District Health Accounts : An Empirical Investigation

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1. INTRODUCTION

In the wake of economic reforms, countries across the globe are experiencing resource crunch. This is very much true for the health sector as well as for other sectors also. In view of this, policy makers and planners in the health sector are continuously taking stock of resources available to the health sector as well as ways and means of finding new resource base for this vital sector. Attempts are also on to review allocation patterns and to assess the efficiency of the prevailing resource use. In the past two decades there were many attempts, which tried to estimate health expenditures of an economy both from public as well as private sources. Efforts by Abel Smith 1963, 1967, Griffith and Mills 1982, and Mach and Abel Smith 1983 are considered to be important milestones in this regard.

A careful understanding of financial flows of the health sector seems to have emerged as an important policy tool in the recent times. The earlier attempts in developing countries were restricted to the 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 termed as the **National Health Accounts.**

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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. (Foulon1982, 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.

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.

2. METHODOLOGICAL ISSUES:

The conceptual framework for estimating the health accounts emanates from two major attempts namely,

1. One carried out by the OECD group of countries
2. And the other one by the Harvard School of Public Health.

2.1 The OECD Methodology:

The OECD methodology broadly concentrates on the following components viz,

- Health Financing
- Health Providers
- Health Care Function

In the financing component various levels of government are taken separately as well as various other private sources of financing and households. Health care providers include various providers including drug production, hospitals and others. Financing of health care include preventive, promotive, curative and rehabilitative care. Thus the OECD methodology tries to evolve the health accounts in a tri axial format. The methodology seems to be quite exhaustive in its coverage. For a developing country like India, the data to match these requirements may not be easily available, but a beginning needs to be made so that in the years to come we may probably evolve the methodology, which suits specific requirements of our own country.

2.2 Harvard School Methodology:

The methodology states that the expenditures on health should be taken as “expenditure on activities whose primary intension (regardless of effect) is to improve health”. It excludes large programs that have health effects, but whose primary goal is not health for example general food subsidies, housing improvement and large urban water supply projects. Still the debate of what to include in the domain of health expenditures is not conclusive and the consensus is likely to emerge as the developing countries start estimating the health accounts according to country specific needs.

This methodology considers the flow of funds in the health sector from the following three angles.

1. Source of funds
2. Financing agents
3. Uses of funds

Sources of funds: Refers to those entities that provide funds to the financing agents.

Financing agents are those entities, which pay for the purchase of health care services. They may own or operate provider institutions, as the ministry of health does or they may finance services provided by others, as done by private health insurance.

It is important to note that entities can appear at more than one level. For example households (a source) pay premium to insurance companies (a financing agent). However households also act directly as financing agents, purchasing health care services directly from providers. Households can appear at both levels in the flow of fund analysis since they play both roles. The NHA considers this as if households pay part of their expenditures to other financing agents and retain a certain part with themselves as financing agents. This leads to a transfer between columns and rows in the matrices.

The final level of the flow of funds analysis can be categorization of a variety of "uses " as listed below.

1. Providers and institutions.
2. Functions or type of health care services.
3 Line items or economic expenditure categories.
4. Regions or geographic \ administrative categories.
5. Socio –economic categories.

Formulation of flow of funds analysis is complete when the levels are clearly distinguished, all relevant levels and entities are included in their appropriate place and well-defined categories of uses have been agreed upon.

3. DISTRICT HEALTH ACCOUNTS: AN EMPIRICAL INVESTIGATION

In the present study a modest attempt is made to estimate the district health accounts in the Karnataka State of India. Ideally the health accounts at such a micro level will prove to be more useful in evolving such estimates and also help in strengthening the methodology for its replication at the state and may be finally for the nation as whole. Few issues would assume importance in this regard.

a. What should be the ideal scope of District Health Accounts (DHA) to begin with?

b. Are health care services produced in the district and used by residents of other districts to be considered in this regard or not ?

c. Are services produced in the areas outside the district but used by the residents of the district to be included or not?

d. What public expenditure items to be considered in estimating the DHA? This is more significant in the background of different approaches adopted by different researchers in the Indian Context, for estimating health expenditures.

e. The same argument also bolds good for the expenditures made by NGOs and private corporate bodies.

f. How to reconcile the expenditures made by other governmental departments other than health ?

