possible for poorer socio-economic groups.

3.1 : Evolution of Health Services in India from the Forties to the late Nineties

Health services development in India can broadly be divided into three phases. The first phase of development was the post independence period which upto the seventies witnessed growth of health services in the public sector. Investments in the health sector were meagre but there was an effort to build a network of services in both rural and urban areas. This phase was followed by the period from the late seventies to the late eighties when there were cutbacks on public spending and concessions given to private sector, and during the third phase India went in for loans from the IMF and World Bank. This was the period when several state governments received loans for reforming the publicly provided health services.

Like many of the newly liberated countries during the 20th century, the leadership of the Indian nationalist movement had committed itself to principles of universality and a nationalized health service system to ensure that all sections of the population get access to services. The vision at that point in time was to build self-reliance in the economy and social sectors and hence in health care the emphasis was on the development of institutions, manpower, research, pharmaceuticals and technology.

A number of actors have played an important role in shaping the health service system in India. The nationalist movement and its commitment to democratic politics played a very important role in ensuring that the needs of the majority were represented (Bhargava:2000). These various actors included the political parties, big business groups, professional bodies and other civil society bodies. It is indeed interesting to note that the different sections of the political spectrum had clearly articulated the need for a state supported health service system. These sections included the national bourgeoisie, the left parties and the Indian National Congress. Each of them had articulated their respective positions through well-articulated plan documents.

Given the poor health of majority of Indians the thrust was to invest in preventive and curative care along with improving the overall living conditions of the population. The Bhole Committee report was an attempt at designing a health service system based on the needs of the majority who belonged to the deprived sections of the population. As the Bhole Committee observed, majority of the Indian population was suffering from malnutrition and anaemias. The major killers were a host of communicable diseases or commonly referred to as diseases of the poor. Therefore, the political leadership had to take cognisance of the extent of the problem and realised that it had to be tackled only through state investment since the market was restricted to individual private practitioners-both allopathic and other systems of medicine. Whether it was provisioning, or education private capital was limited and therefore even the representatives of big business relied on the state investing in education and health.

Within the health services, the professional organisations supported state investment but did not want it to interfere with their autonomy to continue private practice. It is indeed

interesting that while the 'left' parties called for the abolishment of private interests within the medical and pharmaceutical sectors, the professional bodies wanted the doctors to be allowed to continue their private practice. The Bhore committee accommodated the interests of the professional bodies by not taking measures to eliminate private interests both within and outside the public health service system. Thus even at the time of independence a substantial percentage of government doctors were practicing in the private sector as individual practitioners but the number of institutions was very small. Private interests were also present in the pharmaceutical industry during this period (Jesani and Anantharam:1993; Baru:1998).

A survey of the health status of the population during the late forties revealed that death rates, infant mortality and maternal mortality rates were very high and the major causes of death were a host of communicable diseases. Keeping in view the poor health conditions of the majority, the report emphasized the need for strong primary health care services supported by secondary and tertiary levels of care. They had estimated that around 12 percent of the GNP would need to be invested in the health sector in order to provide health services across the country. In addition it also recommended the need to invest in the pharmaceutical sector in order to develop indigenous capabilities and reduce excessive reliance on the multinational corporations. The Bhore Committee in 1946 symbolized the effort of the Indian State to plan and deliver health services, which would be accessible to all its citizens. The real growth period for health services was during the sixties but even at that time the investments were far from adequate. Thus the vision of the Bhore committee suffered a setback during the sixties with inadequate levels of investment which resulted in a weakly developed primary health services with most of the investment going into the secondary and tertiary levels of care (Banerji:1985 ; Qadeer: 1985).

In terms of structure, the Bhore committee had envisioned a three-tier with a strong primary health service network as a base and supported by secondary and tertiary levels of care. In order to build an extensive network of services the committee had suggested fairly high levels of investment of up to 12% of GDP. Despite the rhetoric of primary health care the structure of provisioning was largely curative, biased towards urban areas and in the secondary and tertiary levels of care. The structures of provisioning largely reflected the needs and aspirations of the middle classes from both urban and rural areas.

As in the other social sectors, in health too the low levels of investments resulted in incremental planning rather than an integrated one. Very often these meagre resources built infrastructure that reflected the middle and upper classes while the needs of the majority were largely neglected. Several scholars have often criticized this and some have even questioned whether India can be characterised as having a 'welfare state' at all (Jayal: 1999). Despite the incremental nature of health service planning, India did manage to build a fairly extensive network of services, created indigenous capacity for training personnel for various levels of care, and invested in research and pharmaceutical capability. However, the low levels of investments in health services affected the growth of the public sector and this was an important reason for the expansion of the private sector during the seventies and eighties.

Given the nature of democratic politics wherein the interests of different sections were being accommodated, it was the needs and aspirations of the urban and rural middle classes that was reflected in the growth of health services in India. The services were largely urban and curative based with emphasis on technological solutions to a number of health problems. This matched the interests of the professionals who were also largely drawn from the upper and middle classes. Once again there was ideological pressure from opposition parties and civil society, which questioned the directions of health service development. Interestingly this kind of questioning occurred only during those phases of Indian politics when there was a progressive

political regime, which expressed concern about inequalities and conditions of the poor and vulnerable sections of the population. This resulted in the setting up of committees that called for re-orientation of health services to rural areas and also investing in preventive care. Apart from progressive regimes there were socio-economic changes occurring in the agrarian sector in several parts of the country which resulted in the rise of the rich and middle peasant classes. These classes started putting pressure on the state to invest more in infrastructure inputs, education and health care. The growing demands from the middle and rich peasant classes in rural areas resulted in some investments being diverted to rural areas (Kamat :1985; Nambissan,G. & Batra, P:1989). These pressures had a marginal impact for service provisioning in rural areas since the state did not increase investments substantially. As a result, the rural-urban inequalities in service provisioning remained largely unaltered through the seventies.

The seventies were marked by a number of debates concerning the problems of health services development and suggestions for change within the country. Some of them were seriously reviewed by national bodies and they were extremely critical but also offered alternatives to remedy some of the problems (ICSSR/ICMR Committee report: 1981). The reviews discussed the underfunding of the health sector and the structural inequalities within it. The critiques emphasised the need for reorienting health services to rural areas and also to make medical education more relevant to the needs of rural areas. However, the oil shock of the late seventies had a negative impact on the financial condition and India along with several other developing countries found themselves caught in the world recession. Due to the financial crunch most third world governments during the eighties were in no position to increase investments in health. Inadequate investments in health services meant a stagnation in the growth of public services, and this was an important reason for the growth of market forces in the health sector (Baru:1998).

The growth of the private sector and the gradual neglect of the public sector have to be seen in terms of the changes in the social structure after independence in the rural/urban areas and across regions in India. The growth of the middle classes after independence was not merely restricted to urban areas. With agrarian prosperity as a result of the green revolution, there was a rise in the rich and middle peasantry who were largely drawn from the backward castes. This was mainly seen in some northern, western and southern states in the country (Kamat: 1985). These sections had made use of public investment in education as a vehicle for social mobility in order to challenge traditional social hierarchies. As a result, these upwardly mobile sections invested heavily in the education of their children for social mobility and from some of the more prosperous areas of the country they immigrated to the UK and USA as qualified professionals during the late sixties and seventies (Baru:1998; Omvedt:1981 ; Khadria:1999). Thus a globalised middle class of professionals, who had both urban and rural roots, was beginning to emerge. The aspirations of these classes were clearly at a divergence from the large section of the poor. Typically the 'new middle class' found the public system inadequate to meet their needs and in those states where there was a vibrant private sector they started moving out of the public sector. This is seen in the case of health service utilisation during the mid eighties wherein the urban and rural middle income groups utilised private health services depending on their ability to pay. Here it is important to underscore that there are regional variations and this kind of a trend is seen in the richer states as compared to the poorer ones (Baru:1998). The moving out of upper and middle sections of the population from public provisioning had serious consequences for financing, provisioning and quality of services. These sections really provide the constituency for support of health sector reforms and support the neo liberal position that public services are for the poor and those who can afford to pay should use private services. With the middle class giving up ownership of the public sector there is a further weakening of the state's commitment towards public provisioning.

The growth of the private sector has been largely a phenomenon of the late seventies and eighties as was seen in the rest of the developed and developing world. In India even prior to independence, the proportion of individual private practitioners was as much as 73 percent and the remaining 27 percent were employed in government service (Bhore Committee: 1946; pp.42-43). The committee recognised that private practice by government doctors would go against the principles of equity but did not address how the large proportion of private practitioners would affect the public health services (Baru:1998). Infact there was no real debate about either nationalising or defining a role for the private practitioners as was the case in some Latin American countries (Jara & Bossert: 1995). The growth of individual practitioners at the primary level of care continued through the sixties but at this point in time there was little growth of private institutions at the secondary level care.

In his analysis of privatisation in health care, McKinlay has observed that for any substantive analysis there needs to be recognition of the role played by large finance capital in the health sector. Large finance capital was largely confined to the pharmaceutical, medical equipment and insurance industries and these operated globally (McKinlay: 1980). The impact of these industries was very visible in the Indian case during the late eighties and nineties when there was a sharp increase in the import of medical equipments. The real peak was seen during the mid to late nineties with the government offering reduced import duties for medical equipment (Baru:1998). Apart from imports, many multinational equipment companies like Siemens, Philips, Becaton and Dickinson and General Electric started setting up assembling plants in the central and southern parts of India. As an executive of Phillips international remarked "The health care business is a \$3000 billion industry worldwide. If even we attract 1 percent of the market in India, the potential for the medical equipment industry is tremendous" (Baru: 1998).

India with its fairly significant middle class provides a good market for these multinationals. Computer software industries tie up with the medical sector and American insurance companies looking for tie-ups will further consolidate the position of global capital in the private health sector. This would definitely redefine and alter the spaces for the states to plan their health services. These trends are not restricted to the private sector but with the restructuring of the public hospitals under the health sector reforms the interests of some of these industries especially the medical equipment industry would grow.

4. Structure and Characteristics of Private Health Care Providers in India

The Indian private sector is characterized by a heterogeneous structure consisting of institutions of varying sizes and patterns of ownership (Bhat: 1993; Baru:1998). Bulk of the private sector still consists of individual practitioners, both qualified and unqualified, who essentially provide primary level, out patient care and are located in both rural and urban areas. These practitioners provide primary level curative services of extremely variable quality across urban and rural areas in the country (Jesani:1993, Yesudian:1994; Baru:1998).

The secondary level of care in the private sector are provided by nursing homes with a bed strength ranging from 5-50 and are promoted by single owners or partners.(Jesani:1993; Bhat: 1993; Yesudian: 1994;Baru:1998). While in most states they are largely an urban phenomenon, in other states, where private sector growth (relative to public sector) is high, they have spread to even peri urban and rural areas. Studies conducted in Hyderabad and Chennai reveal that most of these nursing homes offer general and maternity services and are managed by doctor entrepreneurs (Baru:1998; Muraleedharan:1999). Within this category there is a further division between small and large nursing homes, which differ widely in terms of investments, equipment and facilities, range of services offered and quality of care. Most of these promoters are qualified doctors who have located these enterprises in urban and semi urban areas. The

tertiary level care consists of multi specialty hospitals that are promoted by partners or as private limited or public limited enterprises. These are mostly located in the larger cities and have a strong Non Resident Indian connection with doctors based in the United States. (Baru:1998)

Private sector institutions providing tertiary care constitute roughly 1-2 per cent of the total number of medical care institutions and bed strength. This figure is arrived at through available studies in some of the metropolitan centres where the tertiary sector is present. They are mainly the large hospital run by trusts; private or public limited enterprises.(2) The private and public limited hospitals are only an urban phenomenon and have been the largest beneficiaries of subsidies given by the government in terms of land and loans.

4.1 Characteristics of Primary Level Care Private Providers

Available studies on private sector in India suggest that a considerable section of the population in both rural and urban areas and across states, access the services of individual private practitioners for primary level care (Sunder,R: 1992; Krishnan:1994). Micro-level studies from Delhi, Hyderabad and rural Uttar Pradesh show that people from different sections of the population, both rural and urban areas, use these practitioners as a first resort for acute conditions but also use government facilities (Nanda and Baru: 1994;Vishwanthan and Rhode:1994). These utilisation studies show that the private practitioners are resorted to for a variety of minor illnesses for curative care. These studies also show that there is much heterogeneity among providers in terms of qualifications, systems of medicine, and practices. They include herbalists, indigenous and folk practitioners, compounders and others (Vishwanathan and Rhode: 1994; Uplekar: ; Baru:1998). These practitioners being easily available and accessible locally, are utilised extensively. Studies conducted in urban slums and rural areas from Uttar Pradesh, West Bengal. Orissa. Kerala, Tamilnadu and Maharashtra indicate that the middle and better off sections in these communities use services both qualified and unqualified private practitioners. The really poor are unable to afford the doctor's charges and hence, either opt for the government hospitals or often go without care (Bisht: 1993; Soman: 1992; Vijaya: 1997; Kakade: 1998).

Chemist shops and pharmaceutical representatives influence the prescribing patterns of both qualified and unqualified practitioners. In addition, the former also dispense medicines for a variety of ailments and act as providers of primary level care. Studies by Phadke and Greenhalgh in Maharashtra have amply demonstrated the nexus between the marketing network of the pharmaceutical industry and prescribing patterns of doctors, both qualified and unqualified (Greenhalgh: 1986; Phadke: 1998; Shah: 1997). Phadke's study on the supply and use of pharmaceuticals in Satara district of Maharashtra shows that a high proportion of prescriptions of both government and private doctors is irrational and often very costly. The influence of pharmaceutical representatives is significant and they are the single most important source of continuing medical education of doctors (Phadke et al:1995). Samantaray while examining the utilisation of health services in Kandhamal district of Orissa shows that women utilise the services of the pharmacist in both rural and urban areas without consulting health professionals (Samantaray: 2000).

Given the poor knowledge base of these practitioners it is not surprising that their treatment of even common ailments are often irrational, ineffective, and sometimes harmful. Studies that have looked into provider behaviour with respect to specific diseases like tuberculosis and diarrhoea in Maharashtra, Delhi slums and Tamilnadu support the findings from elsewhere (Uplekar: 1991; Bhandari: 1994; Balambal et al:1997).

4.2 Characteristics of Private Providers at the Secondary and Tertiary Levels Care

A few studies on the secondary level of care show that it consists of institutions that provide both outpatient and in-patient with 5 to over 100 beds. These studies provide insight into the heterogeneity of these institutions in terms of scale of operation, services offered, technology employed, and the social background of patients using these facilities (Bhat:1993, Jesani: 1993; Nanda and Baru:1994, Baru:1998; Muraleedharan:1999). They have further shown that these institutions are largely promoted by single owners or partners, who are mostly doctors. Typically these institutions are located in towns and cities but in some states like Andhra Pradesh, Maharashtra, Gujarat and parts of Karnataka and Tamilnadu they have spread to peri urban and rural areas, specially in those areas which are economically well developed. Given the variability in the size and characteristics of the institutions at this level of care there is much plurality in type, quality and costs of services provided by such institutions.

Nandraj and others have explored the variability in the physical infrastructure , qualifications of personnel and their practices at the secondary level of care in Mumbai. The studies from Delhi, Chennai and Hyderabad show similar trends and this lack of some basic and uniform standards for service provisioning has implications for the quality of care provided (Baru:1998; Muraleedharan:1999). It is important to point out here that there is a dearth of studies looking at the quality of the private sector in some detail.

The tertiary level forms only 1-2 percent of the total private sector and is located in the large cities. Typically these are promoted as trusts, public or private limited enterprises and most of these are located in the southern cities of Chennai, Bangalore and Hyderabad. These hospitals have a strong NRI link and provide a range of super specialist care.

4.3 Regional Variations in the Growth of Private Health Care

The growth of the private sector is related to the level of economic and infrastructural development. As mentioned in the earlier section, the primary level care consisting of private practitioners is widespread in both rural/urban areas and across states. However when it comes to secondary and tertiary levels of care there is a distinct variation across states. A study across developed and backward districts in Andhra Pradesh demonstrated this amply. The private sector bed strength was much higher in the better-developed districts when compared to the backward ones (Jessani:1993;Baru:1994). This kind of a pattern is seen across states as well. There is a paucity of data on individual practitioners since the only source of information available is based on the registration data from the various medical councils. This data is limited because not all practitioners are registered with these councils and there is also a great deal of cross practice across systems of medicine (Baru:1994; Duggal: 2001). Duggal estimates that the number of practitioners is around 12 lakhs in the country and are concentrated in states like Maharashtra, Gujarat and the southern states. The allopathic doctors constitute about 45 percent of total registered practitioners and are located mostly in urban areas, whereas non allopathic are mostly located in the smaller towns and rural areas (Duggal:2001).

At the secondary level of care which consists of nursing homes, the economically developed states like Maharashtra, Punjab, Tamilnadu and Gujarat have a higher proportion of beds in the private sector when compared to the public sector (Table 3). That are relatively poorer states such as Orissa, Madhya Pradesh, Uttar Pradesh and Rajasthan have low private sector growth. The growth of corporate hospitals is largely a phenomenon in those states, which have agrarian prosperity and also have strong NRI links. For the three states under study the trends are clear; Maharashtra is the high private sector growth state, Karnataka falls in the middle range and Orissa is a poor state with very little private sector growth. The trend in growth of

private beds relative to public from the seventies to the nineties indicates that in Karnataka there has been a doubling of private beds over the twenty year period, for Maharashtra the private beds have increased four and a half times during the same period. While for Orissa there has been no growth and infact shows a negative growth of private beds during this period (Table:3).

A survey done by the Karnataka government in 1996 on non government facilities shows that there are a large number of institutions in this sector at the secondary and tertiary levels of care. It showed that 89 percent of these institutions were general hospitals with bed strength of 36,042, followed by those that provided only maternal and child health services (10.04 %) and the remaining provided specialist services like ophthalmology and oncology (Govt. of Karnataka:2000, pp.29-30). In terms of ownership 83.38 percent of these institutions were promoted by individuals, 7.49 percent were partnerships, 3.98 percent were charitable trusts 2.46 percent were registered societies, 1.58 % were religious missions and 1.11 % were limited companies. Nearly 52% of the total beds were in the category of institutions promoted by individuals.

This data does not provide us information on the distribution of these institutions within Karnataka but the general pattern is that they are mostly located in urban and peri urban areas. Karnataka does have a sizeable private sector but there is no system for registration hence there is an incomplete picture of the private sector. In recent years there has been an increase in the number of nursing homes and corporate hospitals especially in urban areas (Govt. of Karnataka: 2000). In terms of accessibility of services there is considerable regional variations in both the private and public sectors. North Karnataka has poor infrastructure in terms of roads, communications and transport facilities while southern Karnataka has better infrastructural facilities which has an impact on accessibility and utilisation.

In Maharashtra a few studies have focussed on the public sector and the regional variations in terms of its distribution. More developed regions of Marathwada and Konkan have better facilities and access as compared to poorer region of Vidarbha (Budhkar:1996). Budhkar observes that there has been a strong tradition of local bodies in the provisioning of health services in Maharashtra. During the late seventies those regions that experienced agrarian prosperity viz. Marathwada and parts of Konkan, also witnessed a spurt in the growth of the private sector at the secondary level of care. She also shows that dispensaries and small nursing homes, which are skewed in favour of urban areas, dominate the private sector. This kind of a trend was observed in a study of distribution of NGOs in Maharashtra where there was a greater concentration in the better developed districts than the poorer ones (Jessani: 1986).

When it comes to Orissa there are no studies available on the growth of private sector. However studies that have looked at the health care services show that the public services are skewed towards urban areas and the private sector's contribution is not more than 10 percent of the government beds. Therefore there is very little interface between the public and private sectors. An analysis of bed strength in the private sector in relation to the public sector shows that the presence of the private sector in Orissa is very low (As shown in Table4) (Padhi,S. & Mishra,S.:2000).

4.4 ; Micro Studies on the Private Sector: Maharashtra, Karnataka and Orissa

A survey of available literature on the private sector in these three states reveals that there is a paucity of both published and unpublished studies in this area (CEHAT, IIT & JNU: 2001). Maximum number of studies have been done in Maharashtra, followed by Karnataka and lastly, Orissa. For Maharashtra most of the studies have been conducted in Bombay and focus on the utilisation of the private sector, the private practitioners and their practices.

A few studies have looked at the practices of private practitioner, both allopathic and non-allopathic, with respect to communicable diseases like malaria, tuberculosis and leprosy (Uplekar and Shepherd: 1991; Uplekar and Rangan:1996). Study of private practitioners in Bombay with respect to the treatment of tuberculosis showed that both allopathic and non-allopathic doctors were treating this disease. A survey of these practitioners revealed that there was a lack of awareness among them about the standard regimen for treatment of tuberculosis. These practitioners were found using expensive regimens and providing incomplete treatment as well (Uplekar and Shepherd:1991). A similar study tried to examine the knowledge, attitude, practice and beliefs about leprosy. It showed that while these practitioners had knowledge about the disease their attitudes were infact very negative towards the patient suffering from the disease. This kind of an attitude is bound to affect patient care.

A study conducted in the rural and urban areas of Pune district showed that people who had developed symptoms of tuberculosis generally went to a private clinic. These private practitioners tend to use X rays as a diagnostic tool rather than the technique of sputum examination. It has been well known that the latter is not only cheaper but also effective for the diagnosis of tuberculosis. People from both rural and urban areas preferred the private practitioners because they had to wait for less time and that the clinic timings were more convenient. The study also showed that the cost of treatment was much higher in the private sector as compared to the public sector. As a result about a third of the patients who were treated in the private sector had incurred debts in order to bear the expenses of the treatment. Rural patients had spent almost double the amount of money for treatment as compared to their urban counterparts. For the case of malaria, private practitioners were the first levels of resort, as a study from the urban slums of Bombay reveals. This study showed that these practitioners use a number of irrational formulations for treating malaria and infact had little or no interaction with the public health care system (Kamat:2001).

As far as Karnataka is concerned the review shows that there are very few studies on the private sector. An advocacy group based in Bangalore has looked into the utilisation of government, private and charitable hospitals by households earning less than Rs 3500 per month. This study revealed that the costs for medical treatment were high in the case of private hospitals when compared to the government or charitable hospitals (Balakrishnan & Iyer:1997).

5. Utilisation of Private Health Services

The structure of provisioning of health services will largely determine the patterns of utilisation and the expenditures incurred at the household level. Based on an analysis of the 42nd and 52nd Rounds of the NSS, the household survey conducted by the National Council of Applied Economic Research (NCAER) and the National Family Health Survey, trends in health services utilisation in the three states have been analysed. The analysis has been disaggregated for out patient and in patient care, states; rural/urban and income levels depending on the availability of the data for such analysis.

5.1 : Utilisation of Health Care for Out patient Services

Analysis of the 42nd round of the NSS data, pertaining to 1985-86 period shows that in both rural and urban areas at the all India level more than 50 percent of out patient services were provided by private doctors. In rural areas only 18 percent of the cases requiring out patient care sought treatment in a public hospitals, 5 percent at a primary health centre and a mere 3 percent in public dispensaries. In urban areas the proportion of those who used public hospitals was higher than in rural areas. In Maharashtra 49.94 percent used private doctors and 23 percent used private hospitals for out patient care in urban areas. Only 19 percent of the households had used

public hospitals and the remaining had used a public dispensary or primary health centres. In rural areas 51 percent of the households had resorted to private doctors and 19.5 percent to a private hospitals. Only 14 percent had used public hospitals, 10.4 percent primary health centres and mere one- percent the public dispensaries for treatment.

In Karnataka 43 percent of outpatients had used the private doctors and 22 percent a private hospitals for out patient care in urban areas. Moreover, 27 percent had used public hospitals and mere 1.71 and 1.23 percent used primary health centres and public dispensaries respectively.

In rural areas 41.5 percent had used private doctors and 18.5 percent private hospitals. 25 percent of the households had used public hospitals, 8.5 percent primary health centres and a mere 1.2 percent public dispensaries.

Orissa shows a different trend from Karnataka and Maharashtra. In urban areas 38.7 percent used private doctors and a mere 4 percent private hospitals. Nearly 42 percent of the households had used public hospitals while only 1 percent had used a PHC and 3.5 percent the public dispensaries for treatment. In rural areas 31 percent used the private doctors and there was no reported utilisation of private hospitals at all. 34 percent of the population used the public hospitals, nearly 12 percent the PHC and 6 percent the public dispensaries (Tables 5 &6).

The 52nd round of the NSS data pertaining to 1995-96 period shows that there has been an increase in the utilisation of private sources for in patient and out patient care across rural and urban areas. At the all India level, 64 percent of rural and 72 percent of urban outpatient care was sought through the private sector. In Maharashtra 73 percent in rural and 77 percent in urban areas had resorted to the private sector. In Karnataka 51 percent in rural and 74 percent in urban areas resorted to the private sector for care. In Orissa 31 percent in rural and 53 percent in urban areas had resorted to the private sector for out patient care (Duggal:2001).

The NCAER survey of 1993 shows that around 55 percent of the households had sought outpatient care with private doctors in rural areas while around 64 percent had gone to private sources in urban areas. In Maharashtra around 53 percent are using private sources in rural and around 66 percent are using the same in urban areas. In Karnataka around 40 percent are using private sources in rural and around 50 percent are using the same in urban areas. In Orissa around 17 percent are using private sources in rural and 55 percent are using the same in urban areas (Sundar,R. :1995).

Analysis of the NFHS of 1993 has provided information on utilization of maternal health services and also for certain diseases suffered by children. This data has been analysed for schedule castes, schedule tribes and other groups separately. The data has also been analysed across major states. For antenatal care which comes under out patient consultations, at the all India level for the SC and ST categories, 42 per cent and 28 per cent, respectively received antenatal care from trained personnel, while only 14 per cent and 18.5 per cent received care from trained personnel. It is important to note that 42.2 % of SC and 52.3 % of ST households did not receive ante natal care at all. The states of Maharashtra, Karnataka and Orissa presented a picture of variations. In Maharashtra 10.3% of SC households, 29.6 % of ST households and a 11.1% belonging to 'others' received antenatal care from health personnel at their homes ; 65.5 % of SCs, 44.4 % of STs and 44.5% of 'others' received antenatal care from trained personnel. In Karnataka, 24.7% of SCs, 20.5% of STs and 17.5% of others received antenatal care at home. While 56.8% of SCs, 58.1% STs and 66.4% of 'others' received antenatal care from trained personnel. In Orissa, 30.6% of SCs, 30 % of STs and 18.9% of 'others' received antenatal care from a health worker at home. While 35.3% of SCs, 22 % of STs and 44.5% of 'others' used the

services of trained personnel for antenatal care. There is clearly a variation in utilisation of services across these three states. In all three states the percentage of households receiving care at home from a trained personnel is low and in general the access to these services by STs is lower than the SCs. Across the three states the levels of utilisation for antenatal care is extremely poor (Ram et al:1998;Table.9).

In the case of children suffering from fever a fairly high proportion of households go to a nearby provider or health facility. At the all India level 66.7% of SCs, 55% of STs and 68.2% of 'others' used the facility nearby. Across states the proportion of utilisation is high. It is found that in Karnataka, 72.3 % of SCs, 84% of STs and 76.7% of 'others' used the nearby health facility. In Maharashtra 60 % of SCs, 68% of STs and 77.5% of 'others' used the providers and in Orissa 51.7% of 'SCs, 41.6% of STs and 57.4% of 'others' used the provider for treating their children. This data suggests that people from all the three categories use the services ; But there is variation across states. While the percentage utilising the services is fairly high for all the three categories in Maharashtra and Karnataka it is quite low in the case of Orissa (Table 11).

5.2 : Utilisation of In-patient Services

When it comes to in-patient services the picture is somewhat different. An analysis of the 42nd round of the NSS data at the All India level reveals that only around 36 percent of the hospitalisations were in private hospitals in urban and around 35 percent in rural areas. In Maharashtra around 48 percent of the households had used a private hospital in urban areas while in rural areas the figure was around 54 percent. In Karnataka around 50 percent in urban areas and around 38 percent in rural areas had used private sources for treatment. In Orissa, around 15 percent in urban and 7 percent in rural areas had been treated in a private hospital (Tables 7&8).

The 52nd round of the NSS data shows that at the all India level 54.7 percent of households in rural and 56.9 percent urban areas had utilised private hospitals for their hospitalization. There has definitely been an increase in the proportion of persons utilising the private sector between the 42nd and 52nd Rounds of the NSS, which is roughly over a decade.

In Maharashtra 68.8 percent in rural areas and 68.2 in urban areas had utilised private sources . In Karnataka 54.2 percent in rural and 70.2 in urban areas had utilised private sources. In Orissa 9.4 percent in rural and 19 percent in urban areas had utilised private sources. Apart from the inter state differences in utilisation of the private sector there is also a difference between the poorest and richest quintiles. An analysis of the 52nd round of the NSS shows an interesting picture that at the All India level 39 % of the poorest quintile were using the private sector for hospitalisation while 77 % of the richest quintile were utilising the private sector. Among the three states, the poorest in Orissa relied mostly on the public sector than either Karnataka or Maharashtra states. In many states the middle and lower middle sections have started using the private sector while the poor still continue to rely on the public hospitals. Therefore there is a clear indication that the utilisation of the private sector increases as the income gradient increases. As far as the vulnerable sections viz. schedule castes and tribes are concerned, utilisation by schedule tribes is very low in both the public and private sectors while in the case of schedule castes it is marginally higher and the dependence is greater on the public than the private sector.

The NCAER survey on utilisation of inpatient care shows that 38 percent in rural and 40 percent in urban areas resort to private sources at the all India level. In Maharashtra 69.5 percent in rural and 41.2 percent in urban areas resort to private sources. In Karnataka 38.9 percent in rural and 42.2 percent in urban areas resort to private sources. In Orissa a mere 1.9 percent in rural and 31.3 in urban areas resort to private source (Sundar,R:1995).

While there is some variability between the findings from NSS and NCAER surveys they both show the variation in utilisation patterns across the three states. It also broadly reflects the structures of provisioning in terms of private and public sectors in these three states. Maharashtra has a higher proportion of private beds, followed by Karnataka and lastly Orissa, which is being clearly reflected in the utilization patterns as well. The important issue to be underscored is that in all three states there is dependence on the public sector especially for in patient care but the degree of dependence however varies across these states.

The NFHS also provides data on the proportion of deliveries taking place in institutions. Invariably, they are quite low among the vulnerable sections. At the All India level 10.9 per cent of the SCs used public hospitals while a mere 5.1% used the private hospital. Among the STs 6.7% used public hospitals and 2.4% private hospitals. Among the category of 'others' 16.3% used the public sector while 12.9 % used the private sector. Non institutional or home deliveries formed a high proportion with 82.7%, 89.6% and 69.9% of SCs, STs and 'others' respectively (Table.10). The proportion of Schedule castes accessing private facilities was only 4.4 % while for STs it was 4.5% in Karnataka. In Orissa a mere 0.7% of SCs and 1.3% of STs were using private facilities. However in Maharashtra 16.6% of SCs and 6.1% of STs were using the private facilities for deliveries. The proportion of home deliveries is high in Orissa with 86.1% for SCs and 92.4% for STs and 80.6% for others. In Karnataka 77.8% of SCs, 73.2% of STs and 58.2% of others had deliveries at home. In Maharashtra 55.2% of SCs, 82.2% and 51.7% of others had home deliveries (Table 10).

5.3 ; Trends in Immunisation

The 52nd Round of the NSS data contains information on the immunization status of children aged 0-4 years for polio, DPT, BCG and measles vaccine. Analysis of this data shows that at the All India level that there are rural-urban differences in immunisation coverage. The coverage of doses is higher for urban as compared to rural areas and the immunisation status is positively associated with the socio-economic status measured by per capita expenditure. Immunisation rates were somewhat higher among non-SC/ST children as compared to SC/ST children (Mahal et al:2001). The data reveals that there are regional variations across states of children who received immunisations. Kerala, Karnataka, Maharashtra, Andhra Pradesh , Tamilnadu, Punjab, Haryana received high average doses per child compared to the All India doses. Even Orissa, which is a poor state, had the average number of doses higher than the All India figure. The analysis also revealed that the government is the major provider of immunisation services and it is higher for urban compared to rural areas. Across states the analysis shows that the share of private sector immunization increases with the socio-economic status at the All India level in urban areas. The only two states where the private sector plays a higher role in immunization services are Kerala and Maharashtra (Mahal et al:2001).

5.4 : Expenditure Incurred on Private Sector in Relation to Public Sector

Three important messages emerge from the two NSS surveys. First, the average medical expenditure per ailment episode is higher for both in patient and out patient care in the private sector. Second, the expenditure in the private sector is higher for urban compared to rural areas. Third, there is also an increase in expenditure on medical care between the 42nd and 52nd rounds, which have a gap of a decade between them, for both the public and private sectors. The NCAER's survey also shows that the average expenditure is higher for the private compared to the public sectors for both rural and urban areas. Krishnan has analysed the 42nd round of the NSS data for expenditure on medical care across states. He shows that the average total expenditure for hospitalisation is higher than the all India mean in nine out of 15 states and these

include rural Delhi, Punjab, Haryana, Uttar Pradesh and Bihar. The same trend holds true for the urban sector (Krishnan:1999). A few household level studies have shown that around 7-9% of household consumption expenditure is spent on health care, of which 85% is spent in the private sector. The 52nd round of the NSS data shows that per capita out-of-pocket expenditure per year on private facilities ranges from over Rs 500 among the richest, to Rs. 75 among the poorest (Mahal et al: 2000).

Analysis of the 52nd round of the NSS data shows that the expenditure on both inpatient and out patient care has increased between 1986 and 1996. Between 1986 and 1996 costs of medical care in both the public and private sectors have risen sharply. The costs in the public sector rose by 549 % in rural areas and 470% in urban areas while for the private sector it rose by 486% in rural and 343% for urban areas. The major reason for the rise in costs of medical care in the public sector has been the increased prices of drugs. This rise in costs of medical care is bound to affect accessibility and utilisation of health services, which would result in those requiring care but not getting it. This would also explain why the rates of untreated illnesses are very high among the poorer groups and when they do seek care they have to borrow to pay for care (Iyer & Sen: 2000). The 52nd round estimates that 45 % of the country's poor had to borrow money or sell their assets to meet increasing cost of medical care.

6. Conclusion

This study has explored the evolution of the private sector and its characteristics for India and also across states, more specifically in Maharashtra, Karnataka and Orissa. The three states under study represent varying levels of socio-economic development and this is reflected in the health outcomes as well as the growth of the private sector. In terms of health outcomes, Maharashtra has lower infant mortality rates as compared to either Karnataka and Orissa. The available data clearly shows that Orissa has the poorest health indicators among these three states. The private sector is a heterogeneous structure consisting of a substantial number of individual practitioners who have either formally or informally trained. They are distributed across rural and urban areas and offer primary level curative care. The secondary level of care consists of institutions which deliver both in patient and out patient care. There is great variability in the size of operations at this level and it is mostly an urban and peri-urban phenomenon. The tertiary level of care is an urban phenomenon and cities like Delhi, Hyderabad, Mumbai, Chennai, Bangalore have a substantial presence of these hospitals.

In terms of provisioning, Maharashtra has both a strong public and private presence, followed by Karnataka and then Orissa. These structures of provisioning then get reflected in the patterns of utilisation. In general available data suggest that the utilisation of private services is higher in Maharashtra and Karnataka when compared to Orissa and this holds for the vulnerable groups as well.

The patterns in private utilization of health services has been quite different for out patient and in patient care. Across all the three states there is a greater dependency on the private practitioners for out patient care. However, when it comes to hospitalisation there is variation in utilisation patterns across the three states. This variation needs to be explained with respect to the structures of provisioning. The states that have experienced higher private sector growth are the ones which are economically better off. There is a higher utilisation of the private sector for hospitalisation in Maharashtra and Karnataka. In these states it is the upper and middle income groups that use these services whereas in Orissa the percentage of those using the private sector among the middle and upper middle sections is very low (Krishnan:1994).

The NSS, NCAER and NFHS data show that there are variations in the patterns of utilisation of the private sector across states, income groups and vulnerable social groups. The 52nd Round of the NSS data has shown a tremendous increase in the costs of medical care in both the public and private sectors. For out patient care all the three states have shown an increased use of the private sector. Of the three states, urban Orissa has shown the highest increase from 42.4% in the mid eighties to 53% in the mid nineties (Table 12). For Inpatient care there has been a bigger increase in urban compared to rural areas. Maharashtra and Karnataka show similar trends in increased use of private sectors whereas Orissa shows only a small increase.(Table: 13). This kind of a trend needs to be analysed in the context of increase in the growth of private services but also in terms of what has been happening in the public sector is analyzed further. The issues concerning rising costs in the public sector, the quality of care provided and increase in the costs of drugs have acted as push factors for utilising the private sector. What is indeed worrying is that the levels of utilisation among the schedule tribes across states has shown very low levels of utilisation. This would mean that those who need care are not seeking care because they cannot afford it and therefore may not be seeking care when they need it the most (Iyer & Sen: 2001). In a sense while the middle and upper middle classes can choose to use either the public or private sectors, the poor may not be in a position to access either of them because of rising costs of medical care. Where the public sector is weak this will clearly affect utilization by the poorer sections of the population. Clearly there are important questions regarding equity in this context. At the state level this calls for a rational use of available resources and also for a policy that will strengthen public provisioning and regulating the private sector. In addition, other mechanisms like public insurance schemes could be given a serious thought to address some of these inequities and its consequences.

Footnotes

1. This was articulated by Bruntland in her inaugural address to the WHO where she welcomed the partnership between the pharmaceutical companies and the WHO for its disease control programmes.
2. Based on empirical studies of the secondary and tertiary levels of care in Hyderabad it was found that only 1 % of them were corporately managed (Baru:1998). Similarly in Chennai, only 1.2% were corporately managed (Muraleedharan:1999).

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TABLE – 3 GROWTH OF PRIVATE & VOLUNTARY HOSPITALS AND BEDS IN MAJOR STATES

| SL. NO. | STATE | 1973 | | | 1983 | | 1985 | | 1987 | | 1989 | 1991 | | 1993 | | 1996 | |
|---------|----------------|------|--------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|------|---------|-------|--------|
| 1 | Andhra Pradesh | 113 | 9,213 | 266 | 11,103 | 266 | 11,103 | 266 | 11,103 | 266 | 11,103 | 841 | 19,784 | N.A. | 26,791 | 2802 | 42192 |
| 2 | Bihar | N.A. | N.A. | 125 | 8,447 | 125 | 8,447 | 90 | 8,519 | 55 | 5,536 | 55 | 5,536 | N.A. | 8,519 | 90 | 8519 |
| 3 | Gujarat | 41 | 1,219 | 669 | 16,929 | 733 | 16,339 | 1,211 | 21,128 | 1,319 | 25,093 | 1,319 | 25,093 | N.A. | 83,487 | - | - |
| 4 | Haryana | 17 | 1,877 | 18 | 2,566 | 18 | 2,566 | 17 | 2,558 | 20 | 2,772 | 20 | 2,232 | N.A. | 2,232 | 20 | 2232 |
| 5 | Karnataka | 38 | 5,106 | 53 | 6,894 | 44 | 6,702 | 51 | 7,339 | 51 | 7,339 | 51 | 7,339 | N.A. | 9,999 | 56 | 9999 |
| 6 | Kerala | N.A. | N.A. | 606 | 18,203 | 606 | 18,203 | 173 | 14,309 | 1,899 | 44,321 | 1,899 | 49,169 | N.A. | 49,169 | 1899 | 49169 |
| 7 | Madhya Pradesh | 8 | 1,601 | N.A. | N.A. | N.A. | N.A. | 0 | 0 |
| 8 | Maharashtra | 68 | 8,300 | 682 | 26,024 | 945 | 32,033 | 1,121 | 35,296 | 1,319 | 35,849 | 1,319 | 37,781 | N.A. | 37,758 | 2583 | 37758 |
| 9 | Orissa | 35 | 1,741 | 34 | 1,408 | 31 | 1,227 | 31 | 1,227 | 29 | 1,306 | 29 | 1,301 | N.A. | 1,306 | 14 | 201 |
| 10 | Punjab | 20 | 2,070 | 35 | 2,913 | 35 | 2,913 | 43 | 3,466 | 39 | 3,781 | 39 | 3,782 | N.A. | 3,782 | 39 | 3782 |
| 11 | Tamil Nadu | 69 | 9,618 | 61 | 8,562 | 61 | 8,562 | 73 | 9,505 | 119 | 10,366 | 119 | 10,366 | N.A. | 10,366 | 119 | 10366 |
| 12 | Uttar Pradesh | 151 | 19,897 | 160 | 12,083 | 159 | 12,026 | 159 | 12,026 | 159 | 12,026 | 159 | 12,026 | N.A. | 12,026 | 159 | 12026 |
| 13 | West Bengal | 78 | 8,452 | 126 | 6,424 | 126 | 6,610 | 126 | 6,463 | 129 | 6,511 | 129 | 6,912 | N.A. | 6,912 | 134 | 6759 |
| 14 | All-India | 718 | 66,926 | 3,022 | 134,266 | 3,549 | 139,442 | 3,549 | 144,009 | 6,522 | 177,034 | 6,522 | 180,386 | N.A. | 210,987 | 10289 | 228155 |

Source : Government of India, Ministry of Health & Family Welfare Health Information of India, Central Bureau of Health Intelligence, New Delhi : Government of India, Various Years.

TABLE – 4 GROWTH OF PRIVATE BEDS RELATIVE TO PUBLIC BEDS IN MAJOR STATES

| Sl.No. | State | 1973 | | 1983 | | 1993 | | 1996 | |
|--------|----------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|
| | | Public Beds | Private Beds |
| 1 | Andhra Pradesh | 19,356 | 9,213 | 22,722 | 11,103 | 22,776 | 26,761 | 3640 | 42192 |
| 2 | Bihar | 11,722 | N.A. | 14,078 | 8,447 | 20,522 | 8,519 | 20522 | 8519 |
| 3 | Gujarat | 10,150 | 1,219 | 11,502 | 16,929 | 20,708 | 33,487 | - | - |
| 4 | Haryana | 3,767 | 1,877 | 4,744 | 2,566 | 4,796 | 3,232 | 4948 | 2232 |
| 5 | Karnataka | 18,485 | 5,106 | 21,267 | 7,779 | 27,216 | 9,999 | 27736 | 9999 |
| 6 | Kerala | 19,623 | N.A. | 24,875 | 18,203 | 28,030 | 49,169 | 28030 | 46169 |
| 7 | Madhya Pradesh | 12,551 | 1,601 | 16,827 | N.A. | 25,310 | N.A. | 18141 | 0 |
| 8 | Maharashtra | 23,653 | 8,300 | 37,790 | 26,024 | 34,261 | 37,758 | 34261 | 37758 |
| 9 | Orissa | 7,235 | 1,741 | 9,988 | 1,408 | 13,077 | 1,306 | 14572 | 201 |
| 10 | Punjab | 5,918 | 2,070 | 11,316 | 2,913 | 10,786 | 3,782 | 10936 | 3782 |
| 11 | Tamil Nadu | 13,287 | 9,618 | 31,574 | 8,562 | 37,935 | 10,366 | 37935 | 10366 |
| 12 | Uttar Pradesh | 23,326 | 10,897 | 33,125 | 12,083 | 34,267 | 12,026 | 34267 | 12026 |
| 13 | West Bengal | 25,106 | 8,452 | 42,319 | 6,424 | 47,252 | 6,912 | 47825 | 6759 |
| 14 | All-India | 230,161 | 66,926 | 329,245 | 134,266 | 365,696 | 210,987 | 375987 | 228155 |

Source : Government of India, Ministry of Health & Family Welfare Health Information of India, Central Bureau of Health Intelligence, New Delhi : Government of India, Various Years.

TABLE - 5 Distribution of Out-Patient Treatment Over Sources of Treatment for States/U.T. –Urban

| S.No. | States/UTs | Type of Hospitals | | | | | | | | | |
|-------|-------------------|------------------------|-----------------------|---------------|------------------|--------------|---------------------|------------|----------------|-------|-----|
| | | Public Hospital Centre | Primary Health Centre | Public Dispen | Private Hospital | Nursing Home | Charitable Hospital | ESI Doctor | Private Doctor | Other | All |
| 1 | Andhra Pradesh | 18.42 | 0.66 | 1.43 | 41 | 3.23 | 1.05 | 1.45 | 26.62 | 6.1 | 100 |
| 2 | Assam | 26.03 | 2.09 | 1.48 | 6.58 | 0.81 | 0.03 | - | 51.07 | 11.97 | 100 |
| 3 | Bihar | 15.62 | 1.2 | 0.81 | 20.95 | 0.66 | 0.18 | 0.37 | 56.45 | 3.76 | 100 |
| 4 | Gujarat | 14 | 0.45 | 1.41 | 39.28 | - | 1.05 | 2.7 | 38.13 | 2.98 | 100 |
| 5 | Haryana | 11.3 | 2.18 | 3.52 | 6.12 | 2.05 | 0.31 | 4.69 | 68.6 | 1.23 | 100 |
| 6 | Himachal Pradesh | 40.77 | 4.69 | 2.25 | 2.07 | - | - | - | 50.22 | - | 100 |
| 7 | Jammu & Kashmir | 40.39 | 4.3 | 2.35 | 0.81 | - | 2.86 | 0.38 | 44.84 | 4.07 | 100 |
| 8 | Karnataka | 27 | 1.71 | 1.23 | 22.07 | 1.01 | 0.24 | 1.36 | 43.19 | 2.09 | 100 |
| 9 | Kerala | 32.83 | 2.43 | 0.43 | 40.21 | 0.66 | 0.12 | 0.63 | 19.87 | 2.82 | 100 |
| 10 | Madhya Pradesh | 28.77 | 1.01 | 0.63 | 12.48 | 0.34 | 0.72 | 1.59 | 51.65 | 2.81 | 100 |
| 11 | Maharashtra | 19.39 | 1.66 | 3.1 | 23.01 | 0.3 | 0.92 | 0.87 | 49.94 | 0.81 | 100 |
| 12 | Manipur | 40.1 | 18.16 | 3.18 | 9.83 | - | - | - | 17.8 | 10.93 | 100 |
| 13 | Meghalaya | 23.42 | 0.06 | 1.54 | 6.07 | - | - | 2.75 | 49.23 | 15.95 | 100 |
| 14 | Nagaland | 30.6 | - | - | 1 | - | - | - | 68.25 | - | 100 |
| 15 | Orissa | 41.8 | 1.11 | 3.54 | 4.07 | 0.67 | 1.05 | 1.42 | 38.78 | 7.56 | 100 |
| 16 | Punjab | 8.72 | 0.84 | 0.59 | 9.14 | 0.25 | 0.4 | 0.77 | 79 | 0.29 | 100 |
| 17 | Rajasthan | 51.36 | 3.54 | 2.31 | 12.15 | 0.33 | 0.24 | 0.3 | 24.3 | 5.45 | 100 |
| 18 | Sikkim | 83.3 | 3.9 | - | - | 0.84 | - | - | 11.96 | - | 100 |
| 19 | Tamil Nadu | 29.94 | 1.11 | 1.52 | 17.28 | 3.94 | 0.49 | 2.5 | 40.91 | 2.31 | 100 |
| 20 | Tripura | 17.72 | 6018 | 1.28 | - | - | - | - | 50.9 | 23.92 | 100 |
| 21 | Uttar Pradesh | 13.63 | 0.82 | 1.48 | 6.32 | 0.66 | 1 | 0.27 | 73.93 | 1.92 | 100 |
| 22 | West Bengal | 19.52 | 0.58 | 0.74 | 1.95 | 0.34 | 2.03 | 2.39 | 69.6 | 2.85 | 100 |
| 23 | Chandigarh | 20.9 | - | 3 | 1.59 | - | - | 3.94 | 70 | 0.57 | 100 |
| 24 | Delhi | 32.14 | 0.29 | 6.95 | 7.3 | 1.41 | 0.89 | 3.28 | 45026 | 2.48 | 100 |
| 25 | Goa, Daman & Diu | 42.12 | - | 10.6 | 21.18 | - | - | - | 23.93 | 5.17 | 100 |
| 26 | Mizoram | 63.85 | 3.13 | 5.24 | 7.12 | - | - | - | 14.67 | 5.99 | 100 |
| 27 | Pondicherry | 67.6 | 1.42 | - | 2.16 | - | - | - | 26.52 | 2.3 | 100 |
| 28 | Andaman & Nicobar | 74.81 | 1.41 | 3.96 | 7.23 | - | - | - | 7.4 | 5.19 | 100 |
| 29 | Lakshadweep | 73.01 | 19.78 | - | 3.97 | 2.44 | - | - | 0.8 | - | 100 |
| 30 | All India | 22.6 | 1.19 | 1.75 | 16.18 | 1.15 | 0.81 | 1.61 | 51.83 | 2.88 | 100 |

Note: Percentages may not add up to 100 due to rounding off figures.

Source : Government of India, Central Statistical Organisation, Morbidity and Utilisation of Medical Services, 42nd Round of the National Sample Survey. No. 364 (New Delhi : Government of India, 1989.)

TABLE – 6 Distribution of Out-Patient Treatment Over Sources of Treatment for States/U.T. Rural

| S.No. | States/Uts | Public Hospital Centre | Primary Health Centre | Public Dispen | Private Hospital | Nursing Home | Charitable Hospital | Esi Doctor | Private Doctor | Other | All |
|-------|----------------------|------------------------|-----------------------|---------------|------------------|--------------|---------------------|------------|----------------|-------|-----|
| 1 | Andhra Pradesh | 14.38 | 3.15 | 1.39 | 32.12 | 2.52 | 0.22 | 1.09 | 40.05 | 5.08 | 100 |
| 2 | Assam | 20.01 | 16.24 | 16.76 | 7.21 | 0.01 | - | - | 28.17 | 11.6 | 100 |
| 3 | Bihar | 13.04 | 2.05 | 1.75 | 9.86 | 0.58 | 0.26 | 0.03 | 59.04 | 13.39 | 100 |
| 4 | Gujarat | 25.28 | 4.64 | 2.5 | 20.89 | 0.1 | 2.8 | 0.08 | 40.77 | 2.94 | 100 |
| 5 | Haryana | 11.94 | 3.28 | 1.68 | 8.52 | 0.8 | 0.35 | - | 68.79 | 4.64 | 100 |
| 6 | Himachal Pradesh | 48.7 | 6.23 | 5.74 | 1.84 | 0.7 | - | - | 35.79 | 1 | 100 |
| 7 | Jammu & Kashmir | 37.78 | 5.33 | 15.68 | 0.24 | - | 0.07 | 0.99 | 2.37 | 7.54 | 100 |
| 8 | Karnataka | 25.72 | 8.47 | 1.27 | 18.48 | 1016 | 0.17 | 0.94 | 41.51 | 21.28 | 100 |
| 9 | Kerala | 27.5 | 4.32 | 2.32 | 41.64 | 1.04 | 0.11 | 0.38 | 20.57 | 2.12 | 100 |
| 10 | Madhya Pradesh | 20 | 8.49 | 2.4 | 12.39 | 0.62 | 0.23 | 1.87 | 49.62 | 4.38 | 100 |
| 11 | Maharashtra | 14.03 | 10.42 | 1.44 | 19.54 | 0.16 | 0.78 | 0.43 | 51.04 | 2.16 | 100 |
| 12 | Manipur | 20.61 | 31.08 | 8.53 | 1.91 | - | - | - | 8.5 | 19.37 | 100 |
| 13 | Meghalaya | 10.22 | 24.63 | 8.15 | 0.22 | - | 1.19 | - | 34.54 | 21.07 | 100 |
| 14 | Orissa | 34.01 | 11.93 | 6 | ** | - | 0.51 | 0.71 | 31.39 | 19.35 | 100 |
| 15 | Punjab | 9.72 | 1.3 | 1.52 | 9.53 | 0.06 | 0.22 | 0.23 | 76.58 | 0.84 | 100 |
| 16 | Rajasthan | 38.23 | 6017 | 11.04 | 7.84 | 0.72 | 0.07 | 0.68 | 27.39 | 7.86 | 100 |
| 17 | Sikkim | 72.68 | 7.57 | 2.95 | 2.23 | - | - | - | 14.57 | - | 100 |
| 18 | Tamil Nadu | 30.41 | 4.93 | 0.85 | 20.32 | 3.04 | 1.63 | 0.85 | 33.13 | 4.84 | 100 |
| 19 | Tripura | 19.48 | 10.41 | 7.35 | 1.62 | - | 0.73 | - | 31.72 | 28.69 | 100 |
| 20 | West Bengal | 12.48 | 6 | 0.89 | 0.93 | 0.17 | 0.18 | 0.04 | 74.74 | 4.49 | 100 |
| 21 | Chandigarh | 10.95 | - | - | - | - | - | 10.95 | 78.09 | - | 100 |
| 22 | Dadar & Nagar Haveli | 65.34 | 7.96 | - | 5.65 | - | - | - | 19.06 | 1.99 | 100 |
| 23 | New Delhi | 30.73 | 3.23 | - | 14.69 | - | - | - | 51.35 | - | 100 |
| 24 | Goa, Daman & Diu | 30.8 | 24.72 | - | 15.79 | - | - | - | 28.69 | - | 100 |
| 25 | Mizoram | 24.68 | 42.6 | 18.18 | - | 1.19 | - | - | 0.48 | 12.87 | 100 |
| 26 | Pondicherry | 46.51 | 8.63 | 1.84 | 9.62 | - | - | 1.18 | 32.22 | - | 100 |
| 27 | Andaman & Nicobar | 77.74 | 8.17 | 8.08 | - | - | - | - | 1.57 | 4.44 | 100 |
| 28 | Lakshadweep | 41.23 | 43.39 | - | 15.38 | - | - | - | - | - | 100 |
| 29 | All India | 17.67 | 4.94 | 2.59 | 1.03 | 0.75 | 0.35 | 0.38 | 53.01 | 5.18 | 100 |

Note: Percentages may not add up to 100 due to rounding off figures.

Source : Government of India, Central Statistical Organisation, Morbidity and Utilisation of Medical Services, 42nd Round of the National Sample Survey. No. 364 (New Delhi : Government of India, 1989.)

TABLE – 7 Percentage Distribution of In-Patient Treatment Cases Over Type of Hospital for States/U.T. –Urban

| S.NO. | STATES/UTS | TYPE OF HOSPITAL | | | | | | |
|-------|----------------------|------------------|-----------------------|------------------|--------------------------------------|--------------|--------|-----|
| | | Public Hospital | Primary Health Centre | Private Hospital | Charitable Instt.run by Public Trust | Nursing Home | Others | All |
| 1 | Andhra Pradesh | 37.98 | - | 55.15 | 3.75 | 2.74 | 0.38 | 100 |
| 2 | Assam | 79.88 | 2.45 | 10.14 | 0.11 | 7.42 | - | 100 |
| 3 | Bihar | 44.69 | 1.02 | 32.98 | 1.56 | 12.43 | 7.32 | 100 |
| 4 | Gujarat | 59.21 | - | 34.25 | 3.13 | 0.26 | 0.39 | 100 |
| 5 | Haryana | 55.31 | - | 34.25 | 1.8 | 8.64 | - | 100 |
| 6 | Himachal Pradesh | 77.13 | 3.85 | 19.02 | - | - | - | 100 |
| 7 | Jammu & Kashmir | 93.23 | 2.73 | 3.44 | 0.11 | 0.49 | - | 100 |
| 8 | Karnataka | 48.51 | 0.39 | 40.49 | 1.26 | 9.06 | 0.29 | 100 |
| 9 | Kerala | 54.77 | 0.88 | 41.79 | 0.64 | 1.92 | - | 100 |
| 10 | Madhya Pradesh | 76.01 | 0.97 | 15.24 | 1.98 | 5.01 | 0.79 | 100 |
| 11 | Maharashtra | 45.74 | 0.49 | 47.63 | 3.41 | 1.81 | 0.92 | 100 |
| 12 | Manipur | 91.66 | 1.16 | 1.02 | - | 1.3 | 4.86 | 100 |
| 13 | Meghalaya | 51.68 | 1.74 | 44.29 | 2.29 | - | - | 100 |
| 14 | Orissa | 78.94 | 2.54 | 13.9 | 1.15 | 1.28 | 2.19 | 100 |
| 15 | Punjab | 48.37 | 0.4 | 43.21 | 3.22 | 2.01 | 2.79 | 100 |
| 16 | Rajasthan | 84.98 | 0.64 | 7.92 | 1.24 | 3.05 | 2.17 | 100 |
| 17 | Sikkim | 91.75 | 4.12 | 3.12 | - | 1.01 | - | 100 |
| 18 | Tamil Nadu | 57.74 | 0.3 | 34.14 | 0.41 | 5.61 | 1.8 | 100 |
| 19 | Tripura | 94.4 | 5.6 | - | - | - | - | 100 |
| 20 | Uttar Pradesh | 57.97 | 1.28 | 19.43 | 2.04 | 15.53 | 3.75 | 100 |
| 21 | West Bengal | 72.64 | 1.26 | 10.06 | 2.45 | 13.48 | 0.11 | 100 |
| 22 | Chandigarh | 92.89 | - | 7.11 | - | - | - | 100 |
| 23 | Dadra & Nagar Haveli | - | - | - | - | - | - | 100 |
| 24 | New Delhi | 70.15 | 0.92 | 15.17 | 1.48 | 11.29 | 0.99 | 100 |
| 25 | Goa, Daman & Diu | 61.71 | - | 38.29 | - | - | - | 100 |
| 26 | Mizoram | 91.39 | - | 6.79 | 1.82 | - | - | 100 |
| 27 | Pondicherry | 85.68 | - | 12.9 | - | 1.42 | - | 100 |
| 28 | Andaman & Nicobar | 93.74 | - | .6.26 | - | - | - | 100 |
| 29 | Lakshadweep | 70.29 | 10.78 | 18.93 | - | - | - | 100 |
| 30 | All India | 59.51 | 0.75 | 29.55 | 1.91 | 7.04 | 1.24 | 100 |

Note: Percentages may not add up to 100 due to rounding off figures.

Source : Government of India, Central Statistical Organisation, Morbidity and Utilisation of Medical Services, 42nd Round of the National Sample Survey. No. 364 (New Delhi : Government of India, 1989.)

TABLE – 8 Percentage Distribution of In-Patient Treatment Cases Over Type of Hospital for States/U.T. –Rural

| S.NO. | STATES/UTS | TYPE OF HOSPITAL | | | | | | |
|-------|----------------------|------------------|-----------------------|------------------|--------------------------------------|--------------|--------|-----|
| | | Public Hospital | Primary Health Centre | Private Hospital | Charitable Instt.run by Public Trust | Nursing Home | Others | All |
| 1 | Andhra Pradesh | 28.9 | 1.01 | 65.22 | 1.04 | 3.36 | 0.47 | 100 |
| 2 | Assam | 82.51 | 7.51 | 7.56 | 0.59 | 0.73 | 1.1 | 100 |
| 3 | Bihar | 47.19 | 2.67 | 27 | 0.88 | 13.82 | 8.44 | 100 |
| 4 | Gujarat | 48.66 | 0.3 | 42.8 | 7.31 | 0.62 | 0.31 | 100 |
| 5 | Haryana | 50.96 | - | 31.95 | 3.45 | 11.62 | 2.02 | 100 |
| 6 | Himachal Pradesh | 80.09 | 7.84 | 8.89 | - | 1.2 | 1.98 | 100 |
| 7 | Jammu & Kashmir | 91.17 | 4.98 | 2.6 | 0.88 | - | 0.45 | 100 |
| 8 | Karnataka | 55.31 | 2.71 | 32.94 | 2.59 | 5.62 | 0.91 | 100 |
| 9 | Kerala | 41.02 | 2.36 | 53.4 | 0.26 | 2.96 | - | 100 |
| 10 | Madhya Pradesh | 72.62 | 6.61 | 14.8 | 1.64 | 3.29 | 1.04 | 100 |
| 11 | Maharashtra | 40.67 | 2.9 | 53.38 | 2.18 | 0.11 | 0.76 | 100 |
| 12 | Manipur | 69.07 | 9.66 | 17.72 | 0.19 | 0.19 | 3.17 | 100 |
| 13 | Meghalaya | 80.2 | 2.22 | 17.58 | - | - | - | 100 |
| 14 | Orissa | 80.25 | 7.81 | 6.36 | 2.62 | 0.89 | 2.07 | 100 |
| 15 | Punjab | 45.46 | 2.03 | 47.14 | 1.97 | 1.66 | 1.74 | 100 |
| 16 | Rajasthan | 77.03 | 2.98 | 13.16 | 1 | 3.11 | 2.72 | 100 |
| 17 | Sikkim | 100 | - | - | - | - | - | 100 |
| 18 | Tamil Nadu | 55.53 | 0.62 | 39.11 | 0.97 | 2.71 | 1.06 | 100 |
| 19 | Tripura | 87.89 | 11.76 | - | 0.35 | - | - | 100 |
| 20 | Uttar Pradesh | 52.61 | 2.76 | 27.26 | 3.46 | 10.1 | 3.81 | 100 |
| 21 | West Bengal | 76.77 | 14.85 | 1.43 | 0.66 | 6.05 | 0.24 | 100 |
| 22 | Chandigarh | 91.21 | - | 8379 | - | - | - | 100 |
| 23 | Dadra & Nagar Haveli | 68.34 | 2.15 | 26.24 | - | - | 3.27 | 100 |
| 24 | New Delhi | 81.16 | - | 18.84 | - | - | - | 100 |
| 25 | Goa, Daman & Diu | 82.3 | - | 17.7 | - | - | - | 100 |
| 26 | Mizoram | 65.79 | 33.36 | 0.85 | - | - | - | 100 |
| 27 | Pondicherry | 81.03 | - | 15.56 | - | - | 3.41 | 100 |
| 28 | Andaman & Nicobar | 94.73 | 5.27 | - | - | - | - | 100 |
| 29 | Lakshadweep | 33.04 | 30.01 | 36.95 | - | - | - | 100 |
| 30 | All India | 55.4 | 4.34 | 31.99 | 1.71 | 4.86 | 1.7 | 100 |

Note: Percentages may not add up to 100 due to rounding off figures.

Source : Government of India, Central Statistical Organisation, Morbidity and Utilisation of Medical Services, 42nd Round of the National Sample Survey. No. 364 (New Delhi : Government of India, 1989.)

Table 9
Percentage distribution of women who gave live births during the four years preceeding
the survey by source of antenatal care during pregnancy according to SC & ST
categories,
India and States, 1992-93

| INDIA /STATES | ANC ONLY AT HOME FROM HEALTH WORKER | | | TRAINED PERSONNEL | | | NO ANC | | |
|---------------|--|------|--------|-------------------|------|--------|--------|------|--------|
| | SC | ST | Others | SC | ST | Others | SC | ST | Others |
| India | 14 | 18.5 | 11.9 | 42.4 | 28.3 | 53 | 42.2 | 52.3 | 34 |
| A.P. | 24.1 | 29.8 | 18.3 | 61.9 | 32.4 | 65.9 | 11.5 | 35.5 | 12.2 |
| Assam | NA | 0.8 | 3 | 63.6 | 30.3 | 49.3 | 36.4 | 68.9 | 47.2 |
| Bihar | 13.4 | 6.4 | 9.7 | 21.2 | 14.8 | 28.3 | 63.6 | 78.8 | 60.8 |
| Goa | NA | 7.1 | 1.3 | 87.5 | 88.1 | 94 | 12.5 | 4.8 | 3.8 |
| Gujrat | 19 | 39.4 | 22.6 | 62 | 28.3 | 54.2 | 15 | 31.5 | 22.6 |
| Haryana | 5.6 | NA | 5.2 | 61.5 | NA | 69.4 | 32.8 | NA | 25 |
| H.P. | 2.1 | 3.8 | 1.5 | 70.3 | 54.5 | 76.6 | 27.6 | 41.6 | 21 |
| Jammu | 1.3 | NA | 0.6 | 74.7 | NA | 79.7 | 24 | NA | 18.5 |
| Karnataka | 24.7 | 20.5 | 17.5 | 56.8 | 58.1 | 66.4 | 18.6 | 20.5 | 15.1 |
| Kerala | NA | 2.9 | 0.6 | 96.9 | 82.9 | 97 | 3.1 | 8.6 | 1.7 |
| M.P. | 13.5 | 20.2 | 14 | 41.2 | 19.3 | 44 | 43.4 | 59.2 | 41.1 |
| Maharashtra | 10.3 | 29.6 | 11.1 | 65.5 | 44.4 | 73 | 22.8 | 26.1 | 15.5 |
| Orissa | 30.6 | 30 | 18.9 | 35.3 | 22.2 | 44.5 | 32.2 | 46.1 | 35.5 |
| Punjab | 2 | NA | 1.7 | 85.3 | NA | 86.1 | 12.8 | NA | 11.8 |
| Rajasthan | 4.2 | 14.3 | 7.1 | 17.2 | 16.9 | 27.7 | 76.7 | 68.5 | 63.1 |
| T.N. | 25.9 | | 13.6 | 65.5 | | 81.3 | 8.3 | NA | 4.7 |
| U.P. | 14.9 | 3.9 | 14.4 | 21.9 | 11.4 | 32.4 | 62.9 | 84.6 | 52 |
| W.B. | 6.1 | 6.7 | 6.7 | 60.6 | 61 | 69.6 | 33.3 | 32.3 | 23.1 |

Source : Cited in Ram.F, Pathak K.B. & Annamma K. I, Utilization of Health Care Services by the Under Privileged Section of Population in India : Results from NFHS, IASSI Quaterly, Vol. 16, Nos. 3&4, 1997 PP. 133.

Table 10
Percentage distribution of women who gave live births during the four years
preceeding the survey by source of antenatal care during pregnancy
according to SC & ST categories,

India and States, 1992-93

| INDIA /STATES | HEALTH FACILITY INSTITUTIONS | | | | | | HOME (OWN PARENTS) | | |
|------------------|------------------------------|------|--------|---------|------|--------|---------------------|------|--------|
| | Public | | | Private | | | SC | ST | Others |
| | SC | ST | Others | SC | ST | Others | SC | ST | Others |
| India | 10.9 | 6.7 | 16.3 | 5.1 | 2.4 | 12.9 | 82.7 | 89.6 | 69.9 |
| A.P. | 15.1 | 2.4 | 14.3 | 10.8 | 4.8 | 22 | 72.7 | 90.3 | 54.7 |
| Assam | 9.6 | 5.4 | 8.4 | 3.3 | 1.4 | 3.6 | 84.9 | 93.2 | 87.6 |
| Bihar | 4.1 | 2.5 | 6.4 | 3.3 | 1.4 | 7.1 | 91.5 | 96.1 | 85.6 |
| Goa | 50 | 52.4 | 41 | 15 | 11.9 | 47.5 | 35 | 35.7 | 10.9 |
| Gujarat | 24 | 6.4 | 16.7 | 15 | 6.4 | 23.9 | 61 | 86.3 | 59 |
| Haryana | 4.2 | NA | 11.3 | 3.6 | NA | 9.3 | 91.5 | | 78.9 |
| H.P. | 12.6 | 3.2 | 16.1 | 0.4 | NA | 2.2 | 86 | 90.5 | 80.8 |
| Jammu | 11.7 | NA | 19.5 | 1.8 | NA | 6.6 | 85.7 | | 73.3 |
| Karnataka | 16.9 | 22.3 | 22.4 | 4.4 | 4.5 | 18.3 | 77.8 | 73.2 | 58.2 |
| Kerala | 68.8 | 68.6 | 37.4 | 28.1 | 2.9 | 50.8 | 3.1 | 22.9 | 11.3 |
| M.P. | 12.2 | 3.1 | 16 | 3.3 | 0.9 | 5.6 | 81.3 | 93.9 | 77.3 |
| Maharashtra | 25.5 | 10 | 24.1 | 16.6 | 6.1 | 23.6 | 55.2 | 82.2 | 51.7 |
| Orissa | 10.8 | 3.3 | 15 | 0.7 | 1.3 | 2.7 | 86.1 | 92.4 | 80.6 |
| Punjab | 8.9 | NA | 10.1 | 10.1 | NA | 17 | 80.8 | | 72.4 |
| Rajasthan | 5.7 | 5.6 | 12.1 | 1.5 | 0.6 | 2.8 | 90.7 | 93.4 | 84.3 |
| T.N. | 29.3 | NA | 34.8 | 14.9 | NA | 33.8 | 24.8 | | 30.2 |
| U.P. | 1.6 | NA | 8.2 | 1.6 | NA | 4.9 | 94.5 | 99 | 86 |
| W.B. | 21.3 | 16.6 | 27.5 | 0.6 | NA | 6.2 | 78 | 83 | 65.9 |

Source : Cited in Ram.F, Pathak K.B. & Annamma K. I, Utilization of Health Care Services by the Under Privileged Section of Population in India : Results from NFHS, IASSI Quaterly, Vol. 16, Nos. 3&4, 1997 PP. 137.

Table 11 Among all children under four years of age who are suffering from fever during two weeks before survey, the percentages taken to a health facility or provider and the type of treatment given by SC/ST population, India & States 1992-93

| States | % taken to a health facility or provider | Percentage treatment with Antimalarial or Syrup | Antibiotic Pills | Injection | Home remedy/herbal medicine | Other | None |
|-------------|--|---|------------------|-----------|-----------------------------|-------|------|
| India | | | | | | | |
| SC | 67.7 | 7.8 | 35 | 27 | 5.7 | 36.2 | 20.5 |
| ST | 55 | 6.4 | 31.2 | 21.2 | 5.6 | 31.8 | 27.2 |
| Others | 68.2 | 8.4 | 34.8 | 21.8 | 5.3 | 39.7 | 18.8 |
| A.P. | | | | | | | |
| SC | 77.5 | 5 | 50 | 50 | 2.5 | 30 | 20 |
| ST | 54.3 | 11.4 | 28.6 | 42.9 | — | 14.3 | 34.3 |
| Others | 70.9 | 10.7 | 45.6 | 47.6 | — | 32 | 19.9 |
| Assam | | | | | | | |
| SC | 25 | 3.1 | 25 | 5 | 2.5 | 15.6 | 56.3 |
| Others | 32.8 | 4.7 | 17.2 | 2.8 | 5.3 | 28.8 | 47.5 |
| Bihar | | | | | | | |
| SC | 68.1 | 16.1 | 52.3 | 20.9 | — | 22.8 | 23.9 |
| ST | 53.5 | 5.6 | 47.9 | 5.6 | 8.5 | 26.7 | 31 |
| Others | 59.3 | 10.7 | 47.7 | 19 | 2.3 | 26.2 | 23.7 |
| Gujrat | | | | | | | |
| SC | 63.1 | 9.2 | 30.8 | 21.5 | 1.5 | 23.1 | 30.8 |
| Others | 78.7 | 8.7 | 47.4 | 20.2 | 2.4 | 32.8 | 11.5 |
| Haryana | | | | | | | |
| SC | 89.5 | — | 2.5 | 38.1 | — | 90.8 | 8 |
| Others | 84.6 | 1.5 | 3.6 | 27.7 | 6.3 | 85.2 | 7.9 |
| H.P. | | | | | | | |
| SC | 77.7 | 1.8 | 25.9 | 16.4 | 1.8 | 58.2 | 13.2 |
| Others | 82.7 | 1.6 | 22.2 | 15.1 | 4.4 | 66.2 | 6.7 |
| Jammu | | | | | | | |
| SC | 64.2 | 6.1 | 14.6 | 7.8 | 8.5 | 70.1 | 9.7 |
| Others | 73.7 | 8.1 | 7.1 | 12.3 | 6.2 | 73.8 | 12 |
| Karnataka | | | | | | | |
| SC | 72.3 | 8.5 | 25.5 | 38.3 | 2.1 | 51.1 | 14.9 |
| ST | 84 | 12 | 60 | 56 | — | 28 | 4 |
| Others | 76.7 | 7.5 | 28.8 | 48.6 | 1.4 | 54.8 | 11.6 |
| M.P. | | | | | | | |
| SC | 68.4 | 21.2 | 67 | 31 | 6.6 | 17.4 | 9.7 |
| ST | 57.4 | 1.5 | 33.6 | 35.6 | 9.3 | 37.6 | 21.5 |
| Others | 67.8 | 6 | 39.7 | 35.8 | 3.2 | 35 | 21.1 |
| Maharashtra | | | | | | | |
| SC | 60 | 8 | 20 | 4 | 4 | 44 | 32 |
| ST | 68 | 4 | 30 | 2 | 2 | 38 | 20 |
| Others | 77.5 | 8.4 | 30.9 | 28.7 | 1.7 | 52 | 17.1 |
| Orissa | | | | | | | |
| SC | 51.7 | 2.1 | 23.5 | 2.8 | 6.2 | 45.5 | 28.3 |
| ST | 41.6 | 5.4 | 18.7 | 9 | 9.3 | 35.8 | 35.5 |
| Others | 57.4 | 5.1 | 20.6 | 4.9 | 6.2 | 48.5 | 25.6 |
| Punjab | | | | | | | |
| SC | 86.7 | 9.3 | 6.7 | 29.3 | 1.3 | 78.7 | 6.7 |
| Others | 93.4 | 13.2 | 7.1 | 27.9 | 1 | 78.7 | 2.5 |
| Rajasthan | | | | | | | |
| SC | 51.4 | 12.9 | 21.4 | 31.4 | 11.4 | 24.3 | 24.3 |
| ST | 61.4 | 13 | 38.9 | 29.6 | 5.6 | 20.4 | 20.4 |
| Others | 66.9 | 14.6 | 42.7 | 24.8 | 7.6 | 26.8 | 13.4 |
| T.N. | | | | | | | |
| SC | 67.8 | 3.4 | 39 | 44.1 | 3.4 | 27.1 | 27.1 |
| Others | 74.4 | 4.1 | 48.9 | 38.8 | 2.3 | 32.9 | 20.1 |
| U.P. | | | | | | | |
| SC | 70.1 | 6.5 | 48.5 | 30.1 | 7.9 | 26.1 | 15.5 |
| Others | 70.8 | 9 | 46.2 | 24.6 | 6 | 28.2 | 14.5 |
| W.B. | | | | | | | |
| SC | 49.2 | 8.8 | 6.4 | 2.3 | 14.3 | 33.3 | 41.7 |
| Others | 60.4 | 8.7 | 18.2 | 1.6 | 16.8 | 37.8 | 25.4 |

Source : Cited in Ram.F, Pathak K.B. & Annamma K. I, Utilization of Health Care Services by the Under Privileged Section of Population in India : Results from NFHS, IASSI Quaterly, Vol. 16, Nos. 3&4, 1997 PP. 143.

Table 12 Trend in Utilisation of Out Patient Services in the Private Sector Between 42nd and 52nd Rounds of the NSS

(Figures are in percentages)

| SL.NO. | STATES | 42 ND (URBAN) | 42 ND (RURAL) | 52 ND (URBAN) | 52 ND (RURAL) | % URBAN | CHANGE RURAL |
|--------|-------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------|-----------------|
| 1. | Maharashtra | 72.4 | 70.5 | 77 | 73 | +4.6 | + 2.5 |
| 2 | Karnataka | .65 | 60 | 74 | 51 | +9 | -9 |
| 3 | Orissa | 42.4 | 31 | 53 | 31 | +10.6 | No change |
| 4 | All India | 50 | 50 | 72 | 64 | +22 | +14 |

Source: Government of India, CSO, 42nd and 52nd Rounds of the NSS

Note Private Sector Includes both private doctors and hospitals.

Table 13 Trends in Utilisation of Inpatient Services in the Private Sector Between 42nd and 52nd Round of the NSS

| SL.NO. | STATES | 42 ND (URBAN) | 42 ND (RURAL) | 52 ND (URBAN) | 52 ND (RURAL) | CHANGE URBAN | CHANGE RURAL |
|--------|-------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------|-----------------|
| 1. | Maharashtra | 48 | 54 | 68.2 | 68.8 | +20.2 | +14..8 |
| 2 | Karnataka | 50 | 38 | 78.2 | 54.2 | +20.2 | +16.2 |
| 3 | Orissa | 15 | 7 | 19 | 9.4 | +4 | + 2.4 |
| 4 | All India | 36 | 35 | 56.9 | 54.7 | +20.9 | +19.7 |

Source: Government of India, CSO, 42nd and 52nd Rounds of the NSS.

Chapter - 8

ECONOMIC REFORMS AND HEALTH SECTOR IN INDIA WITH SPECIAL REFERENCE TO ORISSA, KARNATAKA AND MAHARASHTRA--REFLECTIONS FROM NSS 28TH, 42ND AND 52ND ROUNDS

Nayanatara S. N.

India is a signatory to Alma Ata Declaration (1978) of Health for All by 2000 A.D. Even after three decades of its commitment, the progress made in health sector is not impressive. Though there has been a substantial fall in total fertility rate and infant mortality rate along with increased life expectancy, eradication of small pox and guinea worm diseases, morbidity and mortality rates continue to be high in the country. Malaria, which was eradicated came back in 1980s. Water-borne diseases and TB continue to be the major causes of morbidity. There is emergence of new diseases viz. AIDS and hepatitis-A, which are communicable and for which there is no guaranteed remedy. Structural adjustments that have been introduced in the country over the last decade have brought in changes in all the sectors of the Indian economy. Health sector is one of the most influenced sector due to changes in pattern of resource allocation, health and drug policies, flow of technology, trade agreements and flow of external assistance. In the light of these developments an attempt has been made in this paper to examine the changes in morbidity and utilization of health care services in India with special reference to Karnataka, Maharashtra and Orissa using the NSSO's published survey results for 28th, 42nd and 52nd rounds.

I. Introduction

Morbidity condition, which is one of the main indicators of health, reflects the overall health status of the population in a particular region. Morbidity in a population could be due to many factors controllable and uncontrollable (or natural). Occurrence of morbidity due to malnutrition, under nutrition, lack of health education, lack of immunization, lack of health care facilities and lack of other preventive and promotional measures can be reduced or avoided. But, morbidity due to age and genetic factors cannot be easily prevented, though the extent of suffering due to this kind of morbidity can be reduced or delayed with the help of modern technology.

Nutrition, health and morbidity are very much correlated because it is said that the quantity and the type that we eat are the main determinants of health status. The increased use of stored food and rich foods like meat, sugar, butter/oil, cakes, chocolates, ice creams etc., is leading to 'obesity', which is one of the health problems facing western countries. In addition, the life style changes accompanied by sedentary work and stress is believed to be leading to occurrence of heart diseases, dental problems, diabetes, blood pressure(BP) and cancer in recent years. Though this is a problem faced mainly by the developed countries, with liberalization and

globalization, this trend is seen in developing countries also. In India we can see the lifestyle changing especially in metropolis.

In developing countries, unbalanced diet and food adulteration leading to malnutrition and under nutrition resulting from chronic starvation are the main factors which weaken the immune system of the body leading to infectious diseases, reduced physical growth and vitamin deficiency diseases and death.

In developing countries like India the liberalization and the inflow of technology has led to creation of high paid jobs, increased use of fast foods, electronic equipments and vehicles. This has led to an increase in leisure time, less physical activity but more of mental tensions. There is increase in the reporting of non – communicable diseases. Health transition is being noticed in other developing countries also. In India, till recently the problem was that there was dearth of information on health conditions except a few reports which mainly give details about public facilities, public programmes and about health indicators viz. birth rates, death rates, IMR, fertility rates, etc. The surveys conducted by NSSO (42nd and 52nd round) have been of immense use in understanding the health status of the people viz. **Who reported more illness?** (poor/rich, male/female, rural/urban, from developed states/less developed states, children/aged, out patients/in patients etc.) **What they prefer? (use of health care facilities), Which system they prefer? Where do they go for treatment? What are the ailments they suffer from? What is the change in disease or morbidity pattern? What is the type of treatment (free, paid) available? Which are the items of expenditure? How much they spend? What is the cost per case of illness? Whether people who report illness get treated? If not why? etc.** The 28th round presented only the details of age and gender wise incidence, prevalence and duration of temporary and chronic ailments. These days there is inflow of information from different organizations. In addition to NSSO's surveys, NCAER, NFHS and RCH surveys provide useful information about the population particularly on health.

The study of morbidity and utilization of health care becomes important because, morbidity or illness impose heavy burden on the individual and society. There is loss of earnings to the family and loss of productivity to the society due to illness. Moreover, it is said that during illness medical care and consumption are financed by disinvestments, dis-saving and borrowing. Prolonged illness can lead to serious debt and impoverishment. Morbidity can affect educational status in a family. Education often requires out-of-pocket expenditure and excludes students from household labor supply. So it is felt that the financial hardship imposed by adult ill health reduce children's opportunities for education both at home and in school (Mead et.al.,1992).

Similarly, for a health care system to be effective people have to use the available services provided by the health system to treat their health problems. Utilization pattern reflects the preferences of the people as well as the loopholes in the system. Non-utilization questions the usefulness or the relevance of the health care institutions in providing services and indicates the need for action either in set up/management/infrastructure or in delivery of services.

NSS data provides useful insights about incidence and prevalence of morbidity across states according to fractile groups, age, place of treatment, rural and urban category, attending adult education class, social groups, etc. These would provide a base for understanding the inter-state variations in morbidity conditions and utilization of services over time (28th - 42nd - 52nd round).

The reporting of the analysis in this study is as follows:

- I. Introduction
- II. Concepts- Morbidity and Utilization
- III. Data base
- IV. Reference of Morbidity and Utilization in NSSO surveys
- V. Previous Research/ Studies
- VI. Morbidity Profile- Across States, age groups, income groups, social groups, areas, gender and linkages between morbidity and surroundings and smoking
- VII. Why sick people do not seek medical treatment?
- VIII. Place of treatment?
- IX. Type of treatment available to sick people?
- X. What is the cost of treatment?
- XI. What is the extent of loss of household income due to hospitalized and non- hospitalized illness?
- XII. In this section NSS results are discussed in the light of on going economic reforms in the country
- XIII. Conclusion
- XIV. Annexes
 - I. Review of NSS based studies
 - II. Rounds of NSS –A Comparative Picture (28th; 42nd; 52nd)
 - III. Reference Tables for the three rounds (Table-A –1 to Table-A-19)
- XV. References

II. Morbidity and Utilization

Morbidity: The term morbidity has been expressed in different ways. How to define or state morbidity? What are the methods to measure the extent of morbidity or illness and its cost to the society are the major conceptual problems.

WHO defines health as a state of complete physical, mental and social well-being and not merely the absence of disease. But, this definition is questioned by many. Wood (1986) argues that complete physical, mental and social well-being can exist even in the presence of disease. He refers to Dubos, according to whom “ the concept of perfect and positive health cannot become a reality because man will never be so perfectly adapted to his environment that his life will not involve struggles, failures and sufferings”. Wood, says that health is virtually undefinable, at least for practical purposes, and it is relative rather than absolute in nature. Health in the individual is said to be related to levels of physiological function, an equilibrium that is threatened or disturbed by disease and here at this stage Wood says that there is morbidity (Wood and Foster, 1986).

Foster (1986) refers to morbidity as the condition of being diseased or morbid. It is the incidence of a disease or illness i.e., the ratio of sick to well persons in a community. A person is said to be sick when he is suffering from a disease or reports illness. Illness may exist in the absence of a diagnosed disease, as when a person does not feel well and is unable to fulfill his normal, social and economic roles. Illness is the state that is perceived by the individual when he or she is suffering from disease and, sickness is the state that develops as a reaction to illness.

Utilization of Health Care Facilities: Utilization refers to the use of health care facilities such as government hospitals, PHCs, ESI clinics/hospitals, private doctors, private clinics, private hospitals and charitable institutions. The details are gathered on the basis of

reporting by patients during household survey. Utilization data reveals the preferences of the people for particular health care facility and also the availability of health care services. Non-utilization questions the usefulness of existing health care services. Other factors like non-severity of illness, financial problems and lack of awareness could also be the reasons for non-utilization.

III. Database

Published sources i.e. NSSO's Sarvekshanas for 28th and 42nd rounds and report on Morbidity and ailments for the 52nd round are used for descriptive and comparative analysis.

The 1st survey on morbidity was conducted in the 7th round (Oct, 1953–March, 1954). Subsequently, three morbidity surveys were conducted during 11th, 12th and 13th rounds (1956–58). These surveys were exploratory in nature (Sarvekshana, 1995–96). On the basis of these surveys, in the 28th round (1973–74) a separate survey on morbidity was carried out. After 28th round, morbidity data are collected as part of decennial surveys on social consumption. Though information on health services were collected in 35th round results were not published. (i.e. the 1st survey on social consumption). The 2nd and 3rd surveys on social consumption carried out during 42nd and 52nd round have made available useful information on morbidity and utilization of health services.

Morbidity surveys conducted by NSSO do not follow a uniform pattern. Though the objectives are the same, there are differences in taking reference period, grouping of diseases, classification of number of ailing persons according to fractile groups, source and type of treatment etc.

In the **28th round (1973-74)**, state wise all India information is available only on temporary and chronic ailments by sex, age, area (rural and urban) and type of ailments. In the **42nd round (1986–87)**, the survey was conducted in a sample of 8346 villages and 4568 urban blocks. Reference Period for hospitalized illness was 365 days preceding the date of survey. For other ailments – treated and untreated (out-patients) the reference period was 30 days. For hospitalized cases, incidence and prevalence rates are available. For out-patients, only prevalence rate is given i.e. the proportion of persons with ailments. In the **52nd round (1995–1996)**, the reference period for enquiry on morbidity (non-hospitalized/out-patients treated or untreated) was 15 days preceding the date of enquiry. For hospitalized treatment, information was collected for every event of hospitalization of a member, whether living or diseased at the time of survey, during the 365 days preceding the date of enquiry.

The present analysis for 52nd round is based on the data collected by NSSO under the Central Sample in 7663 villages and 4991 urban blocks covering 71284 households in rural areas and 49658 households in urban blocks.

The objective of the 42nd and 52nd rounds of NSS was to make an assessment of the benefits derived by various sections of the society from public expenditure incurred by government on areas like education, public distributions and health care (Sarvekshana, April–June, 1992, NSSO). With respect to health, information was collected on maternal and childcare, morbidity, family planning and utilization of medical services. Information is available from NSS report on hospitalized cases by type of hospital, system of medicine availed, category of payment, average duration of stay in the hospital, average total expenditure per hospitalized case and non-hospitalized treatments. The data relates to whole of Indian Union except (i) Ladakh and Kargil districts of J&K and (ii) Rural areas of Nagaland. NSS 42nd round was conducted during July,

1986–July, 1987. The 52nd round was carried out during July, 1995–June, 1996. In addition to the above areas, the 52nd round survey did not cover interior areas of A&N Island and Dodha district of J&K.

IV. Morbidity and Utilization of Health Care Facilities as presented in NSSO's Health Surveys

There is a marked difference between medically defined morbidity, generally involving some sort of a physical examination and the morbidity reported by a person interviewed in a health interview survey. Health and illness levels are said to be a product of both the biomedical and socio-cultural variables. Neither of these two sets of variables is particularly stable, since new illnesses come (Assogba, et.al., 1972). The NSS data on morbidity are generally based on self-perceived morbidity (SPM).

SPM refers to episodes that are reported by an individual usually in response to inquiries regarding illness, (Chen and Murray, 1992). SPM depends on individual's perception about illness where as, Observed Morbidity [(OM) clinically observed morbidity]) is assessed through an independent observer i.e. usually the doctor who reports that there is morbidity. OM corresponds more closely to disease and SPM is closer to the concept of illness. (Richard, et.al., 1992).

There are different opinions in considering SPM or medically and clinically diagnosed morbidity in estimating the incidence or prevalence of morbidity in a particular region. **The educated, rich and male or earning members might report more morbidity episodes because they may consider even minor ailments to be serious. Women, Poor and illiterate population may not report morbidity because of ignorance, poverty and for not considering it as serious.** In such cases, taking decisions for policymaking may be difficult or misguided. **On the other hand, if more and more people report illness (poor/rich, educated/uneducated, male/female) that itself calls for public intervention. That is a cause of concern for health officials and policy makers. That also implies that public is facing some problem, which needs serious attention.** So, it is argued out that even if SPM includes higher reporting from some sections, it cannot be ignored in understanding morbidity profile. Though NSSO's survey is based mainly on SPM, it also includes clinically observed morbidity i.e. patients who are diagnosed by the doctor for a particular disease or ailment during the reference period. Particularly the hospitalized patients know about their ailment as they are diagnosed and attended by the doctor.

Terms used: [NSSO,1992 and 1998]

Illness/injury: Illness refers to any deviation from the state of normal physical and mental well-being. Injury covers all types of damages to any part of the body such as cuts, wounds, hemorrhages, fractures, burns etc., caused by accidents including bites.

Incidence: Proportion of population who report sickness or those who are diagnosed as sick during the reference period.

Prevalence: Proportion of people who are sick irrespective of whether the illness started before or during the reference period (more than one ailment was reported by insignificant proportion (1to 2%) of sick in urban and rural areas) during 52nd round.

PAP: Ratio or proportion of ailing persons with ailments observed during the reference period of 30 days preceding the date of survey, to the total number of persons.

Acute ailment: Short duration (less than 30 days) ailments.

Chronic ailment: Long duration (30 days or more) ailments.

Fractile group: Using the monthly per capita consumption expenditure (**mpce**) based on the data collected for broad heads of consumption expenditure for each sample household, population was classified into fractile groups separately for rural and urban areas.

Hospitalization: A person is regarded as having been hospitalized if he/she has availed of medical services as an indoor patient (except child birth) in any medical institution.

V. Previous Research.

The availability of national/state level information on utilization of health facilities and morbidity conditions has induced many researchers to probe in to the findings of the NSSO's 42nd and 52nd round survey results.

Using the survey results of NSS 42nd round, **Krishnan(1999)** reported that cost of treatment was highest for states where facilities were least developed. Krishnan argues that rural patients, particularly the bottom groups, paid more for health care and the cost of outpatient treatment could be reduced if the primary health care is readily accessible to rural population. Taking the average cost of treatment for each state based on the information provided by the NSS, Krishnan has estimated relative burden of treatment as a ratio of average cost to the per capita (only direct burden of treatment) state domestic income. **Baru's study(1999)** using 42nd round results, highlighted that more than 50% of the bottom 20% and top 20% income groups, in rural areas in majority of the states used public institutions for hospitalized cases and, larger percentage of only the top 20% in urban areas (in developed states) used private hospitals during 1986-87. This indicates that public institutions provide major part of the in-patient care. Baru reported that the dependence on public hospitals for hospitalization during 1986-87 was 55% in rural areas and 60% in urban areas in the country. In poor states like Orissa the dependence on public institutions for hospitalized care was reported to be more than 80%. In such a health care scenario, Baru says that it would be difficult to cut back on public expenditure on secondary and tertiary sectors both on the welfare and political considerations as both private and voluntary sector services are skewed in favour of urban and better-developed states and provide more of out-patient care.

Studies also highlight that there is bias in terms of gender, class and social groups in morbidity and utilization of health care services. Poor and disadvantaged sections such as SCs/STs are forced to spend a higher proportion of their income on health care than the better-off sections (**Gumber,1997**). But, the estimates worked out on the basis of NSS per capita private expenditure details reveal that the share of per capita medical expenditure in total per capita expenditure varied from Rs. 2.29 to Rs. 2.82 for people below poverty line and from Rs. 9.03 to Rs. 11.61 for top 10% of the expenditure class during 1986-87 to 1995-96 (see Annex –Table-A-1). **Sen Gita and others (2002)**, used data from NSS for 42nd and 52nd round and from other empirical studies to examine the changes during the reform period addressing to the question of health equity in terms of gender biases and economic class differentials. They argued that there is significant gender bias as shown by higher percentage of untreated illnesses among women in 1986-87. It is also argued out that the percentage of treated and untreated illnesses reported by

women is underestimated in NSS rounds as sexual and reproductive illness are not reported and reporting would be higher if trained female investigators collect information from each women after initial rapport building.

Using the NSS (1973–74 & 1986–87), NCAER (1990 & 1993) and CSO data, **Shariff and others (1999)** have projected the burden of disease and cost of ill health for Ninth plan. Using the data on utilization of health services and the cost of ill health, proposition or case is made for new strategies for allocation of public health expenditure. They emphasize the need for regulating private sector, charging user fees in public Health care centres encouraging public – private mix and NGOs in delivery of essential health services and insulating cost escalations. A study by **Alam (2001)**, points out that there is a high burden of diseases faced by the elderly. A comparison of the two NSS rounds reveals an increase in the over all proportion of sick elderly during the years. Alam points out that more than half of elderly population in India suffers from one or the other chronic conditions in rural as well as urban areas. Joint problems (rural), lungs related diseases, BP are some of the problems identified with the aged.

NSS results also indicate that there are class differentials in reporting and getting treated for morbidity. There exists positive class gradient (fractile groups) for morbidity rates in rural areas (Sen Gita et.al, 2002). Reporting of illness and hospitalization cases have shown increase with increase in income (Shariff et.al., 1999).

The present study looks into morbidity reporting and utilization of health services in India and in three specific comparatively less developed, medium developed and developed states (based on social and economic indicators) in the light of liberalization process initiated in the country.

VI. Morbidity Profile

6.1. Morbidity Reporting:

(i) Overall Morbidity (per 1000): The overall morbidity rate, that is the number of persons who reported sickness (proportion of persons with ailments to total population) during the reference period of **30 days** in 42nd round was 64 and 31 persons respectively for rural and urban areas. In the 52nd round, the number of ailing persons was 55 in rural areas and 54 in urban areas during the reference period of **15 days**. But, the number of ailing persons for 30 days recall period derived from the 15 days period survey estimates, (derived to enable comparisons between 42nd and 52nd round) reveals that 86 in rural areas and 84 in urban areas were the number of ailing persons in 52nd round indicating that there is increase in morbidity episodes.

Table-1 presented below gives the prevalence rates (PR) of ailment and the number (per 1000) of ailing persons (PAP) over different rounds of NSS.

Table-1 Morbidity Reporting (India)

| | | 1961 – 62 17 th round PAP (30 days) | 1973 – 74 28 th round PR (15 days) | 1986 – 87 42 nd round PAP (30 days) | 1995 – 96 52 nd round. derived PR (15 days) | 1995 – 96 52 nd round. derived PAP(30 days) | 1995 – 96 52 nd round. PAP estimated (15 days) |
|--------------|---|--|---|--|--|--|---|
| Rural | P | 132 | 43 | 64 | 56 | 86 | 55 |
| | M | 139 | 47 | 64 | 54 | 84 | 54 |
| | F | 123 | 40 | 63 | 58 | 89 | 57 |
| Urban | P | 131 | 42 | 31 | 55 | 84 | 54 |
| | M | 133 | 43 | 30 | 52 | 81 | 51 |
| | F | 128 | 41 | 33 | 58 | 89 | 58 |

Source: NSSO (1998), Morbidity and Treatment of Ailments, NSSO 52nd round (1995 – 96), Report No.441, P – 18.

The prevalence rates given in Table-1, show that morbidity rates have increased overtime (28th to 52nd round) both in rural and urban areas. Number of ailing persons was highest in 1961–62 (17th round) but, declined in 1973-74 (28th round). The rate of decline in reporting was 76% for urban areas and 51% for rural areas. As per the derived estimates (for 30 days based on 15 days data) for 52nd round, there is increase in the number of ailing persons. In all the rounds, morbidity reporting is slightly higher in rural areas. **But, the rate of increase in morbidity reporting in urban areas is very high (171%) as compared to increase in the rate of reporting in rural areas (34%) over 42nd to 52nd round.** Due to methodological differences in conducting the surveys, the differences in morbidity profile should be taken as a generalized scenario.

During 1986-87, on an average 149-lakh persons were hospitalized in rural India and 26 lakhs in urban India. About 56% of the in-patients were males and 44% were females both in rural and urban areas. The prevalence rate of hospitalized cases was 28 and 17 per 1000 persons respectively in rural and urban areas. During 1995–96, about 2% of the urban population and 1.3% of the rural population were hospitalized i.e. the prevalence rate of hospitalization was 13 and 20 per 1000 persons respectively for rural and urban sectors. **This reveals that hospitalization is increasing in urban areas and has declined in rural areas.** These changes indicate four possibilities. (i) There is trend of admitting patients even for minor illnesses in urban areas (ii) acute and other diseases like diarrhoea, ulcers, bronchitis, heart problems, cancer, cataract etc., which require immediate attention and sometimes surgery are increasing in urban areas. **The 52nd survey results do indicate that there is increasing reporting of such type of diseases.** (iii) With increasing coverage of urban private doctors to nearby villages facilitated by transport facilities (or due to increasing rural out patients visiting private doctors for acute illnesses, the incidence of hospitalization might have reduced in rural areas. (iv) Rural patients might have avoided hospitalization **due to lack of access and lack of finance. These were the two reasons quoted comparatively (to urban) by higher** percentage of rural out patients in 52nd round (See Table-3). The same reasons could be valid for rural inpatients also.

