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INSTITUTIONAL CREDIT FLOW TO AGRICULTURE UNDER KISAN CREDIT CARD SCHEME IN INDIA: EMERGING TRENDS AND PATTERNS

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INSTITUTIONAL CREDIT FLOW TO AGRICULTURE UNDER KISAN CREDIT CARD SCHEME IN INDIA: EMERGING TRENDS AND PATTERNS

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This paper attempts to analyse the growth rates of institutional credit, both short-term and long-term by agencies during the pre-reform and reform periods; progress of the KCC scheme and to examine the impact of production credit provided under the KCC scheme on agricultural output. The study shows that, given the inconsistency of the data, the compound annual growth rate of total institutional credit (direct and indirect) for agriculture and allied activities was found to be much higher during the reform period as compared to that of the pre-reform period. The increase in production credit vis-à-vis investment credit was also found to be higher during the same periods. The RRBs followed by the SCBs registered higher growth rate of short-term institutional credit as compared to that of Co-operatives during the entire period. The increase in the growth rate of short-term institutional credit was found to be higher in respect of RRBs and SCBs as against the Co-operatives during the reform period as compared to that of the pre-reform period. The bulk of the increase during the reform period was attributed to the banking sector reforms initiated in the early 1990s. A considerable regional disparity existed in the coverage and credit limit sanctioned under the KCC scheme. The results of log-linear regression model reveal that gross cropped area, production credit and agricultural workers were found to be the important factors contributing to the level of agricultural output. Equitable coverage and adequacy in credit limit sanctioned under the KCC scheme would go a long way in ensuring sustained growth of agriculture and food security for a great majority of the rural masses.

1. INTRODUCTION

Adequate and timely availability of institutional credit, a priori, plays a pivotal role in agricultural development, particularly in enhancing its productivity and improving the living standard of the peasant communities. It plays an accelerator role in the agricultural development if it is adequate in quantity, cheap and timely provided (Belshaw, 1931; Galbraith ,1952; Schultz, 1964). Credit is not only a critical input in agriculture but also an effective means of economic transformation of rural areas. Increasing commercialization, diversification and capitalization through the use of modern technologies, driven largely by the forces of globalisation, ipso facto, have increasingly enhanced the credit needs of the peasants (Gadgil, 1994; Khan, Terwari and Shukla, 2007).

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As the agrarian structure is mainly characterized by the predominance of marginal and small farmers, accounting for more than 82 per cent, they cannot afford to invest back in agriculture. Ensuring adequate and timely access to institutional credit and improving the efficiency of its delivery system for augmenting agricultural production, has, therefore, been an area of constant focus in the development paradigm of rural economy in India.

Since the 19070s, the "multi-agency approach" by enacting the Credit Co-operative Societies Act 1904, nationalization of 14 Scheduled Commercial Banks (SCBs) in 1969 and 6 more in 1980 and establishing the Regional Rural Banks (RRBs) in 1975, has been followed to cater to the credit needs of the peasants in rural areas. Notwithstanding the rapid progress in the rural credit delivery system ever since the 1970s, a great majority of the farmers, especially marginal and small farmers, had limited access to timely and adequate institutional credit and continued to be the victim of "indebtedness". There is a problem if the credit is not provided and there is also a problem if the credit is provided. "Credit, as an old French proverb says, supports the farmer as the hangman's rope supports the hanged" (RBI, 1951). Similarly, Darling's statement (1925) that "the Indian peasant is born in debt, lives in debt and dies in debt," still remains true for a great majority of the peasant communities in rural areas. The problem of indebtedness not only remains true today but it has been aggravated further in recent years. Despite several efforts were made to ensure adequate and timely availability of institutional credit for agriculture by constituting many Working Groups/Task Force/Expert Committee, credit inadequacy, constraints in timely availability, neglect of small and marginal farmers, high cost of credit and low credit deposit ratios continue to be the major cause of concern.