4. METHODOLOGY:

In the background of these and many other issues related to the estimation of DHA, the present exercise has made a modest beginning. The methodology adopted for the current exercise is explained as below:

1. **Public expenditure**: Under this category we have considered Medical and Public Health (2210). Though ideally we must also consider expenditures on Family Welfare, Nutrition, Water Supply and Sanitation, Child health, and the expenditures made by other government departments, in view of the resource and time constraints we have restricted ourselves to Medical and Public Health only. Data on public expenditure was collected from different sources in the district.

2. **Private Expenditure**: In order to capture the household expenditures a household survey was conducted in both urban and rural centres. e Sample households were chosen in a way as to provide due representation to different socio economic groups as well as geographical regions within the district. Random circulatory method was adopted to select the sample units. A total of 250 households were surveyed and based on the per household expenditure on health (curative) the total household expenditure on health for the district was estimated.

3. Employees state Insurance (ESI) data regarding the contributions made by employers as well as employees was collected.

4. Spending on health by departments other than health are also considered. For example, expenditure incurred by Jails, Police Department, Railways, State Transport Corporation, etc. The data

sources produced at the end of the report gives in detail the different sources from where the data was collected.

5. Non-Governmental organizations: Two of the NGOs were contacted in the district to gather expenditure data related to health activities.

5. RESULTS :

At the outset we will take a look at the profile of households surveyed. About 13 percent of households belonged to scheduled caste (SC) and 5 percent belonged to scheduled Tribe (ST). Other Backward communities (OBC) constituted about 33 percent, majority of the households were having very low income per month. For example about 40% of the households had income less than Rs.1400/- per month and 28% were in between Rs.1400 to 2500. Of the total households 7% were huts 39% were kutcha houses. Illiterates in the total sample accounted for about 24% and the share of primary and upper primary levels were respectively 23 % and 31 %.

As far as sickness is considered about 93 % of the males and 6 % of the females reported as being sick. These sick people utilized the facilities in the following way.

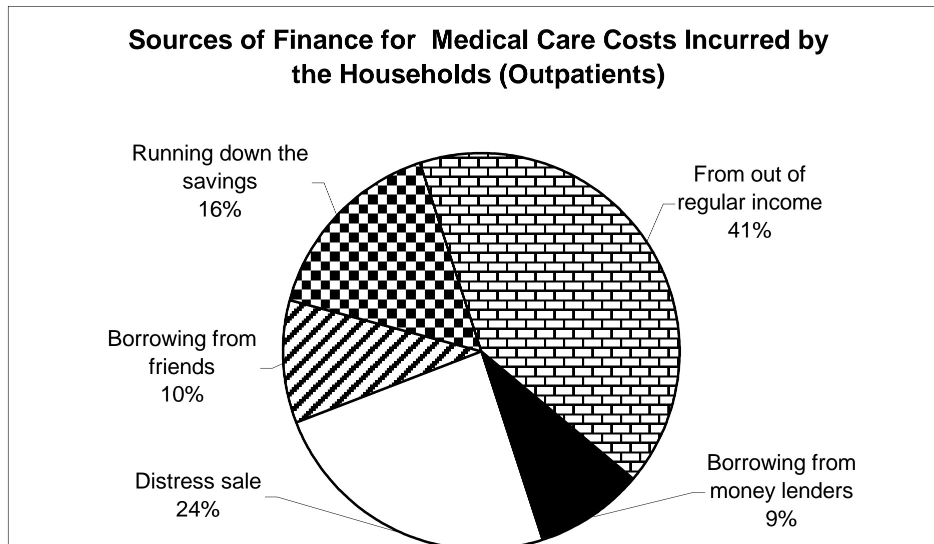
Table 1

Facilities	Utilization (%)
Public hospital	35.29
Public health clinic	4.04
Private hospital	13.97
Private doctor	38.24
Private nurse	0.74
Traditional Healer	1.10
Others	1. 84