(ii) Diseases:

During 28th round, reporting of temporary illness among the identified cases in rural areas was higher for dysentery and influenza in all the three states (Karnataka, Maharashtra, Orissa) and all over the country. Incidence of malaria was higher in Maharashtra and Orissa and in the country. Karnataka and Maharashtra had higher incidence of whooping cough. This pattern of

morbidity was also found in urban areas in the selected states and in the country except in urban Orissa, which had higher incidences of small pox and less of malaria. Small pox was also prevalent in urban Karnataka and, was one of the main diseases prevalent in the country.

In the 52nd round, while there is more reporting of fever, water-borne diseases, cough, bronchitis and cerebral stroke in rural areas, urban people also reported fever, water-borne diseases, cough and bronchitis except cerebral stroke.

Table -2 below presents the prevalence and incidence rate (per 100000) for major chronic and acute diseases respectively for 28th and 52nd round.

Table 2: Disease-specific morbidity rates for selected diseases from NSS 28th and 52nd rounds

| India | | | | |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Disease | Rural | | Urban | |
| | 1973-74 (28 th rd) | 1995-96 (52 nd rd) | 1973-74 (28 th rd) | 1995-96 (52 nd rd) |
| Chronic diseases: Prevalence rate (per 100,000) | | | | |
| Tuberculosis | 117 | 83 | 137 | 63 |
| Leprosy | 40 | 11 | 25 | 9 |
| Epilepsy | 28 | 14 | 17 | 24 |
| Piles | 65 | 13 | 61 | 32 |
| Acute diseases: incidence rate (per 100,000) | | | | |
| Measles | 17 | 11 | 14 | 14 |
| Cholera | 3 | * | 3 | * |
| Dysentery | 12 | * | 35 | * |
| Diarrhoea | 27 | * | 22 | * |
| Diarrhoea & dysentery (including cholera) | * | 269 | * | 230 |
| Injuries due to accidents | 39 | 63 | 54 | 83 |

* indicates that data on the specific disease were not collected separately in the survey.

Source: NSSO (1998) Morbidity and Treatment of Ailments, 52nd round, (Report No. 441)

Acute: Injuries due to accidents have increased both in rural and urban areas due to increased use of vehicles. Incidence of dysentery, diarrhoea and cholera is higher and has increased (1995-96) both in rural and urban areas. This indicates that there is need for improvements in the supply of safe drinking water and sanitational services both in rural and urban areas. Due to non-reporting of illness separately for these diseases in 52nd round, it is not possible to present the rate of change in the prevalence of these diseases separately over the years.

Chronic: In 28th round, in addition to diabetes and BP, which were prevalent in urban areas of all the three states, in each state, there existed several other peculiar chronic diseases. In rural Maharashtra, reporting was more for leprosy, peptic ulcer and arthritis. In Karnataka, diabetes and BP were prevalent also in rural areas. Orissa had higher prevalence of mental illness, peptic ulcer, rheumatism and kidney stones both in rural and urban areas.

Table-2 shows that of the chronic diseases, the prevalence of epilepsy and piles has reduced (1973-74 to 1995-96) both in rural and urban areas though it continues to be a major problem in urban areas. There is increased reporting of epilepsy cases in urban areas. There is no change in the incidence of measles cases in urban areas (1973-74 to 1995-96). There is a good reduction in the reporting of leprosy cases in rural and urban areas. Asthama was a major chronic disease during 28th round (not shown in Table-2) with highest prevalence of 376 (per 100000) in rural and 355 (per 100000) in urban areas in the country. Orissa had comparatively lower prevalence of asthama both in rural and urban areas. Details of prevalence of asthama during 52nd round are not given in NSSO reports.

The other most common chronic disease that prevailed during 28th round in rural and urban areas in the country was TB with a prevalence rate of 117 and 137 respectively per one lakh population. Though it has come down to 83 (rural) and 63 (urban) over the years (1995-96), it is still a cause of concern in both the areas.

(iii) Age:

Morbidity prevalence is generally found to be higher among children and aged. NCAER (1992) and NFHS (1998-99) surveys also indicate this. In the 28th round, the incidence of acute ailments was higher among infants, children in the age group 1-4 and aged i.e. above 60 in rural areas. But, in rural Maharastra, reporting was slightly higher for upper middle age (45-59) groups. In urban areas of all the three states, morbidity reporting was slightly higher among upper middle age groups than the aged. Age wise reporting is not given for 42nd round (published data). During 52nd round also the reporting for any type of ailments in rural areas is higher for aged and children. But, the incidence of morbidity due to chronic diseases is lower among the children (0-14). Children suffer generally from acute illnesses and receive immediate attention from parents before they turn to chronic type. In urban areas also there is similar morbidity pattern. **Child morbidity due to acute diseases is more in urban areas and more so in Orissa.** This could be due to lack of preventive measures like immunization, sanitation and proper supply of drinking water. The number of persons suffering from chronic illnesses is higher among upper age groups and aged (there is a positive slope). **The incidence of morbidity for acute and other diseases in all the age groups and for both the areas is higher in Orissa.**

As observed in 52nd round, children suffer from acute diarrhea, dysentery, cholera, fever, cough and bronchitis both in rural and urban areas. Jaundice, epilepsy, loco motor and congenital deformities are the chronic diseases suffered by children. In addition, TB and ear problems are reported by rural children. Joints pain, BP, gastritis, amebiasis, diseases of the heart and leprosy are chronic ailments prevalent among middle aged in rural areas. In addition to the ailments due to these diseases, urban middle aged groups also suffer from diabetes. Cough, bronchitis, fever, diarrhea and gastroenteritis are the acute ailments suffered by middle aged both in rural and urban areas.

Aged suffer from all the acute ailments specified above. Whooping cough and accidents due to injuries and violence are also reported to a larger extent among the aged. Joints problem, BP, diabetes, diseases of the eye, ear, heart and urinary tract, leprosy, gastritis, cancer, piles and loco motor disability are the chronic diseases suffered by the aged.

(iv) Gender:

During 17th and 28th round, the reporting of non-hospitalized illness was higher for males in rural and urban areas. In the 42nd round, male reporting was higher only in rural India while more female reported sickness in urban India. **But, during 52nd round the reporting is found to be higher for females both in rural and urban India.** This shows that women are gradually coming out of shyness and hesitation in reporting sickness, which could be due to increasing awareness via media, health programmes and education.

During 1973-74, major acute health problems reported by men and women from urban and rural areas were dysentery, malaria, influenza and small pox. Men had higher reporting of ailments due to accidents. But, in 52nd round, fever, diarrhea/dysentery/cholera, cough, bronchitis, whooping cough and diseases of the eye/mouth/gum are some of the major acute ailments reported by men and women in rural and urban areas. Reporting of accidental injuries and acute respiratory infections are more among men in both the areas. This could be in general related to the vehicle driving and smoking habits, which are higher among men. Air pollution is an additional factor causing increase in respiratory illnesses.

The **three common chronic diseases** that were prevalent during 1973-74 were **asthama, TB and rheumatism** both in rural and urban areas. In urban areas, in addition to these diseases, BP and diabetes were observed among men and, BP was observed among women. 52nd round survey results reveal that **joints problem, BP, gastritis and TB are the common long term diseases** suffered by men and women in rural areas. In urban areas, there is more reporting of joints problems, **BP, diabetes and heart problems** among men and women.

As per 52nd survey results, hospitalized cases per 1000 persons are more in urban and rural Maharashtra as revealed also in 42nd round. Incidence of female hospitalization in rural areas (per 1000) varied from 11 in Orissa to 18 in Maharashtra and, incidence of male hospitalization varied from 14 in Orissa to 20 in Maharashtra. In urban areas, female hospitalization varied from 14 in Orissa to 25 in Maharashtra and male hospitalization varied from 17 in Karnataka to 27 in Maharashtra (per 1000).

(v) Social Groups:

During 42nd round, of the total hospitalized cases in rural areas, 4.75% were STs, 17% were SCs and 78% were others. And, in urban areas, while STs constituted less than 2%, SCs were 18% and others were 80%.

In the 52nd round, reporting of acute and any type of ailments is higher for SCs and STs in Orissa both in rural and urban areas. In Karnataka, SCs have higher reporting of acute diseases in rural and urban areas. And, in Maharashtra only in urban areas SCs have higher reporting of ailments. **Reporting of chronic ailments is also higher among STs in Orissa.** Morbidity reporting (15 days) for chronic and any type of ailments in the country is higher (except higher reporting of acute ailments for SCs) for other (general) groups. But, this is not uniformly found in all the states.

In the 52nd round, incidence of hospitalization in rural areas in all the three states and in the country is higher among social groups other than SCs/STs. But, this is not so in urban areas where incidence is higher among STs in Karnataka and Maharashtra States and

among SCs in Orissa. Number of persons (per 1000) hospitalized is higher for STs in urban India. **Incidence of female hospitalization is more among SCs/STs than males and females from other social groups in rural and urban Maharashtra. Female hospitalization is lesser than male hospitalization in Orissa among all the social groups in both rural and urban areas.** In Karnataka, the incidence of female hospitalization is higher in rural areas for STs and others.

(vi) Fractile (mpce)] groups: There is no particular pattern observed in the distribution of out patients over the fractile groups in 42nd round. But, the distribution in the 52nd round shows that **there is increased reporting of ailments among higher fractile groups in majority of the states.**

In 42nd round, the hospitalized cases were reported to be more among lower middleincome groups and upper middle income groups in the country. **But, in urban Orissa, hospitalization was higher among lower 20% of fractile groups.**

In the 52nd round, the incidence of male and female hospitalization is highest for the top most fractile group i.e. the rich in all the three states and in the country. This pattern is observed in rural as well as urban areas. **This pattern was not observed uniformly in 42nd round.**

(vii) Education: 42nd round results showed that percentage distribution of hospitalized cases were higher among those with higher level of adult education. **The proportion of persons with ailments treated also had a positive association with the level of adult education standard.**

6.2 Morbidity Reporting and Surrounding Environment:

During the 52nd round survey, information was collected on the use of insecticides in the premises of the house and the reporting of fever (short duration incidence of fever). The survey results indicate that there is marginal influence of sanitation and other aspects on health conditions. In rural areas, incidence of fever (per 1000) from households with premises sprayed with insecticides was higher (by one episode of illness). It was higher by two illness episodes in urban areas. Reporting of fever cases is 16 per 1000 in both rural and urban areas from households with cattle sheds while it is one case more in rural areas and one case less in urban areas in households which did not have cattle shed. Reporting of fever cases is higher in urban households, which had detached cattle shed from the house (three cases more per 1000). **Reporting is less in households having covered pucca drains and in households with underground drains both in rural and urban areas.** In houses without drainage, reporting of ailments is higher in both the areas. **While the impact of the presence of cattle shed in the house on health conditions needs to be probed further, survey results indicate that clean air (free from insecticides spray) and good drainage system do have positive influence on health as less number of ailments are reported in such households** (see Annex- Table-A-8).

6.3 Tobacco consumption and morbidity

Worldwide it is known that tobacco consumption leads to occurrence of diseases among its consumers, cancer being on the forefront. Details are collected from households during the 52nd round from tobacco consumers on their health conditions.

Prevalence of TB among persons aged 10 and above, who do not have any bad habits, is 98 (per 1000) in rural areas and 60 in urban areas. But, it is higher among those who smoke with prevalence rate of 120 (22% more) in rural areas and 124 (27% more) in urban areas. People with other habits have highest prevalence rate of TB in rural (182) and in urban (202) areas. **Prevalence of cancer is higher among both rural and urban smokers and blood pressure (in rural areas) is higher among rural smokers.** But, heart diseases are more among those who do not have any habits in rural areas and among those who have other habits in urban areas. BP is higher among those who do not have any bad habits in urban areas. We can therefore say that **in addition to tobacco consumption, there could be influence of other factors like food, genetic, stress, life style, age etc., which cause morbidity.** But, tobacco is one of the major factors causing morbidity (see Annex- Table-A-9, A-10, A-11).

VII. Untreated Ailments:

During 42nd round, 82% and 89% of the ailing persons in rural and urban areas and in 52nd round, 83% and 91% in rural and urban areas respectively reported to be treated during the reference period. There is marginal increase in the percentage of people treated over 10 years period (42nd to 52nd round). **Though the percentage of treated among ailing persons is higher for males both in 42nd and 52nd round, the difference is marginal and the gap between male and female in treating illness has reduced** over the decade. A similar pattern was observed in NIHFWS (1982) study. **But, there is bias towards urban areas. People in urban areas are in a favourable position as only 11 percent and 9 percent of ailing persons did not receive treatment as compared to 18 percent and 17 percent of untreated persons in rural areas in 42nd and 52nd round respectively. Majority of the ailments not treated were due to less seriousness of the ailments as perceived** by patients both in rural and urban areas as reported in 42nd and 52nd rounds, which is shown in Table-3 below.

Table 3: Percentage distribution of untreated ailments by reason for not taking treatment- NSS 42nd and 52nd rounds (India).

| Reasons for not taking treatment | Rural | | Urban | |
|--|--------------------|--------------------|--------------------|--------------------|
| | 1995 - 96 52nd. | 1986 - 87 42nd. | 1995 - 96 52nd. | 1986 - 87 42nd. |
| No medical facility | 9 | 3 | 1 | 0 |
| Lack of faith | 4 | 2 | 5 | 2 |
| Long waiting | 1 | 0 | 1 | 1 |
| Financial problem | 24 | 15 | 21 | 10 |
| Ailment not serious | 52 | 75 | 60 | 81 |
| Others | 10 | 5 | 12 | 6 |
| All | 100 | 100 | 100 | 100 |
| Note that the estimates for 'others' of the 52nd round include the cases where reasons are not reported. | | | | |
| Source : NSS Report No. 364(42nd round) and No. 441(52 nd round) | | | | |

The second main reason was financial problem, which was more often cited in rural areas. **The non-availability of medical facility** which was quoted by only 3 % in 1986–87 in rural areas, **was the reason in 9% of the untreated cases in 1996– 97.** This possibly indicates that access to health care facilities has not improved over the years. Moreover it has reduced. The other main change that can be noticed over the years is the reduction in the number of cases not treated as serious from 75 to 52% in rural areas and 81 to 61% in urban areas indicating increased

awareness among the population on health problems. **But, there is no change in percentage of ailing people treated (out of total ailing persons) over the decade which indicates that though people realize that they have health problems that need to be attended, they are unable to do so due to several other factors like non-availability of health care facility, higher cost of treatment, lack of faith etc.**

The proportion of persons treated to total ailing persons is higher among higher income groups in all the three states and in the country except that it was higher for lower fractile groups in urban Karnataka in 42nd round and higher for lower fractile groups in Maharastra in 52nd round. Bias towards rich in medical treatment of illness is higher in Orissa as revealed in both 42nd and 52nd rounds.

VIII. Source of treatment:

8.1 Out-patients: 42nd survey results revealed that private doctors and hospitals treated 69% of the outpatients in rural and urban India and public facilities catered to 26% and 28% of the out patient in rural and urban areas respectively. **But, in north eastern states, hilly states, union-territories and in poor States like Orissa and Rajasthan, public sector provided largely (>80%) for both out-patient and in-patient care during 1986-87.** The topography and the poverty in hilly and poor states respectively could be the main reasons for larger share of public hospitals as revealed in 42nd round. **In Maharashtra, which is a well-developed state only 21% and 24% of out – patients in rural and urban areas had taken treatment in public facilities.** In Karnataka, a medium developed state, the dependence on public facilities was 35% and 30% respectively for rural and urban areas. In Orissa, **52% in rural areas and 46% in urban areas** depended on public facilities. National average showed that only 5% and 1% of out patients in rural and urban areas visited PHCs during 1986-87. In 1995-96, there is no major change in utilization of PHCs. Table-4 shows that there is preference towards private sector during 1995-96.

Table-4 **Percentage distribution of non-hospitalized treatments by source of treatment from 52nd and 42nd rounds (India).**

| Source of treatment | Rural | | Urban | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| | 1986 - 87 42nd round. | 1995 - 96 52nd round. | 1986 - 87 42nd round. | 1995 - 96 52nd round. |
| Public hospital | 18 | 11 | 23 | 15 |
| PHC / CHC | 5 | 6 | 1 | 1 |
| Public Dispensary | 3 | 2 | 2 | 2 |
| ESI doctor | 0 | 0 | 2 | 1 |
| All govt. sources | 26 | 19 | 28 | 20 |
| Private hospital | 15 | 12 | 16 | 16 |
| Nursing home | 1 | 3 | 1 | 2 |
| Charitable institution | 0 | 0 | 1 | 1 |
| Private doctor | 53 | 55 | 52 | 55 |
| Others | 5 | 10 | 3 | 7 |
| All non-govt. sources | 74 | 81 | 72 | 80 |
| Total | 100 | 100 | 100 | 100 |
| Note : The estimates of the 52 nd round are based only on the treatments with reported source of treatment. | | | | |
| Source: NSSO(1998),Morbidity and Treatment of Ailments, 52 nd round(1995-96), Report No.441 | | | | |

The coverage of PHCs in urban areas is limited. The utilization of ESI hospitals, which provide substantial hospital care particularly for industrial employees is very low for out-patients. The utilization of ESI doctors even in an industrial state like Maharashtra is less than 1% (not shown in Table-4). The location of ESI hospitals in far off places, limited number of hospitals, etc., could be the reasons for lower coverage. Data about ESI hospitals treating in-patients has not come out of NSS data. Many of the ESI hospitals provide more of hospitalized care.

Table- 5 shows that there is reduction in the dependence on public facilities across the states. **But, in Bihar, the utilization of public facilities in urban areas increased from 18% in 42nd round to 33% in 52nd round.** This is not so in rural areas of Bihar where there is slight decline in dependency.

Table-5 State wise percentage of ailments receiving non-hospitalized treatment from government sources (public hospital, PHCs & public dispensary)

| State | Rural | | Urban | |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | 1986 - 87 42nd round. | 1995 - 96 52nd round. | 1986 - 87 42nd round. | 1995 - 96 52nd round. |
| Andhra Pradesh | 19 | 22 | 21 | 19 |
| Assam | 53 | 29 | 30 | 22 |
| Bihar | 17 | 13 | 18 | 33 |
| Gujarat | 32 | 25 | 16 | 22 |
| Haryana | 17 | 13 | 17 | 11 |
| Karnataka | 35 | 26 | 30 | 17 |
| Kerala | 34 | 28 | 36 | 28 |
| Madhya Pradesh | 31 | 23 | 30 | 19 |
| Maharashtra | 26 | 16 | 24 | 17 |
| Orissa | 52 | 38 | 46 | 34 |
| Punjab | 12 | 7 | 10 | 6 |
| Rajasthan | 55 | 36 | 57 | 41 |
| Tamil Nadu | 36 | 25 | 33 | 28 |
| Uttar Pradesh | * | 8 | 16 | 9 |
| West Bengal | 19 | 15 | 21 | 19 |
| India | 25 | 19 | 25 | 20 |

Note: 1. The estimates of the 52nd round are based only on the treatments with reported source of treatment. 2. * denotes that estimate is not available.

Source: NSSO (1998), Morbidity and Treatment of Ailments, 52nd round(1995-96), Report No.441

The **dependency on public facilities is very low in high income states** viz Punjab, Haryana and Maharashtra **and has reduced over the decade**(1986-87 to 1995-96).

8.2 In- patient: People use public facilities more for ailments requiring hospitalization. This is generally because of the cost of treatment, which is free or lower in public hospitals as compared to private hospital and nursing homes. Table-6 shows that during 42nd round, all India utilization of public facilities for hospitalized treatment was 60% for public hospitals and 3 to 4% for PHCs. Even in a developed state like Maharashtra (Table-7) nearly 45% of the cases were admitted to public health centers.

Table-6 Per 1000 distribution of hospitalized treatments by type of hospital during 1986 – 87 and 1995-96 [India]

| Type of hospital | Rural | | Urban | |
|------------------------|---------------------------------|--------------------------------|---------------------------------|--------------------------------|
| | 1995-96 (52 nd) | 1986-87 (42 nd) | 1995-96 (52 nd) | 1986-87 (42 nd) |
| Public Hospital | 399 | 554 | 418 | 595 |
| PHC/CHC | 48 | 43 | 9 | 8 |
| Public dispensary | 5 | - | 4 | - |
| All govt. sources | 438 | 597 | 431 | 603 |
| Private hospital | 419 | 320 | 410 | 296 |
| Nursing home | 80 | 49 | 111 | 70 |
| Charitable institution | 40 | 17 | 42 | 19 |
| Others | 8 | 17 | 6 | 12 |
| All non-govt. sources | 562 | 403 | 569 | 397 |
| All hospitals | 1000 | 1000 | 1000 | 1000 |

Source: NSSO(1998) , Report No. 441(52nd round), p.28

Table –7 presented below shows that in Orissa where more than 50% of the population lived below poverty line (1986–87), 88% and 81% of the in-patients respectively in rural and urban areas took treatment in public hospitals / PHCs.

Table-7 Hospitalized treatments received from public provider

| State | 42nd round (percentage distribution) | | 52nd round (No per 1000) | | Percentage of beds in government hospitals (1993) |
|----------------|---|-------|-----------------------------|-------|--|
| | Rural | Urban | Rural | Urban | |
| Andhra Pradesh | 29.91 | 37.98 | 225 | 362 | 10 |
| Assam | 90.02 | 82.33 | 738 | 652 | 84 |
| Bihar | 49.86 | 45.71 | 247 | 346 | 71 |
| Gujarat | 48.96 | 59.21 | 321 | 369 | 43 |
| Haryana | 50.96 | 55.31 | 305 | 373 | 68 |
| Karnataka | 58.02 | 48.9 | 458 | 298 | 74 |
| Kerala | 43.38 | 55.65 | 401 | 384 | 36 |
| Madhya Pradesh | 79.23 | 76.98 | 533 | 560 | 100 |
| Maharashtra | 43.57 | 46.23 | 312 | 318 | 52 |
| Orissa | 88.06 | 81.48 | 906 | 810 | 91 |
| Punjab | 47.49 | 48.77 | 394 | 276 | 74 |
| Rajasthan | 80.01 | 85.62 | 649 | 731 | 100 |
| Tamil Nadu | 56.15 | 58.04 | 411 | 357 | 79 |
| Uttar Pradesh | 55.37 | 59.25 | 471 | 398 | 75 |
| West Bengal | 91.62 | 73.9 | 820 | 721 | 87 |
| India | 59.74 | 60.26 | 453 | 431 | 65 |

The 52nd round results show that the **utilization of public facilities for hospitalized care has reduced in Maharashtra to nearly 32% both in rural and urban areas. The current dependence on government hospitals is still higher in states like Assam, Rajasthan, West Bengal, Orissa and Madhya Pradesh both in rural and urban areas (1995-96).** The share of public facilities in hospital treatment corresponds to the percentage share of beds in government

hospitals in different states as revealed in Table-7 above. The dependence on public facilities for hospitalized treatment is very low in Andhra Pradesh. The percentage of beds in government hospitals is also very low in Andhra Pradesh.

8.3 Utilization of health services by fractile group of MPCE, region, gender, education and social groups.

Fractile Groups (mpce): In the 52nd round, the utilization of public health facilities for out-patient care by all the fractile groups in rural areas has reduced over the decade (1986-87 to 1995-96). **The dependence of poor on primary health care centers has also reduced in rural areas.** This clearly indicates that people are seeking more and more of private services. The utilization of public health facilities in urban India for out-patient treatment is only 20%. **In less developed states like Rajasthan, Madhya Pradesh, Bihar and Orissa also, 60% to 80% of out-patients in urban areas depended on private and other facilities.**

As far as in-patient services are concerned, 42nd round results revealed that bottom 20% of the fractile groups depended largely on public providers for hospitalization. **But, over the decade the dependence on public providers has declined.** The percentage of dependence on public providers as revealed from 52nd round, varies from 32 to 63% among different fractile groups in rural areas. In urban areas the dependence varies between 26 to 68% among different fractile groups. Except the lowest mpce in rural areas, there is a decline in dependence on public providers for hospitalized treatment with the rise in mpce (NSS, Report No. 441, 1995-96). **This indicates that there is need for continued supply of subsidized health care, particularly the hospitalized treatment for the benefit of the poor.**

Social group: In the 42nd round, of the total hospitalized cases treated in public hospitals STs constituted 5.48% and SCs constituted 20.19% in rural areas. In urban areas, of those who sought treatment in government hospitals, STs were 1.73% and SCs were 17.85%. Classification of hospitalized cases as per social groups under different sources of treatment in 42nd round revealed that SCs and STs depend more on public hospitals and PHCs as compared to other social groups as shown in Table-8 below.

**Table-8 Hospitalized cases as per social groups under different sources of treatment
42nd round (India)**

| Social Groups | Private hospitals | | PHCs | | Public hospitals | |
|---------------|-------------------|-------|-------|-------|------------------|-------|
| | Rural | Urban | Rural | Urban | Rural | Urban |
| SC | 3.38 | 1.75 | 10.17 | 3.11 | 5.48 | 1.73 |
| ST | 12.29 | 10.18 | 20.56 | 29.83 | 20.19 | 17.85 |
| Others | 84.12 | 87.78 | 69.26 | 66.76 | 74.09 | 80.15 |

52nd round (India)

| Social Groups | Private hospitals | | PHCs | | Public hospitals | |
|---------------|-------------------|-------|-------|-------|------------------|-------|
| | Rural | Urban | Rural | Urban | Rural | Urban |
| SC | 16.0 | 10.0 | 25.2 | 20.9 | 24.3 | 18.5 |
| ST | 4.0 | 2.3 | 15.0 | 9.9 | 8.4 | 4.1 |
| Others | 80.0 | 87.7 | 59.4 | 69.2 | 67.2 | 77.3 |

In 52nd round **though the overall dependence of all the social groups on public health care institutions has come down, tribal people and the scheduled castes still depend more on public facilities as compared to private services.**

IX. Type of Treatment

There is a general complain by public in both rural and urban areas that government health services which are free and are mainly for the poor, in reality are not free (see Table-A-13; A-14; A-15). The survey results of 42nd and 52nd round do support this. In 1986-87, 61% and 55% of the hospitalized cases in the country respectively in rural and urban areas received free treatment. But, in 52nd round, the free treatment was available only for 39% and 35% of hospitalized cases in rural and urban areas respectively. In Orissa, while, 90% and 88% of the hospitalized cases in rural and

Table-9: Percentage distribution of hospitalized cases during last 365 days by type of ward in Govt. & Pvt. Hospitals

| States | Free Ward (42nd Round) | | | | Free Ward (52nd Round) | | | |
|-------------|------------------------|-------|---------|-------|------------------------|-------|---------|-------|
| | Govt. | | Private | | Govt. | | Private | |
| | Rural | Urban | Rural | Urban | Rural | Urban | Rural | Urban |
| Maharashtra | 91.32 | 88.95 | 8.68 | 11.06 | 27.30 | 25.10 | 1.40 | 3.50 |
| Karnataka | 91.33 | 96.20 | 8.67 | 3.80 | 36.40 | 23.50 | 1.40 | 1.80 |
| Orissa | 94.35 | 88.95 | 5.67 | 11.05 | 82.70 | 73.30 | 0.40 | 1.90 |
| All India | 91.01 | 92.35 | 8.99 | 7.65 | 38.80 | 34.70 | 2.80 | 3.50 |

urban areas respectively had received free treatment in 1986–87, only 83% (rural) and 75% (urban) are receiving free treatment as revealed in 52nd round. **In Maharashtra, free treatment is available to only one-fourth hospitalized cases.** Earlier i.e. in 42nd round, 89% in rural areas and 76% in urban areas received free treatment. In Karnataka also the proportion of free treatment has come down. It is available to one-fourth of the urban patients and one-third of rural patients. In 1986-87, three-fourth of the in-patients in urban areas and more than 90% in-patients in rural areas in Karnataka had received free treatment. In addition to government hospitals and PHCs, hospitals run by public trusts also provided relief to poor patients to a larger extent in 1985–86. But, such information is not available in the 52nd round.

None of the hospitalized case in public sector reported in Orissa in 42nd round, paid for special treatment neither in rural nor in urban areas. In Maharashtra, paying special cases were only from bottom 10% and top 10% of fractile group in rural areas and from top 10% in urban areas. In rural areas of Karnataka, while higher income groups opted for special treatment, all the cases paying special in urban areas were from bottom 10% of income group.

During 1986-87, medicines, facilities of x-ray, ECG, EEG, other diagnostic tests and physio-radio therapies were available to 83% of the out-patients in the country. Surgical operation facility for patients not treated as indoor was available to only 53% of the out-patients. Details on these services are not available for 52nd round.

In rural Orissa, where majority of the in-patients depend on government hospitals, only 17% of the in-patients in government hospitals had received free medicines as indicated in 42nd round survey results. In Maharashtra and Karnataka only 34% and 32% of the in-patients respectively did not pay for medicines. For other items of expenditure, **percentage of hospitalized cases receiving treatment on payment in government hospitals is higher in Orissa. Though patients in Orissa do not go for paid special treatment, the free services on**

which they largely depend are free on paper only. Next to medicines, expenses of X-ray and ECG are a burden on poor people as most of the government hospitals do not have these facilities.

In urban areas of Orissa during 1986-87, hospitalized cases had relatively lesser on payment treatment in government hospitals. **In Karnataka, higher percentage of in-patients in government hospitals in urban areas spent on all type of diagnostic tests, physio and radio therapies and on surgical operation as compared to other two states. On payment cases for all type of expenditure categories were comparatively less in Maharashtra in urban and rural government hospitals.** In private urban hospitals, 4% in-patients had received free medicines and up to 2% in-patients had received other facilities freely in the country during 1986-87.

X. How much do people spend on Treatment?

10.1 In-patients:

World Development Report (1993) revealed that out-of pocket spending for drugs, traditional medicine and user fees usually accounts for more than half of total spending for health in India. Based on this one can argue that when people are currently spending more than half from their pocket for free (public) but poor quality health service, then it would be better to go in for private paid in services with improved or better quality services.

But, the fact that majority of the poor still use public facilities particularly for hospitalized treatment points out the need for continued public services. Even if they spend half of the expenditure from their own source, the other half that is saved or unused for other purposes reduces burden on the family.

The cost of hospitalized treatment generally includes expenses on medicines, pathological and diagnostic tests like X-ray, ECG, EEG, physiotherapy/radio-therapy, charges of ambulance, bed charges, cost of oxygen and blood, surgery and consultation charges.

Table:10 –Average total expenditure (Rs.) per hospitalization by type of hospital (India)-52nd round

| Type of hospital | Rural | Urban |
|--------------------------------|-------|-------|
| Public hospital | 2245 | 2191 |
| PHC / CHC | 740 | 2461 |
| Public dispensary. | 1887 | 1977 |
| Public sector hospital | 2080 | 2195 |
| Private hospital | 4394 | 5524 |
| Nursing home | 4185 | 5749 |
| Charitable institution | 3808 | 3078 |
| Other | 3015 | 1630 |
| Private sector hospital | 4300 | 5344 |
| Any hospital | 3202 | 3921 |

Source: NSSO (1998) , Report No. 441(52nd round), p.28

As shown in Table-10, average total expenditure per hospitalized case varies from Rs.2080 in public hospitals to Rs.4300 in private sector hospitals in rural areas. In urban areas, the variation is from Rs. 2195 to Rs. 5344 for public and private sector hospitals respectively.

There is no wide difference between inpatient care for rural and urban patients in public hospitals but, urban patients pay higher price for hospitalization in private hospitals.

Table-11: Average total expenditure (Rs.) per hospitalization by type of hospital for rural and urban areas (in *Constant prices- Base-1980-81)

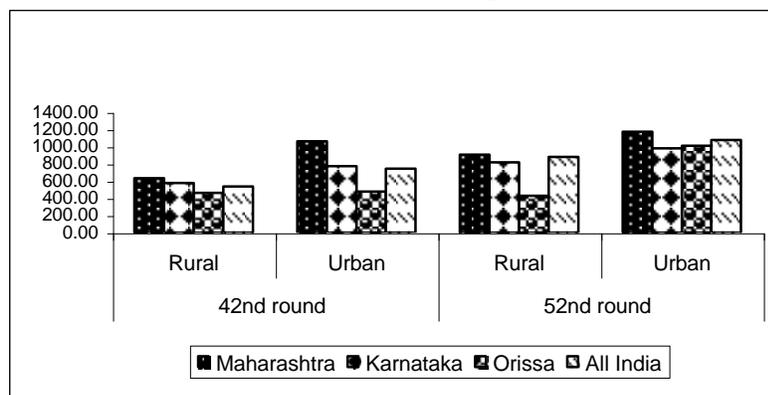
| State | 42nd Round (1986-87) | | 52nd Round (1995-96) | | | | | |
|-------------|-------------------------|-------------------|-------------------------|--------------------|------------------|--------------------|--------------------|-------------------|
| | Rural | Urban | Rural | | | Urban | | |
| | | | Govt. hospitals | Other hospitals | All | Govt. hospitals | Other hospitals | All |
| Karnataka | 577.99 (919) | 774.21 (1231) | 489.34 (1791) | 1120.00 (4100) | 818.85 (2997) | 427.00 (1564) | 1230.05 (4502) | 981.69 (3593) |
| Maharashtra | 634.00 (951) | 1064.67 (1597) | 449.7 (1529) | 1128.23 (3836) | 908.52 (3089) | 423.23 (1439) | 1572.00 (5345) | 1175.58 (3997) |
| Orissa | 462.11 (744) | 476.40 (767) | 440.05 (1681) | 676.17 (2583) | 429.58 (1641) | 560.73 (2142) | 3096.59 (11829) | 1012.56 (3868) |
| India | 536.48 (853) | 744.03 (1183) | 571.43 (2080) | 1181.32 (4300) | 879.67 (3202) | 603.02 (2195) | 1398.95 (5344) | 1077.30 (3921) |

Source: (i) NSSO (1992 & 1998), Report No. 324 (42nd round) and Report No. 441(52nd round), p.28

(ii) Constant prices using deflator –Handbook of Statistics on Indian Economy, RBI, 1999

(iii) Figures in parenthesis: current prices

Chart –1- Cost of treatment (Average total expenditure per illness- IP) (in constant prices)



As shown in chart-1, there is no substantial change in the average cost of hospitalization in rural Orissa over the decade. In fact there is a slight decline in the hospitalization cost. But, hospitalization cost in urban Orissa has increased by 112% and the increase is higher in private hospitals. One possibility could be that in Orissa 99% of the patients who seek treatment in government hospitals go for free treatment. Even though they pay for medicines and other expenses in free treatment, **there are no service and rental charges**. In private they have to pay for both of these and there is increase in expenditure. The other possibility for **high cost in private could be the poor quality of services in public hospitals**. As a result there is no competitor for private sector. Of the three specified states, total expenditure was higher in Maharashtra and lower in Orissa (Table-11). This is not so if private and public hospital costs are considered separately. Of the 15 major States, the expenditure was lowest in Kerala and highest

in Punjab in rural areas. **In urban areas also hospitalization expenses were lower in Kerala and higher in Uttar Pradesh.**

In 42nd round, in rural areas **average expenditure (per day) per hospitalized case in free type of treatment in government hospitals among three states was highest (Rs.40) in Orissa** and equal (Rs.24) in Maharashtra and Karnataka. Average cost in paying special category in government hospital was higher in Maharashtra but less than all India average expenditure. In urban government hospitals also in-patients in Orissa had to spend on an average Rs.40 in free type of treatment and Rs.115 in general category. In urban Maharashtra patients from middle and upper middle-income groups used special category service in public hospitals and spent on an average Rs. 143 per day per case. Per day expenditure in rural private hospitals varied from Rs. 40 in free type in Karnataka to Rs.205 in free type in Orissa. In a developed state like Maharashtra, per day expenses free type of treatment (Rs.86) in private rural is less than that in Orissa. In urban areas, per day expenses in free and paying general type of hospitalized treatment in private is less in Orissa as compared to Karnataka and Maharashtra.

State wise expenditure details for 52nd round reveal that hospitalization is costlier in government and private hospitals in rural Karnataka. Treatment in government hospitals is lower both in rural and urban Maharashtra. **In urban areas, hospitalization is costlier in Orissa both in government and private hospitals.** Average expenditure on hospitalized case is lesser also in urban government hospitals in Maharashtra. Expenditure is lesser in private hospitals in urban Karnataka as compared to Maharashtra and Orissa. In rural areas, cost per hospitalization in government hospitals is cheapest in Tamil Nadu (Rs.751) and highest in Uttar Pradesh (Rs.4237). In other hospitals cost is highest in Andhra Pradesh (Rs.7822) and cheaper in Assam (Rs.2003). In urban areas, cost varies from Rs.934 in Tamil Nadu to Rs. 8888 in Harayana for government hospitals and from Rs.2254 in Kerala to Rs.11829 in Orissa for private hospitals (See: NSS Report No.441, pp. A-93-94 and A-198-199).

Though the average expenditure is higher for higher income groups, it is not uniform and regular for all the states. There is variation in average expenditure when bottom and top 10 % fractile groups are taken into consideration. 52nd round results (see Annex Table-A-19) revealed that average total expenditure per hospitalized case varied from Rs.961 to Rs.5126 (1:5) and from Rs.1176 to Rs.7619 (1:6) respectively for public and private hospitals and for the bottom 10% and top 10% of fractile income group in rural areas. In urban areas, the average total expenditure varied from Rs.497 to Rs.8104 (1:16) and from Rs.1186 to Rs.12957 (1:11) respectively for public and private hospitals and for the bottom 10% and top 10% of fractile income group. **In rural areas, poor spend more on treatment in public hospitals compared to their counterparts in urban areas.** For hospitalized treatment rich spend nearly five times more than the poorest in rural areas and more than ten times in urban areas. There is no major difference between rural and urban areas in the average expenditure incurred by poorest on hospitalized case in private hospital. The average expenditure on hospitalized case is found to be generally lower for STs as compared to SCs and others in public hospitals in urban areas and private hospitals in rural areas.

10.2: Out Patient : Among the three specified states (shown in Table-12-A), cost of treatment for out-patients(OP) is lower in rural Karnataka and urban Orissa during 52nd round. Average expenditure per ailment varied from Rs. 91 in Karnataka to Rs. 144 in Maharashtra in rural areas and, from Rs. 117 in Orissa to Rs. 170 in Maharashtra in urban areas. Expenditure incurred on treating female out-patient is less than that incurred on treating a male patient in rural and urban areas in Karnataka and Maharashtra, while it is higher for females in Orissa.

Table-12 -A

Average medical and other related non-medical expenditure per treated ailment during 15 days by source of treatment and per capita public expenditure on health-OP

52nd round (in current prices)

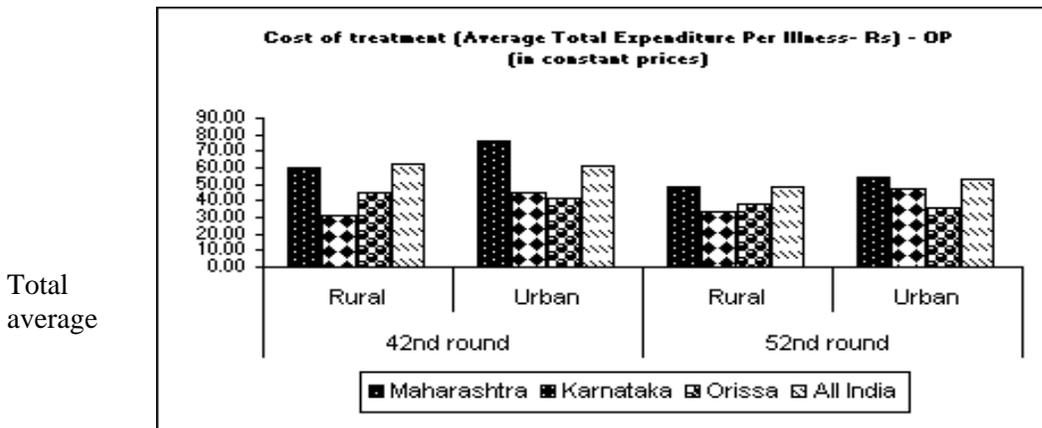
| State | Per capita public exp. on health | Medical expenditure by source of treatment | | | | | | Total expenditure by source of treatment | | | | | |
|-------------|----------------------------------|--|-------|-----|-------|-------|-----|--|-------|-----|-------|-------|-----|
| | | Rural | | | Urban | | | Rural | | | Urban | | |
| | | Govt. | Other | All | Govt. | Other | All | Govt. | Other | All | Govt. | Other | All |
| Karnataka | 54 | 61 | 127 | 108 | 120 | 160 | 151 | 70 | 142 | 122 | 136 | 184 | 172 |
| Maharashtra | 78 | 73 | 161 | 147 | 91 | 175 | 163 | 90 | 179 | 165 | 125 | 195 | 185 |
| Orissa | 47 | 118 | 151 | 137 | 128 | 127 | 128 | 129 | 158 | 147 | 143 | 133 | 136 |
| India | 70 | 110 | 168 | 157 | 146 | 185 | 178 | 129 | 186 | 176 | 166 | 200 | 194 |

Table-12-B- Cost of treatment (Average Total Expenditure Per Illness- Rs) - OP (in constant* prices) Base- 1980-81

| States | 42nd round | | 52nd round | |
|-------------|------------|-------|------------|-------|
| | Rural | Urban | Rural | Urban |
| Maharashtra | 60.07 | 76.60 | 48.53 | 54.41 |
| Karnataka | 31.63 | 44.98 | 33.33 | 46.99 |
| Orissa | 44.47 | 41.61 | 38.48 | 35.60 |
| All India | 62.79 | 61.23 | 48.35 | 53.30 |

* Using deflator- Handbook of Statistics on Indian Economy, RBI, 1999.

Chart-2



expenditure on out-patient treatment (1995-96) is Rs. 176 (Rs. 48 in constant prices) in rural areas and Rs. 194 (Rs.53 in constant prices) in urban areas. Average OP expenditure is least for Tamil Nadu in rural areas and for Kerala in urban areas and is highest in Uttar Pradesh and in Madhya Pradesh in urban areas (see Table-13-B). The cost of treatment is higher for middle aged in rural and in urban areas. On the whole, **there is increase in average expenditure corresponding to an increase in the age groups.** The comparison of expenditure between two rounds of NSS reveals that the out patient cost has not risen in real terms (see Table- 12-B and Chart-2). **The reforms process has no major effect on the cost of non-hospitalized treatment i.e. primary health care.** Increase in the number of doctors, transport facilities, services of doctors trained in ayurveda and homoeopathy at lower costs, availability of cheaper medicines, etc., may be the reasons withholding rise in the cost of treatment.

Table 13- A: Average total expenditure (in Rs.) for hospitalized and non-hospitalized treatment for each State/U.T.(India) - in constant prices**

| SL.No | State / U.T | Hospitalized Treatment | | | | Non-hospitalized Treatment | | | |
|-------|----------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | | Rural | | Urban | | Rural | | Urban | |
| | | 42 nd Rd.1986-87 | 52 nd Rd.1995-96 |
| 1 | Andhra Pradesh | 460.11 | 1668.32 | 549.79 | 1268.11 | 45.99 | 30.11 | 39.14 | 37.11 |
| 2 | Arunachal Pradesh. | - | - | - | - | - | 159.15 | - | 71.13 |
| 3 | Assam | 287.05 | 480.52 | 586.33 | 936.34 | 105.24 | 20.51 | 89.86 | 27.18 |
| 4 | Bihar | 720.61 | 1074.34 | 713.37 | 1036.49 | 123.90 | 61.23 | 61.13 | 48.99 |
| 5 | Goa* | 343.26 | - | 937.97 | - | 104.45 | 63.50 | 68.67 | 39.65 |
| 6 | Gujarat | 503.19 | 725.20 | 706.17 | 906.03 | 52.47 | 39.21 | 57.66 | 57.46 |
| 7 | Haryana | 919.26 | 873.88 | 548.36 | 1771.87 | 46.67 | 49.60 | 49.13 | 108.96 |
| 8 | Himachal Pradesh | 601.62 | - | 661.81 | - | 90.54 | 27.91 | 81.35 | 41.15 |
| 9 | Jammu & Kashmir | 397.46 | - | 384.30 | - | 61.72 | 67.14 | 59.07 | 51.46 |
| 10 | Karnataka | 576.67 | 819.22 | 772.46 | 982.14 | 31.57 | 24.87 | 44.89 | 42.37 |
| 11 | Kerala | 251.89 | 560.25 | 264.43 | 470.82 | 21.52 | 29.08 | 28.53 | 26.39 |
| 12 | Madhya Pradesh | 452.10 | 599.47 | 429.39 | 758.98 | 103.82 | 35.30 | 67.16 | 96.04 |
| 13 | Maharashtra | 634.65 | 907.92 | 1065.44 | 1174.80 | 60.12 | 42.32 | 76.66 | 49.97 |
| 14 | Manipur | 421.73 | - | 693.42 | - | 80.23 | 101.17 | 122.09 | 55.92 |
| 15 | Meghalaya | 316.22 | - | 337.59 | - | 29.19 | 7.35 | 61.48 | 19.05 |
| 16 | Mizoram | - | - | - | - | - | - | - | - |
| 17 | Nagaland | - | - | 383.31 | - | - | - | 123.61 | - |
| 18 | Orissa | 461.36 | 429.92 | 475.35 | 1013.36 | 44.39 | 25.94 | 41.54 | 30.65 |
| 19 | Punjab | 936.96 | 1297.58 | 1069.17 | 1485.92 | 61.03 | 45.00 | 56.65 | 40.32 |
| 20 | Rajasthan | 698.53 | 871.26 | 501.72 | 903.09 | 73.27 | 49.33 | 83.21 | 50.47 |
| 21 | Sikkim | 294.90 | - | 469.17 | - | 336.30 | - | 242.45 | - |
| 22 | Tamil Nadu | 416.30 | 783.45 | 628.22 | 1085.25 | 31.05 | 21.79 | 33.97 | 32.28 |
| 23 | Tripura | 206.82 | - | 143.11 | - | 25.92 | 22.82 | 40.70 | 53.52 |
| 24 | Uttar Pradesh | 803.56 | 1225.33 | 1184.03 | 1661.20 | 93.53 | 56.91 | 103.21 | 59.73 |
| 25 | West Bengal | 310.92 | 603.81 | 804.90 | 992.57 | 37.95 | 32.40 | 57.20 | 38.26 |
| 26 | A. & N.Islands | 79.12 | - | 976.44 | 0.00 | 26.53 | 7.55 | 21.91 | 15.11 |
| 27 | Chandigarh | - | - | - | - | - | - | - | - |
| 28 | Dadra & Nagar Haveli | - | - | - | - | - | - | - | - |
| 29 | Daman & Diu | - | - | - | - | - | - | - | - |
| 30 | Delhi | 1364.60 | 0.00 | 1055.74 | 0.00 | 251.55 | 41.91 | 86.32 | 51.93 |
| 31 | Lakshadweep | - | - | - | - | - | - | - | - |
| 32 | Pondichery | 211.41 | 0.00 | 272.96 | 0.00 | 17.87 | 2.83 | 165.63 | 11.56 |
| | All India | 536.62 | 879.67 | 743.99 | 1077.20 | 62.79 | 39.56 | 61.23 | 48.08 |

Source: NSSO (1992 &1998), Sarvekshana-42nd round(1986-87), 51st issue, Vol. .XII, No. 4; Morbidity and Treatment of Ailments, 52nd round (1995-96).Report No.441.

* Average total expenditure= medical expd plus other expd= (medicines, bandages, plaster, fees, diagnostic tests, ambulance, oxygen, blood) (transport, lodging, attendant charges)

** includes Daman and Diu

*** Using deflator –Handbook of Statistics on Indian Economy, RBI, 1999

**Table 13:B-Average total expenditure* (in Rs.) for hospitalized and non-hospitalized treatment for each State/U.T.
(in current prices)**

| SL.No | State / U.T | Hospitalized Treatment | | | | Non-hospitalized Treatment | | | |
|-------|----------------------|------------------------|-----------------|-----------------|-----------------|----------------------------|-----------------|-----------------|-----------------|
| | | Rural | | Urban | | Rural | | Urban | |
| | | 42nd Rd.1986-87 | 52nd Rd.1995-96 | 42nd Rd.1986-87 | 52nd Rd.1995-96 | 42nd Rd.1986-87 | 52nd Rd.1995-96 | 42nd Rd.1986-87 | 52nd Rd.1995-96 |
| 1 | Andhra Pradesh | 753.81 | 6428 | 900.73 | 4886 | 75.34 | 116 -165 | 64.12 | 143- 172 |
| 2 | Arunachal Pradesh. | - | - | - | - | - | 490 | - | 219 |
| 3 | Assam | 499.75 | 1945 | 1020.79 | 3790 | 183.22 | 83 - 151 | 156.45 | 110- 180 |
| 4 | Bihar | 1141.87 | 3860 | 1130.4 | 3724 | 196.33 | 220 -213 | 96.86 | 176- 212 |
| 5 | Goa** | 589.56 | - | 1610.98 | - | 179.39 | 197 | 117.94 | 123 |
| 6 | Gujarat | 809.14 | 2663 | 1135.54 | 3327 | 84.38 | 144 -157 | 92.72 | 211- 218 |
| 7 | Haryana | 1336.05 | 3224 | 796.98 | 6537 | 67.83 | 183 -189 | 71.41 | 402 -414 |
| 8 | Himachal Pradesh | 919.29 | - | 1011.26 | - | 138.35 | 97 | 124.31 | 143 |
| 9 | Jammu & Kashmir | 681.27 | - | 658.71 | - | 105.79 | 214 | 101.25 | 164 |
| 10 | Karnataka | 918.68 | 2997 | 1230.59 | 3593 | 50.29 | 91 -122 | 71.52 | 155- 172 |
| 11 | Kerala | 463.91 | 2293 | 487.02 | 1927 | 39.63 | 119 -136 | 52.55 | 108- 120 |
| 12 | Madhya Pradesh | 723.16 | 2191 | 686.84 | 2774 | 166.07 | 129 -155 | 107.43 | 351 -376 |
| 13 | Maharashtra | 951.23 | 3089 | 1596.9 | 3997 | 90.11 | 144 -165 | 114.90 | 170 -185 |
| 14 | Manipur | 688.35 | - | 1131.8 | - | 130.95 | 351 | 199.27 | 194 |
| 15 | Meghalaya | 559.91 | - | 597.76 | - | 51.69 | 32 | 108.86 | 83 |
| 16 | Mizoram | 144.5 | - | 191.2 | - | 48.01 | 37 | 196.30 | 86 |
| 17 | Nagaland | - | - | 600.75 | - | - | 270 | 193.73 | 790 |
| 18 | Orissa | 744.09 | 1641 | 766.65 | 3868 | 71.60 | 99 -147 | 66.99 | 117 -136 |
| 19 | Punjab | 1402.01 | 4988 | 1599.84 | 5712 | 91.32 | 173 -175 | 84.76 | 155- 162 |
| 20 | Rajasthan | 1024.88 | 3038 | 736.12 | 3149 | 107.50 | 172 -192 | 122.09 | 176 -198 |
| 21 | Sikkim | 450.64 | - | 716.94 | - | 513.90 | 63 | 370.49 | 252 |
| 22 | Tamil Nadu | 684.37 | 2840 | 1032.76 | 3934 | 51.05 | 79 -102 | 55.84 | 117 -129 |
| 23 | Tripura | 351.67 | - | 243.34 | - | 44.07 | 55 | 69.21 | 129 |
| 24 | Uttar Pradesh | 1236.11 | 4349 | 1821.39 | 5896 | 143.88 | 202 -224 | 158.77 | 212 -227 |
| 25 | West Bengal | 488.02 | 1957 | 1263.35 | 3217 | 59.57 | 105 -131 | 89.78 | 124 -137 |
| 26 | A. & N.Islands | 131.86 | - | 1627.41 | - | 44.21 | 25 | 36.51 | 50 |
| 27 | Chandigarh | 282.44 | - | 1309.06 | - | 33.88 | 36 | 89.02 | 200 |
| 28 | Dadra & Nagar Haveli | 404.06 | - | - | - | 44.70 | 85 | - | 112 |
| 29 | Daman & Diu | - | - | - | - | - | 73 | - | 114 |
| 30 | Delhi | 2053.46 | - | 1588.68 | - | 378.53 | 138 | 129.90 | 171 |
| 31 | Lakshadweep | 1973.01 | - | 1055.33 | - | 114.60 | 56 | 102.20 | 5 |
| 32 | Pondichery | 340.55 | - | 439.7 | - | 28.78 | 11 | 266.81 | 45 |
| | All India | 853.23 | 3202 | 1182.95 | 3921 | 99.84 | 144 -176 | 97.35 | 175 -194 |

Note: ** includes Daman and Diu

Source: NSSO (1992 &1998), Sarvekshana-42nd round(1986-87), 51st issue, Vol.XII, No. 4; Morbidity and Treatment of Ailments, 52nd round (1995-96).Report No.441.

*. Average total expenditure- medical expd plus other expd= (medicines, bandages, plaster, fees, diagnostic tests, ambulance,oxygen, blood)(transport, lodging, attendant charges)

*** The variation in average expenditure shown for non-hospitalized treatment in 52nd round is due to separate estimates presented in the

report (Table-4.19 and Table 22.1) gender wise and state wise.

World Bank estimates of total health expenditure in India (1990-91) reveal that per capita expenditure on health by public sector was Rs.68.8 (21.5%) and that by private sector was Rs.250.5 (78.5%). Of the total private expenditure, 75 percent is reported to be out-of-pocket expenditure incurred by households (Berman Peter,1998).

XI. Loss of household income due to illness (out-patient):

As per 52nd round survey results, due to illness households had to forego per non-hospitalized illness episode, an average amount of Rs. 55 in rural areas and Rs. 44 in urban areas. This almost amounts to one day wage loss on account of occurrence of a illness. In rural areas, the burden of illness in terms of loss of household income is higher in Arunachal Pradesh, Harayana and Manipur and less in Assam, Goa, Mizoram, Delhi, Pondicherry and Daman Diu.

The loss of income in rural areas varied from Rs. 2 in Daman Diu to Rs. 185 in Arunachal Pradesh.

Table-14: Loss of Household income (52nd Round) (in Rs.)

| States | Out-Patient | | In-patient | | | | | |
|-------------|-------------|-------|-----------------|-------|--------------|-------|-------|-------|
| | Rural | Urban | Bottom 10% mpce | | Top 10% mpce | | All | |
| | | | Rural | Urban | Rural | Urban | Rural | Urban |
| Maharashtra | 55 | 35 | 188 | 383 | 1113 | 706 | 587 | 534 |
| Karnataka | 72 | 54 | 260 | 203 | 1326 | 741 | 798 | 518 |
| Orissa | 70 | 35 | 101 | 418 | 811 | 680 | 402 | 450 |
| All India | 55 | 44 | 270 | 273 | 937 | 923 | 563 | 521 |

In urban areas, average loss of income is higher in Arunachal Pradesh, Harayana, Nagaland, Rajasthan and Chandigarh and lower in Delhi, Tripura, Goa and Meghalaya. The loss of income in urban areas varied from Rs.2 in Mizoram to Rs.191 in Arunachal Pradesh. **Of the three specified states, the burden of out-patient treatment is higher in Karnataka both in rural (Rs.72) and urban (Rs.54) areas.**

Average amount of loss of household income per hospitalized case was roughly Rs. 270 (Rs. 273-urban) for bottom 10 percent mpce class and Rs. 937 for top 10 percent mpce class in rural and urban areas. Average loss for all the mpce groups was Rs.563 in rural areas and Rs. 521 in urban areas. **The loss of income due to hospitalization for the bottom 10 percent group is higher in urban Orissa as compared to Maharashtra and Karnataka and higher in rural Karnataka as compared to Orissa and Karnataka** (see Table A-20). On an average the burden of hospitalization is higher in rural Karnataka and urban Maharashtra.

XII. Messages from NSS in the light of ongoing Economic Reforms

It is difficult to justify whether development leads to growth or growth facilitates development. Both are complimentary. Similarly, there are many developments in the economy over the last decade, which have had an impact both positive and negative on different sectors independently off economic reforms. The technological development in health sector on the one hand has facilitated detection of diseases, conducting complicated surgeries, increased comforts in post-surgery period, introduced new drugs and dissemination of latest health information. On the other hand it has led to over use of diagnostic tests, increase in hospital wastes, death of

female foetus in womb and increase in the cost of hospitalized health care. Technological development is not just the result of economic reforms. It is the out come of growth process and, liberalization or economic policies act as facilitators to avail it worldwide.

But, changes like increasing privatization, changing role of the public sector in the provision of health care, drug production and sale due to WTO / TRIPS are some of the developments which are induced due to liberalization policies accepted by government.

12.1 Private V/S Public

Private sector has been playing a predominant role in the provision of health care since many years. But, there is an increasing trend in the share of private sector in many fields including health. The liberalization policies under the economic reforms favor market forces to operate in all the fields including social sector. But, it is doubted whether the model premised upon competitive charges and cost containment would operate effectively in distribution of social goods such as health (Sen. Kasturi, 2001).

Studies on private sector and the present analysis of the NSS results however indicate that **private health services are urban biased, cater to better off and provide costlier service (Baru,1999; IIM, 1987; Bhat, 1999) whereas, public health facilities cater to poor, rural and disadvantaged sections and are cheaper** (Prabhu 1999; IIM 1987). The growth of private sector has been linked to new economic policy, influx of medical technology, growing deficits of the public sector hospitals and rising middle class. In a study undertaken in Ahmedabad, 91% of the providers surveyed believed that the cost and use of diagnosis have increased due to Consumers Protection Act (Bhat,1999). Moreover there is need to look in to the efforts already begun in this direction and learn from the lessons. While government initiatives in health care partnership have failed in large-scale ventures in Delhi, Punjab and Rajasthan, smaller ventures involving NGOs in running PHCs in Gujarat (SEWA), Tamil Nadu (Bhat, 1999) and Karnataka (involvement in Primary Health Care-PHCs) have proved to be successful.

Studies have shown that there is a strong positive relationship between per capita health spending and per capita GDP (New house, 1977¹). Few others like Lew (1986)¹ have reported that health care spending is influenced by the share of public expenditure in total health spending and the presence of a centralized national health system. Both the studies quoted above support **the argument that health care expenditure depends on resources position of states and the quantum of government share in total health expenditure. Poor states need continued financial support to invest in merit good like health. In such a situation if states get central assistance for health on matching grant basis then poor states, which are unable to spend more would suffer.**

NSS results and other studies (IIM, 1987; NCAER, 1992; Baru,1999) reveal that still a substantial section of the population particularly the poor and the underprivileged depend on public hospitals for hospitalized care. **IIM study revealed that government hospitals served the poor and private hospitals served the better off. Middle class people used government hospitals mainly to avail of diagnostic and surgical facilities, which they could not avail privately.** Medical college hospitals had multiple roles of super-specialty and emergency care for serious patients, legal cases and the poor.

¹ as cited in Hitiris Theo and John Posnett (1992), *Journal of Health Economics*, Vol. II, pp.173-181, 1992

12.2 Drugs and the Poor

Drug prices were said to be high in India during independence. The establishment of two Public sector units in early 70s led to 60 to 70% decline in the prices of anti-biotic (Sen Amit, 1999) during that period. Even after that the dependence on foreign drug industries and imports to meet the domestic demand continued to exist. The Indian Patent Act 1970, which recognizes process patent stimulated domestic production of bulk drugs and formulations. Process patent has enabled domestic industries to make process modifications to develop MNC's bulk drugs and then formulations. But, there is no proper regulation of drug industry and drug prices in India. Large numbers of small scale units have been set up and large number of brands reported to be irrational and unnecessary are produced on a wider scale. Though, in general the drug prices are cheaper in India, some of the drug prices particularly the prices of antibiotics are higher and are reported to be beyond the reach of common man. It is reported that the amount spent annually by the drug industry in industrialized countries on each doctor for sale of their products varies from US \$ 2665 in Canada to \$ 8000 in UK and USA (Chauhan et.al, 1997). With the entry of multinationals advertising costs are increasing in India also.

WDR (1993) reports that developing countries should reduce the waste and inefficiency in drug management. Bulk purchase, selection and quantification of drug requirements in part through the use of essential drug lists are some of the measures advocated as 10 to 30% of public spending for health comprises of pharmaceuticals in most of these countries.

Under the liberalization policy of the government it is argued that prices should be left to self-regulation by market forces. The reduction in the number of drugs under price control in New Drug Policy, 2002 is one measure, which supports this argument. Our earlier experience with DPCO reveals that if more number of drugs are out of DPCO, then generally there is increase in the price of these drugs and also increased production of non-essential drugs. **DPCO helps in putting a ceiling on prices of certain mass usage bulk drugs and their formulations and prevents undue profit earning.** The availability, accessibility and the cost of essential drugs depend upon drug policy that is adopted by the country. Criteria of categorization of drugs by DPCO in India is generally based on monopoly and turnover rather than essentiality. Drugs under DPCO declined from 450 to 347 in 1975, from 347 to 142 in 1986, from 142 to 73 in 1994 and, from 73 to 39 in 2002. The coverage of control has come down to 20-25% from 50-60 percent. The earlier developments in pharmaceutical industry encouraged growth of the industry. Exports went up and large number of small scale units were set up. But, due to hike in Maximum Allowable Post Manufacturing Expenses (MAPE) in 1986, consumers were affected.

The prices of drugs at present in India are said to be comparatively cheaper. With product patent prices would definitely go up. NSS results indicate that free medicines at public hospitals are available to limited percentage of the sick population. Patients are spending on medicines and have to spend more in future as new drugs would be available at higher prices.

12.3 Primary V/S Secondary / tertiary care

Many studies and reports emphasize the importance of the provision of primary health care as the basis for improving health status. Countries like Srilanka, China and Kerala state in India have achieved low morbidity and mortality rates in spite of their relatively low per capita incomes due to expansion of primary health care services. Shariff and others (1999) argue that majority of the health problems faced by people in India are amenable through essential public

health investments, cost-effective intervention, improvement in efficiency of public health services focusing on primary health care.

IIM (1987) study has revealed **that there is underutilization of public facilities in rural areas whereas the load of patients at the district level and specialized hospitals is high.** This indicates that services available in rural areas are of poor quality, inadequate, inefficient and people depend on public tertiary care. Therefore, government should first improve **primary health care facilities before involving private sector in tertiary care.**

But, WDR (1993) has aroused much debate over the issues of primary and tertiary care. World Bank advocates cut in government expenditure for tertiary care, encouragement to private sector for clinical services, investment in cost effective public health activities and community control and financing of essential health care. National Health Policy-2002 incorporates many of these recommendations.

But, in the light of NSS results on utilization of health care services and treatment seeking behaviour, there is need to address to the **issues of equity, affordability and sustenance in designing and formulating policies** on health care provision, particularly those, which involve community management and private participation.

12.4 Availability and Accessibility

Utilization of health care services is determined to a large extent not just by their availability but also by their accessibility. Mere provision of health institutions may not lead to improvement in public health. People need to utilize them when there is need so as to improve their health status. **NCAER (1992) study reveals that in rural areas people have to travel a long distance to avail medical facilities as compared to urban households.** States like Maharashtra and Punjab have good health status and a well-distributed public health system and West Bengal, Gujarat, Karnataka and Tamilnadu are lower but better off compared to Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Bihar, Rajasthan and Orissa. This indicates that generally economic development of a state is linked to its health status (except Kerala) and availability of public facilities.

Tamil Nadu has higher number of PHC per 100 sq.kms as compared to Maharashtra. But, according to a study, in Tamil Nadu, 36% of the patients had to travel 3–5 kms and 30% had to travel 6 – 10 kms to get treatment. In Tamil Nadu there is higher reliance on private facilities (>50%). In Maharashtra less than 50% illness episodes were referred to private doctors (Prabhu, 1999).

42nd and 52nd rounds reveal that public primary health care facilities (i.e. PHCs/SCs) are not utilized properly by the people. Longer waiting period, arrogant behaviours, non-availability of medicines, irregular visits by doctor, not responding to community health needs are the reasons stated for non-utilisation of PHCs / SCs (Chirumule and Anuradha, 1997; Prabhu, 1999 ; NIHF 1983; NIHF 1989; IIM,1987). People opt for home remedies only when there is non-availability of either private or public services and also due to poverty, which restricts the use of paid services (Chirumule and Anuradha, 1997 - Rajasthan Study). NIHF (1983) study on utilization of health services in Madhya Pradesh **revealed that as many as 50 percent of the people who died of various causes did not get medical attention at death.** Such incidences would be more in rural areas, where emergency treatment or timely transport is not available.

NSS results indicate that **primary health care services are not available regularly and uniformly**. The percentage of people not seeking treatment **due to non-availability of services has increased during 42nd to 52nd round**.

12.5 Decentralisation/Community involvement in Health Care Delivery

The empowerment of the Panchayat Raj bodies under the 73rd Amendment to the Constitution has strengthened panchayats with greater devolution of power, finances and functions. Health and education are functions listed under panchayats. But, the involvement of **panchayats in health and education is nominal and it is only at the district level**. Village panchayats till today do not perform any major programme under health and education. Provision of health services is limited to water supply and sanitation. Kerala is an exception to this where in, panchayats are being involved in planning of services at local level and 40 percent of the district funds are allocated to panchayat programmes.

Due to resource constraints, technological development, emergence of new communicable and non-communicable diseases and overgrowth of population, government is unable to allocate sufficient resources to health sector. Economic reforms leading to liberalization have opened ways for privatization. But, complete privatization of basic services like health and education is not feasible as it will not assure equitable distribution of primary health services and it also may deny the poor from getting subsidized in-patient care in hospitals.

12.6 National Health Policy (NHP), 2002 – Are we moving in the right direction?

Before discussing the NHP-2002, it would be worthwhile to see what happened after NHP-1983. The main focus of NHP-1983 was on achieving health for all by 2000 AD. But, targets could not be achieved due to lack of resources, co-ordination and fulfillment of equity aspects. The poor States viz. Rajasthan, Madhya Pradesh, Bihar, Orissa and Uttar Pradesh are rated to be low performing States in terms of health status (2000). IMR, MMR, percentage of under-weight children, leprosy and malaria cases continue to be high in these States. Nutrition was one of the priority areas in NHP-1983. **But, the percentage of undernourished is higher in poor States**. These States are largely depending on public facilities. **This indicates that health services are inadequate in poor States**. And, the focus on creation of Sub-centres (SCs) and PHCs as a part of NHP-1983, without ensuring the quality of the infrastructure and availability of staff has resulted in non-utilization of PHCs to a large extent as revealed in 52nd round results.

NHP-2002 states to use the services of practitioners in Indian system of medicine who have undergone formal training in implementation of public health policy. **NSS 52nd round results indicate that dependency on ayurveda and homoeopathy is negligible**. **This is because these graduates who have training in other systems, practice allopathy and meet emergency requirement of people in rural areas**. **But, this has not reduced the demand for trained medical graduates in allopathy in rural areas**. Ayurveda and homoeopathy, which are gaining importance in urban areas are not popular in rural areas.

The present policy of promoting indigenous/alternate medicines would benefit only the rich and urban unless awareness and suitable atmosphere for cheaper production of ayurvedic drugs and legal framework for its practice on large scale is created at the root level.

Since health is a state subject, major provision of health care services falls on state governments. But, due to resource constraints the share of health sector in state budget is declining. Resource constraints and increasing population call for alternative arrangements for health care provision.

The emphasis in NHP-2002 is on implementation of public health programmes through local self government and autonomous institutions. But, without control over primary health care and the concerned staff it may be difficult for these institutes to monitor and implement only the public health programmes in isolation.

NHP-2002, states to set up urban primary health centers for every one lakh population with local, state and central assistance. The existing municipal hospitals, which are already in worst condition due to lack of funds need to be strengthened and activated rather than establishing new primary health centers in urban areas. Secondary and tertiary care may be transferred to taluk and district hospitals respectively to avoid duplication and loss of resources. Moreover, private sector is effectively catering to primary health care in urban areas.

Considering the increase in accidental cases, NHP-2002 emphasizes on establishment of trauma centers at different places. It should be noted that the existing accident units at civil hospitals are not well equipped to handle serious cases and refer them to medical college hospitals. By the time the patient is shifted, the life is lost. Therefore, it is necessary that government plans to strengthen the units at civil/district hospitals.

The strategy to focus on new therapeutic drugs and vaccines for tropical diseases is a welcome feature in the light of emergence of Malaria and continued prevalence of TB with drug resistance for the existing vaccines.

Equity aspect is treated as a major goal in NHP-2002. **But, policy emphasizes on shifting the secondary and tertiary care to private sector. NSS results indicate that poor and SCs/STs depend largely on public facilities as compared to others.** IMR and MMR are still higher in poor States. IMR under five (age) mortality and percentage of children underweight is higher among SCs and STs. Policy states that programmes targeted at vulnerable sections need to be designed by planners. Health insurance schemes like 'Janarogya Policy' and 'Janaraksha Policy' are heard only during budget presentation. The common man or the poor to whom these subsidized health insurance programmes are targeted (but rarely covered) are unaware of these policies.

XIII. Summary and Insights for Policy Initiatives

A summary of the findings from a comparative study of three rounds of NSS (28th, 42nd and 52nd) on morbidity and utilization across States is presented below.

- Overall morbidity which had declined during two decades i.e. 28th round–42nd round (1961-62 to 1986-87), has increased during 1986-87 to 1995-96.
- Morbidity reporting is slightly higher in rural areas (all the rounds).
- Joints pain and BP are common ailments in rural and urban areas. While, incidence of gastritis and TB is higher in rural areas, diabetes and heart problems are found largely in urban areas. Stress, sedentary work, change in life style and food habits could be the reasons for increasing problems of heart, blood pressure and diabetes.
- There is a substantial increase in the dependence on private sector for out patient and in patient care in the country over the last decade.

- In urban areas private health sector is developing faster.
- Though there is reduction in the use of government facilities during the past decade, poor and hilly states still depend largely for out- patient and in-patient care on government facilities.
- For inpatient care, 45% of poor continue to depend upon public sector hospitals.
- There is urban bias in treatment of reported ailments.
- Poor have highest proportion of untreated illness. In backward state of Orissa, the percentage of ailing patients treated as inpatients from total ailing persons was lower for all the fractile groups in rural areas and for lower income groups in urban areas (42nd round).
- Child morbidity due to acute diseases is more in urban areas and more so in Orissa. The incidence of morbidity for acute and other diseases in all the age groups and for both the areas is higher in Orissa (52nd round).
- Hospitalized cases have declined during 1986-87 to 1995-96 in rural areas and increased in urban areas. Still, the absolute number of people hospitalized (per 1000) is higher in rural areas.
- Percentage of hospitalization is higher in rural areas as compared to urban areas in poor states like Orissa, Bihar, MP, UP and Rajasthan.
- Percentage of hospitalization is higher in Maharashtra in rural and urban areas both in 42nd and 52nd rounds as compared to Orissa and Karnataka.
- The cost of subsidized (free) treatment (average expenditure per day for hospitalized care) in government hospitals is higher in poor state of Orissa as compared to Karnataka and Maharashtra (42nd round).
- There is reduction in the level of subsidized health care. There is scarcity of medicines and other facilities in public hospitals.
- The burden of hospitalization due to loss of household income is higher in urban Orissa and rural Karnataka for the bottom 10 percent mpcce. It should be noted here that this corresponds with the cost of hospitalization (average expenditure), which is higher in urban Orissa and rural Karnataka.
- Though the percentage of people perceiving illness as not serious has come down, there is no corresponding increase in the number of people treated over the decade (42nd to 52nd round).
- Tobacco consumption and bad surroundings (marginally) have negative impact on health.

Insights from the study for Policy Initiatives

- The results of NSS rounds reveal that morbidity among children and aged is high and increasing. Malnutrition/under-nutrition could be one of the reasons for child morbidity. National Human Development Report-2001 indicated that over half of the children under age of five in India are moderately or severely malnourished and 30 percent of new born are significantly under weight. Postnatal care, nutritional supplements program and proper supply of drinking water and provision of sanitation are the most essential services that are required and continued public provision of these services is necessary.
- The higher incidence of water borne diseases and prevalence of communicable diseases calls for public action in the provision of safe drinking water and sanitation services. Rural and urban sanitation and solid waste management are essential for safe health and this needs collaborated efforts from government, local bodies and community. Public/private mix including community participation is inevitable in water supply and sanitation services.

- The study highlights the need for reorienting the health care system considering the higher prevalence of water borne and chronic non-communicable diseases and, continued existence of TB both in rural and urban areas. AIDS is a specific disease, which needs integration of health education with primary health care. Programmes related to prevention and treatment of specific diseases like TB, Malaria, AIDS and leprosy should be under the purview of government. These diseases require new drugs, which are likely to be in the patent list. The prices of drugs would be high due to product patent which is ahead of 2005. As such government efforts for advanced research on drugs, monitoring for continued treatment of disease, encouraging research for detecting the main factors causing the disease and procurement of new drugs is essential.
- Community participation in health care planning, management and provision is suggested as an alternative for improvement in health care. **Rogi Kalyan Samiti in Madhya Pradesh (India)** is an example of successive community participation in health care. Individual efforts by Dr. Sudarshan in Biligiri hills, Vivekananda Youth Movement in Mysore (both from Karnataka), Dr. Antia and Dr. Arole (from Maharashtra) are noteworthy examples of initiating community awareness in health care. People are willing to pay for medicines and other services provided the quality of services improves and people have a stake in the health care system. **World Bank emphasizes that user charges and pre paid mechanism is a practical necessity for increasing quality and reliability. A sound thinking on user charge concept, its application and implications of its introduction on poor needs to be examined.**
- Utilization pattern observed across the states, points out **that government spending on the provision of health care services, particularly in-patient care is essential.** Poor and weaker sections largely depend on public hospitals for cases requiring hospitalization. **NSS results indicate that while there is no major change in the cost of out-patient care in real terms, the cost of hospitalization has increased substantially.** The study also indicates that finance is one of the major problem for not seeking treatment. In the light of this the focus should be **on secondary care with tie-up arrangement and State supported insurance coverage for tertiary care in private hospitals for poor and middle class patients.** But, government's involvement in primary health services (particularly PHCs) needs to be redefined in the light of low utilization of PHCs for both out patient and in patient care. Regulation of staff, providing adequate and quality infrastructure for the staff as well as patients and essential drugs at price (not-for-profit) is a must for utilization of PHCs.
- It is Gram Panchayat, which is accountable to village community for well functioning of PHCs in the village. The questions related to health care are raised in gram sabha. Night services are not available in most of the PHCs. Doctors are not staying in villages due to un-repaired quarters and lack of other facilities. The maintenance of PHCs vests with Zilla Panchayat (district level) in the existing framework. There is need to shift this responsibility to Gram Panchayats with required amount of funds so that they can take necessary steps to provide facilities for the PHC staff.
- Health policies should address to the problems of aged. NSS results indicate that health problems are increasing among aged **and more than 50% of the aged population is suffering from one or the other illness.** Aged are vulnerable due to changing family

relations (joint family to nuclear family), migration of children to urban areas and increasing financial problems among poor and middle income groups.

- School health programme was priority issue in NHP-1983. But, no major efforts were made to streamline it. The programme should not be limited only to medical check-up camps. Creation of awareness about diseases, first-aid, personal hygiene, healthy practices and sanitation should be part of school curriculum. **'Health Clubs'** on the lines of **'Eco Clubs'** programme initiated by Central government may be introduced in schools.
- Formation of Citizens' Health Care Vigilance Committee may be encouraged on the formal lines to avoid unhealthy practices at civil/district hospitals.
- NHP-2002 emphasizes on use of practitioners, who have formal training in the Indian System of Medicine and Homoeopathy, in Central and State government health programmes. But, there may be drawbacks in such an integrated effort. Firstly, there expertise may not be useful as programmes like TB, Leprosy and Malaria control focus on allopathic drugs. Secondly, preventive care also depends on allopathic drugs, which are tested, approved and widely accepted particularly for family planning programmes. **Thirdly, the use of traditional drugs for curing any of these diseases is neither formalized nor popularized.** Fourthly, it is well known that majority of those who have formal training in traditional system practice allopathy. Moreover, the NSS 52nd round results indicate that dependency on ayurveda and homoeopathy is negligible. **The policy has not elaborated on the nature and extent of utilizing their expertise. Without creating a platform for wider use and recognition of traditional system in primary and promotional care especially in rural areas, integration may be a wasteful exercise.**
- Registration of all medical practitioners with the respective local government in rural and urban areas is essential for health care planning.
- Measures to tackle sale of out dated drugs particularly in rural areas. Licenses of shops selling such drugs should be cancelled on spot.
- NSS results indicate that utilization of PHCs is very low. As a result there is rush at the district hospitals. **As envisaged in NHP-2002,** state governments must enforce compulsory rural posting for all the medical students who have completed their internship before awarding the degrees/certificates to them. **It should be resident rural posting so that people get services at night and in emergency.**

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Annex-I

Review of NSS based Studies

Krishnan (42nd)

- Cost of treatment highest for States where facilities are least developed
- Poor paid more for health care
- Cost of out-patient treatment could be reduced if primary health care is readily accessible to rural population

Baru (42nd)

- More than 50 percent of bottom 20 percent and top 20 percent income groups in rural area in majority States used public services
- Cuts on secondary and tertiary sectors are not welcome both on the welfare and political considerations
- Private and voluntary sector are skewed in favour of urban and better developed States

Gumber (42nd)

- Poor and disadvantaged sections spend a higher proportion of their income on health care

Shariff et al. (42nd)

- Reporting of illness and hospitalization cases have shown increase with increase in income
- Need for regulating private sector
- Introduction of user fees in public health centers
- Encourage involvement of public –private mix and NGOs in delivery of health services to insulate cost escalations

Sen Gita et al. (42nd and 52nd)

- Higher untreated illness among women and poor
- Underestimation of illness among women
- There exists positive class gradient for morbidity rates

Alam Moneer (42nd and 52nd)

- Increase in the over all proportion of sick elderly during 1986-87 to 1995-96 (more than half of elderly is suffering from one or the other illness)

CMDR (28th, 42nd and 52nd)

- There is urban bias in treatment of reported ailments
- Poor have highest proportion of untreated illness
- Percentage of hospitalization higher in rural areas as compared to urban areas in poor states like Orissa, Bihar, MP, UP and Rajasthan indicating non availability of services in the initial stages or for minor ailments.
- Per day hospitalization cost in free type of treatment in public hospitals higher in poor state (Orissa) both in rural and urban areas.
- There is no change in out patient treatment cost in real terms. But, hospitalization cost has increased over the decade.
- The cost of subsidized (free) treatment (average expenditure per day for hospitalized care) in government hospitals is higher in poor state of Orissa as compared to Karnataka and Maharashtra (42nd round).
- There is reduction in the level of subsidized health care. There is scarcity of medicines and other facilities in public hospitals.
- Reform process has no major effect on the cost of non-hospitalized treatment i.e., primary health care.
- The burden of hospitalization due to loss of household income is higher in urban Orissa and rural Karnataka for the bottom 10 percent mpce.
- Though the percentage of people perceiving illness as not serious has come down, there is no corresponding increase in the number of people treated over the decade.
- Tobacco consumption and bad surroundings (marginally) have negative impact on health.

Annex –II

Rounds of NSS –A Comparative Picture

| 28th Round (1973 – 74) | 42nd Round (1986 – 87) | 52nd Round (1995 – 96) | Comments |
|--|--|---|---|
| <p>I. Morbidity.</p> <p>(i)Major Chronic Illnesses:</p> <p>Ashtma, T.B, rheumatism and peptic ulcer in Rural areas Ashtma, T.B, Rheumatism and BP in urban areas</p> <p>T.B. and asthma were the most common chronic diseases found in rural and urban areas</p> <p>Diabetes and BP cases were more prevalent in urban areas as compared to the cases in rural areas.</p> <p>Lower prevalence of epilepsy and significant cases of piles in rural and urban areas.</p> <p>Rheumatism and peptic ulcer were major health problems in R & U areas.</p> | <p align="center">_____*____</p> <p align="center">-----*-----</p> <p align="center">-----*-----</p> <p align="center">-----*-----</p> <p align="center">-----*-----</p> <p align="center">-----*-----</p> | <p>Joints pain, BP, gastritis and TB in rural areas Joints pain, BP, diabetes and heart problems in urban areas</p> <p>Though prevalence rate of TB has come down it is still a cause of concern and is one among the four major causes of morbidity in rural areas</p> <p>Prevalence of diabetes and BP in urban areas has increased and BP has emerged as one of the four major diseases in rural areas</p> <p>Prevalence of epilepsy and piles has reduced in rural areas. In urban areas only the prevalence of piles has reduced while more number of epilepsy cases are reported.</p> <p align="center">-----*-----</p> | <p>Stress, sedentary work, change in life style and food habits could be the reasons for increasing problems of heart, blood pressure and diabetes.</p> <p>Introduction of new medicines, monitoring for continued treatment of disease and encouraging research for detecting the main factors causing the disease is essential.</p> <p align="center">----*-----</p> <p align="center">-----*-----</p> <p>Rheumatism seems to be a major illness even now. Though</p> |

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| <p>Incidence of measles (per 1 lakh persons) was 17 in rural areas and 14 in urban areas</p> <p>(ii) Other Types ?</p> <p>Dysentery, influenza, malaria and whooping cough were the temporary/acute illnesses in rural and urban areas.</p> <p>Injuries due to accidents were 39 in rural areas and 54 in urban areas.</p> <p>(ii) Gender ?</p> <p>(a) Reporting of illness For all types of acute ailments and chronic illnesses female reporting was less in most of the States and in the country both in R & U areas.</p> <p>R - M - 47, F - 40. U - M - 43, F - 41.</p> | <p>-----*-----</p> <p>-----*-----</p> <p>-----*-----</p> <p>While female reporting was lesser in rural India, more females reported sickness in urban India. But, in rural areas, female reporting was higher in higher expenditure group.</p> | <p>There is no change in the incidence of measles cases in urban areas, while it has come down in rural areas.</p> <p>Incidence of dysentery, diarrhoea and cholera is higher both in rural and urban areas.</p> <p>Incidence of Injuries due to accidents have increased both in rural and urban areas. (63 in rural and 83 in urban).</p> <p>Reporting is found to be higher for females both in rural and urban India.</p> <p>R - M - 84, F - 89. U - M - 81, F - 89.</p> | <p>52nd round does not give separately details under rheumatism, high prevalence of pain in the joints do indicate that rheumatism is a major problem both in R & U areas.</p> <p>Measles immunization programme needs to be strengthened further. There is 1 loss of school days due to measles.</p> <p>The higher incidence of water borne diseases calls for public action in the provision of safe drinking water and sanitation services. Due to overall development of the economy and increase in the purchasing power of the people, there is increasing use of vehicles leading to more number of accidents.</p> <p>Gender bias in reporting has reduced. Women are coming out of shyness and hesitation. It shows that, there is increasing awareness among women, which could be due to education, media, empowerment, health programmes and large number of health and other</p> |
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| <p>(b) Untreated cases : _____*</p> <p>(iii) Age wise? Prevalence rate of morbidity was higher among infants and aged.</p> | <p>R – M – 64, F – 63. U – M – 30, F – 33.</p> <p>Proportion of untreated cases was higher in rural areas and higher among females. Rural- M-17,F- 20 Urban-M-10,F-12</p> <p>-----*-----</p> | <p>Percentage of untreated cases has reduced over the years. Rural-M-16, F – 18 Urban-M – 9, F – 10 Untreated ailments by fractile group is higher among bottom 10% of fractile group and is higher in states like Orissa, Bihar, Assam and Andhra Pradesh.</p> <p>Reporting of illness is higher for aged, middle aged and children. Incidence of morbidity due to chronic diseases is lower among the children (0 – 14)</p> | <p>surveys undertaken in the country. But, there is no reporting of problems related to reproductive health and STDs. Health surveys should involve trained female investigators and more time should be given for collecting qualitative information from households.</p> <p>Among the untreated cases, non-availability of medical facility and financial problems were the two reasons quoted largely by illiterates.</p> <p>Health policies should address to the problems of aged. Aged are vulnerable sections due to changing family relations(joint family to nuclear family), migration of children to urban areas and increasing financial problems among poor and middle income groups.</p> <p>Education and awareness probably lead to higher reporting of illness.</p> |
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| <p>(iv) State-wise?</p> <p>The prevalence rate of morbidity (all types) and prevalence of morbidity (all ages) was higher in Kerala and lower in Bihar both in R&U areas. The number of persons suffering from chronic diseases was also higher in Kerala but lower in Gujarat.</p> <p>(v) In – Patients? *_____</p> <p>(vi) Out – patients?</p> <p>Prevalence rate of ailing persons was 43 and 42 per 1000 in rural and urban areas.</p> | <p>-----*-----</p> <p>Hospitalized cases (per 1000) were 28 and 17 in rural and urban areas.</p> <p>The number of hospitalized cases was highest for Kerala both in rural and urban areas.</p> <p>O-Ps increased to 64 (per 1000) in rural areas but, decreased to 31 per 1000 in urban areas.</p> | <p>The Incidence of morbidity for acute and other diseases in all the age groups and for both the areas is higher in Tripura and Chandigarh and lower in Manipur and Mizoram. Number of people reporting chronic ailments is higher in Kerala and Chandigarh and lower in north eastern States.</p> <p>Among the major States reporting(PAP- per 1000) is higher in Assam and Punjab and lower in Rajasthan, MP, Bihar and Gujarat.</p> <p>Hospitalized cases (per 1000) reduced to 13 in rural areas, but, increased to 20 in urban areas.</p> <p>Hospitalized cases (per 1000) higher in Kerala.</p> <p>The proportion of ailing persons has increased to 86(per 1000) in rural areas and 84(per 1000) in urban areas.</p> | <p>Proportion of persons hospitalized is higher where bed to population ratio is lower (Kerala) and hospitalized cases are lower in States where bed strength is less (Orissa, Bihar, MP, Rajasthan and UP)</p> <p>Proportion of hospitalization increases with the increase in mpce fractile group.</p> <p>There is increase in the prevalence of morbidity or increase in proportion of people suffering. Unlike hospitalized cases, the distribution of PAP(per 1000) over fractile groups does not show any particular pattern.</p> <p>Gender bias in treatment of ailments has reduced over the years and there is no significant difference between</p> |
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| <p>(vii) Ailments treated ? -----*</p> | <p>82% and 89% of the ailing persons treated in rural and urban areas. R – M – 83, F – 80. U – M – 90, F – 88.</p> | <p>83% and 91% of the ailing persons treated in rural and urban areas. R – M – 84, F – 82. U – M – 91, F – 90.</p> | <p>males and females in treating illnesses. But, there is urban bias in treatment of ailments, which has remained unchanged over the years.</p> |
| <p>II. Reasons for not taking treatment ? -----*</p> | <p>Not serious R=75%, U= 81%</p> <p>Financial Problem R= 15%,U=10%</p> <p>Non availability of health care facility R=- 3%, U = 0%</p> <p>Non-availability and financial problems were the reasons largely quoted in poor States viz. Bihar, Orissa and Rajasthan. Financial problem was also a major problem in J&K.</p> | <p>Not serious R=52%,U=60%.</p> <p>Financial Problem R = 24%, U = 21%.</p> <p>Non availability R=9% (increased) U = 1%.</p> <p>42% in rural areas and 38% in urban areas received free treatment.</p> | <p>Financial problems and non-availability are major problems in poor states. In Orissa these two were the reasons quoted largely as compared to Maharashtra and Karnataka.</p> <p>There is reduction in the level of subsidized health care. There is scarcity of medicines and other facilities.</p> |
| <p>III Type of treatment? -----*</p> | <p>61% in rural and 55% in urban hospitalized cases in Govt. hospitals received free treatment. In Orissa, where dependence on govt. hospitals, for IP care is very high in the country, only 26% of I-Ps received free medicines inspite of 98% of the cases</p> | | <p>NSSO data on pvt. Expd pattern on medical care also reveal that rich(top 10%) spend 9% to 12% of their total expd. on health care while, poor(BPL)</p> |

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| <p>IV Average expenditure? (Per hospitalized case) —*—</p> | <p>admitted to govt.hospital being treated in free ward.</p> <p>Out-Patient: Rural Govt – Rs. 73 . Pvt-Rs.77. Urban Govt – Rs.74 PVT – Rs.80.</p> <p>In-Patients: Rural=Rs.853 Urban=Rs.1183 Per day per hospitalised care Govt. Free: R-33 U-36 Pay gen:83 U-54 Pay spl.: R-74 U-65</p> <p>Pvt. Free: R- 59 U-60 Pay gen: R-134 U-82 Pay spl.:R-210 U-126</p> | <p>Rural Govt = Rs.129. PVT = Rs.186. Urban Govt=Rs.166. PVT= Rs.200 Rural(Public+Private) M=Rs.151,F=Rs.137 P=Rs.144 Urban(Public+Private) M=Rs.187, F=Rs.164 P=Rs.175</p> <p>Rural(Public=Private) M=Rs.3778, F=Rs.2510 P=Rs.3202 Urban(public+Private) M=Rs.4185, F=Rs.3625 P=Rs.3921 Rural Public sr.hosp =Rs.2080 Private sr.hosp=Rs.4300 Urban Public sr.hosp.=Rs.2195 Private sr.hosp=Rs.5344</p> <p>Rural Bottom 10% fractile group: Govt.=Rs.961 Pvt.= Rs.1176 Top 10% fractile group: Govt.=Rs.5126 Pvt.=Rs. 7619 Urban Urban Bottom 10% fractile group: Govt.=Rs.497 Pvt=Rs.1186 Top 10% fractile group: Govt=Rs.8104 Pvt.=12957</p> <p>Hospitalization in rural areas is costlier in UP- Govt- Rs.4237 An. Pr-Pvt.-Rs 7822</p> <p>Hospitalization in urban areas is costlier in Haryana-Govt-8888</p> | <p>spend 2% to 3% of their total expd. on health care. Average per capita monthly health expd. was 3(1992) and 7(1998) for BPL families and 53(1992) 104(1998) for top 10% expd. class. Share of medical expd. in total expd has increased for both poor and top 10% class.</p> <p>For the rural poor Hospitalization in Govt. hospitals is costlier(Rs.961) than that for urban poor(Rs.497).</p> |
| <p>V Costliness? —*—</p> | <p>In-Patients: In rural areas, hospitalization cost per day was lower in Mizoram,Sikkim&Lakshdweep (Rs.10 to Rs.25)</p> | | |

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| <p>IX) Average amount(in Rs.) of loss of household income per ailment (15 days) -----*-----</p> <p>(hospitalized cases) -----*-----</p> | <p>Out – patients : 25% of O-Ps in rural areas and 26% of O-Ps in urban areas are treated in public health centers/hospitals.</p> | <p>Public sector provides for 19% in rural areas and 20% in urban areas for OP care. Dependence of poor on PHCs has reduced .</p> <p>R =Rs. 55, U=Rs.44</p> <p>Varies from Rs.2 (in Daman & Diu to Rs.185 (in Andhra Pradesh).</p> <p>R-Rs.563, U-Rs.521 Varies from Rs. 270 to Rs. 937 for bottom 10% to top 10 % mpce class respectively.</p> | <p>in Bihar and this dependence supports the argument for continued government spending and provision of health care particularly the in-patient care.</p> <p>Burden of out patient and in patient illness is higher in rural areas.</p> |
|--|--|---|--|

• = Information not available in NSSO published sources. Note: BP=Blood Pressure, R=Rural, U=Urban, IP=In-patient, OP=Out-patient, M=Male, F=Female, govt.=government, pvt=private, mpce=monthly per capita expenditure.