In the continued efforts to ensure adequate and timely credit for the rural areas, the financial sector reforms were also introduced in the early 1990s. The introduction of the financial sector reforms in the early 1990s has brought about several improvements in the above aspects of credit delivery system in rural areas. The financial sector reforms introduced as a part of the economic reforms initiated in 1991. The financial sector reforms included various measures in the area of agricultural credit such as deregulation of interest rates of Co-operatives and RRBs, regulation of lending rates of SCBs for loans more than Rs. 2 lakh, recapitalization of selected RRBs, introduction of prudential accounting norms and provisioning requirements for all the formal credit lending institutions and introduction of Kisan Credit Card (KCC), among others. The prime objective of financial sector reforms was to improve the allocative efficiency of resources, ensure financial stability and maintain confidence in the financial system. The financial sector reforms have had a profound impact on the functioning of financial institutions, especially banking institutions in rural areas. In a crusade towards providing timely and adequate institutional credit for agricultural production as a part of the banking sector reforms, the KCC scheme has been introduced in India since 1998.

Against this background, the present study is designed: to analyse the growth of institutional credit flow for agriculture and allied activities in India during the pre-reform and reform periods; to analyse the progress and coverage of the KCC scheme; to examine the impact of institutional credit (production credit) provided under the KCC scheme on agricultural output and draw policy implications for better management of rural credit delivery system.

3. DATABASE AND LIMITATIONS

The study is based on the secondary source of data collected from the Handbook of Statistics of Indian Economy, Statistical Abstract of India, Agricultural Statistics at A Glance, Economic Survey of India, etc. At the aggregate level, the quantum of credit flow for agriculture and allied activities was examined during the different periods classified based on the major developments in the banking sector. The period from 1973-74 to 1980-81 is considered to be the beginning of multi-agency approach and its expansion, from 1981-82 to 1990-91 is regarded as the pre-reform period, from 1991-92 to 1998-99 and 1999-00 to 2006-07 as the reform periods.

As the KCC has been implemented since 1998, the institutional credit flow for agricultural sector is analysed in the latter part of the reform period. In order to examine the extent of institutional credit flow for agriculture and allied activities, institutional credit per hectare cultivated area and institutional credit as a percentage to GDP from agriculture were also estimated in addition to the estimation of compound annual growth rate. In order to examine the impact of production credit provided under the KCC scheme on agricultural output, a log-liner regression model is fitted.

The data on institutional credit (both direct and indirect) provided by the State Co-operative Agriculture and Rural Development Banks (SCARDBs) and Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) were included under the Co-operative sector since 1999-00, and previously, it covered only Primary Agriculture Credit Cop-operatives (PACs). The data on institutional credit (both direct and indirect) provided under the Co-operative sector since 1999-00, therefore, are not strictly comparable with that of earlier years. The temporal comparability of data for the period 1999-00 to 2006-07 with that of earlier periods may not be consistent.

4. CREDIT FLOW FOR AGRICULTURAL DEVELOPMENT

4.1 Non-institutional Credit Trajectory

Although the Indian economy has undergone several changes during the post-independence period, agriculture continues to be a predominant occupation for a great majority of people in rural areas. Ever since the Green Revolution, there has been a rapid increase in the demand for institutional credit due to growing commercialisation of agriculture driven by the forces of globalization. The credit, therefore, is considered to be the "life blood" of the rural economy in general and agriculture in particular. The farmers need credit for both production and investment purposes in agriculture. They obtain credit from different sources which are historically classified into the non-institutional (informal) and institutional (formal) sources. Non-institutional includes moneylenders, landlords, traders, commission agents and others. Institutional sources include Co-operative, SCBs and RRBs. At present, the short-term credit for production purpose is distributed through PACs, SCBs and RRBs, while the long-term credit for investment in agriculture is provided through PACRDBs.

It is well-known fact that, during the pre-independence era, the non-institutional or informal sources played a vital role in meeting the credit needs of the rural households. The data provided in Table 1 indicate that 93 per cent of the credit requirements of the peasants was fulfilled by the non-institutional credit lending agencies. But their share persistently declined to about 31 per cent till 1991; it sharply increased to 39 per cent in 2002. They are used to charge higher rate of interest, maintain the vernacular system of accounting, harass the farmers in repayment of loans, some times they would grab the land or any other such assets that mortgaged to take loans. In a bid to overcome some of these defects, the institutional source was developed by the government. Historically speaking, the institutional source of finance started with taccavi loans of State Governments in 1793. This was also aimed to provide drought relief measures. In the 1870s, the British colonial government extended institutional credit to the peasants to fight the natural calamites.