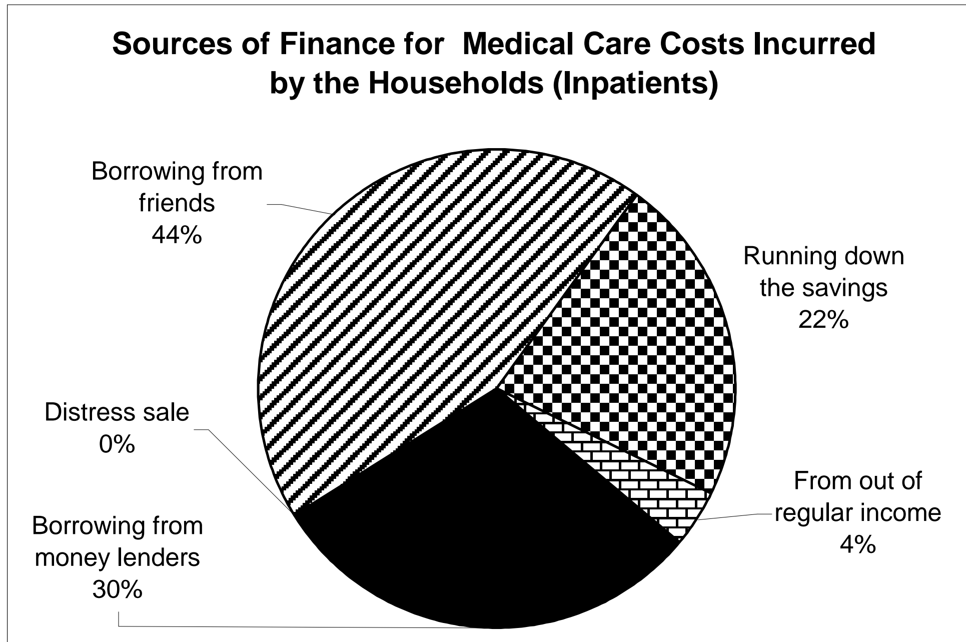
The table clearly shows that the dependence of the community on private facilities is more in comparison to the public facilities.

Many studies have shown that private resources are quite significant in the total health expenditures. But it needs to be examined how this expenditure is financed. In other words it is not enough to say that private sector contributes the major share of the health expenditures, but it would be interesting to see how actually the households are drawing the money to fulfil their medical needs.

The following graphs makes it amply clear as to how the households are able to spend money with help of different sources of finances.



For the out patient care 24% of the expenditures comes from the distress sale of household articles and 9% through borrowing from money lenders, 16 percent from running down of the savings. This speaks about the kind of inconvenience the households are facing in making expenditure towards their simple outpatient heath care needs.



From the previous graph we can note that the money made available for the inpatient care shows that 30% is arranged by borrowing from moneylenders and 44% out of barrowings from friends. Running down the savings finances 22%. These would certainly indicate that the episodes of morbidity affect the economic position of the households in a severe manner. This indicates the sense of insecurity that sweeps into the household due to morbidity. This seems to indicate that the public provision of health services needs to be farther strengthened to cater to the vulnerable sections of the society.

6. DISTRICT HEALTH ACCOUNTS

Based on the data collected from the district (both public and private) an attempt was made to develop the health accounts for the district (Table 2 and 3). The matrix of health accounts shows different sources and uses of funds in the district. The government funds have been classified into Union, State, Local and Foreign depending on the flow of resources. In the same fashion private funds have been classified

into household, non-governmental organisations and others (small private firms spending an health care needs). The district health accounts in terms of percentages indicate that all private funds account for about 52 per cent of the resources flowing into the district. Out of this, 37 percent is the contributions by households, 8 percent by NGOs and about 5 percent by others. Public resources account for about 47 percent of which state government spends about 33 percent, union government spends about 10 percent and local bodies contribute about 2 percent. If one looks at the share of uses it is interesting to note that both state and union governments are spending less on medicines whereas salary assumes greater significance in their spending pattern.

An attempt is also made to evolve the accounts matrix for public resources only (table 4 and 5), which show that salary consumes major chunk of the resources. The major role in the provision of health services rests with the state government which accounts for about 70 percent of the total public resources.