Annex III

Tables

Table-A-1: Expenditure Pattern on Medical Care

| | | |
|---|-------|--------|
| Year | 1992 | 1998 |
| % of People Below Poverty Line | 30.87 | 27.09 |
| Average Per Capita Monthly Medical Expenditure | 2.83 | 7.05 |
| Average Per Capita Monthly Consumer Expenditure | 123.8 | 249.99 |
| % share of Medical to Total Expenditure | 2.29 | 2.82 |

| | | |
|---|--------|--------|
| | 1992 | 1998 |
| Top 10% of the Expenditure Class | 10 | 10 |
| Average Per Capita Monthly Medical Expenditure | 53.1 | 103.91 |
| Average Per Capita Monthly Consumer Expenditure | 588.19 | 895.19 |
| % Share of Medical to Total Expenditure | 9.03 | 11.61 |

Source: NSSO "Sarvekshana" series:-

Table A-2: Incidence Rate of Temporary Ailments by Type of Ailments separately by Sex for selected States and All-India -28th Round

| Type of Ailments | Rural | | | | | | | | | | | |
|---------------------------|-----------|------|------|-------------|------|-------|--------|-------|-------|-----------|-------|-------|
| | Karnataka | | | Maharashtra | | | Orissa | | | All-India | | |
| | M | F | T | M | F | T | M | F | T | M | F | T |
| Cholera | | | | | 0.04 | 0.02 | | | | 0.03 | 0.03 | 0.03 |
| Typhoid | | | | 0.17 | 0.15 | 0.16 | 0.08 | 0.08 | 0.08 | 0.12 | 0.11 | 0.12 |
| Dysentery (all forms) | 1.06 | 0.51 | 0.79 | 1.08 | 0.49 | 0.8 | 1.23 | 0.83 | 1.03 | 0.84 | 0.64 | 0.74 |
| Diarrhea | | | | 0.12 | 0.15 | 0.14 | | 0.45 | 0.23 | 0.28 | 0.26 | 0.27 |
| Diphtheria | | | | | | | 0.08 | | 0.04 | 0.03 | 0.02 | 0.02 |
| Whooping cough | 0.64 | 0.51 | 0.57 | 0.5 | 0.49 | 0.5 | 0.46 | 0.15 | 0.3 | 0.4 | 0.26 | 0.33 |
| Tetanus | | | | 0.04 | | 0.02 | | | | 0.02 | 0 | 0.01 |
| Acute Poliomyelitis | 0.07 | | 0.04 | | | | | | | 0.01 | 0 | 0.01 |
| Smallpox | 0.14 | 0.29 | 0.22 | 0.25 | 0.19 | 0.22 | 1.08 | 0.15 | 0.61 | 0.43 | 0.33 | 0.38 |
| Measles | | 0.07 | 0.04 | 0.33 | 0.41 | 0.39 | 0.54 | 0.15 | 0.34 | 0.18 | 0.15 | 0.17 |
| Mumps | | 0.07 | 0.04 | 0.08 | | 0.04 | | 0.08 | 0.04 | 0.02 | 0.03 | 0.03 |
| Malaria | 0.14 | | 0.07 | 1.38 | 1.24 | 1.35 | 1 | 1.35 | 1.18 | 1.16 | 1.09 | 1.13 |
| Influenza | 0.71 | 0.65 | 0.68 | 5.43 | 4.26 | 4.98 | 2.69 | 1.8 | 2.24 | 2.25 | 2.06 | 2.16 |
| Pneumonia | | | | 0.12 | 0.07 | 0.1 | 0.15 | | 0.08 | 0.18 | 0.09 | 0.13 |
| Food Poisoning | 0.07 | | 0.04 | | | | | | | 0.01 | 0.02 | 0.02 |
| Accident | 0.07 | 0.22 | 0.14 | 0.63 | 0.41 | 0.53 | 0.38 | 0.22 | 0.3 | 0.56 | 0.22 | 0.39 |
| Others | 2.06 | 2.03 | 2.04 | 4.63 | 2.67 | 3.72 | 5.38 | 3.62 | 4.49 | 4.76 | 3.9 | 4.34 |
| Not Recorded | 3.69 | 3.85 | 3.77 | 5.2 | 4.13 | 4.8 | 4.62 | 2.56 | 3.57 | 2.25 | 2.34 | 2.29 |
| All types of Ailments | 8.65 | 8.2 | 8.44 | 19.96 | 14.7 | 17.78 | 17.69 | 11.44 | 14.53 | 13.53 | 11.55 | 12.57 |
| Number of sample Ailments | 122 | 113 | 235 | 479 | 391 | 870 | 230 | 152 | 382 | 4675 | 3937 | 8612 |

Urban

| Type of Ailments | Karnataka | | | Maharashtra | | | Orissa | | | All-India | | |
|---------------------------|-----------|------|------|-------------|----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|
| | M | F | T | M | F | T | M | F | T | M | F | T |
| Cholera | | | | | | | | | | 0.03 | 0.03 | 0.03 |
| Typhoid | 0.12 | | 0.06 | 0.2 6 | 0.2 5 | 0.26 | 0.2 2 | | 0.12 | 0.17 | 0.21 | 0.19 |
| Dysentery (all forms) | 0.72 | 0.48 | 0.6 | 1.1 6 | 0.9 2 | 1.05 | 2.9 3 | 1.59 | 2.32 | 0.78 | 0.81 | 0.79 |
| Diarrhea | | 0.24 | 0.12 | 0.4 7 | 0.3 7 | 0.43 | 0.4 5 | | 0.24 | 0.23 | 0.2 | 0.22 |
| Diphtheria | 0.12 | | 0.06 | | | | | | | 0.01 | | 0.01 |
| Whooping cough | 0.72 | 0.12 | 0.42 | 0.3 1 | 0.1 2 | 0.23 | 0.4 5 | | 0.24 | 0.29 | 0.21 | 0.25 |
| Tetanus | | | | | 0.0 6 | 0.03 | | | | | 0.02 | 0.01 |
| Acute Poliomyelitis | | | | 0.0 5 | | 0.03 | | | | 0.02 | 0.02 | 0.02 |
| Smallpox | 0.12 | 0.36 | 0.24 | 0.2 1 | 0.1 9 | 0.2 | 1.1 3 | 1.59 | 1.34 | 0.39 | 0.49 | 0.44 |
| Measles | 0.49 | | 0.24 | 0.0 5 | 0.0 6 | 0.06 | | | | 0.15 | 0.13 | 0.14 |
| Mumps | | | | 0.0 5 | 0.0 6 | 0.06 | | | | 0.09 | 0.06 | 0.08 |
| Malaria | 0.36 | 0.12 | 0.24 | 0.9 5 | 0.7 4 | 0.85 | 0.4 5 | 0.53 | 0.49 | 0.73 | 0.69 | 0.71 |
| Influenza | 1.2 | 1.21 | 1.21 | 3.7 4 | 3.7 2 | 3.73 | 2.4 8 | 1.86 | 2.19 | 2.1 | 2.22 | 2.15 |
| Pneumonia | 0.12 | | 0.06 | | | | | | | 0.06 | 0.05 | 0.05 |
| Food Poisoning | | | | | | | | | | 0.05 | 0.02 | 0.04 |
| Accident | 0.24 | | 0.12 | 0.4 7 | 0.4 9 | 0.48 | 0.9 | 0.53 | 0.73 | 0.7 | 0.34 | 0.54 |
| Others | 1.68 | 1.09 | 1.39 | 7.9 9 | 5.3 7 | 6.78 | 6.0 8 | 2.92 | 4.63 | 5.33 | 4.97 | 5.16 |
| Not Recorded | 2.87 | 2.07 | 2.48 | 5.9 9 | 5.7 5 | 5.87 | 4.5 1 | 5.32 | 4.89 | 2.74 | 2.67 | 2.7 |
| All types of Ailments | 8.76 | 5.69 | 7.24 | 21. 7 | 18. 1 | 20.0 6 | 19. 6 | 14.3 4 | 17.1 9 | 13.8 7 | 13.1 4 | 13.5 3 |
| Number of sample Ailments | 73 | 47 | 120 | 413 | 293 | 706 | 87 | 54 | 141 | 2306 | 1855 | 4161 |

Table -A.3: Number of persons Suffering from Chronic Diseases per 100000 persons by type of chronic disease separately by sex for different states and All-India Rural households

| States | Sex | 28th round | | | | | | | | | | | | | | | | | | | | | |
|-------------|--------|------------|---------|----------|--------|----------------|----------|--------------|----------|-----------------|---------|------------|--------|-------------|-----------------|-----------|------------|--------|--------|--------|--------------|-----------|---------------------------|
| | | TB | Leprosy | Syphilis | Cancer | Thyroid troubl | Diabetes | Mend illness | Epilepsy | Rheumatic Fever | High BP | Bronchitis | Asthma | Pepticulcer | stone or kidney | Arthritis | Rheumatism | Stroke | Pilles | others | not redorced | All types | Number or sample ailments |
| Karnataka | Male | 50 | 7 | 14 | .. | 14 | 83 | 21 | 14 | 7 | 55 | 21 | 346 | 48 | 7 | .. | 28 | 7 | 26 | .. | 582 | 1330 | 192 |
| | Female | 43 | 14 | .. | 14 | 14 | 21 | 14 | 14 | 14 | 43 | .. | 257 | 29 | .. | .. | 22 | 14 | 14 | .. | 392 | 919 | 129 |
| | Total | 46 | 11 | 7 | 7 | 14 | 53 | 18 | 14 | 14 | 11 | 49 | 18 | 302 | 39 | 4 | .. | 25 | 11 | 21 | .. | 487 | 1137 |
| Maharashtra | Male | 127 | 119 | 8 | 12 | 16 | 37 | 20 | 16 | 21 | 12 | 12 | 352 | 114 | 33 | 94 | 41 | .. | 65 | .. | 736 | 1835 | 449 |
| | Female | 67 | 59 | .. | 8 | 16 | 4 | 12 | 12 | 8 | 28 | 12 | 279 | 51 | 16 | 130 | 28 | 4 | 24 | .. | 639 | 1397 | 354 |
| | Total | 96 | 88 | 4 | 10 | 16 | 20 | 16 | 14 | 14 | 20 | 12 | 315 | 82 | 24 | 112 | 34 | 2 | 44 | .. | 686 | 1609 | 803 |
| Orissa | Male | 53 | 61 | 15 | .. | 23 | 46 | 69 | .. | 76 | 38 | 53 | 274 | 160 | 107 | 23 | 343 | 38 | 61 | 1463 | 46 | 2949 | 387 |
| | Female | 60 | .. | 15 | 23 | 15 | 30 | 150 | 15 | 128 | 38 | 45 | 128 | 128 | 53 | 38 | 451 | 45 | 22 | 1172 | 60 | 2616 | 348 |
| | Total | 57 | 30 | 15 | 11 | 19 | 38 | 110 | 8 | 102 | 38 | 49 | 200 | 144 | 79 | 30 | 397 | 42 | 42 | 1317 | 53 | 2781 | 735 |
| All_India | Male | 144 | 54 | 13 | 11 | 22 | 48 | 17 | 30 | 36 | 41 | 56 | 440 | 115 | 48 | 19 | 228 | 14 | 95 | 204 | 625 | 2260 | 7783 |
| | Female | 89 | 25 | 4 | 14 | 21 | 30 | 21 | 27 | 54 | 47 | 25 | 309 | 60 | 26 | 26 | 275 | 12 | 33 | 184 | 647 | 1943 | 6480 |
| | Total | 117 | 40 | 8 | 12 | 22 | 39 | 19 | 28 | 28 | 45 | 44 | 41 | 376 | 89 | 37 | 22 | 251 | 13 | 65 | 194 | 636 | 2098 |

Urban

| States | Sex | TB | Leprosy | Syphilis | Cancer | Thyroid troubl | Diabetes | Mend illness | Epilepsy | Rheumatic Fever | High BP | Bronchitis | Asthma | Pepticulcer | stone or kidney | Arthritis | Rheumatism | Stroke | Pilles | others | not redorced | All types | number or sample ailments |
|-------------|--------|-----|---------|----------|--------|-------------------|----------|--------------|----------|--------------------|---------|------------|--------|-------------|--------------------|-----------|------------|--------|--------|--------|-----------------|-----------|---------------------------------|
| Karnataka | Male | 128 | 23 | .. | .. | .. | 129 | 23 | 12 | .. | 58 | .. | 453 | 47 | .. | 12 | 35 | 23 | 59 | .. | 288 | 1290 | 111 |
| | Female | 82 | 12 | .. | 12 | .. | 83 | 24 | 12 | .. | 141 | .. | 329 | .. | .. | .. | 48 | 12 | .. | .. | 316 | 1071 | 91 |
| | Total | 105 | 17 | .. | 6 | .. | 106 | 23 | 12 | .. | 100 | .. | 392 | 24 | .. | 6 | 41 | 18 | 29 | .. | 302 | 1181 | 202 |
| Maharashtra | Male | 190 | 31 | .. | 26 | .. | 103 | 10 | 15 | 5 | 180 | 31 | 330 | 72 | 21 | 16 | 21 | 10 | 46 | .. | 463 | 1570 | 305 |
| | Female | 140 | 18 | .. | 12 | 6 | 91 | 24 | 18 | 6 | 218 | 12 | 339 | 24 | 24 | 24 | 42 | .. | 24 | .. | 588 | 1610 | 265 |
| | Total | 167 | 25 | .. | 20 | 3 | 97 | 17 | 17 | 6 | 197 | 23 | 334 | 50 | 22 | 20 | 31 | 6 | 36 | .. | 520 | 1590 | 57 |
| Orissa | Male | 90 | 113 | .. | 22 | .. | 158 | 68 | 23 | .. | 90 | .. | 248 | 23 | 45 | 23 | 135 | 22 | 68 | 946 | 113 | 2180 | 97 |
| | Female | 53 | 53 | 53 | .. | .. | .. | 264 | .. | 26 | 212 | 26 | 132 | 53 | 106 | .. | 344 | 53 | 26 | 952 | 106 | 2459 | 93 |
| | Total | 73 | 85 | 24 | 12 | .. | 85 | 158 | 12 | 12 | 146 | 12 | 195 | 36 | 73 | 12 | 232 | 36 | 49 | 950 | 110 | 2312 | 190 |
| All_India | Male | 169 | 34 | 5 | 8 | 15 | 105 | 13 | 16 | 21 | 108 | 48 | 397 | 86 | 45 | 13 | 113 | 14 | 81 | 130 | 582 | 2003 | 3373 |
| | Female | 102 | 14 | 7 | 20 | 18 | 52 | 22 | 18 | 33 | 159 | 38 | 308 | 44 | 35 | 22 | 182 | 12 | 38 | 127 | 680 | 1931 | 2912 |
| | Total | 137 | 25 | 6 | 14 | 16 | 80 | 18 | 17 | 26 | 132 | 43 | 355 | 66 | 40 | 17 | 146 | 13 | 61 | 128 | 629 | 1962 | 6285 |

Table A-4 :Incident of acute (short duration) ailment per 100,000 persons by age for each sex

Persons

Rural

52nd round

| Ailment | Age group (yrs) | | | | |
|--|-----------------|-------------|-------------|-------------|-------------|
| | 0 -14 | 15 -39 | 40 -59 | 60 & above | all |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1.Diarrhoea & gastro-enteritis dysentery (including cholera) | 357 | 158 | 247 | 500 | 269 |
| 2.Tetanus | 5 | 1 | 2 | - | 2 |
| 3. Diptheria | 5 | 5 | 2 | 2 | 4 |
| 4. Whooping cough | 46 | 47 | 52 | 227 | 58 |
| 5. Meningitis & encephalitis | 3 | 5 | 2 | 7 | 4 |
| 6. Fever of short duration | 2077 | 1263 | 1552 | 2331 | 1684 |
| 7. Chicken pox | 69 | 10 | 5 | 10 | 31 |
| 8. Measles / German measles | 23 | 6 | 1 | 6 | 11 |
| 9. Mumps | 6 | 6 | - | - | 5 |
| 10.Diseases of the eye | 48 | 34 | 26 | 115 | 43 |
| 11. Acute diseases of the ear | 27 | 16 | 5 | 10 | 3 |
| 12. Heart failure | 1 | 3 | 0 | 19 | 1 |
| 13. Cerebral stroke | - | 2 | 230 | 1 | 201 |
| 14. Cough and acute bronchitis | 193 | 129 | 33 | 688 | 36 |
| 15. Acute respiratory infection (including pneumonia) | 56 | 12 | 50 | 72 | 34 |
| 16. Diseases of mouth, teeth & gum | 29 | 29 | 4 | 49 | 11 |
| 17. Diseases relation to pregnancy & child birth (including natural abortion) | - | 27 | 86 | - | 63 |
| 18. Injury due to accident and violence | 53 | 47 | 574 | 160 | 420 |
| 19.Other diagnosed ailment (upto 30 days) | 365 | 349 | 101 | 803 | 67 |
| 20. Undiagnosed ailment (upto 30 days) | 63 | 49 | - | 112 | - |
| 21. Any short-duration ailment | 3427 | 2197 | 2977 | 5110 | 2967 |

Table-A-5 :Incidence of Acute (short-Duration)ailment per 100,000 persons by age for each sex

Urban Person

52nd round

| Ailment (1) | age group (yrs) | | | | |
|--|-----------------|---------------|----------------|-------------------|-------------|
| | 0 - 14 (2) | 15 -39 (3) | 40 - 59 (4) | 60 & above (5) | all (6) |
| 1.Diarrhoea & gastro-enteritis, dysentery (including cholera) | 331 | 163 | 194 | 306 | 230 |
| 2.Tetanus | 9 | - | 4 | - | 4 |
| 3.Diphtheria | 5 | 1 | 0 | 13 | 3 |
| 4.Whooping cough | 56 | 45 | 51 | 142 | 54 |
| 5.Meningitis & viral encephalitis | 11 | 4 | 4 | - | 6 |
| 6.Fevers of short duration | 2204 | 1200 | 1162 | 1414 | 1531 |
| 7.Chicken pox | 39 | 12 | 6 | - | 19 |
| 8.Measles/German measles | 36 | 5 | 0 | 11 | 14 |
| 9.Mumps | 7 | 4 | - | - | 4 |
| 10.Diseases of the eye | 59 | 41 | 70 | 86 | 54 |
| 11.Acute diseases of the ear | 33 | 20 | 2 | 21 | 21 |
| 12.Heart failure | - | 4 | 13 | 14 | 5 |
| 13.Cerebral stroke | 5 | 0 | 0 | 7 | 2 |
| 14.Cough and acute bronchitis | 378 | 147 | 245 | 439 | 255 |
| 15.Acute respiratory infection (including pneumonia) | 55 | 24 | 40 | 100 | 41 |
| 16.Diseases of the mouth, teeth & gum | 38 | 43 | 73 | 73 | 48 |
| 17.Disease relating to pregnancy & child birth (including natural abortion) | - | 21 | 2 | - | 10 |
| 18.Injury due to accident and violence | 88 | 73 | 77 | 157 | 83 |
| 19.Other diagnosed ailment (upto 30 days) | 460 | 377 | 547 | 951 | 464 |
| 20.Undiagnosed ailment (upto 30 days) | 59 | 64 | 53 | 112 | 63 |
| 21.Any short- duration ailment | 3872 | 2248 | 2544 | 3846 | 2911 |

Table A-6 :Incident of acute (short duration) ailment per 100,000 persons by age for each sex

Persons

Rural

52nd round

| ailment | age group (yrs) | | | | |
|--|-----------------|-------------|-------------|-------------|-------------|
| | 0 -14 | 15 -39 | 40 -59 | 60 & above | all |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1.Diarrhoea & gastro-enteritis dysentry (including cholera) | 357 | 158 | 247 | 500 | 269 |
| 2.Tetanus | 5 | 1 | 2 | - | 2 |
| 3. Diptheria | 5 | 5 | 2 | 2 | 4 |
| 4. Whooping cough | 46 | 47 | 52 | 227 | 58 |
| 5. Meningitis & encephalitis | 3 | 5 | 2 | 7 | 4 |
| 6. Fever of short duration | 2077 | 1263 | 1552 | 2331 | 1684 |
| 7. Chicken pox | 69 | 10 | 5 | 10 | 31 |
| 8. Measles / German measles | 23 | 6 | 1 | 6 | 11 |
| 9. Mumps | 6 | 6 | - | - | 5 |
| 10.Diseases of the eye | 48 | 34 | 26 | 115 | 43 |
| 11. Acute diseases of the ear | 27 | 16 | 5 | 10 | 3 |
| 12. Heart failure | 1 | 3 | 0 | 19 | 1 |
| 13. Cerebral stroke | - | 2 | 230 | 1 | 201 |
| 14. Cough and acute bronchitis | 193 | 129 | 33 | 688 | 36 |
| 15. Acute respiratory infection (including pneumonia) | 56 | 12 | 50 | 72 | 34 |
| 16. Diseases of mouth,teeth & gum | 29 | 29 | 4 | 49 | 11 |
| 17. Diseases relation to pregnancy & child birth (including natural abortion) | - | 27 | 86 | - | 63 |
| 18. Injury due to accident and violence | 53 | 47 | 574 | 160 | 420 |
| 19.Other diagnosed ailment (upto 30 days) | 365 | 349 | 101 | 803 | 67 |
| 20. Undiagnosed ailment (upto 30 days) | 63 | 49 | - | 112 | - |
| 21. Any short-duration ailment | 3427 | 2197 | 2977 | 5110 | 2967 |

**Table-A-7 :Incidence of Acute (short-Duration)ailment per 100,000 persons by age for each sex
Urban**

Person

52nd round

| Ailment | age group (yrs) | | | | |
|--|-----------------|-------------|-------------|-------------|-------------|
| | 0 -14 | 15 -39 | 40 -59 | 60 & above | all |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1.Diarrhoea & gastro-enteritir dysentry (including cholera) | 331 | 163 | 194 | 306 | 230 |
| 2.Tetanus | 9 | - | 4 | - | 4 |
| 3.Diphtheria | 5 | 1 | 0 | 13 | 3 |
| 4.Whooping cough | 56 | 45 | 51 | 142 | 54 |
| 5.Meningitis & viral encephalitis | 11 | 4 | 4 | - | 6 |
| 6.Fevers of short duration | 2204 | 1200 | 1162 | 1414 | 1531 |
| 7.Chicken pox | 39 | 12 | 6 | - | 19 |
| 8.Measles/German measles | 36 | 5 | 0 | 11 | 14 |
| 9.Mumps | 7 | 4 | - | - | 4 |
| 10.Diseases of the eye | 59 | 41 | 70 | 86 | 54 |
| 11.Acute diseases of the ear | 33 | 20 | 2 | 21 | 21 |
| 12.Heart failure | - | 4 | 13 | 14 | 5 |
| 13.Cerebral stroke | 5 | 0 | 0 | 7 | 2 |
| 14.Cough and acute bronchitis | 378 | 147 | 245 | 439 | 255 |
| 15.Acute respiratory infection (including pneumonia) | 55 | 24 | 40 | 100 | 41 |
| 16.Diseases of the mouth,teeth & gum | 38 | 43 | 73 | 73 | 48 |
| 17.Disease relating to pregnancy & child borth (including natural abortion) | - | 21 | 2 | - | 10 |
| 18.Injury due to accident and violence | 88 | 73 | 77 | 157 | 83 |
| 19.Other diagnosed ailment (upto 30 days) | 460 | 377 | 547 | 951 | 464 |
| 20.Undiagnosed ailment (upto 30 days) | 59 | 64 | 53 | 112 | 63 |
| 21.Any short- duration ailment | 3872 | 2248 | 2544 | 3846 | 2911 |

Table A-8: Incidence of fevers of short duration for population living in different environment

| Rural | | 52nd round | | |
|--|------------------------------------|------------|--------|--|
| Environment | Number of ailment per 1000persons | | | |
| | Male | Female | Person | |
| (1) | (2) | (3) | (4) | |
| Use of insecticide | | | | |
| Premises sprayed with insecticide | 20 | 17 | 18 | |
| Premises not sprayed with insecticide | 16 | 17 | 17 | |
| Animal shed in the neighbourhood | | | | |
| With animal shed attached to residence | 17 | 16 | 16 | |
| With animal shed detached from residence | 16 | 17 | 17 | |
| With no animal shed | 17 | 17 | 17 | |
| Drainage system | | | | |
| no drainage | 17 | 18 | 18 | |
| open kutchra | 15 | 15 | 15 | |
| open pucca | 18 | 17 | 17 | |
| covered pucca | 16 | 12 | 14 | |
| Underground | 14 | 20 | 17 | |
| All households | 17 | 17 | 17 | |
| Urban | | | | |
| Environment | Number of ailment per 1000 persons | | | |
| | Male | Female | Person | |
| (1) | (2) | (3) | (4) | |
| Use of insecticide | | | | |
| Premises sprayed with insecticide | 17 | 16 | 17 | |
| Premises not sprayed with insecticide | 15 | 15 | 15 | |
| Animal shed in the neighborhood | | | | |
| With animal shed attached to residence | 16 | 16 | 16 | |
| With animal shed detached from residence | 19 | 19 | 19 | |
| With no animal shed | 15 | 15 | 15 | |
| Drainage system | | | | |
| no drainage | 19 | 21 | 20 | |
| open kutchra | 16 | 14 | 15 | |
| open pucca | 14 | 15 | 15 | |
| covered pucca | 12 | 13 | 12 | |
| underground | 15 | 14 | 14 | |
| All households | 15 | 16 | 15 | |

Table A-9: Prevalence of tuberculosis among tobacco consumers and non consumers aged 10 Years and above (Rural)

52nd round

| Tobacco consumption habit | Number of ailment per 1000 persons | | |
|---------------------------|------------------------------------|--------|--------|
| | Male | Female | Person |
| (1) | (2) | (3) | (4) |
| Only smoking | 108 | 243 | 120 |
| Other habits only | 207 | 134 | 182 |
| Smoking and others | 52 | | 50 |
| None | 144 | 70 | 98 |
| All | 136 | 79 | 108 |

Urban

| Tobacco consumption habit | Number of ailment per 1000 persons | | |
|---------------------------|------------------------------------|--------|--------|
| | Male | Female | Person |
| (1) | (2) | (3) | (4) |
| Only smoking | 127 | 30 | 124 |
| Other habits only | 181 | 257 | 202 |
| Smoking and others | 87 | - | 86 |
| None | 60 | 60 | 60 |
| All | 84 | 68 | 77 |

Table A- 10: Prevalence of different chronic (long - duration) diseases among consumers and non - consumers of tobacco aged 10 years and above (Rural)

52nd round

| Tobacco consumption habit | Number of ailment per 1000 reporting persons | | | | | | | | |
|---------------------------|--|--------|--------|---------------|--------|--------|---------------------------|--------|--------|
| | Cancer | | | Heart disease | | | High / Low blood pressure | | |
| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Only smoking | 30 | 234 | 49 | 54 | 135 | 61 | 170 | 205 | 173 |
| Other habits only | 14 | 18 | 15 | 75 | 34 | 61 | 98 | 196 | 131 |
| Smoking and others | 6 | | 6 | 60 | | 58 | 71 | 83 | 71 |
| None | 16 | 23 | 20 | 96 | 82 | 87 | 74 | 139 | 114 |
| All | 17 | 27 | 22 | 80 | 78 | 79 | 97 | 145 | 121 |

Urban

| Tobacco consumption habit | Number of ailment per 1000 reporting persons | | | | | | | | |
|---------------------------|--|--------|--------|---------------|--------|--------|---------------------------|--------|--------|
| | Cancer | | | Heart disease | | | High / Low blood pressure | | |
| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Only smoking | 26 | | 25 | 81 | 767 | 108 | 203 | 643 | 220 |
| Other habits only | 3 | 34 | 12 | 206 | 183 | 200 | 166 | 424 | 239 |
| Smoking and others | | | | 108 | | 107 | 287 | | 282 |
| None | 8 | 24 | 17 | 141 | 107 | 122 | 134 | 336 | 248 |
| All | 10 | 24 | 17 | 135 | 115 | 126 | 159 | 341 | 246 |

Table A-11: Incidence of difference acute (short - duration) diseases among consumers and non - consumers of tobacco aged 10 years and above (Rural)

52nd round

| Tobacco consumption habit | Number of ailment per 1000 reporting persons | | | | | | | | |
|---------------------------|--|--------|--------|-----------------|--------|--------|---------------|--------|--------|
| | Acute respiratory | | | Cerebral stroke | | | Heart failure | | |
| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Only smoking | 52 | 89 | 55 | 0 | | 0 | | | |
| Other habits only | 27 | 6 | 20 | | | | | 6 | 2 |
| Smoking and others | 26 | 23 | 26 | 0 | | 0 | 17 | | 16 |
| None | 6 | 22 | 16 | 3 | 2 | 2 | 8 | 3 | 5 |
| All | 21 | 22 | 21 | 2 | 1 | 1 | 6 | 3 | 5 |

Urban

| Tobacco consumption habit | Number of ailment per 1000 reporting persons | | | | | | | | |
|---------------------------|--|--------|--------|-----------------|--------|--------|---------------|--------|--------|
| | Acute respiratory | | | Cerebral stroke | | | Heart failure | | |
| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Only smoking | 66 | | 63 | | | | 14 | | 13 |
| Other habits only | 32 | 109 | 54 | 7 | | 5 | 5 | 13 | 7 |
| Smoking and others | | | | 4 | | 4 | | | |
| None | 30 | 25 | 27 | 0 | 0 | 0 | 0 | 10 | 6 |
| All | 34 | 28 | 31 | 1 | 0 | 1 | 3 | 10 | 6 |

Table A-12: Proportion (per 1000) of persons hospitalized in rural and urban areas and population per bed in the state (52nd round)

| State | No. per (1000) hospitalized | | Population per bed |
|----------------|-----------------------------|-------|--------------------|
| | Rural | Urban | |
| Andhra Pradesh | 14 | 17 | 2536 |
| Assam | 9 | 16 | 1968 |
| Bihar | 5 | 12 | 2969 |
| Gujarat | 14 | 21 | 714 |
| Haryana | 25 | 25 | 2399 |
| Karnataka | 14 | 18 | 1209 |
| Kerala | 70 | 65 | 382 |
| Madhya Pradesh | 7 | 15 | 3535 |
| Maharashtra | 19 | 26 | 1023 |
| Orissa | 13 | 16 | 2224 |
| Punjab | 14 | 17 | 1409 |
| Rajasthan | 8 | 14 | 2204 |
| Tamil Nadu | 18 | 23 | 1120 |
| Uttar Pradesh | 8 | 14 | 2593 |
| West Bengal | 11 | 22 | 1271 |
| India | 13 | 20 | 1412 |

Source: NSSO (1998), Morbidity and Ailments, 52nd round (1995-96) Report No. 441 p.27

Table- A –13:State-wise Percentage distribution of hospitalized cases over type of ward [in patient]

| State/union territory | 42nd round | | | | | | | |
|-------------------------|--------------|----------------|----------------|--------|--------------|----------------|----------------|--------|
| | Rural | | | | Urban | | | |
| | Type of ward | | | | Type of ward | | | |
| | Free | Paying general | Paying special | All | Free | Paying general | Paying special | All |
| Andhra Pradesh | 33.35 | 57.90 | 8.75 | 100.00 | 40.85 | 47.32 | 11.83 | 100.00 |
| Assam | 95.39 | 4.27 | 0.35 | 100.01 | 76.13 | 20.21 | 3.66 | 100.00 |
| Bihar | 47.88 | 45.52 | 6.60 | 100.00 | 56.92 | 35.87 | 7.21 | 100.00 |
| Gujrat | 39.89 | 50.12 | 9.99 | 100.00 | 39.02 | 44.53 | 16.45 | 100.00 |
| Haryana | 54.38 | 41.39 | 4.24 | 100.01 | 52.35 | 36.45 | 11.20 | 100.00 |
| Himachal Pradesh | 83.56 | 10.40 | 3.06 | 97.02 | 76.76 | 13.09 | 10.15 | 100.00 |
| Jammu & Kashmir | 93.32 | 6.55 | 0.13 | 100.00 | 91.60 | 7.41 | 0.99 | 100.00 |
| Karnataka | 58.50 | 29.36 | 12.14 | 100.00 | 36.31 | 34.61 | 29.08 | 100.00 |
| Kerala | 45.15 | 42.90 | 11.95 | 100.00 | 45.00 | 38.33 | 16.67 | 100.00 |
| Madhya Pradesh | 77.21 | 18.78 | 4.01 | 100.00 | 73.34 | 21.22 | 5.44 | 100.00 |
| Maharashtra | 42.65 | 47.32 | 10.03 | 100.00 | 39.60 | 43.03 | 17.37 | 100.00 |
| Manipur | 78.19 | 21.81 | - | 100.00 | 77.77 | 19.50 | 2.73 | 100.00 |
| Meghalaya | 55.90 | 41.14 | 2.96 | 100.00 | 37.34 | 46.86 | 15.80 | 100.00 |
| Nagaland | - | - | - | - | 76.34 | 20.34 | 3.32 | 100.00 |
| Orissa | 89.72 | 8.87 | 1.41 | 100.00 | 87.94 | 10.17 | 1.89 | 100.00 |
| Punjab | 46.30 | 47.55 | 6.15 | 100.00 | 46.10 | 41.24 | 12.66 | 100.00 |
| Rajasthan | 81.77 | 15.86 | 2.37 | 100.00 | 84.79 | 10.75 | 4.46 | 100.00 |
| Sikkim | 100.00 | - | - | 100.00 | 82.83 | 16.05 | 1.12 | 100.00 |
| Tamil Nadu | 59.43 | 33.10 | 7.47 | 100.00 | 57.50 | 32.43 | 10.07 | 100.00 |
| Tripura | 98.08 | 1.62 | 0.30 | 100.00 | 97.46 | 1.76 | 0.78 | 100.00 |
| Uttar Pradesh | 59.41 | 33.01 | 7.58 | 100.00 | 56.07 | 32.01 | 11.92 | 100.00 |
| West Bengal | 90.78 | 6.45 | 2.77 | 100.00 | 69.30 | 19.37 | 11.33 | 100.00 |
| Chandigarh | 82.43 | 17.57 | - | 100.00 | 52.58 | 32.88 | 14.54 | 100.00 |
| Dadra & Nagar Haveli | 75.00 | 17.27 | 7.73 | 100.00 | - | - | - | - |
| Delhi | 69.28 | 30.72 | - | 100.00 | 66.88 | 22.62 | 10.50 | 100.00 |
| Goa, Daman & Diu | 90.63 | 9.37 | - | 100.00 | 64.88 | 21.13 | 13.99 | 100.00 |
| Mizoram | 95.97 | 3.54 | 0.49 | 100.00 | 87.10 | 12.90 | - | 100.00 |
| Pondicherry | 78.08 | 14.32 | 7.60 | 100.00 | 58.93 | 19.90 | 21.17 | 100.00 |
| Andaman Nicobar Islands | 98.62 | - | 1.38 | 100.00 | 89.99 | 4.67 | 5.34 | 100.00 |
| Lakshadweep | 60.90 | 17.46 | 21.64 | 100.00 | 78.01 | 8.87 | 13.12 | 100.00 |
| all-India | 60.71 | 32.46 | 6.83 | 100.00 | 55.22 | 31.79 | 12.99 | 100.00 |

Table A-14: Percentage Distribution of Hospitalized Cases by type of Hospital by payment category and Medical Service (Rural)

| Type of Medical Service | | Type of Hospital | 42nd round | | | | | | | | | | | | | | | | | | | |
|--|------|------------------|-----------------|-------------|------------|---------------------------|-------|-----------------|-------------|------------|---------------------------|-------|-----------------|-------------|------------|---------------------------|-------|-----------------|-------------|------------|---------------------------|-----|
| | | | Karnataka | | | | | Maharashtra | | | | | Orissa | | | | | All-India | | | | |
| | | | Type of Payment | | | | | Type of Payment | | | | | Type of Payment | | | | | Type of Payment | | | | |
| | | | Free | Partly Free | On Payment | Not Taken or Not Required | All | Free | Partly Free | On Payment | Not Taken Or Not Required | All | Free | Partly Free | On Payment | Not Taken or Not Required | All | Free | Partly Free | On Payment | Not Taken or Not Required | All |
| Medicine | Govt | 34.32 | 11.32 | 7.14 | 1.48 | 54.26 | 32.24 | 4.77 | 4.78 | 0.39 | 42.18 | 17.33 | 26.44 | 34.62 | 7.64 | 86.03 | 27.1 | 13.91 | 13.23 | 2.69 | 56.93 | |
| | Pvt | 4.38 | 0.58 | 40.28 | 0.5 | 45.74 | 2.98 | 1.8 | 52.49 | 0.55 | 57.82 | 1.5 | 2.21 | 9.79 | 0.47 | 13.97 | 2.76 | 1.06 | 36.83 | 2.42 | 43.07 | |
| | All | 38.7 | 11.9 | 47.42 | 1.98 | 100 | 35.22 | 6.57 | 57.27 | 0.94 | 100 | 18.83 | 28.65 | 44.41 | 8.11 | 100 | 29.86 | 14.97 | 50.06 | 5.11 | 100 | |
| X-Ray, ECG, EEG | Govt | 12.81 | 0.97 | 4.93 | 39 | 57.71 | 18.11 | 0.28 | 1.96 | 22.95 | 43.3 | 11.19 | 0.87 | 7.37 | 68.92 | 88.35 | 12.29 | 0.91 | 6.23 | 39.93 | 59.36 | |
| | Pvt | 0.5 | 0.13 | 17.49 | 24.17 | 42.29 | 0.49 | 0.31 | 28.3 | 27.6 | 56.7 | 0.2 | | 3.44 | 8.01 | 11.65 | 0.6 | 0.12 | 12.51 | 27.41 | 40.64 | |
| | All | 13.31 | 1.1 | 22.42 | 63.17 | 100 | 18.6 | 0.59 | 30.26 | 50.55 | 100 | 11.39 | 0.87 | 10.81 | 76.93 | 100 | 12.89 | 1.03 | 18.74 | 67.34 | 100 | |
| Any other diagnostic test | Govt | 30.43 | 0.62 | 2.89 | 24.24 | 58.18 | 21.12 | 0.48 | 2.26 | 19.45 | 43.31 | 27.42 | 0.89 | 5.23 | 54.71 | 88.25 | 18.39 | 0.75 | 4.94 | 35.74 | 59.82 | |
| | Pvt | 2.49 | 0.33 | 25.53 | 13.47 | 41.82 | 0.89 | 0.8 | 29.95 | 25.05 | 56.69 | 0.49 | | 3.72 | 7.54 | 11.75 | 1.16 | 0.24 | 17.69 | 21.09 | 40.18 | |
| | All | 32.92 | 0.95 | 28.42 | 37.71 | 100 | 22.01 | 1.28 | 32.21 | 44.5 | 100 | 27.91 | 0.89 | 8.95 | 62.25 | 100 | 19.55 | 0.99 | 22.63 | 56.83 | 100 | |
| Any other treatment like physiotherapy radiotherapy etc. | Govt | 30.06 | 0.63 | 2.92 | 24.32 | 57.93 | 20.99 | 0.48 | 2.27 | 19.45 | 43.19 | 27.77 | 0.9 | 5.3 | 54.13 | 88.1 | 18.45 | 0.76 | 4.98 | 35.41 | 59.5 | |
| | Pvt | 2.51 | 0.33 | 25.65 | 13.58 | 42.07 | 0.9 | 0.8 | 29.97 | 25.14 | 56.81 | 0.5 | | 3.77 | 7.63 | 11.9 | 1.16 | 0.22 | 17.87 | 21.31 | 40.5 | |
| | All | 32.57 | 0.96 | 28.57 | 37.9 | 100 | 21.89 | 1.28 | 32.24 | 44.59 | 100 | 28.27 | 0.9 | 9.07 | 61.76 | 100 | 19.61 | 0.98 | 22.79 | 56.62 | 100 | |
| Surgical Operation | Govt | 11.64 | 0.43 | 1.11 | 44.96 | 58.14 | 8.35 | 0.4 | 1.17 | 33.26 | 43.18 | 10.3 | 0.39 | 2.59 | 74.87 | 88.15 | 8.88 | 0.39 | 2.04 | 48.35 | 59.66 | |
| | Pvt | 3.67 | | 8.84 | 29.35 | 41.86 | 0.97 | | 13.79 | 42.06 | 56.82 | 0.5 | 0.11 | 2.33 | 8.91 | 11.85 | 1.36 | 0.19 | 7.9 | 30.89 | 40.34 | |
| | All | 15.31 | 0.43 | 9.95 | 74.31 | 100 | 9.32 | 0.4 | 14.96 | 75.32 | 100 | 10.8 | 0.5 | 4.92 | 83.78 | 100 | 10.24 | 0.58 | 9.94 | 79.24 | 100 | |

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| Type of Medical Service | Type of Hospital | Karnataka | | | | | Maharashtra | | | | | Orissa | | | | | All-India | | | | |
|--|------------------|-----------------|-------------|------------|---------------------------|--------|-----------------|-------------|------------|---------------------------|--------|-----------------|-------------|------------|---------------------------|--------|-----------------|-------------|------------|---------------------------|--------|
| | | Type of Payment | | | | | Type of Payment | | | | | Type of Payment | | | | | Type of Payment | | | | |
| | | Free | Partly Free | On Payment | Not Taken or Not Required | All | Free | Partly Free | On Payment | Not Taken or Not Required | All | Free | Partly Free | On Payment | Not Taken or Not Required | All | Free | Partly Free | On Payment | Not Taken or Not Required | All |
| Medicine | Govt | 28.57 | 7.94 | 10.71 | 0.24 | 47.46 | 34.29 | 4.09 | 5.63 | 1.55 | 45.56 | 34.99 | 15.17 | 24.38 | 4.29 | 78.83 | 31.56 | 11.33 | 12.17 | 3.07 | 58.13 |
| | Pvt | 1.76 | 0.47 | 49.32 | 0.99 | 52.54 | 3.71 | 2.02 | 46.48 | 2.23 | 54.44 | 8.41 | 1.79 | 10.29 | 0.68 | 21.17 | 3.80 | 1.09 | 34.05 | 2.93 | 41.87 |
| | All | 30.33 | 8.41 | 60.03 | 1.23 | 100.00 | 38.00 | 6.11 | 52.11 | 3.78 | 100.00 | 43.40 | 16.96 | 34.67 | 4.97 | 100.00 | 35.36 | 12.42 | 46.22 | 6.00 | 100.00 |
| X-Ray, ECG, EEG | Govt | 15.58 | 0.37 | 4.16 | 28.58 | 48.69 | 20.24 | 2.36 | 5.03 | 18.24 | 45.87 | 14.73 | 0.56 | 5.17 | 60.38 | 80.84 | 19.91 | 1.30 | 6.57 | 32.24 | 60.02 |
| | Pvt | 0.79 | | 22.76 | 27.76 | 51.31 | 2.97 | 0.94 | 25.49 | 24.73 | 54.13 | 1.71 | 0.57 | 1.44 | 15.44 | 19.16 | 2.06 | 0.14 | 16.09 | 21.69 | 39.98 |
| | All | 16.37 | 0.37 | 26.92 | 56.34 | 100.00 | 23.21 | 3.30 | 30.52 | 42.97 | 100.00 | 16.44 | 1.13 | 6.61 | 75.82 | 100.00 | 21.97 | 1.44 | 22.66 | 53.93 | 100.00 |
| Any other diagnostic test | Govt | 23.07 | 0.37 | 8.16 | 17.33 | 48.93 | 19.15 | 2.12 | 2.62 | 21.63 | 45.52 | 30.86 | 0.31 | 4.78 | 45.52 | 81.47 | 23.24 | 1.05 | 5.73 | 30.39 | 60.41 |
| | Pvt | 1.25 | | 31.97 | 17.85 | 51.07 | 2.99 | 1.16 | 28.73 | 21.60 | 54.48 | 5.48 | 0.14 | 3.80 | 9.11 | 18.53 | 2.12 | 0.31 | 19.01 | 18.15 | 39.59 |
| | All | 24.32 | 0.37 | 40.13 | 35.18 | 100.00 | 22.14 | 3.28 | 31.35 | 43.23 | 100.00 | 36.34 | 0.45 | 8.58 | 54.63 | 100.00 | 25.36 | 1.36 | 24.74 | 48.54 | 100.00 |
| Any other treatment like physio-therapy radio-therapy etc. | Govt | 22.79 | 0.38 | 8.34 | 17.42 | 48.93 | 18.92 | 2.07 | 2.71 | 22.60 | 46.06 | 31.10 | 0.32 | 4.33 | 45.38 | 81.13 | 23.25 | 1.04 | 5.75 | 30.33 | 60.37 |
| | Pvt | 1.28 | | 32.10 | 17.69 | 51.07 | 3.09 | 0.71 | 28.47 | 21.67 | 53.94 | 5.58 | 0.14 | 3.87 | 9.28 | 18.87 | 2.14 | 0.27 | 18.86 | 18.36 | 39.63 |
| | All | 24.07 | 0.38 | 40.44 | 35.11 | 100.00 | 22.01 | 2.78 | 31.18 | 44.03 | 100.00 | 36.68 | 0.46 | 8.20 | 54.66 | 100.00 | 25.39 | 1.31 | 24.61 | 48.69 | 100.00 |
| Surgical Operation | Govt | 9.38 | | 6.68 | 32.86 | 48.92 | 6.84 | 2.58 | 1.54 | 35.05 | 46.01 | 16.87 | 1.39 | 2.83 | 60.24 | 81.33 | 10.31 | 0.94 | 2.62 | 46.39 | 60.26 |
| | Pvt | 0.25 | | 16.56 | 34.27 | 51.08 | 1.97 | 0.97 | 14.56 | 36.49 | 53.99 | 1.78 | | 2.38 | 14.51 | 18.67 | 1.47 | 0.23 | 9.81 | 28.23 | 39.74 |
| | All | 9.63 | | 23.24 | 67.13 | 100.00 | 8.85 | 3.55 | 16.10 | 71.54 | 100.00 | 18.65 | 1.39 | 5.21 | 74.75 | 100.00 | 11.78 | 1.17 | 12.43 | 74.62 | 100.00 |

A-15: Per 1000 distribution of hospitalized cases during last 365 days by type of ward of Government and other hospitals (Rural)

52nd round

| State | Government | | | | Other | | | |
|------------------|------------|------------|------------|------------|-----------|------------|------------|------------|
| | Free | Paying gen | Paying Spl | All | Free | Paying gen | Paying Spl | All |
| Karnataka | 364 | 76 | 11 | 450 | 14 | 424 | 95 | 533 |
| Maharashtra | 273 | 34 | 1 | 309 | 14 | 542 | 124 | 680 |
| Orissa | 827 | 15 | 0 | 842 | 4 | 53 | 29 | 87 |
| All India | 388 | 41 | 8 | 438 | 28 | 411 | 91 | 529 |

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| State | Government | | | | Other | | | |
|------------------|------------|------------|------------|------------|-----------|------------|------------|------------|
| | Free | Paying gen | Paying Spl | All | Free | Paying gen | Paying Spl | All |
| Karnataka | 235 | 33 | 24 | 293 | 18 | 430 | 243 | 691 |
| Maharashtra | 251 | 50 | 5 | 307 | 35 | 435 | 188 | 657 |
| Orissa | 733 | 39 | 7 | 779 | 19 | 115 | 49 | 183 |
| All India | 347 | 55 | 16 | 419 | 35 | 372 | 146 | 553 |

Table A- 16: Average total expenditure per hospitalized case during last 365 days by type of hospital for each type of ward (Rural) (In Rs)

52nd round

| States | Government Hospital | | | | Other Hospitals | | | |
|------------------|---------------------|-------------|--------------|-------------|-----------------|-------------|-------------|-------------|
| | Free | Paying gen | Paying spl | all | Free | Paying gen | Paying spl | all |
| Karnataka | 1510 | 1805 | 11199 | 1791 | 2038 | 3650 | 6402 | 4100 |
| Maharashtra | 1217 | 3984 | 5922 | 1529 | 808 | 2726 | 9011 | 3836 |
| Orissa | 1662 | 2364 | 12100 | 1681 | 445 | 2331 | 3329 | 2583 |
| All India | 1781 | 3241 | 10540 | 2080 | 1463 | 3393 | 9281 | 4300 |

Urban

| States | Government Hospital | | | | Other Hospitals | | | |
|------------------|---------------------|-------------|--------------|-------------|-----------------|-------------|-------------|-------------|
| | Free | Paying gen | Paying spl | all | Free | Paying gen | Paying spl | all |
| Karnataka | 1176 | 3935 | 2104 | 1564 | 948 | 3284 | 6919 | 4502 |
| Maharashtra | 1164 | 1982 | 10082 | 1439 | 2507 | 4787 | 7157 | 5345 |
| Orissa | 1886 | 3234 | 21956 | 2142 | 157 | 9223 | 22320 | 11829 |
| All India | 1521 | 3350 | 12474 | 2195 | 1752 | 4295 | 8893 | 5344 |

Table A-17: Average amount of loss of household income per hospitalized case during last 365 days by m p c e fractile group (Rural) (In Rs)

| 52nd round | | | | |
|------------------------|-----------|-------------|--------|-----------|
| M p c e fractile group | Karnataka | Maharashtra | Orissa | All India |
| 0-10 | 260 | 188 | 101 | 270 |
| 10-20 | 231 | 254 | 304 | 291 |
| 20-40 | 378 | 261 | 190 | 269 |
| 40-60 | 440 | 454 | 207 | 410 |
| 60-80 | 819 | 313 | 434 | 406 |
| 80-90 | 695 | 621 | 421 | 562 |
| 90-100 | 1326 | 1113 | 811 | 937 |
| All | 798 | 587 | 402 | 563 |

Urban

| m p c e fractile group | Karnataka | Maharashtra | Orissa | All India |
|------------------------|-----------|-------------|--------|-----------|
| 0-10 | 203 | 383 | 418 | 273 |
| 10-20 | 218 | 337 | 170 | 276 |
| 20-40 | 294 | 291 | 307 | 303 |
| 40-60 | 768 | 275 | 643 | 421 |
| 60-80 | 427 | 807 | 502 | 519 |
| 80-90 | 748 | 533 | 434 | 563 |
| 90-100 | 741 | 706 | 680 | 923 |
| All | 518 | 534 | 450 | 521 |

Table A-18: Average amount of loss of household income per ailment (not treated as inpatient of hospital) during last 15 days by mpce fractile groups (Rural)

| 52nd round | | | | |
|------------------------|-----------|-------------|--------|-----------|
| m p c e fractile group | Karnataka | Maharashtra | Orissa | All India |
| 0-10 | 21 | 94 | 51 | 52 |
| 10-20 | 40 | 63 | 69 | 61 |
| 20-40 | 87 | 42 | 70 | 49 |
| 40-60 | 43 | 80 | 49 | 44 |
| 60-80 | 88 | 30 | 56 | 49 |
| 80-90 | 122 | 42 | 201 | 63 |
| 90-100 | 145 | 78 | 72 | 76 |
| All | 72 | 55 | 70 | 55 |

Urban

| mpce fractile group | Karnataka | Maharashtra | Orissa | All India |
|---------------------|-----------|-------------|--------|-----------|
| 0-10 | 59 | 26 | 15 | 36 |
| 10-20 | 53 | 38 | 40 | 55 |
| 20-40 | 52 | 54 | 10 | 46 |
| 40-60 | 47 | 31 | 36 | 41 |
| 60-80 | 70 | 22 | 42 | 38 |
| 80-90 | 10 | 26 | 35 | 59 |
| 90-100 | 96 | 51 | 94 | 40 |
| All | 54 | 35 | 35 | 44 |

Table A-19: Average total expenditure per hospitalized case during last 365 days by fractile - group of mpce and social group for each type of hospital (Rural)

| Type of hospital | Sex | 52nd round | | | | | | | | | | |
|-------------------|--------|------------|--------|--------|--------|--------|--------|---------|------|--------------|-------|--------|
| | | 0 -10 | 10 -20 | 20 -40 | 40 -60 | 60 -80 | 80 -90 | 90 -100 | all | Social Group | | |
| | | | | | | | | | | s.t | s.c. | others |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| Public hospital | male | 977 | 838 | 1102 | 1194 | 1493 | 2535 | 5504 | 2502 | 1368 | 2023 | 2846 |
| | female | 939 | 598 | 1090 | 905 | 1452 | 1863 | 4574 | 1945 | 1105 | 1471 | 2189 |
| | person | 961 | 744 | 1096 | 1055 | 1473 | 2212 | 5126 | 2245 | 1262 | 1778 | 2534 |
| P.H.C | male | 187 | 306 | 327 | 948 | 1160 | 991 | 1085 | 814 | 1117 | 624 | 824 |
| | female | 261 | 641 | 403 | 563 | 845 | 729 | 1450 | 683 | 675 | 490 | 781 |
| | person | 233 | 557 | 366 | 724 | 968 | 853 | 1246 | 710 | 851 | 540 | 801 |
| Public dispensary | male | 5 | 3165 | 845 | 1581 | 1732 | 1498 | 2817 | 1944 | 2341 | 2900 | 1647 |
| | female | 575 | - | 1487 | 458 | 1783 | 964 | 3289 | 1826 | 1618 | 1084 | 2423 |
| | person | 429 | 3165 | 1185 | 1131 | 1767 | 1308 | 3071 | 1887 | 2015 | 1693 | 1960 |
| Private hospital | male | 1386 | 1465 | 1759 | 2351 | 2605 | 2696 | 9628 | 5235 | 2872 | 11119 | 3982 |
| | female | 1041 | 1466 | 1782 | 2058 | 2344 | 2714 | 4991 | 3311 | 2496 | 3461 | 3325 |
| | person | 1176 | 1465 | 1769 | 2235 | 2489 | 2704 | 7619 | 4394 | 2711 | 8362 | 3684 |
| Nursing home | male | 2355 | 2583 | 1590 | 2100 | 3681 | 4478 | 7156 | 4403 | 4213 | 4777 | 4313 |
| | female | 2803 | 3194 | 1436 | 1997 | 2536 | 3749 | 7547 | 3895 | 2220 | 2857 | 4215 |
| | person | 2591 | 2898 | 1515 | 2058 | 3154 | 4181 | 7310 | 4185 | 3549 | 3915 | 4271 |
| Charitable inst. | male | 629 | 1500 | 1084 | 1238 | 1864 | 3075 | 13472 | 5242 | 1266 | 1157 | 7253 |
| | female | 1816 | 847 | 586 | 1409 | 2461 | 3492 | 4119 | 2351 | 3574 | 1539 | 2602 |
| | person | 1173 | 1032 | 831 | 1328 | 2104 | 3346 | 9643 | 3808 | 2004 | 1357 | 4917 |
| Others | male | 542 | 471 | 1046 | 1621 | 5053 | 2595 | 16765 | 4222 | 2926 | 3644 | 4532 |
| | female | 1135 | 934 | 406 | 1173 | 1375 | 476 | 7101 | 1672 | 1263 | 4981 | 1292 |
| | person | 715 | 796 | 850 | 1464 | 2876 | 1739 | 12031 | 3015 | 2705 | 4088 | 2838 |
| Any hospital | male | 1042 | 1093 | 1235 | 1686 | 2018 | 2738 | 7990 | 3778 | 1821 | 5405 | 3481 |
| | female | 1018 | 910 | 1156 | 1270 | 1826 | 2354 | 4801 | 2510 | 1400 | 2022 | 2726 |
| | person | 1030 | 1009 | 1197 | 1495 | 1931 | 2561 | 6628 | 3202 | 1636 | 3942 | 3133 |

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| Type of hospital | sex | 0 -10 | 10 -20 | 20 -40 | 40 -60 | 60 -80 | 80 -90 | 90 -100 | all | Social Group | | |
|-------------------|--------|-------|--------|--------|--------|--------|--------|---------|------|--------------|------|--------|
| | | | | | | | | | | s.t | s.c. | others |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| Public hospital | male | 605 | 851 | 1021 | 1254 | 2025 | 2450 | 9204 | 2452 | 1165 | 1811 | 2656 |
| | female | 386 | 668 | 930 | 1286 | 1918 | 2462 | 6588 | 1890 | 1426 | 1152 | 2094 |
| | person | 497 | 758 | 980 | 1269 | 1975 | 2455 | 8104 | 2191 | 1311 | 1497 | 2400 |
| P.H.C | male | 306 | 748 | 489 | 477 | 4945 | 4380 | 13371 | 4059 | 836 | 1984 | 5125 |
| | female | 1267 | 425 | 485 | 448 | 855 | 5106 | 1839 | 927 | 820 | 162 | 1197 |
| | person | 1051 | 537 | 487 | 470 | 1869 | 4621 | 11886 | 2461 | 829 | 964 | 3146 |
| Public dispensary | male | 580 | - | 1993 | 100 | 422 | 349 | 28721 | 2252 | - | 125 | 4108 |
| | female | 213 | 254 | 547 | 1196 | 497 | 3147 | 12300 | 1682 | - | 455 | 1786 |
| | person | 242 | 254 | 1366 | 1138 | 435 | 1072 | 19669 | 1977 | - | 170 | 2679 |
| Private hospital | male | 1277 | 1157 | 2231 | 2619 | 3318 | 4717 | 13686 | 5842 | 2636 | 4205 | 6120 |
| | female | 1119 | 1225 | 1774 | 2360 | 3554 | 5196 | 12057 | 5173 | 3063 | 2424 | 5558 |
| | person | 1186 | 1193 | 2026 | 2494 | 3433 | 4946 | 12957 | 5524 | 2771 | 3268 | 5854 |
| Nursing home | male | 2084 | 1629 | 2552 | 4439 | 4032 | 5866 | 12328 | 6363 | 4740 | 2454 | 7000 |
| | female | 2288 | 2307 | 3173 | 3571 | 4098 | 5377 | 8616 | 5201 | 5870 | 3705 | 5340 |
| | person | 2215 | 1984 | 2842 | 3981 | 4069 | 5601 | 10415 | 5749 | 5450 | 3006 | 6107 |
| Charitable inst. | male | 1145 | 851 | 497 | 1460 | 2319 | 3186 | 7227 | 3324 | 3667 | 1395 | 3592 |
| | female | 592 | 1112 | 1275 | 2162 | 2095 | 3557 | 6182 | 2781 | 1181 | 2722 | 2905 |
| | person | 859 | 910 | 846 | 1859 | 2199 | 3343 | 6888 | 3078 | 1511 | 2093 | 3300 |
| Others | male | 929 | 394 | 340 | 865 | 771 | 1211 | 5555 | 1217 | - | 1546 | 1024 |
| | female | 500 | 14 | 4797 | 4184 | 2384 | 941 | 2128 | 2499 | 55 | 451 | 2712 |
| | person | 677 | 382 | 1452 | 1068 | 1759 | 1073 | 3840 | 1630 | 55 | 1442 | 1710 |
| Any hospital | male | 765 | 948 | 1507 | 1957 | 2698 | 3943 | 11787 | 4185 | 1959 | 2406 | 4559 |
| | female | 687 | 945 | 1489 | 1973 | 2836 | 4269 | 9648 | 3625 | 2032 | 1765 | 4014 |
| | person | 724 | 946 | 1499 | 1964 | 2765 | 4097 | 10842 | 3921 | 1996 | 2096 | 4303 |

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MORBIDITY STATUS, UTILISATION AND COST OF TREATMENT: A COMPARATIVE STUDY IN THE SELECTED STATES

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Section I

1. Introduction

Economic reforms implemented in 1991 in India have introduced significant policy changes in economic, social and other sectors. Shift in the policies included change in the government expenditure pattern, privatization, liberalization, etc., aiming at consolidating the fiscal position of the government, stimulating the stagnant economy in early 1990s. During the initial stages of the economic reforms many had commented that the axe of reduction in government expenditure would fall on the social sector, which would severely affect the human development in the nation. Health sector is one of the important social sectors requiring continuous and constant support from the government to provide health inputs (good health) for human development. Reduction in public spending, privatization of service delivery system, would jeopardize the social goal of providing health for all. In a country like India, where still more than 26 per cent of the population live below poverty line, malnutrition is a major problem, communicable diseases are still dominating the morbidity pattern, poor people depend largely upon public health delivery system for treatment of their illness reduction in the government support for this sector is not called for.

Health, which is defined as the state of well being in terms of both physical and mental apart from absence of illness, is the product of various factors like income level of the people (affordability), availability of and access to health care facilities, cost of treatment, etc. All these factors are policy sensitive, and the negative effects of the policies would adversely affect the health seeking behaviour of people and health status, thus halving the human development. In this context it is necessary to study the pattern of morbidity, utilisation of health care facilities, cost of treatment, etc. during the reform period. Several studies have shown the impacts of economic reforms at macro level (Kadekodi and Kulkarni 2002; Annigeri and Kadekodi 2003). The macro level studies provide an overview at national level, but for an in-depth understanding of the above issues micro level studies are essential. Micro level studies are few and most of them have covered limited issues. Various questions like what is the morbidity pattern, whether communicable diseases are still dominant; what is the proportion of out-patients and in-patients, and incidence and prevalence of diseases; which type of health care facilities are being used, is there any usage pattern across type of diseases, region-wise; what is the cost incurred for treatment of diseases of different nature, which sections of society are paying more for medical services, is there any discrimination in medical expenditure on women and children, working and non-working population; how do people are financing to meet their health care expenditures, what is the impact of these expenditures on their livelihood activities, need to be probed in detail at the household level. In order to find answers to these questions a household level study has been conducted in three states of India. With this background later part of the Section I presents the details of selection of study area, sampling design and sample size; Section II illustrates the

details of morbidity pattern; Section III provides the utilisation pattern of health care facilities; Section IV gives the medicare expenditure scenario; Section V depicts the sources of finance for health care expenditures and effects of these expenditures on the families; Section VI contains information related to sources of drinking water, sanitation facilities, etc., to the households; while the last Section presents an overall conclusion.

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MORBIDTY STATUS, UTILISATION AND COST OF TREATMENT: A COMPARATIVE STUDY IN THE SELECTED STATES

1.1. Selection of Study Area, Sampling Design and Sample Size

The field area is selected in four stages i.e., states, districts, taluks and villages (households). In the first stage three states were selected on the basis of income level of the state as categorized by the Eleventh Finance commission (GOI). The states chosen were Maharashtra from the High Income States, Karnataka among Middle Income States and Orissa from the Low Income States. These three states represent the categories of states of different level of development; i.e., developed, medium developed and less developed.

In the second stage districts were chosen considering the Agro-climatic zones following Agro-climatic Regional Planning Unit's (ARPU) classification and SC/ST population of each district in the selected states. Agro-climatic zones have been considered since health status of people is influenced to a larger extent by weather conditions prevailing in a region along with other factors like economic and social conditions. Further, in order to represent the vulnerable sections of the society proportion of SC and ST population in the districts has been considered. Based on these criteria one district representing each agro-climatic zone of the state has been selected. Thus, a total of 13 districts were chosen for the study and details about the nature of climate, districts coming under different climatic zones, percent of SC/ST population in each district and name of the districts selected in each state are presented in Annexure Tables 1, 2 and 3 for Maharashtra, Karnataka and Orissa respectively. As shown Maharashtra has 5 types of agro-climatic zones. Hence, by allowing for SC/ST representation along with climatic type 5 districts viz., Gadchiroli, Dhule, Amaravati, Nasik and Thane are considered for household survey. Similarly, Karnataka also has 5 different agro-climatic zones where 5 districts namely Bidar, Dharwad, Chitradurga, Mysore and Chikkmagalur have been chosen. Orissa, another state for our in-depth study has 3 types of climates. Following the above mentioned criteria Balesore, Gajapathi and Malkhangiri districts have been selected in Orissa.

The third stage of sampling design included selection of taluks in the chosen districts. In each districts two taluks were selected following random sampling method. Selection of villages and households from the chosen taluks was done in the fourth stage. Two villages in each taluk were selected randomly. The information about the name of taluks, villages and number of households in the selected districts of Maharashtra, Karnataka, and Orissa are presented respectively in Annexure Tables 4, 5 and 6. The number of households for each district was in proportion to the percent of district population to the total population of the selected districts. The total number of households in each district was distributed between the two selected taluks. At the taluk level again the households have been distributed among the chosen villages. In all the selected villages households were chosen randomly by adopting Circular Sampling Method. The households for interview purpose were selected with skipping interval, which would help to cover the entire village. In all the taluks alternative villages were provided in any eventuality of difficulty in finding the sample villages. The household survey was conducted simultaneously in the selected three states during July - August 2001.

The survey covered a total of 1500 households in each state including 1000 households from rural area and 500 households from urban area. Thus total number of households covered in the survey is 4500, of which 3000 are rural and 1500 are urban households. The survey covered a total of 23973 persons, out of which 8577 persons from Maharashtra, 8209 persons from Karnataka and 7187 persons from Orissa.

1.2 Method of Data Analysis

The present report attempted to give a comparative picture of morbidity states, utilization pattern of health care facilities and cost of treatment in the selected three states during the reference period i.e., 2001 by using mainly descriptive statistics. It is already mentioned that in all three states few districts have been selected for the study. But, it would be difficult to get a representative and comparative health scenario of the states by selecting few districts. Hence, it is necessary to make the data as comparable, which has been done by using normal rainfall as weight. The study considered normal rainfall as a weight because the survey areas have been chosen on the basis of Agro-climatic zones in the selected states. It is a fact that to a larger extent the characteristics of Agro-climatic zones are influenced by rainfall in that area. Further, rainfall has significant impacts on health of people also. For instance, both drought and floods cause different types of diseases. Hence, taking into account the impacts, the study considered rainfall as a weight to make data comparable and tables presented in this report have been prepared by using normal rainfall as a weight.

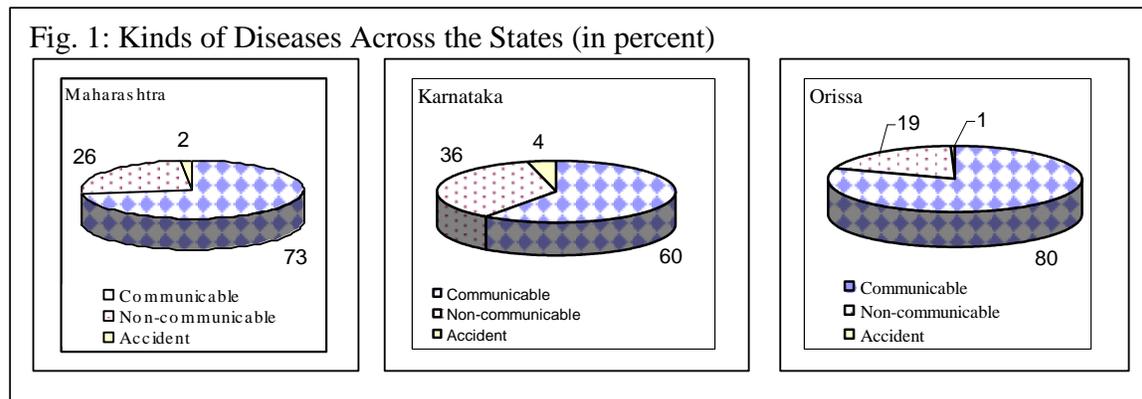
It is to be mentioned that the morbidity status differs from person to person depending upon the type, nature, duration, etc., of diseases, which poses problems while obtaining an aggregative picture. In order to get an aggregative picture the morbidity status of people has been grouped on the basis of duration and type of illness. Diseases on the basis of duration or period of ill health have been classified as *incidence* and *prevalence*, where incidence refers to a person fell sick in the past 30 days of the survey period, while prevalence refers to a person with ill health for more than 30 days. Further, the diseases have been regrouped as communicable, non-communicable and accidents considering the nature of illness. While making this classification the advice and suggestions of medical practitioners like doctors is accounted for a proper categorization. The various types of diseases reported by people and their classification as communicable, non-communicable and accidents is presented in Annexure Table 7. The above categorization of morbidity status has been analyzed considering the type of services received, i.e., outpatient and in-patient, by the morbid people.

Section II

2. Morbidity Pattern in the Selected States

The survey in the three states showed a total of 5662 morbid persons during the reference period. The statewise number of patients presented in Annexure Table 8 depicts that in Maharashtra and Orissa over 27 per cent of the total population reported illness. The categorization of patients as *incidence* (occurrence of illness during the reference period i.e., past 30 days of the survey period) and *prevalence* (illness beyond 30 days of the survey period) showed more number of people reporting incidence of diseases (9 out of 10 patients) than prevalence in all the three states. Among the states higher percent of prevalence cases (around 12 per cent) are observed only in Karnataka. It is important to note that among the social categories SC population in Karnataka have more number of patients in prevalence category compared to other social groups in all three states. However, the data (14.16 per cent) reveal that the health status of more number of people is adversely affected by incidence i.e., short period illness as compared to long-term diseases.

The severity of illness depends upon duration and the type of disease i.e., communicable, non-communicable, etc. Due to their endemic nature communicable diseases incur more cost on society than non-communicable diseases. Considering the significance, a brief information on the number of patients by type of diseases is presented below and the details are given later in this section. In all the three states communicable diseases have been widely reported as shown in Fig.1 (details in Annexure Table 9). In Orissa about 80 per cent of patients have been adversely affected by communicable diseases, which indicate that this less developed state requires to control communicable diseases. Further, it is also worth to observe Maharashtra, a high income state, reporting nearly 73 per cent of the patients as suffering from communicable diseases,



whereas the backward state of Orissa reporting only marginally higher percentage of communicable. The composition of households in the survey area of Maharashtra is dominated by ST population, hence it is necessary to recognize the magnitude of communicable diseases in Maharashtra. Another state under the study i.e., Karnataka shows over 59 per cent of the patients suffering from communicable and over 36 per cent from non-communicable diseases. The above observation is similar to that of ICSSR/ICMR (1987), which showed higher percentage of communicable diseases. This unchanged scenario of communicable diseases dominating even after a decade, which are due to poverty and malnutrition, and environmental factors such as poor sanitation, lack of safe drinking water (FRCH and ICMR 1984), illustrates the necessity of strengthening measures against communicable diseases. It is important to note that Karnataka has

more number of patients suffering from non-communicable diseases as compared to other states, which might indicate the epidemiological transition in this medium developed state.

2.1. How many patients visited health care facilities?

It is a fact that illness affects both health and economic status of the concerned person and family and hence the diseased person should be treated immediately. Let us examine, how many patients have consulted medical facility for treatment of their illness across the states? The related information is presented in Annexure Table 10, which shows that in all three states more than 90 per cent of patients have visited health care facility. It is significant to observe that in Orissa relatively highest percent (91.03) of patients having consulted medical facility.

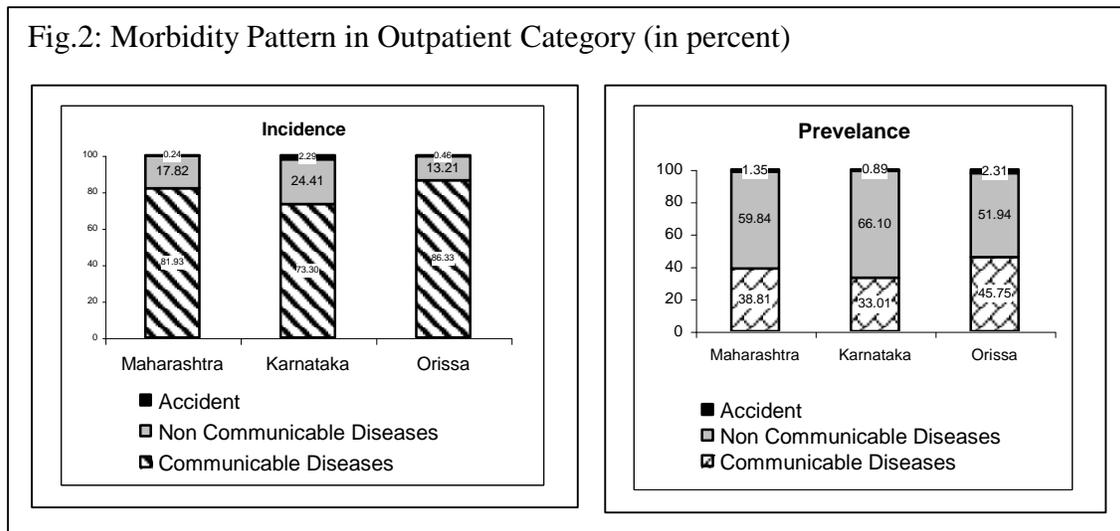
Generally people avail out-patient or in-patient services considering the severity of the disease. In majority of the cases patients obtain in-patient care when hospitalization is required for treating the illness, otherwise avail the medical services as out-patients. Annexure Table 11 shows that more number of patients (nearly 9 out of 10) received out-patient medical services. Since large number of out-patient services are reported by the respondents, it raises a doubt that some patients who required hospitalization might not have received due to various factors like non-availability of in-patient health care facilities in nearby areas, high cost of treatment for in-patient services, non-affordability, etc. These factors keep away patients even when in-patient services are required for the patient. A difference can be observed among the states with regard to number of in-patients, that is Orissa, a low income state shows less number of patients availing hospitalization services compared to other states. This might indicate that some patients who need in-patient health care services could have gone without them due to non-affordability or other reasons. The above analysis reveals that among the sample households in three states availed more outpatient services than in-patients, and in Orissa, which is a less developed state, comparatively less number of patients have received in-patient services.

People obtain more of out-patient services than in-patient services

2.2 Nature of Morbidity in Out-patient Category

The above analysis illustrated more number of patients having availed out-patient services than in-patient services. This raises questions about the nature of

Socially vulnerable sections report more number of communicable diseases



diseases in both out-patient and in-patient category, i.e., the proportion of incidence and prevalence cases, and the type of diseases (communicable, non-communicable and accident). This would help in further understanding of the morbidity pattern. The related information for out-patients is presented in Fig. 2 (details in Annexure Table 12) illustrates that **in all the three states more percentage of patients are suffering from communicable diseases among incidence category and from non-communicable diseases in the prevalence category.** Around 82, 73 and over 86 per cent of incidence cases respectively in Maharashtra, Karnataka and Orissa are related to communicable diseases; and over 59, 66 and nearly 52 per cent of prevalence cases respectively in Maharashtra, Karnataka and Orissa are of non-communicable disease category. It should be noted that in Orissa among out-patient – prevalence category both communicable and non-communicable diseases are widespread as respectively over 45 and nearly 52 per cent of the patients belong to these diseases. The disease pattern across the social categories presents a striking picture. **The vulnerable sections, such as SC and ST, in all the three states have been suffered more by communicable diseases,** as in both incidence and prevalence groups the percentage of patients affected by communicable diseases are more than that in other social groups. For instance, in Maharashtra the ST category reports that nearly 83 and over 47 per cent of patients respectively in incidence and prevalence groups are ailing from communicable diseases, while in Orissa more than 86 per cent of incidence and 53 per cent of prevalence cases of SC category; more than 86 per cent of incidence and 59 per cent of prevalence patients of ST group are adversely affected by communicable diseases. This begs the question about the living condition, quality of life, etc., of these people since most of the communicable diseases are associated with such parameters. Another point that can be observed is that among those suffering from prevalent – non-communicable diseases, people from Others category in Maharashtra are more compared to rest of the categories. This pattern of high non-communicable diseases prevailing in Others category might be due to the life style of these economically and socially well to do people, as most of the non-communicable diseases are attributed to living style of people.

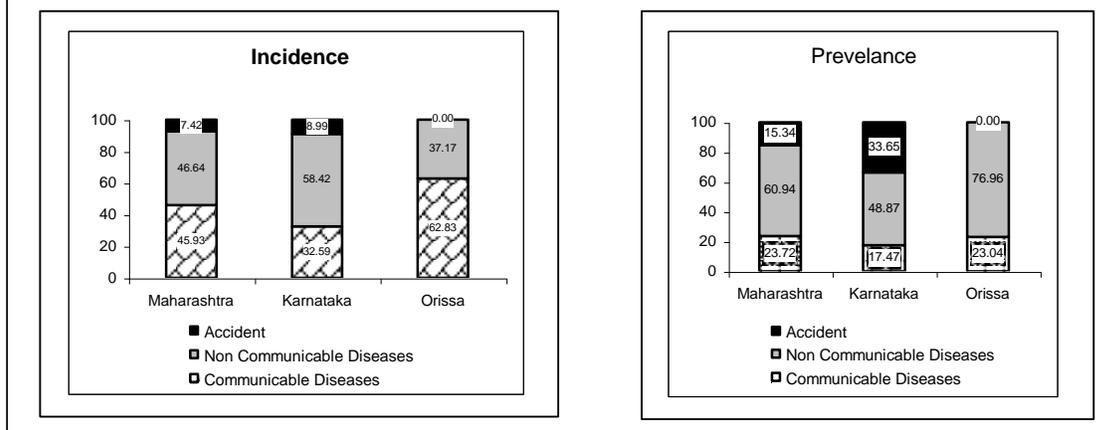
The rural – urban distribution of patients (presented in Annexure Table 13) shows that the **percent of patients suffering from communicable and non-communicable diseases in incidence group is almost equal between rural and urban areas of Maharashtra and Orissa. But it differs in Karnataka** where more number of urban people, (77.5 per cent) fell ill due to communicable diseases than rural people (71 per cent). In all the three states incidence of communicable diseases is more, which might be due to lack of safe drinking water, sanitation and other hygiene facilities. Across the social categories of rural areas Others category in Maharashtra and Orissa, and SCs and STs in Karnataka have shown relatively more number of patients in communicable disease category; while in urban area of both Maharashtra and Karnataka Minorities have reported higher number than other categories. It should be noted that **in all the states more than 80 per cent of SC and ST people having suffered from communicable diseases.** In the prevalence category across rural and urban areas in all the three states, excepting rural Orissa, the number of patients suffering from non-communicable diseases is more than that from communicable diseases. But, within the state Karnataka showed a higher percent of patients (69 percent) in non-communicable diseases' category in rural area, while Maharashtra reported that in urban area (65 percent).

2.3 For which type of diseases people have availed in-patient services?

Information presented in Fig. 3 (Annexure Table 14) reveals interesting scenario among hospitalized patients across the states in incidence and prevalence categories. **In prevalence group large number of patients reported to have received in-patient services for non-communicable diseases in all the three states, but in the case of incidence the situation**

differs in Orissa and Maharashtra. The percentage of people availing in hospital services for communicable diseases is significantly high in Orissa, 63 per cent, whereas in Maharashtra the proportion is almost equal between communicable and non-communicable diseases in incidence group. It should be noted that communicable diseases are still dominant in Orissa adversely affecting the health status as revealed by higher number of

Fig. 3: Morbidity Pattern in Inpatient Category (in per cent)



patients in both out-patient as well as in-patient categories. Distribution of in-patients across social categories indicates that more number of people in SC and ST category in Orissa and STs in Maharashtra and Karnataka are hospitalized for the treatment of communicable diseases than by non-communicable diseases. Among incidence cases the percent of patients suffered from communicable diseases varies from 33 for OBCs to 53 for ST category in Maharashtra; from 26 per cent for OBCs to 50 for STs in Karnataka. In the case of prevalence category the variation is high in Orissa, ranging from 12 per cent for OBCs to 68.8 per cent for SC. All this depicts that the most of the patients in socially backward communities are suffering from communicable diseases.

The information on percent of in-patients in incidence and prevalence categories across rural and urban areas, presented in Annexure Table 15 illustrates a varied picture. In rural Maharashtra communicable diseases and in urban Maharashtra non-communicable diseases in the incidence category have forced people to avail in-patient services. But, this scenario changes among other two states as in

Among the inpatients-incidence category non-communicable diseases have affected the health status of more number of people in both rural and urban area of Karnataka, while it is communicable diseases in Orissa

Karnataka non-communicable diseases and in Orissa communicable diseases have made more number of people to seek hospitalized services in both rural and urban areas. It should be noted that in Orissa the number of in-patients reported incidence of communicable diseases is high in both rural (65 per cent) and urban area (59 per cent), compared to other states. This clearly indicates that in Orissa communicable diseases are more widespread. **Among the social categories in both rural and urban areas of all the study states, in the incidence category, communicable diseases have affected the health status of more number of people in the socially vulnerable groups.** It is observed that more than 83 and 74 per cent of STs respectively in rural and urban Orissa; around 52 per cent of SCs and STs in rural areas of Karnataka and Maharashtra, and more than 50 per cent of STs in urban Karnataka and Maharashtra reported communicable diseases, which is relatively higher than the percent of people in other social categories.

Section III

3. Utilization of Healthcare Facilities in the Selected States

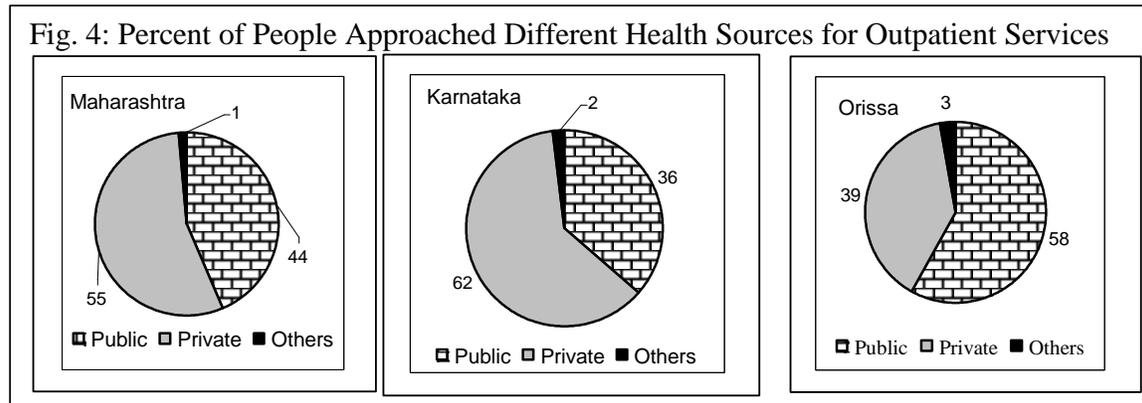
People use different sources of health care facilities like public, private for outpatient as well as in-patient services. Krishnan (1999) opines that more number of people use public health facility for in-patient services while private medical facility for outpatient services. In this content is useful to examine which type of healthcare facility is widely used, for what kind of services and what is the utilization scenario across rural and urban areas.

3.1 Which type of health care facility is used for out-patient care across states?

The utilization pattern for outpatient services across the states, shown in Fig.4 (details in Annexure Table 16) illustrates a varied picture of utilization of public and private health care facilities.

People in low income states depend more upon public health care facilities

People in a medium developed state have used private health sources to a larger extent as compared to that in a developed state. While in Karnataka nearly 62 percent of patients approached private facility, it is around 55 percent in Maharashtra. But, the situation differs in Orissa, where nearly 58 per cent of the patients have approached public facilities for out-patient services, which reveals that **in less developed states people depend upon public health facilities**. A similar observation was also found by Baru (1999) and Nayak (2003) while studying the NSSO 42nd round (1986-87) data. According to Baru



over 70 per cent of the patients in majority of the states had approached private health care facilities for out-patient services, while it is public facilities particularly in Orissa. A comparison of the above two observations i.e., Baru (1999) and the present study, shows that utilization of public facilities has increased over the period in other states, why is it so? Whether an improvement in infrastructure, quality of health services made people to go for public health services? Or the cost of services in private facilities forced people to approach the existing public facilities? These questions need to be probed further. Across the social categories the utilization pattern of health facilities varies to a significant extent. For instance, use of public health care facilities, ranges from 25 per cent for Others category to 52 per cent for STs in Maharashtra, while in Karnataka from 24 per cent for Others to 57 per cent for SCs and in Orissa the proportion is between 39 for Minorities to 68 for SCs. But, it should be noted that more number of SCs in Maharashtra and STs in Karnataka have used private health centers for their out-patient services. Hence, it is difficult to arrive at a use pattern across type of sources and socially vulnerable sections in the study states. However, the data are very indicative that **the socially vulnerable sections depend more on public health care facilities for outpatient services**.

The utilization pattern of health care facilities across rural – urban areas of the study states is presented in Annexure Table 17. **In rural Maharashtra the utilization of public and private health centers is almost equal, around 50 per cent, but in urban Maharashtra relatively more number of people have used private sources (66 per cent) for outpatient services. In Karnataka a clear preference for private health facilities can be observed as over 69 per cent of urban patients and 57 per cent of rural patients having approached them. But, in Orissa the scenario differs as in rural area public and in urban area private facilities have been used by more percent of patients.** It is significant to note that in rural areas across the states more number of people from Orissa reported to have used public health facilities, while in urban area it is from Karnataka. Utilization of private facilities to a larger extent by rural and urban population of Maharashtra and Karnataka for out-patient services was also found by 42nd round survey of NSSO (Nayak 2003). Among the social categories, the socially vulnerable sections of rural Orissa and Maharashtra reported to have used public facilities more than private facilities; while in urban areas, excepting STs in Maharashtra and SCs and Others in Orissa, all other social categories use private facilities more than public facilities.

In both rural and urban area of a low-income state public health facilities and in medium income state private facilities are widely used

3.2 Do people use public health sources for out-patient treatment of prevalent diseases?

Information related to utilization pattern according to incidence and prevalence categories is presented in Annexure Table 18. It can be observed

Private health care facilities are used by more number of patients for both incidence and prevalence type of diseases in high and medium income states

that **in Maharashtra and Karnataka more number of people have used private health facilities for outpatient services for both incidence and prevalence type of illness. But, in Orissa the pattern changes as more number of people have approached public facilities for incidence cases, while for prevalence diseases both public and private facilities being equally used.** In Karnataka around 62 per cent of both incidence and prevalence cases and in Maharashtra more than 54 per cent of incidence and 59 per cent of prevalence patients have obtained out-patient medical services from private facilities.

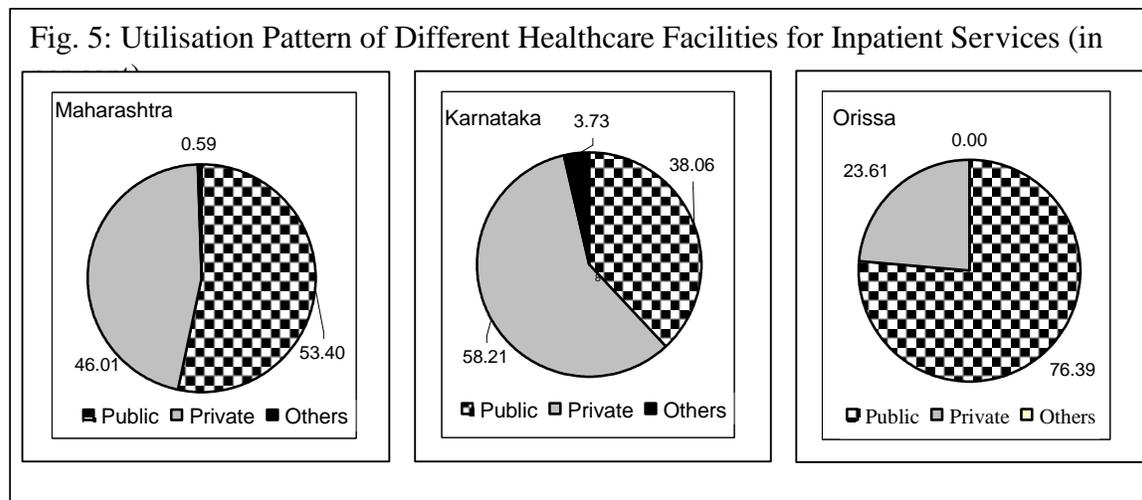
Information on utilization pattern across social categories (Annexure Table 18) indicates that **in Orissa the socially vulnerable sections i.e., SC and ST use public facilities in large number** compared to other categories for incidence related morbidity. This can also be observed in the case of SCs of Karnataka and STs of Maharashtra. It is important to note that in both Karnataka and Maharashtra more number of patients in socially advanced classes getting services from private sources, while in Orissa from public health facilities. The above analysis shows that in developed and medium developed states more number of people use private facilities for out-patient services for both incidence and prevalence types of diseases.

3.3 Which type of health care facility is widely used for in-patient services across the states?

Let us examine the type of medical facility approached by people for in-patient services in the three selected states. Usually in-patient services are expensive and therefore people tend to use public facilities, which are considered to be relatively less costly than

Public health care facilities have been used by more number of people in low and high income states for in-patient services

private services in delivering medicare services. We can observe from Fig.5 (Annexure table 19) that in Orissa more than 76 per cent of in-patients reported to have obtained medical services from public sources followed by Maharashtra, with over 53 per cent. This observation is comparable with that of Baru (1999), Krishnan (1999) and Nayak (2003) who found almost a similar utilization pattern of public hospitals for in-patients services in Maharashtra and Orissa, during 1986-87, i.e., NSSO, 42nd Survey. But, the utilization pattern has changed in Karnataka, where for in-patient services more number of people (over 58%) use private facilities. Here one can assume that people in Orissa have to depend upon public sources because of low income and less development of private health sector, while in Maharashtra it may be because of better health services in public health facilities owing to higher infrastructure creation as observed by Krishnan (1999) in his study of 42nd Round NSSO survey. But, in Karnataka a medium developed state, private health facilities have been relatively widely used compared to public facilities. This begs the question of difference in quality of services provided by public and private health providers, which needs to be probed.



The utilization pattern across the social categories illustrates that in Orissa public health care facilities have been used by more number of people in all social categories (the range varies from 71.24 per cent for OBCs to 87.47 per cent for STs). It is significant to note that nearly 72 per cent of STs in Maharashtra and over 68 per cent of SCs in Karnataka reported to have visited public facilities for in-patient services which shows that the **socially vulnerable sections use public facilities in large number for in-patient services also.**

Rural – urban utilization of different health care facilities for in-patient services Annexure Table 20 depicts a contrasting pattern in Karnataka and Orissa. **While private facilities have been used by more number of people in both rural and urban areas of Karnataka, in Orissa it is public health care facilities for in-patient services.** It is significant to note that more than 75 per cent of in-patients in rural Orissa get hospitalized in public health centers, followed by patients in rural Maharashtra with more than 56 per cent. But, nearly 68 per cent of in-patients in rural Karnataka visited private health care facilities while 53 percent in Maharashtra. **Among the social categories in both rural and urban areas of**

Socially vulnerable sections in both rural and urban areas of high and medium income state and all social categories of low income state widely use public health care facilities for in-patient services.

Karnataka and Maharashtra the socially vulnerable sections, to a larger extent, have availed in-patient medical services from government hospitals. But, in Orissa people of all social groups have approached public health centers in both rural and urban area. This pattern indicates that although relatively more number of people use public facilities for in-patient services, it is in fact high by poor people. This might be due to their inability to bear the expenditures in private hospitals for in-patient services.

3.4 Which type of health care facility is used for in-patient services of incidence and prevalence type of diseases?

With regard to approaching different health care facilities for in-patient services the duration of illness plays an important role if the disease is a persistent problem, amounting to high cost of treatment, usually people use public health care facilities. The information presented in

In all the states more number of people have used public health care facilities to avail in-patient treatment for prevalent type of diseases

Annexure Table 21, reveals a varied utilization pattern of public and private facilities across the states for incidence-in-patient cases and a comparable scenario for in-patient-prevalence cases. More number of people have approached public facilities for in-patient services of incidence type in Orissa (nearly 77 per cent of incidence cases) followed by Maharashtra (nearly 53 per cent), while in Karnataka nearly 59 per cent have received treatment from private facilities. However, **in the prevalent cases this varied picture does not emerge, as in all the states relatively large number of patients have visited public facilities for in-patient services.** This might indicate that for the treatment of prevalent diseases public facilities are preferred by more number of people. Again it would be interesting to note that in Orissa more than 70 per cent of patients make use of public facilities for both incidence and prevalence cases for hospitalization services.

The utilization pattern across rural and urban area for in-patient services of incidence and prevalence type of diseases is presented in Annexure Table 22. **In Maharashtra rural people use public facilities in large number for both incidence and prevalence diseases, while urban population have approached private facilities. Karnataka reveals a**

More number of people in both rural and urban area of Karnataka use private facilities for incidence and public facilities for prevalence type of diseases

different picture with higher percent of patients in both rural and urban area obtaining medical services from private facilities for incidence and from public health centers for prevalence type of diseases. But, in Orissa people of both rural and urban areas have used public health facilities in large number for in-patient services. Among the social categories the ST population in both rural and urban area of Maharashtra, the SC people of rural Karnataka, and all the socially vulnerable sections in Orissa are depending upon public medical services for in-patient care.

Section IV

4. Pattern of Treatment Cost

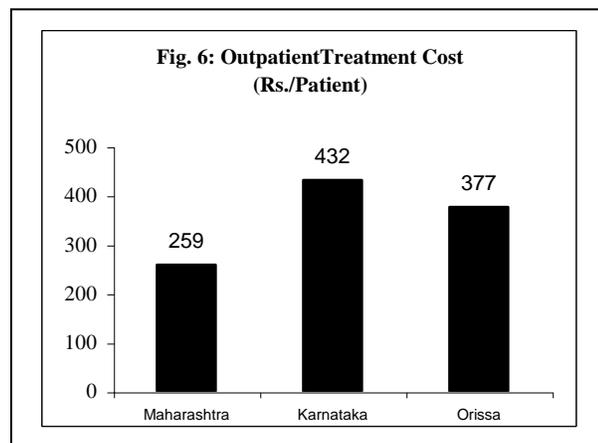
Health seeking behaviour of people i.e., decision on availing medical devices, kinds of treatment and sources of medical services-public or private, etc., depend to a larger extent on the cost of treatment along with severity of sickness, income level of the patient/family, etc. Usually the cost of treatment is more in private health facilities than that in public facilities (Krishnan 1999) and the cost varies depending upon nature, severity and duration of the illness. An attempt has been made to examine the expenditure incurred by the sample population for availing medical services. The analysis is presented by type of health services received i.e., out-patient and in-patient, sources of services, diseases, etc. Before illustrating the expenditure pattern a point to be noted is that the total treatment cost includes expenditures incurred on different types of services received like medicine and injection, doctor's fee, pathological and radiological tests, etc. Information on these items of expenditure is necessary to understand the composition of the total treatment cost met by the person/household. But, sometimes the respondents are not able to inform the expenditure on all kinds of medical services received by them, instead furnish the total amount spent for availing services. Hence the number of respondents for each heads of cost varies and the sum of these does not add to the total expenditure reported by the respondents. In order to resolve this problem, wherever required, the medical expenses are shown in two tables, one having all heads of expenditures and another with only those number of patients who have given data on medicine and injection and doctor fee, hence while reading these tables a caution is required.

4.1. Treatment Cost of Out-patient Services

4.1.1 Is there any difference in out-patient treatment costs across states?

The average expenditure incurred by patients on different types of outpatient services like medicine and injection, doctor's fee, radiological and pathological test, in the three study states is presented in Fig.6 (Annexure Table 23). The expenditure pattern shows that **people in a medium developed state i.e., Karnataka spend more compared to a highly-developed state Maharashtra. But, an important observation is that people in Orissa, a low income state, incur more expenditure for availing health services than that in a developed state.** While patients from Karnataka reported Rs. 432 per patient, in Orissa and Maharashtra it is over Rs. 377 and Rs. 259 respectively. This reveals that out-patient care services are costlier in poor states. It is interesting to note that in Orissa more number of people have visited public health facilities as compared to Maharashtra, and paid

Medical expenditures are high in a medium income state; but people in a low income state spend more compared to that in a high income state



higher charges. This raises questions about the practice of delivering services by public health centers in Orissa, since most of the outpatient services from government service providers are free.

The expenditure details show that the amount spent per patient varies to a larger extent across the social categories in all the study states. For instance, the total cost raises from Rs. 137 per patient for STs to Rs. 351 per patient for OBCs in Maharashtra; from Rs. 344 for Minorities to Rs. 685 for STs in Karnataka. It is significant to note that among SC and STs, patients from Karnataka reported more expenditure compared to other states.

The information on the cost of different health services (in Annexure Table 23) illustrates that for obtaining medicine and injection services people in Orissa have incurred more expenditure (Rs. 274 per patient) followed by Karnataka and Maharashtra. This might be due to over prescription of medicine and injection or charging for all medicines and injections provided by health facilities or prescribing high cost medicine. The money spent on medicine and injection shows much disparity across social categories in Maharashtra (from Rs. 91 per patient for Minorities to Rs. 330 for Others) and Karnataka (from Rs. 79 to Rs. 853 respectively for others and STs). Similarly, a significant variation in doctor's fee is also observed, i.e., from Rs. 40 per patient in Karnataka to Rs. 62 per patient in Maharashtra. It should be noted that doctors in Orissa have charged higher fee (Rs. 58 per patient) than their counterparts in Karnataka for providing services. Expenditure on pathological and radiological tests reveals people in Maharashtra spending more on pathological tests while in Orissa on radiological tests. With regard to these expenditures an interesting picture emerges across the states that is expenditure **on pathological test varies positively and on radiological test inversely with the income level of the states under our study.** This scenario might indicate that the radiological tests are too expensive in less developed states.

The rural – urban bifurcation of expenditure on different out-patient medical services, presented in Annexure Table 24, depicts that the total cost incurred in rural area is more in Karnataka (Rs. 395 per patient) followed by Orissa (nearly Rs. 355 per patient) and Maharashtra (nearly Rs. 324 per patient); while in urban area people from Maharashtra have spent more (Rs. 950 per patient), followed by Orissa (Rs. 428 per patient). Across the rural and urban areas of Maharashtra and Orissa, the expenditure incurred by urban people is more than that by rural people.

4.1.2 What is the proportion of medicine and injection and doctor's fee in the outpatient treatment cost?

The above section illustrated the per patient expenditure incurred for different outpatient services, but did not provide a comparative look of the share of different heads [for the reason stated earlier]. In order to examine the composition of expenditures like medicine and injection, doctor fee, etc., in the total out-patient medicare cost the relevant information is presented in Annexure Table 25. According to the table expenditure on medicine and injections constitutes a highest share in all the states, range varying from 68 per cent in Maharashtra to 81 per cent in Orissa. It should be noted that in Orissa, a poor state, the amount spent on medicine and injection is high as compared to that in other developed state.

Expenditure incurred on medicine and injection constitute highest share of outpatient total cost

4.1.3 Are public health care facilities are less expensive that private for out-patient care?

People visit different types of health service delivery systems i.e., public, private and others. But, access to these facilities depends to a larger extent on the cost of services across facilities. It is well hold opinion that health services in private sources

Medical services are expensive in public health care facilities in low and medium income states

are expensive than that in public and hence people, particularly poor, visit public health facilities. Therefore, the study attempted to examine the cost differences across the types of health service providers. Table 1 (details in Annexure Table 26) illustrates that **in Karnataka and Orissa the average expenditure for out-patient medical services is higher in public sources than that in private, while in Maharashtra it is the other way.** A similar observation i.e., public health

| States | Public Facility | Private Facility | Other Facility | Total |
|-------------|-----------------|------------------|----------------|--------|
| Maharashtra | 111.69 | 402.26 | 63.68 | 270.87 |
| Karnataka | 566.89 | 387.80 | 225.16 | 459.55 |
| Orissa | 395.60 | 370.40 | 424.70 | 380.49 |

Note: Expenditures are weighted averages

facilities being costlier than private, was revealed in the NSSO survey of 42nd Round during 1986-87 (Krishnan 1999). This might be one of the reasons for people in Karnataka to approach private facilities than public for treatment. Further, the cost difference across the types of facilities is wider in Maharashtra followed by Karnataka. In Maharashtra the expenditure per patient in public health center is Rs. 111 and in private Rs. 402, while in Karnataka public facilities have charged Rs. 567 and private facilities costs Rs. 388. **But in Orissa the disparity in cost by sources is less.** This cost difference in Orissa and Maharashtra might indicate the reason for more number of patients receiving outpatient services from government health centres. Among the social categories (Annexure Table 26) **SCs and STs in Maharashtra and Orissa reported to have spent less compared to other social groups for getting medical services from public facilities,** but in Karnataka the expenditure incurred by these groups is higher. In providing health services the private facilities have charged lesser fee for the socially vulnerable sections i.e., SC and STs in Maharashtra, compared to their counter parts in Karnataka and Orissa. In fact, the private medicare centers have charged higher price for SCs in Orissa and STs in Karnataka compared to Others' category. This may indicate that the private health delivery system may not help the poor people in curing their health problems.

The expenditure incurred at different health care facilities by rural and urban people, presented in Table 2 (also in Annexure Table 27), shows that **in Maharashtra the private health care facilities have charged higher amount in both rural and urban**

Table 2: Cost of Treatment by Type of Source, Rural-Urban - Outpatients
(Rs. / Patient)

| States | Public Facility | Private Facility | Other Facility | Total |
|--------------|-----------------|------------------|----------------|--------|
| Rural | | | | |
| Maharashtra | 113.46 | 268.20 | 19.53 | 204.94 |
| Karnataka | 409.81 | 439.71 | 217.01 | 388.64 |
| Orissa | 364.02 | 296.30 | 452.80 | 360.90 |
| Urban | | | | |
| Maharashtra | 90.47 | 443.08 | 73.96 | 279.64 |
| Karnataka | 579.72 | 276.89 | 302.95 | 433.15 |
| Orissa | 508.68 | 399.04 | 51.96 | 435.09 |

Note: Expenditures are weighted averages

areas compared to public facilities. But, in Orissa public health services are costly in both rural and urban areas. The scenario is different in Karnataka where urban people have incurred more expenditure for public medical services and rural people for private services. It should be noted that the expenditure in public hospitals by both rural and urban patients of Karnataka, respectively Rs. 409 and Rs. 579 per patient, is high compared to the amount spent by people of other states in public health centres.

4.1.4 How much do people spend on incidence and prevalence type of communicable and non-communicable diseases?

Let us now examine the pattern of expenditure for out-patient services according to incidence and prevalence and type of diseases. Information presented in Table 3 (details in Annexure table 28) illustrates that people are spending more on prevalent diseases as compared to incidence in all the three states. The treatment cost of both prevalence and incidence cases of illness is more in Karnataka, respectively Rs.2726 and Rs.863 per patient. But, it should be noted that **people in a less developed state i.e., Orissa incur more medical expenditure than by people in a developed state**, Maharashtra, as the average cost on incidence cases is around Rs.297 in Orissa, while in Maharashtra nearly Rs. 187. Among the social categories, patients belonging to Others group in Maharashtra, OBCs in Karnataka and Orissa reported to have spent more compared to other social groups on diseases of incidence group. Similarly, for the treatment of prevalence cases SCs in Orissa and STs in Karnataka have incurred more expenditure.

People spend more on prevalent cases and non communicable diseases in all the study states

Table 3 also contains the average expenditure incurred by people on communicable, non-communicable diseases and accidents. The treatment cost of non-communicable diseases in both incidence and prevalence categories is more expensive than communicable diseases in all the three states. In the incidence category the average expenditure incurred by patients from Orissa is more for both communicable (Rs. 234) and non-communicable (Rs. 661) diseases compared to other states. But, in the case of prevalence group, Karnataka reports a high average expenditure, Rs. 1247 for communicable and Rs. 1379 for non-communicable diseases. Among the social categories (Annexure Table 28) the average expenditure for incidence-communicable diseases varies to a larger extent in Karnataka from Rs. 94 for Minorities to Rs. 412 for SCs; and much difference could not be observed in Orissa where the range is between Rs. 221 for STs and Rs.

258 for Others. Across the states SC patients in Karnataka reported to have incurred higher expenditure for incidence-communicable diseases while for incidence-non-communicable it is patients from OBC group in Orissa. Similarly, treatment cost of prevalence-communicable and non-communicable diseases is more respectively for ST and Others groups' patients in Karnataka as compared to other states. The above presentation clearly indicates that the outpatient medical expenditure incurred by poorer sections of the society is more than other sections.

The expenditure incurred on prevalence diseases category is higher than that for incidence cases in both rural and urban areas of the study states as shown by Annexure Table 29. But in the rural area, people from Karnataka and in the urban area from Orissa reported to have spent higher amount on prevalence diseases. For instance, while rural Karnataka people have spent an average of Rs. 1306, the urban Orissa people have incurred Rs. 1283 per patient for prevalence diseases. However, for incidence category the treatment cost is high in urban areas in all the three states. It should be noted that the amount spent on non-communicable diseases is higher than that for communicable diseases in both rural and urban area of all three states and for both incidence and prevalence categories, excepting prevalence group in urban Karnataka.

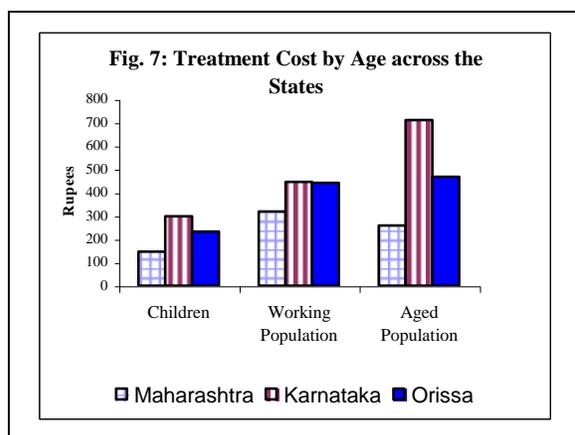
Table 3: Medical Care Expenditure by Duration and Type of Morbidity - Outpatient
(Rs. / patients)

| States | Communicable Diseases | Non Communicable Diseases | Accident | Total |
|-------------|-----------------------|---------------------------|----------|-------|
| | Incidence | | | |
| Maharashtra | 137 | 410 | 73 | 187 |
| Karnataka | 231 | 401 | 231 | 863 |
| Orissa | 234 | 661 | 1322 | 297 |
| Prevalence | | | | |
| Maharashtra | 588 | 981 | 24 | 853 |
| Karnataka | 1247 | 1379 | 100 | 2726 |
| Orissa | 805 | 1276 | 443 | 1076 |

Note: Expenditures are weighted averages

4.1.5. Is there any discrimination in the out-patient treatment cost across age and sex?

The amount spent on people of different age group and sex is an important issue as there is an opinion that the aged and also the female sections



Medical expenditure on children and aged is less in high income state. Socially vulnerable sections have spent less on children. Expenditure incurred on females of working and aged people categories is less in Maharashtra and Orissa

might have been neglected in providing medical services. The 52nd NSSO Survey results had revealed this point for Maharashtra and Karnataka as observed by Nayak (2003), that the expenditure on female-health services was less compared to that of males. Considering the importance of the issue an attempt has been made to probe the variation

in the cost incurred across age and sex. The relevant information is shown in Fig.7 (details in Annexure Table 30) that presents a varied picture of average out-patient expenditure by age groups across the states. In Maharashtra the average expenditure incurred on working population (people between 15-59 years), Rs. 319 per patient, is more than that for children (Rs. 146 per patient) and aged (Rs. 259 per patient), while it is for aged population in Karnataka and Orissa. **It is interesting to note that in both Karnataka and Orissa the average expenditure varies positively with the age of people. The observation for Maharashtra holds with the view that children and aged might have been neglected in the case of health expenditure, but not true in the case of Karnataka and Orissa.** This varied picture across the states may be because the working population must have got more importance in Maharashtra since they are earning section. A difference can also be observed in the amount spent on the same age group of population across three study states. In Karnataka the expenditure incurred on the treatment of children (Rs. 298 per patient), working population (Rs. 445 per patient) and aged (Rs.711 per patient) is higher compared to that in Maharashtra and Orissa. The details presented in Annexure Table 30 shows the differences in the cost of treatment across social categories on children, working and aged people. **It is pertinent to note that the SC and ST people of Maharashtra and Orissa, ST people of Karnataka have spent less on children compared to other social groups.** This is a bothering issue as these children who are usually malnourished due to poverty and receiving less medical attention would be affected in their physical and mental growth due to which they have to suffer in their remaining life also and this further causes for their poverty and associated problems. In the category of working population SC and ST patients from Maharashtra and Orissa reported to have spent less than other social groups in these two states. The less expenditure by the socially vulnerable section might be due to their inability to meet the expenditure owing to poverty.

Let us now examine the variation in the out-patient medical cost across sex in the three states. Related information has also been presented in Annexure Table 30, which seems to be **proving the opinion that females have received less attention in terms of medical care expenditure among both working people and aged categories of Maharashtra and Karnataka.** For instance, in Maharashtra the average expenditure incurred on working male is Rs. 605 and for female Rs. 508, similarly in Karnataka the expenditure is Rs. 572 for males and Rs. 342 for females. It is significant to note that the average expenditure incurred on females among children and working population groups is more in Orissa, which is a less developed state. The average expenditure incurred on females varies to a larger extent among the social categories also in all the three states. The expenditure reported on females of working and aged groups in SC and ST categories of Maharashtra and Karnataka and ST category of Orissa is much lower than that for males of the same groups in all three states.

4.2 Expenditure on In-patient Services

4.2.1 What is the pattern of in-patient treatment cost across the states?

The expenditure incurred by sample population for in-patient services in the three study states is discussed below taking different components of cost, sources of health services and diseases. Here also the point about the variation in the number of respondents, which was faced while dealing with out-patients, needs to be considered. Now let us examine the in-patient medicare cost on different services, which is shown in Table 4 (details in Annexure Table 31). The total **hospitalisation cost is high in Karnataka** (Rs. 8274 per patient), followed by Orissa (Rs. 4169 per patient). Although the amount spent on medical services depends upon the nature and severity of the illness, it is important to note that

In-patient medical services are costly in a medium income state followed by low income state

patients in Maharashtra reported to have spent less for in-patient services than that by patients in Orissa which indicates that in-patient services are costly in low income states. Among the social categories

Table 4: Cost of Treatment by Type of Services - Inpatients
(Rs. / patient)

| States | Medicine & Injection | Doctor's Fees | Pathological Tests | Radiological Tests | Special Diet | Total Cost |
|-------------|----------------------|---------------|--------------------|--------------------|--------------|------------|
| Maharashtra | 1494.69 | 994.93 | 383.66 | 242.71 | 485.44 | 4023.82 |
| Karnataka | 1845.96 | 603.98 | 99.44 | 457.70 | 378.50 | 8274.16 |
| Orissa | 2975.22 | 623.39 | 110.39 | 415.19 | 563.92 | 4169.27 |

Note: Expenditures are weighted averages

SC and STs, except STs in Karnataka, reported less expenditure compared to other groups for in-patient services. But, among SCs and STs patients respectively from Orissa and Karnataka have incurred more expenditure. The information presented on different items of expenditure depicts a varied picture across the states. For in-patient services of medicine and injection, patients from Orissa said to have incurred more expenditure which was also observed earlier in the case of out-patient services, while for doctors it is in Maharashtra and for radiological test in Karnataka. This informs that in Orissa health institutions have made people to pay more for services of medicine and injection in both out-patient and in-patient care.

In-patient service cost across rural and urban areas of the study states presented in Annexure Table 32 illustrates that patients from Karnataka have spent more. The expenditure in Karnataka is Rs. 8533 and Rs. 7922 per patient respectively for rural and urban patients. Within the states the urban people of Maharashtra have spent more than that by rural people, while in Orissa and Karnataka it is the rural patients spending higher amount for in-patient services.

In medium and low income states rural people have spent higher amount than urban people

4.2.2 What is the composition of in-patient treatment cost?

Information presented in Annexure Table 33 reveals that in all the three study states medicine and injection constitute a major share in total in-patient service cost. While **in Karnataka the percentage of medicine and injection is over 70, it is nearly 88 in Orissa.** In-patients from Orissa have spent over Rs.4497 per patient for medicine and injection while that in Karnataka is Rs. 1554. With regard to doctor fee it is high in Karnataka (29.21percent) followed by Maharashtra and Orissa. The above observation is similar to that noticed in the out-patient cases where the medicine and injection had larger share of the total cost of treatment in all states and Orissa reporting a higher cost.

The share of medicine and injection in total cost is significantly high in Orissa

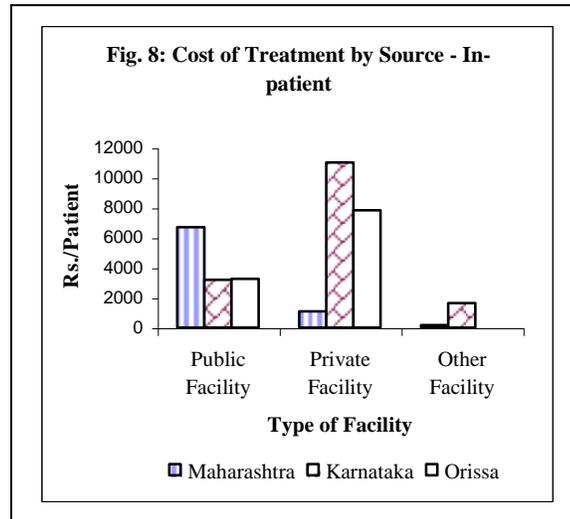
4.2.3 Is there any cost difference across health care facilities for in-patients services?

The average expenditure incurred by patients for in-patient services at public, private and others sources is shown in Fig.8 (details in Annexure Table 34). The cost of hospitalization differs across public and private health care facilities in the study states. **While the public health sources**

In-patient services are expensive in public facilities in a developed state and in private facilities in medium developed state

are more costly in Maharashtra, it is private facilities in Karnataka and Orissa for delivering in-patient services. It is significant to observe that public facilities are more costly for

in-patient services in Maharashtra charging Rs. 6700 per patient while their counterpart private facilities have billed at Rs. 1079 per patient. The cost varies from Rs. 3200 in public facilities to Rs. 11025 in private facilities in Karnataka and from Rs. 3255 in public facilities to Rs. 7823 in private sources in Orissa. Across the social categories for in-patient services OBC patients in Maharashtra revealed to have incurred higher expenditure in both public (Rs. 10590 per patient) and private (Rs. 1674 per patient) facilities, while in Orissa the Minorities have spent more in public hospitals (Rs. 5860 per patient), OBCs have in private hospitals (Rs. 8718 per patient). Among the socially vulnerable sections across states SC patients of Orissa reported to have incurred more expenditure in both public and private medical centers while for ST patients the public health services are expensive in Maharashtra and private services are in Karnataka.



4.2.4 How much rural and urban people have spent for in-patient services at public and private facilities?

The details of expenditure incurred at different facilities on in-patient services by rural and urban people in the study states are presented in Annexure Table 35, which shows that **in-patient services are costly at public hospitals of both rural and urban Maharashtra, while it is in private health centers in Karnataka and Orissa.** In Maharashtra rural and urban people have spent respectively over Rs. 6000 and Rs. 6800 per patient in public health centres. Another point that can be observed from the table is that in Karnataka rural people have paid more for in-patient services than urban people at both public and at private facilities. This might be due to the severity of the disease affecting rural people or the health facilities might have exploited the rural people by charging more.

4.2.5 In-patient Medicare Expenditure by Type of Disease

The in-patient expenditure pattern by incidence, prevalence categories and nature of disease i.e., communicable, non-communicable and accident is presented in Annexure Table 36. **The average amount spent for hospitalised treatment in prevalent categories is higher compared to that of incidence in all three states.** This observation is similar to that of out-patient services noticed earlier. Among the states highest average expenditure on prevalence cases has been reported from Maharashtra (Rs. 24500) while for incidence cases from Karnataka

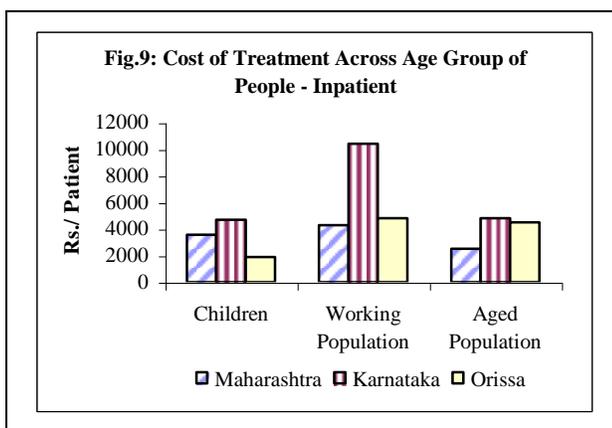
(Rs. 7670). The expenditure on incidence type diseases varies to a larger extent across the social categories in all states. For instance, in Maharashtra the SC patients have spent minimum amount, Rs.1500, while the maximum by Others Rs.6364. Similarly in Karnataka the average expenditure varies from Rs. 2665 for SC patients to about Rs. 15500 for ST patients. This indicates that the socially vulnerable sections in Karnataka are incurring more expenditure for in-patient services.

The information provided in Annexure Table 36 on communicable and non-communicable diseases depicts that **the in-patient treatment cost of non-communicable diseases is more than communicable diseases in the incidence category in all three states. Among the states Karnataka has reported highest expenditure on both types of diseases compared to other states.** The average cost of treatment of communicable diseases is nearly Rs. 2646 and for non-communicable diseases it is Rs.7238 in Karnataka. Among the social categories the OBCs have reported more expenditure on both communicable and non-communicable diseases in Maharashtra and Orissa, while it is STs in Karnataka.

4.2.6 What is the expenditure pattern for in-patient services by age and sex across states?

Differences in the amount spent on patients of different age groups and sex for in-patient services are depicted in Fig. 9 (details in Annexure Table 37).

In all the three states a relative bias towards working population can be observed in in-patient medical expenditures. It is significant to note that **in both Karnataka and Orissa the average expenditure on children is much less than that compared to working population.** For instance, in Karnataka the amount spent on a working person is Rs.10430 while it is Rs.4698 per child. In Orissa people have incurred Rs. 1892 and Rs. 4800 respectively for a child and working pattern. Among the social categories the total expenditure incurred on children for in-patient services differs in all states. For instance, in Maharashtra while Minorities have spent about Rs. 240 per child, the OBCs spent over Rs. 5730. The range varies from Rs. 951 per child of Minority category to Rs. 6711 for a child of OBC in Karnataka, while from Rs. 1008 for a SC child to Rs. 2594 of a Minority in Orissa. Further, **it should be noted that among the SC and ST categories the average expenditure incurred by the SC people of Orissa on child health care is less.** The data reveals that to a larger extent the socially vulnerable sections have spent less for child health care compared to other social groups. The expenditure pattern across the social categories for working population also shows a great variation in the amount spent by different social groups. While the expenditure varied from Rs. 1466 per patient of ST to Rs. 7855 of Minorities in Maharashtra, it spreads between Rs. 2934 for SC and Rs. 19666 for STs in Karnataka; and from Rs. 1742 for STs to Rs.6367 for Others in Orissa. Almost a similar trend can be observed in the expenditure incurred on aged people across the social categories in all the study states.



Let us examine the in-patient cost differences across sex shown in Fig 9. (Annexure Table 37). It may be noted that **in all age groups i.e., children, working and aged, except working population in Orissa and aged in Maharashtra, the in-patient medical expenditure incurred on female section is comparatively less than that of male and also the cost**

difference is too wide. For example, the amount spent on a male child is Rs. 4199 and for female Rs. 2086 in Maharashtra. Similarly, in Karnataka also the expenditure varied from Rs. 5331 and Rs. 4839 respectively for a male and female child. In the working population of Karnataka much variation can be observed between males and females i.e., from Rs. 13900 to Rs. 4490 respectively. This might indicate that the difference in the in-patient medical care expenditure, can affect the health status of female population severely. **It is significant to note that in working population of Orissa the in-patient medicare cost is almost equal between male and female. But, it is distressing to note that in all the states the medical expenditure on females in all age groups is lower than that for males.**

Section V

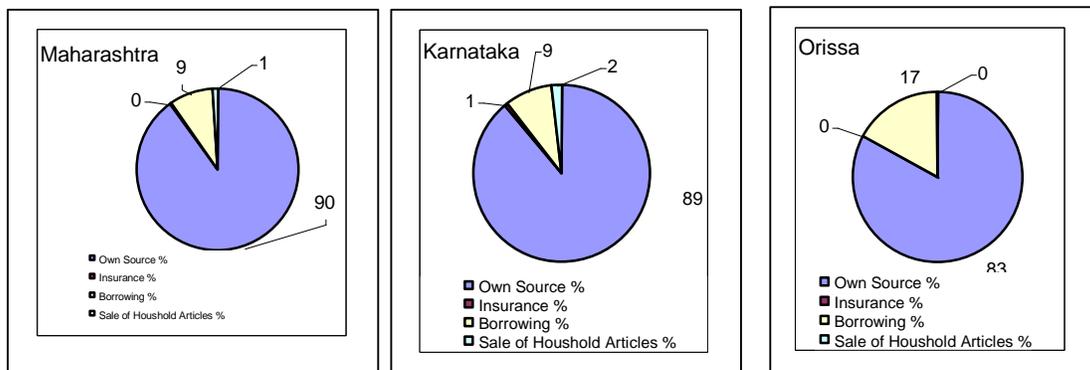
5.1 How do people finance for their medical care expenditure?

In the above sections we discussed about the expenditure pattern for out-patient and in-patient services across type of health facilities, categories of incidence and prevalent patients and nature of diseases, i.e., communicable, non-communicable and also across age and sex of the patients. Let us now examine the sources of finance for health expenditure by people. The relevant

The percent of people who financed their medical expenditures from own sources declines with the income level of the state. Among those who borrowed money for treatment of illness it is more in socially vulnerable sections in all the states. More number of people borrow to meet expenditure of in-patient treatment than out-patient treatment

information for out-patient cases is presented in Fig. 10 (details in Annexure Table 38). **The medical care expenditures for out-patient services have been met from own sources of income by majority of people in the selected three states. A significant point that can be observed is that the percent of patients who met their health expenditure from own source declines with the income level of the state.** While over 90 per cent of the out-patients in

Fig.10: Sources of Finance for Out-patient treatment cost in selected states

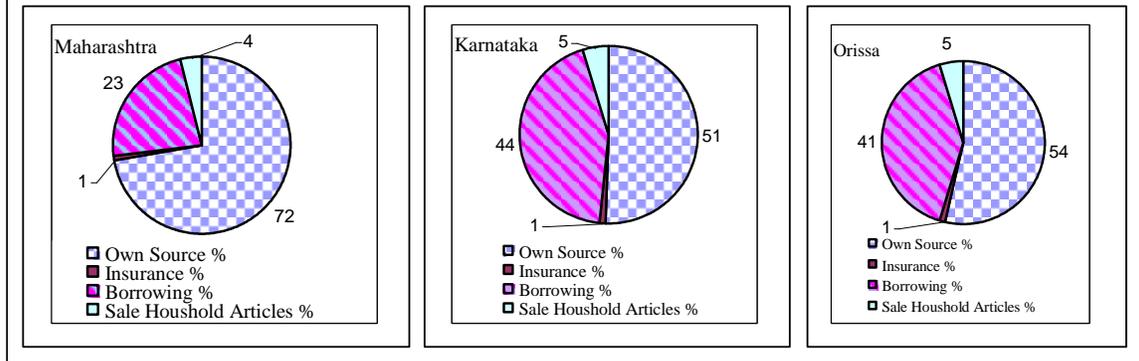


Maharashtra reported to have spent from own source, it is around 89 per cent in Karnataka and 83 per cent in Orissa. It should be noted that **in Orissa the number of persons who borrowed money for meeting their medical care expenditure is high, 17 per cent, which is higher compared to other two states.** Further, **among those who borrowed money for health expenditure it is more in socially vulnerable sections in all the states.** For instance, over 22 per cent of Minorities in Orissa, and over 16 and 11 per cent of STs respectively in Karnataka and Maharashtra have met the expenditure through borrowings. **The analysis indicates that in a low income state borrowing is still one of the major sources for people to meet their health expenditures.**

The sources of medical care expenditures for in-patient services shown in Fig.11 (details in Annexure Table 39), reveals some important points. The percent of people who used their own money for obtaining in-patient medical services is relatively higher compared to other sources in all the states. But, there is a **drastic increase in the number of persons who borrowed money for meeting the in-patient medical expenses than that of out-patient, particularly in Karnataka and Orissa.** In Karnataka over 44 per cent and in Orissa 41 per cent of in-patients said to have gone for debt. It seems the **in-patient services are more expensive for socially**

vulnerable sections as around 50 per cent of them in Karnataka and over 53 per cent of ST in Orissa reported to have borrowed money. The number of persons borrowed money for in-patient services is comparatively higher than that for out-patient services, which might indicate that in-patient services are costly and some times compel people to enter into debt.

Fig. 11: Sources of Finance for Inpatient Treatment in the Selected States



5.2 What is the impact of healthcare expenditure on households?

The discussion revealed that the expenditure varies to a larger extent across the states and also among the social categories of all states. But, irrespective of the difference in the amount spent for health services, it will certainly affect the economic condition of the concerned family. Studies have shown that the poor and other disadvantaged sections such as scheduled casts and tribes are forced to spend a higher proportion of their income on health care than the better off. The burden of treatment is unduly large on them when seeking in-patient care (quoted in Gumber and Kulkarni. 2000). The adverse effects may be in terms of reduction in expenditures on some important requirements of the household or may be postponement of some activities due to paucity of funds as a result of medical care expenditure. Considering the above let us examine the adverse effects of treatment costs on the sample households. This has been discussed by considering the number of households reported to have reduced and postponed expenditure on some important needs like house construction, agriculture expenses, education, etc., owing to their health expenditure. The relevant information on the households reported to have reduced expenditure on various activities is presented in Annexure Table 40 and on households which have postponed the expenditure in Annexure Table 41.

Due to medical care expenditures agricultural activities in developed state, house construction activities in a low incomes state have been adversely affected to a larger extent

As can be seen from Annexure Table 40 in all the three states the major casualties of health expenditure by the sample households are agricultural activities, purchase of major household articles, house construction and others, but this differs across the states. For instance, **in Maharashtra agricultural activities have been adversely affected to large number of households i.e., nearly 37 per cent. It is significant to note that in Orissa nearly 23 per cent of the households reported to have reduced expenditure on house construction, which is a serious issue.** Another important point that should be recognized that due to medical care expenditure **nearly 9 per cent of the households in Karnataka and Orissa have curtailed expenditure on education.** Education being an important social input, reduction in its expenditure is not a good sign. **The impact of the burden of healthcare expenditure is more on**

socially disadvantaged classes as in most of the study states more number of SC and ST categories people reported to have reduced expenditure on major activities like agriculture, purchase of household articles, house construction, etc. In Orissa nearly 30 per cent of the respondents of SC and ST category have reduced money spent on house construction. Similarly, more than 28 per cent of STs and 18 per cent SCs in Karnataka curtailed expenditure on agricultural activities.

Further, let us examine the percentage of households which had to postpone some of their activities owing to medical care expenditure (details in Annexure Table 41). **While nearly 35 per cent of the households in Maharashtra said to have postponed expenditure on major household assets acquisition, almost the same percent of households in Orissa have deferred house construction activity. In Karnataka and Maharashtra over 30 per cent of the households have postponed agricultural expenditures. It is significant to note that over 18 and 15 per cent of the households in Karnataka had to delay their expenditures respectively on education and house construction activities.**

The analysis presented above clearly shows the **burden of illness expenditure is more on the socially disadvantaged classes and is more in poor states.** But, it should be noted that **the medical care expenditure has adversely affected the basic livelihood activities like agriculture and house construction,** which is a cause to worry in all states irrespective of development status.

5.3 What do people think about health care facilities?

Utilization of any health care facility depends upon the quality of services delivered, cost of services, peoples' opinion about the services received for their illness, etc. Peoples' perception about services like availability of medicines, presence of doctor, etc., at the health care centres influences the utilization to a greater extent. As observed in earlier sections people have used different types of healthcare facilities i.e., public, private and others to obtain medical services for their ailment and also there is a wide cost difference across these sources. Considering these points the study attempted to elicit perception of people about healthcare facilities covering availability of doctors, medicine, first aid and emergency services, etc.

Annexure Table 42 contains peoples' opinion on public, private and other health service sources nearby to their households in the study area. Among those who revealed their opinion on public health care facilities, around 32 per cent in Maharashtra, 35 per cent in Karnataka and 45 per cent in Orissa reported that these facilities are good in delivering health services. But, it is important to note that in Karnataka and Maharashtra relatively more percent, respectively 32 and 48 per cent told that the services are somewhat good, which might indicate that the services were not to the satisfaction level of customers. Among those who responded on private clinics more than 50 per cent in Maharashtra (54.5%) and Karnataka (58.5%) told that the services delivered were good. But, it is interesting to note that in Orissa over 80% of the respondents opined that private services were good.

Section VI

6. Health Related Risk Factors

As mentioned earlier health status of people depends upon many factors, and among these factors provision of safe drinking water, sanitation facilities, clean surroundings at residences, etc., also play a major role. It is already an established truth that unsafe drinking water and lack of sanitation services cause water borne diseases, which are the major concern of public health. Accounting for the significance of these parameters in determining the health condition of people let us examine the sources of drinking water, sanitary provision, etc., to the households in the three study states.

6.1 Which is the major source of drinking water across the states?

Provision of safe drinking water is one of the important issues in delivering and maintaining public health. Drinking water sources like ponds, open wells, etc., or where the quality of water is lower than desired level can adversely affect the health status. Information on different sources of

Open wells in developed state, tap in house in medium developed state and tube well in less developed state are the major sources of drinking water

drinking water used by households in the selected states is presented in Annexure Table 43. people have used different types of water sources like lakes, ponds, open and tube wells, taps etc., to collect drinking water. It can be observed that the number of households depending upon these sources varies to a larger extent in the study states. For instance, **in Maharashtra more number of households depend upon open wells for drinking water (39 per cent), while in Karnataka and Orissa respectively tap in house (nearly 44 per cent of the households) and tube well (nearly 67 per cent of the households) have served as the major sources of drinking water.** Water supply through tap in house, which is considered to be more safer source of water i.e., is adopted by more percent of households in Karnataka, while in Orissa it is very less, around 9 per cent of the households. It is an important point to observe that in Orissa the number of households using water from public tap and tap in house is relatively less and the number depending upon tube wells is high.

The same Annexure Table 43 also shows the contrasting picture of sources of drinking water across the social categories. Among the **social categories in Maharashtra nearly 61 per cent of ST households depend upon open well for drinking water**, while more than 40 per cent of households in both Minorities and Others group have tap connection in house. This indicates that in Maharashtra the ST population still needs to be provided with safe drinking water supply. In Karnataka a higher percent of households in all social categories collect water from either public tap or tap in house. While more number of households in Orissa depends upon tube well for drinking water, their distribution across the social categories varies from 47 per cent of households in Others to 86 per cent of households in ST category. Among those who have tap connection in house in Orissa the percent of ST households is very negligible and that of SCs is around 10 per cent. This shows that in Orissa also the situation is not of good one as far as drinking water sources are concerned.

The rural – urban information on sources of drinking water presented in Annexure Table 44 illustrates that in rural Maharashtra open wells and in rural Orissa tube wells are the major sources of drinking water. It is significant to note that nearly 50 per cent of households in Maharashtra, and nearly 80 per cent of households in Orissa have used respectively open well and tube well as the major source of drinking water. But in Karnataka between 31 to 35 per cent of

rural households have received drinking water from public tap or tap in house. The urban scenario presented in the same table depicts that **in Maharashtra and Karnataka majority of households are obtaining drinking water from public taps and tap in house. But, in Orissa even in urban area also tube wells are the major sources of drinking water**, as nearly 45 per cent of urban households are depending upon tube wells.

Do households treat water before using?

In addition to the type of source of drinking water, it is also important to know whether water is treated or not before using it for drinking purpose. The relevant information is illustrated in Annexure Table 45. **The number of households using water without treating it at domestic level is very large in both Orissa and Karnataka.** While in Orissa, 73 per cent of the households have reported that no treatment was carried out for drinking water, it is more than 60 per cent in Karnataka.

More number of households in medium and low income states use water for drinking purpose without treatment.

6.2 What is the extent of household sanitation facilities?

Information related to sanitation facilities i.e., latrines/toilet facility at households is illustrated in Annexure Table 46. In all states **a larger number of households do not have household latrine system, and all these households use open fields for defecation. The percent of households not having toilet facility vary from nearly 62 in Karnataka to 85 in Maharashtra.** It is important to note that **in Maharashtra, which is considered to be a developed state, still nearly 85 per cent of the households do not have toilet facility.**

More number of households do not have toilet facilities in all the states

The rural – urban scenario presented in Annexure Table 47 shows that rural area of all the states lack an important sanitation system i.e., latrines services. It should be noted that more than 95 per cent of rural households in Maharashtra, 88 per cent in Orissa and over 79 per cent in Karnataka use open place for defecation purpose. In urban area also the problem is persistent as in both Maharashtra and Orissa respectively 61 and 47 per cent of urban households do not have latrine facilities.

Section VII

7. Conclusion

Our attempt to understand the pattern of morbidity, utilisation of health facilities, cost of treatment, effects of health care expenditure on the families, sources of finance, and others, has revealed significant points. Communicable diseases are still dominant and adversely affecting the health status of people, particularly that of socially vulnerable sections. All the three study states, irrespective of the level of income, reported high proportion of communicable diseases. While in Orissa about 80 per cent of patients have suffered from communicable diseases, the percentage is 73 for Maharashtra. This paradox i.e., high income state also showing more number of communicable diseases, which is almost equal to that of a low income state, merits for immediate attention. Another point observed is the continued domination of communicable diseases. Since most of the communicable diseases are due to poverty, malnutrition and under nutrition, inadequate provision of basic requirements like safe drinking water, sanitation facilities, housing, etc., the problem needs to be attended immediately.

Analysis of the utilisation of health care facilities for the treatment of illness illustrated a varied picture for out-patient and in-patient services. Among those who availed out-patient services, relatively large number of people have approached private health care facilities in Karnataka and Maharashtra, while it is public health facilities in Orissa. The results also revealed that the SC and ST people are largely using the government facilities in all the three states. An interesting observation made was that in low and high income states large number of people have approached public facilities for in-patient services. The percent varies from 53 in Maharashtra to 76 in Orissa. But, in Karnataka for both outpatient and in-patient services private facilities are largely used. Further, in all the states more number of people have approached public health care facilities to avail in-patient treatment for prevalent type of diseases. This depicted that poor people depend upon public health delivery system, and also people use these facilities for curing illness of prevalent type, for which government's continued support is required.

Cost of medicare services is one of the important determinants of access to and availing of health services, particularly by the poor. The pattern of treatment cost across states showed that in Karnataka people reported to have spent more for availing medical services. But, the significant point that emerged in the analysis is that in a low income state the cost of treatment is high for both out-patient and in-patient services. The cost difference across public and private facilities revealed that public health authorities are charging more for their services of out-patient treatment in Karnataka and Orissa, but it is the other way in Maharashtra. The cost difference in Karnataka has made more number of people to visit private health care facilities for outpatient treatment, but in Orissa people required to use public sources due to the less growth of private health delivery system. Another point observed was the significant variation in the cost of treatment across public and private sources in Maharashtra and Karnataka. In Maharashtra public and private health centres have charged respectively Rs. 111 and Rs. 402 per patient; while in Karnataka it is Rs. 567 and Rs. 388 per patient respectively in public and private health delivery system for the out-patient services. Discrimination in the medical expenditure incurred across age and sex is another issue discussed, which revealed that in both Karnataka and Orissa the average expenditure varies positively with age of people. But, in Maharashtra the medical expenditure incurred by the families on children and aged people is less than that compared to working group of people. Further, there is significant difference in the amount spent on the same age group of people across the three states. A bothering issue in terms of expenditure across age groups is that of socially vulnerable sections spending less on the health care of children. These children who are usually malnourished due to poverty and receiving less medical attention would be affected in

their physical and mental growth, which can affect their productivity in the future. The results also illustrated the disparity in the medical expenditure across sex, where the female section has received less attention in both Karnataka and Maharashtra.

The scenario of cost of treatment depicted that in medium and low income states the in-patient services are expensive compared to a developed state. In Karnataka people have spent Rs. 8274 per patient, while in Orissa it is Rs. 4169 per patient. It should be noted that in Orissa the hospitalization costs are relatively more than that in Maharashtra, which again shows that in poor states the health costs are high. The pattern of hospitalization cost varies across the public and private health delivery systems and across the states. Public health sources are costlier in Maharashtra, while it is private sources in Karnataka and Orissa in delivering in-patient services. Further, there is a significant difference in the cost across type of sources in all the states. In all the three states a relative bias towards working population was observed. Particularly in Karnataka and Orissa the average expenditure incurred on children is much less than that on working population. Another important point revealed by the analysis is the difference in the inpatient expenditure incurred across sex in all the age group of people in the study states, except working population in Orissa and aged in Maharashtra. This reveals that the weaker and vulnerable sections of the society require more attention from households as well as by the government to protect and improve their health status.

Our attempt to examine the sources of financing for health care expenditures by the households and its effects on household activities illustrated important points. The sources of finance vary depending on the nature of treatment received, i.e., out-patient and in-patient services. Large number of people have met the expenditures for out-patient services from their own sources in all the states. But, in Orissa compared to other states large number of people have borrowed money to meet the cost of out-patient services. The analysis for the sources of finance for in-patient services showed that the number of people who borrowed money increased drastically against that of out-patient services, particularly in Karnataka and Orissa. The in-patient services are more expensive to the socially vulnerable group of people as around 50 per cent of them have approached borrowers. All this indicates that for poor people still borrowing is one of the major sources to meet their health expenditures. The impact of medical expenditures on households is severe as the major casualties of health expenditures are agricultural activities, purchase of major household articles, house construction, etc. While in Maharashtra agricultural activities have been adversely affected, in Orissa it is house construction. It was also revealed that the burden of illness expenditure is more on socially vulnerable sections. The health expenditures have adversely affected the livelihood security of the people, which needs to be addressed immediately.

It was observed that communicable diseases are still dominant in the study states. Most of the communicable diseases are caused by lack of safe drinking water, sanitation facilities, clean surrounding, etc. The results of the survey showed that open wells are the major source of drinking water in developed state, while tube well in less developed state. Water supply through taps, which is considered to be safe, is relatively less in all the states. Similarly, the provision of toilet facility in the house is also very less in all the states.

The above illustration suggests that health sector, which is one of the important social sectors, requires continued support of the government. Large scale reporting of communicable diseases, people depending upon public health delivery system, high cost of treatment, adverse effects of health care expenditures on the livelihood activities of the people, inadequate provision of safe drinking water and sanitation facilities all call to protect the poor and vulnerable sections of the society.

Summary of the Findings

Majority of the patients reported to be suffering from communicable diseases in all the three states.

For out-patient treatment relatively more number of people have used public health care facilities in Orissa, while private facilities in Karnataka and Maharashtra.

Public health facilities are the major sources for in-patient services in Orissa, and Maharashtra, whereas in Karnataka more number of people are using private facilities.

By and large the socially vulnerable sections use public facilities in large number for in-patient services.

For in-patient services of prevalence type of diseases large number of patients have visited public facilities.

In a less developed state of Orissa people incur more expenditure for availing health services than that in a developed state of Maharashtra. However, even in a medium developed state such as Karnataka, the cost of treatment is higher.

For out-patient services public facilities are expensive in Karnataka and Orissa.

Public health facilities are more expensive in Maharashtra for providing inpatient services.

People from socially vulnerable sections have spent less on children than other social categories.

Females have received less attention in terms of medical care expenditure in both working and aged categories of people in Maharashtra and Karnataka.

Generally it is found that the medical expenses have been met through own sources of income by majority of households. However, in Orissa the number of households which, borrowed money for meeting medical care expenditure is high.

Among those who borrowed money for financing their health expenditure the socially vulnerable sections dominate in all the states.

People borrow money to meet in-patient medical expenses more often than for out-patient expenses, particularly in Karnataka and Orissa.

Due to medical care expenditure activities related to agriculture, house construction have been adversely affected.

Significantly, people opined that health services at public health care centres are less satisfactory

Majority of the households depend upon open well/tube well for collection of drinking water

In all the states a larger number of households do not have household latrine facility.

ANNEXURE TABLES:

Annexure Table 1 : Selection Of Districts Based On Agro Climatic Regions and Proportion of SC/ST Population in Maharashtra

| Type Of Climate | Regions | Districts | % Of SC/ST Population | District Selected |
|--|--|--------------------------|-----------------------|-------------------|
| Dry sub-humid Semi-arid to Dry sub-humid | Eastern Vidharbha Region Central Vidharbha | Satara | 10.25 | Gadchiroli |
| | | Wardha | 29.64 | |
| | | Nanded | 29.99 | |
| | | Bhandara | 31.57 | |
| | | Yawatmal | 32.38 | |
| | | Nagpur | 32.76 | |
| | | Chandrapur Gadchiroli | 36.61 50.89 | |
| Semi-arid | Scarcity Region | Sangli | 13.05 | Dhule |
| | | Sholapur | 16.91 | |
| | | Ahmadnagar | 19.53 | |
| | | Dhule | 46.17 | |
| Semi-arid | Central Plateau | Bid | 14.53 | Amaravati |
| | | Jalna | 15.01 | |
| | | Parbhani | 16.29 | |
| | | Buldana | 16.54 | |
| | | Aurangabad | 17.56 | |
| | | Osmanabad | 18.10 | |
| | | Akol | 18.98 | |
| | | Jalgaon | 19.09 | |
| | | Latur | 21.30 | |
| Amaravati | 31.86 | | | |
| Semi-arid | Western Hills and Plains Region | Satara | 10.25 | Nasik |
| | | Kolhapur | 13.24 | |
| | | Pune | 15.32 | |
| | | Nasik | 32.66 | |
| Humid to per-humid | Konkan Region | Ratnagiri | 2.74 | Thane |
| | | Sindhurg | 5.57 | |
| | | Greater Mumbai | 7.56 | |
| | | Raigad | 15.62 | |
| | | Thane | 23.30 | |

Annexure Table - 2 : Selection of Districts Based on Agro Climatic Regions and Proportion of SC/ST Population in Karnataka

| Type of Climate | Regions | Districts | % Of SC/ST Population | District Selected |
|------------------------|--------------------------|------------------|-----------------------|-------------------|
| Arid to Semi -arid | Northern Dry region | Bijapur | 18.76 | Bidar |
| | | Raichur | 25.03 | |
| | | Gulbarga | 27.79 | |
| | | Bellary | 28.14 | |
| | | Bidar | 29.01 | |
| Semi-arid | Malnad Region | Belgaum | 13.67 | Dharwad |
| | | Dharwad | 14.72 | |
| Semi-arid | Central region | Bangalore | 15.82 | Chitradurga |
| | | Tumkur | 24.99 | |
| | | Kolar | 32.63 | |
| | | Chitradurga | 34.44 | |
| Semi-arid | Southern region | Mandya | 14.51 | Mysore |
| | | Hassan | 18.47 | |
| | | Mysore | 22.12 | |
| Semi-arid to per-humid | Hills and Coastal region | Uttara Kannada | 8.37 | Chickmagalur |
| | | Dakshina Kannada | 10.46 | |
| | | Kodagu | 20.33 | |
| | | Shimoga | 21.58 | |
| | | Chickmagalur | 21.86 | |

Annexure Table 3 : Selection of Districts Based on Agro Climatic Regions and Proportion of SC/ST Population in Orissa

| Type of Climate | Regions | Districts | % Of SC/ST Population | District Selected |
|------------------------|-------------------------|----------------|-----------------------|-------------------|
| Dry sub-humid | Inland region | Dhenkanal | 28.71 | Gajapati |
| | | Angul | 28.50 | |
| | | Ganjam | 20.84 | |
| | | Gajapati | 56.65 | |
| | | Bolangir | 37.45 | |
| | | Sonepur | 31.61 | |
| Dry sub-humid | Ganjam region | Sambalpur | 52.15 | |
| | | Jharsuguda | 49.03 | |
| | | Deogarh | 47.91 | |
| | | Baragarh | 38.00 | |
| Moist to dry sub-humid | Northern plateau | Kalahandi | 45.89 | Malkangiri |
| | | Nuapad | 49.04 | |
| | And Hills region | Keonjhar | 56.01 | |
| | | Phulbani | 32.56 | |
| | | Kandhmal | 69.70 | |
| Moist to dry sub-humid | South west Hills region | Sundargad | 59.52 | |
| | | Mayurbhanj | 64.86 | |
| | | Koraput | 64.08 | |
| | | Malkangiri | 78.32 | |
| | | Nabarangpur | 70.36 | |
| | | Rayagad | 70.32 | |
| Moist sub-humid | Coastal region | Puri | 18.83 | Balesore |
| | | Nayagarh | 19.74 | |
| | | Khurda | 18.76 | |
| | | Cuttack | 21.68 | |
| | | Jajapur | 30.27 | |
| | | Kendrapara | 20.23 | |
| | | Jagatisinghpur | 22.33 | |
| | | Balesore | 29.14 | |
| | | Bhadrak | 23.40 | |

Annexure Table - 4 : Selection of Talukas and Villages in the Selected Districts of Maharashtra

| DISTRICTS | Rural | | | | | | Urban | |
|--------------------------------|--|-------------------------------------|------------|----------------------|-----------------------|---------------------|------------|---------------------|
| | % of District Population in Total Population of Five Districts | Proportion of HHs for Each District | TALUKS | No. of HHs per Taluk | VILLAGES | No. of HHs Surveyed | TALUKS | No. of HHs Surveyed |
| Dhule | 17.34 | 173 | Sindhkheda | 86 | Karle Patan | 43 43 | Sindhkheda | 50 |
| | | | Shirpur | 87 | Asali Budki | 43 44 | Shirpur | 50 |
| Amaravati | 15.04 | 151 | Achalapura | 75 | Kakda Bordi | 38 37 | Achalapura | 50 |
| | | | Chickhalda | 76 | Churni Hatru | 38 38 | Chickhalda | 50 |
| Gadchiroli | 5.38 | 54 | Sironcha | 27 | Nagram Kottamal | 14 13 | Sironcha | 50 |
| | | | Aheri | 27 | Krishnapur Basapur | 13 14 | Aheri | 50 |
| Nashik | 26.33 | 263 | Igatpuri | 131 | Adharwad Borli | 66 65 | Igatpuri | 50 |
| | | | Malegaon | 132 | Galne Hatane | 66 66 | Malegaon | 50 |
| Thane | 35.89 | 359 | Shahapur | 180 | Aghai Khaire | 90 90 | Shahapur | 50 |
| | | | Mokhada | 179 | Adishi Chas | 89 90 | Mokhada | 50 |
| Total Households for the state | | | | | | 1000 | | 500 |

Note: HHs=Households

Annexure Table 5 : Selection of Talukas and Villages in the selected Districts of Karnataka

| DISTRICTS | Rural | | | | | | Urban | |
|--------------------------------|--|-------------------------------------|-------------------------|----------------------|--------------------------|-----------------------------------|------------|-----------------------------------|
| | % of District Population in Total Population of Five Districts | Proportion of HHs for each District | Name of Taluka Selected | No. of HHs Per Taluk | Name of Village Selected | No. of HHs Surveyed in Rural Area | Urban Area | No. of HHs Surveyed in Urban Area |
| Mysore | 28.45 | 285 | Hunsur | 143 | Abbur | 72 | Hunsur | 50 |
| | | | Nanjangud | 142 | Dharmapura | 71 | Nanjangud | 50 |
| | | | | | Hura Alathur | 71 70 | | |
| Chitradurga | 19.6 | 196 | Hosdurga | 98 | Bagur | 49 | Hosdurga | 50 |
| | | | Holalkere | 98 | Giriyapura | 49 | Holalkere | 50 |
| | | | | | Dummi Kengunte | 49 49 | | |
| Bidar | 11.29 | 113 | Humnabad | 56 | Sedol | 28 | Humnabad | 50 |
| | | | Aurad | 57 | Mangalgi | 28 | Aurad | 50 |
| | | | | | Jambgi Bachehalli | 28 29 | | |
| Chickmagalur | 9.14 | 92 | Sringeri | 46 | Menase | 23 | Sringeri | 50 |
| | | | Kadur | 46 | Kigga | 23 | Kadur | 50 |
| | | | | | Hirenallur Macheri | 23 23 | | |
| Dharwad | 31.4 | 314 | Kalghatgi | 157 | Ganjigatti | 78 | Kalghatgi | 50 |
| | | | Navalgund | 157 | Dastikop | 79 | Navalgund | 50 |
| | | | | | Karlwad Tirlapur | 78 80 | | |
| Total Households for the state | | | | | | 1000 | | 500 |

Note: HHs=Households

Annexure Table 6 : Selection of Talukas and Villages in the selected Districts of Orissa

| DISTRICTS | Rural | | | | | | Urban | |
|--------------------------------|--|-------------------------------------|-------------------------|----------------------|--|-----------------------------------|------------|-----------------------------------|
| | % of District Population in Total Population of Five Districts | Proportion of HHs for Each District | Name of Taluka Selected | No. of HHs Per Taluk | Name of Village Selected | No. of HHs Surveyed in Rural Area | Urban Area | No. of HHs Surveyed in Urban Area |
| Balesore | 32.9 | 329 | Remula | 168 | Srikrishnapur | 82 | Remula | 100 |
| | | | Nilgiri | 161 | Sergarh Podasol Banksol | 86 85 76 | Nilgiri | 100 |
| Gajapati | 33.6 | 336 | Rayagad | 167 | Narayanpur | 85 | Rayagad | 75 |
| | | | Guma | 169 | Daradsingh Anakandgud Andersingh | 82 85 84 | Guma | 75 |
| Malkangiri | 33.5 | 335 | Mathili | 169 | Kotameta | 84 | Mathili | 75 |
| | | | Malkangiri | 166 | Pangam Bhalugud Pandripani | 85 86 80 | Malkangiri | 75 |
| Total Households for the state | | | | | | 1000 | | 500 |

Note: HHs=Households

Annexure Table 7 : Diseases Observed in the Survey Areas of the Study States

| Sl. No. | Communicable Diseases | Sl. No. | Non Communicable Diseases | Sl. No. | Accident / Injury |
|---------|-----------------------|---------|---------------------------|---------|-------------------|
| 1 | Cough/Cold/Fever | 1 | Eye Problem | 1 | Accident |
| 2 | Skin Diseases | 2 | Mental Shock | 2 | Wound |
| 3 | Malaria | 3 | Asthma | 3 | Snake Bite |
| 4 | Typhoid | 4 | Body Pain / Stomach Pain | 4 | Dog Bite |
| 5 | Diarrhea | 5 | Ulcer | 5 | Fracture |
| 6 | Tuberculosis | 6 | Cancer | 6 | Leg Fracture |
| 7 | Hepatitis | 7 | Heart Problem | 7 | Head Injury |
| 8 | Cholera | 8 | Blood Pressure | 8 | Monkey Bite |
| 9 | Chicken pox | 9 | Diabetes | 9 | Burning |
| 10 | Filaria | 10 | Tooth Pain / Mouth Pain | 10 | Poison |
| 11 | Leprosy | 11 | Gynaec related problems | | |
| 12 | Jaundice | 12 | Urinary Trac | | |
| 13 | Measles | 13 | Paralysis | | |
| 14 | Brain Fever | 14 | Throat Problem | | |
| 15 | Worm | 15 | Kidney Problem | | |
| 16 | Amebiasis | 16 | Piles | | |
| 17 | Diphtheria | 17 | Fits | | |
| 18 | Pneumonia | 18 | Weakness | | |
| | | 19 | Nerve Problem | | |
| | | 20 | Ear Problem | | |
| | | 21 | Anemia | | |
| | | 22 | Liver Problem | | |
| | | 23 | Gastric Problem | | |
| | | 24 | Blood Omitting | | |
| | | 25 | Giddiness | | |
| | | 26 | Breathing Problem | | |
| | | 27 | Back Bone problem | | |
| | | 28 | Lungs Problem | | |
| | | 29 | Body Swelling | | |
| | | 30 | Nose Problem | | |
| | | 31 | Appendicitis | | |
| | | 32 | Rheumatism | | |
| | | 33 | Digestion Problem | | |
| | | 34 | Faintness | | |
| | | 35 | Bronchitis | | |
| | | 36 | Tumor in Stomach | | |
| | | 37 | Vomiting | | |
| | | 38 | Acidity | | |
| | | 39 | Spondylitis | | |
| | | 40 | Blood Flow | | |
| | | 41 | Blood blocked in arteries | | |
| | | 42 | Goitre | | |
| | | 43 | Hernia | | |
| | | 44 | Sinuses | | |
| | | 45 | Wart | | |
| | | 46 | Brain Problem | | |
| | | 47 | Emesis | | |

Annexure Table 8 : Number of Morbid People in the Selected States

| States | Social Groups | Total No. of Persons | No. of Patients | Percent of Patients | Percent of Incidence* Cases | Percent of Prevalance** Cases |
|-------------|---------------|----------------------|-----------------|---------------------|-----------------------------|-------------------------------|
| Maharashtra | SC | 860 | 214 | 25.16 | 90.44 | 9.56 |
| | ST | 3512 | 965 | 29.02 | 91.92 | 8.08 |
| | OBC | 2034 | 530 | 27.22 | 90.97 | 9.03 |
| | Minorities | 325 | 73 | 22.80 | 95.27 | 4.73 |
| | Others | 1846 | 516 | 27.71 | 93.80 | 6.20 |
| | Total | 8577 | 2298 | 27.88 | 92.02 | 7.98 |
| Karnataka | SC | 1324 | 258 | 20.68 | 85.84 | 14.16 |
| | ST | 946 | 129 | 15.76 | 89.51 | 10.49 |
| | OBC | 3651 | 586 | 17.93 | 88.31 | 11.69 |
| | Minorities | 596 | 113 | 19.88 | 91.77 | 8.23 |
| | Others | 1692 | 306 | 19.70 | 87.52 | 12.48 |
| | Total | 8209 | 1392 | 18.58 | 88.10 | 11.90 |
| Orissa | SC | 949 | 277 | 28.84 | 91.87 | 8.13 |
| | ST | 2131 | 541 | 25.10 | 90.88 | 9.12 |
| | OBC | 1846 | 500 | 27.13 | 90.02 | 9.98 |
| | Minorities | 470 | 151 | 32.07 | 89.54 | 10.46 |
| | Others | 1791 | 503 | 27.84 | 87.80 | 12.20 |
| | Total | 7187 | 1972 | 27.22 | 89.90 | 10.10 |

Note:

* Incidence: <30 days

** Prevalance: >30 days

| Annexure Table 9 : Number of Patients by Type of Disease | | | | | | | |
|--|--------------|---------|------------------|---------|----------|--------|-------|
| | Communicable | | Non-communicable | | Accident | | Total |
| Maharashtra | 1674 | (72.85) | 586 | (25.5) | 38 | (1.65) | 2298 |
| Karnataka | 834 | (59.91) | 502 | (36.06) | 56 | (4.02) | 1392 |
| Orissa | 1577 | (79.96) | 384 | (19.47) | 11 | (0.55) | 1972 |

Note: Figures in parenthesis are percentages to total

Annexure Table 10 : Percent of Patients Who Visited Healthcare Facility for Treatment in Selected States

| State | Social Groups | Percent of Patients Who Visited Medical Facility | Percent of Patients Who Did Not Visit Medical Facility | Total |
|-------------|---------------|--|--|--------|
| Maharashtra | SC | 92.58 | 7.42 | 100.00 |
| | ST | 90.04 | 9.96 | 100.00 |
| | OBC | 88.04 | 11.96 | 100.00 |
| | Minorities | 89.61 | 10.39 | 100.00 |
| | Others | 91.98 | 8.02 | 100.00 |
| | Total | 90.11 | 9.89 | 100.00 |
| Karnataka | SC | 92.65 | 7.35 | 100.00 |
| | ST | 93.44 | 6.56 | 100.00 |
| | OBC | 89.66 | 10.34 | 100.00 |
| | Minorities | 91.05 | 8.95 | 100.00 |
| | Others | 90.30 | 9.70 | 100.00 |
| | Total | 90.80 | 9.20 | 100.00 |
| Orissa | SC | 88.88 | 11.12 | 100.00 |
| | ST | 90.46 | 9.54 | 100.00 |
| | OBC | 91.88 | 8.12 | 100.00 |
| | Minorities | 95.32 | 4.68 | 100.00 |
| | Others | 90.77 | 9.23 | 100.00 |
| | Total | 91.03 | 8.97 | 100.00 |

Note: Percent = weighted percent to total

Annexure Table 11 : Distribution of Outpatients and Inpatients in Selected States

| States | Social Groups | Percent of Outpatients | Percent of Inpatients | Total |
|-------------|---------------|------------------------|-----------------------|--------|
| Maharashtra | SC | 86.29 | 13.71 | 100.00 |
| | ST | 86.06 | 13.94 | 100.00 |
| | OBC | 83.07 | 16.93 | 100.00 |
| | Minorities | 80.31 | 19.69 | 100.00 |
| | Others | 81.97 | 18.03 | 100.00 |
| | Total | 84.59 | 15.41 | 100.00 |
| Karnataka | SC | 84.79 | 15.21 | 100.00 |
| | ST | 82.19 | 17.81 | 100.00 |
| | OBC | 79.92 | 20.08 | 100.00 |
| | Minorities | 81.33 | 18.67 | 100.00 |
| | Others | 82.08 | 17.92 | 100.00 |
| | Total | 81.55 | 18.45 | 100.00 |
| Orissa | SC | 87.98 | 12.02 | 100.00 |
| | ST | 92.05 | 7.95 | 100.00 |
| | OBC | 87.21 | 12.79 | 100.00 |
| | Minorities | 90.48 | 9.52 | 100.00 |
| | Others | 90.06 | 9.94 | 100.00 |
| | Total | 89.60 | 10.40 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 12 : Outpatient Morbidity by Incidence and Prevalence and Type of Diseases (in percent)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|-----------------------------|-----------|--------|-----------------------|-----------------------------|-----------|--------|
| | | Communicable Diseases | Non - Communicable Diseases | Accidents | Total | Communicable Diseases | Non - Communicable Diseases | Accidents | Total |
| Maharashtra | SC | 78.88 | 20.55 | 0.56 | 100.00 | 24.94 | 70.54 | 4.52 | 100.00 |
| | ST | 82.85 | 17.10 | 0.05 | 100.00 | 47.04 | 52.40 | 0.56 | 100.00 |
| | OBC | 79.81 | 19.75 | 0.44 | 100.00 | 39.16 | 58.18 | 2.67 | 100.00 |
| | Minorities | 85.20 | 13.25 | 1.55 | 100.00 | 21.27 | 78.73 | 0.00 | 100.00 |
| | Others | 82.52 | 17.23 | 0.25 | 100.00 | 19.48 | 80.52 | 0.00 | 100.00 |
| | Total | 81.93 | 17.82 | 0.24 | 100.00 | 38.81 | 59.84 | 1.35 | 100.00 |
| Karnataka | SC | 82.87 | 14.48 | 2.65 | 100.00 | 51.09 | 47.13 | 1.77 | 100.00 |
| | ST | 79.80 | 17.26 | 2.94 | 100.00 | 15.68 | 84.32 | 0.00 | 100.00 |
| | OBC | 69.25 | 29.35 | 1.40 | 100.00 | 32.49 | 67.51 | 0.00 | 100.00 |
| | Minorities | 82.72 | 17.28 | 0.00 | 100.00 | 40.11 | 59.89 | 0.00 | 100.00 |
| | Others | 67.34 | 28.45 | 4.21 | 100.00 | 21.10 | 76.57 | 2.32 | 100.00 |
| | Total | 73.30 | 24.41 | 2.29 | 100.00 | 33.01 | 66.10 | 0.89 | 100.00 |
| Orissa | SC | 88.04 | 11.96 | 0.00 | 100.00 | 53.20 | 46.80 | 0.00 | 100.00 |
| | ST | 86.38 | 12.92 | 0.70 | 100.00 | 59.50 | 40.50 | 0.00 | 100.00 |
| | OBC | 84.93 | 14.27 | 0.80 | 100.00 | 23.56 | 69.17 | 7.28 | 100.00 |
| | Minorities | 85.91 | 13.31 | 0.78 | 100.00 | 35.19 | 64.81 | 0.00 | 100.00 |
| | Others | 86.89 | 13.11 | 0.00 | 100.00 | 51.68 | 46.69 | 1.63 | 100.00 |
| | Total | 86.33 | 13.21 | 0.46 | 100.00 | 45.75 | 51.94 | 2.31 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 13 : Nature of Outpatient Morbidity in Rural and Urban Areas

(in percent)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|-----------------------------|-----------|--------|-----------------------|-----------------------------|-----------|--------|
| | | Communicable Diseases | Non - Communicable Diseases | Accidents | Total | Communicable Diseases | Non - Communicable Diseases | Accidents | Total |
| Rural | | | | | | | | | |
| Maharashtra | SC | 81.25 | 17.92 | 0.82 | 100.00 | 22.09 | 77.91 | 0.00 | 100.00 |
| | ST | 82.10 | 17.84 | 0.06 | 100.00 | 47.35 | 52.04 | 0.62 | 100.00 |
| | OBC | 79.70 | 19.62 | 0.69 | 100.00 | 46.72 | 53.28 | 0.00 | 100.00 |
| | Minorities | 80.38 | 16.46 | 3.16 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 82.66 | 17.34 | 0.00 | 100.00 | 18.81 | 81.19 | 0.00 | 100.00 |
| | Total | 81.65 | 18.07 | 0.27 | 100.00 | 41.55 | 58.06 | 0.38 | 100.00 |
| Karnataka | SC | 84.53 | 13.94 | 1.53 | 100.00 | 55.80 | 41.68 | 2.53 | 100.00 |
| | ST | 81.67 | 14.69 | 3.64 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | OBC | 66.99 | 31.35 | 1.65 | 100.00 | 20.53 | 79.47 | 0.00 | 100.00 |
| | Minorities | 77.48 | 22.52 | 0.00 | 100.00 | 22.25 | 77.75 | 0.00 | 100.00 |
| | Others | 60.97 | 33.10 | 5.93 | 100.00 | 29.42 | 67.34 | 3.24 | 100.00 |
| | Total | 70.74 | 26.55 | 2.72 | 100.00 | 29.58 | 69.03 | 1.38 | 100.00 |
| Orissa | SC | 87.67 | 12.33 | 0.00 | 100.00 | 55.45 | 44.55 | 0.00 | 100.00 |
| | ST | 85.48 | 13.99 | 0.53 | 100.00 | 59.43 | 40.57 | 0.00 | 100.00 |
| | OBC | 86.67 | 13.33 | 0.00 | 100.00 | 27.08 | 63.81 | 9.12 | 100.00 |
| | Minorities | 87.00 | 12.02 | 0.98 | 100.00 | 38.46 | 61.54 | 0.00 | 100.00 |
| | Others | 87.86 | 12.14 | 0.00 | 100.00 | 55.24 | 44.76 | 0.00 | 100.00 |
| | Total | 86.62 | 13.09 | 0.28 | 100.00 | 49.46 | 48.71 | 1.83 | 100.00 |
| Urban | | | | | | | | | |
| Maharashtra | SC | 73.75 | 26.25 | 0.00 | 100.00 | 35.62 | 42.92 | 21.46 | 100.00 |
| | ST | 87.41 | 12.59 | 0.00 | 100.00 | 44.33 | 55.67 | 0.00 | 100.00 |
| | OBC | 80.02 | 19.98 | 0.00 | 100.00 | 31.15 | 63.36 | 5.49 | 100.00 |
| | Minorities | 89.86 | 10.14 | 0.00 | 100.00 | 21.27 | 78.73 | 0.00 | 100.00 |
| | Others | 82.34 | 17.10 | 0.56 | 100.00 | 20.43 | 79.57 | 0.00 | 100.00 |
| | Total | 82.74 | 17.10 | 0.16 | 100.00 | 31.07 | 64.86 | 4.07 | 100.00 |
| Karnataka | SC | 79.98 | 15.41 | 4.61 | 100.00 | 40.00 | 60.00 | 0.00 | 100.00 |
| | ST | 77.27 | 20.76 | 1.98 | 100.00 | 34.72 | 65.28 | 0.00 | 100.00 |
| | OBC | 73.18 | 25.86 | 0.96 | 100.00 | 52.22 | 47.78 | 0.00 | 100.00 |
| | Minorities | 87.07 | 12.93 | 0.00 | 100.00 | 53.57 | 46.43 | 0.00 | 100.00 |
| | Others | 79.02 | 19.92 | 1.06 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Total | 77.45 | 20.96 | 1.59 | 100.00 | 39.20 | 60.80 | 0.00 | 100.00 |
| Orissa | SC | 88.94 | 11.06 | 0.00 | 100.00 | 48.13 | 51.87 | 0.00 | 100.00 |
| | ST | 92.55 | 5.63 | 1.82 | 100.00 | 60.00 | 40.00 | 0.00 | 100.00 |
| | OBC | 83.04 | 15.30 | 1.66 | 100.00 | 19.55 | 75.26 | 5.19 | 100.00 |
| | Minorities | 81.71 | 18.29 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Others | 85.96 | 14.04 | 0.00 | 100.00 | 48.14 | 48.61 | 3.25 | 100.00 |
| | Total | 85.78 | 13.43 | 0.79 | 100.00 | 38.52 | 58.22 | 3.25 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 14 : Nature of Inpatient Morbidity in the Selected States

(in percent)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|-----------------------------|-----------|--------|-----------------------|-----------------------------|-----------|--------|
| | | Communicable Diseases | Non - Communicable Diseases | Accidents | Total | Communicable Diseases | Non - Communicable Diseases | Accidents | Total |
| Maharashtra | SC | 48.83 | 42.79 | 8.38 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 53.46 | 40.35 | 6.19 | 100.00 | 36.68 | 55.02 | 8.30 | 100.00 |
| | OBC | 32.92 | 54.33 | 12.75 | 100.00 | 0.00 | 84.63 | 15.37 | 100.00 |
| | Minorities | 40.19 | 42.72 | 17.09 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 43.86 | 54.03 | 2.11 | 100.00 | 0.00 | 0.00 | 100.00 | 100.00 |
| | Total | 45.93 | 46.64 | 7.42 | 100.00 | 23.72 | 60.94 | 15.34 | 100.00 |
| Karnataka | SC | 41.66 | 51.39 | 6.95 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 50.53 | 46.91 | 2.56 | 100.00 | 38.47 | 61.53 | 0.00 | 100.00 |
| | OBC | 26.26 | 66.94 | 6.79 | 100.00 | 19.90 | 19.90 | 60.21 | 100.00 |
| | Minorities | 44.23 | 43.73 | 12.03 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 28.41 | 54.23 | 17.36 | 100.00 | 0.00 | 75.43 | 24.57 | 100.00 |
| | Total | 32.59 | 58.42 | 8.99 | 100.00 | 17.47 | 48.87 | 33.65 | 100.00 |
| Orissa | SC | 63.88 | 36.12 | 0.00 | 100.00 | 68.85 | 31.15 | 0.00 | 100.00 |
| | ST | 82.38 | 17.62 | 0.00 | 100.00 | 50.00 | 50.00 | 0.00 | 100.00 |
| | OBC | 57.54 | 42.46 | 0.00 | 100.00 | 12.42 | 87.58 | 0.00 | 100.00 |
| | Minorities | 56.62 | 43.38 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Others | 52.29 | 47.71 | 0.00 | 100.00 | 15.03 | 84.97 | 0.00 | 100.00 |
| | Total | 62.83 | 37.17 | 0.00 | 100.00 | 23.04 | 76.96 | 0.00 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 15 : Nature of Inpatient Morbidity in Rural and Urban Areas

(in percent)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|-----------------------------|-----------|--------|-----------------------|-----------------------------|-----------|--------|
| | | Communicable Diseases | Non - Communicable Diseases | Accidents | Total | Communicable Diseases | Non - Communicable Diseases | Accidents | Total |
| Rural | | | | | | | | | |
| Maharashtra | SC | 52.55 | 36.29 | 11.16 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 54.19 | 38.24 | 7.57 | 100.00 | 36.68 | 55.02 | 8.30 | 100.00 |
| | OBC | 31.93 | 54.75 | 13.32 | 100.00 | 0.00 | 50.00 | 50.00 | 100.00 |
| | Minorities | 28.25 | 29.22 | 42.54 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 45.60 | 52.69 | 1.70 | 100.00 | 0.00 | 0.00 | 100.00 | 100.00 |
| | Total | 47.48 | 44.05 | 8.47 | 100.00 | 29.93 | 50.71 | 19.36 | 100.00 |
| Karnataka | SC | 38.23 | 58.33 | 3.44 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 50.02 | 46.62 | 3.36 | 100.00 | 38.47 | 61.53 | 0.00 | 100.00 |
| | OBC | 17.52 | 75.42 | 7.05 | 100.00 | 24.92 | 24.92 | 50.16 | 100.00 |
| | Minorities | 30.97 | 69.03 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 28.08 | 54.58 | 17.35 | 100.00 | 0.00 | 75.43 | 24.57 | 100.00 |
| | Total | 27.44 | 64.22 | 8.34 | 100.00 | 19.09 | 53.38 | 27.54 | 100.00 |
| Orissa | SC | 72.16 | 27.84 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 83.26 | 16.74 | 0.00 | 100.00 | 50.00 | 50.00 | 0.00 | 100.00 |
| | OBC | 45.47 | 54.53 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Minorities | 75.00 | 25.00 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Others | 46.01 | 53.99 | 0.00 | 100.00 | 33.33 | 66.67 | 0.00 | 100.00 |
| | Total | 65.48 | 34.52 | 0.00 | 100.00 | 17.72 | 82.28 | 0.00 | 100.00 |
| Urban | | | | | | | | | |
| Maharashtra | SC | 43.99 | 51.23 | 4.78 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 50.18 | 49.82 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | OBC | 34.57 | 53.64 | 11.79 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Minorities | 45.54 | 48.77 | 5.69 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 41.04 | 56.20 | 2.76 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Total | 42.37 | 52.60 | 5.03 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| Karnataka | SC | 50.00 | 34.52 | 15.48 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 52.17 | 47.83 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | OBC | 40.48 | 53.15 | 6.37 | 100.00 | 0.00 | 0.00 | 100.00 | 100.00 |
| | Minorities | 53.40 | 26.25 | 20.35 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 29.84 | 52.73 | 17.43 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Total | 43.00 | 46.68 | 10.32 | 100.00 | 0.00 | 0.00 | 100.00 | 100.00 |
| Orissa | SC | 50.95 | 49.05 | 0.00 | 100.00 | 68.85 | 31.15 | 0.00 | 100.00 |
| | ST | 74.81 | 25.19 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | OBC | 68.14 | 31.86 | 0.00 | 100.00 | 45.24 | 54.76 | 0.00 | 100.00 |
| | Minorities | 25.57 | 74.43 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Others | 55.65 | 44.35 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Total | 59.33 | 40.67 | 0.00 | 100.00 | 29.05 | 70.95 | 0.00 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 16 : Utilisation Pattern of Health Care Facilities for Outpatient Care

| States | Social Groups | Percent of Public Facility | Percent of Private Facility | Percent of Other Facility | Total |
|-------------|---------------|----------------------------|-----------------------------|---------------------------|--------|
| Maharashtra | SC | 38.99 | 58.12 | 2.89 | 100.00 |
| | ST | 51.88 | 47.36 | 0.76 | 100.00 |
| | OBC | 39.98 | 58.09 | 1.93 | 100.00 |
| | Minorities | 38.63 | 59.69 | 1.68 | 100.00 |
| | Others | 25.54 | 72.78 | 1.68 | 100.00 |
| | Total | 43.70 | 54.96 | 1.34 | 100.00 |
| Karnataka | SC | 57.03 | 42.97 | 0.00 | 100.00 |
| | ST | 29.30 | 66.60 | 4.10 | 100.00 |
| | OBC | 35.77 | 61.81 | 2.42 | 100.00 |
| | Minorities | 34.46 | 62.55 | 3.00 | 100.00 |
| | Others | 24.54 | 74.40 | 1.05 | 100.00 |
| | Total | 36.42 | 61.67 | 1.91 | 100.00 |
| Orissa | SC | 67.99 | 29.17 | 2.84 | 100.00 |
| | ST | 66.03 | 31.89 | 2.08 | 100.00 |
| | OBC | 49.65 | 48.11 | 2.25 | 100.00 |
| | Minorities | 38.84 | 52.99 | 8.16 | 100.00 |
| | Others | 57.81 | 39.92 | 2.27 | 100.00 |
| | Total | 57.92 | 39.35 | 2.73 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 17 : Utilisation Pattern of Health Care Facilities for Outpatient Services across Rural and Urban Areas (in percent)

| States | Social Groups | Public Facility | Private Facility | Other Facility | Total |
|-------------|---------------|-----------------|------------------|----------------|--------|
| Rural | | | | | |
| Maharashtra | SC | 40.04 | 55.76 | 4.20 | 100.00 |
| | ST | 54.68 | 44.69 | 0.63 | 100.00 |
| | OBC | 46.50 | 52.74 | 0.76 | 100.00 |
| | Minorities | 37.61 | 58.73 | 3.66 | 100.00 |
| | Others | 23.62 | 76.38 | 0.00 | 100.00 |
| | Total | 48.01 | 51.12 | 0.88 | 100.00 |
| Karnataka | SC | 66.93 | 33.07 | 0.00 | 100.00 |
| | ST | 21.86 | 70.66 | 7.48 | 100.00 |
| | OBC | 41.85 | 55.04 | 3.11 | 100.00 |
| | Minorities | 22.87 | 72.32 | 4.81 | 100.00 |
| | Others | 27.19 | 71.30 | 1.51 | 100.00 |
| | Total | 40.18 | 57.18 | 2.64 | 100.00 |
| Orissa | SC | 69.42 | 26.52 | 4.06 | 100.00 |
| | ST | 70.85 | 27.06 | 2.09 | 100.00 |
| | OBC | 59.95 | 37.03 | 3.02 | 100.00 |
| | Minorities | 41.70 | 48.16 | 10.15 | 100.00 |
| | Others | 61.95 | 33.71 | 4.34 | 100.00 |
| | Total | 64.08 | 32.19 | 3.72 | 100.00 |
| Urban | | | | | |
| Maharashtra | SC | 36.64 | 63.36 | 0.00 | 100.00 |
| | ST | 33.30 | 65.10 | 1.60 | 100.00 |
| | OBC | 29.95 | 66.34 | 3.71 | 100.00 |
| | Minorities | 39.49 | 60.51 | 0.00 | 100.00 |
| | Others | 28.04 | 68.09 | 3.87 | 100.00 |
| | Total | 31.43 | 65.92 | 2.65 | 100.00 |
| Karnataka | SC | 38.56 | 61.44 | 0.00 | 100.00 |
| | ST | 38.33 | 61.67 | 0.00 | 100.00 |
| | OBC | 25.61 | 73.13 | 1.27 | 100.00 |
| | Minorities | 44.11 | 54.41 | 1.49 | 100.00 |
| | Others | 18.45 | 81.55 | 0.00 | 100.00 |
| | Total | 30.17 | 69.14 | 0.69 | 100.00 |
| Orissa | SC | 64.67 | 35.33 | 0.00 | 100.00 |
| | ST | 31.23 | 66.79 | 1.98 | 100.00 |
| | OBC | 38.92 | 59.64 | 1.44 | 100.00 |
| | Minorities | 27.06 | 72.94 | 0.00 | 100.00 |
| | Others | 54.23 | 45.29 | 0.48 | 100.00 |
| | Total | 46.54 | 52.56 | 0.89 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 18 : Percent of Patients who Approached Different Health Care Facilities for Outpatient Treatment of Incidence and Prevalence Type of illness

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------|------------------|----------------|--------|-----------------|------------------|----------------|--------|
| | | Public Facility | Private Facility | Other Facility | Total | Public Facility | Private Facility | Other Facility | Total |
| Maharashtra | SC | 40.83 | 57.25 | 1.91 | 100.00 | 25.58 | 64.43 | 9.99 | 100.00 |
| | ST | 52.12 | 47.05 | 0.83 | 100.00 | 49.49 | 50.51 | 0.00 | 100.00 |
| | OBC | 40.85 | 57.34 | 1.81 | 100.00 | 32.76 | 64.39 | 2.86 | 100.00 |
| | Minorities | 41.43 | 56.77 | 1.80 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Others | 25.79 | 72.63 | 1.58 | 100.00 | 22.24 | 74.74 | 3.02 | 100.00 |
| | Total | 44.21 | 54.52 | 1.26 | 100.00 | 38.69 | 59.24 | 2.07 | 100.00 |
| Karnataka | SC | 54.83 | 45.17 | 0.00 | 100.00 | 68.80 | 31.20 | 0.00 | 100.00 |
| | ST | 32.04 | 63.34 | 4.62 | 100.00 | 7.36 | 92.64 | 0.00 | 100.00 |
| | OBC | 35.20 | 61.97 | 2.83 | 100.00 | 39.11 | 60.89 | 0.00 | 100.00 |
| | Minorities | 34.65 | 62.01 | 3.34 | 100.00 | 32.80 | 67.20 | 0.00 | 100.00 |
| | Others | 25.90 | 73.31 | 0.79 | 100.00 | 16.09 | 81.20 | 2.71 | 100.00 |
| | Total | 36.30 | 61.58 | 2.12 | 100.00 | 37.21 | 62.20 | 0.58 | 100.00 |
| Orissa | SC | 69.92 | 26.98 | 3.09 | 100.00 | 46.80 | 53.20 | 0.00 | 100.00 |
| | ST | 66.64 | 31.30 | 2.06 | 100.00 | 60.80 | 36.95 | 2.25 | 100.00 |
| | OBC | 50.93 | 47.10 | 1.97 | 100.00 | 38.91 | 56.54 | 4.54 | 100.00 |
| | Minorities | 37.61 | 54.09 | 8.30 | 100.00 | 49.26 | 43.70 | 7.04 | 100.00 |
| | Others | 59.61 | 37.78 | 2.61 | 100.00 | 45.91 | 54.09 | 0.00 | 100.00 |
| | Total | 59.08 | 38.13 | 2.79 | 100.00 | 48.49 | 49.26 | 2.25 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 19 : Utilization Pattern of Health Care Facilities for Inpatient Services (in percent)

| States | Social Groups | Public Facility | Private Facility | Other Facility | Total |
|-------------|---------------|-----------------|------------------|----------------|--------|
| Maharashtra | SC | 44.26 | 49.44 | 6.31 | 100.00 |
| | ST | 71.81 | 28.19 | 0.00 | 100.00 |
| | OBC | 41.76 | 58.24 | 0.00 | 100.00 |
| | Minorities | 30.95 | 63.93 | 5.11 | 100.00 |
| | Others | 30.82 | 69.18 | 0.00 | 100.00 |
| | Total | 53.40 | 46.01 | 0.59 | 100.00 |
| Karnataka | SC | 68.15 | 31.85 | 0.00 | 100.00 |
| | ST | 39.86 | 52.31 | 7.83 | 100.00 |
| | OBC | 32.47 | 65.91 | 1.63 | 100.00 |
| | Minorities | 51.87 | 48.13 | 0.00 | 100.00 |
| | Others | 25.05 | 64.59 | 10.35 | 100.00 |
| | Total | 38.06 | 58.21 | 3.73 | 100.00 |
| Orissa | SC | 76.95 | 23.05 | 0.00 | 100.00 |
| | ST | 86.85 | 13.15 | 0.00 | 100.00 |
| | OBC | 70.77 | 29.23 | 0.00 | 100.00 |
| | Minorities | 71.83 | 28.17 | 0.00 | 100.00 |
| | Others | 75.70 | 24.30 | 0.00 | 100.00 |
| | Total | 76.39 | 23.61 | 0.00 | 100.00 |

Note: Percent = weighted percent to respective row total

Annexure Table 20 : Utilization Pattern of Health Care Facilities - Rural/Urban - Inpatients

| States | Social Groups | Percent of Public Facility | Percent of Private Facility | Percent of Other Facility | Total |
|-------------|---------------|----------------------------|-----------------------------|---------------------------|--------|
| Rural | | | | | |
| Maharashtra | SC | 37.72 | 51.12 | 11.16 | 100.00 |
| | ST | 70.94 | 29.06 | 0.00 | 100.00 |
| | OBC | 43.90 | 56.10 | 0.00 | 100.00 |
| | Minorities | 40.94 | 59.06 | 0.00 | 100.00 |
| | Others | 31.76 | 68.24 | 0.00 | 100.00 |
| | Total | 56.29 | 43.12 | 0.59 | 100.00 |
| Karnataka | SC | 77.07 | 22.93 | 0.00 | 100.00 |
| | ST | 46.45 | 43.56 | 9.98 | 100.00 |
| | OBC | 38.02 | 61.98 | 0.00 | 100.00 |
| | Minorities | 42.29 | 57.71 | 0.00 | 100.00 |
| | Others | 26.53 | 60.89 | 12.59 | 100.00 |
| | Total | 41.95 | 53.69 | 4.36 | 100.00 |
| Orissa | SC | 85.17 | 14.83 | 0.00 | 100.00 |
| | ST | 85.40 | 14.60 | 0.00 | 100.00 |
| | OBC | 67.67 | 32.33 | 0.00 | 100.00 |
| | Minorities | 66.67 | 33.33 | 0.00 | 100.00 |
| | Others | 60.26 | 39.74 | 0.00 | 100.00 |
| | Total | 75.08 | 24.92 | 0.00 | 100.00 |
| Urban | | | | | |
| Maharashtra | SC | 52.76 | 47.24 | 0.00 | 100.00 |
| | ST | 75.99 | 24.01 | 0.00 | 100.00 |
| | OBC | 38.41 | 61.59 | 0.00 | 100.00 |
| | Minorities | 26.47 | 66.12 | 7.41 | 100.00 |
| | Others | 29.26 | 70.74 | 0.00 | 100.00 |
| | Total | 46.64 | 52.76 | 0.59 | 100.00 |
| Karnataka | SC | 46.43 | 53.57 | 0.00 | 100.00 |
| | ST | 15.94 | 84.06 | 0.00 | 100.00 |
| | OBC | 23.20 | 72.46 | 4.34 | 100.00 |
| | Minorities | 58.49 | 41.51 | 0.00 | 100.00 |
| | Others | 18.23 | 81.77 | 0.00 | 100.00 |
| | Total | 29.86 | 67.73 | 2.41 | 100.00 |
| Orissa | SC | 66.67 | 33.33 | 0.00 | 100.00 |
| | ST | 100.00 | 0.00 | 0.00 | 100.00 |
| | OBC | 73.82 | 26.18 | 0.00 | 100.00 |
| | Minorities | 79.64 | 20.36 | 0.00 | 100.00 |
| | Others | 84.48 | 15.52 | 0.00 | 100.00 |
| | Total | 78.09 | 21.91 | 0.00 | 100.00 |

Note: Percent = weighted percent to respective row total

Annexure Table 21 : Type of Health Care Facility used for Incidence and Prevalence Cases – Inpatients (in percent)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------|------------------|----------------|--------|-----------------|------------------|----------------|--------|
| | | Public Facility | Private Facility | Other Facility | Total | Public Facility | Private Facility | Other Facility | Total |
| Maharashtra | SC | 44.26 | 49.44 | 6.31 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 71.73 | 28.27 | 0.00 | 100.00 | 73.36 | 26.64 | 0.00 | 100.00 |
| | OBC | 42.20 | 57.80 | 0.00 | 100.00 | 33.27 | 66.73 | 0.00 | 100.00 |
| | Minorities | 30.95 | 63.93 | 5.11 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 31.14 | 68.86 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Total | 53.24 | 46.15 | 0.61 | 100.00 | 57.41 | 42.59 | 0.00 | 100.00 |
| Karnataka | SC | 68.15 | 31.85 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 37.73 | 53.67 | 8.60 | 100.00 | 61.53 | 38.47 | 0.00 | 100.00 |
| | OBC | 32.20 | 66.12 | 1.68 | 100.00 | 40.31 | 59.69 | 0.00 | 100.00 |
| | Minorities | 51.87 | 48.13 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 21.92 | 67.06 | 11.02 | 100.00 | 73.39 | 26.61 | 0.00 | 100.00 |
| | Total | 37.33 | 58.79 | 3.88 | 100.00 | 56.72 | 43.28 | 0.00 | 100.00 |
| Orissa | SC | 77.74 | 22.26 | 0.00 | 100.00 | 68.85 | 31.15 | 0.00 | 100.00 |
| | ST | 88.44 | 11.56 | 0.00 | 100.00 | 50.00 | 50.00 | 0.00 | 100.00 |
| | OBC | 72.38 | 27.62 | 0.00 | 100.00 | 57.52 | 42.48 | 0.00 | 100.00 |
| | Minorities | 66.94 | 33.06 | 0.00 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| | Others | 74.16 | 25.84 | 0.00 | 100.00 | 84.97 | 15.03 | 0.00 | 100.00 |
| | Total | 76.91 | 23.09 | 0.00 | 100.00 | 71.81 | 28.19 | 0.00 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 22 : Utilisation Pattern of Health Care Facilities and Duration of Diseases - Rural/Urban - Inpatients

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|----------------------------|-----------------------------|---------------------------|--------|----------------------------|-----------------------------|---------------------------|--------|
| | | Percent of Public Facility | Percent of Private Facility | Percent of Other Facility | Total | Percent of Public Facility | Percent of Private Facility | Percent of Other Facility | Total |
| Rural | | | | | | | | | |
| Maharashtra | SC | 37.72 | 51.12 | 11.16 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 70.77 | 29.23 | 0.00 | 100.00 | 73.36 | 26.64 | 0.00 | 100.00 |
| | OBC | 43.74 | 56.26 | 0.00 | 100.00 | 50.00 | 50.00 | 0.00 | 100.00 |
| | Minorities | 40.94 | 59.06 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 32.30 | 67.70 | 0.00 | 100.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| | Total | 55.86 | 43.52 | 0.62 | 100.00 | 65.68 | 34.32 | 0.00 | 100.00 |
| Karnataka | SC | 77.07 | 22.93 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 44.51 | 44.22 | 11.27 | 100.00 | 61.53 | 38.47 | 0.00 | 100.00 |
| | OBC | 38.58 | 61.42 | 0.00 | 100.00 | 25.24 | 74.76 | 0.00 | 100.00 |
| | Minorities | 42.29 | 57.71 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 22.78 | 63.62 | 13.60 | 100.00 | 73.39 | 26.61 | 0.00 | 100.00 |
| | Total | 41.38 | 54.03 | 4.59 | 100.00 | 52.73 | 47.27 | 0.00 | 100.00 |
| Orissa | SC | 85.17 | 14.83 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 87.10 | 12.90 | 0.00 | 100.00 | 50.00 | 50.00 | 0.00 | 100.00 |
| | OBC | 69.39 | 30.61 | 0.00 | 100.00 | 58.56 | 41.44 | 0.00 | 100.00 |
| | Minorities | 62.50 | 37.50 | 0.00 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| | Others | 58.88 | 41.12 | 0.00 | 100.00 | 66.67 | 33.33 | 0.00 | 100.00 |
| | Total | 76.38 | 23.62 | 0.00 | 100.00 | 62.87 | 37.13 | 0.00 | 100.00 |
| Urban | | | | | | | | | |
| Maharashtra | SC | 52.76 | 47.24 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 75.99 | 24.01 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | OBC | 39.61 | 60.39 | 0.00 | 100.00 | 25.84 | 74.16 | 0.00 | 100.00 |
| | Minorities | 26.47 | 66.12 | 7.41 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 29.26 | 70.74 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Total | 47.21 | 52.18 | 0.61 | 100.00 | 25.84 | 74.16 | 0.00 | 100.00 |
| Karnataka | SC | 46.43 | 53.57 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 15.94 | 84.06 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | OBC | 21.82 | 73.76 | 4.42 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| | Minorities | 58.49 | 41.51 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 18.23 | 81.77 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Total | 29.17 | 68.40 | 2.43 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| Orissa | SC | 66.12 | 33.88 | 0.00 | 100.00 | 68.85 | 31.15 | 0.00 | 100.00 |
| | ST | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | OBC | 75.01 | 24.99 | 0.00 | 100.00 | 54.76 | 45.24 | 0.00 | 100.00 |
| | Minorities | 74.43 | 25.57 | 0.00 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| | Others | 82.31 | 17.69 | 0.00 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| | Total | 77.62 | 22.38 | 0.00 | 100.00 | 81.91 | 18.09 | 0.00 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 23 : Cost of Treatment of Different Services – Out-patients

(Rs. / Patient)

| States | Social Groups | Medicine & Injection | Doctor's Fees | Pathological Tests | Radiological Tests | Special Diet | Transportation Cost | Total Cost |
|-------------|---------------|----------------------|---------------|--------------------|--------------------|--------------|---------------------|------------|
| Maharashtra | SC | 118.47 | 43.60 | 7.90 | 23.69 | 273.96 | 130.80 | 186.61 |
| | ST | 112.00 | 28.51 | 137.51 | 31.78 | 42.32 | 44.48 | 137.03 |
| | OBC | 204.53 | 69.20 | 51.37 | 41.15 | 172.96 | 83.78 | 351.76 |
| | Minorities | 91.33 | 62.11 | 34.43 | 19.40 | 0.00 | 130.84 | 156.48 |
| | Others | 330.74 | 107.76 | 112.38 | 73.12 | 20.61 | 89.34 | 318.22 |
| | Total | 193.54 | 62.10 | 137.63 | 81.79 | 381.28 | 80.85 | 258.89 |
| Karnataka | SC | 267.26 | 46.23 | 35.73 | 0.00 | 37.51 | 44.49 | 478.75 |
| | ST | 853.02 | 23.03 | 75.70 | 51.76 | 46.79 | 39.66 | 685.56 |
| | OBC | 164.08 | 40.19 | 71.36 | 79.47 | 28.25 | 47.65 | 379.77 |
| | Minorities | 86.17 | 29.52 | 13.83 | 37.01 | 14.79 | 30.34 | 344.49 |
| | Others | 79.63 | 32.46 | 12.10 | 92.16 | 0.88 | 46.42 | 355.81 |
| | Total | 205.37 | 39.94 | 67.55 | 130.75 | 27.78 | 44.41 | 431.90 |
| Orissa | SC | 246.38 | 53.98 | 57.66 | 369.10 | 89.62 | 31.25 | 378.93 |
| | ST | 188.22 | 71.19 | 51.00 | 201.21 | 85.43 | 21.30 | 285.93 |
| | OBC | 363.36 | 57.84 | 44.64 | 170.27 | 96.56 | 33.96 | 455.77 |
| | Minorities | 242.28 | 38.26 | 35.80 | 38.79 | 99.50 | 19.62 | 335.56 |
| | Others | 289.78 | 52.42 | 56.34 | 127.62 | 87.30 | 36.87 | 401.63 |
| | Total | 274.66 | 58.26 | 50.97 | 176.39 | 88.21 | 31.40 | 376.87 |

Note: Expenditures are weighted averages

Annexure Table 24 : Medical Care Expenditure by Type of Services - Rural / Urban - Outpatients

(Rs. / Patient)

| States | Social Groups | Medicine & Injection | Doctor's Fees | Pathological Tests | Radiological Tests | Special Diet | Transportation Cost | Total Cost |
|-------------|---------------|----------------------|---------------|--------------------|--------------------|--------------|---------------------|------------|
| Rural | | | | | | | | |
| Maharashtra | SC | 127.89 | 50.66 | 9.48 | 23.69 | 31.14 | 141.35 | 339.22 |
| | ST | 101.92 | 29.68 | 15.26 | 13.57 | 17.17 | 45.70 | 223.48 |
| | OBC | 125.22 | 51.60 | 0.00 | 32.28 | 98.09 | 37.08 | 332.39 |
| | Minorities | 76.80 | 28.53 | 34.43 | 0.00 | 0.00 | 9.13 | 94.48 |
| | Others | 168.66 | 58.37 | 95.31 | 73.12 | 2.77 | 38.63 | 379.52 |
| | Total | 125.95 | 46.77 | 109.77 | 75.15 | 89.03 | 64.12 | 324.06 |
| Karnataka | SC | 141.02 | 46.61 | 0.00 | 0.00 | 37.51 | 27.79 | 620.40 |
| | ST | 841.39 | 22.45 | 51.76 | 51.76 | 46.79 | 38.24 | 526.75 |
| | OBC | 127.96 | 40.36 | 34.14 | 64.31 | 12.07 | 45.14 | 363.84 |
| | Minorities | 52.95 | 23.05 | 0.00 | 0.00 | 0.00 | 19.67 | 222.80 |
| | Others | 105.36 | 30.21 | 12.10 | 37.15 | 9.52 | 43.09 | 179.93 |
| | Total | 212.64 | 47.64 | 47.54 | 73.04 | 26.92 | 40.34 | 395.25 |
| Orissa | SC | 196.45 | 28.41 | 53.83 | 43.37 | 91.13 | 32.82 | 265.90 |
| | ST | 189.63 | 85.28 | 56.93 | 209.25 | 90.57 | 23.37 | 291.47 |
| | OBC | 290.99 | 66.49 | 33.88 | 92.99 | 77.21 | 36.82 | 372.56 |
| | Minorities | 153.99 | 23.06 | 12.06 | 28.06 | 56.80 | 13.08 | 219.11 |
| | Others | 269.04 | 37.98 | 53.37 | 96.48 | 63.58 | 37.71 | 373.69 |
| | Total | 258.25 | 74.50 | 53.70 | 156.59 | 80.14 | 33.06 | 355.42 |
| Urban | | | | | | | | |
| Maharashtra | SC | 74.63 | 24.68 | 4.74 | 0.00 | 242.82 | 18.03 | 335.06 |
| | ST | 196.29 | 21.32 | 122.25 | 56.49 | 62.78 | 30.78 | 542.05 |
| | OBC | 271.36 | 73.75 | 51.37 | 8.87 | 74.87 | 128.90 | 1147.32 |
| | Minorities | 72.70 | 230.51 | 0.00 | 19.40 | 0.00 | 139.33 | 582.51 |
| | Others | 303.69 | 88.69 | 21.92 | 0.00 | 17.84 | 69.95 | 271.96 |
| | Total | 235.19 | 78.78 | 158.41 | 84.76 | 365.48 | 114.99 | 951.19 |
| Karnataka | SC | 325.67 | 27.07 | 11.79 | 0.00 | 0.00 | 102.85 | 719.19 |
| | ST | 63.13 | 9.31 | 0.00 | 0.00 | 0.00 | 3.57 | 525.77 |
| | OBC | 162.91 | 42.05 | 60.99 | 39.91 | 58.48 | 57.80 | 356.37 |
| | Minorities | 140.55 | 13.41 | 13.83 | 37.01 | 5.85 | 16.01 | 219.26 |
| | Others | 34.31 | 24.06 | 23.94 | 55.01 | 1.17 | 43.44 | 173.55 |
| | Total | 149.18 | 32.43 | 85.01 | 131.93 | 22.61 | 58.10 | 394.61 |
| Orissa | SC | 371.56 | 67.48 | 61.35 | 325.73 | 89.91 | 41.24 | 528.89 |
| | ST | 127.15 | 22.63 | 21.55 | 25.03 | 47.05 | 16.09 | 181.95 |
| | OBC | 410.54 | 52.20 | 46.90 | 119.95 | 108.32 | 30.53 | 531.40 |
| | Minorities | 190.67 | 27.30 | 23.73 | 10.73 | 81.67 | 13.39 | 330.16 |
| | Others | 301.13 | 60.10 | 56.79 | 63.32 | 101.77 | 44.68 | 399.67 |
| | Total | 314.66 | 53.89 | 52.04 | 197.54 | 99.33 | 38.56 | 428.23 |

Note: Expenditures are weighted averages

Annexure Table 25 : Composition of Total Medical Care Expenditure – Out-patient

(Rs. / Patients)

| States | Social Groups | Medicine & Injection | % | Doctor's Fees | % | Transportation Cost | % | Total Cost |
|-------------|---------------|----------------------|-------|---------------|-------|---------------------|-------|------------|
| Maharashtra | SC | 107.33 | 51.11 | 42.18 | 20.09 | 60.48 | 28.80 | 209.99 |
| | ST | 103.45 | 68.20 | 30.05 | 19.81 | 18.18 | 11.99 | 151.68 |
| | OBC | 190.67 | 68.38 | 69.12 | 24.79 | 19.05 | 6.83 | 278.84 |
| | Minorities | 99.46 | 53.88 | 46.44 | 25.16 | 38.70 | 20.96 | 184.60 |
| | Others | 444.40 | 74.46 | 112.16 | 18.79 | 40.24 | 6.74 | 596.80 |
| | Total | 209.66 | 68.58 | 63.12 | 20.65 | 32.94 | 10.77 | 305.72 |
| Karnataka | SC | 121.24 | 62.29 | 50.34 | 25.87 | 23.06 | 11.85 | 194.63 |
| | ST | 89.91 | 58.52 | 30.49 | 19.85 | 33.23 | 21.63 | 153.64 |
| | OBC | 365.00 | 75.91 | 69.42 | 14.44 | 46.44 | 9.66 | 480.86 |
| | Minorities | 95.30 | 64.26 | 33.17 | 22.36 | 19.84 | 13.38 | 148.31 |
| | Others | 107.41 | 65.62 | 32.56 | 19.89 | 23.72 | 14.49 | 163.68 |
| | Total | 268.30 | 72.59 | 67.24 | 18.19 | 34.07 | 9.22 | 369.61 |
| Orissa | SC | 577.43 | 84.89 | 63.70 | 9.36 | 39.08 | 5.75 | 680.20 |
| | ST | 273.92 | 59.59 | 164.22 | 35.73 | 21.51 | 4.68 | 459.65 |
| | OBC | 415.91 | 82.27 | 58.63 | 11.60 | 31.00 | 6.13 | 505.54 |
| | Minorities | 317.95 | 84.07 | 42.16 | 11.15 | 18.09 | 4.78 | 378.20 |
| | Others | 416.72 | 81.78 | 54.33 | 10.66 | 38.51 | 7.56 | 509.57 |
| | Total | 430.96 | 80.87 | 69.08 | 12.96 | 32.87 | 6.17 | 532.91 |

Note: % = percent to row total

Annexure Table 26 : Cost of Treatment Across Health Care Facilities – Out-patients

(Rs. / Patient)

| States | Social Groups | Public Facility | Private Facility | Other Facility | Total |
|-------------|---------------|-----------------|------------------|----------------|--------|
| Maharashtra | SC | 76.77 | 281.84 | 1.78 | 188.88 |
| | ST | 80.09 | 198.58 | 18.54 | 138.18 |
| | OBC | 235.16 | 494.92 | 77.95 | 372.28 |
| | Minorities | 41.58 | 199.73 | 0.00 | 167.10 |
| | Others | 125.48 | 519.27 | 12.17 | 343.11 |
| | Total | 111.69 | 402.26 | 63.68 | 270.87 |
| Karnataka | SC | 773.23 | 395.81 | 0.00 | 499.78 |
| | ST | 913.54 | 406.51 | 0.80 | 706.93 |
| | OBC | 505.65 | 375.49 | 87.44 | 403.26 |
| | Minorities | 135.22 | 511.75 | 95.72 | 348.62 |
| | Others | 495.07 | 362.10 | 121.69 | 383.15 |
| | Total | 566.89 | 387.80 | 225.16 | 459.55 |
| Orissa | SC | 344.41 | 423.93 | 24.16 | 332.66 |
| | ST | 315.72 | 158.26 | 1094.35 | 280.86 |
| | OBC | 381.48 | 755.51 | 83.83 | 498.02 |
| | Minorities | 515.18 | 345.79 | 50.96 | 381.06 |
| | Others | 527.50 | 249.17 | 58.40 | 406.70 |
| | Total | 395.60 | 370.40 | 424.70 | 380.49 |