Table 2

District Health Accounts of Dharwad District (Rs. Lakhs) for the year 1997-98

Uses	Total	All Private Funds	Private			Total Government	Government			
			House Hold	NGO	Others		Union	State	Local	Foreign
Medicines	3615.35	3372.18	3372.18			243.17	85.00	157.17		1.00
Medical Supplies (Equipments)	388.78	247.97		42.36	205.61	140.81	0.00	67.33	73.48	0.00
Medical & Public Health	1209.18	0.00				1209.18		1209.18		
Laprosy Treatment	15.79	0.00				15.79		15.79		
Malaria Programme	3.94	0.00				3.94		3.94		
Blindness Control	5.87	0.00				5.87		5.87		
Aids Control	0.85	0.00				0.85		0.85		
ESI Contributions	77.44	65.52			65.52	11.92		11.92		
Rehabilitation Care	40.25	40.25		40.25		0.00				
Salary	2620.24	708.48		530.49	177.99	1911.76	356.39	1468.64	84.00	2.73
Office Exps	168.89	165.44		165.44		3.45		3.44		0.01
Transport	0.00	0.00				0.00				
Logistics	74.57	74.10	73.77	0.33		0.47		0.44		0.03
Construction & Maintenance	165.79	7.18		7.18		158.61	1.25	65.53		91.83
Capital Expenditure	89.64	58.13		0.45	57.68	31.51	13.62	1.08	7.12	9.69
Diet	39.01	3.17		3.17		35.84	7.00	28.84		
Training	9.89	0.20		0.20		9.69		9.69		
RCH Programme	140.77	0.00				140.77	139.63	1.14		
Family Welfare	423.45	0.00				423.45	393.17	30.28		
Power & Water	3.42	0.00				3.42		3.42		
Research Expenses	6.52	6.52		6.52		0.00				
Other	0.10	0.00				0.10		0.10		
Total	9099.74	4749.14	3445.95	796.39	506.80	4350.60	996.06	3084.65	164.60	105.29

Table 3

District Health Accounts of Dharwad District (Rs. Lakhs) for the year 1997-98

Uses	Total	All Private Funds	Private			Total Government	Government			
			House Hold	NGO	Others		Union	State	Local	Foreign
Medicines	39.73	37.06	37.06	0.00	0.00	2.67	0.93	1.73	0.00	0.01
Medical Supplies (Equipments)	4.27	2.73	0.00	0.47	2.26	1.55	0.00	0.74	0.81	0.00
Medical & Public Health	13.29	0.00	0.00	0.00	0.00	13.29	0.00	13.29	0.00	0.00
Laprosy Treatment	0.17	0.00	0.00	0.00	0.00	0.17	0.00	0.17	0.00	0.00
Malaria Programme	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00
Blindness Control	0.06	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.00	0.00
Aids Control	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
ESI Contributions	0.85	0.72	0.00	0.00	0.72	0.13	0.00	0.13	0.00	0.00
Rehabilitation Care	0.44	0.44	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00
Salary	28.79	7.79	0.00	5.83	1.96	21.01	3.92	16.14	0.92	0.03
Office Exps	1.86	1.82	0.00	1.82	0.00	0.04	0.00	0.04	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Logistics	0.82	0.81	0.81	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Construction & Maintenance	1.82	0.08	0.00	0.08	0.00	1.74	0.01	0.72	0.00	1.01
Capital Expenditure	0.99	0.64	0.00	0.00	0.63	0.35	0.15	0.01	0.08	0.11
Diet	0.43	0.03	0.00	0.03	0.00	0.39	0.08	0.32	0.00	0.00
Training	0.11	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.00	0.00
RCH Programme	1.55	0.00	0.00	0.00	0.00	1.55	1.53	0.01	0.00	0.00
Family Welfare	4.65	0.00	0.00	0.00	0.00	4.65	4.32	0.33	0.00	0.00
Power & Water	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00
Research Expenses	0.07	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	52.19	37.87	8.75	5.57	47.81	10.95	33.90	1.81	1.16

The health account table developed for the Dhawad District shows that in all Rs. 9099.74 lakhs were spent in the district. The table of district health accounts of the public sources only (Table 4 & 5) shows different sources and uses of expenditures. Out of the total expenditure, salary accounts for about 44 percent. The other major shareholders in the total expenditure were Medical and Public Health 27.79 percent and Medicines 13.61 per cent. The DHA for public sources only gives a picture about share of different layers of government. We can note from the table that about 70 percent of the resources in the district are spent by the state government, and central government contributes 22 percent. The local government and foreign sources seem to be in a marginal position with regard to their share in total public spending.

Though the DHA estimate has more scope for refinement the present estimates nevertheless give a picture of flow of funds within the health sector of the concerned district. The present exercise of evolving a health accounts at the district level can be considered as a beginning. The exercise has raised many questions rather than answering most of them. The exercise needs to be fine tuned to suit the managers of health in the district.