Note: Expenditures are weighted averages

Annexure Table 27 : Cost of Treatment by Type of Source in Rural and Urban Areas – Out-patients (Rs. / Patient)

| States | Social Groups | Public Facility | Private Facility | Other Facility | Total |
|-------------|---------------|-----------------|------------------|----------------|--------|
| Rural | | | | | |
| Maharashtra | SC | 117.19 | 244.12 | 1.78 | 198.01 |
| | ST | 74.61 | 198.34 | 15.07 | 139.29 |
| | OBC | 321.90 | 261.46 | 7.13 | 237.40 |
| | Minorities | 19.19 | 109.97 | 0.00 | 90.88 |
| | Others | 150.98 | 290.67 | 0.00 | 231.45 |
| | Total | 113.46 | 268.20 | 19.53 | 204.94 |
| Karnataka | SC | 277.37 | 174.52 | 0.00 | 232.80 |
| | ST | 809.04 | 181.67 | 0.80 | 499.77 |
| | OBC | 337.24 | 442.43 | 14.50 | 334.50 |
| | Minorities | 44.53 | 878.75 | 94.55 | 865.85 |
| | Others | 375.30 | 361.78 | 121.69 | 415.18 |
| | Total | 409.81 | 439.71 | 217.01 | 388.64 |
| Orissa | SC | 268.96 | 482.47 | 24.16 | 257.29 |
| | ST | 316.66 | 131.65 | 1085.41 | 296.15 |
| | OBC | 369.92 | 327.24 | 130.65 | 373.05 |
| | Minorities | 121.11 | 259.17 | 50.96 | 188.11 |
| | Others | 485.01 | 228.69 | 59.78 | 389.60 |
| | Total | 364.02 | 296.30 | 452.80 | 360.90 |
| Urban | | | | | |
| Maharashtra | SC | 37.61 | 149.28 | 0.00 | 139.54 |
| | ST | 91.09 | 122.00 | 3.46 | 116.53 |
| | OBC | 127.23 | 504.75 | 70.82 | 354.62 |
| | Minorities | 91.89 | 286.52 | 0.00 | 291.40 |
| | Others | 32.31 | 431.14 | 12.17 | 260.89 |
| | Total | 90.47 | 443.08 | 73.96 | 279.64 |
| Karnataka | SC | 1376.58 | 553.32 | 0.00 | 784.67 |
| | ST | 465.14 | 771.10 | 0.00 | 525.77 |
| | OBC | 554.44 | 211.60 | 302.95 | 388.38 |
| | Minorities | 335.33 | 144.69 | 1.17 | 219.97 |
| | Others | 310.16 | 200.06 | 0.00 | 201.95 |
| | Total | 579.72 | 276.89 | 302.95 | 433.15 |
| Orissa | SC | 603.85 | 416.56 | 0.00 | 527.22 |
| | ST | 218.68 | 162.58 | 8.94 | 182.09 |
| | OBC | 422.47 | 709.24 | 54.96 | 590.56 |
| | Minorities | 602.68 | 246.12 | 0.00 | 318.57 |
| | Others | 524.76 | 259.97 | 10.41 | 400.47 |
| | Total | 508.68 | 399.04 | 51.96 | 435.09 |

Note: Expenditures are weighted averages

Annexure Table 28 : Medical Care Expenditure by Type of Morbidity – Out-patient

(Rs. / patients)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|---------------------------|----------|---------|-----------------------|---------------------------|----------|---------|
| | | Communicable Diseases | Non Communicable Diseases | Accident | Total | Communicable Diseases | Non Communicable Diseases | Accident | Total |
| Maharashtra | SC | 153.48 | 195.89 | 129.12 | 162.30 | 76.09 | 490.75 | 8.07 | 477.37 |
| | ST | 90.11 | 201.68 | 0.00 | 105.58 | 110.49 | 548.13 | 15.97 | 313.66 |
| | OBC | 174.35 | 209.52 | 0.00 | 184.61 | 1224.91 | 1089.38 | 0.00 | 1250.05 |
| | Minorities | 155.55 | 74.69 | 16.14 | 149.60 | 6.93 | 191.49 | 0.00 | 189.76 |
| | Others | 139.31 | 1333.00 | 0.00 | 299.13 | 118.10 | 768.86 | 0.00 | 676.60 |
| | Total | 137.19 | 409.96 | 72.63 | 186.89 | 587.69 | 981.40 | 24.04 | 853.15 |
| Karnataka | SC | 412.10 | 287.10 | 16.36 | 715.56 | 958.56 | 495.29 | 5.85 | 1459.70 |
| | ST | 274.48 | 102.28 | 43.04 | 419.79 | 3143.50 | 2454.18 | 0.00 | 5597.67 |
| | OBC | 211.59 | 564.05 | 320.19 | 1095.84 | 635.76 | 837.79 | 0.00 | 1473.55 |
| | Minorities | 94.43 | 121.00 | 0.00 | 215.43 | 288.24 | 1727.65 | 0.00 | 2015.90 |
| | Others | 105.07 | 237.06 | 242.94 | 585.07 | 215.00 | 2662.12 | 94.55 | 2971.68 |
| | Total | 231.16 | 401.01 | 231.29 | 863.46 | 1246.69 | 1378.68 | 100.40 | 2725.78 |
| Orissa | SC | 231.87 | 288.73 | 0.00 | 240.25 | 999.48 | 2563.69 | 0.00 | 1439.39 |
| | ST | 221.19 | 288.63 | 910.83 | 237.96 | 444.09 | 880.57 | 0.00 | 719.94 |
| | OBC | 229.35 | 1404.92 | 116.22 | 386.18 | 1347.16 | 782.09 | 245.56 | 997.63 |
| | Minorities | 230.96 | 586.96 | 295.41 | 315.63 | 43.33 | 1262.39 | 0.00 | 1173.66 |
| | Others | 258.45 | 722.24 | 0.00 | 321.52 | 787.79 | 1375.68 | 197.92 | 1076.53 |
| | Total | 234.37 | 661.12 | 1322.46 | 296.52 | 805.23 | 1275.89 | 443.48 | 1075.92 |

Note: Expenditures are weighted averages

Annexure Table 29 : Out-patient Medical Care Expenditure by Type of Morbidity across Rural-Urban Areas

(Rs. / patients)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|---------------------------|----------|--------|-----------------------|---------------------------|----------|---------|
| | | Communicable Diseases | Non Communicable Diseases | Accident | Total | Communicable Diseases | Non Communicable Diseases | Accident | Total |
| Rural | | | | | | | | | |
| Maharashtra | SC | 146.27 | 193.44 | 129.12 | 163.04 | 75.33 | 464.18 | 0.00 | 460.13 |
| | ST | 86.30 | 208.22 | 0.00 | 106.20 | 107.52 | 549.39 | 15.97 | 309.21 |
| | OBC | 139.48 | 218.71 | 0.00 | 154.36 | 851.00 | 766.02 | 0.00 | 818.45 |
| | Minorities | 92.35 | 62.31 | 16.14 | 89.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 144.71 | 388.62 | 0.00 | 191.10 | 138.91 | 802.76 | 0.00 | 726.26 |
| | Total | 129.44 | 244.63 | 72.63 | 151.29 | 326.46 | 885.40 | 15.97 | 673.83 |
| Karnataka | SC | 117.30 | 292.31 | 0.80 | 142.65 | 762.09 | 161.30 | 5.85 | 568.31 |
| | ST | 266.62 | 39.54 | 11.05 | 260.11 | 0.00 | 1199.53 | 0.00 | 1199.53 |
| | OBC | 182.56 | 334.37 | 272.49 | 229.29 | 258.46 | 856.69 | 0.00 | 749.36 |
| | Minorities | 77.17 | 87.53 | 0.00 | 91.99 | 0.00 | 1650.54 | 0.00 | 1650.54 |
| | Others | 118.90 | 272.79 | 250.03 | 178.62 | 215.00 | 3436.21 | 94.55 | 1701.95 |
| | Total | 175.24 | 291.04 | 242.71 | 209.16 | 690.49 | 1453.17 | 100.40 | 1306.45 |
| Orissa | SC | 203.61 | 297.30 | 0.00 | 218.70 | 743.71 | 736.04 | 0.00 | 774.62 |
| | ST | 227.05 | 292.87 | 910.83 | 244.74 | 252.77 | 1051.14 | 0.00 | 806.40 |
| | OBC | 197.99 | 656.42 | 0.00 | 260.55 | 951.68 | 998.11 | 278.93 | 919.46 |
| | Minorities | 239.07 | 202.08 | 295.41 | 201.17 | 43.33 | 250.36 | 0.00 | 161.63 |
| | Others | 232.62 | 864.07 | 0.00 | 333.94 | 200.82 | 1422.45 | 0.00 | 714.36 |
| | Total | 222.20 | 575.53 | 1206.24 | 276.78 | 549.93 | 1291.72 | 278.93 | 966.49 |
| Urban | | | | | | | | | |
| Maharashtra | SC | 153.59 | 60.61 | 0.00 | 135.30 | 11.80 | 113.23 | 8.07 | 64.37 |
| | ST | 100.98 | 43.72 | 0.00 | 100.59 | 15.64 | 273.47 | 0.00 | 178.65 |
| | OBC | 163.27 | 252.21 | 0.00 | 182.14 | 959.09 | 797.14 | 0.00 | 928.38 |
| | Minorities | 325.45 | 97.12 | 0.00 | 260.52 | 6.93 | 191.49 | 0.00 | 189.76 |
| | Others | 93.99 | 1171.56 | 0.00 | 237.71 | 39.60 | 139.60 | 0.00 | 110.12 |
| | Total | 132.60 | 590.66 | 0.00 | 191.34 | 675.00 | 832.72 | 8.07 | 783.51 |
| Karnataka | SC | 773.36 | 63.87 | 31.92 | 725.97 | 196.47 | 785.87 | 0.00 | 491.17 |
| | ST | 235.42 | 98.97 | 31.99 | 212.83 | 3143.50 | 2435.43 | 0.00 | 2828.36 |
| | OBC | 161.56 | 595.84 | 47.70 | 284.47 | 656.91 | 665.95 | 0.00 | 875.72 |
| | Minorities | 161.41 | 50.58 | 0.00 | 155.20 | 288.24 | 77.11 | 0.00 | 365.36 |
| | Others | 81.73 | 86.19 | 4.73 | 78.91 | 0.00 | 565.83 | 0.00 | 565.83 |
| | Total | 263.53 | 388.38 | 91.70 | 285.34 | 1607.54 | 923.55 | 0.00 | 1210.96 |
| Orissa | SC | 279.51 | 254.08 | 0.00 | 275.94 | 831.57 | 4066.93 | 0.00 | 2297.43 |
| | ST | 155.36 | 74.50 | 0.00 | 157.11 | 436.28 | 167.18 | 0.00 | 256.88 |
| | OBC | 269.06 | 1903.17 | 116.22 | 498.44 | 1939.30 | 268.39 | 178.80 | 683.59 |
| | Minorities | 165.92 | 542.53 | 0.00 | 256.58 | 0.00 | 1012.03 | 0.00 | 1012.03 |
| | Others | 276.75 | 354.84 | 0.00 | 288.03 | 1132.80 | 1336.76 | 197.92 | 1240.40 |
| | Total | 258.29 | 873.73 | 116.22 | 336.19 | 1239.74 | 1373.98 | 376.73 | 1283.79 |

Note: Expenditures are weighted averages

Annexure Table 30: Out-patient Medical Care Expenditure by Sex and Age (Rs. / patient)

| States | Social Groups | Children | | | Working Population | | | Aged Population | | |
|-------------|---------------|----------|--------|--------|--------------------|--------|--------|-----------------|---------|---------|
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Maharashtra | SC | 87.79 | 62.76 | 95.40 | 360.05 | 281.71 | 197.12 | 389.14 | 12.39 | 384.15 |
| | ST | 90.28 | 87.98 | 88.77 | 324.98 | 271.08 | 170.58 | 152.78 | 179.77 | 165.70 |
| | OBC | 149.14 | 248.68 | 224.59 | 499.73 | 730.67 | 422.42 | 277.44 | 278.30 | 282.53 |
| | Minorities | 206.76 | 65.38 | 168.35 | 250.79 | 377.31 | 153.05 | 8.71 | 113.64 | 113.69 |
| | Others | 140.93 | 110.89 | 127.81 | 986.48 | 334.07 | 398.25 | 326.62 | 81.20 | 163.30 |
| | Total | 116.28 | 177.58 | 146.09 | 605.37 | 508.52 | 318.91 | 292.51 | 214.63 | 258.89 |
| Karnataka | SC | 350.89 | 176.43 | 277.75 | 704.77 | 361.61 | 582.32 | 92.93 | 88.17 | 128.59 |
| | ST | 166.51 | 83.59 | 113.69 | 1101.22 | 190.31 | 745.12 | 2459.64 | 1700.29 | 1993.79 |
| | OBC | 156.74 | 238.80 | 183.18 | 338.93 | 462.14 | 423.22 | 1396.28 | 341.45 | 772.10 |
| | Minorities | 124.08 | 104.98 | 135.99 | 140.84 | 61.95 | 129.59 | 107.13 | 868.93 | 611.54 |
| | Others | 635.74 | 104.81 | 414.96 | 648.66 | 169.12 | 350.68 | 220.41 | 229.53 | 269.09 |
| | Total | 440.18 | 162.02 | 298.74 | 572.34 | 342.10 | 445.21 | 889.82 | 606.62 | 711.61 |
| Orissa | SC | 217.29 | 214.99 | 210.36 | 341.59 | 403.73 | 389.56 | 355.83 | 402.47 | 442.30 |
| | ST | 196.18 | 166.22 | 178.13 | 453.46 | 233.15 | 320.74 | 688.19 | 311.83 | 515.59 |
| | OBC | 216.02 | 218.68 | 224.35 | 276.41 | 962.66 | 648.91 | 656.30 | 291.44 | 417.82 |
| | Minorities | 349.28 | 205.92 | 333.71 | 286.07 | 471.10 | 477.93 | 246.81 | 42.10 | 223.37 |
| | Others | 198.34 | 352.27 | 291.29 | 339.68 | 429.34 | 397.20 | 1186.98 | 277.76 | 736.55 |
| | Total | 208.04 | 249.02 | 232.13 | 386.87 | 475.82 | 441.43 | 644.25 | 304.44 | 468.32 |

Note: Children (< 14 yrs) Working Population (15 to 59 yrs) Aged (> 60 yrs)

Expenditures are weighted averages

Annexure Table 31: Cost of Treatment by Type of Services for In-patient Services

(Rs. / patient)

| States | Social Groups | Medicine & Injection | Doctor's Fees | Pathological Tests | Radiological Tests | Special Diet | Total Cost |
|-------------|---------------|----------------------|---------------|--------------------|--------------------|--------------|------------|
| Maharashtra | SC | 537.99 | 766.21 | 36.72 | 129.72 | 31.93 | 1500.94 |
| | ST | 596.49 | 543.23 | 124.43 | 359.39 | 116.52 | 1882.73 |
| | OBC | 3585.40 | 621.16 | 541.63 | 229.48 | 127.58 | 7053.82 |
| | Minorities | 439.70 | 446.13 | 62.35 | 28.43 | 290.54 | 4875.14 |
| | Others | 1290.41 | 1981.25 | 309.69 | 94.40 | 80.80 | 4019.94 |
| | Total | 1494.69 | 994.93 | 383.66 | 242.71 | 485.44 | 4023.82 |
| Karnataka | SC | 1692.05 | 229.77 | 43.48 | 41.23 | 114.35 | 2664.99 |
| | ST | 47.48 | 6.30 | 45.00 | 35.09 | 0.00 | 13720.73 |
| | OBC | 1073.15 | 172.35 | 83.66 | 170.16 | 146.27 | 8837.16 |
| | Minorities | 717.89 | 270.12 | 0.00 | 58.48 | 69.70 | 5411.98 |
| | Others | 1937.02 | 1270.37 | 75.80 | 644.31 | 262.31 | 6657.70 |
| | Total | 1845.96 | 603.98 | 99.44 | 457.70 | 378.50 | 8274.16 |
| Orissa | SC | 2928.64 | 283.08 | 92.24 | 389.56 | 657.95 | 3565.22 |
| | ST | 1397.23 | 263.65 | 60.29 | 203.56 | 259.65 | 1631.13 |
| | OBC | 3067.44 | 409.98 | 96.77 | 333.01 | 656.89 | 4871.77 |
| | Minorities | 2260.15 | 362.30 | 47.58 | 107.28 | 184.70 | 3977.42 |
| | Others | 4580.03 | 1250.65 | 138.30 | 365.65 | 742.12 | 5209.83 |
| | Total | 2975.22 | 623.39 | 110.39 | 415.19 | 563.92 | 4169.27 |

Note: Expenditures are weighted averages

Annexure Table 32 : In-patient Services Cost by Type of Services across Rural/Urban Areas

| | | | | | | | (Rs. / patient) |
|-------------|---------------|----------------------|---------------|--------------------|--------------------|--------------|-----------------|
| States | Social Groups | Medicine & Injection | Doctor's Fees | Pathological Tests | Radiological Tests | Special Diet | Total Cost |
| Rural | | | | | | | |
| Maharashtra | SC | 380.00 | 764.97 | 4.16 | 69.19 | 31.93 | 1113.45 |
| | ST | 542.35 | 416.12 | 103.13 | 197.18 | 90.07 | 1968.01 |
| | OBC | 501.73 | 713.83 | 546.77 | 82.46 | 217.64 | 7977.18 |
| | Minorities | 0.00 | 1.18 | 0.00 | 0.00 | 0.00 | 14213.13 |
| | Others | 369.72 | 234.89 | 17.04 | 3.19 | 40.35 | 2307.62 |
| | Total | 700.04 | 599.99 | 240.17 | 246.64 | 343.43 | 3407.88 |
| Karnataka | SC | 1705.35 | 855.58 | 43.48 | 41.23 | 114.35 | 2843.69 |
| | ST | 47.48 | 488.50 | 45.00 | 35.09 | 0.00 | 8858.44 |
| | OBC | 722.53 | 639.08 | 87.85 | 170.16 | 146.27 | 12038.95 |
| | Minorities | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1560.37 |
| | Others | 2217.10 | 714.10 | 77.53 | 406.82 | 236.37 | 6722.89 |
| | Total | 2428.00 | 138.67 | 102.82 | 221.02 | 372.01 | 8533.34 |
| Orissa | SC | 1774.01 | 175.72 | 93.03 | 125.16 | 359.86 | 2325.05 |
| | ST | 1484.89 | 319.73 | 60.46 | 185.68 | 247.42 | 1705.07 |
| | OBC | 3420.98 | 510.85 | 138.50 | 234.09 | 307.47 | 5211.71 |
| | Minorities | 574.20 | 219.78 | 11.82 | 0.00 | 111.83 | 1247.28 |
| | Others | 8092.09 | 1683.86 | 171.96 | 247.75 | 839.03 | 8037.18 |
| | Total | 3052.42 | 878.77 | 126.42 | 365.78 | 442.35 | 4440.12 |
| Urban | | | | | | | |
| Maharashtra | SC | 485.26 | 6.93 | 69.28 | 0.00 | 0.00 | 2235.01 |
| | ST | 359.68 | 782.82 | 36.04 | 53.51 | 169.43 | 530.09 |
| | OBC | 4106.18 | 320.04 | 63.51 | 492.62 | 27.71 | 6077.76 |
| | Minorities | 439.70 | 469.23 | 62.35 | 28.43 | 290.54 | 1645.55 |
| | Others | 1608.87 | 1860.33 | 342.63 | 91.20 | 40.45 | 4445.15 |
| | Total | 2389.35 | 1315.20 | 334.98 | 566.85 | 412.20 | 4534.88 |
| Karnataka | SC | 31.92 | 204.33 | 0.00 | 0.00 | 0.00 | 1034.10 |
| | ST | 0.00 | 419.58 | 0.00 | 0.00 | 0.00 | 10009.69 |
| | OBC | 1021.84 | 138.51 | 5.85 | 0.00 | 0.00 | 5690.59 |
| | Minorities | 717.89 | 0.00 | 0.00 | 58.48 | 69.70 | 5419.17 |
| | Others | 345.78 | 43.04 | 13.83 | 249.59 | 25.93 | 7367.36 |
| | Total | 1140.28 | 363.58 | 19.68 | 308.08 | 95.63 | 7922.26 |
| Orissa | SC | 4105.05 | 274.85 | 92.88 | 505.78 | 924.77 | 5151.12 |
| | ST | 316.54 | 33.44 | 17.35 | 17.88 | 233.09 | 601.02 |
| | OBC | 3104.64 | 206.13 | 58.02 | 431.93 | 820.81 | 4606.26 |
| | Minorities | 1685.95 | 142.51 | 35.76 | 107.28 | 72.87 | 2730.14 |
| | Others | 2932.61 | 527.94 | 132.65 | 198.39 | 290.13 | 3399.89 |
| | Total | 2902.83 | 304.96 | 94.37 | 375.73 | 729.09 | 3851.60 |

Note: Expenditures are weighted averages

Annexure Table 33 : Composition of Medical Care Expenditures – In-patients

(Rs. / patient)

| States | Social Groups | Medicine & Injection | % | Doctor's Fees | % | Total Cost |
|-------------|---------------|----------------------|-------|---------------|-------|------------|
| Maharashtra | SC | 594.90 | 50.21 | 590.02 | 49.79 | 1184.92 |
| | ST | 586.03 | 50.94 | 564.34 | 49.06 | 1150.37 |
| | OBC | 5261.70 | 86.64 | 811.08 | 13.36 | 6072.78 |
| | Minorities | 508.97 | 52.03 | 469.23 | 47.97 | 978.20 |
| | Others | 406.06 | 60.14 | 269.18 | 39.86 | 675.23 |
| | Total | 3161.79 | 80.75 | 753.86 | 19.25 | 3915.66 |
| Karnataka | SC | 853.96 | 78.80 | 229.77 | 21.20 | 1083.73 |
| | ST | 31.52 | 83.33 | 6.30 | 16.67 | 37.82 |
| | OBC | 1062.68 | 79.21 | 279.00 | 20.79 | 1341.68 |
| | Minorities | 936.80 | 77.62 | 270.12 | 22.38 | 1206.92 |
| | Others | 1914.25 | 61.83 | 1181.96 | 38.17 | 3096.20 |
| | Total | 1554.52 | 70.79 | 641.58 | 29.21 | 2196.10 |
| Orissa | SC | 5257.25 | 94.89 | 283.08 | 5.11 | 5540.34 |
| | ST | 2914.22 | 91.70 | 263.65 | 8.30 | 3177.87 |
| | OBC | 3861.53 | 90.40 | 409.98 | 9.60 | 4271.50 |
| | Minorities | 2643.28 | 87.95 | 362.30 | 12.05 | 3005.57 |
| | Others | 5939.47 | 82.61 | 1250.65 | 17.39 | 7190.13 |
| | Total | 4497.31 | 87.83 | 623.39 | 12.17 | 5120.70 |

Note: % = percent to row total

Expenditures are weighted averages

Annexure Table 34 : Difference in In-patient Treatment Cost across Sources of Services

(Rs. / patient)

| States | Social Groups | Public Facility | Private Facility | Other Facility | Total |
|-------------|---------------|-----------------|------------------|----------------|----------|
| Maharashtra | SC | 2654.27 | 92.50 | 161.40 | 1500.94 |
| | ST | 3906.07 | 943.30 | 0.00 | 1882.73 |
| | OBC | 10590.32 | 1674.33 | 0.00 | 7053.82 |
| | Minorities | 8355.13 | 1387.42 | 13.86 | 4875.14 |
| | Others | 5846.20 | 854.75 | 0.00 | 4019.94 |
| | Total | 6702.89 | 1079.55 | 175.26 | 4023.82 |
| Karnataka | SC | 2431.62 | 2131.41 | 0.00 | 2545.03 |
| | ST | 1587.16 | 19982.24 | 2554.09 | 13720.73 |
| | OBC | 2585.01 | 11309.10 | 353.64 | 8837.16 |
| | Minorities | 1547.89 | 8604.56 | 0.00 | 5411.98 |
| | Others | 4681.15 | 7397.31 | 1043.71 | 6657.70 |
| | Total | 3200.19 | 11025.81 | 1647.85 | 8238.63 |
| Orissa | SC | 2893.66 | 4911.33 | 0.00 | 3565.22 |
| | ST | 1144.69 | 3345.30 | 0.00 | 1631.13 |
| | OBC | 4197.77 | 8718.59 | 0.00 | 4871.77 |
| | Minorities | 5859.96 | 1773.50 | 0.00 | 3977.42 |
| | Others | 4778.19 | 6609.97 | 0.00 | 5209.83 |
| | Total | 3255.81 | 7823.53 | 0.00 | 4169.27 |

Note: Expenditures are weighted averages

Annexure Table 35 : Cost of Inpatient Treatment by Sources in Rural and Urban Areas

(Rs. / patient)

| States | Social Groups | Public Facility | Private Facility | Other Facility | Total |
|-------------|---------------|-----------------|------------------|----------------|----------|
| Rural | | | | | |
| Maharashtra | SC | 2411.84 | 21.07 | 161.40 | 1113.45 |
| | ST | 4117.99 | 979.15 | 0.00 | 1968.01 |
| | OBC | 10929.91 | 729.13 | 0.00 | 7977.18 |
| | Minorities | 14211.94 | 1.18 | 0.00 | 14213.13 |
| | Others | 2694.75 | 964.01 | 0.00 | 2307.62 |
| | Total | 6068.84 | 1013.10 | 161.40 | 3407.88 |
| Karnataka | SC | 2920.47 | 1190.43 | 0.00 | 2843.69 |
| | ST | 1518.00 | 13310.17 | 2554.09 | 8858.44 |
| | OBC | 2591.59 | 15890.19 | 0.00 | 12038.95 |
| | Minorities | 1519.71 | 1527.05 | 0.00 | 1560.37 |
| | Others | 3573.78 | 7293.30 | 1043.71 | 6722.89 |
| | Total | 3542.99 | 12037.29 | 1813.21 | 8533.34 |
| Orissa | SC | 2251.33 | 943.34 | 0.00 | 2325.05 |
| | ST | 1204.15 | 3345.30 | 0.00 | 1705.07 |
| | OBC | 3761.35 | 7402.58 | 0.00 | 5211.71 |
| | Minorities | 1270.25 | 1201.33 | 0.00 | 1247.28 |
| | Others | 8113.11 | 7666.77 | 0.00 | 8037.18 |
| | Total | 2797.92 | 9705.34 | 0.00 | 4440.12 |
| Urban | | | | | |
| Maharashtra | SC | 3024.43 | 123.85 | 0.00 | 2235.01 |
| | ST | 1213.20 | 81.57 | 0.00 | 530.09 |
| | OBC | 8751.10 | 3542.44 | 0.00 | 6077.76 |
| | Minorities | 1772.57 | 1386.24 | 13.86 | 1645.55 |
| | Others | 6085.51 | 280.29 | 0.00 | 4445.15 |
| | Total | 6824.32 | 1296.24 | 13.86 | 4534.88 |
| Karnataka | SC | 470.89 | 1374.63 | 0.00 | 1034.10 |
| | ST | 69.16 | 13061.24 | 0.00 | 10009.69 |
| | OBC | 3664.24 | 6744.96 | 353.64 | 5690.59 |
| | Minorities | 1180.79 | 9824.15 | 0.00 | 5419.17 |
| | Others | 1107.38 | 8012.25 | 0.00 | 7367.36 |
| | Total | 2331.21 | 10776.04 | 353.64 | 7922.26 |
| Orissa | SC | 5160.97 | 5131.41 | 0.00 | 5151.12 |
| | ST | 601.02 | 0.00 | 0.00 | 601.02 |
| | OBC | 4850.25 | 5187.96 | 0.00 | 4606.26 |
| | Minorities | 4589.71 | 572.17 | 0.00 | 2730.14 |
| | Others | 3226.13 | 3570.72 | 0.00 | 3399.89 |
| | Total | 3823.70 | 4709.96 | 0.00 | 3851.60 |

Note: Expenditures are weighted averages

Annexure Table 36 : Cost of Treatment by Type of Disease – In-patients

(Rs. / patient)

| States | Social Groups | Incidence | | | | Prevalence | | | |
|-------------|---------------|-----------------------|---------------------------|----------|----------|-----------------------|---------------------------|----------|----------|
| | | Communicable Diseases | Non Communicable Diseases | Accident | Total | Communicable Diseases | Non Communicable Diseases | Accident | Total |
| Maharashtra | SC | 792.04 | 2234.58 | 1225.86 | 1500.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 1240.56 | 1981.38 | 827.17 | 1562.00 | 1961.86 | 8525.17 | 161.40 | 6061.25 |
| | OBC | 2318.05 | 6862.74 | 7295.84 | 6364.08 | 0.00 | 20034.86 | 2771.05 | 21177.92 |
| | Minorities | 327.51 | 5707.37 | 596.20 | 4875.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 1114.91 | 5128.95 | 1614.05 | 3945.93 | 0.00 | 0.00 | 4035.12 | 4035.12 |
| | Total | 1226.18 | 4705.71 | 7044.85 | 3451.35 | 1961.86 | 23753.48 | 4869.31 | 24510.03 |
| Karnataka | SC | 1204.39 | 3161.00 | 2114.92 | 2664.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 2863.89 | 16409.73 | 5848.13 | 15491.86 | 2593.39 | 5724.43 | 0.00 | 8317.82 |
| | OBC | 2439.14 | 5834.33 | 44864.78 | 8256.25 | 2363.75 | 11030.82 | 7201.67 | 8514.87 |
| | Minorities | 750.50 | 4390.08 | 12374.57 | 5411.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 2804.09 | 6886.74 | 5003.25 | 5536.55 | 0.00 | 11041.85 | 4788.73 | 12478.46 |
| | Total | 2645.93 | 7238.16 | 33409.69 | 7669.51 | 4957.13 | 16959.79 | 7973.19 | 13629.45 |
| Orissa | SC | 1781.97 | 3455.15 | 0.00 | 2659.56 | 7585.18 | 3175.64 | 0.00 | 9054.84 |
| | ST | 995.16 | 5532.02 | 0.00 | 1543.47 | 590.82 | 2112.17 | 0.00 | 1351.49 |
| | OBC | 2729.67 | 7022.56 | 0.00 | 4495.24 | 856.68 | 7747.51 | 0.00 | 6403.41 |
| | Minorities | 1987.67 | 1369.26 | 0.00 | 2199.92 | 0.00 | 4882.12 | 0.00 | 4882.12 |
| | Others | 2444.48 | 5789.42 | 0.00 | 3689.31 | 28608.69 | 2529.88 | 0.00 | 8061.73 |
| | Total | 2137.22 | 5665.38 | 0.00 | 3542.64 | 18540.05 | 5007.62 | 0.00 | 7007.00 |

Note: expenditures are weighted averages

Annexure Table 37: Medical Care Expenditure by Sex and Age of patients – In-patients

(Rs. / patient)

| States | Social Groups | Children | | | Working Population | | | Aged Population | | |
|-------------|---------------|----------|---------|---------|--------------------|---------|----------|-----------------|---------|----------|
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Maharashtra | SC | 404.53 | 9.01 | 408.68 | 731.92 | 1801.97 | 1466.65 | 1064.45 | 0.00 | 1064.45 |
| | ST | 1358.18 | 1391.19 | 1752.72 | 2440.37 | 1210.49 | 1931.37 | 1214.73 | 106.09 | 660.41 |
| | OBC | 8776.78 | 207.36 | 5730.61 | 8358.41 | 6378.02 | 7381.10 | 473.62 | 2643.80 | 2241.85 |
| | Minorities | 239.50 | 0.00 | 239.50 | 14673.15 | 796.73 | 7855.25 | 699.69 | 0.00 | 699.69 |
| | Others | 1315.16 | 1823.16 | 1482.57 | 3845.41 | 5459.51 | 4570.16 | 1981.59 | 1113.85 | 2162.34 |
| | Total | 4199.89 | 2086.08 | 3576.78 | 5372.83 | 3307.23 | 4292.57 | 1769.58 | 2308.12 | 2509.07 |
| Karnataka | SC | 736.25 | 518.68 | 1254.93 | 2095.16 | 3254.09 | 2934.44 | 606.14 | 0.00 | 566.24 |
| | ST | 1694.53 | 4128.19 | 4066.85 | 21716.81 | 2009.93 | 19666.29 | 5662.73 | 372.44 | 4927.21 |
| | OBC | 8731.09 | 1328.23 | 6711.67 | 19914.80 | 3482.24 | 10915.67 | 3154.76 | 4123.42 | 4576.28 |
| | Minorities | 326.99 | 624.49 | 951.48 | 12488.70 | 3645.64 | 6559.08 | 1383.14 | 3126.45 | 2780.67 |
| | Others | 3536.44 | 2596.02 | 4207.06 | 7346.80 | 6234.08 | 7576.45 | 4561.89 | 1180.96 | 4547.41 |
| | Total | 5331.82 | 4839.27 | 4698.55 | 13900.53 | 4490.83 | 10429.97 | 5148.48 | 3686.74 | 4810.57 |
| Orissa | SC | 750.75 | 1047.69 | 1008.73 | 3285.55 | 2579.62 | 3112.81 | 4318.12 | 0.00 | 4318.12 |
| | ST | 1650.92 | 464.22 | 1325.60 | 1997.27 | 1218.97 | 1742.22 | 321.85 | 236.33 | 558.17 |
| | OBC | 1821.15 | 2094.89 | 1932.18 | 5674.46 | 4883.32 | 5198.89 | 10432.02 | 4291.30 | 10743.14 |
| | Minorities | 2594.01 | 0.00 | 2594.01 | 2250.49 | 660.80 | 2390.63 | 738.52 | 5214.45 | 5122.14 |
| | Others | 2332.93 | 839.85 | 2257.00 | 3330.97 | 7095.86 | 6367.32 | 3447.65 | 1675.13 | 2197.44 |
| | Total | 2012.22 | 1498.46 | 1892.62 | 4662.87 | 4849.22 | 4803.38 | 5453.47 | 3208.47 | 4510.21 |

Note: Expenditures are weighted averages

Annexure Table 38 : Sources of Financing Medical Care Expenditure by Households - Out-patients
(in percent)

| States | Social Groups | Own Source | Insurance | Borrowing | Sale of Household Articles | Total |
|-------------|---------------|------------|-----------|-----------|----------------------------|--------|
| Maharashtra | SC | 90.75 | 0.00 | 7.41 | 1.85 | 100.00 |
| | ST | 88.56 | 0.00 | 11.11 | 0.33 | 100.00 |
| | OBC | 92.73 | 0.46 | 6.60 | 0.21 | 100.00 |
| | Minorities | 100.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| | Others | 91.01 | 0.00 | 7.85 | 1.14 | 100.00 |
| | Total | 90.04 | 0.11 | 8.80 | 1.05 | 100.00 |
| Karnataka | SC | 80.74 | 1.68 | 14.56 | 3.02 | 100.00 |
| | ST | 83.42 | 0.00 | 16.58 | 0.00 | 100.00 |
| | OBC | 87.11 | 0.64 | 10.68 | 1.56 | 100.00 |
| | Minorities | 81.15 | 0.00 | 15.83 | 3.02 | 100.00 |
| | Others | 91.57 | 0.00 | 5.29 | 3.14 | 100.00 |
| | Total | 88.96 | 0.58 | 8.59 | 1.87 | 100.00 |
| Orissa | SC | 81.16 | 0.00 | 18.84 | 0.00 | 100.00 |
| | ST | 79.08 | 0.00 | 20.37 | 0.55 | 100.00 |
| | OBC | 81.75 | 0.30 | 17.34 | 0.60 | 100.00 |
| | Minorities | 77.48 | 0.00 | 22.52 | 0.00 | 100.00 |
| | Others | 90.48 | 0.00 | 9.52 | 0.00 | 100.00 |
| | Total | 82.94 | 0.08 | 16.64 | 0.33 | 100.00 |

Note: percent = weighted percent to row total

Annexure Table 39 : Sources of Financing Medical Expenditure – In-patients

(In percent)

| States | Social Groups | Own Source | Insurance | Borrowing | Sale of Household Articles | Total |
|-------------|---------------|------------|-----------|-----------|----------------------------|--------|
| Maharashtra | SC | 78.07 | 0.00 | 21.93 | 0.00 | 100.00 |
| | ST | 71.98 | 1.15 | 20.52 | 6.35 | 100.00 |
| | OBC | 68.73 | 0.95 | 27.39 | 2.93 | 100.00 |
| | Minorities | 91.06 | 0.00 | 8.94 | 0.00 | 100.00 |
| | Others | 73.05 | 0.00 | 26.07 | 0.88 | 100.00 |
| | Total | 72.26 | 0.77 | 23.11 | 3.85 | 100.00 |
| Karnataka | SC | 44.13 | 0.00 | 49.68 | 6.19 | 100.00 |
| | ST | 34.52 | 0.00 | 57.49 | 7.99 | 100.00 |
| | OBC | 51.84 | 1.20 | 41.76 | 5.20 | 100.00 |
| | Minorities | 53.18 | 3.18 | 40.16 | 3.49 | 100.00 |
| | Others | 57.08 | 0.92 | 40.13 | 1.86 | 100.00 |
| | Total | 50.53 | 1.00 | 43.79 | 4.67 | 100.00 |
| Orissa | SC | 52.02 | 2.25 | 40.16 | 5.57 | 100.00 |
| | ST | 46.84 | 0.00 | 53.16 | 0.00 | 100.00 |
| | OBC | 48.16 | 1.09 | 43.11 | 7.65 | 100.00 |
| | Minorities | 62.86 | 0.00 | 37.14 | 0.00 | 100.00 |
| | Others | 66.60 | 1.50 | 27.91 | 3.99 | 100.00 |
| | Total | 53.68 | 1.13 | 40.60 | 4.59 | 100.00 |

Note: percent = weighted percent to row total

Annexure Table 40: Percent of Households Reduced Expenditures due to Medical Care Expenditure

| States | Social Groups | Reduction in House Construction | Reduction in Agriculture Expenses | Reduction in Marriage Expenditure | Reduction in Purchase of Major Household Assets | Reduction in expenditure in Education | Reduction in Other Expenditures |
|-------------|---------------|---------------------------------|-----------------------------------|-----------------------------------|---|---------------------------------------|---------------------------------|
| Maharashtra | SC | 0.00 | 12.46 | 0.00 | 46.92 | 0.00 | 40.62 |
| | ST | 2.13 | 44.65 | 3.28 | 19.23 | 4.77 | 25.94 |
| | OBC | 0.00 | 28.66 | 3.85 | 41.96 | 3.85 | 21.68 |
| | Minorities | 0.00 | 0.00 | 0.00 | 36.81 | 31.60 | 31.60 |
| | Others | 0.00 | 31.85 | 0.00 | 41.48 | 0.00 | 26.67 |
| | Total | 1.12 | 36.29 | 2.58 | 30.24 | 3.69 | 26.10 |
| Karnataka | SC | 3.25 | 18.86 | 0.00 | 24.28 | 0.00 | 53.61 |
| | ST | 0.00 | 28.61 | 6.84 | 21.77 | 6.31 | 36.47 |
| | OBC | 1.91 | 7.88 | 0.00 | 20.64 | 13.31 | 56.27 |
| | Minorities | 0.00 | 0.00 | 0.00 | 12.96 | 43.52 | 43.52 |
| | Others | 0.00 | 12.31 | 0.00 | 32.54 | 0.00 | 55.15 |
| | Total | 1.68 | 13.65 | 0.92 | 22.78 | 8.80 | 52.17 |
| Orissa | SC | 29.67 | 7.96 | 0.00 | 22.41 | 12.75 | 27.20 |
| | ST | 29.90 | 8.63 | 1.47 | 19.32 | 4.01 | 36.68 |
| | OBC | 21.63 | 12.47 | 7.78 | 17.02 | 13.65 | 27.44 |
| | Minorities | 23.70 | 0.00 | 0.00 | 21.80 | 10.90 | 43.60 |
| | Others | 11.61 | 4.93 | 0.00 | 30.11 | 4.83 | 48.53 |
| | Total | 22.70 | 8.77 | 3.07 | 21.46 | 8.94 | 35.06 |

Note : percent = weighted percent to row total

Annexure Table 41 : Percent of Households Postponed Expenditures due to Medical Care Expenditure

| States | Social Groups | Postponed House Construction | Postponed Agriculture Expenses | Postponed Marriage Expenditure | Postponed Purchase of Major Household Asset | Postponed Expenditure on Education | Postponed Other Expenditures |
|-------------|---------------|------------------------------|--------------------------------|--------------------------------|---|------------------------------------|------------------------------|
| Maharashtra | SC | 0.00 | 0.00 | 0.00 | 33.33 | 33.33 | 33.33 |
| | ST | 7.69 | 30.77 | 0.00 | 46.15 | 7.69 | 7.69 |
| | OBC | 0.00 | 33.33 | 0.00 | 16.67 | 16.67 | 33.33 |
| | Minorities | 0.00 | 33.33 | 0.00 | 66.67 | 0.00 | 0.00 |
| | Others | 0.00 | 25.00 | 25.00 | 12.50 | 25.00 | 12.50 |
| | Total | 3.03 | 27.27 | 6.06 | 33.33 | 15.15 | 15.15 |
| Karnataka | SC | 12.50 | 50.00 | 12.50 | 12.50 | 0.00 | 12.50 |
| | ST | 0.00 | 0.00 | 66.67 | 0.00 | 0.00 | 33.33 |
| | OBC | 26.67 | 20.00 | 0.00 | 13.33 | 26.67 | 13.33 |
| | Minorities | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Others | 12.50 | 25.00 | 12.50 | 12.50 | 25.00 | 12.50 |
| | Total | 16.22 | 32.43 | 10.81 | 10.81 | 16.22 | 13.51 |
| Orissa | SC | 66.67 | 33.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| | ST | 16.67 | 16.67 | 0.00 | 33.33 | 0.00 | 33.33 |
| | OBC | 30.77 | 12.82 | 15.38 | 15.38 | 12.82 | 12.82 |
| | Minorities | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75.00 |
| | Others | 66.67 | 16.67 | 0.00 | 16.67 | 0.00 | 0.00 |
| | Total | 34.48 | 13.79 | 10.34 | 15.52 | 8.62 | 17.24 |

Note : percent = weighted percent to row total

Annexure Table 42 : People's Opinion on Health Care Facilities

(in percent)

| States | Very Good | Good | Some What Good | Worst | No Facilities | Total |
|------------------|-----------|-------|----------------|-------|---------------|--------|
| Public Facility | | | | | | |
| Maharashtra | 19.80 | 31.87 | 32.17 | 5.66 | 10.49 | 100.00 |
| Karnataka | 7.83 | 34.04 | 47.90 | 6.83 | 3.40 | 100.00 |
| Orissa | 7.21 | 44.52 | 17.97 | 0.68 | 29.63 | 100.00 |
| Private Facility | | | | | | |
| Maharashtra | 38.43 | 54.57 | 7.00 | 0.00 | 0.00 | 100.00 |
| Karnataka | 16.79 | 58.56 | 23.99 | 0.39 | 0.27 | 100.00 |
| Orissa | 6.33 | 80.53 | 13.14 | 0.00 | 0.00 | 100.00 |
| Other Facility | | | | | | |
| Maharashtra | 39.27 | 39.05 | 4.00 | 17.68 | 0.00 | 100.00 |
| Karnataka | 30.03 | 26.99 | 40.06 | 2.93 | 0.00 | 100.00 |
| Orissa | 2.61 | 64.69 | 30.74 | 1.96 | 0.00 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 43 : Sources of Drinking Water in Selected States

| States | Social Groups | Percent of Households Using River/Pond/Lake | Percent of Households Using Open Well | Percent of Households Using Tube Well | Percent of Households Using Public Tap | Percent of Households Using Tap in House | Total |
|-------------|---------------|---|---------------------------------------|---------------------------------------|--|--|--------|
| Maharashtra | SC | 1.78 | 16.90 | 23.92 | 31.31 | 26.10 | 100.00 |
| | ST | 7.60 | 60.97 | 12.61 | 15.42 | 3.41 | 100.00 |
| | OBC | 0.33 | 19.46 | 23.93 | 20.88 | 35.40 | 100.00 |
| | Minorities | 0.00 | 20.33 | 10.09 | 29.07 | 40.51 | 100.00 |
| | Others | 1.88 | 20.87 | 12.23 | 24.79 | 40.23 | 100.00 |
| | Total | 4.21 | 39.46 | 15.96 | 20.09 | 20.29 | 100.00 |
| Karnataka | SC | 3.98 | 2.21 | 25.01 | 31.71 | 37.09 | 100.00 |
| | ST | 9.69 | 12.48 | 13.37 | 26.64 | 37.82 | 100.00 |
| | OBC | 10.50 | 3.34 | 10.93 | 33.06 | 42.17 | 100.00 |
| | Minorities | 5.33 | 1.95 | 8.87 | 40.32 | 43.52 | 100.00 |
| | Others | 10.39 | 3.60 | 6.13 | 24.55 | 55.33 | 100.00 |
| | Total | 9.10 | 4.23 | 12.06 | 30.69 | 43.92 | 100.00 |
| Orissa | SC | 1.82 | 8.97 | 71.29 | 7.64 | 10.28 | 100.00 |
| | ST | 0.83 | 8.17 | 86.32 | 4.28 | 0.41 | 100.00 |
| | OBC | 0.27 | 11.47 | 61.26 | 16.68 | 10.32 | 100.00 |
| | Minorities | 0.00 | 18.19 | 69.95 | 5.93 | 5.93 | 100.00 |
| | Others | 0.45 | 18.03 | 52.81 | 10.67 | 18.04 | 100.00 |
| | Total | 0.70 | 11.95 | 68.55 | 9.71 | 9.09 | 100.00 |

Note : percent = weighted percent to row total

Annexure Table 44 : Sources of Drinking Water in Rural & Urban Areas of the Study States

| States | Social Groups | Percent of Households Using River/Pond/Lake | Percent of Households Using Open Well | Percent of Households Using Tube Well | Percent of Households Using Public Tap | Percent of Households Using Tap in House | Total |
|-------------|---------------|---|---------------------------------------|---------------------------------------|--|--|--------|
| Rural | | | | | | | |
| Maharashtra | SC | 2.75 | 23.17 | 33.80 | 27.26 | 13.02 | 100.00 |
| | ST | 9.04 | 63.18 | 14.18 | 12.08 | 1.53 | 100.00 |
| | OBC | 0.59 | 29.69 | 40.60 | 13.24 | 15.89 | 100.00 |
| | Minorities | 0.00 | 9.93 | 16.15 | 38.26 | 35.66 | 100.00 |
| | Others | 3.53 | 36.81 | 21.48 | 20.79 | 17.39 | 100.00 |
| | Total | 6.10 | 49.47 | 21.56 | 15.09 | 7.78 | 100.00 |
| Karnataka | SC | 5.52 | 2.73 | 35.47 | 30.10 | 26.18 | 100.00 |
| | ST | 12.33 | 16.14 | 16.46 | 22.38 | 32.69 | 100.00 |
| | OBC | 10.38 | 3.77 | 16.03 | 34.25 | 35.58 | 100.00 |
| | Minorities | 4.86 | 0.00 | 24.25 | 50.14 | 20.75 | 100.00 |
| | Others | 12.79 | 4.54 | 8.23 | 30.41 | 44.03 | 100.00 |
| | Total | 6.10 | 49.47 | 21.56 | 15.09 | 7.78 | 100.00 |
| Orissa | SC | 2.56 | 10.61 | 81.67 | 4.42 | 0.74 | 100.00 |
| | ST | 0.95 | 9.10 | 88.66 | 1.30 | 0.00 | 100.00 |
| | OBC | 0.49 | 10.81 | 79.45 | 8.28 | 0.97 | 100.00 |
| | Minorities | 0.00 | 18.95 | 76.46 | 4.59 | 0.00 | 100.00 |
| | Others | 0.45 | 23.76 | 64.30 | 4.92 | 6.57 | 100.00 |
| | Total | 6.10 | 49.47 | 21.56 | 15.09 | 7.78 | 100.00 |
| Urban | | | | | | | |
| Maharashtra | SC | 0.00 | 5.48 | 5.92 | 38.68 | 49.92 | 100.00 |
| | ST | 0.00 | 49.28 | 4.34 | 33.06 | 13.32 | 100.00 |
| | OBC | 0.00 | 6.63 | 3.03 | 30.47 | 59.87 | 100.00 |
| | Minorities | 0.00 | 25.72 | 6.95 | 24.30 | 43.03 | 100.00 |
| | Others | 0.00 | 2.67 | 1.68 | 29.35 | 66.29 | 100.00 |
| | Total | 6.10 | 49.47 | 21.56 | 15.09 | 7.78 | 100.00 |
| Karnataka | SC | 1.14 | 1.25 | 5.64 | 34.70 | 57.28 | 100.00 |
| | ST | 3.31 | 3.63 | 5.93 | 36.94 | 50.19 | 100.00 |
| | OBC | 10.72 | 2.57 | 1.80 | 30.94 | 53.98 | 100.00 |
| | Minorities | 5.61 | 3.08 | 0.00 | 34.66 | 56.66 | 100.00 |
| | Others | 5.94 | 1.85 | 2.25 | 13.68 | 76.28 | 100.00 |
| | Total | 6.10 | 49.47 | 21.56 | 15.09 | 7.78 | 100.00 |
| Orissa | SC | 0.00 | 4.98 | 45.90 | 15.52 | 33.60 | 100.00 |
| | ST | 0.00 | 1.78 | 70.24 | 24.74 | 3.25 | 100.00 |
| | OBC | 0.00 | 12.29 | 38.52 | 27.18 | 22.00 | 100.00 |
| | Minorities | 0.00 | 16.79 | 58.02 | 8.40 | 16.79 | 100.00 |
| | Others | 0.45 | 12.26 | 41.24 | 16.45 | 29.60 | 100.00 |
| | Total | 6.10 | 49.47 | 21.56 | 15.09 | 7.78 | 100.00 |

Note : percent = weighted percent to row total

Annexure Table 45 : Percent of Households Treating Drinking Water

| States | Social Groups | Not Treating | Boiling Water | Using Domestic Filter | Allowing Alum, Straining & Herbs | Allowing Dirt Settle | Total |
|-------------|---------------|--------------|---------------|-----------------------|----------------------------------|----------------------|--------|
| Maharashtra | SC | 35.85 | 3.20 | 2.34 | 48.74 | 9.87 | 100.00 |
| | ST | 19.45 | 1.80 | 0.63 | 37.74 | 40.38 | 100.00 |
| | OBC | 26.09 | 3.43 | 4.03 | 45.62 | 20.83 | 100.00 |
| | Minorities | 36.10 | 5.48 | 5.10 | 40.83 | 12.49 | 100.00 |
| | Others | 24.26 | 5.25 | 2.85 | 57.63 | 10.01 | 100.00 |
| | Total | 23.71 | 3.02 | 2.08 | 44.07 | 27.12 | 100.00 |
| Karnataka | SC | 79.32 | 6.80 | 8.66 | 4.83 | 0.40 | 100.00 |
| | ST | 67.77 | 10.44 | 9.80 | 10.97 | 1.02 | 100.00 |
| | OBC | 63.11 | 12.54 | 9.57 | 14.52 | 0.27 | 100.00 |
| | Minorities | 57.55 | 9.71 | 10.90 | 20.96 | 0.89 | 100.00 |
| | Others | 52.52 | 20.90 | 16.44 | 9.24 | 0.91 | 100.00 |
| | Total | 63.30 | 13.13 | 11.07 | 11.94 | 0.56 | 100.00 |
| Orissa | SC | 69.89 | 23.37 | 3.48 | 2.40 | 0.86 | 100.00 |
| | ST | 73.67 | 19.33 | 2.32 | 4.49 | 0.19 | 100.00 |
| | OBC | 81.16 | 6.58 | 8.46 | 3.00 | 0.80 | 100.00 |
| | Minorities | 59.76 | 26.96 | 13.29 | 0.00 | 0.00 | 100.00 |
| | Others | 66.02 | 16.98 | 11.83 | 2.86 | 2.31 | 100.00 |
| | Total | 72.81 | 16.09 | 6.83 | 3.28 | 0.99 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 46: Type of Toilet Facility in Selected States

| States | Social Groups | Percent of Households Using Open Fields | Percent of Households Using Pit Without Water Seal | Percent of Households Using Pit With Water Seal | Total |
|-------------|---------------|---|--|---|--------|
| Maharashtra | SC | 88.07 | 4.24 | 7.70 | 100.00 |
| | ST | 95.88 | 1.24 | 2.88 | 100.00 |
| | OBC | 72.61 | 3.05 | 24.34 | 100.00 |
| | Minorities | 64.00 | 6.80 | 29.21 | 100.00 |
| | Others | 72.75 | 5.21 | 22.04 | 100.00 |
| | Total | 84.81 | 2.79 | 12.41 | 100.00 |
| Karnataka | SC | 80.48 | 4.87 | 14.65 | 100.00 |
| | ST | 77.38 | 9.85 | 12.77 | 100.00 |
| | OBC | 61.36 | 10.10 | 28.54 | 100.00 |
| | Minorities | 43.61 | 15.87 | 40.52 | 100.00 |
| | Others | 47.26 | 14.36 | 38.38 | 100.00 |
| | Total | 61.76 | 10.63 | 27.61 | 100.00 |
| Orissa | SC | 80.77 | 1.80 | 17.43 | 100.00 |
| | ST | 92.14 | 1.52 | 6.34 | 100.00 |
| | OBC | 65.68 | 7.13 | 27.18 | 100.00 |
| | Minorities | 70.51 | 8.90 | 20.59 | 100.00 |
| | Others | 59.21 | 10.21 | 30.58 | 100.00 |
| | Total | 74.53 | 5.48 | 20.00 | 100.00 |

Note: Percent = weighted percent to row total

Annexure Table 47: Type of Toilet Facility in Selected States - Rural-Urban

| States | Social Groups | Percent of Households Using Open Fields | Percent of Households Using Pit Without Water Seal | Percent of Households Using Pit With Water Seal | Total |
|-------------|---------------|---|--|---|--------|
| Rural | | | | | |
| Maharashtra | SC | 99.19 | 0.81 | 0.00 | 100.00 |
| | ST | 98.59 | 0.00 | 1.41 | 100.00 |
| | OBC | 87.41 | 0.00 | 12.59 | 100.00 |
| | Minorities | 90.07 | 0.00 | 9.93 | 100.00 |
| | Others | 91.14 | 0.53 | 8.33 | 100.00 |
| | Total | 95.43 | 0.14 | 4.43 | 100.00 |
| Karnataka | SC | 94.62 | 0.00 | 5.38 | 100.00 |
| | ST | 89.70 | 3.41 | 6.88 | 100.00 |
| | OBC | 78.31 | 4.48 | 17.21 | 100.00 |
| | Minorities | 75.20 | 11.19 | 13.62 | 100.00 |
| | Others | 65.50 | 8.48 | 26.01 | 100.00 |
| | Total | 79.21 | 4.84 | 15.96 | 100.00 |
| Orissa | SC | 93.46 | 0.00 | 6.54 | 100.00 |
| | ST | 93.25 | 1.24 | 5.51 | 100.00 |
| | OBC | 83.59 | 1.46 | 14.95 | 100.00 |
| | Minorities | 100.00 | 0.00 | 0.00 | 100.00 |
| | Others | 77.11 | 6.64 | 16.25 | 100.00 |
| | Total | 88.14 | 2.14 | 9.72 | 100.00 |
| Urban | | | | | |
| Maharashtra | SC | 67.82 | 10.48 | 21.70 | 100.00 |
| | ST | 81.59 | 7.76 | 10.65 | 100.00 |
| | OBC | 54.05 | 6.88 | 39.06 | 100.00 |
| | Minorities | 50.49 | 10.32 | 39.19 | 100.00 |
| | Others | 51.75 | 10.55 | 37.70 | 100.00 |
| | Total | 61.27 | 8.66 | 30.07 | 100.00 |
| Karnataka | SC | 54.29 | 13.90 | 31.81 | 100.00 |
| | ST | 47.63 | 25.39 | 26.98 | 100.00 |
| | OBC | 31.03 | 20.16 | 48.82 | 100.00 |
| | Minorities | 25.38 | 18.57 | 56.04 | 100.00 |
| | Others | 13.40 | 25.28 | 61.32 | 100.00 |
| | Total | 31.46 | 20.70 | 47.84 | 100.00 |
| Orissa | SC | 49.76 | 6.21 | 44.03 | 100.00 |
| | ST | 84.52 | 3.45 | 12.03 | 100.00 |
| | OBC | 43.29 | 14.23 | 42.48 | 100.00 |
| | Minorities | 16.54 | 25.19 | 58.27 | 100.00 |
| | Others | 41.20 | 13.80 | 45.00 | 100.00 |
| | Total | 47.50 | 12.10 | 40.39 | 100.00 |

Note: Percent = weighted percent to row total

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Chapter - 10

WHAT DO THE PEOPLE SAY ABOUT HEALTH CARE FACILITIES?

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Introduction

People are the ultimate beneficiaries any development process, including that of health care development. Understanding such a development process requires a two sided analyses, namely a supply side and a demand side. When it comes to the demand side analysis, it is very important to analyse the voices of the people regarding the access and utilization to health care facilities in the public and private domain, views regarding other dimensions of development including effects from economic reforms process.

With this objective of assessing and analyzing the demand side situation, two different approaches were adopted in this study. They are:

- Conducting primary surveys in the selected states with household as a unit of measurement.
- Conducting Focus Group Discussions in selected villages in the three states.

This monograph deals with the second aspect of this demand side story. The basic questions posed to the villagers in the village group meetings are¹:

- How are the *public health facilities* functioning (e.g., availability of doctors, medicines, health education etc.); to what extent they serve the people; what are their views about private facilities;
- What are the different *water outlets*; are they adequate; is the water drinkable; are they within reachable distance; How do the people view about the *sanitary facilities* in the village. Are they aware about the health effects of bad sanitary situation?
- What are the different *morbidity status* to which the people are normally exposed to;
- Their views about different *nutritional supports* for children;
- What can be said about consumerism, including *alcoholism*
- Views on *agriculture related health problems*; effects of use of pesticides, fungicides and chemical fertilizers
- Status about function of *Public Distribution Systems* in the village

Research Methodology

Focus Group Discussions are carried out in three states, at the levels of villages. The three states are Orissa, a low developed state; Karnataka, a medium level developed state; and Maharashtra, a highly developed state.

¹ See Annexure for the details of these and other questions taken up in the FGD.

Since the states under the study are highly diversified in terms of geographical coverage and climatic conditions, it was felt necessary to design the FGDs in a large number of villages covering various agro-climatic sub-regions in each state². After having reviewed the agro-climatic sub-regions, one district in each of them have been selected for the FGD studies. On average four villages in each district have been then selected on the basis of a simple random sampling (without replacement). Focus Group Discussions are organised by the CMDR teams in each of those villages. Enough care is taken to inform all the households about the exact day of the meeting, the place and timings of meeting. Prior to the meetings, the assembled villagers are explained about the purpose of the discussion, with a plea to air their views and experience very frankly, and without any fear and apprehensions of any rewards.

The sampled districts are shown in the table below:

| State | Level of Development | Names of the Districts |
|-------------|----------------------|---|
| Orissa | Low | Balasore, Gajapati and Malkangiri |
| Karnataka | Medium | Dharwad, Bidar, Chikkamagalore, Chitradurga, and Mysore |
| Maharashtra | High | Thane, Gadchiroli, Nasik, Amravati and Dhule |

A schedule of detailed issues to be discussed was used to raise them one by one in each of the group discussions. Annexure 1 shows the list of such questions. Focus Group Discussions (FGD) were conducted in the selected villages using the schedule of issues at the background. Series of questions are posed to the village groups, one at a time, which can be viewed as pertaining to the seven major categories/groups of questions mentioned in the Introduction above. A large number of sub-questions and issues are placed before the people under each of these seven categories. On each of these clearly identifiable issue or question, the people are asked to discuss them freely and come up with their consensus view or observation. On all these questions the village communities are asked to provide their group views for the situation before the current reforms period, namely prior to 1990s and in the current reforms period. The responses are then classified or ranked in a hierarchical manner with numerical (as 1, 2, 3 4 etc.) or qualitative rankings (such as excellent, good, ok, bad and so on) at the village level. Thus a series of responses at each village level on a large number of questions and issues form the basic information set for further analysis.

Using a Multi-Criterion Analysis (MCA), the village level responses are first aggregated at the district level. For this, responses on all the cluster of questions under one category are aggregated and a **Composite Ranking**³ is obtained for each of the seven categories of health related issues for each district in each of the selected states. Subsequently, these rankings are aggregated from the district level to arrive at the state level for each of the seven categories of issues⁴. Finally, the Composite Rankings over all the seven categories are further aggregated to

² Details regarding the climatic variations, and hence the use of agro-climatic delineations to select the districts, and the villages are discussed in another monograph exclusively devoted to the analysis of primary data.

³ In the language of MCA, they are often referred as Scores.

⁴ Also deduced are the aggregate scores at the district level over the seven categories of issues, to be called as District Level Aggregate Rankings.

arrive at the state level Over-all Rankings. While doing this, the rankings of the negative effects are treated as ill-effects, and those of positive effects as benefits. Outcomes of the MCA are analyses and interpreted. Such ranking procedures are separately followed for the two sets of data, namely for the 'pre-reforms period' and 'during the current reforms period'.

Status of Health as seen from the Multi-criterion Analysis

The MCA is a robust method, which provides relative scores or ranking about the various health related attributes such as those listed earlier. The relative scores are now interpreted to reflect upon the situations in respect of the seven categories of health related issues in the three states. Some of the major findings are summarised below for the **Before and During Reforms Periods** first, followed by the same at the district levels:

A Comparative Analysis of Health Related Issues and Facilities in Different States

When it comes to health related issues, ***water and sanitation*** are most important. As far as the situation is concerned, this seems to have improved in all the three states between the two time periods. However, it can be noted that it was already quite high in Orissa during the pre-reforms period (0.56), which further improved marginally during the reforms period (0.65). Both in Maharashtra and Karnataka, the status was at par (also with Orissa) during the pre-reforms period. But, as compared to Orissa, they seem to have improved much more in Maharashtra (0.72) and Karnataka (0.79). It is worth noting that in Karnataka, the improvement is quite significant from a score of 0.51 during the pre-reforms period to 0.79 subsequently.

- On the whole, it can be said that ***water and sanitation situation*** has ***improved*** in all the three states, marginally in Orissa; ***better*** in Maharashtra and Karnataka, almost equally;

With respect to ***morbidity status***, it was worst in Orissa during the pre-reforms period (with a score of 0.82), which has improved during the reforms period (with a score of 0.67). Like wise it has shown improvements in Karnataka (with a drop in the score from 0.74 during the pre-reforms period to 0.57 during the subsequent period). But the situation has worsened in Maharashtra (as depicted with an increase in scores from 0.45 to 0.63). Therefore, it can be safely said that as against a good improvement in Orissa and Karnataka, it has really deteriorated in Maharashtra.

- On the whole, ***morbidity status*** seems to have ***improved*** in both Orissa and Karnataka during current reforms period, whereas it has ***worsened*** in Maharashtra.

The availability of ***health care facilities*** are also analysed, taking note of the responses in respect of public facilities. This is said to be very bad in Maharashtra during the pre-reforms period (with a score of 0.38), whereas it was rated very high in Orissa (score of 0.64), and moderate in Karnataka (0.46). In the current reforms period, all the three states have shown improvements in the availability of health facilities, with very high ranking in Orissa (0.91), with Karnataka and Maharashtra ranking improvements at moderate levels.

- In brief, ***Availability of health care facilities*** has ***improved substantially in Orissa and Maharashtra, moderately*** in Karnataka.

In respect of ***Nutritional support*** to children, it was said to be fairly good in Karnataka during the pre-reforms period, whereas very low in both Orissa and Maharashtra. It seems to have improved very much in Maharashtra (from 0.31 to 0.67), as against very little in Orissa (from 0.33 to 0.40). In Karnataka also it has shown quite a bit of improvement (from a score of 0.055 to 0.70) over the two periods.

- Thus, *Nutritional support improved in all the three states, much better* in Maharashtra than in Karnataka. *Very low improvement* in Orissa.

Another major health related problem is due to the use of pesticides, fungicides and inorganic chemical fertilizers in agriculture. Its effects during the pre-reforms period was stated to be very low in all the three states. But during the current reforms period, they seem to have gone up substantially in all the three states, relatively more in Karnataka, then in Orissa, followed by Maharashtra. This is a matter of serious concern.

- *Agricultural related health problems* seem to have *gone up uniformly* in all the three states;

Alcoholism is another major issue analysed based on the information provided by the villagers. Initially it already very high in Maharashtra (0.89), followed equally but lower levels in Orissa (0.47) and Karnataka (0.43). But during the current reforms period, the same has reversed, with Orissa registering the highest rate of alcoholism (0.91), followed by Maharashtra (0.88) and Karnataka (0.73). In other words, the reforms process seem to have opened up access to this health related adverse effects.

- On the whole, alcoholism has *increased* substantially in Orissa, *moderately* in Karnataka, but *stayed almost at the same high level* in Maharashtra.

Finally, the *access to PDS* is also analysed. This facility seems to have improved substantially in Maharashtra (from a score of 0.38 during pre-reforms period to 0.72 during the current reforms period), remained the same in Karnataka (around a score of 0.68), but deteriorated in Orissa (from 0.80 to 0.69).

- In brief, *functioning of PDS* has improved **much more** in Maharashtra, *remained the same but high* in Karnataka, but has *deteriorated* Orissa.

**Composite Indices (Ranking) of Health Related Issues for Karnataka State
(based on Dharwad, Bidar, Chitradurga, Chikkamagalur and Mysore
Districts)**

A Comparative Picture of Before & During Reforms Period

Source, distance, nature etc, garbage, drainage and toilet

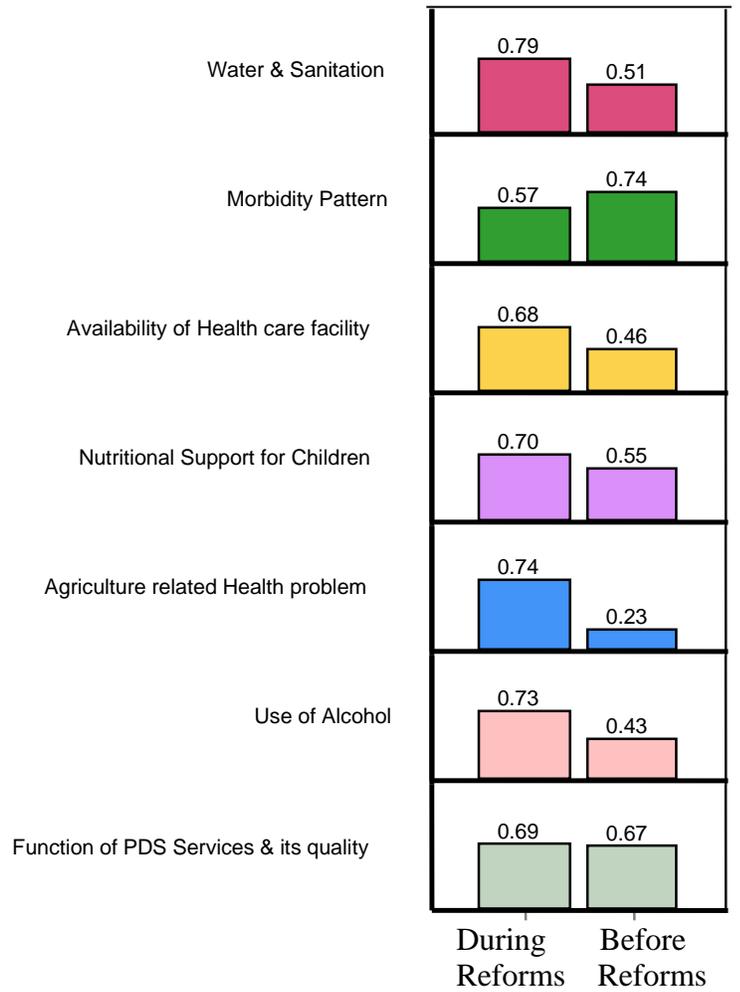
Suffering from diseases like diarrhea, typhoid, cold & cough etc.

PHC, pvt. doctor, awareness, satisfaction, drug shops, transportation

No. of Anganwadi center

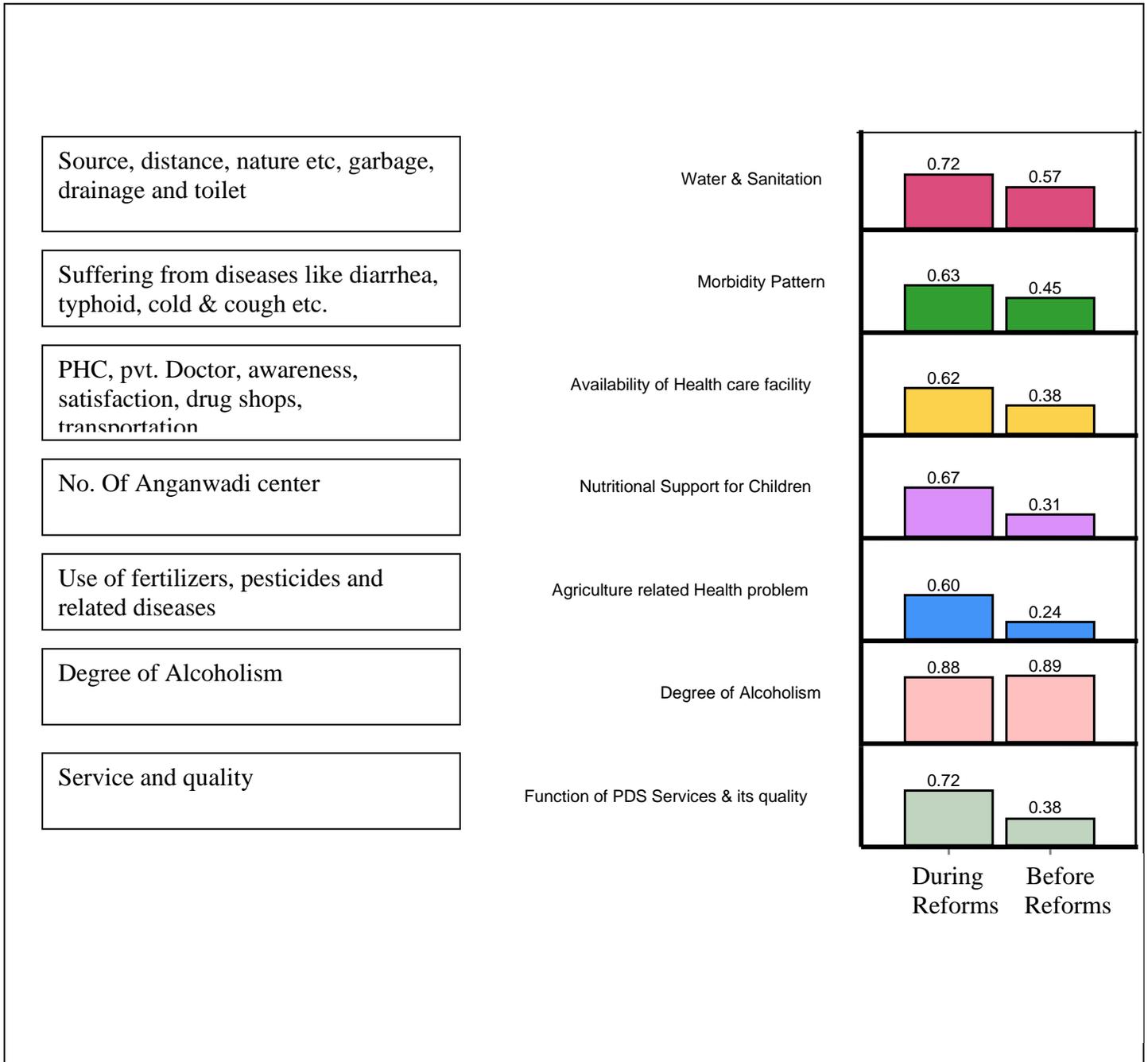
Use of fertilizers, pesticides and related diseases

No. of alcohol shops



Composite Indices (Ranking) of Health Related Issues for Maharashtra State (based on Dhule, Gadchiroli, Amarvati, Nasik and Thane)

A Comparative Picture of Before & During Reforms Period



**Composite Indices (Ranking) of Health Related Issues for Orissa State
(based on Gajapati, Balasore and Malkanagiri Districts)
A Comparative picture of Before & During Reforms period**

Source, distance, nature etc, garbage, drainage and toilet

Suffering from diseases like diarrhea, typhoid, cold & cough etc.

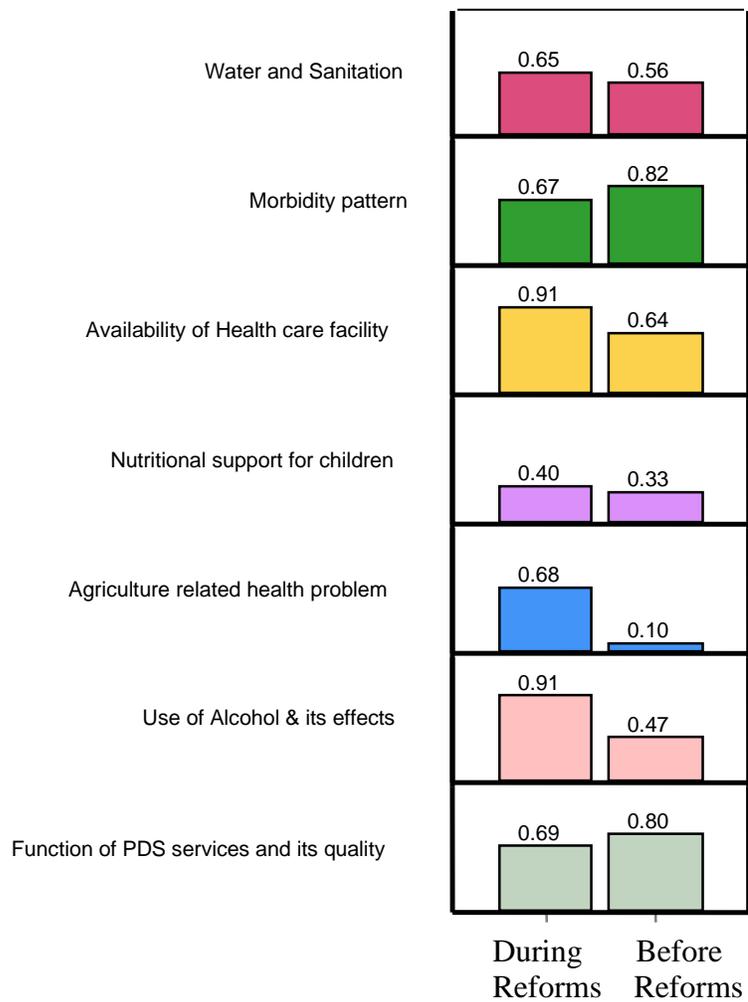
PHC,pvt. doctor, awareness, satisfaction, drug shops, transportation

Quality and regularity and health status like malnutrition

Use of fertilizers, pesticides and related diseases

No. of alcohol shops and health problems

Service and quality

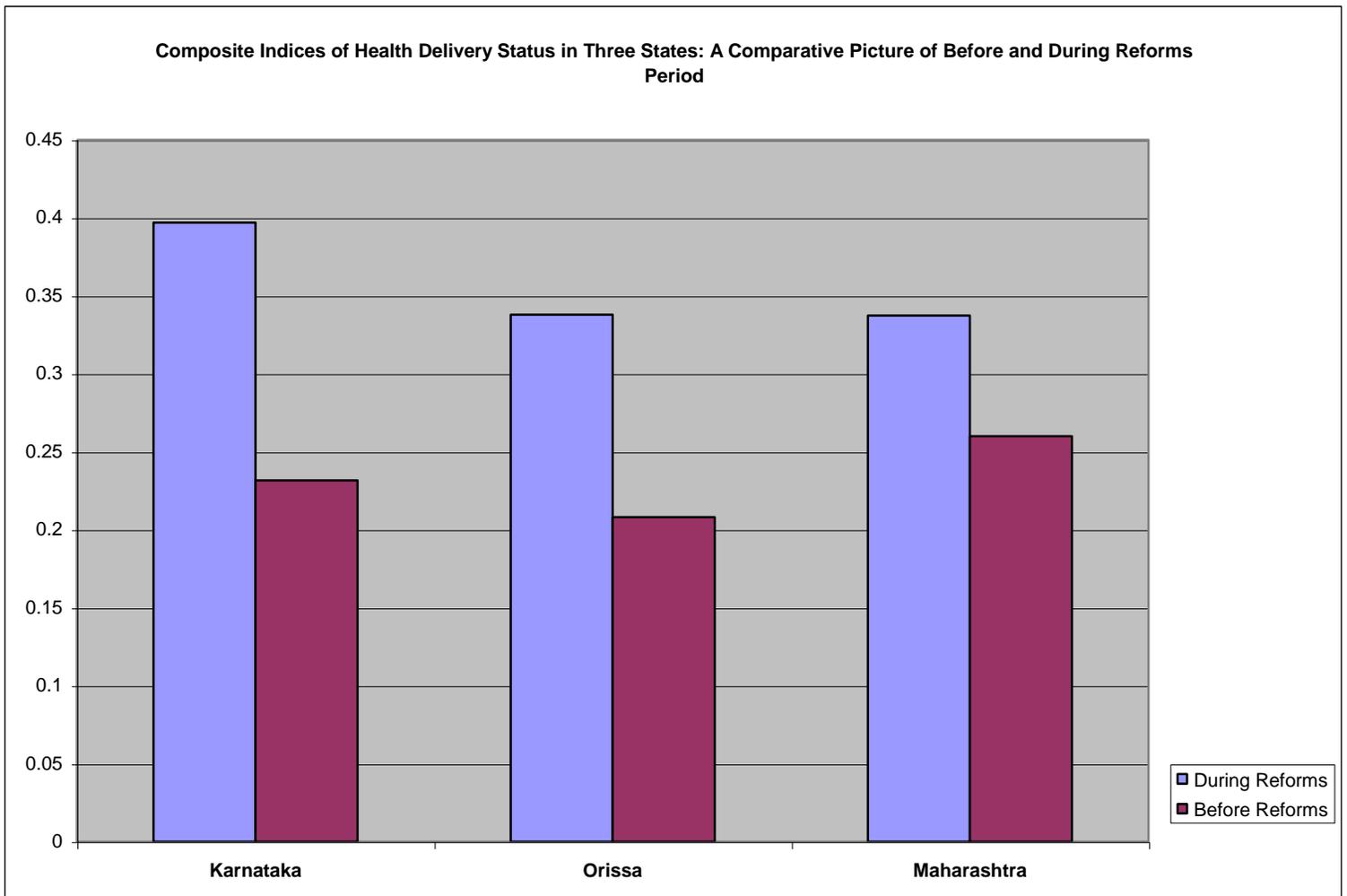


Analysis at the Over-all State Levels

On the basis of the individual issue based information, the aggregate view at the state level is made . Once again an MCA is applied here. These aggregates take in to account of both the negative and positive effects on the status of health.

Before reforms period, the relative scores in decreasing order were: Maharashtra (0.26), Karnataka(0.23), and Orissa(0.21). Hence it can safely said that they are low but almost the same during the pre-reforms period. During the Reforms period, the relative rankings are: Karnataka(0.40), Maharashtra(0.34) and Orissa(0.34). These indicate that the overall status of health is still quite low in all the states, with Karnataka fairing bit better than the other two states.

| Composite Indices of Health Delivery Status in Three States | | |
|---|----------------|----------------|
| State | During Reforms | Before Reforms |
| Karnataka | 0.3969 | 0.2316 |
| Orissa | 0.3379 | 0.2081 |
| Maharashtra | 0.3374 | 0.2601 |



Annexure 1

Guideline listing the major Health Related Questions Issues For Focused Group Discussion Regarding Health Status

I. Water and Sanitation Facilities. Before Now

1. Water

- No. and type of public wells/ponds etc.
- Nature of water- potable/salinity
- Water availability throughout the year
- If not in the village, distance of water source
- Time taken to walk down to the source
- Water Cess- amount paid, effectiveness of the service
- Adequacy of water- to drink (human beings and animals):
for day to day routine activities (bathing, washing clothes,
animal rearing, others)

2. Sanitation facilities

- Drains and sewerage- open or underground
- Maintenance of drainage
- Garbage cleaning
- Public Toilets and their status-Sulabh, Panchayat's, any other
- Morbidity related to maintenance of sanitation facilities
- Sanitation cess

II. **Morbidity Pattern in the Village:**

Presence of communicable diseases →
Presence of non-communicable diseases →
(Record the morbidity pattern for children,
adults and aged separately)

III. **Availability of Health Facilities**

Kind of facilities available in the village or nearby village

Public- PHU, PHC, CHC, any other

Private- Visit by the doctor at regular intervals,

Presence of a clinic, hospital

Number of private doctors present in the village

NGO- Rotary Club, Lions' Club, Rural Development

Society, Religious institution, any other

Comparison between public, private and NGO facilities with regard to

- Costliness of services
- Effectiveness of services- usability and relevance
- Prompt availability of services
- The kind of satisfaction that the community derives
from these different facilities
- Withdrawal of services by the government health sector
such as supply of medicines

Medicine

- Presence of pharmaceutical/drug store
- Type of medicine
- Service provided
- Any other alternative to a full-fledged drug store in the village for basic medicines
- Prices (variations----)

Health Education Programmes

- Experience with the family welfare programme
- Types of awareness Programmes

(Information on the usefulness, relevance, adaptability for people)

Annex to the availability of Health Facility

- Connectivity by Road- Pucca road (all weather road), Kutchra road
- Public transport- Bus, auto, private vehicles
- Any other

Preference for the type of service

- Preference of the community for the type of medical facility or doctor:
- Public
- Private
- NGO

IV. Nutritional support for the children

PHC
Anganwadi
NGO

V. Agriculture and related health problems

- Effects of using fertilizers and pesticides on the health of individuals and domestic animals

VI. Use of Alcohol in the village

- Alcoholism and vices
- Increase in the number of alcohol shops- arrack shops and/or wine shops in the village

VII. PDS functioning

- Availability of rice, sugar, kerosene, etc
– regularity in the service provided

Annexure 2

Detailed Write-ups on FGD Outcomes from each of the districts

District wise FGD Report

Dharwad district

Availability of drinking water facility in the selected villages:

Households in the selected villages use to get water for drinking and other purposes from wells and ponds. It is observed from the group discussion that the water quality was not good. So, waterborne diseases like gastro entries, cholera, skin diseases, diorrhoea / dysentery were prevalent. Now under National Rural Water Supply Scheme (NRWS) all villages have got tap water supply, this system has been maintained well in all selected villages. As a result of this waterborne diseases have declined. 'Water cess' is collected from the private tap holders at the rate of Rs-15-20 per month.

Sanitation facility in the selected villages:

Earlier, villages had no sanitation facility. Now out of four villages two villages have under ground drainage (UGD) system under the Netherlands' 'Water Supply and Sanitation Project'. The other two villages have open drainage system. The sanitation system has been well in all the selected villages. Now under 'Nirmal Gram Yojan' some households in the selected villages have constructed toilet facility, but there are no public toilets. Households collected the garbage on their own lands for composting.

Morbidity pattern:

Earlier, villagers were suffering from the diseases like cholera, skin diseases, malaria, diorrhoea/dysentery, cough&cold. And children were suffering from malaria, skin diseases, cholera, cough&cold, scabies, polio and diorrhoea/dysentery. This is mainly because of untreated water used for drinking purpose. But now polio and scabies are controlled and other diseases declined in children and at the same time in adults also the diseases, which are seen earlier, are controlled due to implementation of NRWS Scheme and other controlling measures taken by Government. But blood pressure and joint pain are coming up due to change in life style.

Availability of health care facility:

- Selected villages have not good health care facility. Only one village i.e., Ganjigatti has PHC within the village. The primary health service by the government is not good. There are no qualified doctors in the villages, therefore households of these villages have to visit Hubli/Dharwad for getting medical facility, even for getting primary health care and they have to travel about 15-30 km.
- The allopathic medicines are not available in the villages. Villagers have to get medicines from either taluka head quarter or district head quarter, but basic medicines are available in general stores.
- Some health camps like eye check up, antenatal check up, child check up and malaria awareness camps have been conducted in the recent years in the Dharwad district.
- Earlier, one village was connected by kutchra road, but now the condition has improved, the frequency of buses are increased and private tempo also operating.

Nutritional support for children:

Anganwadi centers are functioning well in the selected villages and providing Nutritional support to the children. The no. of Anganwadi centers are increased 40% over the period of time.

Agricultural related health problems:

Farmers are using pesticides, fungicides and chemical fertilizers in their fields. It has caused for problems like skin itching, eye irritation, omitting, headache, since last 10 years.

Consumption of alcohol:

There is increase in the no. of alcohol shops, people are consuming more alcohol. It is observed that youngsters also started consuming alcohol, because of poverty and unemployment.

Functioning of PDS:

All villages have Public Distribution System (PDS) and they are functioning well and they are providing items like rice, wheat, sugar, kerosene. Earlier one village had bad functioning of PDS.

District wise FGD Report
Thane District of Maharashtra State

Four villages were selected for FGD in the Thane district - Aghai, Adoshi, Khaire and Chas.

Aghai village is situated in Shahapur taluk; this village comes under the reserve forest area called "Tansa Reserve Forest". As the village comes near the dam called Tanasa dam, it gets water throughout the year and it 20km away from the taluk.

Khaire is 25-30 km away from the taluk Shahapur. The village is 4 km away from the shenave, where PHC is located.

Adoshi is situated in Mokhada taluk, which is nearly 25-30 km away from the village. Nearest health care facility to this village is Khodala where PHC, sub-center is there in the village.

Chas is 7-8 km away from the taluk Mokhada, adiwasi stays in the village are takur, katkari, varli.

1) Water and Sanitation:

Water: Water is basic amenity for human beings, it includes quality & availability of water, etc., Compare to the before reforms period the water facility is improved in Thane district. Earlier 23 water sources were working in the selected 4 villages of Thane district (wells, hand pumps, river, etc,) now total 27 are there, because of increase in the wells, habitants have to walk some distance to fetch the water, at least they have to spend 20-30 minutes to get water. Adoshi and Chas villagers were face the water shortage in summer season; even now they are not getting adequate water in summer. But the situation in Aghai and Khaire villages is different. It has been

reported that water is available throughout the year in these villages, to get ride of this problem 'Nal Yojan' has been sanctioned for all villages, but villagers are getting water some time only through the taps particularly in summer season. Earlier villagers were not paying any 'water cess' to the Gram Panchayat, now also they are not paying except Aghai village (Rs-40 per month). Now the Gram Panchayat is using TCL as purifier of water, but earlier only 2 villages have been adopted this facility.

Sanitation: Sanitation is one of the key indicators for good health and environment in any community. It is pertinent to note that earlier there were no sanitation facilities such as drainage, garbage cleaning and toilet, but now at least garbage-cleaning facility is available in the selected villages. Regarding public toilets since beginning there is no such facility, people defecates outside. In Aghai village some villagers have built private toilets on their own. Five years before Gram Panchayat has given Rs-2500 for building the toilets some people have built them, but some villagers haven't, during that time villagers have to pay Rs-300 as sanitation cess per year. But now it is not functional.

Due to lack of maintenance of drainage and sewerage water spread on and around the houses. Therefore, unhygienic surrounding was seen around the houses, it leads to diseases like skin disease, typhoid, Diarrhoea, vomiting, fever, cough&cold. These are frequently occurred in the villages at present, but the condition has changed slightly because of improved education facility.

2) Morbidity pattern:

During Reforms period the morbidity pattern is increased, adult and children are suffering form both communicable and non-communicable diseases. Earlier days- adults were suffer from diseases like malaria, diarrhoea, measles, vomiting, skin infection, waterborne diseases, typhoid, leprosy, scabies, jaundice, cold&cough, dysentery. Children were suffering from diseases like malaria, diarrhoea, measles, vomiting, skin infection, cold&cough, waterborne diseases, jaundice, fever, gastro. Now, along with these diseases some more are occurred Adult- T.B, cancer, diabetes, whopping cough and eye problem. Children- malnutrition and mumps.

3) Availability of health care facilities:

Availability of health care facility is increased in the selected villages of Thane district. Earlier 1 Primary Health Center (PHC), 3 private doctors and 1 NGO were working in the villages and they were providing good service, villagers were satisfied with the PHC. Now 1 PHC, 2 private doctors, 3 ANM and 2 NGOs are providing health care facilities to villagers. PHC is charging Rs-5 as case paper fee, earlier it was 3 rupees and private doctor charge 20-40 rupees per patient. Where as, ANM centers are not providing regular and good service. Tata Institute of Social Sciences (TISS) is working in Aghai village since 11 years, under the Integrated Rural Health & Development project. It is providing Anganwadi & Health Education Programmes to the villagers. Now one more NGO is working in Chas village (BAIF).

- There is no Medical shops in the selected villages, only basic medicine is available in general shops, the situation has not been changed, but in Adoshi village even basic medicine is also not available.
- Health education programmes were not conducted till now; it has been reported that only in Aghai village the 'TISS' had given all types of Health Education Lectures.

- Road and transport facilities are improved, all villages have getting bus and private vehicles, Adoshi and Chas have pucca road facility, but earlier only bus facility was in less frequent and except Adoshi other villages having Kutch road facility. Now also Padas connected with Kutch road, in rainy season the mud comes out of the road; people are facing lot of problem.

4) Nutritional support for children:

Anganwadi centers are providing nutritional support for children, earlier only 4 Anganwadi center were working in two villages (Aghai, Chas). Now 6 Anganwadi centers are working in all 4 villages, children are getting 'Usal, Khichadi' as diet to eat. But malnutrition is seen among the children, earlier also malnutrition was seen.

5) Agricultural related health problems:

Specifically there are no agricultural related health problems seen among the villagers, skin diseases, cold&cough are commonly seen, but 10 years before one death case has been reported due to poisoning in Aghai village

6) Alcoholism:

Alcohol shops are not seen in the selected villages of Thane district, alcohol is prepared by villagers in their house only, they sell a bottle Rs-10. The consumption of alcoholism is high among the villagers, however, villagers have not been reported about the extent of alcoholism, earlier also it was there, but in Aghai village consumption of alcoholism is decreased, only people who stay in padas are taking more alcohol and within 1-5 years the percentage is decreased i.e., 5-10%

7) Functioning of PDS:

4 Public Distribution Shops (PDS) are giving regular service to the villagers, and rice, wheat, sugar, and kerosene are being provided at govt rates. But 10 years before only 1 PDS was working in Khaire village. People were satisfied with service.

District wise FGD Report Gadchiroli District of Maharashtra State

Four villages were selected for FGD in the Gadchiroli district – Nagram, Kottamal, Krishnapur, Basapur.

1) Water and Sanitation:

Water: Water is basic amenity for human beings; it includes quality & availability of water, etc., water facility in Gadachiroli district. Earlier 36 water sources were working in the selected 4 villages of Gadchiroli district (wells, hand pumps, river, etc.) now total 44 are there, because of increase in the wells and bore wells, villagers of Krishnapur are getting water within the village, whereas other villagers have to walk some distance to fetch the water, at least they have to spend 30-45 minutes to get water. Except Kottaa village other villages' water is potable in nature. Nagaram and Kottaal villagers were facing the water shortage in summer season; even now they are not getting adequate water in summer. But the situation in Krishnapur and Basapur

villages is different. It has been reported that water is available throughout the year in these villages. Now the Gram Panchayat is using TCL as purifier of water in selected villages of Gadchiroli, but earlier Kottamal village has been adopted this facility. Villagers have to pay 'water cess', but it vary from village to village, for example- Nagaram Rs-100, Krishnapur-Rs20.

Sanitation: Sanitation is one of the key indicators for good health and environment in any community. It is pertinent to note that earlier Nagarm village had drainage and garbage facility in the village, other villages hadn't any such facility, but now things are changed drainage and garbage facility is available in all selected villages, particularly Nagaram village having all sanitation facility, but 20-25% of villagers are getting (enjoying) these facilities in the village.

Due to lack of maintenance of drainage and sewerage, unhygienic surrounding was seen around the houses, it leads to diseases like malaria, cholera, dysentery gastro, Diarrhoea, but the condition has changed only malaria & cholera are appearing among the villagers.

2) Morbidity pattern:

During Reforms period the morbidity pattern is increased, adult and children are suffering form both communicable and non-communicable diseases. Earlier days- adults were suffering from diseases like malaria, T.B, mouth cancer, gastro, diarrhoea, cholera, back pain and dysentery. Children were suffering from diseases like polio, cold & cough. But now, along with these diseases some more are occurred Adult- skin disease, body pain and headache. Children- dysentery & diarrhoea, but there is a little control over the diseases and compare to other 4 districts Gadchiroli is less affected to morbidities.

3) Availability of health care facilities:

Availability of health care facility is increased in the selected villages of Gadchiroli district. Earlier 1 RMP doctor was working in the Krishnapur village, no other village had any health care facility in the district. If at all they want to get Medical treatment they had to go taluk places, where PHC, private doctors working. But now except Kottamal village other villages are having 6 RMP doctors, they made regular visits to villages and providing prompt service, sometime villagers prefer private doctor, where they have to pay Rs-15-20 and mainly the charge depends on severity of diseases. In PHC Rs-5 is being charged, earlier it was Rs-2, somehow villagers are satisfied with private treatment.

One Religious institution runs a Mission Hospital at taluka place of Nagaram, which has the most facilities as compare to other two, 10 years before also it was working.

- There is no Medical shops in the selected villages, earlier also the situation was similar, if at all the villagers have to get medicine, they have to go at taluk place, even basic medicine is not available in the villages. Only the traditional healer keeps some ayurvedic medicine without knowing its ingredients and the relevance.
- Earlier days the family welfare programme and Health education programmes were not conducted in the villages, such programme conducted at taluk place. But now health education programme are conducted except Kottamal village, like eye camp, polio camp, polio camps are being conducted thrice in a year.
- Road and transport facilities are improved, the private and public health facilities are well connected by pucca roads, only internal roads of villages are kutcha and bus and private vehicles are providing service. In Nagarm village the interior tribal area is connected by tar road. Except Basapur village others were connected with pucca road and s.t.bus was the only mode of conveyance

4) Nutritional support for children:

Under Integrated Child Development Scheme (ICDS) Anganwadi centers are providing nutritional support for children, earlier 4 Anganwadi center were working in villages of Gadchiroli district, 'khichadi' was being given to children once in a day, now also the situation is similar.

5) Agricultural related health problems:

Using of chemical fertilizers and pesticide are being increased in recent days in Nagaram and Kottamal villages, while spraying pesticides the farmers gets the felling of vomiting and headache problem. But earlier days the chemical fertilizers and pesticides were not at all known to farmers to be used in fields, naturally they didn't face any problems.

6) Alcoholism:

Alcohol shops are not seen in the selected villages of Gadchiroli district, alcohol is prepared by villagers in their house only, the consumption of alcoholism is high among the villagers, however, villagers have not been reported about the extent of alcoholism and alcohol consumption was considered as traditional rite as generally consumed by all elder member of the family. In Kottamal village a major set back taken place at present.

7) Functioning of PDS:

4 Public Distribution Shops (PDS) were giving regular service to the villagers of Gadchiroli district. The items like rice, sugar, and kerosene were being provided at government rates. But now a day irregularity found in the PDS.

District wise FGD Report Nasik District of Maharashtra State

Four villages were selected for FGD in the Nasik district – Adharwad, Borli, Galne, Hatane.

Adharwad village is situated in Igatpuri taluk; it 40-45 km away from the taluk.

Borli is situated in Igatpuri taluk.

Galane is situated in Malegaon taluk,

Hatane is 20-25 km away from Malegaon taluk.

1) Water and Sanitation:

Water: Wells are the main source of water for villagers of Nasik district. One hand pump is working, the villagers of Adharwad and Galane have to spend 20-25 minutes to fetch the water, only one pond is working, which is 2 km away from the Borli village and 'nal yojan' is sanctioned, but it's not properly working, Earlier, villagers were not paying any 'water cess' to the Grampanchayat, but now they are paying and it varies form village to village. Now the Grampanchayat is using TCL as purifier of water, but earlier only one village has been adopted this facility. Compare to last 10 years water scarcity is increased in the district.

Sanitation: Sanitation is one of the key indicators for good health and environment in any community. It is pertinent to note that earlier there were no sanitation facilities such as drainage, garbage cleaning and toilet, but now Galane and Hatane villages are getting sanitation facilities, there are 2 public toilets in the villages, those are only for women and 2 public bathroom for males in both villages. 'Dumping bin' facility is working in 4 villages, people put the garbage in dumping bins and make use of it for preparing compost, but earlier there was no such activity.

Due to lack of maintenance unhygienic was seen around the houses, it leads to diseases like diarrhoea, dysentery vomiting fever, cough&cold, now also these are appearing among the villagers.

2) Morbidity pattern:

Morbidity pattern is increased, adult and children are suffering from both communicable and non-communicable diseases. Earlier days- adults were suffer from diseases like malaria, diarrhoea, skin infection, typhoid, leprosy, jaundice, cold&cough, gastro, asthma, flue, eye problem, but now along with these few more are appearing like cholera, scabies, dysentery, vomiting, cancer, paralysis, heart attack. Children are suffering from diseases like malaria, diarrhoea, measles, skin infection, cold&cough, jaundice, fever, typhoid, scabies, mumps, asthma, leprosy, eye problem, mental health problem, malnutrition, whopping cough.

3) Availability of health care facilities:

Availability of health care facility is increased in the selected villages of Nasik district. Earlier 1 ANM center and 2 private doctors were providing health care facility for the villagers of Nasik district, they were satisfied with private doctors treatment and villagers prefer to go taluk place where they get PHC and qualified private doctors, normally Rs-5 is being charged in PHC as case paper fee, but where as Rs-20-30 is being charged by private doctors. Now also villagers prefer for private treatment, at present 2 ANM centers and 3 private doctors are working in the villages.

- a. There is no Medical shop in the selected villages, villagers have to go taluk place to get medicine, in Adharwad and Galane village only basic medicine is available in general shops, 10 years before the condition was quite similar.
- b. Health education programmes were not conducted in earlier days. But now Programme held in 2 villages out of 4 villages (Adharwad and Galane), those are medical checkup camp and eye camp, during that time some information was given on basic sanitary needs and hygiene etc.,
- c. Road and transport facilities are improved, all villages have getting bus and private vehicles, villages are connected with pucca roads, but still the villagers of Adharwad are facing inadequate buses. Earlier villages were connected with kutchra roads and buses were only mode of conveyance, but frequency of buses were very less, that was once in a day and at night time villagers had faced lot of problems.

4) Nutritional support for children:

Anganwadi centers are providing nutritional support for children, earlier there was no Anganwadi center was working in the selected villages. Now 6 Anganwadi centers are working in all 4 villages since 6 years, children are getting 'Usal, Khichadi, Maize powder and Milk powder' as diet to eat.

5) Agricultural related health problems:

There are few agricultural related health problems seen among the villagers, skin diseases, fever, cold&cough are seen among the villagers of Adharwad and Galane, but 10 years before skin disease was appeared in Galane village, other villages hadn't faced any problems, because they might have used less chemical fertilizers and pesticides or hadn't any idea of chemical fertilizers and pesticides.

6) Consumption of Alcoholism:

Alcohol shops are not seen in the selected villages of Nasik district; villagers in their house prepare alcohol. The consumption of alcoholism is high among the villagers, however, villagers have not reported about the extent of alcoholism, earlier also it was there, but in Galane village alcoholism is decreased, now only 10% of people are consuming alcohol in the village. Moreover adults are started consuming alcohol and other drugs like Ghutka.

7) Functioning of PDS:

4 Public Distribution Shops (PDS) are giving service to the villagers, and rice, wheat, sugar, oil and kerosene are being provided at govt rates. But 10 years before only 2 PDS were working in Adharwad and Hatane villages, that time they were providing rice, sugar, and kerosene at fixed rate.

District wise FGD Report Amravati District of Maharashtra State

Four villages were selected for FGD in the Amravati district – Bordi, Kakada, Churni, Hatru.

Bordi village is situated in Achalpur taluk.

Kakada village is situated in Achalpur

Churni villages is situated in Chickhalda.

Hatru is 70 km away from the taluk Chickhalada, it surrounded by the forest area.

1) Water and Sanitation:

Water: Water is sufficient enough for Kakada and Hatru villages, because in Hatru village a river goes near by the village, for washing cloths and animal raring villagers go to river only, naturally villager have water throughout the year. And in kakada village 10 wells, 1 hand pump and 2 bore wells are working, drinking water come form tap and tap water available throughout the year. All these resource are within the village. Where as in other 3 villages people have to walk 0.5 km and have to spend 25-30 minutes to get water.

Villagers of Bordi and Churni are facing water scarcity problem. In Churni village one pond is working, but water is not potable, usually for washing cloths, bathing and animal raring people use pond water, but water is banned for farming. Nal yojan is there, but it is not functioning and it has been reported that different types of germs present in drinking water, still villagers have to drink water. In all villages people are paying 'water cess' about Rs-40 and TCL is being used as purifier of water, earlier, also situation was similar.

Sanitation: Sanitation facility is available in Kakada, Bordi and Churni villages. In Kakada and Bordi villages, Zillapanchayata has given 148, 70 toilets respectively to BPL category people under their scheme, few of them are using and remaining go to outside, but there is no public toilets facility in the villages. In Bordi village open drainage facility is there, Grampanchayat regularly cleans garbage. In Churni village public toilet facility is available since 5 years. Village Hatru don't have any drainage and sewerage system, stagnant water flows surrounding the houses, totally unhygienic and uncleanliness was seen in the village.

Diseases were found in the villages like malaria, typhoid, dysentery, gastro, cold&cough, cholera, now also diseases like malaria and dysentery are appearing among the villagers due to unhygienic.

2) Morbidity pattern:

Ten years before morbidities were few among the adult and children, Adult were suffering from cancer, paralysis, malaria, diarrhoea, cholera, typhoid, but now along with these few more are appearing like dysentery, mumps and gastro.

Children were suffering from diseases like polio, cancer, paralysis, malaria, typhoid, cholera, diarrhoea, and dysentery. Now polio is not seen among the children, few more are coming up measles, mumps, malnutrition, eye problem, gastro.

3) Availability of health care facilities:

Amravti district having a good position in health care facility compare to other 4 districts, totally 2 PHC, 9 Private doctors, one ayurvedic clinic and Nurse visit to Bordi village. The villagers of Chruni prefer to public as compare to private doctors in case of costliness and they feel effectiveness, earlier people didn't feel satisfaction from PHC. Other 3 villagers satisfied with private health facilities, private doctors are giving prompt services to the villagers, some time they give home visits.

The Christian Missionary has set up a hospital in Raseaon (6 km from Bordi) many patients from Bordi visit that hospital, NGO hospital has gained much popularity (for snake bites) that some time people from Amravati and Nagpur also visit there. But earlier, in Bordi village no health care facility was there.

- a. Two Allopathic medical shops are functioning in Kaka village since 11 years, but other 3 villages even not having basic drug facilities. Ten years before also the condition was similar, if villagers want medicine they have to go taluk place.
- b. Health education programmes like eye camp, polio camp are held in villages except village Hatru still now. If at all the programme will be held in taluk place the villagers have to go there, earlier days except Kakada no where health education programme held, now people are getting little awareness of health.
- c. Road and transport facilities are improved, all villages have getting bus and private vehicles, frequency of vehicles are good and villages are connected with pucca road, but ten years before only Kakada village connected with pucca road and other villages connected with kutch road, S.T. buses were mode of conveyance. But villagers of Bordi were using bullock cart as mode of conveyance.

4) Nutritional support for children:

Anganwadi centers are providing nutritional support for children, earlier only 2 Anganwadi center were working in Kakada and Bordi villages. Now 4 Anganwadi centers are working in all 4 villages, children are getting 'Usal, Khichadi' as diet to eat.

5) Agricultural related health problems:

Agricultural related health problems were not seen among the farmers in early days, but now the problems like vomiting, eye problem and skin diseases are appearing among the farmers, due to chemical fertilizers, pesticides and fungicides. But in Kakada village 80%-90% of farmers use chemical fertilizers and pesticides since 20 years, but they haven't experienced any kind of problems.

6) Alcoholism:

Alcoholism was high among the villagers in earlier days, it has been reported that "in Bordi village lot of alcohol shops were there", but within this 2-3 years those are closed, now villagers bring alcohol from outside and in other villages also alcoholism reduced slightly, but youngsters are started consumption of alcohol.

7) Functioning of PDS:

Public Distribution Shops (PDS) are working in selected 4 villages; they are providing rice, wheat, kerosene and sugar. Only in Bordi village villagers, who belong to below poverty line are not getting ration in government rate, instead only rich people are getting at government rate. But ten years before only Kakada and Bordi having 2 PDS, the services provided by them were somewhat ok.

District wise FGD Report Dhule District of Maharashtra State

Four villages were selected for FGD in the Dhule district - Patan, Karle, Asali, Budki.

Village Patan is situated in Sindhkheda taluk.

Karle is situated in Sindhkheda taluk.

Asali is situated in Shirpur taluk,

Budki is 20-30 kms away from Shirpur taluk.

1) Water and Sanitation:

Water: Availability of water facility in selected villages of Dhule district is improved, earlier only wells and river were main source of water, but now along with these two sources, others like hand pumps, taps, bore well and tank are working in the selected villages, except Korle village other villagers are getting water within the village, regarding scarcity of water 3 villages are facing (Korle, Patan, Asali) only Budaki villagers are getting water throughout the year. Now from 5 years Grampanchayat has started 'Nal Yojan' and villagers are paying 'water cess' to Grampanchayat, but it varies from village to village(20, 40, 360) and TCL is being used as purifier of water by Grampanchayat, earlier villages like Budaki and Patan were getting water throughout the year and villagers of Budki were paying the 'water cess' on those days.

Sanitation: Sanitation facilities are available in selected villages of Dhule district, earlier there was no such facilities for villagers, now drainage, garbage cleaning and toilet facilities are available, in Korle village, 2 public bathrooms built by Grampanchayat for males, but drainage, sewerage and toilet cleaner is not in the village, villagers use to through garbage on public bin, 6 toilets are working in Patana village, the public toilets are only for ladies. Ten years before this type of facilities were not there, simply villagers put the garbage near their house, this caused for unhygienic around the houses, than the diseases like skin disease, typhoid, flue, fever, diarrhoea were appeared among the villagers.

2) Morbidity pattern:

Morbidities are increased at present compare to the earlier days, earlier adults were facing diseases like malaria, typhoid, cold&cough, skin disease, diarrhoea, dysentery, fever and choler, now along with these few more are appearing like gastro, eye problem, flue, vomiting, heart attack, body pain, asthma, T.B, cancer and scabies.

Where as children are suffering with diseases like eye problem, flue, diarrhoea, vomiting, malaria, typhoid, measles, polio, dysentery, skin diseases, asthma and malnutrition, whopping cough and some of them are controlled, but earlier days few of them were there.

3) Availability of health care facilities:

Availability of health care facility is very less in selected villages of Dhule district as compare to other 4 districts of Maharashtra state. Only 2 private doctors and two ANM centers are working in the Korle and Budaki villages, earlier there were no such health facility in selected villages, if they want medical facility they have to go taluk place or some where else where PHC or private doctor available, Rs-5 is charged as case paper fee in PHC and Rs-20-25 is charged in private doctors. Regarding costliness is they prefer PHC rather than private doctors.

- There is no Medical shop in the selected villages, but in village Patana and Budaki basic drugs are available in general shops. If villagers want medicine they have to go taluka place.
- Health Education Programmes were not conducted till now; it has been reported that only once AIDS awareness programme has conducted before 2 years in Budaki village.
- Regarding transport facility in selected all villages are connected with pucca roads and frequency of bus and private vehicles is good, but before ten years buses were the only mode of conveyance and Korle & Asali villages have pucca road facility.

4) Nutritional support for children:

Anganwadi centers are providing nutritional support for children, earlier only 2 Anganwadi center were working in Korle village. Now 7 Anganwadi centers are working in all 4 villages, children are getting 'Usal, Khichadi' as diet to eat. In Korle village 'Bhil' pada children can't come to these Anganwadis as the pada is much longer distance for the Anganwadis and in Patana village one separate Anganwadi is working for Adiwasi people and another one for villagers.

5) Agricultural related health problems:

Due to use of chemical fertilizers and pesticides farmers are facing problems like body reaction, skin diseases and poisoning, but earlier farmers were not faced such problems.

6) Alcoholism:

Alcohol shops are not seen in the selected villages of Dhule district, alcohol is prepared by villagers in their house and consumption of alcohol is increased among the villagers, earlier also the situation was similar, now youngsters are also started consuming alcohol, gutaka and tobacco.

7) Functioning of PDS:

Public Distribution Shops (PDS) are giving regular service to the villagers, rice, wheat, sugar, and kerosene are being provided at government rates, but in Budaki village 2 PDS are functioning. But 10 years before such facilities were not working in the selected villages.

District wise FGD Report

Bidar district

1) Availability of water and sanitation:

Water: Households in the selected villages use to get water for drinking and other purposes from wells, pond, and tube wells. And they are getting potable water in all season, but in village Bachepalli, the villagers had to walk .5 km to fetch the water in summer season. Now implementation of National Rural Water Supply Scheme (NRWS) and Mini Water Supply Scheme (MWS), villagers have good quality tap water. 'Water cess' is collect from private tap holders and 'general water cess' is included in 'house tax' by the Grampanchayat.

Sanitation: Earlier, there were no sanitation facility in the selected villages, but now 50% of selected villages have drainage and sewerage facility and some households in the 50% of the selected villages have private toilet. It shows that sanitation facility have improved over the period of time.

2) Morbidity pattern:

Earlier, villagers were suffering from leprosy, T.B, cholera, malaria, skin disease, paralysis, diarrhea/dysentery. Now these are controlled by the government. In children the diseases like malaria and cholera controlled and others like skin disease, cold&cough are declined, due to good quality water and precautionary measures by government.

Availability of health care facilities:

- There are no such medical facilities are available either by public or by private in the selected villages. In one village district health administration provided Homeopathic center, but not provided any doctors. Villagers have to visit taluka head quarters for getting health care facilities and they have to travel 10-40 km.
- Earlier, one village had a medical shop, but now two villages have medical shop. But other two villagers have to go taluka head quarters to get medicine.

- There are no health education programmes are conducted either by public or by NGO's
- Earlier, 75% of the selected villages had connected with kutch roads, but now 75% of the selected villages have connected with pucca roads and frequency of buses have increased.

Nutritional support for children:

The Nutritional support given by Anganwadis are increased, earlier 4 Anganwadi were functioning in the selected villages. Now total 8 Anganwadi centers are providing Nutritional support for children. Compare to other 4 districts it is highest in number.

Agricultural related health problems:

In the selected villages of Bidar district chemical fertilizers and pesticides are being less used, because of non-irrigation land, naturally agricultural health problems are not seen, earlier also the situation was similar.

Consumption of Alcohol:

Numbers of alcohol shops in the selected villages are increased from 8 to 11 over the period of time. It shows that alcohol consumption has increased in the villages, due to poverty.

Functioning of PDS:

Public Distribution System is functioning well in 3 villages out of 4 selected villages. But earlier in all 4 selected villages PDS facility was good.

District wise FGD Report

Chikkamagalur District

Water and Sanitation:

Water:

Earlier, households of the selected villages depended on the wells for drinking and daily routine purposes, but now all selected villages have 'tap water' facility under the National Rural Water Supply (NRWS) Scheme. In two villages people are using well water for drinking even though the tap water is available, this is because of sweetness of the well water, in these villages no. of wells are more than no. of houses, because that area comes under the hilly region and all selected villages in the district have adequate water supply throughout the year. But it has been reported in FGD that the water has more fluoride content, as a result of this more people are suffering from 'Dental Problem' i.e., 'Florosés'. Now villagers are paying 'water cess' for the 'private and public tap' facility, but earlier this was not there and in village Kigga the villager don't have any 'tap water' facility.

Sanitation:

Ten years before there were no sanitation facilities in the selected villages, but now two villages have 'open drainage facility' under the 'Nirmal Gram Yojan' and some households are having toilet facility, but there no garbage cleaning facility in the selected villages.

Morbidity pattern:

In Chikkamagalur district, it has been reported in FGD that 'Dental Problem' is the main disease, because excess fluoride content in the water. Earlier disease like leprosy, skin diseases, T.B, Scabies were prevailed, now they are controlled, but in Kadur taluk no. of malaria patients are increased, more than 9800 malaria +ve cases are recorded, it is believed that it has come from immigrants, i.e., shepherd people from chitradurga district. Children are suffering from diseases like skin disease, cold & cough, cholera, diarrhea/dysentery, those are controlled and in children also malaria has increased.

Availability of health care facility:

- The selected villages have no good health care facilities, only one village have PHC, it is providing good service to the villagers, but other villages have no qualified doctors, if they want to get medical treatment they have to go for taluk head quarters.
- Medical shops are not functioning in the selected village of Chikkamagalur district and even villagers are not getting basic drugs in the villages.
- Regarding Health Education Camps, in only one village Health Camp is conducted; those are eye camp and malaria camp, where as in other villages no such camps are conducted till now.
- Compare to the earlier days transportation facility is improved, now all selected villages are connected with pucca roads and bus and tempo are providing services to the villagers.

Nutritional support for the children:

Anganwadis centers are providing Nutritional support for children, earlier, 5 Anganwadi centers were providing Nutritional support for children, but now 6 Anganwadis are functioning in the villages.

Agricultural related health problems:

For Agriculture purpose farmers are using chemical fertilizers, pesticides and fungicides, as a result of this they facing problems like head ache, skin irritation, vomiting and eye irritation since 15 years.

Use of Alcohol:

Alcohol shops are increased, earlier 5 shops were there, but now 10 shops are working in the selected villages and consumption of alcoholism also increased.

Functioning of PDS:

Public Distribution Shops are working well in the selected villages since 15 years.

Water and Sanitation:**Water:**

Earlier, households of the selected villages were depended upon wells and ponds for drinking purpose and they had adequate potable water in all season. Now except one village other three villages have 'tap water' facility under the National Rural Water Supply (NRWS) Scheme. Earlier in Giriyapur village households were using well water for drinking, but now wells are not working and quality of pond water turned to salinity. Now villagers are paying 'water cess' for 'public and private tap water' facility, but earlier this was not there.

Sanitation:

Earlier, two villages have drainage and sewerage facilities, but the condition was very bad. Now three villages have sanitation facilities and the condition of sanitation facilities are improved.

Morbidity pattern:

Earlier, adults were suffering from the diseases like skin diseases, malaria, T.B, cough & cold, fever, typhoid and asthma, now T.B. and typhoid are controlled. Children were suffering from the diseases like malaria, cholera, cough & cold, eye problem, diarrhea/dysentery and eye problem, but now these are controlled. In case of adults new disease like head ache and asthma are increased.

Availability of health care facilities:

- Earlier, only one village had PHC facility and service provided by that is not so good. But now along with one PHC, one qualified private doctor is providing medical facility for the villagers, but other three villagers have to go taluk place for treatment.
- Only one medical shop is functioning one village, other three villages don't have such facility, if at all they want medicine they have to go taluk place. Earlier, there were no medical shops in all selected villages.
- Recently, in three villages Health Camps are conducted, those are family planning camp, health awareness and child check up camp, but earlier no such camps were conducted in the selected villages.
- Now all selected villages have connected with pucca roads and Govt & private bus are the mode of conveyance, but earlier days, villagers of Kengunte didn't have any bus, they had to go by walk, but other villages had bus facilities.

Nutritional support for children:

Earlier, only three villages had Anganwadi centers, but now all 4 selected villages have Anganwadi centers and these are functioning well.

Agricultural related health problems:

In recent years farmers of the 4 selected villages are using chemical fertilizers, pesticides and fungicides, as a result of this farmers are facing problems like head ache, skin irritation, eye irritation and respiration problem, but earlier these problems were not seen among the farmers.

Consumption of alcohol:

The no. of alcohol shops are increased, earlier only 2 alcohol shops were present in the selected villages, but now 2 un-authorized and 8 authorized shops are working in the villages and consumption of alcohol also increased.

Working of PDS:

Except Giriyapur village, other 3 villages have Public Distribution Shops (PDS), earlier also the situation was similar in the selected villages.

District wise FGD Report

Mysore District

Water and Sanitation:

Water:

Earlier, households of the selected villages were mainly depended on the wells for drinking and other purpose, now all selected villages have 'tap water' facility under the National Rural Water Supply (NRWS) Scheme, the water level in the wells and ponds are decreased and some wells are not functioning in the villages. For 'private tap water' villager are paying 'water cess' to concerned authority.

Sanitation:

Earlier there were no sanitation facilities in the selected villages, but now three villages have drainage and sewerage facility and these are maintained properly, moreover garbage-cleaning system is functioning well. And in Alattur and Hura villages toilets are constructed for habitants under 'Nirmal Gram Yojan'.

Morbidity pattern:

Earlier days, adults were suffering from the diseases like skin diseases, cough & cold, fever, weakness and typhoid, now typhoid is controlled, but diseases like AIDS and head ache are coming up in the adults. In care of children, they were suffering from the diseases like measles, cold & cough, skin disease, polio and fever, now polio and skin diseases are controlled and new diseases like stomach ache is coming up.

Availability of health care facility:

- Earlier, one village has PHC and another one village had PHU, but now PHU is upgraded to PHC, means both villages have PHC and one village has private doctor facility, but remaining villagers have to go taluk place for medical treatment.
- Earlier, there were no medical shops in the selected villages of Mysore district, but now one village has Allopathic medical shop, remaining villages don't have any medical shops, they have to go taluk place for medicine.
- Only in one village Health Education Camp is conducted that is 'Nutrition support and Health Education Camp', other 3 villages haven't seen any Health Education Camps. Earlier days also no such camps were conducted in the selected villages.
- Transportation facilities are improved, earlier all 4 villages were connected with semi-pucca roads, but now two villages have pucca roads and other two villages are connected with semi-pucca roads, private bus are the mode of conveyance.

Nutritional support for children:

Anganwadi centers are providing Nutritional support for children, earlier four Anganwadi centers were functioning in the villages, but now six Anganwadi center are functioning, they are providing regular service to the children.

Agricultural related health problems:

Farmers are using chemical fertilizers, pesticides and fungicides in their fields and they are facing problems like body pain, weakness, skin irritation and eye problem in the four selected villages of Mysore district. But earlier days no such problems were appeared among the farmers.

Use of Alcoholism:

Alcohol shop is increased, earlier only one alcohol shop were working in the Hura village, but now along with this, one un-authorized shop is opened in the Abbur village and consumption of alcoholism also increased.

Functioning of PDS:

Earlier days 3 villages have Public Distribution Shops (PDS), but now in all selected villages PDS are functioning.

**A Consolidated Report of Focus Group Discussion
(Organized in 12 villages in Orissa)**

By Sanjay Pradhan

The fieldwork of the action research project entitled "Effect of Economic Reform on Health Sector in India" was undertaken in three districts namely Balasore, Gajapati and Malkangiri of Orissa. From each district two blocks and two villages from each block were selected on the basis of humidity climatic zone and proportion of SCs and STs population. A total of 12 villages were covered under the present study with a view to elicit the relevant information. Besides the structured household survey schedule, Focus Group Discussion (FGD) was considered as a major tool for collection of relevant and authentic information directly from the villagers. Governed by this consideration FGD was organized in twelve villages in Orissa with active participation of villagers, Anganwadi Workers, CDPO and Investigators.

Objective of the FGD

The very purpose of organizing FGD is to have a understanding of various diseases, level of awareness of the villagers about the diseases, available of health care facilities and utilization of health facilities by the villagers before ten years and now.

Process

The process began by briefing them about the purpose of our visit to the villagers. The Anganwadi Worker was asked to gather the people of all communities in Anganwadi center of the village. Though there were initial jerks in discussing about the health issues, the process gathered momentum in due course. It is positive to note that people of all communities were actively involved in Focus Group Discussion and participation of women were found more active than their counterpart in all villages.

Issues raised in FGD

The following issues were raised in Focus Group Discussion in selected villages.

- Water and sanitation facilities
- Morbidity pattern in the village
- Availability of health facilities
- Nutritional support for the children
- Maternity care
- Health problem related to modern agriculture practices
- Alcohol use and its effect
- Function of PDS
- Health Care Cooperative

Results of FGD issues

1. Water and sanitation facilities:

Before ten years people were using the water of the pond, river and open well for drinking purpose. At present there are three to four bore well in every village to meet the need of drinking water. But due to lack of proper maintenance and repairing of those well time to time only one or two are functioning, which is insufficient to meet the demand of villagers for drinking water. As a result they use water of pond, canal, open well for cooking and drinking which sometimes create harmful for their health. The water is not filtered nor any method of cleaning water is applied. The water of pond, canal are used for bathing of human and animal.

There is no drainage system in any village for disposal of dirty water. Most of the houses are surrounded by stagnant dirty water that creates mosquitoes. There is no separate place to put garbage. Garbage is put nearby house, which keeps the surrounding in very much unhygienic condition. People use open space for their toilet. Although some of the villagers who are under below poverty line are provided latrine at payment of Rs.50/, yet they prefer open space for latrine.

2.Morbidity patter:

Before ten years people in Balasore district were suffering from diarrhoea/dysentery, typhoid, cold and fever, T.B, small pox etc. Now as the majority of people seem to be conscious of these types of serious diseases only few people suffer from dysentery, cold and fever during rainy and summer session. In Gajapati and Malkangiri district majority of people severely suffer from brain malaria, typhoid due to lack of awareness and lack of health facilities. The children suffer from measles, skin diseases, cold and fever due to water and unclean surrounding.

3) Availability of health care facility:

People used to go to PHC and Govt. Hospital for treatment some ten years back. Now they prefer private doctor due to irregular doctor, insufficient of medical facilities (i.e., homoeopathy, aurvedic etc.) in the villages. In Malkangiri district people prefer aurvedic medicines and traditional healer for treatment of their health.

It is important to note that people face inconvenient clinic hours, inadequate supplies and drugs, irregularity of doctors, long waiting times in public health sector. Whereas in private health sector they face high cost of drug prices and financial exploitation by doctors, quacks and dangerous of spurious drug intake. As a result of it tendency in people for self-prescription was found growing particularly in Malkangiri and Gajapati district of Orissa.

People are less aware about the various health programmes like T.B, leprosy, malaria run by Govt, and NGOs. However, they seem to be conscious about the family planning and some people use contraceptive method for family planning. Before ten years there was connectivity of katcha road to every village and people were suffering transportation problem for getting medical facilities. Now many villages are well connected with pucca road and having good transportation facilities.

4) Nutritional support for the children:

Nutritious foods are being provided in ICDS scheme to all pre-school children. Anganwadi worker plays an important role to create awareness among pregnant women, lactant women and children about proper health and nutrition. Although Anganwadi worker distributes vitamin tablets to the children, which are provided by Govt., yet more number of children suffers from severe malnutrition in Gajapati and Malkangiri district of Orissa. The children are provided with polio, DPT and other such type of immunization time to time. Besides ICDS scheme, some voluntary organizations are also working for the development of health and nutritional status of women and children in rural area of Orissa.

5) Agriculture and related health problems:

70% of people in rural area of Orissa depend on agriculture. Ten years back people were using compost for their cultivation. Now they use chemical fertilizer, spray of insecticides and pesticides to get large quantity of crops. By using these chemicals they suffer from skin irritation in the hands and head reeling etc. It is also important to note that using chemical fertilizer destroys the fertility of the soil. The crops grown by using such fertilizer when used for food cause stomach upset.

6) Alcohol use and its effect:

The SC and ST people take arrack (handia) and country liquor regularly which is locally prepared. The people are conscious about the vices of alcoholism still they suffer from T.B., bronchitis, gastric etc, by using alcohol. Female members are very careful about the drinking habits of their husbands in spite of low female literacy rate. In some villages it was also found that mahila mandal had also run **Nesha- Mukh- Andalan**.

7) Function of PDS:

There is one PDS unit in every village. Only the people who are BPL cardholders get the articles like rice, sugar, and kerosene. The APL cardholders get only kerosene. Discussing in FGD people asserted that the things available in the PDS unit are very poor in quality, irregular distribution and also insufficient to meet the demand of the villagers.

8) Health Care Co-operative:

In Balasore district people are in favor of HCC but they are not willing to take any decision about the same. It was found that in some villages there is no mahila mandal, youth club nor such organization to take joint decision for the village. They are reluctant to give any thing for the purpose. In FGD some people demanded that instead of forming HCC it is better to provide minimum facilities like regular doctor essential medicines connection of pucca road electricity for the exiting of PHC. Whereas in Gajapati and Malkangiri district the people welcome the idea of starting HCC. Some people are willing to pay cash but no fixed, some people willing to do voluntary services, but nobody was interested to give land. Regular presence of doctor, ANM, minimum essential medicines etc, are the kind of services expected by the people from HCC.

C h a p t e r - 1 2

PEOPLES PARTICIPATION IN HEALTH : PREPAYMENT MECHANISM THROUGH HEALTH CARE CO-OPERATIVE

Dr. P.R. Panchamukhi
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Introduction

In many countries, governments are finding it difficult to allocate sufficient resources to health sector, due to resource constraints, technological development, emergence of new communicable and non communicable diseases, over growth of population etc. To overcome this, governments in some countries are encouraging voluntary sector, involvement of local governments, promotion of public private mix, co-operative health care or other institutional mechanisms for alternative financing in health sector. But, fears are sometimes expressed particularly in developing countries that economic reforms in the form of liberalization, privatization and globalization, primarily focus on economic objectives of efficiency of resource allocation and hence the social objectives of distributive equity and social development are likely to receive a back seat. Much is documented in the literature on the compression of the overall government budget in general and the budget of the social sector in particular, especially in developing countries during the reform¹. This compression is more likely to affect primarily the poor and the less privileged in the society. Obviously, it is not enough if the problem is diagnosed. What is necessary is to introduce immediately measures to tackle these likely developments. Such measures to safeguard the interests of the poor are required under all occasions, whether there are economic reforms or no economic reforms, for, the problems of inequity lie very much in the nature of the components of social sector itself, particularly in the context of a stratified society like India. This will be elaborated in Section I of the present paper. Economic reforms however are likely to aggravate the problem.

Demand for health, one of the main components of social sector, is generally income elastic². Similarly, access to health care is also found to be income elastic. In a regional perspective, demand for and access to health seem to be elastic with respect to the level and rate of economic development of the region. Since most of the estimates of health care spending have exceeded unity, health care is considered as a deemed luxury good at least for the developed countries. It is also worth noting that health confers both private and social benefits. Opportunity costs of health are generally fairly high particularly for low-income households. Costs of maintaining health and avoidance costs of ill health are too high to be overlooked. From all these points of view, health is considered in public finance literature as a *merit good*, implying that it is so meritorious from the point of view of social welfare that issues of its provision cannot be left to the decision making of the individual or private sector alone but they need to be considered by the collectivity or public sector also. In the present paper an attempt is made to focus on issues relating to the provision of health care facilities particularly for the poor, keeping in mind the characteristic features of health calling for involvement of the collectivity or public sector in its supply. The paper suggests a mechanism of involvement of the collectivity – community and the government, which would help better access and utilization of health care services by the poor.

The paper is divided into four sections.

In Section I, unique characteristic features of health relevant in the present context are briefly outlined.

Section II examines some of the resource allocation plans to the health care sector suggested in the literature, keeping in mind the requirements of the poor in general and the poor among the socially less privileged sections of population in particular. Its main focus is on the basic issues that need to be considered while implementing the plan.

Section III presents a brief review of the experiments of health care co-operatives and health insurance as in practice in selected countries with a special focus on the experiments and proposals in India.

Section IV, which is the concluding section, outlines major elements of a health security plan for the poor incorporating the insurance strategy first in general terms and then particularly for one of the villages in Karnataka, for which field data were collected for the purpose. This example attempts to indicate the order of resource requirements for a small village, which could be a base for estimating a regional or state plan if such a plan needs to be implemented on a wider scale. It also examines whether there would be resource savings if such a plan with community involvement and contribution is implemented in place of the present practice of government itself taking the entire responsibility towards health security for the poor.

I. HEALTH AND HEALTH CARE SERVICES AS AN ECONOMIC GOOD IN THE INDIAN CONTEXT

Health is an economic good, the peculiarities of which need to be explicitly recognized in any health security plan. We briefly outline below some of these peculiar features particularly in the Indian context. It can be seen that inequality in access and utilization of health care are inherent in the very nature of health and health care services as an economic good, particularly when it is left to market forces.

Is Inequality in Access and Utilization Intrinsic to Health and Health Care?

- * There is no universally acceptable yardstick for measuring health level of individuals. Also, there is no acceptable definition of health. As a result, there is a greater probability of episodes of general ill health (which might, at times, lead to major ill health episodes) being overlooked or treatment of which is likely to be postponed. This happens particularly in the case of poor households and in the case of those who have low social status. On the other hand, rich households and only socially better off members of even a better off family (such as earning members or male members or members who are accepted as heads of households, even though they are not earning members, or those who are ritually superior, such as mother in law rather than daughter in law, etc.) are likely to receive more attention regarding even small health problems. Thus, the *probability of medical care attention is a positive function of socio-economic and ritual status of the individual / household in question. In other words, in the Indian context, availability of medical care attention is not just in accordance with the demand and need for it but it is most often in accordance with factors other than these.*

- * In view of the low economic status, members of poor households depend upon their physical capabilities and skills for meeting their daily subsistence needs. It would be imperative for them to maintain their physical and mental well-being at a fairly high level, which enables them to put in work and earn daily livelihood. Illness causes immiserization of the poor and hence it is necessary for the people to avoid illness or debilitating morbidity causing further impoverishment and immiserization.³ This is particularly seen in the case of those members who work in the unorganized sector and who work on a daily wage basis. Thus, what one may call, the *'subsistence need for medical care attention' is a negative function of economic status of the individual*. This should not be taken to mean that better off people give less importance to health and health care. On the other hand, they pay more attention to even a small disturbance in their health, as stated earlier. What is implied here is that *for the purpose of subsistence earning, meeting the need for health care is more mandatory for the poor than for the rich*.
- * *Some of the health care facilities are, by and large in the nature of indivisible goods, while services from these facilities are characterized by a fair degree of divisibility and rivalness in consumption. These may be termed as lumpiness in supply but a fair degree of divisibility in utilization. In view of this lumpiness, large investments are needed to supply these facilities. There is a tendency of cost recovery charges being over estimated in such a situation. In view of speedy technological changes in the field of medical sciences and public health, foreign initiatives are more likely, particularly in the background of globalisation. Also there are uncertainties associated with the occurrence of morbidity episodes requiring the use of a particular facility. Further, there are uncertainties associated with the use of the created facilities by the affected persons. All these contribute to the desire for an early cost recovery. There also seems to be an undue haste in cost recovery by the investors making the charges for the users unduly high.* Added to it, the instinct of greed and a desire for more and more and still more also contributes to this tendency for over-charging.
- * Another factor also contributes to this tendency, which is the result of some of the **recent developments under economic reform regime**. In view of the declining interest rates on borrowings and trends of privatization, such facilities are likely to be created with the help of borrowed funds⁴ by few private initiatives that can provide the necessary collateral required for loans from financial institutions. This would also give rise to a situation of *few sellers operating in the health care commodities markets. Such sellers can control price of services and also indirectly the clientele utilizing these services*. This characteristic feature would have significant implications for access of the poor to health care services.
- * *Health care services consisting of both material and manpower services are likely to get concentrated in urban areas* in view of their characteristic features outlined above. Since majority of agricultural labourers are mostly located in rural areas, they are more likely to be deprived of the necessary benefits from health care facilities. **Health facility mapping** for rural and urban areas in different states of the country would reveal how the facilities get clustered in urban areas disproportionately to the population.⁵ It is useful to work out *regional inequality indices of health care facilities in rural and urban areas* of different states. Field studies show that the rural folk have to walk down / travel in bullock carts or tractors for miles together in search of medical assistance in the case of illness episodes. It is also worth noting that most of the health care centres located in many villages are mostly non-functional, ill equipped and inadequately manned (Chauhan et.al.1997; Gumber and Veena, 2000; CESCOC, 1998; Chirumule and Gupta, 1997). This also suggests that the **health facility mapping needs to be done keeping in mind the functional existence of the facilities rather than merely their physical existence**. Intra regional facility distances are most often found

to be an inverse function of the level of economic development of the region, suggesting that *the poor in the less developed regions are likely to be more adversely affected than the poor in the more developed regions.*

- * Considering gender dimensions of commodity of health and health care would bring out many important aspects worth noting while developing a strategy for the health care needs of the poor. Generally, women are considered as health care providers within the family. However, health of the health care providers in the family is generally overlooked, not only by other members of the family, but also by women themselves. Traditionally, low social status of girls and women in Indian family contributes to this. As a result, female members, right from baby girls to elderly women in the family are likely to be more deprived of health care services than male members, starting from baby boys to elderly men in the family (Gumber and Veena, 2000). This discrimination is more severe in poorer families, rural areas and poorer states. Health condition of female members in poorer environment- regions and households is likely to be much worse than that in more developed regions. ***Access to, utilization of and benefit from health care services are thus a function of gender with adverse effects in the case of female members.***
- * ***If health and health care are under-priced in the present period even though the price payable for them by the beneficiaries in the long-run works out to be much higher, then generally, there is a likelihood of the normal law of demand to operate vigorously in the short run keeping in mind the price in the present period only. Thus, in the case of demand for health care services defective telescopic faculty seems to operate.*** Price elasticity of demand is generally high for the people of all economic levels and at all price levels.
- * ***There is an asymmetric information flow for medical care providers and patients, with some information available more with providers and some other crucial information available more with patients.*** For example, scientific, medical information about diseases-causes and cure in general, is available with medical care persons-doctors, nurses, etc. But, information about how they feel while suffering from disease or while receiving treatment and after treatment etc. lies essentially with the patients. Information about preventive care and promotive care is available with medical and public health personnel whereas information about the effects of these measures of care is available with only the clientele-beneficiaries.
- * Considering the aspects under the above two paragraphs, it follows that **there is a risk of overuse of certain types of care by the people, particularly at higher income levels**, since they can afford larger expenditures on drugs. Excessive use of drugs and medical services is termed in the literature as '***moral hazard***' implying probably that people consume more of medical care than what they really require and that such over use is likely to be hazardous also. People's expenditures might be guided by what one may call, ***presumptive prescriptions by medical experts***, who in turn might act under partial / wrong information or self-interest considerations. Provider-induced-over-use of drugs and medical services or even self-induced over use might ultimately exaggerate demand for drugs and services and distort long term planning in the case of the health care sector.
- * ***Price and income elasticities of demand for health and medical care are likely to be high at high income and price levels than at low income and price levels.*** Studies based on NSS data do reveal this (Sen, Gita et.al.2002; Gumber and Veena, 2000). In view of this, generally, special attention seems to be paid by providers to those drugs and services, which cater to the needs of high-income groups of population. This leaves the needs of the poor unconsidered or less considered in normal circumstances, unless special initiatives are made for the purpose. This is evident from the location of medical care services in urban areas, where, generally

richer sections of population live. Also, the rate of growth of tertiary care investment is higher than that in primary care. Analysis of drug prices meant for the common care and for tertiary care should also be revealing from this point of view.⁶

- * Preventive health care services are characterized by special features, which deserve attention of analysts, while designing health security plan for the poor. Demand for preventive care is much less clearly articulated than demand for curative care. Effort for meeting this demand is also much less in this case as compared to curative care. Articulation of the need for preventive care is obviously a function of level of awareness among the people about its importance. *Since the effect of absence of such care is felt much later after a long time lag, immediate appreciation of the importance of preventive care is generally not seen both by the individual beneficiary or the collectivity as a whole.* This is one of the reasons why the decision makers do not undertake the projects for preventive care so enthusiastically. Even at the individual level much attention is not given to measures for preventive and promotional care as in the case of curative care.
- * As indicated above, preventive care can be of two types, viz. individual-specific preventive care and collectivity specific preventive care. **Demand for both types of preventive care is a positive function of level of income of the individual and the collectivity apart from the level of awareness about the importance of such care in the functional capabilities of individuals.** Hence, preventive care becomes a predominant merit good, being so meritorious from the point of social welfare that it calls for collective intervention for provision over and above private initiative for its provision.

From the above conceptual background relating to health and health care services as economic goods, it is clear that generally the poor cannot safeguard their own health care interests and that such interests can be safeguarded only if suitable mechanisms are evolved. Such mechanisms can be developed incorporating the involvement of the people, invoking the spirit of altruism and mutual sympathy among those who have higher ability to pay and better capacity to organize services with a longer out-reach both with respect to time and number of people. It is felt that the spirit of cooperation, which already prevails among the people in India, particularly in villages, needs to be aroused for invoking this spirit of altruism and mutual sympathy. Sympathy and mutual sympathy have been considered as one of the six springs of human conduct by Adam Smith. In his *Theory of Moral Sentiments*, Adam Smith devotes one full chapter to eulogize the ‘Benefits from Mutual Sympathy’. Mutual Sympathy has received the highest importance in the codes of conduct sanctioned by many religions of the world also. Therefore it would be useful if this spirit of mutual sympathy is utilized for helping the poor in their health care needs. Since the poor cannot bear the high costs of health and medical care it would be necessary to *devise a mechanism invoking the spirit of mutual sympathy and cooperation, through which it is possible to provide health care services at reasonably low current costs spreading the rest of costs in suitable installments in the future.* The mechanism should explicitly note the seasonality (as in the case of agricultural labourers, for example, who get earning opportunities mainly during the agricultural seasons) and at times irregularity of the income flows to the poor households and adjust the payments towards health care costs to such income flows. This mechanism should also recognize the fact that occurrence of illness and its duration are uncertain. *Any organizational mechanism that can pool the risks of illness of the poor households and that can provide for convenient cost payment arrangements should greatly help the poor.* Health insurance is considered as such a mechanism, which can greatly help the poor. Health insurance is also a mechanism for gaining access to health care that would otherwise be unaffordable.⁷ If co-operative elements are integrated with health insurance then it would have an added advantage for the poor.

II MAIN ISSUES REGARDING THE STRATEGY OF HEALTH CARE COOPERATIVES

Health insurance through health care co-operatives can be considered as a method for pooling of risks of different types of ill health across individuals and over the period of time. This is a strategy of pre payment mechanism with people's participation in health care provision. A number of issues in this connection have received the attention of researchers. Some of the important ones are briefly outlined below.

- * When health sector budgets are getting compressed during the period of economic reforms can health insurance mechanism maintain the overall budgets for health care sector at high levels? In other words, **can insurance be considered as an alternate source for financing of health?**
- * Government provision of health care services is believed to safeguard the health care needs of the poor. In this background, to what extent can health insurance mechanism be considered as responsive to the needs of the poor?
- * Does health insurance mechanism lead to what is termed in the literature as *moral hazard*, implying more than an optimal use of medical care services? Choice of the best health insurance plan involves a trade off between the gains from risk reduction in connection with the disease/s covered under insurance and the loss of moral hazard(Manning and Marquis, 1996). How far are people in a country like India in a position to make such a best choice?
- * **Does this excessive consumption of medical care have its own implications for health of the users?** Studies have tried to show that having insurance is associated with having better health (Hahn and Flood, 1995). The hypothesis of over use of health care and the effect of excessive consumption on health status needs to be tested with micro level data.
- * **Does this excessive use of medical care services by the rich result in less availability of services for the needy, who may not be in a position to bear the cost of health insurance itself?** Does this also result in inefficient allocation of scarce medical care and financial resources of the economy in the ultimate analysis?
- * In view of its effect in terms of excessive demand for medical care services, **does health care insurance lead to further rise in price of such services and also in insurance premium in the long run, making health care more costly for the poor**, the very problem, which the insurance mechanism wanted to tackle itself? These aspects would be very crucial in the context of developing countries where cost escalations would lead to further deprivations of the vast masses of the poor.
- * **Making health insurance mandatory is likely to result in a welfare loss for those who had not purchased it earlier.** This issue needs to be examined in the specific context about which not much research seems to have been done(Chernew et.al.,1997).
- * **Does insurance mechanism sustain itself in the long run?** This question is relevant because the overhead costs and operating costs of such a mechanism are likely to be quite heavy and which might not be recovered from the clients through premium?
- * If the premiums are hiked up significantly in order to recover the costs then in what way would this mechanism be different from the private market based supply of health care services? **A rise in premium might discourage the less privileged people to go in for insurance cover.** One of the studies in US has estimated that a 1 percent rise in insurance cost would lead to a 1.8 percent reduction in the probability of a self employed person seeking insurance cover(Gruber and James, 1994).
- * **Should health insurance be provided by government itself or by the private sector initiatives or by both?** If both private sector and government were operating at the same time, would there be a tendency of government being *crowded out* by the normally aggressive

private sector initiatives? In the context of the U.S. however, employer delivered health benefits are reported to have been replaced by the government insurance mechanism.

- * Some studies have also shown that significant health status differentials among the insurers are observed in the case of public and private health insurance systems, with lower status in the case of the former (Hahn and Flood, 1995). Would this mean that provision of publicly managed insurance for the poor and privately managed insurance for the rich would lead to health status disparities among the poor and the rich in the society? ***What is the optimum public private mix in the case of health insurance?***
- * Does insurance mechanism in general ensure high **quality of health care services**? Does government operated Health Insurance ensure better quality of services or private sector operated insurance would achieve that objective?
- * **Whose out reach is better- private sector's or government's**, so as to ensure availability of health care services to the poor, to the socially less privileged, to the people in remote areas, to children and to the elderly also (as, normally private health insurance operators are found to exclude people outside a certain age)?
- * Does health insurance mechanism provide for **articulation of the health care needs by the people who are in need of such services**? Or, does this mechanism strengthen the **dominance of the providers in the health care sector**? Would this imply the relevance of Say's Law of Markets in health care market (Supply creates its own demand) with its concomitant implications for the clientele?
- * Can health insurance mechanism be so structured as to integrate the **equity considerations**? Thus, can there be differentiated premium system, distribution of claims in cash or kind, coverage of all types of health care needs such as preventive, promotive and curative needs, etc.? Can a Health Insurance mechanism cover the **risks also of common ailments of masses**, which at times become economically costly for those who lose their work days on account of such weakening common ailments and which reduce their work output? Should premium alone be graded or service charges also be so graded or both, to ensure equity in access and utilization?
- * **Are people in a country like India aware of the advantages from health insurance** so that it would have a fairly good demand just enough to sustain it in the long run? What measures need to be taken to raise the level of their awareness about the value of health insurance? Over 92 percent of the non insured households both in rural and urban areas were not aware of the existing health insurance schemes. This is the result of a NCAER –SEWA survey (1999) as reported by Gumber(2000).
- * Can health insurance be extended to rural areas, un organized sector, all types of occupations and all income levels, all age groups, etc. for, inclusion of these under the insurance cover is feared to increase the risk of losses of insurance providers who are traditionally considered as **loss leaders** in the economy?
- * If health insurance supply is opened up to the **private sector** and also to the **international operators** then there is allegedly a risk of foul practices in health care supply. In the case of foreign companies operating in the system there is also a risk of repatriation of profits and resources from India to the other countries. Under such circumstances, what countervailing checks and **safeguards need to be introduced to regulate their activities**?
- * **How should clientele beneficiaries' involvement be ensured in the functioning of the health insurance system** so that people themselves become a watchdog for it's functioning? Can co-payment, coinsurance, group insurance, etc serve this purpose?

These and many other issues deserve the attention of policy makers and analysts having an objective of improving the access to and utilization of health care services for the poor and provide a useful health insurance plan for them. Health insurance plan is assumed to be a useful health security plan for the poor if it is managed neither by the public sector nor by the private sector but by the people's sector. By people's sector we mean a co-operative of the people, which is specially created for the purpose of fulfilling the health care needs of the poor. Health insurance through health care co-operative is thus considered as a mechanism worth trying in the Indian context. Such a mechanism has been tried in some form in India and in some other countries also. It would be useful to learn from these experiments and design a *mechanism based upon the principles of mutual sympathy and pooling of risks* for the benefit of the poor particularly in the rural areas of the country.

III A BRIEF REVIEW OF EARLIER EXPERIMENTS:

Health care co-operative and health care insurance are the two organizational initiatives that can help the cause of the poor. A brief review of the experiences of selected countries which have initiated health insurance through health care co-operatives and community involvement is presented below. This review would help us in designing a health security plan for the poor, which we propose to develop in one of the villages of Karnataka for which data were specially collected.

The review is presented for eighteen countries, for which the information was readily available, starting from a developing country like India to the developed country like USA. Only the salient features are outlined without going into the details. For convenience the Indian experiences are outlined at the end.

1. China

The replacement of collective agricultural production by the household responsibility system as a result of economic reforms has led to the decline of collectively funded Co-operative Medical Scheme (CMS) in China (Hao, 1998). The study by Hao and others reports that during collective farming CMS assisted farmers to meet health care costs in more than 90% villages. Considering this the government of China is encouraging the establishment of such CMS, which are said to have been set up in rural China with the help of local government.

Co-operative Medical Scheme (CMS) in Wuzhaun Township:

Researchers of Shanghai Medical University drew the plan for CMS. Based on household survey, the design for CMSs with varying service coverage, premium and reimbursement ratio was developed.

Features:

- * Membership in 5 villages is said to be voluntary and open to all rural households.
- * Premium of ¥ 5 per member, with ¥ 4 (0.5% of annual per capita income) from individuals and ¥ 1 from county government is to be collected. Village Collective or local government though agreed to pay premiums for extremely poor households, did not pay in actual practice. Few farmers paid in terms of produce (grains). (\$ 1=¥ 8.3, ¥1=Rs. 5.5)

- * Services: Free registration, reimbursement for treatment and injection fees at village level, free immunization for children (up to age 7), pre and postnatal maternal care and delivery service.
- * Management: Committee established with members from township government. Salary of Manager is paid by local Government.
- * *Drugs: Village doctor is allowed to buy drugs from township health center and sell them to patients at fixed prices.
- * *Village doctor has to hand over prescriptions to CMS Committee for examination and reimbursement of drugs, treatment and injection fees. 1/3 rd of the difference between wholesale and retail price of drugs is to be paid to the Committee, which redistributes the money to village doctors at the end of the year as a performance bonus.
- * In each of the five villages one village doctor was contracted to provide health care irrespective of membership. Maternal and preventive care is organized with the help of township health center.
- * Health Bureau supplies equipments and published regulations, cards and forms.

54 per cent of the households are members (984 Households with 3355 population). Households, which had access to health care did not *become* members. There was an average of 2.2 visits per member per year. The level of reimbursement was ¥ 2.08 per member and it varied from ¥ 3.73 to ¥ 0.8. Full time doctors are more popular. Share of drugs in total fees reduced due to CMS, which is service oriented (from 90% in 1993 to 76% in 1997). Need for continued assistance from government, encouraging poor households to become members, increasing maternal care which is lacking and promotion of health education are suggested measures.

2. Philippines

Voluntary Health Insurance for residents of poor rural communities: In Philippines (Ron and Kupferman, 1996) National Health Insurance Law passed in 1995 aims at universal coverage for a range of health care benefits. In the meantime government has encouraged community health projects to develop health insurance scheme.

Organisation for Education Resources and Training (ORT) which is an International Voluntary Organisation runs a Mother and Child Care Community based Integrated Project (MCC). This project was launched in La Province of Philippines. The project provides pre-school education and basic health services. ORT Health Plus Scheme was launched in 1994.

Population : Covered the families of children attending 13 ORT centers, members of ORT co-operative and the general population of the communities where day-care centers are located. Total coverage is expected to be 2500 Households. But, only 300 families registered in the first year. Family is the membership unit.

Services : Ambulatory and in-patient care, prescription of drugs and ancillary services are provided by doctors and nurses in day care centers.

Finance: considering the income flow patterns in the population, contributions are collected monthly, quarterly, bi-annual and annually. Differential level of contribution for members and non-members of medi-care and family size is followed.

Contributions: P 50-single person
 P 100- standard family
 P130-large family
 (25 persos=1 \$)

These accounted for less than half the amount that the families spent on basic health care, excluding in-patient care. For those with Medicare the premium for out-patient care is P 70 per month.

For the initial period ORT project continued to pay the salaries of doctors and two nurses in day care center. Non-insured persons paid P 50 per consultation and for drugs at cost plus 50%. For insured the cost of drugs is cost plus 20% much below the market rates.

Management: CMS is administered by ORT Multi-Purpose Co-operative, which is formed by parents and staff of day care center to increase household income and sustainability of day care centers.

3. Brazil

It is reported that one of the largest provider (usually owned by doctors) owned Co-operatives was established in Brazil in 1967⁸. By 1994 its member owners were said to be 60000, with independently practicing doctors (1/3 rd of national total). Under this Unimed system an individual or 30000 enterprises, which provided health insurance to their employees could get, agreed services from any member doctor anywhere in Brazil.

4. Tanzania

Tanzania is reported to be among the first countries in Southern Africa to introduce prepayment scheme and implemented Community Health Fund (CHF) in rural areas(Beattie et. al. ed., 1996). Strong community organizations existing in the country are the facilitators of growth of community dispensaries. The CHF aims to provide primary health care, maternal and child health care (including deliveries) preventive and promotive health care. The risks and benefits are shared among large pools of households and each pool is reported to be consisting of 50000 individuals. Each household is given a health card at a cost of \$ 2.57 per person per year and hospital charges add up to additional premium. There is political support, matching funds by donors and government to community fund and cooperation from health care providers (doctors). But, it is reported that these CHFs are said to be facing problems of operation, management and rising costs. Members over-utilize the health services and there are reports about the possibilities of misuse of drugs in the name of CHF members due to lack of internal control or monitoring.

5. Mali

A Community managed health care program was introduced in Mali (PHN, 1995) in 1990, with financial assistance from UNICEF,FAC,EU,KFW,USAID and IDA. A primary health care facility fully managed and financed by the community with support from the district health team was the major component of the scheme. The project introduced competition among the districts by setting a set of eligibility criteria for funding the districts' health development plans. It is reported that there was high level participation by beneficiaries in mapping health facilities and their areas of coverage. Increase in vaccination coverage (40% to 80%), use of contraceptives (1% to 6%), prenatal consultation by pregnant women and low average cost of prescription much below the national average were reported.

6. Nigeria

In addition to the National Health Insurance Scheme introduced in selected States by the Nigerian (Ibukun, 2000), government (wherein employers with ten or more workers have to compulsorily insure their employees under the scheme), there are informal prepayment arrangements reported in the country.

A credit linked Health Development Fund (HDF) as a part of Integrated Health & Family Planning Programme has been managed by the Country Women Association of Nigeria (COWAN) using a network of 370 community based distributors of family planning commodities. Each registered group with a membership of five to ten persons contributes monthly, a fixed amount which entitles members to credit facilities for agricultural and commercial activities and to cover the cost of 'catastrophic' illnesses. The linkage of credit scheme with prepayment for health care is considered to be an attractive model for protecting those in the informal sector of the economy.

7. Rwanda

Rwanda, which is reported (PHR, 2000) to be one of the poorest countries in the world, has introduced in three districts in 1999, prepayment schemes in health sector as one of the alternatives to health care financing. While two districts have prepayment schemes co-managed by providers and population, the third district had prepayment scheme managed by population. By paying an annual premium of FRw 2500 per family, members are entitled to basic health package covering all services and drugs provided by their preferred health center and referred service at district hospital with limited package service. There is one month waiting period and members have to pay a co-payment of FRw 100 per episode of care at the health center. Prepayment schemes reimburse health centers by capitation payment.

During the first six months, more than 5000 Rwandans (4.6% of the population in three districts) were reported to have registered with the scheme. It was reported that there were monthly fluctuations due to subsidized premiums by employers and religious authorities, which increased new membership, and also due to household expenditures on school fees or taxes, which lowered the rate of new membership. Though initially utilization was reported to be low, there were improvements later, which showed that co-payment did not discourage use of health centers. But there was overall decrease in consultation, which resulted in lower workload for health centers. It is reported that efforts were being made by Ministry of Health to have awareness campaigns to increase the use of health centers and pre-payment schemes.

8. West & Central African countries

In West & Central African countries (PHR, 2000), community and employment based mutual groupings known as Mutual Health Organisations (MHOs) have been operating to provide health care services. Research study undertaken by United States Agency for International Development and other agencies reports that MHOs are young and are small schemes in terms of membership but have potential to embrace more people. MHOs have contributed for the democratic governance in the health sector. MHOs are representing their communities before health authorities and articulate the views of health care consumers. But, the research team has found that resource mobilization is poor by MHOs. Current contributions are said to be constrained by factors such as low penetration of target populations and low dues collection rates.

9. Poland

In Poland, Provider Health Co-operatives were said to have been started in 1945 and are included in the workers' sector as Professional Service Provider Co-ops (Pawlowska, 1996). Their members are medical doctors with a first-degree specialization, already employed in public health system. There is no scope for development of private sector as an alternative to public health service in the country. The Medical Co-operatives are said to be operating on a fee for service basis. Though the fees are less expensive than those of a private practice there are limited number of patients due to non-existence of private health insurance. As a result doctor's fees are not reimbursed. By the end of eighties the Association of Medical Work Co-ops had 27 members out of 31 health care Co-ops and 9 multipurpose work Co-ops running medical and dentistry cabinets. Recently the co-operative system is said to be undergoing a change as many societies are dissolved or there is said to be a change in legal status. The existing tax structure is also said to be unfavourable to Co-ops, forcing doctors to quit Co-ops and start private practice. The increasing rents for the Co-operative building have also hindered the progress of co-operatives.

10. Ghana

An evaluation study undertaken by the PHR reveals that **Nkoranza community health insurance scheme in Ghana** (Atim and Sock, 2000) has proved to be successful in terms of sustainability and making quality care affordable to a high percentage of vulnerable households in the district. The study was undertaken after eight years of operation of the scheme and was funded by DIDA and WHO.

The scheme is said to be self-funded (premium income). It is said to be first of its kind in Ghana and has brought fame to the district by its mere survival. But, the PHR study pointed out that there is a lot of scope for improvement and expansion of coverage. Presently the scheme is reported to be covering only 30% of the total district population. The reasons for low coverage have been identified as inappropriate registration period, misconceptions in the community about the scheme, lack of marketing (educational) communication, lack of accounting and computing, lack of monitoring and evaluation, negative attitude of hospital staff and massive adverse selection i.e. tendency to register only the high risk groups (aged, children...). One of the encouraging factors noteworthy to be mentioned is that, though the district is reported to be having high level of poverty, poverty is not recorded as a major factor for poor coverage. There is said to be demand for maternal and child health services including deliveries for which members were willing to pay extra amount. But, there is said to be resistance for co-payments or deductions on the existing hospitalization cover. The PHR research team has recommended incentives for registration of all members, organizing Annual General meetings with the help of funding from district government, supervision from community volunteers, steps to improve relations between the hospital staff and the community and inclusion of maternity care to boost membership.

11. Canada

In the context of budget cuts, government withdrawal, hospital closings and the move toward ambulatory care, new methods are being identified for financing and providing health care. This has resulted in emergence of health care co-operatives in Canada⁸. The earlier co-operatives were created in the wake of the crisis brought about by implementation of the universal health care system.

The report of the International Co-operative Alliance states that in Canada, as per the study undertaken by Federal and Provincial governments, community health centers were a cost-effective alternative to private practice as they operated at lower cost per patient and offered more preventive and health promotion services and also were accessible to disadvantaged persons. In Canada health care co-operatives exist in Saskatchewan, Manitoba, Nova Scotia, British Columbia and Prince Edward Island. In 1996, 33 co-operative health centers were said to be operating in Canada.

Saskatchewan province has been using the co-operative community clinics model since 1962. It is reported that five health co-operatives have been offering (day surgery pharmacy, Ophthalmology etc) services to 17000 members and 25000 users in Saskatchewan.

12. USA

In USA⁸, health co-operatives are significant in North-West and North-East regions.

- (i) In USA, user-controlled health co-operatives operate as HMOs. Group Health Co-operative of Puget Sound in Seattle is said to be the largest of these. In 1993, there were 478000 members to this co-operative. Medical care along with preventive care is provided for a fixed prepaid fee.
- (ii) The United Seniors Health Co-operative is reported to be providing the 9000 elderly owner –members, high quality, affordable long term health care services.
- (iii) User owned health co-operatives operating in partnership of government exist in USA. In 1994, there were 900 democratically governed and community owned, Community and Migrant Health Centres in rural areas and inner cities serving low-income communities. For 500 such centers funding was available from US Public Health Services.
- (iv) Voluntary Hospitals of America is reported to be the largest health sector purchasing co-operative in US.

13. Other countries

(Spain, Italy, Japan, Singapore, Sweden, Australia)⁸

Spain

In Catalonia, a combination of user-owned and provider- owned co-operative known as Integral Health Care Co-operative system is developed by the Espriu Foundation. In 1992 it had over one million user-members.

Italy

Co-operatives operating at the community level exist in Italy. It is reported that local governments support community based health and social service co-operatives.

Japan

- (i) Members of the consumers movement have set up Health co-operatives supported by the Medical Co-operative Committee of the Consumer's Co-operative Union.
- (ii) Members of multi-functional agricultural co-operatives have organized health services supported by the National Welfare Federation of Agricultural co-operatives.

Singapore

In Singapore Health Co-operatives have been established by The National Trade Union Congress in 1992 which represents 52 trade unions. It is reported that agricultural supply, marketing, community development, housing and insurance co-operatives have expanded their activities to the provision of health services to members.

Sweden

In 1990s, the Medicop Model, a model for consumer owned co-operative medical care centers is reported to have been developed in Sweden on behalf of the housing and insurance co-operatives. It is reported to be providing co-operative partners for local government authorities interested in contracting health care services and facilities. Insurance co-operative enterprises expanded into health sector are reported to have set up hospitals and rehabilitative centres.

Australia

During 1860 to 1940, friendly societies of patients, which employed large number of doctors usually on contract basis, existed in Australia. Pre-paid health care with subscriptions paid quarterly was a common feature. Members were entitled to medical treatment without further payment.

14. India

The following paragraphs present a somewhat detailed account of some of the important experiments²³ and the details about studies which reveal the willingness of people to contribute for health care. We also briefly evaluate a plan of medical care provision for the poor through insurance as presented by TN Krishnan, one of the pioneer thinkers in this field.

1. Chattarpur Health Co-operative : Chhattarpur Health Co-operative which was established during 1950's near Delhi, is rated to be the most successful co-operative during that period by Kamala Rana(Salvi Gouri,1999). This was started with the help of Canadian Aid Agency and reported to have had nearly 4000 members from 10-15 villages registered for co-operative. Membership fees were Rs. 6 per year. For medical treatment, a user fee at the rate of Rs. 1 for injection and 50 paise for medicines was charged to the patient. Villagers had the services of a doctor who visited regularly. Village women were trained as Midwives. A vehicle was available at the health centre

to transfer the patients. Kamala Rana credits the success of the co-operative to L.C.Jain who was one of the motivators of co-operatives. It is reported that later the co-operative was handed over to government soon after the establishment of a Municipal hospital in the region.

2. **SEWA:** The Self Employed Women's Association (SEWA) provides health care to its members through two health –co-operatives viz. Mahila Sewa Lok Swasthya Co-operative and Krishna Dayan Co-operative. The services are particularly preventive health and immunization services. Rational drugs are supplied at low prices at three centres. Childcare is provided through three Childcare centers and Crèches.

SEWA members who make contributions are only covered under Health insurance. And, for members who have linked their fixed deposit savings with the insurance scheme, there is also the coverage for maternity benefit. SEWA bank runs Integrated Social Security Insurance Scheme with the help of LIC and United India Insurance Corporation. It covers events of death, accidental death, sickness, accidental widowhood and loss of household goods and work tools. On an average insured person in SEWA households is reported to be paying Rs. 70 to Rs.80 p.a. (Gumber and Kulkarni, 2000). Gumber and Kulkarni's study in Gujarat brought out that, SEWA beneficiaries are interested in extending coverage to additional household members and that there is strong preference for SEWA type of health insurance scheme by the people. People in rural areas preferred public sector hospital services with some contributions from community and managed by Panchayat. Their study revealed that out-of –pocket expenses of insured (ESIS) households were lower by 30% for acute and chronic diseases and by 60% for hospitalization cases as compared to SEWA and non-insured households. Gumber's study shows that low premium Jan Arogya Scheme is preferred by most of the people and there is need for health insurance among low income households due to heavy burden of out-of-pocket expenses.

3. Sugar Producers' supply, processing and marketing co-operatives in Maharashtra State are reported⁹ to have set up a chain of hospitals and dispensaries for members throughout the region of their operation. These function in the nature of co-operatives though they are not formed as health care co-operatives themselves.
4. According to a study by Sodani and Gupta (2000) in Rajasthan, people preferred to pay an annual premium of Rs. 243 per capita under health insurance, given a package of services and coverage of expenses excluding transport. For coverage of transport they preferred to pay Rs. 286 per year and Rs. 347 for coverage of transport and wage loss. Their study shows that people are willing to prepay for health care and are willing to join health insurance if proper designed plans are proposed.
5. A public school in Delhi (NIHFW, 2000), has introduced Health Insurance coverage with the help of GICI, to its students (a group) with a premium of Rs. 50 per child per year covering a risk unto Rs.100000 per year.
6. According to a study conducted by K.S.Nair (NIHFW, 2000), in Delhi's slums, households in informal sector spent 8.87 % of their per capita income on health care as against 4.47% by households in formal sector. Households in formal sector were willing to pay Rs. 145 per capita per annum and households in informal sector were ready to pay Rs. 103 per capita per year. **They preferred a combination of hospitalized, non-hospitalized and chronic illness care benefit under health insurance.**
7. Voluntary Health Services (VHS) in Tamil Nadu has been providing health care services to rural poor for nearly 30 years. Based on the joint family income, membership fees are charged. The scheme provides the members with free annual check-up and curative and diagnostic services at concessional rates. There is no waiting period between joining the scheme and the

right to receive health care. Dr. N.S.Murali has (Ford Foundation, 1990), reported that most members renewed or enrolled only at the time of acute illness. He has reported that *an NGO cannot sustain Health insurance scheme from the premia received from poor members. Support by government in terms of subsidy and levying minimal user charges to users are important for the sustainability of the insurance scheme.*

8. U.N.Jajoo and others(1985), from the Department of Medicine, Mahatma Gandhi Institute, Wardha set up a co-operative health service unit in a village in rural Maharashtra, in a school building with an initial contribution of Rs. 4 per family. Later a health insurance scheme was mobilized by collecting agricultural produce at the rate of 2.5 kgs per acre for farmers and, at a flat rate of 5 kgs for agricultural labourers. Village dispensary is linked to Sewagram hospital. Village dispensary is run by Village Health Worker(VHW). VHW is supported by a medical kit and monthly service of a mobile medical team. Only acute and emergency cases are treated free of charge and for normal deliveries and chronic illnesses, 25% of the hospital bill is charged.
9. In Mallur village in Karnataka, a Health Co-operative attached to a Milk Co-operative was set up long back in 1973. Encouraged by the success of the milk co-operative the members persuaded doctors of the St.John Medical College to start a health care center which would be self sustained, financed and managed by the community (Dave Priti, 1997). The health co-operative provides services to nearby villages. During the first two years, members contributed at the rate of one-two paise per litre of milk sold by them. Subsequently, 5% of the profits from milk sale were given to health center. Presently there is no funding from milk co-operative. Interest earnings from the initial fund created by milk co-operative and user charges are the source of finance for health center. State government has given land, ANM service, family planning service, vaccines and nutritional supplies. The Health center is managed by Gramabhivrudhi Sangh and a Committee of 9 members including doctors from health co-operative and St.John Medical college. There is said to be frequent absence of doctors in health center as the co-operative cannot pay the service charges of doctors at market rate. The involvement of St. John Medical College in the provision of health care has reduced over the years.

Those who join are young medical graduates who serve for a short period until they get a better opportunity or admission for post graduation. Moreover, the entry of politics in the co-operative set up is causing problems in the operation of health centre.

10. **Medical Co-operatives in Kerala :** Co-operative Medical services in Kerala were initiated with government patronage after the 1971 Indo-Pak war(Nayar, K.R., 2000).Co-operative dispensaries (as many as 92) and hospitals were established. As there was economic recession after war, co-operatives were encouraged mainly to provide employment to medical graduates and to provide some basic medical services to the people. The focus was only on curative care. In 1973, 64 co-operatives existed in Kerala of which 6(9%) were reported to be profitable. Though their number increased to 137 in 1994 with a total membership of 59000, only 19(14%) were profitable. Twenty nine(21%) co-operatives worked on no profit and no loss basis. Average membership worked out to be 431 per co-operative. Nearly 65 percent of the co-operatives were running with loss.

It is reported that, later in 1980's, when the public health system developed with easy accessibility and better care, co-operatives declined. Nayar, quotes report of a Committee on Study of Co-operatives, which says that medical co-operatives lost their importance due to centralised power in few individuals, inadequate managerial and technical inputs, limited membership, non availability of doctors and lack of government support. The Committee has favoured the abolition of dispensaries.

11. Insurance scheme for the Poor as proposed by TN Krishnan : T.N.Krishnan

(1996)proposed a hospita-lization insurance plan for persons below poverty line, which he suggests, can later be extended to other sections of the society. Health insurance for the poor is justified on the ground that illness episodes take away a major portion of the income of the poor. The present *Jan Arogya Scheme* seems to be similar to the insurance scheme proposed by Krishnan.

He argues that as the proportion of people falling ill requiring hospitalization is small in a large population, risk pooling can be done at a small cost with an appropriate insurance scheme.

In his analysis, total cost of hospitalization is based on the NSS data (1986-87) which is adjusted to 1995. The average cost of treatment is taken to be Rs.500/- for the poor. The NSS data showed that about 4% of the bottom 40% of the population were inpatients. Taking 50% increase over the 10 year period, the proportion of inpatient for 1995 is taken to be 6%. With this rate the total cost would be Rs.900 crores (6% of 300 million poor i.e. 18 crores x Rs.500). This works out to be an average cost of (Rs.900 crores / 30 crore population) Rs.30 /- per poor person which would cover cost of medicines, room rent, tests and consultation charges upto a limit of Rs.5000/- per family per annum. He suggests that the government should provide for the total cost under anti-poverty programme or by re-allocation of expenditure.

To manage the health insurance implementation he suggests that the subsidiaries of GIC be converted into separate Health Insurance Corporations which work as non- profit organizations.

In his scheme of thinking, Panchayats will be responsible for identifying the poor and the consolidated list at the block level should be sent to Finance Ministry. Health insurance corporations should canvass and cover other population groups to meet their administrative costs and it is felt that the expansion of coverage may help to cross subsidise the poor, which will ultimately reduce the burden on government. Hospitalisation is to be referred by the PHC doctor and Corporations are required to settle the bills directly with the provider hospital. The cost of treatment should be indicated on the card issued to families. He also proposed to set up block level Hospital Monitoring Committees to check the quality and price structure in hospitals.

He suggests that, village panchayats should levy a health cess on landholdings and businesses for universalizing the health insurance coverage. As suggested by Hsio and Sen(1995), he opines that a portion of this can be retained for strengthening PHCs. In urban areas, health insurance is proposed to be implemented through trade unions, business and factory establishments and through NGO's for the urban poor. Contributions to health insurance could be made compulsory for all persons who have regular employment. These experiments he suggests should be taken up initially in two districts in each state and later can be expanded to all the districts based on experience.

OBSERVATIONS ON HEALTH INSURANCE SCHEME IN INDIA

- * People are ignorant about health insurance (Gumber,2000). Mediclaim and, the Jan Arogya Bima policies designed to help the poor are not known to majority of the population.
- * Only 3 percent of the population is said to be covered by some form of health insurance.
- * Many diseases are excluded from risk coverage (treatment for cataracts, dental care, sinusitis, tonsillitis, hernia, congenital internal diseases, fistula in anus, piles etc.) in the first year of policy unless such diseases are totally excluded as pre-existing. Expenses incurred in respect of any treatment relating to pregnancy and childbirth during the first 12 weeks of pregnancy is also excluded. Jan Arogya does not cover expenses related to child birth and pregnancy. Treatment for asthma, gastro-enteritis, diabetes mellitus, epilepsy, hypertension, influenza, cough and cold, psychiatric disorders, arthritis and rheumatism are also excluded from insurance coverage.
- * Mediclaim policy is more oriented towards higher income groups and urban people.
- * Jan Arogya covers only patients who are hospitalized. It is not for out- patients.
- * There is lack of marketing of insurance schemes. Villagers and the poor people have to come to district places to know about the scheme and to become members. Offices of the insurance companies have not made any efforts to popularize these schemes in rural areas and even among urban poor and middle class people.
- * Officers of the insurance companies generally say that it is waste of time and money to go to people and market **Jan Arogya Bima Policy**. They say that it is difficult to convey common man about the policies. They agree that they have not taken up comprehensive marketing for popularizing the scheme. Only business establishments and factories with large number of employees are approached.
- * Health insurance policies for the employees of the organized sector viz. ESI and CGHS are highly subsidized by government. These schemes operate mainly on employer's contribution. Employee's contribution accounts for a small portion of total coverage.
- * Health insurance policies are introduced mainly by public sector.
- * Health insurance adopted so far (except for employees) is a reimbursement policy. Individual patient has to pay to hospitals first and then claim the reimbursement and there is a long delay in getting the claim settled.

MAIN LESSONS FROM COUNTRY EXPERIENCES

The above eighteen countries' experiences seem to suggest the following conclusions that would help in designing a Health Security Plan for the poor in India.

*To formulate a health insurance scheme for a community or a region reliable data on health care costs and expenditure, utilization patterns and morbidity in the target population would be useful.

- * The Indian and other countries' experience in community financing of health care through pre-payment suggests that co-operatives linked to economic activities have been the base for creating health co-operatives. Members have contributed a part of the sale or produce or the profits to meet the health care expenses of their families and themselves.
- * China's experience with CMS reveals that it is not possible to sustain them with voluntary contributions alone. Contributions need to be mandatory and members should confine to rules and regulations set in for CMS.
- * The study on CMS in China emphasizes that in addition to community contributions there is need for specific and effective mechanism may be the government or NGOs to support CMS in the long run.
- * In developing countries the issue of cross subsidization for the poor to meet health care needs through health insurance needs to be worked out. In the absence of any mechanism to make rich compensate for the poor, the local, State or the Central government should subsidize the provision of health insurance.
- * In rural areas people are unaware of health insurance. People are willing to provide land, building and labour for setting up health facilities. If there is a proper guidance and education, they are even willing to contribute in terms of cash for future health risk. The Indian studies by Sodani and Gupta, K. S. Nair (NIHFW, 2000) and CESC (1998) reveal this. The currently on going study of CMDR (Economic Reforms and Health Sector in India) in Karnataka also brings out the willingness of the people to contribute to the development health care co-operative.
- * **People prefer health insurance schemes which are cheaper and with minimum administrative procedures for getting the claim.**
- * **People prefer maternal health care, hospitalisation and outpatient curative care to be covered under health insurance.**
- * People do not prefer to join health care co-operative when there are free health facilities near by.
- * **Co-ordination with government agencies and officials in implementation of certain health services like maternal health care is essential for a health co-operative.**
- * Though members of co-operative health centers make prepayment for health care in terms of membership fees, **it is necessary to levy user charges** for two reasons. Firstly, to avoid misuse or over use of health facilities (as reported in U.N. Jajoo's Study). Secondly, it is generally opined that people do not take free services seriously.
- * To control 'moral hazard' or the excess use of medical care, we can also adopt an **incentive mechanism in the insurance plan in the form of reduced membership fees for those who have not taken treatment for two or more years.** As presented earlier in **Sewagram hospital**, to prevent excess use of health facility nominal charges were taken from hospitalized patients for treatment of certain cases.
- * **Contributions should be based on economic status of the families. But, there should be fixed minimum payment for the poor.**

- * Since community programme involves creation of awareness, erosion of interest, trial and error in the application of the project and adoption of the project by the community, **it takes a long time (nearly 5 or more years) for any programme to be deep rooted in the community.**
- * Treatment by VHW at the village level indicates that a trained health worker can attend many of the diseases suffered by villagers and there is no need for expert doctor all the time.
- * Hiring the services of a medical expert daily would be costly for the villagers. Existing health insurance structure, which relies on low and differential premium system cannot meet these expenses. Therefore, as done in some experiments, monthly or fortnightly or alternate day services of expert doctors can be provided in different villages by **mobile medical unit.**
- * It may not be possible to treat all the cases free of charge. **A financial limit needs to be fixed based on the severity of illness, number of cases/times of treatment per patient, etc.** Based on these considerations the extent of contributions by beneficiaries can be determined. All these aspects can be incorporated in the co-operative health scheme financed by health insurance, as is done in Sewagram health care services in Maharashtra.

IV HEALTH CARE OF THE POOR THROUGH HEALTH INSURANCE AND HEALTH CARE CO-OPERATIVE : A CMDR PROPOSAL

In the background of the above experiences about people's involvement in health care plan for the poor, we have attempted to develop such a plan for a small region of Karnataka. **The main elements of the health care strategy for the poor** should be the following:

1. **This plan should cover all the poor**, irrespective of their social status and ability to pay.
2. It should **provide for curative care in the case of all ailments, starting from the common cough and cold to major diseases (viz.ashtama, blood pressure, diabetes,gastro-enteritis, T.B, joints pain etc.)**
3. The plan should **assign an added weightage to the medical care requirements of the poor and female members of the family** for the reasons mentioned earlier.
4. The plan should make efforts to provide for **cross subsidization of costs of care**. This implies that there should be a provision for community contribution according to ability to pay rather than benefit received. This **community contribution should be mandatory** and not optional.
5. The plan should cover not simply curative care but also **promotive and preventive care services.**
6. Health care **needs should be articulated by the people themselves** and medical services set up should only aid this process of articulation.
7. Services should be supplied in accordance with the articulated needs.

I. Membership:

Each household should be a membership unit. All the households in the Village will be covered under health insurance. A card may be issued to each household with details of number of members, category of households and the details about the amount of user charges to be taken for treatment from household members etc.,. Each card should have provision to enter details of illness, treatment and cost of drugs for each member during one year.

II. Services:

HCC should provide to its members curative out patient and in-patient care, child and maternal care (excluding deliveries), preventive and promotive health care services. Out patient care may be provided at HCC clinic in the village. For in-patient care a link needs to be established between HCC and a private or district hospital which would provide referral service to members.

III. Management:

A health insurance scheme can be managed by a Health Committee consisting of HCC doctor, PHC doctor, panchayat president, local doctor, mahila mandal / youth center member, school headmaster and five members from HCC.

1. Members (each household) must be issued cards for getting medical aid. These cards have to be kept in the HCC.
2. A maximum of Rs. 15 for medicines and injection has to be charged for the first visit.
3. Maintenance of case sheets of all the patients with details of medicine given.
4. Treatment on full payment basis to be extended to non-member families.
5. Health education to be an important component of the HCC.

IV. Membership fees:

Considering that the burden of illness would be greater on poor households, a differential rate structure for membership may be visualized for households based on income level.

During the household survey in Chandanmatti village in Dharwad district of Karnataka, for example, respondents from the surveyed households expressed their willingness to pay an average of Rs.225 per household per year. Membership fee can be fixed keeping in view the willingness to pay by the households. In view of different income levels willingness to pay by the households also would be different. Hence, differential membership fee can be determined accordingly. Membership can be fixed for a family of two plus two.

Advantages from the Proposed Strategy for Health Provision

From the proposed health care strategy there are mainly four types of gains:

First, each individual becoming a member of the HCC and also linking his health care needs with insurance system through HCC, would find that he would get the health care facilities at his door step, without being required to meet various types of transaction costs. Transportation costs, cost of loss of wages for those attending upon the morbid person, additional food and other costs can be avoided under this scheme. These health care services would be available at lower costs now than without HCC.

Second, provider of health care services like the providers' co-operative, would find costs of provision to be lower than before in view of the likely economies of large scale of operation. Even the insurance agency linked with providers' co-operative would find ready clientele for its insurance business ensuring better business.

Third, under the present scheme there is less chance of any resident member of HCC being deprived of health care facilities when needed, for, through the operation of the force of mutual sympathy, felt needs for health care services would be articulated, the needed services would be provided through the linkages of HCC and insurance schemes. As a result, finally, the likely direct and indirect costs of morbidity would be avoided. Cost avoidance is obviously the gain for the needy, particularly the needy poor.

Fourth, since the government had to bear the entire responsibility towards health care needs of the poor in a scenario without HCC the financial burden on the government would be higher than in the scenario with HCC, for, some of the costs of provision are now borne by the community itself through the system of cross subsidization. The spring of human conduct, viz. sympathy and mutual sympathy, which is a tremendous resource for social welfare, would be used and would stand promoted by the health security plan for the poor.

A concrete Health Security Plan for the Poor as an illustrative example with data for one of the villages of Dharwad district of Karnataka is presented below.

A CONCRETE PLAN FOR HEALTH CARE CO-OPERATIVE STRATEGY IN A VILLAGE IN DHARWAD DISTRICT : AN ILLUSTRATION

About the Village

Chandanmatti is a small agricultural village situated 8 Kms. from Dharwad. The village consists of 172 households with 1018 population. Fifty two percent of the population belongs to SC/ST, backward and minority communities. Fifty six percent of the population is literate. Twenty Seven percent of the households live below poverty line(<11000). But, nearly fifty eight percent of the household earn less than Rs. 20000 annually. Villagers do not have access to health facilities in the village. There is a primary school in the village. Bore well water is the main source of drinking water in the village. Villagers get this water through tap connections to individual houses.

Baseline Scenario

Analysis of out-patient situation

1. On the basis of reporting from the village during the survey, the estimated probability of incidence of sickness (outpatient type) =0.13
2. Therefore, annual prevalence of illness on an average per resident person is worked out to be= $0.13 \times 12 = 1.56$
3. As per the reporting during the survey, the average cost incurred per morbid case per month =Rs.221
4. Therefore, the average annual expenditure on such sickness per resident of the village=Rs.344 ($=221 \times 1.56$)
5. With the treatment to be availed from outside of the village, as per the survey, the cost of travel plus incidentals such as food per morbidity is Rs 20(18+2). Therefore, the incidence of this cost per average resident which is included in the average cost specified above is Rs. 31($=1.56 \times 20$)
6. As against this private cost directly incurred by the residents of the village, the average indirect costs likely to be incurred (based on the Focussed Group Discussions and survey) are also estimated:

- * According to the survey, the time lost by the morbid person is four days on an average per incidence. With a prevalence of 1.56, the labour time lost per average resident is 6 person days. Value of this labour time is Rs. 300.
- * On an average two person-day of time is lost by another member of the morbid family to attend on the patient. The implied opportunity wage cost is Rs. 100. Therefore, for a prevalence of 1.56 on an average per resident, the value of labour time lost is Rs. 156.

· The total indirect cost per resident
 = 156 + Rs. 300 = Rs. 456

Scenario with Health Care Co-operative

Assumptions:

1. Only 50% of medicines will be provided free of cost, the rest will be borne by the patient (the average medicine cost was Rs 136).
2. Cost of pathological/radiological tests would (Rs.16+2) be borne by patients.
3. A promoting agency would provide the subsidy for the initial years, covering costs of consultation and 50% of medicine cost. (There is avoidance of travel and special food cost due to HCC. i.e. Rs. 20)
4. The HCC's cost on each out-patient per annum then works out to Rs. 115 (Rs.68 on medicines +Rs. 47 doctors' fees). With the prevalence of 1.56, the average cost to be borne by HCC per resident is Rs. 179 (1.56*115).
5. In addition to the contribution to be made towards HCC, the patient himself spends Rs. 86 (68+16+2) per illness i.e. 50% of medicine costs, cost of pathological and radiological tests) per illness. Therefore, with the prevalence of 1.56, the private cost to the average resident is Rs. 134 (68+16+2*1.56); i.e Rs.68=50% of medicinal charges, Rs. 16=pathological tests and Rs.2=radiological tests.
6. The average based on a three tier differential rates, a membership plus user charges of Rs. 87 [This is worked out on the basis of expected average contribution(willingness to pay) of membership fees of Rs.60 per household member per annum and Rs.15 as user charges. Based on the differential rates to be applied for different income groups the average amounts to Rs.87] to be collected per resident.
7. The promoting agency has to bear Rs. 92 (HCC's cost on each out patient minus the contribution made by each resident i.e., Rs. 179-87=92).

Differential Membership and User fees:

Based on the willingness to pay i.e., Rs. 225 per household as expressed by households, membership fees were fixed at Rs. 240 (the additional amount of Rs. 15 to be mobilized by motivation). The membership works out to be Rs. 60 per person per annum in the village.

- i). Households with less than an annual income of Rs. 20000, have to pay 50 per cent of the regular membership and 50 percent of user fees.
- ii). Households with annual income in the range of >Rs. 20000 <=Rs. 50000 have to pay regular membership plus 50 percent of user fees.
- iii) High income households (>50000) have to pay regular membership plus 100 per cent additional user fees.

User charges have to be collected by the doctor who is providing health care. To prevent over utilization of health services, for every additional visit a patient has to pay an amount of Rs. 15. HCC doctor can exempt second time payment for exceptional cases.

The cost of running the clinic has to be worked out on the basis of the expenses incurred in the first year of implementation of HCC. Based on these estimates and also the status of health care co-operative, future contributions to be made by all the villagers and the strategy for maintaining the clinic and also for sustaining the idea of co-operative needs to be worked out.

Comments:

1. The individuals have to spend only Rs.221 on an average, and get benefits worth Rs. 313(excluding savings in travel and food cost).
2. For HCC, there is a break even.
3. The promoting agency would bear the initial burden at the rate of Rs.92 per resident as additional system cost.
4. Saving in travel cost and food costs: since the patient and the attendant do not have to travel to places outside of the village, the saving on account of travel cost and food costs will be $31(18+2*1.56)$ per resident (as worked out under the baseline scenario).
5. The gains (indirectly) in the reduction of transactions costs due to HCC are:
 - * On an average the morbid patient loses only 3 days of his/her labour time (as against 4 days in the base scenario). This amounts to a labour time loss per average resident as 5 days ($=1.56*3$). The value of this time is Rs 250. Therefore the net gain because of HCC in labour time is Rs.50 ($= 300-250$)
 - * The loss of labour time of another member of the morbid family is also reduced. Assuming that only one day of labour time is lost, the value of the lost labour time is Rs. 78 ($1.56*Rs50$). The net gain in saving in labour time is Rs. 78 (as compared to the base line scenario, Rs.156-Rs.78).
 - * **The total indirect benefit therefore would be Rs.50+ Rs. 78=Rs.128 per resident of the village.**

Total savings (per resident)

a. Residents =Rs.92+31+128 = 251

b. Village economy = Rs.31+Rs.128 -92 = 67

[Village Panchayats can contribute to health care to the extent of savings by village economy to support the provision of infrastructural facilities and payments for administrative staff.]

The case of In-patient treatments

- * As per the survey, the average cost of an in-patient per year was Rs. 3084.
- * The probability of illness leading to hospitalisation, according to the survey data is 0.035
- * Therefore, the hospitalisation cost per year per average resident is Rs. 109 ($=3084*0.035$)
- * In case, a health insurance scheme is worked out for all the residents with the Jan Arogya Scheme of United India Insurance Co. (or any other), the insurance premium is Rs. 107 per year.
- * Therefore, with proper promotional efforts and implementation, the HCC can bring in the insurance scheme to cover all the residents of the village, at no extra cost either to HCC or to the government.

- * Needless to mention that the promotive and implementation efforts will be the basic catalysts to be set in motion by the promoting agency.

How to manage the Health Care Co-operative in the long run????

In the long run, the HCC has to breakeven at the average cost of Rs. 179 per resident. There are several options that can be considered.

- * The membership fee and user charges can be gradually increased to go up to cover the cost at Rs. 179 per resident. This can be designed at a gradually increasing rate of 10% per year. Then, it will take a minimum of 7 years to be self-reliant. Till such time, the HCC will have to subsidised by one or the other agency, be it the government or a non-government.
- * Alternatively, since the HCC will reduce the pressure on the government outlets in health care (PHC, CHC and Sub-centres), the state governments can transfer some funds to manage the HCC under the ZP or other direct allocations to the health sector.
- * Village panchayats have a pivotal role in the provision of primary health care to people. The 73rd amendment to the Indian constitution substantiates this. Panchayats can take initiation to setup HCC with the help of NGOs, Government and local community. A health cess can be charged to support the provision of health care in addition to membership and user fees collected by HCC. Initial capital investment can be sought from Government / NGO. Panchayats in Kerala are playing a major role in the provision of health care. In China the payments for administrative staff of co-operative medical scheme (CMS) are made by local government. Governments must empower Panchayats to organise for the provision of health care at the village level.

Panchayats will be the most appropriate institution to mobilize resources, link government health services with HCC and spread the idea of HCC as it is peoples' representative body and has legal entity. However, with regard to issues like, whether HCC can be fully managed by members ? whether NGO's continued intervention is necessary ? whether government help can be sought or whether HCC can be managed by panchayats need to be examined by introducing some model HCC's in few areas and , decision regarding its future development can be taken on the basis of situation analysis.

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C h a p t e r - 13

PEOPLES PARTICIPATION IN HEALTH CARE DELIVERY : AN APPRAISAL OF ACTION RESEARCH

Vinod B. Annigeri

The focus of the present study at CMDR is to examine the effects of economic reforms on the health sector in India. The study has an action intervention component, which aims to strengthen the delivery of primary health care through the PHC network.*

As India is a signatory to the Alma Ata declaration, we were required to achieve the goal of HFA by 2000 A.D. It is obvious that we have not been able to achieve this goal. The goal distance as enumerated in the health policy document for various indicators still needs to be achieved. In the wake of economic reforms, there seems to be a compression of budgetary resources in general, which has reduced the share of resources for the social sector in general and more so for the health sector. Few research studies have documented this in the Indian context. Shrinking resources have their impact on the health delivery system.

As part of our ongoing study, we collected the household level information in the three selected states of Maharashtra, Orissa and Karnataka through the help of structured questionnaire. We tried to elicit information regarding the socio-economic status of households, morbidity and nutritional profiles, utilization pattern and the risk factors affecting the health status of the population. Along with this we also tried to collect the qualitative information on the perceived status of the community with regard to the health delivery system especially in the reforms period. The results from the data indicate that, the delivery of health services through public institutions have developed certain bottlenecks, which have resulted in lower levels of utilization by the community. Secondly, the aspirations of the community with regard to the public health care institutions are many and the present set-up is unable to meet the growing demand. Such a situation might have been created due to inadequacy with regard to manpower supplied as well as other inputs at the PHC level.

Our data also reveals that, private practitioners are exploiting the community under the nose of public health care institutions. Sometimes as public health personnel are not available in the villages, the private practitioners (who are usually quacks) charge heavy fees to the patients. Poor people who do not have any options are forced to visit such private clinics. But at the same time we cannot afford to pass on the blame to the public system, which is trying honestly to cope up with the increased responsibilities on the one hand and declining budgetary support on the other.

* CEO – Chief Executive Officer
CHC – Community Health Center
DHO – District Health Officer
FGD – Focus Group Discussion
PHC – Primary Health Center
PHMG – Primary Health Management Group
PRI – Panchayati Raj Institutions
RKS – Rogi Kalyan Samiti
ZP – Zilla Panchayat

Rationale for Intervention:

In this background we need to evolve new mechanism of health care delivery which would strengthen the public health delivery system and also supplement it to reduce the burden on the public system. Community involvement and participation in the provision of health care services is not a new idea altogether. We can note that there are innumerable experiences both within and outside India, which have demonstrated that community participation is a effective resource in the provision of health care services.

Need for such a participation in the present day context arises firstly due to inadequate manpower at the PHC level, which seems to be over burdened. The medical officer at the PHC is finding it hard to manage his time due to his pre-occupancies in 14 programmes / schemes. Thus patients find it difficult to find him whenever they visit the PHC. One may ask for additional doctor at the PHC, but in view of changing budgetary allocations, it may not be feasible to do so.

Secondly, we also now observe that many state governments are willing to experiment innovative methods to improve the situation with regard to the health delivery system. Recently the government of Karnataka has announced the introduction of Rogi Kalyan Samiti (RKS) based on the experiment of Madhya Pradesh. It needs to be noted here that RKS is quite a novel idea in managing the public health institutions. But the RKS of M.P. does not go below the level of CHCs, by which it means that it is meant to cater to the referral care rather than primary care. But, we need to experiment new methods of strengthening the public health delivery system even at the primary health level also.

Based on the lessons of an experiment in Karnataka with regard to the participation of NGOs in the delivery of health care services (Report of Deccan Herald dated 4th May 14, 2002) the Central government has made changes in the health policy document 2002. The policy document clearly encourages NGO participation in the delivery of health services through public outlets.

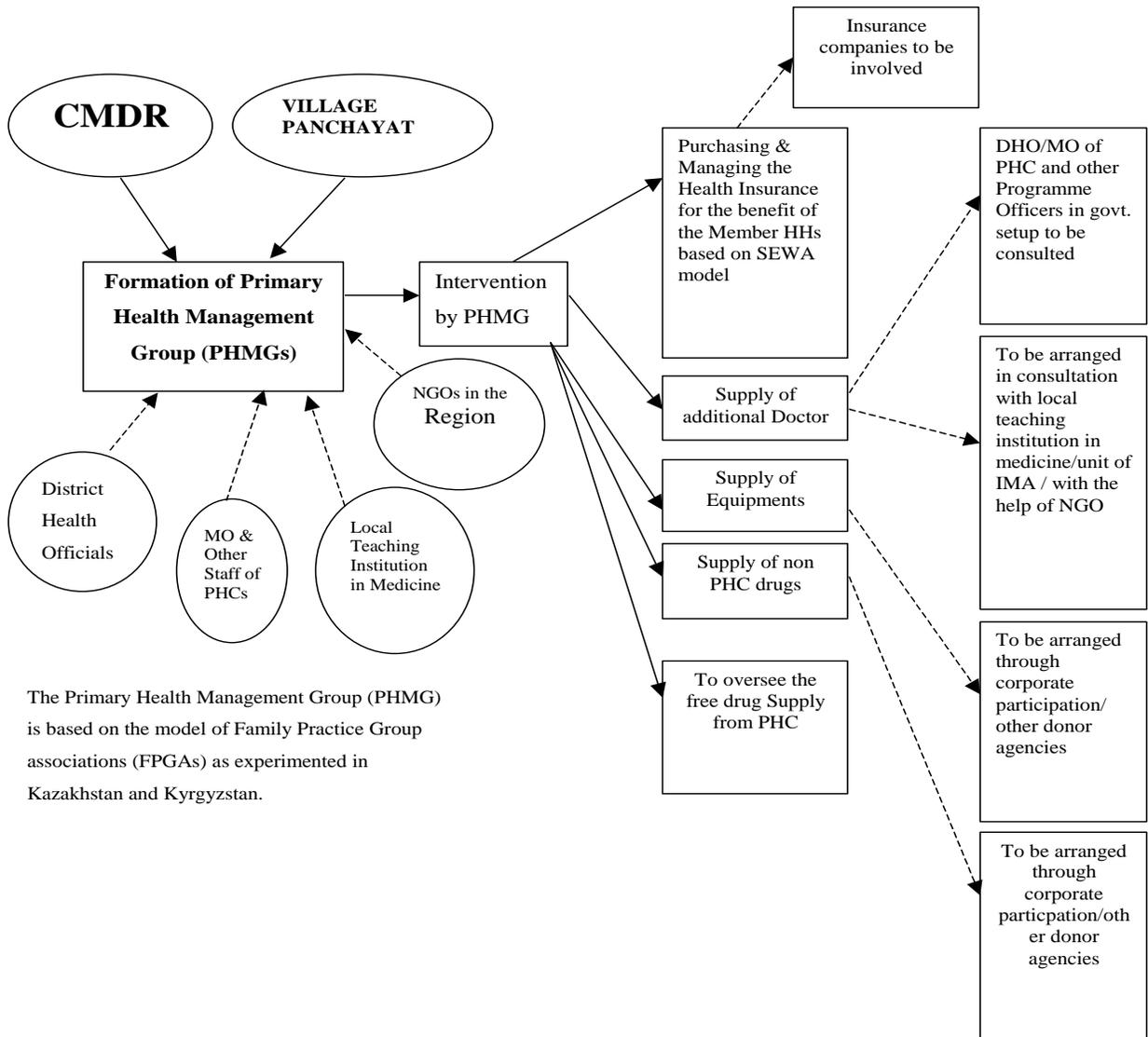
In this background CMDR has tried to evolve a intervention package to supplement and strengthen the public health delivery system. The broad objectives of this package are,

- Community should actively participate in the provision of health care services
- Delivery of health care services should be more community friendly
- Try to inject built in mechanisms in the package to make it sustainable, after the initial doses of supplements

The envisaged intervention package is outlined as below.

- ❑ CMDR would create Primary Health Management Group (PHMG) in the adopted village where a PHC is also located.
- ❑ Formation of PHMG would be through the active participation of DHO and other programme officers, village panchayat, CMDR and other NGOs and corporate bodies in the region
- ❑ PHMG would be registered as an NGO
- ❑ Initially CMDR would bear the salary costs of additional man power supplied

The following chart would depict the formation of PHMG and its responsibilities.



The Primary Health Management Group (PHMG) is based on the model of Family Practice Group associations (FPGAs) as experimented in Kazakhstan and Kyrgyzstan.

COMPOSITION OF PHMG

- ✓ All households in the village
- ✓ Panchayat members
- ✓ District Health Officer (DHO) and other programme officers when CMDR actually tried to operationalize PHMG. It was not possible to include DHO and his staff due to their non-co-operation for the whole experiment.
- ✓ School teachers of the village
- ✓ Youth associations of the village
- ✓ Women's Associations of the village
- ✓ Corporate bodies in the region
- ✓ CMDR

RESPONSIBILITIES OF PHMG

- ▶ Providing M.B.B.S. Doctor to the PHMG clinic
- ▶ Providing health cards to the HHs to retain the medical history of the members
- ▶ Providing telephone facility and logistical support to the members to avail referral care
- ▶ Inviting specialized doctors to the village for the benefit of the villagers
- ▶ Organizing eye check up and treatment camps through the help of donors
- ▶ Educating the members with regard to preventive health care
- ▶ Working out the feasibility of providing health insurance to the members to avail referral care
- ▶ Collaborating with charitable hospitals to avail the referral care
- ▶ Collecting the user fees from the patients and managing the PHMG clinic on a sustainable basis

In the course of intervention, we had to hold series of meetings and Focus Group Discussions (FGDs) in different villages of the district. In a village, in which we attempted to create the PHMG at the outset provided us some useful lessons. We conducted a baseline survey to know the socio-economic information, morbidity profile, care seeking behavior and the cost of treatment. We also tried to understand the willingness of the community to pay for the services provided by proposed clinic. Though initially some young members of the community evinced interest in the whole affair, gradually the euphoria subsided. When we started holding FGDs with various sections of the community, we started realizing the ground realities. The elders in the village had no interest to promote such experiment wherein they were required to pay for the health services. One issue that came to the forefront in this village is that, the village was quite nearer to the urban center. The people in the village had an easy and quick access to the health care institutions in the urban center, which probably acted as de-motivating factor towards arousing interest of the community to participate in such an experiment.