Table 4

District Health Accounts of Dharwad District (Rs. Lakhs) for the year 1997-98

Uses	Total Government	Government			
		Union	State	Local	Foreign
Medicines	243.17	85.00	157.17		1.00
Medical Supplies (Equipments)	140.81	0.00	67.33	73.48	0.00
Medical & Public Health	1209.18		1209.18		
Laprocy Treatment	15.79		15.79		
Malaria Programme	3.94		3.94		
Blindness Control	5.87		5.87		
Aids Control	0.85		0.85		
ESI Contributions	11.92		11.92		
Rehabilitation Care	0.00				
Salary	1911.76	356.39	1468.64	84.00	2.73
Office Exps	3.45		3.44		0.01
Transport	0.00				
Logistics	0.47		0.44		0.03
Construction & Maintenance	158.61	1.25	65.53		91.83
Capital Expenditure	31.51	13.62	1.08	7.12	9.69
Diet	35.84	7.00	28.84		
Training	9.69		9.69		
RCH Programmes	140.77	139.63	1.14		
Family Welfare	423.45	393.17	30.28		
Power & Water	3.42		3.42		
Research Expendses	0.00				
Other	0.10		0.10		
Total	4350.60	996.06	3084.65	164.60	105.29

Table 5

District Health Accounts of Dharwad District (Rs. Lakhs) for the year 1997-98					
		Government			
Uses	Total Government	Union	State	Local	Foreign
Medicines	**5.59**	**1.95**	**3.61**	**0.00**	**0.02**
Medical Supplies (Equipments)	**3.24**	**0.00**	**1.55**	**1.69**	**0.00**
Medical & Public Health	**27.79**	**0.00**	**27.79**	**0.00**	**0.00**
Laprocy Treatment	**0.36**	**0.00**	**0.36**	**0.00**	**0.00**
Malaria Programme	**0.09**	**0.00**	**0.09**	**0.00**	**0.00**
Blindness Control	**0.13**	**0.00**	**0.13**	**0.00**	**0.00**
Aids Control	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**
ESI Contributions	**0.27**	**0.00**	**0.27**	**0.00**	**0.00**
Rehabilitation Care	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Salary	**43.94**	**8.19**	**33.76**	**1.93**	**0.06**
Office Exps	**0.08**	**0.00**	**0.08**	**0.00**	**0.00**
Transport	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Logistics	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**
Construction & Maintenance	**3.65**	**0.03**	**1.51**	**0.00**	**2.11**
Capital Expenditure	**0.72**	**0.31**	**0.02**	**0.16**	**0.22**
Diet	**0.82**	**0.16**	**0.66**	**0.00**	**0.00**
Training	**0.22**	**0.00**	**0.22**	**0.00**	**0.00**
RCH Programmes	**3.24**	**3.21**	**0.03**	**0.00**	**0.00**
Family Welfare	**9.73**	**9.04**	**0.70**	**0.00**	**0.00**
Power & Water	**0.08**	**0.00**	**0.08**	**0.00**	**0.00**
Research Expendses	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Other	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total	**100.00**	**22.89**	**70.90**	**3.78**	**2.42**

Explanatory Note on Items of Uses In DHA

	Particulars	Explanations
1	**Salary**	Salary of Officers, staff, D.A, T.A, Interim relief, Other allowances, Establishment expenses. Accident relief fund. Salary of social workers.
2	**Medicines**	Drugs & Chemicals, Medical reimbursment, medicine to poor patient.
3	**RCH Programmes**	Provision of contraceptive/Vaccination.
4	**Medical Supplies (Equipments)**	X-ray, Lenin & bedding, , Instrument & equipment, Hospital equipment, Surgical equipment, Uniform & shoes.
5	**Transport**	Expenditure on Petrol / Diesel.
6	**Office Expenses**	Expenditure on Telephone, Contigency / Stationary. Contingency.
7	**Other**	Not defined
8	**Diet**	Expenditure on Food / Milk / Fruits / Eggs / Vegetables.
9	**Family Welfare**	Expenditure on Sterilization / NSV (No Scalpel Vasectomy).
10	**Medical & Public Health**	Expenditure of T.B clinics, Other govt.hospitals, Rural health services, School health services.
11	**Construction & Maintenance**	Equipment maintenance, Repair & maintenance, Improvement, Modernisation, Expenditure in respect of properties, addition & alteration.
12	**Leprosy Treatment**	Prevention and Control of Diseases.
13	**Malaria Programme**	Prevention of Malaria Disease / Distribution of Medicines/Drugs.
14	**Logistics**	Travelling expenditure.
15	**Power & Water**	Expenditure on Energy and water.
16	**Capital Expenditure**	Purchases of Vehicle, Ambulance.
17	**Training**	ANM Training / NGO Training / Continued Health Education Training