By this time, we had also initiated the process of bringing the District Health Officer into the experiment. Initial discussions were held with DHO and other programme officers of the district connected with various schemes of the health sector. The interest shown by the DHO and his team was really encouraging. He very much supported the idea of making the community responsible for shouldering the responsibility of providing the primary health care services on their own. The prototype of action intervention was explained to him and his team. He also suggested that, since health happens to be a Panchayat subject it would be better to involve the

Zilla Panchayat set up in the whole experiment. Such a move would also facilitate to involve the Panchayati Raj Institutions (PRIs) in overseeing the effective delivery of health care services. With this idea in mind, we arranged a much bigger meeting involving Chief Executive Officer of the District Panchayat, Officials of Health Department. The discussion of the meeting focused on the modalities of community involvement, user charges to be levied at the clinic of the PHMG and partnership between PHMG and PHC in the village. Partnership envisaged in this context was to depute additional doctor and nurse to the PHC through the institution of PHMG. These additional doctor and nurse would be functioning in the premises of PHC. The community would get the benefit of this additional manpower by paying user fees. One issue which came up for discussion during such a meeting was that, if a patient gets treated by the Government doctor in the PHC and not by the PHMG doctor, whether he or she is required to pay the user fees or not. If this were so, no body would opt for the PHMG doctor for the simple reason of paying the user fees. Hence it was decided in the meeting to collect the user fees from all patients who would visit the PHC irrespective of the doctor that they consult. Thus user fee turned out to be an entry fee into the PHC. The District Health Officer gave his approval for this in the meeting. Chief Executive Officer of the ZP also endorsed this. He was of the opinion that, since PRIs are also involved in the experiment, there should not be any problem in collecting the user fees.

When the action intervention started taking some definite shape with these developments, we intensified the efforts to choose a village where such an experiment would take place. In this context, we started listing those villages in the district where PHCs are located and also such PHCs where either one Doctor or no doctor is functioning. In Uppin Betageri, there was only one doctor at the PHC and the community in that village as well as other villages covered by that PHC felt that there is a need of one more Doctor. Though, two posts of Doctors were sanctioned, only one Doctor was functioning. With this clue, we thought of choosing this village for the intervention. We approached the Panchayat and conducted the FGD. In the focus group discussion the members of the village showed interest and were keen to participate in the action intervention. But the kind of things, which were shaping at the back of our activity were really indicative of the nature of support from government officials. The District Health Officer was quietly recruiting new doctors to the PHC of this particular village. Initially one doctor was appointed and gradually even the third doctor was installed in the PHC though there was no provision for the third doctor. With this sort of staffing at the PHC, the mood of the villagers changed very fast and they thought that it would be futile to participate in an experiment wherein they themselves should shoulder the responsibility of running the clinic after the intervention support is over. They were very happy to have three doctors next to their doors in the PHC and our efforts to enthuse them did not yield results in the desired manner. The DHO considering our experiment to be a competitor and damaging for his reputation as public servant was successful in foiling our experiment in this particular village. The fact that came out from this experience was that, though the public health officials were appreciating the kind of intervention that CMDR was trying to experiment, in actual practice they were not very keen to support it. They were not ready to accept the fact that public health delivery system is not effective in providing health services to the people.

In a village that we chose after this kind of experience was willing to participate in our action experiment. We had discussions with the members of the Grama panchayat of this village. They were happy about the fact that the PHC in their village would get an additional doctor and a nurse. The CEO of the ZP was prepared to extend his help for the experiment and he even directed DHO to actively support this experiment. As a matter of caution, we had similar discussions in a different village also. This was being to keep the second village as the alternative option if again our attempt was aborted here also. One more intention of doing so was to see whether we could do such an experiment in the second village without involving PHC set up. The

joint meeting of ZP, District Health Officials, members of respective villages and CMDR team was held to discuss the modalities of intervention. The people of both villages welcomed the idea of joining hands with PHC and to have additional staff in the premises of PHC. They were willing to pay for obtaining services from the PHC. During the course of meeting the District Health Officer openly stated that he would permit the additional doctor and nurse to use the premises of the PHC and the new doctor would be required to function as per the existing government framework. But very soon, in almost a weeks time we learnt that DHO had a different story to narrate. He said, he would require the permission from his higher ups in Bangalore and if only and only if he gets the approval from them, he would be in a position to handover the portion of the PHC to the new staff recruited under the experiment. This was breaking news for the team of CMDR as well for the village that was ready to participate in the experiment. The villagers were not very happy over this kind of development. They were also not very keen on doing such an exercise without involving the PHC. The office bearers of the Gram Panchayat opined that, the villagers had not necessary mental make up nor the capacity to participate in such experiment in which public set up is not participating. One member felt that the drugs and other supplies to be supplied for the peoples' clinic would be misused by certain sections of the society and people may start suspecting any transaction by the office bearers of the PHMG. Thus, the fate of the first village of the two selected met a phase of dropping out from the experiment.

In the stand by village, which we had selected as a matter of caution, we tried to experiment our prototype of action intervention. One advantage of this particular village was that, it had a good background of community participation in the drinking water supply scheme. The government of Netherlands had initiated a rural drinking water and sanitation scheme in the state of Karnataka, which tried to create the infrastructure for the drinking water supply with about 15 per cent of the cost of the project to be borne by the community. The expiry of the project phase, the created infrastructure would be handed over to the community itself for maintaining and operating the services on sustainable basis. This village by the name Morab, was managing the scheme of water supply successfully. It has the facility to treat the water before supplying and couple of water tanks were constructed to store the water to be supplied to the community. If a household wishes to own a tap in their own home, it has to pay higher user fee than the household, which gets the water through community tap. In any case community had to pay for the drinking water. The scheme was handed over to the Grama Panchayat and it has been running the show successfully for past 7 to 8 years. We considered this as the best positive factor in favor of enthusing community in shouldering the responsibility of providing health care services also along with the water supply and sanitation facilities. At the outset we informed the villagers that, we are trying our best to get the nod from the higher ups of the health department in Bangalore to initiate the experiment in this village with the effective participation of PHC set up. But if we don't get the permission, the community has to be ready to experiment on their own. As expected the government machinery did not respond at all to our various requests to have discussions with them regarding the modalities of our proposed action intervention. More than a month was just wasted in waiting for the official response. We felt that nothing would move forward in this regard. **Finally we made up our mind to go ahead without joining hands with the PHC set up.**

Village people also got convinced about the non cooperation of the government machinery and they also expressed the desire to experiment the action intervention. When we had decided to move forward, we actually planned the details of the experiment with the Grama Sabha members as well as other prominent members of the community. The suggestion which came out during such meetings, was that, there is a need to place the details of the experiment before the general public of the village in a open meeting which is known as Grama Sabha or Village Meet. CMDR team attended the such a meeting in the village and the details of the action

intervention were explained to the people. To our surprise the health related matters were taken up at the outset of the meeting and people expressed a desire to have a doctor at the PHC. They made this request because the post of doctor had remained vacant for many years without a regular person taking charge of it. There were many adhoc arrangements, which never fulfilled the requirements of the PHC. Incidentally, the District Health Officer made one more adhoc posting for the vacancy of doctor, and the concerned doctor had come on the day of meeting to convince the people that government has done something to their village by sending the doctor. When the doctor informed the people that he had taken the charge of Medical Officer of PHC for the past one month or so, the people couldn't not believe it. They asked the office bearers of the panchayat and other people as to whether they noticed the presence of this doctor at the PHC at any time. It only meant that the doctor had taken charge only on paper and had no time to visit the PHC to deliver the services. This event actually benefited us to a great extent. Our turn to present the details of the action intervention was next and hence people were very eager to learn about our experiment. We explained the details of the experiment. The idea of formation of PHMG and establishing a clinic by it in the village appealed to the people. There was a unanimous agreement for this idea. When we also explained about the introduction of user fees at the clinic there was no opposition to such an idea, in fact people were in favor of this, because getting a M.B.B.S. doctor for their village involves certain expenditure was the message from their discussion. The village meet finally gave a unanimous YES for our experiment. After this meet, we intensified our efforts to the formation of PHMG. A series of meetings were held with Grama Panchayat members and other village leaders, social activists, women organizations and youth associations. Our intention was to involve the panchayat set up in the organization of PHMG on an official basis. This would try to encourage the process of decentralization in the provision and management of health care services But the opinion of the office bearers of the panchayat was that, the decentralized set up has been reeling under the effects of "Red Tape" and hence it would not be proper to bring PHMG also under the a system which has got spoiled on account of many socio-political factors. We considered their argument and finally decided to keep PHMG out of the decentralized set up, but we got some of the panchayat members as the members of PHMG also.

Thus the formation of PHMG took place in the village. The members of PHMG included, few members of decentralized set up, school teachers, representatives of women organizations, other prominent members of the community and of course CMDR was also a member of this group. The doctor and nurse were appointed for the clinic. We were able to search a experienced M.B.B.S. doctor. The doctor had several years of practice in rural areas. We had a series of meetings to complete the modalities of opening the clinic in the village. A bank account was opened in the village in the name of PHMG and three people were authorized to operate the account. The doctor of the clinic, the president of the PHMG and the president of the Gram Panchayat were to manage the financial matters of the PHMG. In any case, CMDR had taken the responsibility of shouldering the doctor's and nurse's salary, supply of medicines and 50 per cent of the rent for the premises of the clinic. CMDR had intimated to the PHMG members that such financial support from CMDR would be for a period of six months only. After the expiry of such period, the PHMG will have to take up the responsibility of running the PHMG clinic on its own. A suitable place in the village was chosen to start the clinic. The members of PHMG named the clinic as Samudaya Arogya Kendra (SAK) which means Community Health Center. Before the inauguration of the clinic, CMDR supplied the minimum of equipments and other small requirements of the SAK. Following table shows the kind of materials supplied and their value.

Table 1

| Assets given to the SAK | |
|--------------------------------|--------------------|
| Type of assets | Amount (Rs) |
| Medical Instruments | 8825.50 |
| Furniture | 4242.00 |
| Other materials | 1055.00 |
| Total | 14122.50 |

The clinic was opened on the 19th of September 2002. PHMG had agreed to collect the user fees from the patients visiting the clinic. An examination of the patient followed by giving minimum tablets and other medicine would require the patient to pay Rs. 5/-, and if the patient receives an injection, the user fee would be Rs. 10/-. From day one onwards the patients showed interest to visit the clinic. The mood on the opening day in the village was quite euphoric and people and the members of the PHMG were feeling contented because they were instrumental in bringing a M.B.B.S. doctor to the village. They had put up a small board for the clinic with the working hours of the clinic mentioned on it. The clinic was to function from 9 a.m. to 5p.m.

The clinic started functioning, and the staff of CMDR used to visit the village to give publicity to the clinic in the village. They also used the occasion to understand the views of the patients regarding the services offered by the PHMG clinic as well as the PHC which was also situated in the village. The following table shows the month wise income and expenditure of the PHMG clinic.

Table 2

| Month | Receipts of PHMG Clinic (Rs.) | | | | | |
|--------------|-------------------------------|-------------|-------------------------|--------------|----------------------|--------------|
| | No.of patients @ Rs. 5 | Amount | No.of patients @ Rs. 10 | Amount | Total No.of patients | Amount |
| Sep-02 | 28 | 140 | 96 | 960 | 124 | 1100 |
| Oct-02 | 140 | 700 | 439 | 4390 | 579 | 5090 |
| Nov-02 | 145 | 725 | 431 | 4310 | 576 | 5035 |
| Dec-02 | 79 | 395 | 355 | 3550 | 434 | 3945 |
| Jan-03 | 135 | 675 | 380 | 3800 | 515 | 4475 |
| Feb-03 | 179 | 895 | 299 | 2990 | 478 | 3885 |
| Mar-03 | 554 | 2770 | 0 * | 0 * | 554 | 2770 |
| Total | 1260 | 6300 | 2000 | 20000 | 3260 | 26300 |

* Note: In view of the non-availability of break up of patients, we have included all under Rs.5 category.

The receipts of the clinic for the period from September 2002 to March 2003 shows that, a total of 3280 patients visited the clinic generating an income of Rs. 26300. Certainly this amounts to be a quite significant sum for the PHMG of Morab. But at the same time, we also need to look at the expenditure to run the clinic. CMDR was paying Rs. 10,000 as salary to the doctor plus Rs. 3000 as the allowances. Nurse used to get Rs. 5000 as the salary and Rs. 680 as the allowances. Apart from this CMDR had also spent on the non recurring items like , equipments and furniture for the clinic and recurring expenditure on medicines was also made. This is shown in the below mentioned table.

Table 3: Recurring Expenses of the Clinic (Rs.)

| Month | Salary | | Medicines | Total |
|--------------|--------------|--------------|--------------|---------------|
| | Doctor | Nurse | | |
| Sep-02 | 5200 | 5676 | 6943 | 17819 |
| Oct-02 | 13000 | 5676 | 1390 | 20066 |
| Nov-02 | 13000 | 5676 | | 18676 |
| Dec-02 | 13000 | 5676 | 2783 | 21459 |
| Jan-03 | 13000 | 5702 | | 18702 |
| Feb-03 | 8000 | 5624 | | 13624 |
| Mar-03 | 13000 | 5676 | | 18676 |
| Total | 78200 | 39706 | 11116 | 129022 |

The average income per patient and average expenditure per patient would give us the overall scenario of the finances of the clinic. It would also give us the gap that exists with the present user fee structure as well as compensation structure for the staff employed. The following table gives us the average income and expenditure per patient.

Table 4: Per Patient Income & Expenditure

| Months | Income / Patient | Expenditure / Patient | Difference |
|--------------|------------------|-----------------------|--------------|
| Oct-02 | 8.8 | 34.7 | -25.9 |
| Nov-02 | 8.7 | 32.4 | -23.7 |
| Dec-02 | 9.1 | 49.4 | -40.4 |
| Jan-03 | 8.7 | 36.3 | -27.6 |
| Feb-03 | 8.1 | 28.5 | -20.4 |
| Mar-03 | 5.0 | 33.7 | -28.7 |
| Total | 8.1 | 39.6 | -31.5 |

The average income per patient varies between Rs. 5 to about Rs. 8 whereas the average expenditure is between Rs. 28 to Rs 40. This only means that the cost of providing medical care services is quite burdensome and if the community is made to shoulder this kind of responsibility, it may not be feasible for it to do so. What could be the alternatives before us to deal with a situation like this? If one considers the task of increasing the user fees, the community may not support it. Even if some segment of the community supports it, it may severely affect the equity aspects of the services rendered by the clinic, leaving out the poorer segments in the cold. In such a situation, the best thing would be to reduce the operating costs of the clinic. In order to do so, we should reduce the salary of the doctor and consider the reduction of other manpower support. In this particular experiment it was found that, as the clinic was catering to the needs of the community with regard to the treatment of common diseases and injuries, the services of the nurse was not considered to be very essential. The clinic had no facilities to provide the MCH services, which also made the nurse less useful for the clinic. The premise of the clinic was rented at the rate of Rs 600 per month. There was a scope to shift the clinic to cheaper premises to save on the costs. The various permutations and combinations of the viability aspects of the clinic showed that, at least 35 to 40 patients must visit the clinic and it must generate an income of Rs. 7000 to 7500 per month. Out of this the clinic must find a doctor who is willing to serve for Rs. 5000 per month. Rest of the amount could be utilized for the purchase of medicines and payment of rent and the salary of the helper with of course some minimum savings for the PHMG. We were planning the withdrawal of the intervention by CMDR with this kind of situation created for

the PHMG. Under such circumstances the take over of the clinic by the PHMG would be quite smooth and sustainable.

Views of the Community About the Clinic:

When the clinic started functioning in the village, the news started spreading slowly within the village as well as to the neighboring villages. Thanks to the efforts of the CMDR field team which was instrumental in canvassing the opening up of the clinic as well as services rendered by it for the benefit of the community. The doctor of the clinic was also so effective in rendering the services as required by the community and his interpersonal skills also helped in gaining confidence of the community. As promoters of the clinic, CMDR was keen to know how the community was trying to evaluate the clinic vis-à-vis the PHC that was also functioning in the village. Exit interviews, discussions with the people and patients were conducted at regular intervals to elicit the information.

Young and old, male and female rich and poor were the kind of patients who visited the PHMG clinic. Usually the time of visit of the patients was more in the morning hours (between 10 a.m. to 1.30 p.m.) and in the evenings i.e. around 5 p.m. or at the time of closure of the working hours. The immediate response to the services of the clinic by the community was quite positive and it was mainly due to absence of a M.B.B.S. doctor in the village, for the past several years. Most of the quacks who did function in the village were not very impressive. The doctor at the PHC who was a M.B.B.S. was not available for most of the time

People said that the location of the clinic was in a convenient place as it was placed in the center place of the village. Space within the clinic was quite large, both for the patients to wait in queue and for the doctor to examine the patients. Doctor of the clinic, according to the patients who visited him was receptive and was humane in his approach while treating the patients. The views of the patients about the clinic are summarized as below.

- Need for the doctor to stay in the clinic during night time also
- Patients felt that the user fee of Rs. 10 and Rs. 5 was affordable for the members of the community
- Quality of the services rendered was satisfactory to the patients
- Patients preferred the services of PHMG clinic due to poor quality of services rendered by the PHC
- People expressed the need to include the maternity services in the clinic
- The ultra poor expressed a desire to get free services from the clinic
- Need was also expressed to have special health check up camps
- It was also brought out from our survey that more publicity for the clinic need to be provided in some areas of the village as well as the surrounding villages

Starting the clinic by the PHMG had good and positive impact on the functioning of the PHC located in the village. For the past several years PHC was functioning without any doctor. As the PHMG clinic started providing good service regularly, it started creating ripples around. The sleeping governmental set up woke up and started responding in a reactive way to the initiatives of the peoples' clinic. The DHO came out of his routine way of functioning and tried to save his face against the '**Patient Friendly**' services of the peoples' clinic. Where there was no doctor for years in the PHC, we could see a doctor visiting the PHC everyday. Even the holidays witnessed a doctor at the PHC, which was a rare seen in the village. The PHC also geared up its

activities and started visiting the households of the village and started providing services at the doorsteps. This kind of rush of blood attitude put the villagers in confusion. They slowly started thinking that, there was no need to continue with the PHMG clinic as things are quite satisfactory at the PHC. Though this view point came out from some people, the cool headed discussion was fruitful in understanding the situation in a much better way. The villagers could understand the tricks of the PHC set up and were convinced that the things at PHC have improved only because of the CMDR experiment. They were also quite sure that if the experiment is over and the PHMG clinic is closed, there is every possibility that the PHC would revert back to its defunct stage. So people were cautious enough to safe guard the interest of the community by continuing to support CMDR led action intervention.

The views of the community and the support extended by the villagers really enthused us because we had sensed the urge in the community to carry on with the experiment even after the withdrawal of CMDR. As mentioned earlier in the discussion, we were busy in identifying a less expensive doctor to be posted in the clinic, so that the finances of the clinic would be managed favorably to suit the limits of the PHMG. When we finally found a doctor who was ready to work for Rs. 5000 per month, CMDR handed over the clinic to the PHMG by withdrawing the staff earlier recruited. Thus from the seventh month of its inception, the peoples' clinic started functioning in the village as peoples' own initiative.

The experiment has brought out the fact that there is a potential in the community to participate in experiments wherein peoples participation is involved. In matters related to health, the need to participate by the community is still more acute and villagers are looking for helping hands from the world outside for initial doses of supplements. The felt needs of the community show that even the working hours of PHC are not in tune with the peoples' needs. The clinic of their own is certainly a boon to them. Our experiment supported the community clinic for just six months. The community felt that it needs to be extended by about a year or so. They opined like this because, in order to encourage the community to shoulder the responsibility of running the clinic some time period is required. The people were also not able to contribute seed money on account of drought situation for the past couple of years. Capacity building in the community and getting a clear vision of sustaining such experiments on long-term basis also are time-consuming factors. A long-term experiment would certainly be more beneficial to evaluate the sustainability aspect. Nevertheless the community has now taken change of the clinic and the health services are reaching the people in a smooth manner.

Chapter – 14

PRIVATE DOCTORS AMIDST ECONOMIC REFORMS : REFLECTIONS FROM A SURVEY

Vinod B. Annigeri

As India is a signatory to the Alma Ata declaration, we were committed to the goal of HFA by 2000 A.D. It is obvious that we have not been able to achieve this goal. The goal distance as enumerated in the health policy document for various indicators still needs to be achieved. In the wake of economic reforms, there seem to be a compression of budgetary resources in general, which has reduced the share of resources for the social sector in general and more so for the health sector. Few research studies have documented this in the Indian context. Shrinking resources have their impact on the health delivery system. Many studies in India have also shown that the poorer segments of the society depend on public health care facilities. In this background, the necessity was felt to examine the various dimensions of the role played by the private health care institutions and the effect of changing economic scenario on the services and facilities provided by them. In order to do so we conducted a field survey in the twin cities of Hubli and Dharwad in north part of Karnataka state. The focus of the survey was to know the effect on economic reforms on the services provided by these Doctors / Institutions.

Based on the telephone directory and the information gathered from the local unit of Indian Medical Association, a detailed list of doctors and institutions was made. Apart from time and resource constraints, Doctors who were willing to share the information and who co-operated with us out of their busy schedule were chosen as the sample units. A total of 80 private health care institutions were surveyed. Following table shows the number of institutions surveyed.

Table

Type of institution

| Institutions | No. of institutions | % |
|---------------|---------------------|------------|
| Clinics | 39 | 48.75 |
| Poly Clinics | 2 | 2.5 |
| Hospitals | 15 | 18.75 |
| Nursing Homes | 19 | 23.75 |
| Others | 5 | 6.25 |
| Total | 80 | 100 |

We tried to see how many institutions have started functioning prior to the initiation of economic reforms. In other words we have tried to classify those institutions, which have been functioning prior to 1991 as the institutions belonging to the pre reforms period. Institutions, which have come into existence after 1991, have been grouped as belonging to the period after the reforms. Major questions which were addressed in this particular survey are as noted below.

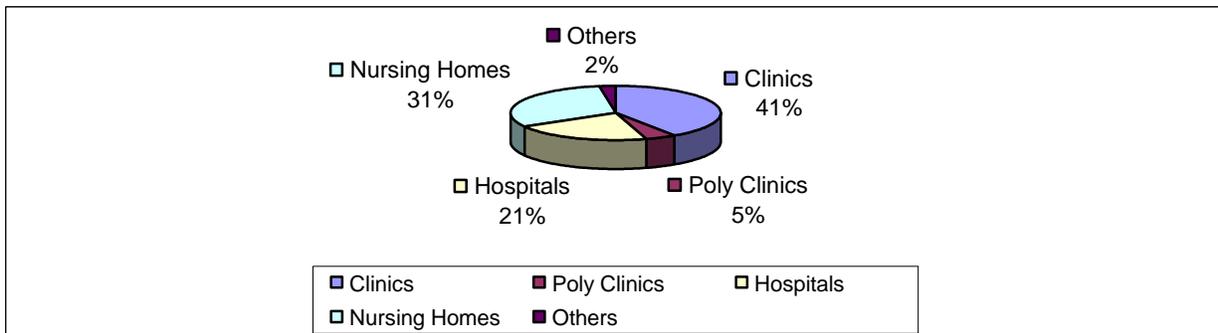
- How many institutions have been established prior to the reforms and during the reforms period?
- What is the staff strength in these institutions?
- What sorts of facilities are made available to the people?
- What kinds of services do they provide? For example inpatient care or other services of special nature.

- What is the fee structure for different kinds of tests, scanning etc.,?
- What is the amount and purpose of credit that they have availed from different financial institutions?
- Nature and quantum of their financial requirements for their future plans.
- Amount of own resources put in by the Doctors in establishing the institution.
- Rise in the costs of certain medical and diagnostic equipments especially during the reforms period

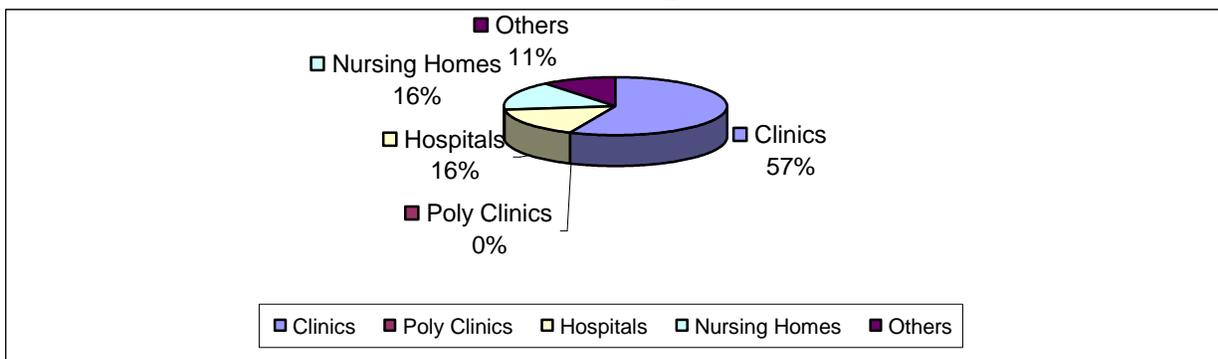
One thing, which needs to be kept in mind while reading results of this survey, is that, the survey, was conducted with a primary intention of understanding the views of the medical profession. We have surveyed a small proportion of the Doctors and hence generalizations drawn need to be observed in that background. The intention of the survey was not to have a large sample, but to develop some insights about the perceptions of the medical professionals about the effect of the economic reforms on their day to day practice. The major issue, which we tried to probe, was the quantum of financial assistance flowing from the banking sector to the private medical care services. Such an exercise would be helpful in understanding the role played by the financial institutions in financing the development of health care institutions. The cost of various inputs purchased by these professionals in the provision of health care services especially during current reforms period is also an important factor, which would affect the cost of medical care services. If at all there is a rise in the costs of inputs, there is every possibility that such a rise in costs would be finally transferred to the patients. The results of the survey are presented in the ensuing discussion.

We can observe from the following charts that, during the reforms period

Institutions Prior to Reforms



Institutions During Reforms



percentage of clinics have increased, whereas the share of nursing homes and hospitals have declined. In the reforms period we can note that Doctors have opted for small investments by opening clinics. In the pre reform period there were only 41 per cent of the clinics and their share in the reforms period has gone up to 57 per cent. This may be due to the increase in the number of medical graduates also in the recent times. Nursing homes which accounted for about 31 per cent prior to the reforms have been reduced to 16 per cent in the reforms period. Percentage share of hospitals have also declined. The share of other petty establishments usually run by under qualified or quacks have increased in the reforms period. If we take a look at the different systems of medicine being practiced, one can observe that the system of allopathic medicine has dominated in both the periods. But interestingly we can see that, ayurveda and homeopathy have made their presence felt in the reforms period. This shows that in recent times people have been looking to the traditional systems of medicine for certain types of chronic diseases. The following table depicts different kinds medicines practiced in the surveyed institutions.

Table 1
Kinds of Medicines Administered

| System of Medicine | Before Reform Period | Reform Period | Group Total |
|------------------------|----------------------|---------------|---------------|
| Allopathy exclusively | 84.09 | 85.00 | 84.52 |
| Allopathy mainly | 9.09 | 0.00 | 4.76 |
| Ayurveda exclusively | 4.55 | 5.00 | 4.76 |
| Ayurveda mainly | 0.00 | 5.00 | 2.38 |
| Homeopathy exclusively | 2.27 | 5.00 | 3.57 |
| Homeopathy mainly | 0.00 | 0.00 | 0.00 |
| Unani exclusively | 0.00 | 0.00 | 0.00 |
| Unani mainly | 0.00 | 0.00 | 0.00 |
| Total | 100.00 | 100.00 | 100.00 |

Staff strength of the institutions shows that in the reforms period, there is a considerable increase of specialists. Their share has increased from 21.02 percent in the pre reforms period to 32.83 percent in the reforms period. The rise in the strength of specialists has implications for spread of diagnostic and scanning requirements in the medical profession, which may ultimately put the burden on the patients. The percentage share of general doctors has declined. There is marginal increase in case of nurses and pharmacists. Following table depicts the staff strength, which has emerged from our survey.

Staff Strength (%)

| Staff | Before Reform Period | Reform Period | Total |
|-----------------|----------------------|---------------|---------------|
| Specialists | 21.02 | 32.83 | 25.27 |
| General doctors | 11.08 | 8.59 | 10.18 |
| Nurses | 30.97 | 31.31 | 31.09 |
| Pharmacists | 2.27 | 3.03 | 2.55 |
| Pathologists | 2.84 | 2.02 | 2.55 |
| Others | 31.82 | 22.22 | 28.36 |
| Total | 100.00 | 100.00 | 100.00 |

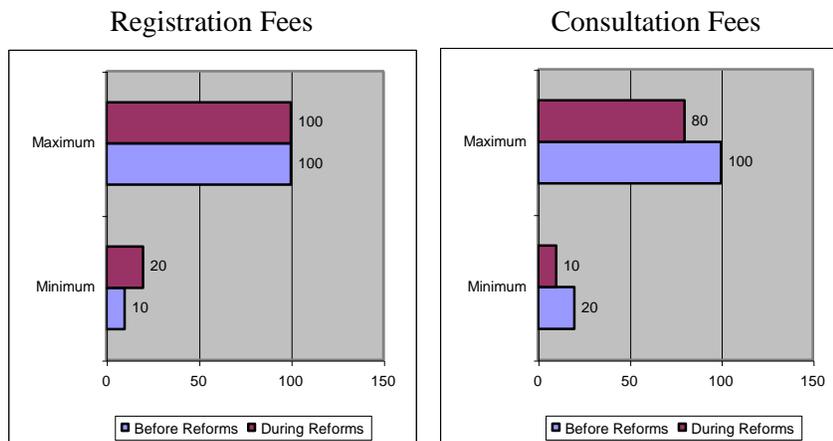
Various services rendered by these institutions would probably throw light on the importance attached by the doctors in treating the patients.

Services offered in the hospital

| Services Offered | Before Reform Period | Reform Period |
|------------------------------|----------------------|---------------|
| General outpatient treatment | 59.09 | 40.91 |
| Inpatient treatment | 53.85 | 46.15 |
| ENT services | 46.67 | 53.33 |
| Eye care services | 46.67 | 53.33 |
| Dental services | 30.00 | 70.00 |
| Childcare services | 66.67 | 33.33 |
| Others | 55.56 | 44.44 |
| Total | 55.10 | 44.90 |

For example we can observe that in the period prior to the reforms 59 per cent of the doctors were providing general outpatient treatment and their share has decreased to 40 per cent in the reforms period. Inpatient treatment has also marginally decreased from 53 to 46 per cent. With regard to speciality services there seem to be a increase in the reforms period. ENT services and eye care services have registered a moderate increase. Significant increase has occurred in dental services. Out of the total, only 30 per cent of the doctors were providing dental care prior to the reforms and their share has increased to 70 per cent in the reforms period. Note worthy decline has occurred in childcare services, which has declined by about 55 per cent in the reforms period. Newer entrants into the medical profession have opted for speciality services keeping aside the traditional outpatient care.

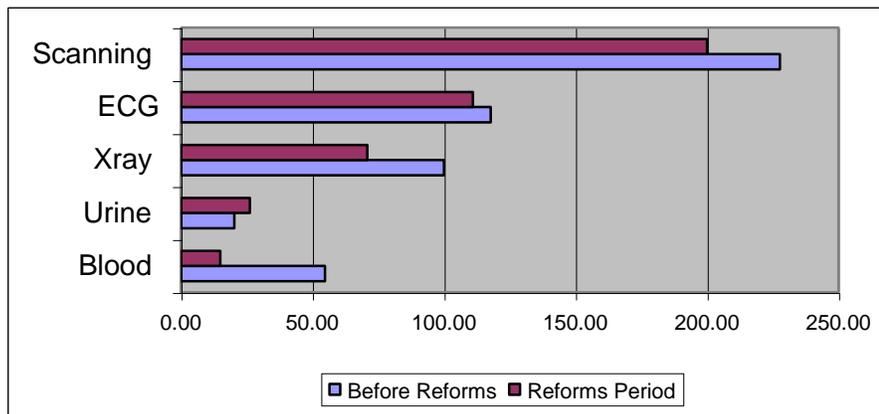
Now we will take a look at the fee structure of the doctors before and during the reforms period. The registration and consultation fees vary from doctor to doctor and even for the same doctor it is likely to vary from patient to patient. In view of this we have considered these fees both at the minimum level and maximum level. The following chart would show the registration and consulting fees for these two periods separately.



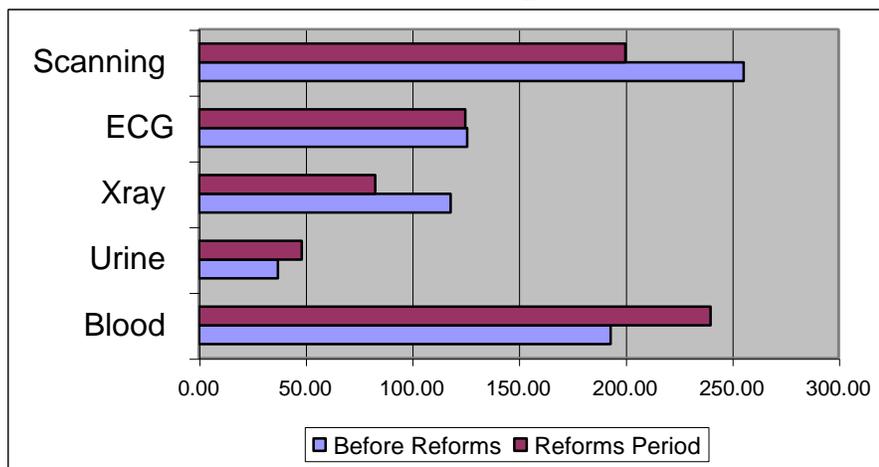
The minimum level of registration fees has increased from Rs. 10 to Rs. 20 but the maximum level of registration fees has remained the same even during reforms period. But as far as consultation fees are concerned we can see a decline both at the minimum and maximum levels for institutions started during the reforms period. The explanation one can give for this type of changes in consultation fees could be the competition among the doctors, especially in the recent years due to the spread of medical education.

The fees for the diagnostic tests are very common these days, and people usually complain about the over prescriptions of such tests. In this background, we tried to elicit information regarding the amount of fees the doctors' would charge from the patients. **Since such tests are many and each test is unique in its own background**, we thought let us restrict ourselves to the minimum level of fees and maximum level of fees for different kinds of diagnostic tests. Following graphs shows the minimum and maximum level of fees for institutions that have started before the reforms and for institutions started during the reforms period.

Minimum Cost of Diagnostic Tests



Maximum Cost of Diagnostic Tests



At the minimum level of tests, we can note that for all the tests except urine test, institutions that are operating prior to the reforms period have been charging more than the institutions that have come into existence during the reforms period. The institutions, which have entered the health sector, very recently have been operating with lower level fees to attract the patients. At the maximum level of fee structure institutions started in the reforms period have been collecting less charges than the pre reform period institutions for tests like scanning, x-ray. In case of ECG the charges for both periods are similar. For blood and urine tests the institutions of the reforms period are collecting higher fees than the institutions of pre reform period. With regard to scanning new instruments are available at lower prices and hence new entrants into the medical profession have lowered their scanning fees.

In order to establish the set up of their own, doctors usually borrow from banks. How much of money has been borrowed by them and for what purposes it has been utilized would tell us about the role of financial institutions in developing the infrastructure for health service development in the private sector. The financial assistance obtained by the doctors from different financial institutions like commercial and other types of banks, shows that in the reforms period the amount of loan for different items have decreased. The major demand for which the assistance is sought is for the construction of the buildings followed by four wheelers. About 331 lakh rupees were used for construction by the doctors who started practice prior to the reforms and the respective figure for the reforms period was 100 lakhs. The following table gives the financial assistance taken by the doctors for both the time periods in percentages.

Table 3

| Purpose for Financial Assistance Sought by the Doctors (%) | | | |
|---|----------------------|---------------|---------------|
| Purpose of loan needed | Before Reform Period | Reform Period | Group Total |
| Vehicles | 11.71 | 20.29 | 12.50 |
| Construction | 79.10 | 54.74 | 73.95 |
| Machines/Equipments | 8.11 | 20.08 | 11.44 |
| Furniture | 0.12 | 0.00 | 0.09 |
| Others | 0.95 | 4.89 | 2.02 |
| Group Total | 100.00 | 100.00 | 100.00 |

For both periods taken together a total of Rs. 691 lakhs were provided by the financial institutions. This is certainly a quite sizable amount which has resulted in the creation of both infrastructure as well as manpower for the delivery of health care services. In the reforms period it is important note that the percentage share of different items have changed and the share of resources for the vehicles has increased. This would indicate that in the present day context, the doctors are opting more for the purchase of cars.

In the similar way we also tried to look at the financial needs of the doctors in future also. If one looks at the financial needs of the doctors in future, there seem to be more demand for credit for construction of hospitals (39 %) and construction of houses (16 %). Upgradation of the existing facilities would require about 20 per cent of the requirements. Purchase of equipments account for about 13 per cent of the total requirements. The following table would show the financial requirements of the doctors in future.

Table 4

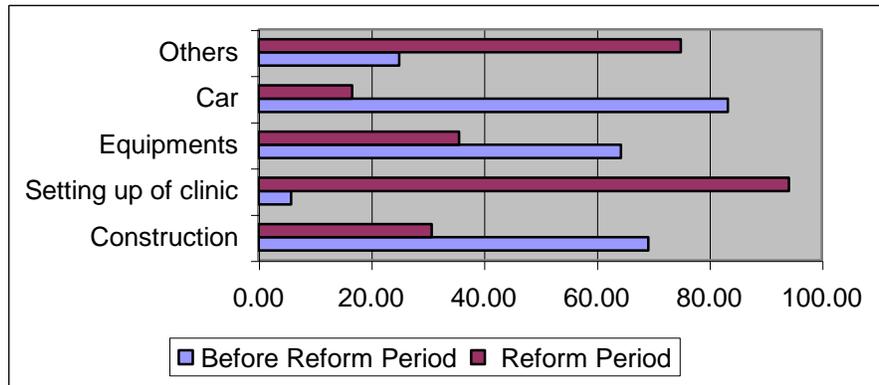
Financial Assistance Required in Future (Rs. In lakhs)

| Purpose for which financial assistance needed in future | Amount Required | % |
|---|-----------------|---------------|
| Upgradation | 83 | 20.46 |
| Construction (Hosp) | 161.7 | 39.86 |
| Construction (House) | 68.5 | 16.89 |
| Car | 15 | 3.70 |
| Equipment | 56.45 | 13.92 |
| Others | 21 | 5.18 |
| Group Total | 405.65 | 100.00 |

Most of the doctors have opted for the scheduled commercial banks for seeking financial assistance. The reason for this is lower rates of interest. Few other doctors who have opted for loans from new entrants into the banking sector like ICICI Bank and IDBI Bank. They have opined that fewer formalities and quick release of the money as the reasons for their decision.

In addition to the financial assistance obtained from the banks, the doctors have also put in their own resources also. The following graph would give us the percentage of resources put in by the doctors for different purposes during the reforms and prior to the reforms period.

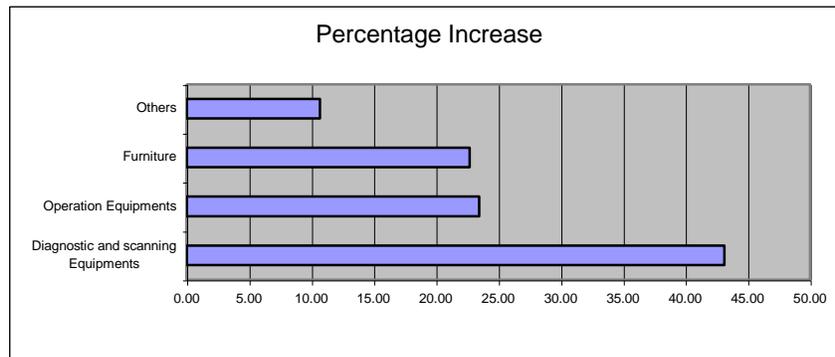
Own Resources Spend by Doctors (%)



From the graph one can note that prior to the reforms, the doctors have put in most of their resources either for construction or purchasing cars. In the reforms period doctors own resources have gone in towards setting up of clinics. This indicates that creation of new facilities in terms of clinics have been made out of own resources and new entrants into the medical profession shied away from heavy investments. This also explains large number of clinics established in the reforms period at the beginning of our discussion.

It would also be useful to know about how the costs of various equipments have behaved over the period of about ten years. We have collected the information about the costs of various equipments prior to the reforms and during the time of survey, which would give us an idea about the rise in the costs over the period of time. Following graph shows the increase in cost levels for different inputs purchased by the doctors.

Increase in Costs of Different Equipments



Diagnostic and scanning equipments and operation equipments have shown considerable increase in their costs. Diagnostic and scanning equipments have experienced an increase in costs to the extent of about 42 per cent while the respective figure for operation equipments is about 22 per cent. Such a steep increase would naturally have implications for the user fees collected by these private doctors, which would be finally passed on to the patients.

Finally we have tried to understand the view of these doctors with regard to the inclusion of medical services under the Consumer Protection Act. All the doctors taken together, about 21 per cent of have opined that such a move would increase the cost of treatment and 13 per cent feel that it is not useful to the patients. But as opposed to this 27 per cent of the doctors feel that there would be efficient delivery of health care services and about 19 per cent feel that it would be helpful to the patients. About 9 per cent of them feel that there are chances that such a move would be misutilised by the patients and may be detrimental to the interests of the doctors. With regard to the prescriptions of medicines to the patients it was found that 54 per cent of the doctors who have started practice prior to the reforms prescribe mainly the medicines of MNCs, whereas about 45 per cent of the doctors who have been practicing after the reforms have been introduced, have opted mainly for the medicines of Indian companies. Marginally the older doctors have inclination for MNCs and it may take some time for doctors to prescribe medicines produced by Indian companies. With regard to the health insurance, out of the total doctors about 80 per cent believe that health insurance will push up medical care costs.

By way of conclusion:

During the reforms period it is important to note that many of the doctors have opened the clinics and the share of nursing homes and hospitals have declined. This only means that doctors have been opting for smaller investments in the reforms period. There seem to be a marginal increase of practitioners solely practicing the traditional system of medicines. The staff strength of institutions show that number of specialists have increased in the reforms period. This has resulted in the provision of speciality care as against the general practitioners. The doctors who have started practice in the reforms period have been operating at higher levels of consultation fees. Certain pathological tests like blood test and urine test are costlier to the patients in the reforms period. As far as the financial assistance obtained by the doctors from financial institutions is concerned, the major chunk has gone in either for construction or for the purchase of cars. They do require financial support in future mainly for upgradation of existing facility, construction of house/health care unit and for buying new equipments. Most of the doctors in the reforms period have spent their own resources towards establishing the clinics and prior to the reforms they have used their won resources for the purchase of four wheelers. The rise in the cost of inputs shows that there is a considerable increase in costs during the reforms period. Diagnostic and scanning equipments and operation equipments have registered significant increase, in costs.

Rising cost of borrowings and other inputs have resulted in a higher level of fees charged by the doctors. This has also resulted in creation of fewer hospitals and nursing homes in the reforms period. The present study which has tried to make a modest attempt in bringing the above discussed aspects needs to be extended further. A detailed study involving the flow of finances from banks to other important elements of health sector like, drug outlets, medical and para medical education, (both for students as well as institutions) would throw light on the resource flows to the health sector. Such a understanding at least for one district would help in accessing the total resource flow to health sector. Currently the district planning exercise seems to be over looking such resource flows while formulating the health plan for the district.

C h a p t e r - 15

ECONOMIC REFORMS, WTO AND INDIAN DRUGS AND PHARMACEUTICALS INDUSTRY: IMPLICATIONS OF EMERGING TRENDS

**Nagesh Kumar
Jaya Prakash Pradhan**

1. Introduction

One of the important successes of economic development in post-Independent period has been ability to ensure availability of life saving drugs at affordable prices. The fact that the life saving and other drugs are available in India at a fraction of prices prevailing internationally has attracted widespread attention from other countries. Competitive prices have also resulted in rising exports of pharmaceuticals from India. This success is a result of a combination of policies consciously followed since late 1960s with the specific objective of providing affordable drugs for the masses. These strategic interventions included incentives for development of indigenous pharmaceutical industry, giving incentives for localization of production right from bulk drugs and intermediates and not just formulations, encouraging generics over branded products, and regulation of prices through the Drug Prices Control Order (DPCO). Finally and more importantly, it included building a national innovation system for developing process innovation capability in the country, through incentives for R&D activity to enterprises and providing an intellectual property protection (IPR) framework designed to facilitate indigenous process development of known compounds. This integrated framework has led to the development of a strong indigenous pharmaceutical industry which presently produces bulk of the country's requirement right from the raw material stage using indigenous and cost effective processes.

Over the past decade, however, there have been a number of changes in the policy framework developed since the late 1960s. Besides import liberalization and removal of restrictions on foreign firms, DPCO has been diluted as a part of economic reforms. The IPR framework is undergoing important changes as per India's obligations under the TRIPs Agreement of WTO covering adoption of product patents by 2005 and provision of pipeline protection through EMRs (exclusive marketing rights) in the transition period. All these trends of the past decade viz. liberalization of trade, investment and price regulations, and emerging changes in the IPRs are likely to have implications for the availability and prices of pharmaceutical products in India.

In this context this paper briefly reviews different elements of integrated drug policy framework as evolved between 1960s and 1990 and their effectiveness in bringing down drug prices. Then it discusses trends taking place since 1990 that tend to alter the policy framework evolved thus far that are likely to affect the availability of drugs and their prices in the coming years such as liberalization of trade, investment and pricing policies, strengthening IPR regime under TRIPs Agreement, among other policies.

The structure of the paper is as follows: Section 2 summarizes the contours of the integrated policy package evolved by the government of India over the 1950-90 period that led to rapid transformation of the pharmaceutical industry in India. Section 3 overviews the changes brought in the policy frame during the 1990s as a part of the economic reforms and as a part of India's commitments under the WTO Agreements. Section 4 examines the aspects of the Indian pharmaceutical industry development resulting from the policy package followed during the pre-reform period including availability of drugs and relative prices. Section 5 analyzes the implications of the reforms and WTO related changes in the policy frame on the pharmaceutical industry particularly in terms of prices, availability of drugs, technological capability, local production and technology transfer etc. Finally Section 6 concludes the paper with some remarks for policies to minimize the adverse effects.

2. Evolution of the Policy Regime

The government has adopted a number of policies over the past four decades to ensure the availability of life saving medicines at affordable prices for the health system of country catering to the needs of the poor masses. The government policy towards pharmaceutical industry can be broadly classified into two categories- (i) industrial policy including policies relating to foreign investment and technology and (ii) pricing policy. The evolution of both these policies is discussed below.

Industrial policy

Although foundation of indigenous pharmaceutical industry were laid in 1901 when Prof. P.C. Ray established the Bengal Chemicals and Pharmaceutical Works (BCPW), the country was largely dependent on imports for most of her requirements of drugs and pharmaceuticals at the time of Independence. However, since the Independence, the pharmaceutical industry has received due policy attention given its importance for the health security of the poor. In the first Industrial Policy Resolution 1948 (IPR, 1948) itself, the pharmaceutical industry was included in the list of 'basic industries' and its growth was subjected to plan targets and monitoring. However, the industry had little domestic technological base to start local production of modern drugs at that time. Whatever little growth impetus the industry had during the World War II was over by then. New therapeutic developments in the West with consequent replacement of many older drugs by newer drugs like sulpha, antibiotics, vitamins, hormones, antihistamine, tranquilizers, and psycho pharmacological substances had forced the nascent industry to stop production of many items that it was manufacturing before. The status of the industry was increasingly dependent on imports of bulk drugs and its processing into formulations.

The Industrial Policy Statement, 1956, grouped the pharmaceutical industry in the schedule 'B' where both state and private sector could operate. Although FDI was welcomed and given national treatment in the industry, government was finding it difficult to push MNEs to start domestic manufacture of bulk drugs and reduce the dependence on imports. Given the reluctance of MNEs to start production of important bulk drugs such as antibiotics in the country, the government set up Hindustan Antibiotics Ltd. in 1954 and Indian Drugs and Pharmaceuticals Ltd (IDPL) in 1961. These two enterprises have played an important role in not only starting domestic production of key bulk drugs but have had substantial spillovers in the form of generation of a new breed of entrepreneurs. One survey has shown that founders of one third of the 200 domestic enterprises surveyed had initially worked at IDPL including the founder of immensely successful Dr Reddy's Laboratories Ltd. (DRL) [Felker et al 1997]. The high tariffs also encouraged MNEs to set up local subsidiaries and indigenize the domestic processing of imported bulk drugs and other raw materials.

The Drugs and Pharmaceutical industry was included in the Appendix I of the Industrial Licensing Policy (1973). This priority status meant that under the Foreign Exchange Regulation Act (FERA) 1973, MNEs could retain up to 74 per cent ownership in their affiliates in India against a general limit of 40 per cent on maximum foreign shareholding permissible. However, keeping in mind the critical importance of building a self-reliant pharmaceutical industry, the government appointed a Committee to examine the status of the industry and make recommendations in the early 1970s. The Committee popularly called as the Hathi Committee, after its chairman Mr Jaisukhlal Hathi made extensive investigations into the factors that were preventing achievement of greater extent of self-reliance in the pharmaceutical industry in the country and made a number of recommendations in its Report published in 1975 (Hathi Committee 1975; also see Kumar and Chenoy 1982 for a discussion). A New Drug Policy 1978 was announced to implement some of the recommendations of the Hathi Committee. The Policy had three stated objectives, namely, self-sufficiency in drugs production, self-reliance in drugs technology and accessibility of quality drugs at reasonable prices. In order to achieve these objectives, the pressure was built on MNE affiliates to indigenize the production of bulk drugs from the basic stage. Thus the higher level of 74 per cent foreign equity was made applicable only to those MNE affiliates producing high technology drugs and others producing low technology drugs or processing imported/ domestically purchased bulk drugs were required to reduce their foreign equity holding to 40 per cent. Foreign companies producing finished formulations from imported bulk drugs or from penultimate stage were required to start production from the basic stage within a two year period. Further, licenses to foreign companies were to be given only if the production involves high technology bulk drugs and formulations based thereon. In 1981 the government took the decision of abolishing brand names for five categories of drugs as mentioned under Drug Policy, 1978, which includes analgin, aspirin, chlorpromazine, ferrous sulphate, and piperazine along with its salt. However, the move was blocked by MNEs with a court injunction. Another aspect of the government policies concerning the drugs and pharmaceutical industry was canalization of imports of bulk drugs. After the detection of a number of cases highlighting the substantial overpricing in imports of bulk drugs by MNEs from their parents or affiliated sources, the government started canalizing the imports of these bulk drugs through IDPL and State Chemicals and Pharmaceuticals Trading Corporation, (a subsidiary of the State Trading Corporation) and MNE affiliates were required to lift their requirements from them. The drug policy has been revised in 1986, however, broad objective of strengthening the indigenous production capability of drugs for ensuring their abundant availability at reasonable prices continued to remain intact.

Price Controls

Controls on prices has been an important feature of the Indian pharmaceutical industry right from the 1960s to ensure affordability of drugs to poor masses. The drug price controls have gradually evolved with Drugs (Display of Prices) Order, 1962, Drugs (Control of Prices) Order, 1963 and Drugs (Display and Control) Order, 1966. The attempt to control prices by the government met with resistance from the industry that argued that the controls will hamper the growth of the industry and in the long run limit its ability to meet rising demands for drugs. In view of the above criticisms, the government requested the Tariff Commission to examine the prices of 18 basic drugs and their single ingredient formulations in August 1966. Following the submission of the Tariff Commission report in August 1968, the first Drugs (Prices Control) Order was issued in May 1970. The Order had the prime objective of balancing the welfare of consumer and that of producers i.e. reducing the prices of essential drugs and at the same time ensuring reasonable profits for the growth of the industry by taking account of the prices of materials, conversion cost, packing charges, mark-up, excise duty and sales tax in the calculation of the retail price of a formulation. The government has acquired both the rights to fix the

maximum selling prices of essential bulk drugs (those included in the Schedule I of the appendix of the Order) and to change its composition. These 18 essential bulk drugs brought under the purview of DPCO 1970, accounted for less than 9 percent of total value of drugs marketed. The sale prices of other bulk drugs were frozen at the level prevailing immediately before the issue of the Order. The DPCO 1970 was revised in 1979 following the promulgation of the Drug Policy of 1978 based on the Hathi Committee recommendations. The revised DPCO categorized drugs into four categories: Life-saving, Essential, Less Essential, and Non-Essential/Simple Remedies. Of these the first three categories came under the ambit of price controls with mark-up (profits allowed) of 40 per cent, 55 Per cent and 100 per cent respectively. In all 347 drugs came under the purview of DPCO accounting for 90 per cent of the industry. Two other measures of the Order that were significant for stimulating indigenous production were: (i) keeping small scale sector out of price control and (ii) the new bulk drugs developed through local R&D in India also exempted from the purview of price control for a period of five years.

The tighter price controls on the first two categories of drugs led MNEs to increase their focus on the production on the less essential and non-essential formulations. Growing resistance of the industry to the DPCO 1979 led the government to issue a modified DPCO in August 1987 that reduced the scope of DPCO to 166 drugs from 347 besides enhancing the stipulated mark-up for the included formulations. As will be seen later that the scope of price controls has been further restricted in the 1990s as a part of the reforms.

IPR Regime and Incentives to Domestic R&D Activity

Amendment of the Patent Act

India had inherited The Patents and Designs Act 1911 from the colonial times that provided for protection of all inventions except those relating to atomic energy and a patent term of 16 years from the date of application. However, a few domestic chemical and pharmaceutical enterprises that tried to develop their own technology in the 1960s ran into trouble with foreign patent owners. A number of cases highlighted that foreign patent owners were neither using their patents for domestic manufacture nor allowing them to be used by local firms¹. That led to a build-up of pressure in the late 1960s for a new patent law. Desai (1980) in a questionnaire survey of 53 firms conducted in 1969 found that by and large foreign firms were against any liberalization of patent laws, Indian firms were not against patents but wanted greater access to patented know-how especially when patent owners not allowing their patents to be used. The conflict of views was sharper in chemicals and pharmaceuticals where patents had been used to prevent entry of Indian firms. Therefore, a new Patents Act was adopted in 1970 that reduced the scope of patentability in food, chemicals and pharmaceuticals to only processes and not products. Since virtually any chemical compound can be made by a variety of processes, the scope of patent protection was greatly reduced. The term of process patents was reduced to 7 years in food, drugs and chemicals and to 14 years for other products. The compulsory licenses could be issued after three years.

It is by now widely recognized that the abolition of product patents in chemicals and pharmaceuticals has facilitated the development of local technological capability in chemicals and pharmaceutical industry by enabling the domestic firms in their process innovative activity. A number of quantitative studies have shown that the innovative activity of Indian domestic enterprises was facilitated by the softer patent regime under the 1970 Act (see Fikkert 1993, Haksar 1995, Kumar and Saqib 1996).

Incentives to Domestic R&D Activity

As a part of the national innovation systems, the government in India has spent a considerable effort to develop infrastructure for human resource development, scientific and technological infrastructure and direct involvement in technology development in the public funded national laboratories (see Kumar 2001). Besides creation of S&T infrastructure the government has encouraged industrial enterprises to take up in-house R&D activity through other policy instruments. In 1974 a scheme for recognition of in-house R&D establishments of industrial units was started. The recognised R&D units received facilities for import equipment, raw material, samples, prototypes, etc., for their R&D work under Open General License, without any ceiling. Sometimes foreign collaboration approvals/extensions were granted with the understanding that importer would undertake R&D activity to absorb the technology. Technology Absorption and Adaptation Scheme (TAAS) of DSIR aims to provide a catalytic support for accelerated absorption and adaptation of imported technologies by the industrial units. It was made mandatory to highlight efforts taken towards absorption of technology imports in a separate chapter of the annual report of all the importing firms (DSIR, 1986). In addition industry research associations have been set up to take up work on common problems. In 1988 the DSIR launched a scheme of granting recognition to Scientific and Industrial Research Organizations (SIROs). At present there are 159 SIROs recognized by the DSIR. The SIROs have employed qualified scientists and researchers and also established good infrastructural facilities for research.

The New Drugs Policy (1978) obliged the foreign companies with turnover in excess of Rs. 50 million to have R&D facilities within the country with capital investment of at least 20 percent of their net block and to spend at least 4 percent of their turnover on R&D. It also specified one to two percent higher profit ceiling for drug companies engaged in approved R&D work.

Government has evolved from time to time fiscal incentives and support measures to encourage R&D in industry and increased utilization of locally available R&D options for industrial development. Fiscal incentives and support measures presently available include:

- Full Income Tax relief on the in-house R&D expenditure by the company related to the business of the company is permitted. R&D expenditure in government approved in-house R&D centres is allowed a weighted relief of 125 per cent since 1998 for companies engaged in the business of manufacture or production of drugs and pharmaceuticals, besides electronic equipment, computers, telecommunication equipment, computers, telecommunication equipment and chemicals. In the Budget 2000, the weighted relief was raised to 150 per cent.
- R&D units can also avail, weighted tax deductions for sponsored research programme in approved national laboratories, universities and IITs, weighted tax deduction on R&D expenditure in drug, pharmaceuticals, electronic equipment, computers, telecommunication equipment, financial support for R&D project, exemption from price control for bulk drugs produced based on indigenous technology.
- Expenditures made on capital equipment and related to research activities by recognized R&D units are allowed to be written off in the year the expenditures are incurred.
- In 1996-97 government proposed to provide for a five year tax holiday to approved companies whose main objective is scientific and industrial research. It is provided to all new and existing companies, which are accorded approval before April 1, 1998. Besides, the government have introduced a system of allowing accelerated depreciation in respect of blocks of assets and rationalized the rate structure by reducing the number of rates as also by providing for depreciation at higher rates.

- Donations given to scientific research associations, institutions and universities are exempted from income tax provision. Scientific research institutions, associations, Universities and colleges that undertake research in medical, agricultural, natural and applied sciences are exempted from income tax on donations from industry and other sources. The donors are also allowed deductions from their income to the extent of donation.
- All SIROs are eligible for custom duty exemption on the imports of scientific equipment, instruments, spares, accessories as well as consumables for R&D activities.
- 1996-97 budget introduced the provision of custom duty exemption on specific goods imported for use in R&D projects funded partly by any Department of the central government and undertaken by the company in their R&D unit recognized by DSIR. Furthermore, imports of equipment, spares, accessories and consumables for research purposes by public funded research institutions, universities, IIT, IIS Bangalore and Regional Engineering colleges are also exempted from the duty.
- All SIROs are eligible for excise duty exemption on the imports of scientific equipment, instruments, spares, accessories as well as consumables for R&D activities; computer software, CDROM, recorded magnetic tapes, micro films, microfiches and prototypes for R&D.
- Public funded research institutions are also given excise duty waiver on purchase of indigenously manufactured equipment, spare parts and accessories and consumables for scientific research.

In order to encourage in-house R&D and commercialization of indigenous technology, DSIR has instituted National Awards for Outstanding R&D Achievements and Commercialization of Public Funded R&D in 1987 given annually.

Funding of R&D Projects in Industry

Over the years a number of programmes for directly supporting R&D activity in the industry have been started by different scientific agencies of the Indian government. These include:

- DSIR operates a Programme aimed at Technological Self Reliance (PATSER) to support R&D projects in Industry. About 100 R&D and design and engineering projects have been supported by the end of 1998. Some of these projects involve collaboration with public funded R&D institutions.
- DST is funding several industrial R&D programmes such as Home Grown Technology Projects, Drugs and Pharmaceuticals Research Programme, Instrument Development Programme and Advanced Materials development Programme.
- Department of Biotechnology (DBT) has been promoting and financing various aspects of biotechnology R&D activity undertaken by industry and other institutions including applications in drugs and pharmaceuticals.
- Technology Development Fund: This Fund created out of collection of a 5 per cent cess imposed on the technology import payments is used to help the indigenously developed technologies reach the stage of commercial production. A Technology Development Board has been constituted in 1995 to utilize the Fund by providing grants, loans or equity capital for the purpose of promoting indigenous technology development and application.
- In the Budget for the year 2000-2001, a separate fund Rs 150 crores for supporting R&D activity in pharmaceutical industry was announced.

Incentives for Utilization of Indigenous R&D

The government has promoted the National Research Development Corporation (NRDC) with the specific responsibility of transferring technology from R&D laboratories to industry. NRDC commercialises the technologies developed with government support, undertakes further work towards upscaling the laboratory know-how, setting up pilot plant, etc., and even provides risk finance to development projects. In addition, utilization of indigenous R&D is sought to be promoted by various other incentives. All goods manufactured by a wholly Indian owned company are exempted from excise duty provided these are patented in any two countries from amongst India, USA, Japan and any one country of the EU for a period of three years. The drugs and medicines developed indigenously do not fall in purview of the Drugs Price Control Order for the first five years. A higher rate (40 percent) of investment allowance and depreciation is applicable to plant and machinery installed (since 1987) for manufacture of goods based on indigenous technology. The indigenous technology-based products were exempt from provisions of industrial licensing and proposals based on indigenous technology enjoyed a preferential treatment in industrial licensing. Royalties earned by Indian companies abroad through export of indigenous technologies are completely free of tax, and those earned within the country are given a 40 percent rebate.

Furthermore, to inculcate technological entrepreneurship in the country, the public sector financial institutions such as IDBI, ICICI, IFCI have set up venture capital funding companies to assist new generation of techno-entrepreneurs. Private venture capital funds and angel investors have been allowed to operate in India as per the SEBI regulations.

DSIR has set up Technology Business Incubation Centres at the research institutions to facilitate speedier transfer of know-how developed. IITs and other technology institutions are setting up industrial consultancy and extension centres to facilitate utilization of domestic R&D and encourage technology entrepreneurship among their alumni. DST has set up S&T Entrepreneurial Parks. These Parks provide infrastructural facilities to techno-entrepreneurs to start their business activity expeditiously.

3. Reforms and Implementation of WTO Commitments

The industrial, trade and technology policy framework evolved over the 1950-90 has considerably changed in the 1990s as a part of the economic reforms undertaken by the government and also the implementation of the commitments undertaken by the country under the WTO Agreements. The important changes have been brought about in the industrial policy and FDI policy, trade policy, regime governing the exchange rates and capital markets, patent protection and price controls. In what follows we summarize the changes that have been brought about particularly those relevant for the pharmaceutical industry.

Industrial Policy

The New Industrial Policy (NIP) announced on 24th July 1991 and subsequent amendments brought far-reaching changes in the policy regime governing the industrial investments. Although the NIP dismantled the industrial licensing (or approval) system by abolishing the requirement of obtaining an industrial license from the government, drugs and pharmaceuticals industry is included among the 14 specified industries that continue to remain under the ambit of licensing given the social well-being consideration. NIP accords a much more liberal attitude to foreign direct investments (FDI) than ever in the post Independence India. The Policy allows automatic approval system for priority industries by the Reserve Bank of India within two weeks subject to their fulfilling specified equity norms. As one of the select priority

industries specified in Annexure III-C of NIP, foreign ownership up to 51 per cent was to be allowed on automatic basis for pharmaceutical industry for manufacture of bulk drugs and formulations thereof. Later on, the pharmaceuticals industry was included in the list for automatic approval up to 74 per cent in March 2000 and to 100 per cent in December 2001.

In September 1994, government announced a revision of the Drug Policy 1986 which includes measures like abolishing industrial licensing requirements for majority of drugs barring few; removing restriction on the imported bulk drugs, scrapping the linkage requirement (where a stipulated percentage of bulk drug production need to be supply to non-associated formulators), and limiting the scope of price control and providing for establishment of the National Drug Authority to monitor quality and the National Pharmaceutical Pricing Authority to fix prices of both bulk drugs and formulations. On 15 February 2002, the government unveiled the Pharmaceutical Policy 2002 to take into account the emerging challenges in the wake of WTO Agreements and hence the need for new initiatives 'towards promoting accelerated growth of pharmaceutical industry and towards making it more internationally competitive'. This covered implementation of the recommendations of two committees that the Government had appointed in 1999. These include the Pharmaceutical Research and Development Committee (PRDC) under the Chairmanship of Dr R.A. Mashelkar, DG, CSIR, and the other Drugs Price Control Review Committee (DPCRC) headed by the Secretary, Department of Chemicals and Petrochemicals. The 2002 Policy has abolished the industrial licensing requirements for all bulk drugs cleared by Drugs Controller General (India), all intermediates and formulations except for those produced by recombinant DNA technology, those requiring in-vivo use of nucleic acids as the active principles, and specific cell/ tissue targeted formulations. Automatic approval for foreign ownership up to 100 per cent and foreign technology agreements will also be available for all the cases except those included in the industrial licensing requirements.

Price controls

Another aspect of the reforms has been substantial dilution of the price controls. A new DPCO was notified on 6th January 1995 bringing down the number of drugs under the ambit of price controls to 74 from 166 under the 1987 Order. These 74 drugs covered under DPCO 1995 account for only about 40 percent of the total market thus setting the bulk of the pharmaceuticals market out of price controls. In identifying this list, the Government has followed an exclusion-cum-inclusion criterion, excluding drugs in which there is a sufficient market competition and including those where there is a monopoly situation. Secondly, there is a single list of drugs under the price control with a MAPE (Maximum Allowable Post Manufacturing Expenses) of 100 percent. Thirdly, all formulations under DPCO drugs sold whether under branded or generics cannot escape price fixation. Lastly, exemption period for new drugs produced by indigenous R&D has been increased from five years to ten years. A National Pharmaceutical Pricing Authority (NPPA) has been set up in 1997 to administer the DPCO. The Pharmaceutical Policy 2002 has proposed further dilution of the price controls following the recommendations of DPCRC 1999. The guiding principle for identification of specific bulk drugs for price controls to be mass consumption nature of the drug and absence of sufficient competition in such drugs. The bulk drugs will be kept under price controls under the new policy if the moving annual total value for any formulator is more than Rs 25 crores and the percentage share of any formulators is 50 per cent or more, or in case of less than Rs 25 crores but more than Rs 10 crores, the share of any formulator is 90 per cent or more. The maximum allowable post-manufacturing expenses (MAPE) will be 100 per cent for indigenously manufactured formulations and 50 per cent of the landed cost in case of imported formulations. The exemption from price controls for drugs developed indigenously has been extended to 15 years or to the term of process patents or indigenous new drug delivery system². With these changes the scope of price controls will be

reduced to only 22 per cent of the total market³. Therefore, the 1990s have seen a substantial reduction in the scope of price controls in the industry. It is likely to have affected the prices of drugs as will be seen later.

WTO Commitments: Trade Liberalization and TRIPs

As a part of the liberalization of trade policy under the reforms and WTO commitments, the tariff rates applicable to drugs and pharmaceuticals have been brought down. A two tiered structure is applicable with a zero per cent tariff and zero per cent countervailing duty for essential items and 30 per cent tariff and a 16 per cent cvd for all others⁴. The new tariff structure therefore, does not differ according to value addition and hence does not give any encouragement to local production.

The TRIPs Agreement of WTO accommodates the demands of the industrialized countries for higher international standards of protection by mandating the extension of patentability to virtually all fields of technology recognized in developed country patent systems, by prolonging the patent protection for a uniform term of twenty years, and by providing legal recognition of the patentee's exclusive rights to import the patented products. The patent rights are enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced. All the signatories to the trade negotiations are, therefore, obliged to harmonize their IPR regime and to provide product patents for pharmaceuticals and chemicals. The coverage of the patent protection has also been expanded by the provision for patents on micro-organisms and protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.

The TRIPs Agreement of WTO is likely to have major implications for the drugs and pharmaceutical industry. India will have to extend the scope of patenting to chemical and pharmaceuticals and increase the term of patents to 20 years from the present 7 and 14 years. However, developing countries not providing product patents are given a 10 years transition to evolve product patents. However, in the interim period a mailbox mechanism must be set up to provide exclusive marketing rights (EMR) to applicants for product patents. In order to comply with the India's commitments under the TRIPs Agreement, amendments have been brought in the Indian Patents Act 1970. A 1999 Amendment has been brought to provide for exclusive marketing rights (EMRs) a pipeline mechanism during the transition period to adopt product patents. India has a ten years transition to provide product patents viz. till the end of 2004. A Bill for Second Amendment to the Indian Patents Act 1970 to extend the term of patents to 20 years is in the Parliament. India has also joined the Paris Convention and the Patent Cooperation Treaty in 1998. These changes in the IPR regime are likely to have important implications for the pharmaceutical industry as will be seen later.

Incentives for Domestic Innovative Activity

As a part of preparing the industry to take challenge of TRIPs, the government has taken several initiatives. As observed earlier, a Pharmaceutical Research and Development Committee (PRDC) chaired by Dr RA Mashelkar was set up in 1999. The PRDC has proposed a vision of transforming the country into a knowledge power in the industry. Following the recommendations of PRDC 1999, the Pharmaceutical Policy 2002 has proposed to set up a Drug Development Promotion Foundation (DDPF) and a Pharmaceutical Research and Development Support Fund (PRDSF) besides incentives for fruits of indigenous development in the form of exemptions from price controls. A new Central Drugs Standard Control Organization has also been proposed to set up to administer safety, efficacy and quality norms of global standards.

4. Government Policies and Development of Indigenous Capability in the Indian Pharmaceutical Industry in the Pre-Reform Period

It is by now widely recognized that the integrated policy framework pursued during the 1970s till 1990 covering an industrial policy favouring domestic enterprises, trade policy encouraging domestic production, patents policy and national innovation system facilitating the development of local technology, and price controls have led to a rapid development of Indian pharmaceuticals industry from one dependent on imports for domestic consumption in to a US\$ 4 billion industry by 2000 AD, one that is not only self reliant in indigenous manufacture of most of the critical bulk drugs but generates exports surpluses. In 1970 much of the country's pharmaceutical consumption was met by imports and the bulk of domestic production of formulations was dominated by MNE subsidiaries. Of the top ten firms by retail sales in 1970 only two were domestic firms and the others were MNE subsidiaries. In 1996 six of the top ten firms in the industry are Indian firms. By 1991, domestic firms accounted for 70 per cent of the bulk drugs production and 80 per cent of formulations produced in the country (Lanjouw 1998).

Broad-based Production Network

To understand the gradual evolution of the industry, it is useful to look at the changing composition of output of formulations and of bulk drugs in terms of shares of MNEs, public sector, Indian private sector —large and small scale over 1974/5 to 1985/6 period as summarized in Table 1. It is apparent that MNE affiliates dominated the output of formulations in the mid-1970s with over 50 per cent of the market. However, their share had gradually come down to 40 per cent while that of the domestic small-scale companies has gradually increased. A much sharper change in composition is evident in bulk drugs production where share of MNE affiliates has gradually declined from nearly 40 per cent in the mid-1970s to only 18 per cent. The local public sector and private sector enterprises including small-scale firms have gradually expanded their bulk drug production to achieve self-sufficiency. This would also suggest that MNE affiliates concentrate on production of formulations given their ownership of popular brand names. Public sector enterprises played an important role in starting the indigenous production of bulk drugs in the country in the 1960s and 1970s a trend that was later on picked up by other domestic enterprises. One striking feature of the evolution of Indian drugs industry is faster growth of small-scale sector which has been facilitated by various favorable policies like the exemption from the DPCO, reservation of drugs for exclusive production in small scale sector, process patents permitting them to develop their own process of making a drug at a lower cost, etc. Over the years small scale sector has diversified its production base to produce many important bulk drugs/intermediates like Ampicillin Trihydrate, Amoxicillin, Trimethoprim, Sulphamethoxazole, Analgin, 6-APA, Chloramphenicol, etc. The small-scale firms account for the bulk of the 20,000 companies that exist in the industry now. Therefore, the Indian pharmaceutical industry is broad based and not dominated by a handful of large players.

Table 1: Growth of Production of Pharmaceuticals in India by Ownership Groups, 1974-75 to 1985-86

| Year | Public Sector | | MNE Affiliates (Foreign) | | Organized Indian Sector | | Small scale Indian | | Total |
|---------------------|---------------|-----------------------|--------------------------|-----------------------|-------------------------|-----------------------|--------------------|-----------------------|-------|
| | Value | % of total production | Value | % of total production | Value | % of total production | Value | % of total production | |
| Formulations | | | | | | | | | |
| 1974-75 | 25 | 6.25 | 203 | 50.75 | 172* | 43 | | | 400 |
| 1975-76 | 35 | 6.25 | 300 | 53.57 | 225 | 40.18 | | | 560 |
| 1976-77 | 47 | 6.71 | 292 | 41.71 | 241 | 34.43 | 120 | 17.14 | 700 |
| 1978-79 | 60 | 5.71 | | | 800** | 76.19 | 190 | 18.1 | 1050 |
| 1979-80 | 72 | 6.26 | | | 778** | 67.65 | 300 | 26.09 | 1150 |
| 1982-83 | 100 | 6.25 | 640 | 40 | 443 | 27.69 | 417 | 26.06 | 1600 |
| 1983-84 | 110 | 6.25 | 704 | 40 | 487 | 27.67 | 459 | 26.08 | 1760 |
| 1984-85 | 114 | 6.24 | 731 | 40.01 | 505 | 27.64 | 477 | 26.11 | 1827 |
| 1985-86 | 121 | 6.22 | 778 | 40 | 538 | 27.66 | 508 | 26.12 | 1945 |
| Bulk Drugs | | | | | | | | | |
| 1974-75 | 33 | 36.7 | 34 | 37.8 | 23* | 25.6 | | | 90 |
| 1975-76 | 43 | 33.1 | 52 | 40 | 25 | 19.2 | 10 | 7.7 | 130 |
| 1976-77 | 48 | 32 | 63 | 42 | 29 | 19.3 | 10 | 6.7 | 150 |
| 1978-79 | 49 | 24.5 | 56 | 28 | 75 | 37.5 | 20 | 10 | 200 |
| 1979-80 | 59 | 26.1 | 53 | 23.5 | 90 | 39.8 | 24 | 10.6 | 226 |
| 1980-81 | 62 | 25.8 | 56 | 23.3 | 95 | 39.6 | 27 | 11.3 | 240 |
| 1981-82 | 67 | 23.1 | 73 | 25.2 | 120 | 41.4 | 30 | 10.3 | 290 |
| 1982-83 | 67 | 20.6 | 72 | 22.2 | 121 | 37.2 | 65 | 20 | 325 |
| 1983-84 | 61 | 17.2 | 65 | 18.3 | 155 | 43.7 | 74 | 20.8 | 355 |
| 1984-85 | 64 | 17 | 68 | 18 | 166 | 44 | 79 | 21 | 377 |
| 1985-86 | 71 | 17.1 | 75 | 18 | 183 | 44 | 87 | 20.9 | 416 |

Note: * includes production in small-scale sector and ** includes production in foreign sector.

Source: (i) Department of Chemicals and Fertilizers, Basic Data on Drugs Industry, 1977-78

(ii) IDMA (1989) Annual Publication

(iii) DSIR (1990)

Availability and Prices of Drugs

A major achievement of India in the industry has been development of domestic technological capability. Facilitated by the abolition of product patent regime with the Patents Act of 1970, and the availability of S&T infrastructure in the country local enterprises have embarked on a major initiative to develop cost-effective processes for indigenous manufacture of known chemical compounds and other bulk drugs. The development of process innovation capability of Indian enterprises has enabled them to introduce newer medicines within a short time lag. Table 2 shows that most of the drugs could be introduced within 4-5 years of their introduction in the world market. Table 2 also shows that the prices of these drugs in India have been much cheaper compared to rest of the world. For instance, Ranitidine, Famotidine, Astemizole, Ondansetron sell in the US market at about 50 times the Indian prices! The cheaper prices of drugs have made them affordable to the masses of poor in the country and thus have served an important social cause of providing access of modern medicine to poorer people.

Table 2: Introduction of New Drugs and Relative Prices Patentable Drugs in India

| Brand & Dosage (pack) | Year | | | | Prices (in Rs in 1994) | | | | Times costlier | | |
|----------------------------------|--------------------|---------------------------|------------------|------------------------|---------------------------|----------|--------|--------|----------------|------|------|
| | World Introduction | Indian Marketing Approval | Introduction lag | European Patent Expiry | India | Pakistan | USA | UK | Pakistan | USA | UK |
| <i>Antibiotic/ Antibacterial</i> | | | | | | | | | | | |
| Ofloxacin 200mg (4 tab) | | 1990 | | 2001 | 92 | 117.2 | 408.1 | 217.3 | 1.3 | 4.4 | 2.4 |
| Ciprofloxacin 500mg (4 tab) | 1985 | 1989 | 4 | 2001 | 28.4 | 234.6 | 438.2 | 291.5 | 8.3 | 15.4 | 10.3 |
| Norfloxacin 400mg (10 tab) | 1984 | 1988 | 4 | 1998 | 39 | 125.5 | 903.7 | 254.4 | 3.2 | 23.2 | 6.5 |
| Pefloxacin 400mg (4 tab) | | 1991 | | 1998 | 15.6 | 59.4 | | | 3.8 | | |
| <i>Anti-ulcer</i> | | | | | | | | | | | |
| Ranitidine 300mg (10 tab) | 1981 | 1985 | 4 | 1997 | 18.5 | 260.4 | 1050.7 | 484.4 | 14.1 | | 26.1 |
| Famotidine 40mg (10 tab) | 1984 | 1989 | 5 | 1999 | 18.6 | 260.4 | 1004.2 | 503.5 | 14 | | 27.1 |
| Omeprazole 20 mg (10 tab) | | 1991 | | 1999 | 29 | | 1270.5 | 671 | | | 23.1 |
| <i>Cardiac care</i> | | | | | | | | | | | |
| Lisinopril 5mg (10 tab) | | | | 1999 | 35 | | 264.6 | 181.3 | | | 5.2 |
| Enalapril Maleate 5mg (10 tab) | 1984 | 1989 | 5 | 1999 | 15.9 | 37.2 | 316.9 | 148.8 | 2.3 | | 9.4 |
| Ketoconazole 200mg (10 tab) | 1981 | 1988 | 7 | 1997 | 57.9 | 222 | 1082.9 | 277.2 | 3.8 | | 4.8 |
| <i>Anti-histamine</i> | | | | | | | | | | | |
| Astemizole 10mg (10 tab) | 1986 | 1988 | 2 | 1999 | 12 | 120.9 | 647.5 | 142.6 | 10.1 | | 11.9 |
| <i>Others</i> | | | | | | | | | | | |
| Ondansetron HCl 4mg (6 tab) | | | | 2005 | 39.5 | | 2247 | 1287.9 | | | 32.6 |

Source: constructed on the basis of Lanjouw (1998), Watal (2000) with other supplementary information.

Local Technological Capability and Comparative Advantage

Indian pharmaceutical industry has emerged in the country as one with a much higher emphasis on technological development and R&D activity. An analysis of about 900 R&D performing companies in the Indian corporate sector summarized in Table 3 shows that R&D to sales ratio for the entire sample for the 1992/3 to 1998/9 was 0.846 per cent, the average ratio for the drugs and pharmaceuticals industry was 1.55 per cent. Furthermore, the data summarized in Table 3 shows that domestic enterprises in the industry are more active in R&D with an R&D intensity of 1.72 per cent compared to 1.1 per cent for their MNE counterparts.

The growing emphasis has led to build up on local technological capability especially in process innovation. The increasing domestic technological capability is reflected in terms of rising exports of drugs and pharmaceuticals. With their cost effective process innovations, Indian companies have emerged as competitive suppliers in the world of a large number of generic drugs. That has resulted in a steady growth of India's exports of drugs and pharmaceuticals. Thus the industry has evolved from being one being highly import-dependent to one that generates increasing export surplus for the country. The faster growth of pharmaceutical exports has resulted in their share in India's exports rising from 0.55 per cent in 1970-71 to over 4 per cent by the 1999/00 (Table 4).

Table 3: R&D Intensities in Indian Corporate Sector

(percentages)

| Industry | 1992-93 to 1994-95 | | | 1995-96 to 1998-99 | | | 1992-93 to 1998-99 | | |
|------------------|--------------------|----------------|--------|--------------------|----------------|--------|--------------------|----------------|---------|
| | Local | MNE Affiliates | Total | Local | MNE Affiliates | Total | Local | MNE Affiliates | Total |
| Drugs and pharma | 1.69 | 1.06 | 1.57 | 1.74 | 1.12 | 1.58 | 1.72 | 1.1 | 1.55 |
| | -0.023 | -0.012 | -0.021 | -0.021 | -0.013 | -0.019 | -0.022 | -0.928 | -0.02 |
| | 128 | 48 | 176 | 220 | 80 | 300 | 348 | 128 | 476 |
| Full Sample | 0.9 | 0.766 | 0.868 | 0.831 | 0.852 | 0.835 | 0.854 | 0.818 | 0.846 |
| | -0.015 | -0.008 | -0.014 | -0.015 | -0.011 | -0.014 | -0.015 | -0.01 | -0.0145 |
| | 1125 | 338 | 1463 | 2169 | 577 | 2746 | 3294 | 915 | 4209 |

Note: Parentheses show S.D; the bottom figure represents number of observations.

Source: Kumar and Agarwal 2001

Table 4: India's Trade in Pharmaceutical Products, 1970-71 to 1999-2000 (Current prices)

In Rs. Crores (10 millions)

| Year | Trade in medicinal and pharmaceutical products | | | Pharmaceutical exports as a % of India's total exports |
|-----------|--|---------|---------------|--|
| | Exports | Imports | Trade balance | |
| 1970-71 | 8.5 | 24.3 | -15.8 | 0.55 |
| 1971-72 | 9.6 | 26.6 | -17 | 0.6 |
| 1972-73 | 10.3 | 23.2 | -12.9 | 0.52 |
| 1973-74 | 15.1 | 26.4 | -11.3 | 0.6 |
| 1974-75 | 23 | 34.2 | -11.2 | 0.69 |
| 1975-76 | 22.2 | 36.3 | -14.1 | 0.55 |
| 1976-77 | 24.2 | 42.2 | -18 | 0.47 |
| 1977-78 | 31.2 | 63.6 | -32.4 | 0.58 |
| 1978-79 | 56.5 | 79.2 | -22.7 | 0.99 |
| 1979-80 | 87.5 | 73.9 | 13.6 | 1.36 |
| 1980-81 | 67.4 | 84.6 | -17.2 | 1 |
| 1981-82 | 122 | 84.4 | 37.6 | 1.56 |
| 1982-83 | 112.2 | 88.8 | 23.4 | 1.27 |
| 1983-84 | 155.2 | 146.9 | 8.3 | 1.59 |
| 1984-85 | 234.2 | 137.1 | 97.1 | 1.99 |
| 1985-86 | 157.9 | 177.2 | -19.3 | 1.45 |
| 1986-87 | 161.3 | 213.8 | -52.5 | 1.3 |
| 1987-88 | 326.1 | 167.8 | 158.3 | 2.08 |
| 1988-89 | 473.7 | 236.4 | 237.3 | 2.34 |
| 1989-90 | 849.6 | 399.7 | 449.9 | 3.07 |
| 1990-91 | 1014.1 | 468.4 | 545.7 | 3.11 |
| 1991-92 | 1550.1 | 558.5 | 991.6 | 3.52 |
| 1992-93 | 1533 | 813.2 | 719.8 | 2.86 |
| 1993-94 | 2009.7 | 808.8 | 1200.9 | 2.88 |
| 1994-95 | 2512.3 | 937.2 | 1575.1 | 3.04 |
| 1995-96 | 3408.7 | 1358 | 2050.7 | 3.21 |
| 1996-97 | 4341.8 | 1089.2 | 3252.6 | 3.65 |
| 1997-98 | 5419.3 | 1447.1 | 3972.2 | 4.17 |
| 1998-99 | 6256.07 | 1615.2 | 4640.87 | 4.48 |
| 1999-2000 | 6631.45 | 1502.3 | 5129.15 | 4.07 |

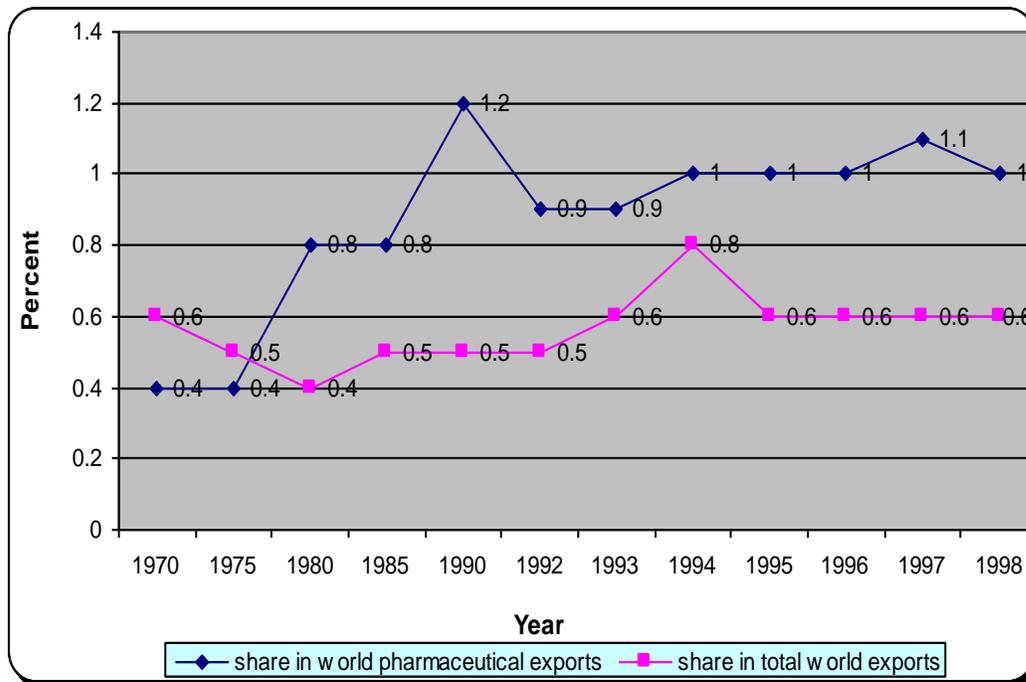
Source: RBI (2000), *Handbook of Statistics on Indian Economy*, Bombay: the Reserve Bank of India

Emerging revealed comparative advantage of India in pharmaceuticals is apparent from Table 5 and Figure 1 which show that India's share in world exports of pharmaceuticals has risen by 2.5 times while her share in all merchandize exports has stagnated at about 0.6 per cent throughout the 1970 to 1998 period.

**Table 5: India's Pharmaceutical exports in World Trade, 1970 to 1998
(Current prices) In US\$ million**

| Year | Share of India in World Exports | |
|------|---------------------------------|-----------------|
| | All Merchandize | pharmaceuticals |
| 1970 | 0.6 | 0.4 |
| 1975 | 0.5 | 0.4 |
| 1980 | 0.4 | 0.8 |
| 1985 | 0.5 | 0.8 |
| 1990 | 0.5 | 1.2 |
| 1995 | 0.6 | 1 |
| 1997 | 0.6 | 1.1 |
| 1998 | 0.6 | 1 |

Source: India, *Economic Survey 2000/01* and the UN *International Trade Statistics Yearbook 1998*, United Nations



**Table 6: Major Exporters of Medicinal and Pharmaceutical Products
in the World**

| Countries | 1994 | 1995 | 1996 | 1997 | 1998 |
|--------------------|--------------|--------------|-------------|--------------|--------------|
| Germany | 8739.1 | 10268.3 | 10711.8 | 11655 | 14036.7 |
| United Kingdom | 6080 | 7720 | 8320.1 | 8940.2 | 9666.6 |
| Switzerland | 6324.9 | 7589.8 | 8411.2 | 8208.5 | 9854.4 |
| USA | 6184.5 | 6554 | 7330.1 | 8230.5 | 9660.8 |
| France | 5415.4 | 6864.4 | 7244.7 | 7900.8 | 9314.5 |
| Belgium | 3333.1 | 4120.6 | 4301.6 | 4885.5 | 5481.8 |
| Italy | 2759.3 | 3630 | 4299.3 | 4430.3 | 4897.8 |
| Netherlands | 2780.7 | 3973.8 | 3437.9 | 3770.6 | 3519.6 |
| Sweden | 2467.5 | 2546.2 | 2943 | 3057.6 | 3567.5 |
| Ireland | 1847.6 | 2105.8 | 2782.8 | 3356.7 | 4745.4 |
| Denmark | 1615.1 | 2160.8 | 2214.6 | 2272.4 | 2213.3 |
| Japan | 1547.9 | 1843.7 | 1889.4 | 1952.4 | 1915.1 |
| China | 1185.3 | 1582 | 1516.1 | 1536.2 | 1692.3 |
| Spain | 1061.2 | 1164.9 | 1414 | 1516.9 | 1702.6 |
| Austria | 1054 | 1333.7 | 1374.5 | 1324.9 | 1343.1 |
| Hong Kong, SAR | 832.9 | 975.3 | 1020.1 | 967.5 | 882.4 |
| India | 585.8 | 724.2 | 814 | 947.2 | 901.1 |
| Canada | 504.7 | 611.1 | 683.4 | 957.7 | 1052.1 |
| Australia | 534.3 | 618.8 | 737.7 | 784.5 | 768.6 |
| Singapore | 494.8 | 601.2 | 616.2 | 616.6 | 592 |
| Mexico | 296.7 | 399.4 | 552.4 | 636.8 | 715.9 |
| Slovenia | 283.1 | 318.8 | 357.7 | 402 | 387.8 |
| Israel | 276.4 | 255.3 | 334.3 | 416.7 | 396.6 |
| Hungary | 249.4 | 276.6 | 281.4 | 357.3 | 311.6 |
| Korea, Republic of | 218.5 | 259.4 | 279.5 | 289.8 | 292.3 |
| Poland | 200.1 | 223.8 | 256 | 294.6 | 196.7 |
| Norway | 190 | 210.1 | 225.4 | 217.9 | 224.2 |
| Finland | 192.1 | 214.4 | 204.9 | 214.5 | 231.4 |
| Argentina | 111.9 | 140.9 | 198.8 | 282.3 | 298 |
| Czech Republic | 150.3 | 185.6 | 218.1 | 213.7 | 210.1 |
| Brazil | 132.8 | 167.6 | 189.1 | 217.3 | 248.1 |
| Portugal | 94.7 | 143.6 | 169.3 | 171.7 | 205.9 |

Source: UN *International Trade Statistics Yearbook* 1998, United Nations

Indian exports of pharmaceuticals received a boost in the late 1980s when a number of drugs went off the patents and Indian companies manufacturing them with cost-effective processes entered the international markets after obtaining FDA approval. Therefore, in the late 1980s, as much as 61 per cent of India's pharmaceutical exports comprised bulk drugs. However, subsequently some of the larger and more dynamic Indian enterprises such as Ranbaxy Laboratories, Dr Reddy's Labs, Cipla and Cadila, have started marketing their own formulations in different countries with the help of a growing network of overseas offices and subsidiaries set up in key international markets. As a result the share of bulk drugs in total exports of pharmaceuticals has come down to around 40 per cent (Table 7).

USA is the biggest market for India's pharmaceutical exports accounting for 10-12 per cent of exports. The export basket of India includes generic drugs like Ibuprofen, Sulphamethoxazole, Metronidazole, Amoxicilline, Ampicilline, Mebendazole, Beta Ionone, Erythromycin, Pappain, Potassium Iodide, Brucine Salts, Cephalexin, Ethambutol Hydrochloride, Trimethoprim etc.

**Table 7: Composition of India's Pharmaceutical Exports
(Current prices) In Rs. Crores**

| Year | Bulk Drugs | | Formulations | | % share of bulk drugs | Total exports | |
|---------|------------|---------------------------------|--------------|---------------------------------|-----------------------|---------------|----------------------------|
| | Value | As a % of bulk drugs production | Value | As a % of formulations produced | | Value | As a % of total production |
| 1980-81 | 11.28 | 4.7 | 35.1 | 2.93 | 24.32 | 46.38 | 3.22 |
| 1981-82 | 15.45 | 5.35 | 69.34 | 4.84 | 18.22 | 84.79 | 4.92 |
| 1982-83 | 11.34 | 3.29 | 54.6 | 3.29 | 17.2 | 65.94 | 3.29 |
| 1983-84 | 18.46 | 5.2 | 61.46 | 3.49 | 23.1 | 79.92 | 3.78 |
| 1984-85 | 29.25 | 7.76 | 99.5 | 5.45 | 22.72 | 128.75 | 5.84 |
| 1985-86 | 33.36 | 8.02 | 106.59 | 5.48 | 23.84 | 139.95 | 5.93 |
| 1986-87 | 87.16 | 19.03 | 102.12 | 4.77 | 46.05 | 189.28 | 7.29 |
| 1987-88 | 139.71 | 29.11 | 88.25 | 3.76 | 61.29 | 227.96 | 8.06 |
| 1988-89 | 242.87 | 44.16 | 157.29 | 4.99 | 60.69 | 400.16 | 10.82 |
| 1989-90 | 350.5 | 54.77 | 314.2 | 9.19 | 52.73 | 664.7 | 16.37 |
| 1990-91 | 413.4 | 56.63 | 371.4 | 9.67 | 52.68 | 784.8 | 17.17 |
| 1991-92 | 722.6 | 80.29 | 508.7 | 10.6 | 58.69 | 1231.3 | 21.6 |
| 1992-93 | 856.6 | 74.49 | 553.7 | 9.23 | 60.74 | 1410.3 | 19.72 |
| 1993-94 | 1029.6 | 78 | 771.8 | 11.19 | 57.16 | 1801.4 | 21.91 |
| 1994-95 | 1260.7 | 83.05 | 924 | 11.64 | 57.71 | 2184.7 | 23.11 |
| 1995-96 | 1098 | 57.13 | 1239 | 13.58 | 46.98 | 2337 | 21.16 |
| 1996-97 | 1581 | 72.32 | 2509.2 | 23.91 | 38.65 | 4090.2 | 32.26 |
| 1997-98 | 2173 | 82.84 | 2805 | 23.24 | 43.65 | 4978 | 33.88 |

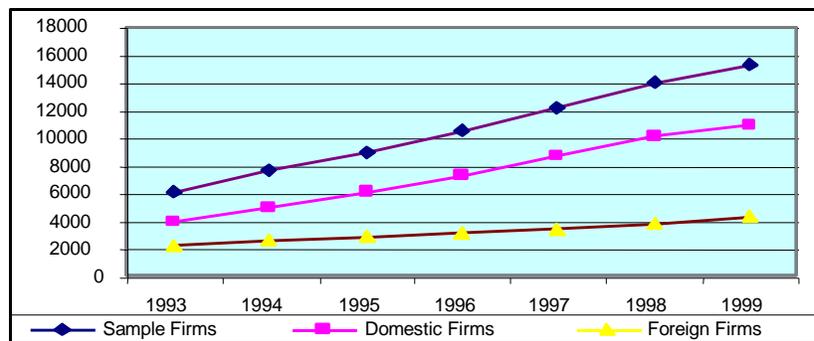
Source: Department of Chemicals and Petrochemicals, various Annual Reports

The technological capabilities of Indian companies have grown to a point when leading MNEs have started to take note of it. For instance, Eli Lilly established a joint venture with Ranbaxy in the mid-1990s for development of a cost effective process for synthesis of Cefaclor, among other products, taking advantage of the latter's process development capabilities. Similarly, Bayer contracted Ranbaxy to develop single doses formulations of its proprietary Ciprofloxacin. A number of leading MNEs have also contracted Indian public funded R&D institutions for synthesis of new molecules and process development. These include Abbot Laboratories, Parke Davis, and Smith Kline and Beecham, among others, that have commissioned Indian Institute for Chemical Technologies, Hyderabad and National Chemical Laboratories, Pune (Kumar, 1999, for more details). Astra (now Astra-Zeneca) has set up a full fledged R&D centre in Bangalore to draw upon trained manpower and research infrastructure available in the country, despite the fact that Indian patent regime does not provide product patents.

Ownership, Firm Size and Technological Dynamism: Recent Trends in Enterprise Performance

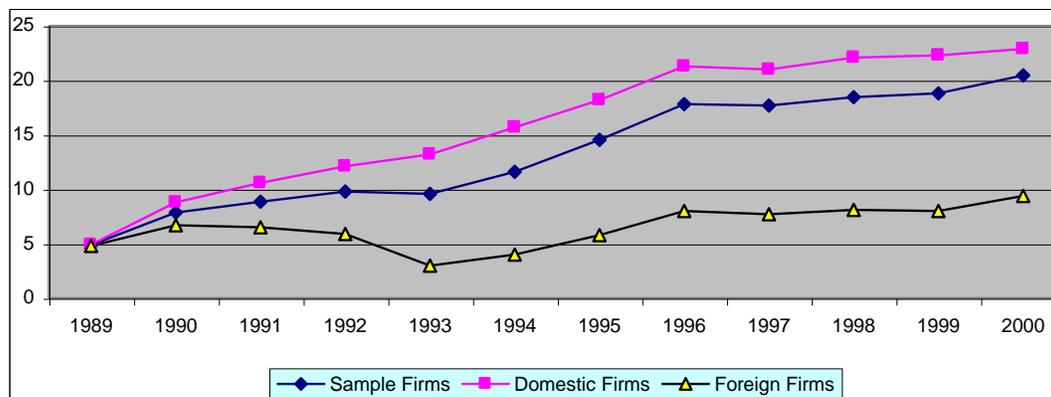
A comparison of the performance of MNE affiliates and domestic enterprises in Indian pharmaceutical industry is made over the 1990s based on a balanced sample of 76 firms (60 domestic and 16 MNE subsidiaries) in terms of different parameters of investment and output, export-orientation, R&D activity, technology purchases from abroad, labour productivity and profitability. The data set has been extracted from the CMIE's Prowess Database. The detailed trends are summarized in the Annex Tables. Here we use graphs to quickly examine the relative performance of the two groups of firms. Figure 2 shows that domestic enterprises have grown faster than foreign firms in the industry in terms of growth of sales.

Figure 2: Sales of Domestic and Foreign Firms in Indian Pharmaceuticals Industry, 1993-99



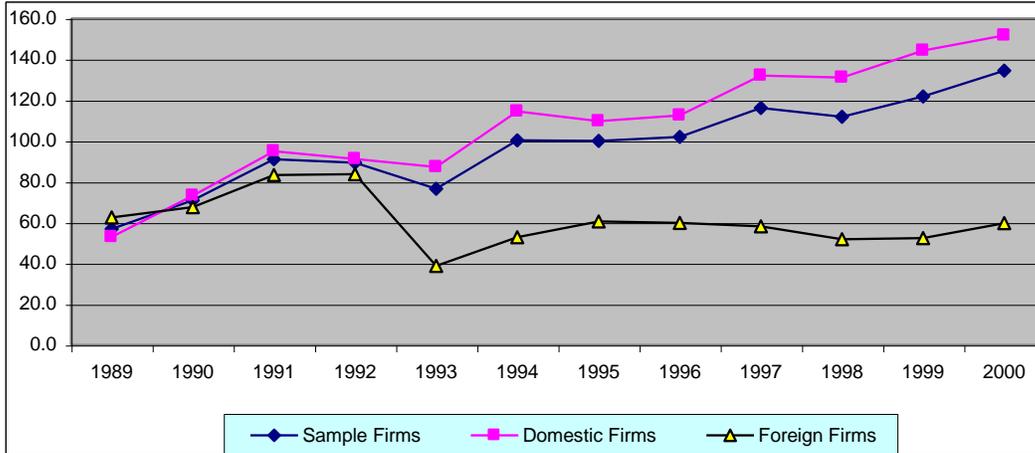
In terms of exports dynamism, whether judged in terms of proportion of sales (Figure 3) or as a ratio of exports to imports (Figure 4), domestic firms reveal a greater dynamism compared to foreign firms. Therefore, the recent export success of the industry is clearly led by domestic enterprises.

Figure 3: Export intensity of Pharmaceutical Enterprises in India (exports to sales ratio in %), 1989-2000



Source: based on CMIE sample extracted by the authors

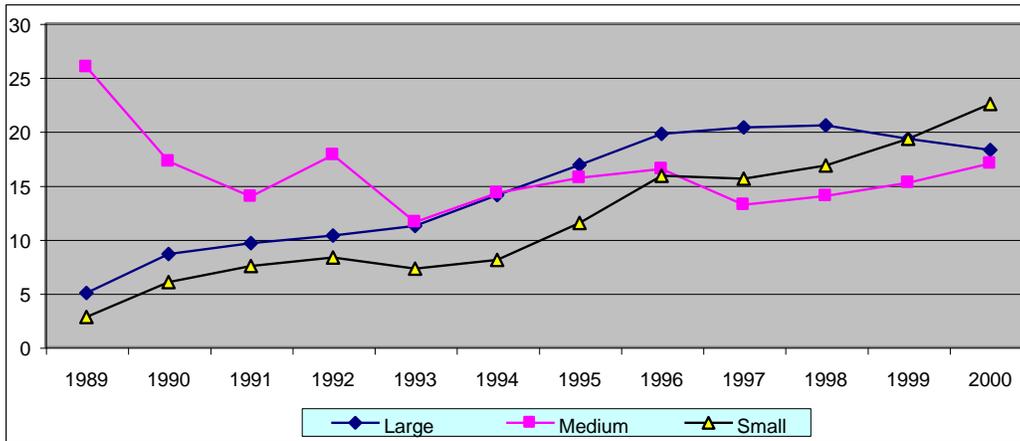
Figure 4: Exports to Imports ratio
(%) 1989-2000



Source: based on CMIE sample extracted by the authors

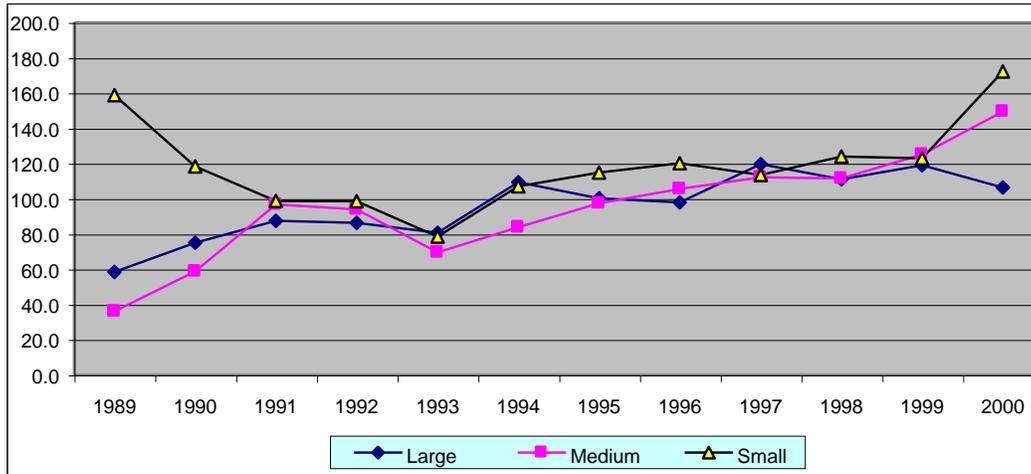
In case the sample firms are reclassified by firm size, one finds that the smaller firms are no less dynamic in terms of exports orientation especially since the mid-1990s. In fact smaller firms have performed better than medium sized firms since the mid-1990s as shown in Figure 5. In terms of export to import ration, the three size groups are quite comparable, as shown in Figure 6.

Figure 5 Firm Size and Export Intensity (%), 1989-2000



Source: based on CMIE sample extracted by the authors

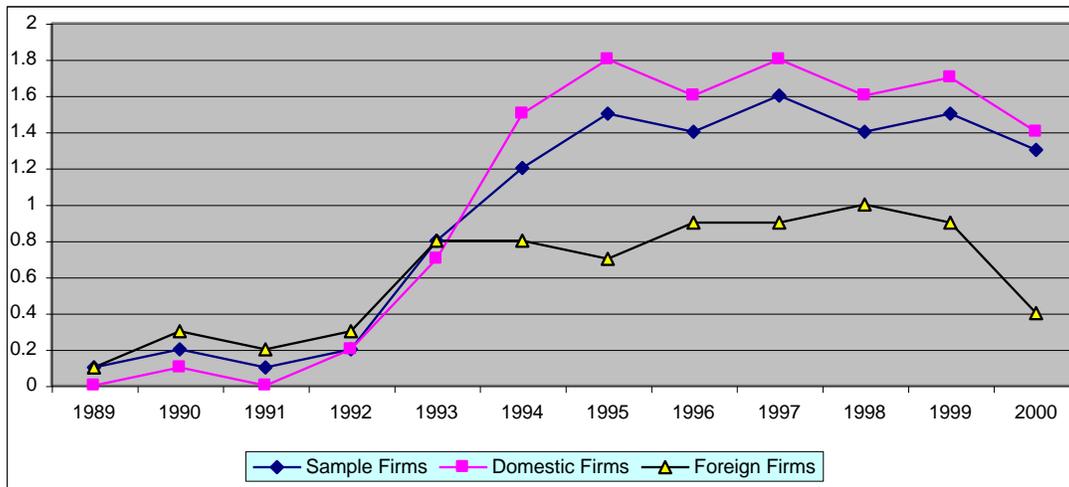
Figure 6 Firm Size and Exports to Imports ratio (%), 1989-2000



Source: based on CMIE sample extracted by the authors

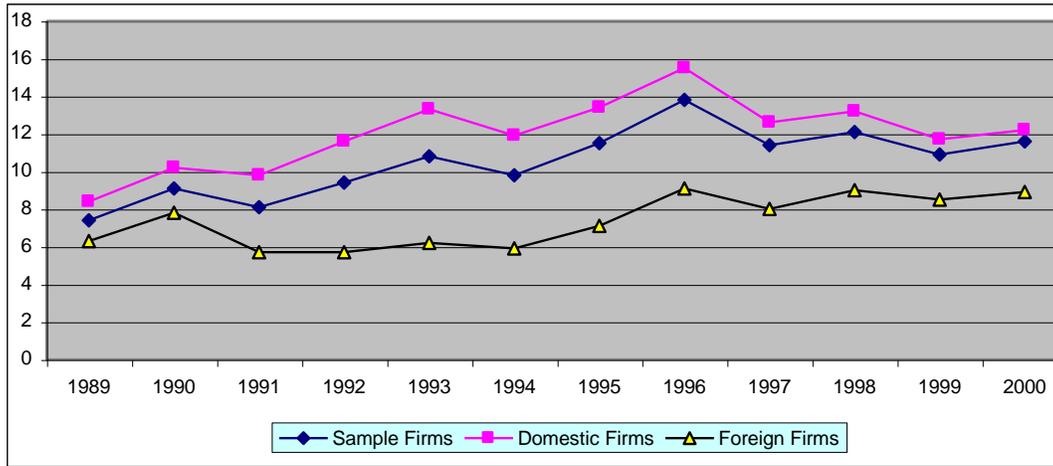
The technological dynamism is examined in terms of R&D intensity (Figure 7) and intensity of technological purchases from abroad (Figure 8). In both these respects again domestic firms appear to be more dynamic compared to their foreign owned counterparts.

Figure 7: R&D intensity
R&D Expenditure to Sales Ratio in %, 1989-2000



Source: based on CMIE sample extracted by the authors

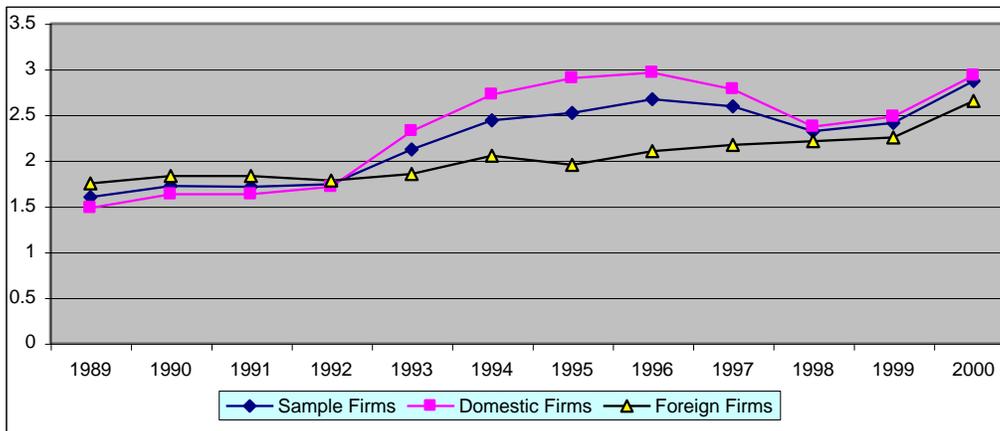
Figure 8: Intensity of Technology Purchases from Abroad
Royalty Payments to Sales (%), 1989-2000



Source: based on CMIE sample extracted by the authors

Productivity performance is examined in terms of defined as the net value-added per rupee spent on labor. In terms of labour productivity too, domestic firms do better than their foreign owned counterparts although the gap is narrowing since 1998, as shown in Figure 9.

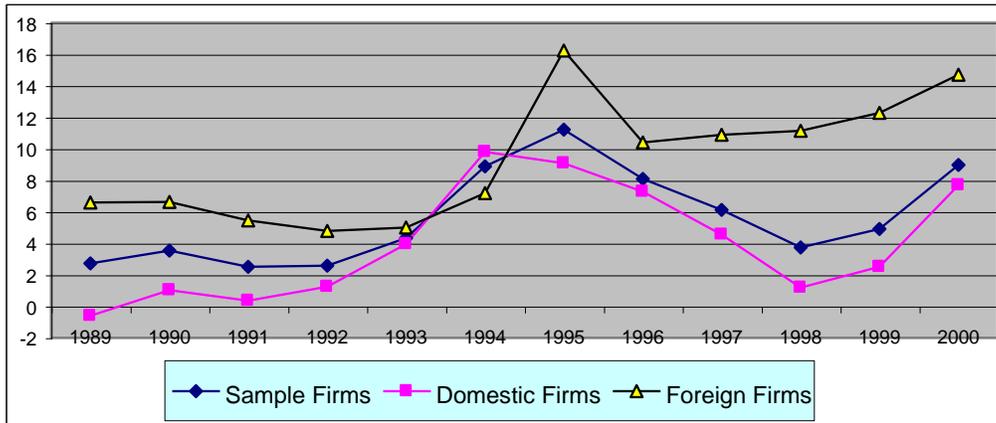
Figure 9: Labour Productivity in Indian Pharmaceutical Industry
Net Value Added per Rupee Spent on Labour, 1989-2000



Source: based on CMIE sample extracted by the authors

In terms of profit margins on sales, the pattern observed is reverse. Despite their greater technological and export dynamism and higher levels of productivity, domestic firms report significantly lower levels of profit margins compared to their foreign owned counterparts. MNE affiliates enjoy considerably higher profit margins because of their greater focus on more value adding formulations and their well-established brand names (Figure 10).

Figure 10: Profit Margins in Indian Pharmaceutical Industry
Profit before taxes as a proportion sales, %, 1989-2000



Source: based on CMIE sample extracted by the authors

Thus the Indian pharmaceutical industry has evolved from one dependent upon imports and some formulation activity in the late sixties to one which is able to introduce some of the most sophisticated products indigenously produced within a relatively short lag and at a fraction of the cost, and export a growing proportion of its produce to emerge as a net foreign exchange earner. It is a remarkable achievement especially because it has been accomplished within two decades since the government adopted the new patent regime and other supportive policies.

5. Implications of Reforms and TRIPs for Pharmaceuticals Industry

As discussed earlier, the integrated policy framework evolved since the 1970s that facilitated rapid evolution of the local capability building in the Indian pharmaceutical industry has changed considerably in the 1990s with reforms and commitments under WTO agreements. Thus industrial and trade policies have been liberalized while the scope of price controls has been drastically pruned. Important changes in the patent regime are in the offing by 2004 when India will have to provide protection to pharmaceutical products. A pipeline protection has already been provided in the form of EMRs. These changes have significant implications for the prices of drugs as well as for the industry as summarized below.

a) *Prices of Medicines and Loss of Consumer Welfare*

Prices of medicines are likely to increase on two accounts. First, because of dilution of price controls in the 1990s, and secondly because strengthening of the patent regime as follows.

The considerable dilution of the scope of price controls during the 1990s with DPCO 1995 and subsequently with the Pharmaceutical Policy 2002 is likely to affect the drug prices. The prices of drugs that have gone out of price controls since 1995 DPCO have already increased significantly. Table 8 shows that prices of select drugs unlisted from DPCO 1995 have increased by 77 per cent to 457 per cent between 1995 and 1998. The further dilution of the scope of DPCO with new Pharmaceutical policy is likely to lead to a similar effect.

Table 8 Price Increase in Some Selected Drugs Unlisted from DPCO, 1995

| <i>Drug Name</i> | <i>Packing</i> | <i>Price in</i> | | <i>Percentage increase in price</i> |
|--|----------------|-----------------|-------------|-------------------------------------|
| | | <i>1995</i> | <i>1998</i> | |
| Diazepam (Anti Depression) | 10 | 3.13 | 9.5 | 204% |
| Ampicillin (Antibiotic) | 4 | 12.85 | 23.15 | 80% |
| Cephalexin (Antibiotic) | 10 | 45.07 | 113.15 | 151% |
| Ethambutol (Anti T.B. drugs) | 10 | 5.92 | 33 | 457% |
| Rifampicin (Anti T.B. drugs) | 10 | 24 | 64 | 167% |
| Pirazinamide (Anti T.B. drugs) | 10 | 17.01 | 46.95 | 176% |
| Lignocaine HCL (Anaesthetic) | 30 ml. | 4.16 | 12.4 | 198% |
| Promethaxine HCL (Anti allergic) | 10 | 1.25 | 3.23 | 158% |
| Antacid liq. (Gastritis) | 200 ml. | 13 | 23 | 77% |
| Oxyfedrine HCL (Angina pectoris) | 10 | 10.44 | 21.41 | 105% |
| Discopyramide Phosphate (Cardiac problems) | 10 | 16.5 | 50.46 | 206% |
| Dipyrideamole (Anti angina) | 10 | 2 | 4.73 | 137% |

Source: D.P. Dubey at <http://revolutionary democracy.org/rdv5n1/pharmacy.htm>

The introduction of product patents is also likely to affect drug prices in a large number of drugs especially those under the patent protection. A number of studies have examined the effect on prices of medicines after introduction of product patents and have simulated welfare losses for consumers in developing countries. It is widely believed that drug prices will go up upon introduction of product patents as happened in China which introduced them in 1993 [May 2000:99; also see Lanjouw 1998, Scherer and Watal 2001, and Panagariya 1999]. Noguees (1993) finds the welfare losses to 6 developing countries (Argentina, Brazil, India, Mexico, Korea and Taiwan) from introduction of product patents to be between US\$ 3.5 billion to \$10.8 billion depending upon the assumptions. The gains to the patent owners from such introduction would range between \$ 2.9 billion to \$ 14.4 billion. The welfare loss to India could be between \$ 1.4 billion to \$ 4.2 billion in a year. Watal (2000) simulates the likely increase in pharmaceutical prices and decrease in welfare in India with the introduction of product patents in 22 existing pharmaceutical products and finds that weighted mean drug price in India could increase between 26 per cent (for a linear demand function) to 242 per cent (with a constant elasticity-type demand function). An earlier study by Subramanian (1994) had found the maximum price increase of 67 per cent for India following the introduction of product patents. Fink (2000) finds the range of price increase between 182 to 225 per cent. That suggests that introduction of product patents would affect prices of medicines significantly and unless new drugs are more efficient, there will be a decline in the health levels of population (May 2000). The recent case of huge differences between prices of HIV Aids drugs sold by patent holders in South Africa and their generic substitutes just provides a further evidence to the potential of price increases following the introduction of product patents.

It may be argued that the vast majority of drugs are out of patent protection and hence will not be affected. The criticality of patented product also varies across therapy groups. Figures for the year 1993 as provided by OPPI (1994) based on the audited pharmaceutical market suggests that percentage of sales to on-patent (in UK) drugs in India is significant in three categories namely Anti-peptic Ulcerants (84.0%), Quinolones (91.3%) and Hypotensives (89.6%). Other groups accounting for at least 20 percent include Anthelmintics Ex Schis (30.5%), Ophthalmic Combinations (39.4) and Anti-nauseants (19.7). Therefore, the immediate impact of introducing a product patent regime will have different impact on different therapy groups. The AIDS drugs controversy shows that effective treatment for many of scourges of the day such as cancer, cardiac failures, renal problems, among others, may be affected.

Is trade liberalization and hence increasing competition likely to lead to cheaper prices? That does not appear to be the case. In fact the opposite result may hold good if the findings of recent studies are any guide. In pharmaceutical industry competition does not lead to lower prices because of monopolistic and inelastic nature of demand with consumer unable to consider generic substitutes of the specific brand prescribed. Furthermore, the evidence produced by a study commissioned by the Commission on Macroeconomic and Health (CMH) using data from different countries finds that tariff reduction on pharmaceutical products and bulk drugs is likely to increase final drug prices rather than reducing them by undermining the low-cost domestic production and hence suggests the need for a careful assessment before further reduction in tariffs (Woodward 2001).

b) Local Technological Capability Building

A number of quantitative studies have shown that the innovative activity of Indian domestic enterprises was facilitated by the softer patent regime under the 1970 Act (see Fikkert 1993, Haksar 1995, Kumar and Saqib 1996). The strengthening and harmonization of IPR regimes worldwide has considerable implications for the process of acquisition of local technological capability in India. The provision of product patents on chemical and pharmaceutical products, for instance, would adversely affect the process of innovative activity of Indian enterprises in the manufacture of chemicals covered by patents. The development of new chemical compounds is generally beyond the capability of most Indian enterprises in view of the huge resources involved. Therefore, they focus attention on process innovations for the known chemicals and bulk drugs. This imitative duplication or reverse engineering activity is an important source of learning in developing countries. Indeed, most industrialized countries of today and newly industrialized countries encouraged local learning through soft patent laws and the absence of product patents in chemicals in the early stages of their development as highlighted earlier (Kumar 2002).

c) Industrialization, Technology Transfers and Trade

Innovative Activity

The probability of stronger IPR regime encouraging innovative activity in Indian pharmaceutical industry is very little. A study of the impact of strengthening of pharmaceutical patent protection in Italy since 1978 showed little or no impact on R&D expenditures or on new inventions. Furthermore, R&D activity is found to be significantly determined by absorption of spillovers of others' R&D activity particularly in the case of chemicals and electrical and electronics. The importance of foreign R&D spillovers as a determinant of R&D activity could be even more critical in developing countries where much of the R&D activity is of an adaptive nature. A number of studies have empirically demonstrated the ability of rather weaker IPRs in

stimulating domestic innovative activity in developing countries. Therefore, the evidence on the role of IPRs as a determinant of innovative activity is quite weak. In fact stronger IPRs may actually affect the innovative activity adversely by chocking the absorption of knowledge spillovers that are important determinants of innovative activity (see Kumar 2002, for a review of literature).

IPRs, Trade and FDI Inflows

How will stronger patent regime affect India's trade? India's exports of medicines that are patented will not be possible to the signatories of the TRIPs Agreement. Since the least developed countries have ten more years to provide product patents, Indian companies can continue to export to these countries if they do not provide product patents for 10 more years. The introduction of product patents will lead to an international division of labour where developed countries will specialize on newer and patented drugs and developing countries like India will concentrate on more price competitive off-the-patent drugs and generics. It is clear therefore, exports will come down to the extent some of India's exports comprise patented drugs. On the same token, imports of India are likely to go up as the patent owners may like to import the drugs rather than producing them in the country.

Will stronger patent rights help the country attract more FDI or technology transfer? Stronger protection increases the revenue productivity of a firm's intellectual property and should help exporters by making counterfeiting more difficult as has been corroborated empirically by studies. However, the effect of IPR strength on FDI and licensing is not that straight forward. By reducing the transaction cost of transfer of knowledge by MNEs to foreign countries, stronger protection may encourage arm's length licensing of the knowledge and reduce the need for undertaking FDI. On the other hand, it has been argued that poor IPR regime tends to adversely affect the investment climate and hence the probability of MNE investments. Empirical studies have generally shown that the strength of IPP promotes arm's length licensing but they have generally no significant effect on internalized technology transfers viz. FDI. Even the location of R&D investments abroad by MNEs was found to be not significantly affected by strength of IPP. Thus the contention that stronger norms of IPR protection will facilitate greater inflows of FDI in the country is rather weak in either theoretical or empirical terms (see Kumar 2002 for a survey of literature). Recent trends suggest a reversal of trend of the growing importance of arm's length licensing as a mode of technology transfer as MNEs prefer to internalize the technology transactions (see Kumar 1998). The strengthening of IPRs regime may further limit the access of technology by developing country enterprises. Kim (1997) provides a number of examples of Korean corporations being denied technology licenses by patent holders in the Western world forcing them to reverse engineer the products. A number of local enterprises in developing countries will come under pressure to close down or form alliances with larger firms, resulting in a concentration of the industry [World Bank 2002:137]. Dependence on imports may go up.

d) Income Transfers from Developing Countries

Given the near complete domination of developed countries on technology generation as evident from the 95 per cent ownership of US patents (see Kumar 1998), the strengthening and harmonization of IPRs regime will lead to a substantial increase in flow of royalties and license fees from developing countries to developed countries. McCalman (1999) quantifies the impact of patent harmonization finds that it has the capacity to generate large transfers of income between countries, with US being the major beneficiary. World Bank (2002: Table 5.1) updates the computations of McCalman and suggests that the net patent rents derived by the US (in 2000 US\$) could add up to over \$ 19 billion, to Germany \$ 6.7 billion, and Japan \$ 5.7 billion. Among the developing countries, India could see an outflow of patent rents of the order of \$ 903 million.

Furthermore, the extension of IPRs to plant varieties could further increase the outgo of royalties for the breeder lines of the seed companies even though the basic raw material for the development of these varieties, viz. genetic diversity which is largely found in developing countries and is supposedly the work of generations of farmers in these countries, is generally available to them free.

e) Impact on Global Technological Activity and Availability of Drugs

One of the arguments in favour of a stronger IPR regime is based on the premise that expenditures on R&D were significantly determined by appropriability conditions. Hence, ensuring adequate appropriability with more stringent IPR protection was deemed to be a necessary condition for sustaining the pace of innovation in the global economy. The empirical literature, however, does not support this presumption as patent protection was found to be instrumental for only a small proportion of innovations. On the other hand, studies show that spillover effects of R&D activity of other firms to be a lot more important in inducing firms to undertake R&D compared to appropriability. The R&D outputs of other firms form valuable inputs for the R&D efforts of these firms. Hence, tightening of IPRs is likely to affect innovative activity adversely by stifling these spillovers. Therefore, it is by no means clear that strengthening of IPRs will increase innovative activity even in the developed world especially for solving the problems and diseases faced by developing countries. As World Bank (1999) cautions ‘there is now a risk of excessively strict IPRs adversely affecting follow-on innovations and actually slowing down the pace of (technological development)’. Furthermore, the research priorities of MNEs are determined by the purchasing power and very little R&D is currently done on tropical diseases (World Bank 2002). Unless some steps are taken by the international community, such as those discussed by the recent report of WHO’s Commission on Macroeconomics and Health (CMH), the pattern is not likely to change significantly in the future (see Kumar 2002).

6. Concluding Remarks and Strategic Policy Options

The above discussion has shown that the integrated policy framework that the government evolved over the 1970-90 has been successful in developing a highly vibrant and self-reliant industry that not only meets the local demand of nearly all critical medicines at affordable prices but also generates increasing amount of net exports by exporting pharmaceutical products to over 60 countries. The ability of Indian enterprises to develop cost effective processes has attracted the attention of leading MNEs to the country for entering into strategic alliances with local companies for process development. This remarkable success was achieved within two decades and was facilitated in large measure by the soft patent regime that the country adopted in 1970.

The liberalization of the industrial, trade and price policies in the 1990s has started to affect the prices of medicines. Even trade liberalization and reduction of tariffs actually lead to higher rather than lower prices of medicines due to peculiar nature of the industry. The adoption of product patents by the end of 2004 as a part of the implementation of the commitments of India under WTO’s TRIPs Agreement is likely to have a major impact on the prices of medicines according to a number of simulation exercises available. It is also likely to adversely affect the technological activity of Indian companies, curb exports, lead to income transfers from the country. On the other hand the favourable effects of stronger IPR regime that are claimed namely higher innovative activity and greater inflows of FDI may not materialize.

What strategic policy options exist for minimizing the adverse impact of strengthening of IPRs on the Indian pharmaceutical industry? In what follows we outline a few strategic policy options to keep the Indian pharmaceutical industry.

a) *Stronger focus on R&D activity and new product development:*

To survive in the post-TRIPs regime the leading Indian pharmaceutical companies will have to launch their own products to stay in the market. Hence an increasing thrust on product development is of critical nature. A few leading companies like Ranbaxy, Dr Reddy's Laboratories, among others have moved in this direction and have a number of new molecules in the pipeline. They are also focusing on the innovation of new drug delivery systems of existing drugs. Some initiatives have already been taken following the recommendations of the PRDC 1999, in the Pharmaceutical Policy 2002, viz. establishment of a Drug Development Promotion Foundation (DDPF) and a Pharmaceutical Research and Development Support Fund (PRDSF). These initiatives are in right direction. However, the Indian enterprises still spend relatively very small amount on R&D especially on product development. Given the huge resources that are required for product development in the industry, Indian companies and R&D institutions may consider formation of R&D consortia to share costs of development of drugs which they could formulate and market under their own brand names.

b) *Exploiting Market Potential of Indian System of Medicines*

The growing consciousness of the side-effects of modern medicines and increasing interest in alternative medicines especially herbal/ natural remedies in the country as well as internationally offers to Indian companies an opportunity that they could gainfully exploit. India's rich traditional knowledge in Ayurveda, Sidha and Unani and vast variety of medicinal plants, can be effectively tapped. We need to document and standardize the traditional Ayurveda knowledge and provide facilities for testing, clinical trials, and quality control for making these medicines more acceptable within the country and the world. The total market for alternative medicine in the country is estimated at US\$ 700 million. It can be increased manifold with standardization of the products. Furthermore, India could exploit opportunities in export of these products with the standardization and quality control. There is already a ready acceptance of several herbal/natural products (e.g. natural laxatives) in the West. With implementation of standardization, building brand names and their getting them known in the Western countries, Indian companies could increase their exports of these products manifold. China is a case in point which has substantial exports of traditional medicine in the form of Chinese balms, medicinal oils etc.

c) *Consolidation of Market Position in the off-the-patent/ Generics Markets:*

Indian companies should consolidate themselves in the markets for off-the-patent drugs and generics by launching their own formulations under their own trade/ brand names to strengthen their position in the market and also realize higher value addition. Otherwise they risk being substituted by cheaper suppliers of bulk drugs. In strengthening their presence in the western markets, besides establishing their own network of subsidiaries, acquisition of local companies having a foothold in the markets, necessary approvals, and brand recognition would help. Leading Indian companies could form a consortium to acquire a leading pharmaceutical company with good marketing network to push their products abroad. Given largely complementary nature of the product portfolios of Indian companies, it appears to be a feasible option.

d) *Protecting Leading Indian Pharmaceutical Companies from Threat of Foreign Takeovers:*

The technological capability of the country in the pharmaceutical industry is represented by the few leading Indian companies. They need to be protected from threat of hostile acquisitions by their foreign rivals. Although generally these companies are family owned and hence substantial ownership is held by their promoters, the acquisition of Parle Group and its brands by Coca Cola Company some time back suggests that even family owned enterprises are not immune to foreign acquisitions. A number of countries have retained provisions that protect the national champions from foreign takeovers to in national interest. Countries such as France, Malaysia have such provisions. The Exxon-Florio Amendment in the US gives the power to the US President to block any foreign acquisition in the interest of national security. India needs to adopt such provision to guard its strategic interests.

e) *Exploiting the Flexibility in the TRIPs Agreement*

The TRIPs Agreement provides certain flexibilities to include exceptions for research and marketing and compulsory licensing or anti-trust reasons. These should be fully exploited. The Declaration on Medicines and Public Health at the Doha Ministerial Meeting confirmed the right of member countries to exploit the flexibility available in the TRIPs Agreement. These include adequate provisions for compulsory licensing in the patent legislation in order to safeguard them from possible abuses of monopoly power obtained by patent owners. The compulsory licenses are permitted under Article 31 and Article 8 and 40 of the TRIPs Agreement. The Agreement does not limit the grounds upon which compulsory licenses may be granted and only sets forth the conditions to be applied in the case of granting (see Correa 2000b). This includes specification of grounds of compulsory licensing and the reasonable rates of licensing fees (Scherer and Watal 2001, for a detailed analysis). Recent withdrawal of proceedings by the US against Brazil's compulsory licensing provisions show that intelligently crafted domestic patent laws can meet national objectives and yet be TRIPs compatible (Raizada and Sayed 2001).

Another exception that is permissible is for research that allows researchers to use a patented invention for research, in order to understand the invention more fully. Experimentation on a patented invention is clearly admissible as an exception to exclusive rights under Article 30 (Correa 2000b).

Yet another exception is called the Early Working Exception or 'Bolar' Provision which allows manufacturers of generic drugs to use the patented invention to obtain marketing approval without patent owner's permission and before the expiration of patent. This facilitates the generic manufacturers to market their products as soon as the patent expires. This provision is sometimes called the regulatory exception or Bolar provision under Article 8 (WTO 2001). The US, Canada, Australia, Israel and Argentina have adopted Bolar exception in their patent legislation (see Correa 2000b).

All these exceptions could be fully incorporated in the amended Indian Patents Act.

f) *Resisting the Attempts to Evolve TRIPs Plus Regime and Ever-greening of Patents*

Developed countries are constantly putting pressure on developing countries to implement stricter patent legislation than required under TRIPs, exclude compulsory licensing, parallel imports provisions and include provisions that would result in increasing the life of the patent (ever-greening), as well as grant data exclusivity to them.

The TRIPs Agreement however, is clear that a new use for an old formulation does not constitute an inventive step (Art. 27(1)). Therefore, member countries are within their rights not to permit the practice of ever-greening of patents.

g) *Price Controls for Essential Drugs*

Price controls continue to be relevant in the pharmaceutical industry to protect the poor masses from the price increases following the introduction of product patents. The evidence suggests that competition does not lead to lower prices of medicines. Therefore, there is continued relevance of price controls in the industry.

h) *Mobilizing Support for Review of TRIPs at WTO*

Most of the adverse effects concerning TRIPs on poor countries arise not because of IPR regimes but from the attempt to harmonize them across the countries at different levels of development (Panagariaya 1999). There is also a discussion whether TRIPs should fundamentally belong to WTO (Mashelkar 2001). However, the least that could be done is allowing flexibility to developing countries to implement the provisions of the Agreement as and when their level of development has reached a certain stage. This could be achieved if a consensus among the developed countries is built on the differential need of developing countries for IPR regime¹. A possible revision of TRIPs could incorporate a provision that grants to developing countries a flexibility to implement the TRIPs obligations until they reach a certain per capita income². This way the Agreement would have incorporated development dimension.

These steps may help in moderating the effect of liberalization and TRIPs on the Indian pharmaceutical industry.

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End Notes

¹ Desai (1980) documents two of such cases. In one case Hoechst prevented Unichem Laboratories from producing tolbutamide using a technology licensed from Haffkine Institute of Bombay which had patented the process. In a case that became famous, Unichem Laboratories produced tolbutamide on licence from Haffkine Institute of Bombay which had patented the process. The major difference between the patents was that the Hoechst patent specified at a certain point that sulphur was to be eliminated from a thiouria 'in a conventional manner', and at another point that the elimination was to be done by 'a heavy metal oxide or a salt thereof'. The Haffkine Institute patent specified elimination by hydrogen peroxide. The judge disallowed the defendants' plea that the Hoechst patent was so general as to cover millions of products of which only 220 had been synthesized by Hoechst and still fewer pharmacologically tested, and ruled that the two patents referred to the same invention and that Unichem had infringed Hoechst's patent. In another instance aluminium phosphite, a concentrated fumigant, was patented and imported by a foreign firm. In the payments crisis on 1966 the Directorate-General of Technical Development asked the firm to produce it, but the firm said the process was too difficult to be tried in India. Thereupon Excel Industries produced the fumigant in 2.5 months and marketed it at half the cost of imports. The foreign firm then sent Excel a notice to cease infringement of its patent. After the Unichem judgment the Patents Office began to reject a larger proportion of applications on the grounds of vagueness or incompleteness. The proportion of examined applications so rejected went up from 5 per cent in 1968 to 11 and 16 per cent in the next two years.

² [<http://www.nic.in/cpc/pharma4.htm>].

³ Ramachandran 2002.

⁴ CVD at 16 per cent is applied as the excise duty on domestic production is applicable at the same rate.

⁵ Barton 1999 and Sachs 1999 (as cited by Correa 1999) have acknowledged the need for a differential standard for developing countries. Mashelkar (2001) calls for 'TRIPS Plus Equity and Ethics'.

⁶ Kumar 2002 has suggested a threshold of US\$ 1000 per capita income.

C h a p t e r - 1 6

ECONOMIC REFORMS AND DRUG POLICY : A MICRO LEVEL ANALYSIS

**Aravind Badiger
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1. Introduction

Drug and Pharmaceutical sector has a direct link with the health care system. Drugs are one of the inputs to the health care system, which are used to protect, maintain and restore the health of the people. Pharmaceutical industry therefore gains an important role in the provision of health care. The Indian Pharmaceutical industry is growing faster and there is increased demand for Indian bulk drugs and generics in other countries. It is one such sector having a long history of internal reforms in itself and also having been affected by general reforms in other sectors. Firstly, seen in a macro-level study of the Health Care Sector by Kadekodi and Kulkarni (2002), over the years, Drug and Pharmaceutical sector has assumed increasing linkages with the health service sector and many other sectors. Second, this sector assumes importance as a major macro-economic sector (Kumar and Pradhan, 2002). Third, as a major health related service sector, the process of reforms both within and conjunctively with others are to be looked into at the micro level, i.e., at the levels of major individual drugs, in terms of their relevance, formulations, their distribution and utilisation patterns, pricing, influence on alternative health care systems such as allopathic, ayurvedic and so on. This monograph addresses to such micro level issues.

1.1: A Macro View of the sector

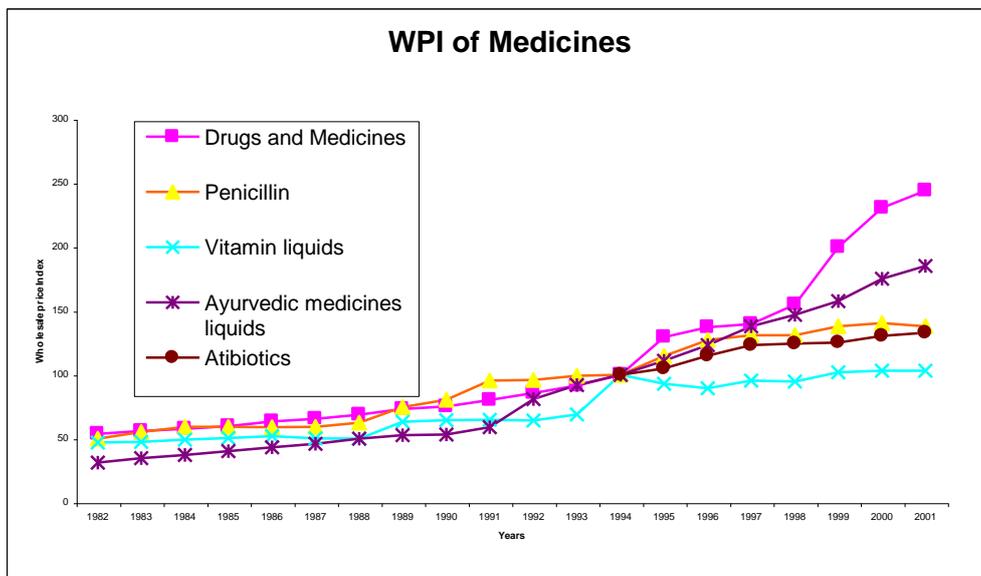
Drug and Pharmaceutical sector is one among the largest components in the category of chemical industries, contributing to about 35% GDP from the chemical sector in India today. Compared to most other chemical sectors, ever since independence and more so since 1960s, this sector has had internationally the highest comparative trade advantage¹. As compared to the international situation, life saving and other drugs were then available in India at much cheaper prices, affordable by Indian masses. Pharmaceutical exports in value terms which were just about 0.55% of total Indian exports in 1970s, rose to 4.5% by the turn of the century. Indian share in value terms out of world pharmaceutical exports were just about 0.4% in the 70's, which rose to over one percentage point by 1998². There was a rising trend in export of pharmaceuticals from India, through out the last 40 years. One would have imagined that such export trends would have upset the low and affordable prices for the Indian masses. On the contrary, while such liberalisation process was going on, drug prices within India were kept under control under various orders since 1960s. More importantly, with the establishment of Drug Price Control Office in 1970, distinctions such as essential drugs with frozen prices, subsequently categorising all the drugs as life saving, essential, less essential and non-essential drugs, with different price control regimes were introduced to provide the Indian population with some security on health ground. The trend in whole sale

¹ Most other important exportables (e.g., gems and jewelry) either enjoyed a monopoly or are based on cultural and traditional linkages.

² Whereas all other merchandise exports have been stagnating around 0.6% of world merchandise exports.

price index of drugs and medicines makes it very clear that the drug price controlling has maintained a steady growth in the prices till 1998 as can be seen from Figure 1. The Indian Pharmaceutical Industry which used to depend solely on imported medicines and intermediates during 1950-60 has now emerged as one of the leading and developed industry among the developing countries.

Figure-1



Source: Business Beacon, 2001, Centre for Monitoring Indian Economy Pvt.Ltd., Mumbai.

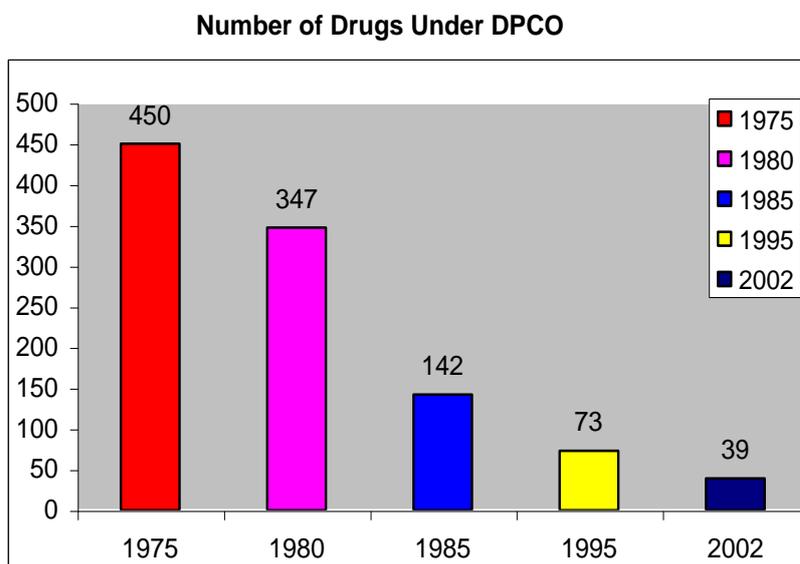
How could the Indian drug industry make such a remarkable progress? The first question to be addressed in this connection is the following. Was there a reforms process within the drug and pharmaceutical sectors in India even before the 1990s? In a sense the answer is 'yes'. A variety of policy instruments were introduced from time to time, to make this industry competitive, yet purposive to provide health care supports. Some of the major macro level policies introduced from time to time were³

- Introducing IPR for pharmaceutical sector in the 1948 Industrial Policy Resolution itself.
- Putting Pharmaceutical industry in Schedule B, under the 1956 Industrial Policy Resolution (where both the state and private sectors can operate).
- Under the Industrial Licensing Policy of 1973, MNCs getting a better deal with permission to retain upto 74% of ownership (against the general limit of 40% for all other industries).
- Implementing Hathi Committee recommendations in toto, with a new drug policy from 1978. The major policy implications were: Self-reliance in drug technology, self-sufficiency in drug production and accessibility of quality drugs at affordable prices. In a sense the 1978 policy is a land-mark reform stage in the Indian drug sector. All these brought new technologies, shift in production from bulk to formulations, and growth of MNCs in India.
- The most important aspect of reforms policies then was the price control. A large number of price control orders were issued from time to time (starting from 1960), to ensure, (a) the welfare of the consumers and (b) encouraging the producers. For instance, while essential drugs were forced to come down in prices, the producers were given free hand to fix reasonable profits on other drugs.

³ For more details, see Kumar, Nagesh and Jaya Prakash Pradhan (2002).

- Establishment of DPCO in 1970 was yet another major policy reform in the drug and pharmaceutical sector (modified later in 1979). As many as 347 major drugs came under the purview of DPCO. It encouraged small scale enterprises. New bulk drugs through R&D were encouraged. Fiscal incentives such as income tax relief on in-house R&D expenditure⁴, capital subsidy via higher depreciation rates etc., were introduced.
- Finally, as the sector has settled quite competitively, modifications in DPCO orders were carried out from time to time, more importantly in 1987 reducing the scope of DPCO to 166 drugs, in 1995 to 75 and in 2002 to only 39 (Figure-2) making price controls applicable to a smaller number of drugs.

Figure-2



Source: DPCO (1975-1995), Pharma pulse.

Against this background of the on-going macro-level reforms process in the Drug and Pharmaceutical sector, this study is addressed to several micro level issues.

1.2: A Micro View of the Sector

The industry which grew with the birth of Bengal Chemical and Pharmaceuticals in 1901 has grown by the turn of the century in size with about 21000 manufacturing units; and about 75000 formulations are being marketed by these industries indigenously. It is the result of some of the major policy decisions that has brought the Indian Pharmaceutical Industry to a self sustainable stage. Among the many, the major support to the Industry was the decision to practice Process Patent regime in India (Indian Patent Act 1970). Further, the decision to have regular control over the retail price of important drugs by Drug Price Control Order was the remedy for any uneven hikes in prices and control over monopoly tendencies.

Indian Pharmaceutical Industry today produces a complete range of formulations i.e., medicines ready for consumption by patients and about 350 bulk drugs i.e., chemicals having therapeutic value and used for production of the country's requirement of the bulk drugs and almost all the demands for formulations. India's total medicine market is estimated to be Rs. 127 billion of which retail formulations market is Rs.105 billion. The production of bulk drugs and formulations has risen from Rs.3840 crores in 1990-91 to an estimated Rs.19737 crores in the year 1999-00.

⁴ This trend has however increased over time.

With the recent economic reforms policies since 1990s, there are two major concerns at the manufacturing unit or firm level. First, whether Indian manufacturing units will be able to produce the medicines at the present range of price with a minimum of expenditure in research. Second, what will be the time lag in making these drugs available to the Indian masses, once they are brought under rigorous thrust from liberalisation and WTO regimentation.

This study intends to go over all such micro level effects of globalization on Indian Pharmaceutical Industry. It aims at studying the impacts of dilution of DPCO from time to time since 1986. Further there is an attempt to revoke the policy frame works of DPCO and WTO in relation to the accessibility and availability of the drugs in India. Essentially, the study takes a close look at the micro-product and unit levels, rather than glossing over the sectoral levels.

2. Drug Policy in India

The beginning of major Drug policies in India took place with the establishment of Hathi Committee to look into price trends, competitiveness and feasibility of making Indian drug units to become self-sufficient. There were two major concerns that were on the cards. First, India was dependent largely on western countries for its supply of medicines and intermediates. While, the basic drugs were produced mainly by foreign units, Indian units produced only formulations. There was lack of R&D both in public and private sector. The growing monopoly of MNC's in Pharmaceutical Industry was the issue of concern. Second, though the Indian drug prices were comparatively quite low internationally, the MNC's tried to produce much of the inessential drugs and kept the prices of essential drugs high when compared to the purchasing power of the Indian masses.

Based on the Hathi Committee's recommendations, the profiteering attitude, which neglected the welfare of the Indian people was tackled with the establishment of Drug Price Control Orders of 1978 and 1979. For the first time, comprehensive price control was introduced in the drug industry (though few measures had already been in force since 1970). The new DPCO then grouped the drugs in four categories:

1. Category – I (Life saving)
2. Category – II (Essential)
3. Category – III (Less essential)
4. Category – IV (Non essential / simple remedies)

Among these the first three categories were price controlled with mark up (profits allowed) of 40%, 55% and 100%, respectively. In all 347 drugs (about 90%) came under these price control categories. The philosophy behind the graded system was to make essential drugs cheaper. This approach of control on the price of essential drugs resulted in the shift in production pattern and this made the availability of essential medicines difficult than before, as can be seen from Table 1.

Table 1: Drug Production in Response to Price Policy (in percentages)

| DPCO Category | 1978 | 1979 | 1980 |
|-----------------|------|------|------|
| I Life saving | 4.5 | 4.2 | 3.6 |
| II Essential | 16.7 | 14.8 | 13.2 |
| III Marginal | 67.1 | 67.0 | 68.6 |
| IV Decontrolled | 11.7 | 13.2 | 14.6 |

Source: T. L.Narayana (1982).

A second major reform at the manufacturing unit level took place around the same time with the liberalisation process. The MNC's started to pressurise the government to bring down the number of drugs under DPCO. Government decontrolled some of the drugs from the pervue of DPCO in 1987 reducing them to 166 only. But, this was not free from a hike in price of few decontrolled drugs. Further, the price difference between the MNC's and Indigenous firms became very significant, as can be seen from Table 2.

Table 2: Price Difference Between TNCs and Indigenous Firms in 1978 & 1982

| Generic Name of the Product | Unit | Price (in Rs.) | | | | | |
|--------------------------------------|--------------|----------------|---------------------|-----------------|---------|---------------------|-----------------|
| | | 1978 | | | 1982 | | |
| | | Of TNCs | Of Indigenous forms | Difference in % | of TNCs | of Indigenous firms | Difference in % |
| Analgin 0.50 gm | 100 | 20.34 | 12 | 69.5 | 17.80 | 12 | 48.3 |
| Ascorbic acid 500mg | 10 | 1.73 | 0.50 | 246 | 2.64 | 0.50 | 428 |
| Betamethsone 0.5mg | 199 | 29.98 | 17.60 | 66.4 | 29.432 | 17.60 | 67.2 |
| Chlorpropamide 100 mg | 100 | 9.36 | 5.70 | 64.2 | 9.41 | 5.70 | 65.1 |
| Chloramphenicol 250 mg | 12 capsules | 4.09 | 2.16 | 89.4 | 4.16 | 2.64 | 57.6 |
| Chloroquin Sulphate 200mg | 4 tablets | 1.03 | 0.35 | 194.3 | 0.93 | 0.35 | 165.7 |
| Chlorpromazine Hydrochloride 25 mg | 500 tablets | 33.11 | 12.00 | 175.9 | 42.84 | 24.65 | 73.8 |
| Diphenhydramine Hydrochloride 50mg | 50 capsules | 7.43 | 3.70 | 100.8 | 8.49 | 3.70 | 129.4 |
| Digoxin 0.25 mg | 500 tablets | 25.73 | 30 | -14.20 | 25.86 | 36.88 | -29.9 |
| Glybenclamide 5mg | 500 tablets | 67.53 | 69.65 | -3.0 | 67.53 | 69.90 | -3.4 |
| Isoniazid 100 mg | 5000 tablets | 127.22 | 110.00 | 15.7 | 124.42 | 110.00 | 13.1 |
| Metronidazole 200 mg Methergometrine | 250 tablets | 65.58 | 20.00 | 227.9 | 64.20 | 41.25 | 55.6 |
| Oxytetracycline Hydrochloride 250 mg | 100 tablets | 48.49 | 28.00 | 73.2 | 45.45 | 28.00 | 62.3 |
| Prednisolone 5 mg | 1000 tablets | 179.67 | 146.37 | 22.8 | 180.58 | 145.20 | 24.4 |
| Paracetamol 500 mg | 250 tablets | 23.29 | 10 | 132.9 | 23.4 | 13.7 | 70.2 |
| Phenobarbitone 60 mg | 500 tablets | 16.58 | 11.63 | 42.6 | 16.6 | 14.9 | 11.2 |
| Sulphaguanidine 500 mg | 10 tablets | 1.48 | 0.79 | 87.0 | 1.58 | 0.79 | 100 |
| Sulphadiazine 5 mg | 10 tablets | 1.58 | 0.88 | 79.5 | 2.57 | 2.10 | 22.4 |
| Tolbutamide 0.5 gm | 1000 tablets | 108.76 | 56.00 | 94.2 | 99.86 | 116.0 | -13.9 |
| Tetracycline Hcl 250 mg | 100 capsules | 50.91 | 28.00 | 81.8 | 43 | 28 | 53.6 |
| Testosterone Propionate 25 mg | 10 ampoules | 11.65 | 3.40 | 242.6 | 14.69 | 3.78 | 286.5 |

Source. Indian Pharmaceutical Guides, 1978-1982.

TNCs: Trans National Companies

It can be noticed further that as a outcome of DPCO, in 1982 there is increase in the number of nonessential dosage forms by the MNC's to keep the margin of profit high .

Table 3: Comparative Contributions of Major MNCs, 7 National Companies in Antibiotic and Simple Remedies Segments

| | 1975 | | | 1984 | | |
|-------------------------------|-------|---------------|-----------------|-------|---------------|-----------------|
| | Total | Antibiotics | Simple Remedies | Total | Antibiotics | Simple Remedies |
| MNCs (7 top companies) | 82.8 | 16.9 20.4% | 23.8 28.7% | 196.9 | 18.4 9.4% | 73 37.1% |
| National (6 top companies) | 49.3 | 29.1 59.0% | 11.9 24.0% | 150.2 | 86.1 57.3% | 21.4 14.2% |

Source: Operation Research Group reports December, 1975 and December, 1984.

The liberalisation policy continued with more and more drugs going out of control from DPCO. By 1995, as few as 73 and 39 drugs by 2002 remained under the perview of DPCO (as can be seen from Figure 2). The outcome of dilution of DPCO was evidently the increase in prices of drugs in India (Table.No.4) particularly of decontrolled drugs. The average increase in price among 18 major drugs was observed to be 44.6% during 1993-1999. It clearly reveals that the average change in this period was mainly due to *Decontrolled* drugs which contribute to the extent of 70.9% while the *Controlled* drugs contributed up to 18.2% only. The liberalisation policy highlighted the significance of Patent act 1970 which helped Indian Pharmaceutical Industries to come up with the generic version of the existing drugs.

Table 4: Impacts of DPCO 1995

| Change in retail price of of 18 drugs 1993-1999. | | | | |
|--|-------------------------------------|-------------------------|------|-------------|
| Sr.No | Name of the drug | Retail prices in Rupees | | % Change |
| | | 1993 | 1999 | |
| Controlled drugs | | | | |
| 1. | Chloroquin phosphate tablet 150 mg. | 0.52 | 0.90 | 73.0 |
| 2. | Cloxacillin capsule 500 mg. | 3.80 | 4.50 | 18.4 |
| 3. | Ciprofloxacin tablet 250 mg. | 7.10 | 3.56 | -49.8 |
| 4. | Doxycycline tablet 100 mg. | 2.10 | 3.20 | 52.4 |
| 5. | Erythromycin tablet 250 mg. | 2.92 | 3.50 | 19.8 |
| 6. | Famotidine tablet 20 mg. | 2.10 | 0.60 | -71.4 |
| 7. | Griseofulvin 250 mg. | 1.55 | 2.10 | 35.5 |
| 8. | Penicillin G tablet 500 mg. | 0.80 | 1.00 | 25.0 |
| 9. | Tetracycline tablet 250 mg. | 0.90 | 1.45 | 61.1 |
| | | Average Change | | 18.2 |

| Decontrolled drugs | | | | |
|-----------------------------|---------------------------------|------|----------------|--------------|
| 10. | Amoxicilline Capsule 250 mg. | 2.43 | 3.40 | 39.9 |
| 11. | Ampicillin capsule 250 mg. | 1.69 | 2.95 | 74.5 |
| 12. | Albendazole tablet 400 mg. | 5.89 | 11.80 | 100.3 |
| 13. | Cephalexin capsule 250 mg. | 4.10 | 5.80 | 41.4 |
| 14. | Co-trimaxazole DS tablet | 0.80 | 1.55 | 93.7 |
| 15. | Diclofenac sodium tablet 50 mg. | 0.71 | 0.90 | 26.8 |
| 16. | Paracetamol 500 mg. | 0.29 | 0.50 | 72.4 |
| 17. | Nifedipine tablet 10 mg. | 0.58 | 0.90 | 55.2 |
| 18. | Vitamin B complex tablet | 0.49 | 1.15 | 134.7 |
| | | | Average Change | 70.9 |
| Average change (All) | | | | 44.60 |

Source: CIMS, Sep-Dec,1993 and Sep-Dec,1999.

The wholesale price index and its growth rate as can be seen from Figure-1 and Tables 4.1 and 4.2 during 1982 to 2002, elaborates the impact of reforms on the growth rate of drugs and medicine prices which is 11% since the recent reforms. Further the growth rate of prices of pencillins and antibiotics which are 2.5% and 3.1% respectively indicates that the same for decontrolled drugs (Other than Penicillins and Antibiotics) was the major contributing factor to the rise in growth rate of Drugs and Medicines.

Table 4.1: Wholesale Price Index of Selected Components for Different Time Period

| | 1982 | 1992 | 1994 | 2002 |
|---------------------|-------------|-------------|-------------|-------------|
| Drugs and Medicines | 53.6 | 85.7 | 100 | 252.5 |
| Pencillins | 49.9 | 95.9 | 100 | 129.6 |
| Vitamin Liquid | 47 | 64.3 | 100 | 103.2 |
| Ayurvedic Medicines | 31.1 | 80.9 | 100 | 190.3 |
| Antibiotics | NA | NA | 100 | 127.7 |

Source: Business Beacon (2001), Centre for Monitoring Indian Economy Pvt.Ltd., Mumbai.

Table 4.2: Growth Rate of Drug Prices from 1982-2002

| | 1982-2002 | Before Reforms | During Recent Reforms |
|---------------------|------------------|-----------------------|------------------------------|
| Drugs and Medicines | 8.05 | 4.5 | 11 |
| Pencillins | 4.8 | 7.5 | 2.5 |
| Antibiotics | - | - | 3.1 |

Invariably, fixing the criteria for keeping or withdrawal from DPCO was the most difficult task. It was observed that every time the drugs were brought out of the DPCO, there was a hike in the price of medicines coming out of DPCO. This was mainly due to the criteria used by DPCO. The Drug Price Control Order mainly considers the total sale, monopoly and competition in the production and marketing of a particular drug. The concept of essentiality is absolutely misquoted in this context. Any drug which has sales less than the prescribed quantity based on demand pattern would automatically come out of the purview of DPCO. Many a times the price of drugs under DPCO have been less than that of the ceiling price fixed by DPCO/NPPA. The system of ceiling price is slowly becoming absolute due to market driven prices. Thus the role of DPCO is effective only if the producer has monopoly

prices over and above the ceiling prices. Thus two forces are acting simultaneously. While the prices of drugs going out of DPCO's control were to go up, the competition driven market has always succeeded to keep the prices of such drugs below that fixed by the DPCO/NPPA. Competition among the decontrolled drugs emerged due to the process patent which permits any manufacturer to produce any drug by opting some alternative processes. Furthermore, it is the function of NPPA to keep a watch on the prices of drugs and to fix the ceiling price for new drugs/dosage forms.

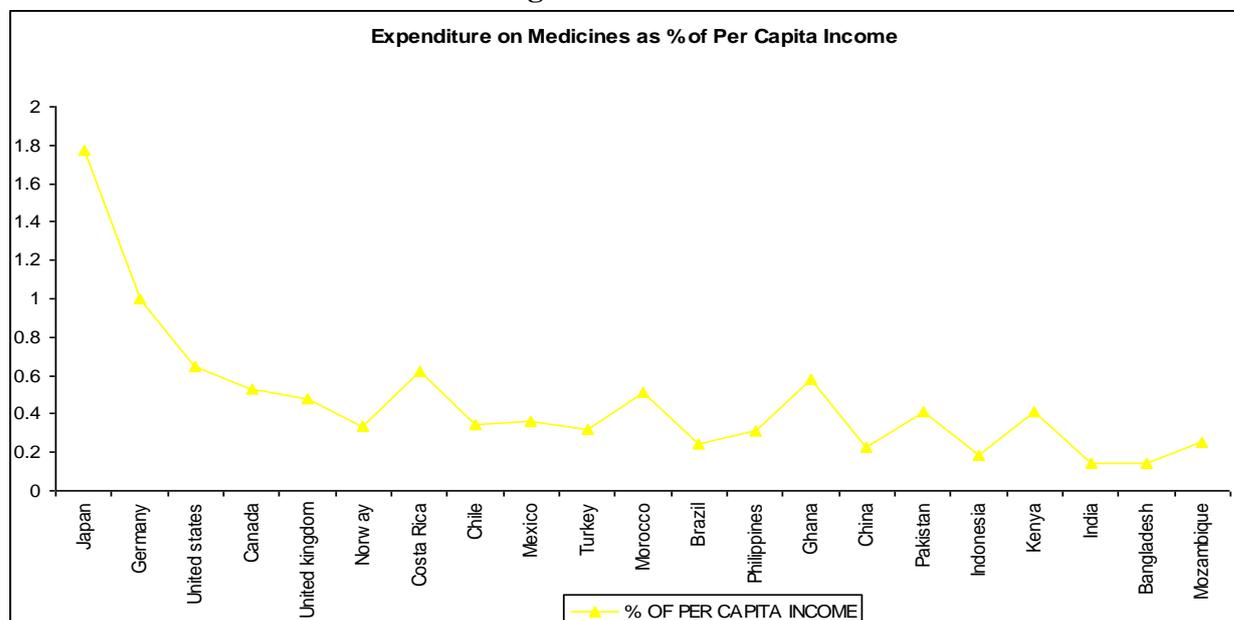
DPCO also was finding it increasingly difficult to fix the drug prices due to (a) increasing number of formulations (about 75,000) due to relaxation in the patenting system, and (b) time taken by the authorities to fix a ceiling price for the formulations and the bulk drug being very large, leading to lot of inconvenience in the production pattern of the required drugs. Further, the need for DPCO's intervention to control will arise only when the prices are driven by the monopoly and not by the competitive system, which grew due to the process patent system that made India to develop in to technologically advanced country in the field of Bulk drugs. This makes it necessary to have a close look at the Patent system in India.

3. Patent Scenario

India has been practising the process patent system in which one can patent the process but not the product. In other words, second person can have the access to the product through a different process. The policy helped the Indian Pharmaceutical Industry in many ways. It is worthwhile to note that India is the only country to have such a kind of options to reverse engineer the patented drugs and bring the generic version of the patented drugs. Generic version will always carry less price because it consumes less time, money and energy to produce the molecule. Further the manufacturer will not be paying the royalty to patent holder. Moreover the system makes it possible for individuals to patent the reverse engineered scheme.

Due to all these facts India is enjoying low cost of medicines in comparison to the rest of the world. As compared to the purchasing power or the income per head on average, the expenditure on medicine in India can be considered to be relatively low, as can be seen from Figure 3 and Annexure-I.

Figure-3

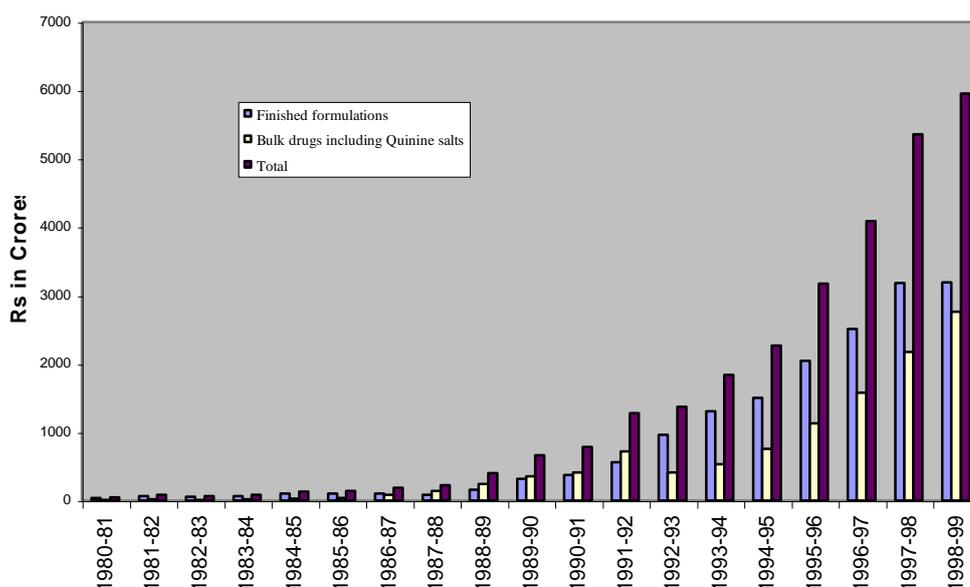


Source: <http://www.indioppi.com/keystat.htm> and Human Development Report (2000), UNDP, P.No.178.

It can be safely inferred that Indians can access medicines at much lower costs than other countries like USA, UK, Pakistan etc., as can be seen from Table 5. There has been continuous decline in the share of medicines and pharmaceuticals in total imports from 1991 onwards. This shows that the Indian Pharmaceutical industry is becoming self sufficient and is capable of making indigenous preparations. Infact the export data clearly reveals the emerging technological hold that India is possessing due to which it is supplying drugs to most of the developing and developed countries in various capacities. During 1994 to 2001, India exported medicines and pharmaceuticals mainly to USA (10 to 12%), Russia (11 to 6%), Germany (11 to 5%), Hongkong (4 to 5%), Netherlands (4 to 2%), Nigeria (3.5 to 4%) respectively. Exports to Russia, Germany, Netherlands, Italy and Japan have declined while, there is expansion of market in China, Mexico and Brazil. In value terms, India exports more than 80% of its formulations and bulk drugs(see Figure 4).

Figure-4

Export of Pharmaceuticals from India - 1998



Source: <http://www.indioppi.com/keystat.htm>.

Table 5: Comparative Prices of Selected Drugs

| Bulk drugs | Number of times costlier than in India | | |
|---------------|--|------|------|
| | Pakistan | USA | UK |
| Cefadroxil | 2.7 | 10.8 | 3.4 |
| Ciprofloxacin | 4.6 | 6.1 | 6.3 |
| Diclofenac | 9.8 | 42.3 | 16.9 |
| Piroxicam | 5.6 | 43.5 | 12.2 |
| Ranitidine | 9.1 | 25.7 | 16.8 |
| Atenolol | 11.6 | 30.5 | 13.8 |
| Aciclovir | 10.8 | 10.6 | 17.2 |

Source: Chemical Weekly, June 24,1997 pp.173.

Indian pharmaceutical Industry has come to this stage within a span of 25 years, specifically attributable to the Indian patent system. This system had its own impact on the Research and Development on pharmaceutical industry in India. The ever demanding market competition pushed the research towards the modification of the existing drugs and the new combinations. Indian Pharmaceutical industry continuously increased its R & D expenditures from Rs. 10.50 Crores in 1976-77 to Rs. 320 Crores in 1999-2000 (Annexure-2). But the MNCs share in R & D was always quite high as can be seen from Table 6. Clearly, India has not been able to invest on R & D, as much as the multinationals, a fact attributable to the patent system.

Table 6: R & D Expenditure by MNC's (Millions of US \$): 1996

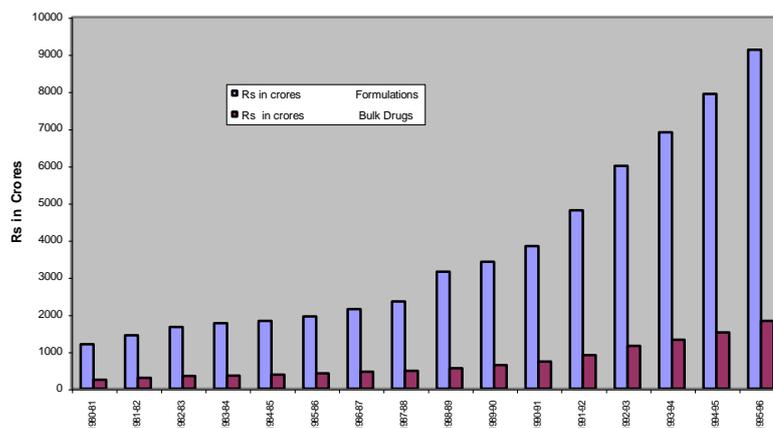
| Company | R & D Spending | Sales | R & D as % of sale |
|-----------------|----------------|--------|--------------------|
| Glaxo | 1287.0 | 8484.0 | 15.2 |
| Roche | 1226.3 | 5285.6 | 23.2 |
| Merck | 1120.0 | 8774.6 | 12.9 |
| BMS | 972.1 | 6524.0 | 14.9 |
| Hoechst | 955.8 | 6111.8 | 14.0 |
| Sandoz | 900.8 | 4972.9 | 18.1 |
| Pfizer | 88.1 | 6210.3 | 14.3 |
| Bayer | 840.1 | 5788.4 | 14.5 |
| SB | 743.5 | 5231.3 | 14.2 |
| Ciba | 714.7 | 4466.0 | 16.0 |
| India (1995-96) | NA | NA | 1.6 |

Source: S. Gautham and P. Parimao (1996)

But the process patent system has allowed the Indian pharmaceutical Industries to develop the bulk drugs by reverse engineering the original molecule, making the Indian Bulk drug Industry a leading organisation among the developing countries. India at present is producing bulk drugs and formulations in various capacities. As can be seen from Figure 5, as compared to the period 1980-81 to 1990-91, there has been a galloping increase in the production of formulations and bulk drugs. The growth in bulk drug production pushed the formulations as well.

Figure-5

Production of Formulations and Bulk Drugs in India



Source: <http://www.indioppi.com/keystat.htm>.

3.1: *Why we need a system of patents?*

In the context of examining the reforms process it is worthwhile to discuss certain basic aspects of patent system. First of all, are patents really essential? If at all, what is the impact on developing countries like India. Is the present system beneficiary to the people in India? How are we going to cope up with upcoming challenges by MNC's and similar issues.

Intellectual property rights are a subset of property rights. A number of theories have been put forward to explain why patents are needed. The *natural rights theory* suggests that the creator is entitled to the intellectual fruits of his or her labor, enabling him to either prohibit others or charge a royalty for using the outcome of his labour. The *prospect theory of patents* (Kitch, 1977) posits that the rationale for granting patents is not so much a reward for past innovative activity, but an incentive for (future) developmental activity. This perspective is consistent with considerations such as commercial success.

Patent laws are not free from social costs. First, higher prices may be charged for patented products. There are also higher transactions costs due to inefficiencies caused by patents on inventions that would have been made without patent protection. Further, there are the costs of patent administration and patent application. The costs incurred by the patent administration system include the cost of processing applications, the cost of granting applications, and the cost of adjudicating disputes. Costs incurred by patent applicants include the cost of maintaining corporate patent departments, cost of patent counsel, lobbying activities toward influencing patent policy.

Patents in the pharmaceutical industry play a particularly important role. Pharmaceutical innovation is quite costly. Development of a new drug can take some 10 to 15 years and cost more than \$500 million (Sudarshan, 2002). Moreover, the success rates for the complete process of drug development from synthesis of a drug to market approval have been estimated at less than 0.1 percent. While development of drugs is a lengthy and expensive process, their imitation is often simple and inexpensive leading to significant revenue loss for innovating firms. A study by the Pharmaceutical Manufacturers Association reported that, in 1984, unauthorized sales of patented U.S. pharmaceuticals by local firms in just five foreign countries amounted to \$192 million, while the concomitant sales by U.S. firms were \$162 million (Mossinghoff, 1987). Therefore, effective patent protection is a necessary incentive to pharmaceutical and chemical research.

3.2: *Arguments Against Patents in Pharmaceuticals in general*

There are some cogent arguments against patents for pharmaceutical products. First, while patents are needed for pharmaceutical innovation, prices are higher for patented pharmaceutical drugs. This price differential becomes evident when drugs lose their patent protection. For instance, Griliches and Cockburn (1994, p.1214) noted that when the patent on the incumbent firm's product expires, several generic versions appear relatively quickly, selling at much lower prices, typically from 30 percent to 50 percent cheaper than the original versions. Second, availability of patents for certain pharmaceutical products, and their higher prices, may make pharmaceuticals less enthused to develop non-patentable products that, which are necessary from a public health policy perspective, but are not profitable to the innovator. Third, patents may polarize the market in favor of larger firms, which have the resources to invest in research and development, and drive out smaller firms, which have essentially been producing copies of drugs. In a developing economy, this might mean that foreign multinationals supplement indigenous manufacturers. The absence of product patents may provide an environment conducive to indigenous participation in the pharmaceutical industry. Redwood (1994) points out that, in the 23 years since the introduction of the Indian Patents Act in 1970, Indian ownership of drug firms increased from 20% in 1970 to 61% in 1993. Fourth, it is not clear that granting product patents will encourage further investment in

pharmaceutical research and development. Deardorff (1992) argues that the availability of product patents for drugs is not likely to substantially encourage new pharmaceutical R&D given diminishing returns in new drug development. This view is supported by Hamied also (Cited in Cherukuri, Ravi, 1999). Finally, on humanitarian grounds, it can be argued that essential drugs should be available to fight life-threatening diseases irrespective of the patients' ability to pay.

Indian pharmaceutical industry eventhough is enjoying the type of patent system existing presently, will have to face the changes coming up with WTO regulations with many more problems. Indian per capita investment is too low to afford for the highly priced medicines that will enter the market with product patent in enforcement. Indian health scenario, where majority of population resides below the poverty line will not be able to afford the cost of medicines. When we observe the examples of few developing countries with product patents it appears to be the area of concern.

4. Economic Reforms of 1990s, Implications of WTO Commitments and Trade Liberalisation

New Economic Policies were introduced in India since June 1991. The Industrial Policy was also reformed in July 1991. WTO was established in January 1995. GATT regulations were also modified in 1994. All these internal and external reforms have influenced the performance of Drug and Pharmaceutical Sector in the decade of 1990s.

Under the WTO, several objectives were incorporated (following from the Uruguay Round in 1995). Among them, the Agreement on trade related aspects of Intellectual Property Rights, Agreements on Subsidies and Countervailing Measures, Sanitary and Phyto-Sanitary regulations and Agreement on Technical Barriers are directly relevant for this sector. The major changes introduced in India under WTO are:

- A two tier tariff structure, making essential drugs at zero tariff and countervailing duty rates; whereas all other drugs at 30 percent tariffs and 16 percent countervailing duties.
- TRIPS agreements on technical matters extended to 20 years from the existing 7 and 14 years.
- India agreeing to opt for switching to Product patenting from 2005.
- As part of TRIPS, in place of DPCO, Drug Development Promotion Foundation and Pharmaceutical Research and Development Support Fund, and National Pharmaceutical Pricing Authority (NPPA in 1997) came in to existence since 2002.

The new economic policy since 1991 also changed the restrictions on foreign ownerships, by raising upto 51% of equity, which was later on further raised to even 100 percent by December 2001. Till the National Pharmaceutical Pricing Authority came in to existence, DPCO kept on reducing the number of drugs under price control to 74 in 1995, depending upon the annual turnovers. Similar modifications were made for the units in formulations.

Under the WTO norms to be imposed from 2005 onwards, once the treaty comes in to existance, drugs in India can no longer be produced generically. This will change the drug supply side considerably. Till now, India has been enjoying the quick access to medicines compared to rest of the world. The prevailing process patent regime allows the industries to market the reverse engineered form of the patented drugs without paying any penalty. It took not more than 3-4 years for other firms to reproduce the drug (as can be seen from Table 7) using one or the other processes (without violating the Process Patent Laws).

Table 7: Time Lag Between Introduction of a New Drug in the World Market and its Introduction in India by National Firms

| Drug | Year introduced | |
|---------------|-----------------------------------|--|
| | By originator in the world market | By Indian national firms in the world market |
| Captopril | 1981 | 1985 |
| Ranitidine | 1983 | 1985 |
| Acyclovir | 1985 | 1988 |
| Ciprofloxacin | 1985 | 1989 |

Source: B.K. Keayla (1998)

4.1: *Effect of WTO / TRIPS : Some Case Studies.*

There is a fear that implementation of WTO and TRIPS regulations is going to worsen the health care systems in developing countries, as analyzed by Watal (2000, 2001) based on several case studies.

WTO implementation can worsen the matter still further by TRIPs regulation which is believed to develop a kind of monopoly ultimately resulting in hike of prices. Indian companies including Cipla and Cadila came up with the generic version of the sildanafil citrate and, Pfizer the innovator of the drug went out of Indian market. Indian companies marketed the drug at a considerably lower price due to reverse engineering that costed them only for photocopying and not for real art. As can be seen from Table 8, Indian companies are selling the patented drugs at a far lower rate when compared to the other developing countries and the world market. In fact Indian firms are exporting the medicines to countries like Thailand. But will Indian firms be able to give the drugs at the same price after 2005 is a matter under debate. Its prices are expected to go up by over 100 percent after product patenting is introduced.

Table 8: Comparative Picture of Indian and other Developing Country Prices - Before Introducing Product Patenting

| Generic name of drug | Originator/ Proprietary name | Retail prices of 100 units in USD | | | | Ratio of low ; high |
|----------------------|------------------------------------|-----------------------------------|-------|--------------|-------|---------------------|
| | | Country | Price | Country | Price | |
| | | Lowest | | Highest | | |
| Acyclovir 200 mg | Glaxo-welcome/Zovirax | Tongo | 50 | Indonesia | 371 | 1:7 |
| Acyclovir 800 mg | Glaxo-welcome/Zovirax | India | 94 | South Africa | 790 | 1:8 |
| Atenolol 25 mg | Zenaca/Tenormin | India | 03 | Camerom | 53 | 1:18 |
| Ciprofloxacin 500 mg | Bayer/Ciproxin | India | 15 | Mozambique | 740 | 1:49 |
| Diclofenac 50 mg | Novartis/Voltarin | India | 02 | Argentina | 118 | 1:59 |
| Nifedipine 20 mg | Seneca/Adalat Bayer Corporation | India | 03 | Peru | 96 | 1:32 |
| Omeprazole 20 mg | Astra/ Losec | Zambia | 30 | Brazil | 477 | 1:11 |
| Ranitidine 150 mg | Glaxo-welcome/Zantac | India | 20 | South Africa | 116 | 1:58 |
| Zidovudine 100 mg | Glaxo Welcome | Pakistan | 81 | Argentina | 316 | 1:4 |

Comment: Comparison of lowest and highest retail prices in USD for 100 units of proprietary brands of nine drugs in developing countries.

Source: Bala K. and Kiran Sagoo (2000)

The WTO rules are complex and appear to permit some exceptions, with countries able to "adopt measures necessary to protect public health and nutrition." This is supposed to allow the granting of "compulsory licenses" for the production of vital drugs. It is also supposed to allow, "parallel importing" of patented drugs, i.e., their purchase from whoever sells them the cheapest. The difficulty is being able to utilize the rules permitting exceptions. Most developing countries including India do not have their own pharmaceutical industry capable of producing on a scale to act on the basis of such 'exceptions' and bring down drug prices. They are only allowed to import cheap "generic" drugs (copies of expensive drugs patented by Western companies), usually produced in countries such as India, Brazil and Thailand, if a compulsory license has been issued in the exporting country. Even in this case, the TRIPS agreement specifies that a compulsory license can only be issued for "predominantly" domestic needs. What is more, compulsory licensing can only be obtained after efforts have been made to obtain a regular license from the patent holder on commercial terms, and if the patent holder is compensated. The result of the WTO rules effectively mean, 'Governments will no longer be permitted to allow local companies to produce, market, and export copies of patented drugs'. At present, there are a range of examples of the staggering differences in prices between patented and generic drugs. Zantac, used to treat gastric ulcers, costs between 15 and 50 times more in the US and Europe respectively, than its generic version made in India⁵. *When WTO rules are applied in India, drug prices could rise significantly as a result of patenting. This can be strikingly noticed from Table 9.*

Table 9: Prices of Zantac for the Year 1999

| Countries | Price in USD |
|--------------|--------------|
| India | 2 |
| Nepal | 2 |
| Pakistan | 21 |
| Korea | 61 |
| Zambia | 82 |
| Bolivia | 94 |
| Senegal | 100 |
| Burkina Faso | 105 |
| South Africa | 116 |

Note: The ratio of the lowest to the highest price of a multi-source drug, Zantac in developing countries is 1:58. It is US\$2 per 100 units in India and Nepal while it is \$116 in South Africa.

⁵ If a country could import the drug fluconazole used in the treatment of cryptococcal meningitis, an infection associated with AIDS from Thailand, the annual cost of treatment would be \$104. However, Pfizer, the company owning the patent on the drug, charges \$3,000 for an annual course of treatment and is applying pressure through the WTO to stop Thailand exporting the drug.

There are newer problems arising now. Oxfam (2001) points to the vast increase of new strains of diseases, including malaria and tuberculosis, which can only be treated by recently developed patented drugs. For example, a World Health Organization (WHO) study has shown that in the case of pneumonia, which kills 3.5 million people annually, medications that were formerly effective now fail in 70 percent of cases because of drug resistance. A new range of antibiotics is being patented that will be unaffordable in developing countries. To make sure that the poorer countries do not find ways of using compulsory licensing or parallel importing to avoid WTO rules, the major pharmaceutical companies are using what it is described as "armies of lawyers" to press their case.⁶ In 1997, the South African government passed a law sanctioning the use of compulsory purchasing and parallel importing for AIDS drugs and other medicines. Introduced in 1988, the "Special 301" provision of the US government is used to impose trade sanctions on countries to enforce compliance with WTO rules. India, the Dominican Republic, Argentina, Vietnam and Thailand all face Special 301 sanctions by the US over patenting rules for medicines.

4.2: Globalisation a threat.

The effect of globalization on Pharmaceutical sector will have to be examined to cover other aspects as well. The case studies have already proved that the medicines that are going to be invented after 2005 will be expensive as well as non freely accessible. Adding to these facts are the information which reveal that the pharmaceutical Industry in India will have to face a steep competition from the multi nationals which have a strategic plan to introduce their products in Indian market.

One of such strategies has been to shift the production to third party manufacturing units. In their attempt to shift the production to the third party manufacturing already, Hindustan Ciba Geigy, Roche, Abbot, Boehringer Mannheim, Boots, Park Davis, Unichem etc., have closed their factories and offered a voluntary retiring scheme to workers and they have sold the land of their factory premises at premium prices. Apart from these closures, Pfizer, Rhone Poulenc, Hoechst, Glaxo etc., have reduced their work force. Crores of rupees have been spent to give VRS. These companies are manufacturing their products with the help of loan licences. *Some of the companies have opened new smaller factories in new places and appointed workers with lower wages and more workload. More casual workers are being appointed. In the last two years in the Mumbai Thane region of Maharashtra around 30,000 workers have lost their jobs in the pharmaceutical industry.*

Apart from the factory workers the distribution workers are gradually being replaced by Cost & Freight agency system. In this system, the original company does not have any responsibility for the workers. They are employed by agents with more workload and lower wages. In the last decade around 15 thousand distribution workers have lost their jobs in the pharmaceutical industry (Table.10). Moreover, through the agency system the Government is deprived of sales tax.

In marketing also the field workers or the sales promotion employees are facing tremendous pressure in the name of franchise, co-marketing, appointment of communicators etc. Many permanent sales promotion employees are losing their jobs. Many others are appointed in the name of so-called executives to remove them from the fold of the union. More casual and contractual workers are being recruited.

⁶ Pointing to the vast economic power of transnational corporations, Pfizer's expected earnings of \$31bn for 2000, a greater income than the Gross Domestic Product of 115 developing countries.

Table 10: Reduction in the Work Force in Pharmaceutical Industries

| | Company | Year | Reduction of work force |
|-----|-----------------------|------|-------------------------|
| 1. | Glaxo | 1995 | 1564 |
| 2. | Hoechst | 1996 | 10429 |
| 3. | Knoll Pharma (Boots) | 1995 | 600 (All workers) |
| 4. | Smith Kline Beecham | 1995 | 208 |
| 5. | E.Merck | 1995 | 194 |
| 6. | Rhone Poulenc | 1996 | 700 |
| 7. | Hindustan Cieba Geigy | 1993 | 907 |
| 8. | Duphar Interferan | 1996 | 154 |
| 9. | Bayer | 1996 | 590 |
| 10. | Abbott | 1996 | All workers |
| 11. | Roche | 1996 | All 320 workers |
| 12. | Park Devis | 1997 | All 650 workers |
| 13. | Pfizer | 1995 | 215 |
| 14. | Unichem | 1997 | All workers |

Source: Annual reports of respective companies and interaction with the office bearers of Unions

Thus, the total payment on voluntary retirement schemes by firms like Glaxo, Hoechst, Pfizer, Knoll Pharma, Rhone Poulenc, Park Davis, Smith Kline Beecham, Duphar, Bayer etc., are more than Rs. 200 crores in the last three financial years. *The main thing is that employment opportunities in these units have been reduced for ever.*

4.2.1: Mergers and Acquisitions.

International and national level mergers, acquisitions and takeovers have now become a common phenomenon in the pharmaceutical industry. Internationally American Home Product merged with Cyanamid, SKB with Sterling, Rhone Poulenc took over Fashions, BSF with Boots, Glaxo with Burroughs Wellcome, Ciba Geigy with Sandoz, Warner Hindustan with Parke Davis, Hoechst with Rhone Poulenc etc., are some of the examples of big take overs. By mergers and acquisitions these companies became even larger with more financial power at their disposal over their competitors (*cf.* Table 11).

Table 11: Some Top Company Pharma Mergers in the World

| Company | Merger | Year | Value of Merged Company (US \$) |
|------------------------|-----------------------|------|---------------------------------|
| Dow Chemicals | Marion Labs | 1986 | 6.21 bn. |
| Bristol Myers | Squibb Corp | 1989 | 12.09 bn. |
| Beecham group | Smith, Kline & French | 1989 | 7.9 bn. |
| American Home Products | American Cynamide | 1994 | 9.7 bn. |
| Hoffman La Roche | Syntex Lab. | 1994 | 5.3 bn. |
| Eli Lyly | PCS Health System | 1994 | 4 bn. |
| Sandoz | Gerber | 1994 | 3.7 bn. |
| Smith Kline Beecham | Sterling | 1994 | 2.9 bn. |
| Glaxo | Burroughs Wellcome | 1995 | 14.2 bn. |
| Hoechst | MMD Roussel | 1995 | 7.2 bn. |
| Pharmacia | Upjohn | 1995 | 7 bn. |
| BASF | Boots | 1995 | 1.3 bn. |
| Ciba Geigy | Sandoz | 1996 | 30.1 bn. |
| Hoffman la Roche | Comage Ltd. | 1997 | 11 bn. |
| Astra | Zeneca | 1998 | 67 bn. |

Source: Compilation from reports published in various news papers at different times

In coming days, with the help of international financial companies the MNCs will capture and take control of Indian companies to control the Indian market as well.

To match the situation created by international mergers and takeovers, Indian companies are adopting the same path. For example Wockhardt took over Merind and Tata Pharma, Ranbaxy took over Croslands, Nicholas Piramal took over Roche, Boehringer, Sumitra Pharma. The inevitable results are loss of jobs. Because of overlapping of jobs large number of workers are declared surplus. After merger Glaxo-Wellcome and Ciba-Sandoz announced a reduction of 15 thousand and 10 thousand of their work force respectively world-wide. Upjohn and Pharmacia decided to close 24 of their 57 plants in different countries after their merger.

Some countries are adopting the 'buy and grow' method. They are taking over some popular brands and increasing their business. SKB took over Crocin from Duphar, Ranbaxy took over 7 leading brands from Gufic, and Dr. Reddy's Lab purchased 6 products of Dolphin and two each from Pfimex and SOL Pharma. Sun pharma purchased all leading brands of NATCO. After selling the popular brands the companies are becoming sick and closing their shutters making the workers jobless.

The governments permission to the MNCs to come to India with 100% equity have threatened the existing companies with the same origin and their workers. Through the process of mergers, acquisitions and takeovers MNCs will gradually perpetuate their grip on the Indian industry by the creation of a limited number of mega companies having monopoly control and domination world wide. In the absence of competition people will have to pay any price as it happens in the sellers market⁷.

4.3: Evaluation of Reforms Process in India

There are already sufficient evidences to say that price competition has forced the multinationals to bring down their prices to compete with Indian firms. Interestingly enough, when faced with competition, multinationals will not leave the market. They will lower their prices and stay on to compete with the nationals. This is due to the size of the Indian market.⁸ The best way to compete for the Indian firms is to produce the drug at very low costs. It takes few years for national manufacturers to copy products by reverse engineering and enter the market as shown in Table 7. But, the shorter period of 3-4 years is not sufficient for the Indian firms to capture a sizeable world market share, increase production volume; lower production costs and effectively compete in prices. In the past, the Indian firms were able to market these drugs at about two to four times cheaper than the lowest prices of the originators' proprietary drugs recorded among the other 35 countries surveyed. Then, the Indian manufacturers had adequate time to capture considerable market share, increase production volume, lower production costs and offer low-priced drugs to consumers. On the other hand, in the recent period, the Indian prices for the multi-source drugs were about 6 to 15 times cheaper than the lowest prices of the originators' proprietary drugs recorded among the 35 countries surveyed.

Time is, therefore, crucial in introducing generic equivalents of essential drugs, soon after new drugs are put into the market so that they can enter into price competition well before the originators secure brand loyalty for their products by skillful promotion. Many of the African (where no patent protection exists) countries surveyed had only the originators'

⁷ Such mergers are more prominently observed during the reforms period in the sector and also in chemical sector in general.

⁸ Another example comes from Bolivia where 100 units of 100mg of Retrovir (zidovudine) were priced at US\$626 in 1997. Prices dropped to US\$258 in 1998 when the competitor's product of zidovudine was made available and sold at US\$427.

proprietary brands, which are monopoly markets for eight multi-source drugs, while lower priced generic equivalents were available in the world market. It will be in the interest of public health to have low-priced generic drugs available in the market in every developing country. This is very critical since one of the criteria developing countries use for selecting drugs into their national lists of essential drugs is the price of drugs. High cost drugs, for example some of the new anti-retroviral drugs for the treatment of HIV/AIDS, are not included in the lists of essential drugs in many developing countries, because of their high prices.

The case studies and Indian data clearly show that there is need for national policies on intellectual property system with provisions to enable national firms to initiate production of new drugs as early as possible. Indian firms were able to do this by a process of reverse engineering. This was possible because the Indian national legislation on patents did not provide patent protection for products, which will not stay after 2005.

With TRIPs Agreement taking effect, all member countries of the WTO should provide patent protection for products and processes for 20 years. The only way national firms can initiate production is by compulsory licensing, which is allowed in the TRIPs Agreement. Nevertheless, only a few of the technically advanced developing countries can use compulsory licensing to manufacture new drugs. A vast majority of developing countries do not have technical specialties for production of pharmaceuticals. These countries depend on imports of raw materials and finished products. They can have access to lower priced drugs produced in the more advanced developing countries or by generic manufacturers in some developed countries only by parallel importing. This is also allowed in the TRIPs Agreement. This study shows that India can take advantage of such a situation among the developing countries, as revealed from Tables 8 and 9.

Further more, in the interest of all developing countries including India, Compulsory licensing and Parallel imports are two provisions, which should be in all national legislations on intellectual property rights. TRIPs Agreement allows these provisions to be included in the national legislation on prices. This will enable developing countries to have regular access to good quality essential drugs at affordable prices.

5. Summary and Conclusions

The current era of liberalization seems to be still in the best interest of Indian Pharmaceutical Industry. But, it has opened up several new challenges also. All through the history of this industry, it is the technological advancement that had made the country to be one of the leading pharmaceutical manufacturers at the lowest price available. No doubt the prices are increasing along with the new liberalization policies and are nearly above the inflation rate yet, Indians are having access to the latest drugs in the minimum period of lags at 10-100 times lesser cost than foreign countries.

The wholesale price data indicates that the overall growth in price of medicine is largely attributable to the non-essential drugs. The effect of Drug Price Control Order 1995 also indicates that the price of decontrolled drugs contribute to a larger extent. Thus the reforms process has reduced the controls from DPCO, but the net impact has been very high increase in a large basket of drugs.

Further Indian research and development is very much advanced in process research which gives it a leading edge to come up with better activities of presently available drugs. However it has to face some drawback in not going for new molecules. Much of the R & D made by large pharmaceutical companies is not aimed at developing “new” drugs, but targeted to the development of substitutes to competitor’s drugs with little or no contributions to the pool of available therapies, or to minor changes on existing products and processes, in many cases intended to extend the term of the monopolistic position that patents confer.

It is worthwhile to categorically mention the time lag between the marketing of generics when compared to originators' brands. India has always shown that it is possible to access to drugs within 2-3 years of the introduction to world market.

Indians can have access to all the drugs marketed till 2005 without much of a problem, as product patents do not come in to the system with retrospective application. The drugs which will be patented and marketed after 2005 (post WTO era) can fore see this as a subject of threat. After 2005 we cannot manufacture the medicines with the same liberty. Only way by which the new molecules could be obtained is either through Compulsory licensing or Parallel importing.

The mergers and acquisitions taking place in a large scale in this industry has been of some concern. Many job losses are reported due to the mega mergers. The profiteering attitude of the Multi national companies has resulted in reduction in the workforce and also has indicated threats to the small-scale industries, which mainly practice generic manufacturing. This is a matter of very serious concern. Apart from loss of employment of technical man power the merger tendency in bringing more and more monopoly power in the industry.

In summary, the Drug and Pharmaceutical Industry in India will have to face the challenges of economic reforms, WTO and TRIPS regulations without compromising the welfare of the people, or affecting public health care system in any significant way. Otherwise, all the comparative advantage established till about 1980's could be lost in the coming years.

6. Insights for Policy Initiatives

- ✓ Encourage development of new drugs via fiscal incentives
- ✓ Price control of selected life saving drugs and basic drugs used in primary health care.
- ✓ Agreement with multi-national companies established in India for supply of new drugs (particularly for treatment of diseases like TB, Malaria, AIDS, Hepatitis A & B) at concessional rates to Public Health Centres.
- ✓ Regulation of drugs:
 - (i) Restrict marketing of banned drugs
 - (ii) Use of restricted components in drug manufacturing
 - (iii) Quality control
- ✓ Creating platform for using compulsory licensing or parallel importing to have access to patented drugs for curing TB, malaria, AIDS, Pneumonia etc.
- ✓ Introducing a system (may be a Panel of experts) to screen the existing drugs, which could help in banning irrational and ineffective (therapeutically) and harmful drugs.
- ✓ To protect the interests of the poor in the light of new patent regime, the multi national companies operating in the country may be asked to set aside at least 25 per cent of their production for essential drugs.
- ✓ Issue of Public notices at all the health centers on banned drugs, side effects of major essential drugs and drugs not to be used under self medication.
- ✓ Ethics in production, marketing and prescription of medicines is what is required today in a country with mass illiteracy, poverty and wide prevalence of morbidity. But, here there cannot be any imposition, it has to come out of self decision on the part of respective players in the field. State intervention through monitoring, guidelines and regulation can be complimentary measures.

7. ANNEXURES

Annexure-I

Per capita drug expenditure and per capita income in 1998

| COUNTRIES | PER CAPITA DRUG EXPENDITURE(US \$) | PER CAPITA INCOME PPP |
|----------------|------------------------------------|-----------------------|
| Japan | 412 | 23257 |
| Germany | 222 | 22169 |
| United states | 191 | 29605 |
| Canada | 124 | 23582 |
| United kingdom | 97 | 20336 |
| Norway | 89 | 26342 |
| Costa Rica | 37 | 5987 |
| Chile | 30 | 8787 |
| Mexico | 28 | 7704 |
| Turkey | 21 | 6492 |
| Morocco | 17 | 3305 |
| Brazil | 16 | 6625 |
| Philippines | 11 | 3555 |
| Ghana | 10 | 1735 |
| China | 7 | 3105 |
| Pakistan | 7 | 1715 |
| Indonesia | 5 | 2651 |
| Kenya | 4 | 980 |
| India | 3 | 2077 |
| Bangladesh | 2 | 1361 |
| Mozambique | 2 | 782 |

Source: <http://www.indioppi.com/keystat.htm>. and Human development report (2000), pp. 178

Annexure II

R & D Expenditure in India

| Years | Rs in crores |
|------------------------------------|--------------|
| 1976-77 | 10.50 |
| 1978-79 | 12.00 |
| 1979-80 | 14.75 |
| 1981-82 | 29.30 |
| 1983-84 | 40.00 |
| 1985-86 | 48.00 |
| 1986-87 | 50.00 |
| 1993-94 | 125.00 |
| 1994-95 | 140.00 |
| 1995-96 | 160.00 |
| 1996-97 | 185.00 |
| 1997-98 | 220.00 |
| 1998-99 | 260.00 |
| 1999-00 | 320.00 |
| R & D Expenditure as % of sales | 2.0% |

Source. <http://www.indioppi.com/keystat.htm>.

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