Explanatory Note on Items of Uses In DHA ***(Contd...)***

	Particulars	Explanations
18	**Blindness Control**	Prevention and Control of Blindness.
19	**Aids Control**	National Aids Control Programs. /Awareness to public regarding AIDS.
20	**Research Expenditure**	Expenditure on Research.
21	**Rehabilitation Care**	Expenditure on Patient rehabilitation.
22	**Other**	Not defined.

7. SCOPE FOR FURTHER REFINEMENTS :

In the present exercise a modest attempt is made to present a sources and uses matrix of resources flowing into the health sector at the district level. If this is considered as a beginning, the refinements can be made in future attempts as outlined below.

1. Health Financing Component

- Expenditure on health by source of funding
- Expenditure on health by provider and source of funding (this has been partly covered in the present study)

2. Health provider component

- Expenditure on health by provider
- Expenditure on health by function

In this category different levels of health care institutions act as providers. A careful examination of sources of funds and uses for different levels of institutions would throw more light on the efficient use of resources. Under this category we also need to consider pharmacy/biomedical industries, medical equipment and allied industries and other related industries.

3.Analysis of Health care functions: In this context flow of funds to various functions like preventive, primitive, curative and rehabilitate care, capital formation in health care industries, education, research and training and son.

Future attempts in estimating health accounts especially in the Indian context must cater to host of resources flowing from non-formal sector wherein there are many players in the provision of health care services. For example, services of herbal medicine providers, Yoga and naturopathy establishments, household expenditure on medicines prepared within the house. Only when such a holistic perspective is taken about health accounts, one can meaningfully evolve "Health Accounts" in its true sense:

DATA SOURCES

1. GOVERNMENT

1. **District Health Office (D.H.O) Dharwad.**
   a. Salary and Non-salary
   b. Plan and Non-plan Expenditure
   c. Expenditure on Drugs
   d. Reproduction and Child Health (RCH) Programs
   e. Capital Expenditure on Hospital building.
   f. District Leprosy Office
   g. District Malaria Office

2. **District Civil Hospital. Dharwad.**
   a. Non-plan Expenditure
   b. Users money and Vehicle cost
   c. Nurse (ANM) Training. (Plan).
   d. Blindness Control-Plan and Non-plan Expenditure.
   e. Blood Bank-AIDS control, Plan Expenditure.
   f. Post Maternity Care Centre.
   g. Leprosy Unit.

3. Karnataka Institute of Medical Science (**KIMS**). Hubli.

4. South Central Railway Hospital Hubli.

5. Leprosy Hospital and Rehabilitation Centre Hubli.

6. Karnataka Mental Hospital and Rehabilitation Centre.Dharwad.

7. District T.B.Centre Hubli.

8. Police Department
(Expenditure on Reimbursement and Health Unit).

9. North-West Karnataka Road Transport Corporation.
(Expenditure on Reimbursement and Health Unit).

10. Sub-Jail / Borstal School's Health Unit.

11. Employees State Insurance (**ESI**) Office.
(Employees and Employers Contribution.)

II. LOCAL BODIES

1.Hubli Dharwad Municipal Corporation (**HDMC**).

III. PRIVATE

1. Dental Hospital (**SDM**) Dharwad.
2. Karnataka Cancer Therapy and Research Institute Hubli.

IV. NON-GOVERNMENTAL ORGANISATION

1. Karnataka Integrated Development Services **(KIDS).** Dharwad

2. Institute for studies on agricultural and Rural Development **(ISARD)**. Dharwad.

V. FOREIGN FUNDING AGENCY.

1.Expenditure of Karnataka Health Systems Development Programs **(KHSDP).** Dharwad**.**

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