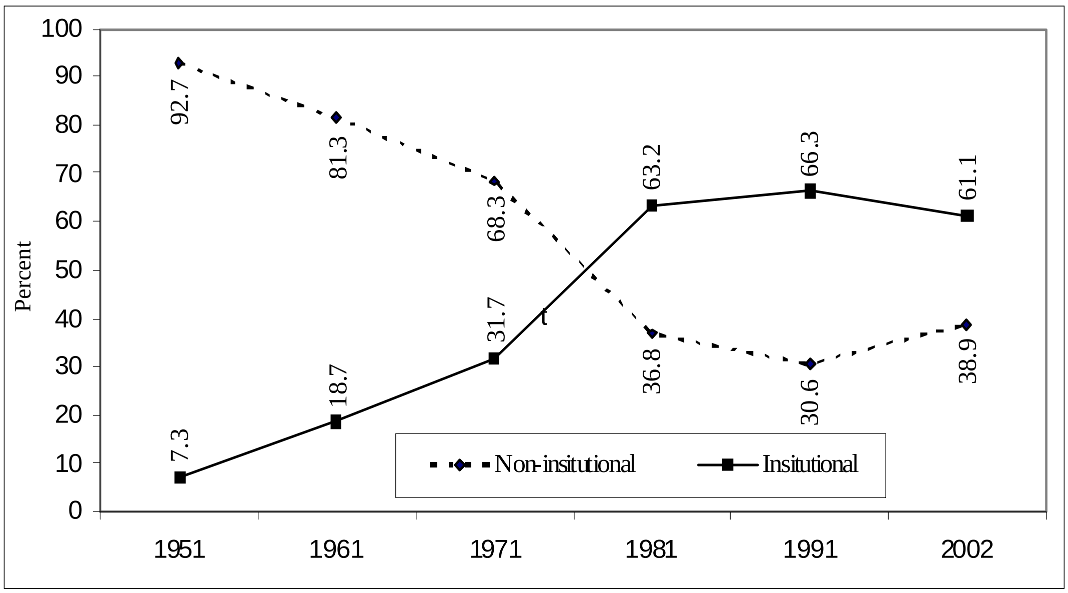
Table 1: Relative Share of Borrowings of Cultivator Households from Different Sources, 1951 to 2002 (%)

[redacted]

Source: Golait (2007: p82).

In spite of several milestone developments in establishing the sound credit delivery system in rural areas, a large chunk of marginal and small farmers, agricultural labourers and rural artisans are unable to meet their credit requirements, and consequently, they have to depend on non-institutional sources. As a result, the share of farm households obtaining credit from the non-institutional sources, for the first time, increased from 30.6 per cent in 1991 to 38.9 per cent in 2002 (Figure 1). Inadequacy and untimely credit availability is persistent in the rural credit delivery system and consequently, a large of chunk of marginal and small farmers and rural artisans continues to be the victim of non-institutional credit lending agencies (Figure 1).

Figure 1: Share of Institutional and Non-institutional Credit by Farm Households



Source: Table 1.

4.2. Growth of Institutional Credit for Agriculture

Historically speaking, the non-institutional credit lending agencies were the major source of credit for agricultural development till the enactment of Credit Co-operative Societies Act in 1904. As the credit co-operative societies were unable to meet the credit needs of the planned economic growth, as mentioned earlier, the SCBs were brought under the public sector since the 1970s. In spite of these efforts, the institutional credit flow for agricultural sector was not satisfactory, as a large number of small and marginal farmers and landless agricultural labourers continued to be deprived of credit from the Co-operatives and SCBs. It is due to the fact that the SCBs were not tuned to the needs and requirement of small and marginal farmers, while the Co-operatives lacked resources to meet the expected demand (Mohan, 2004).

In order to provide cheap credit to the deprived sections of the society, RRBs, combining the characteristics of co-operatives (local feel and familiarity of rural problems) and SCBs (professionalism and large recourse base), "known as poor man's bank", were established in 1975. Further, the financial sector reforms, as an integral part of economic reforms, were also introduced in the early 1990s to ensure adequate and timely credit flow for agricultural development.

The data provided in Table 2 indicate that the growth rate of nominal institutional credit flow, both direct and indirect, was estimated at 17 per cent during 1973-74 to 2006-07, while the growth rate of GDP from agriculture was much lower during the same period. This is not uniform, if one looks at the direct and indirect institutional credit flow during the pre and reform periods. It has been observed that, with the given data inconsistency, the growth rate of indirect institutional credit was higher than that of direct institutional credit for agriculture and allied activities during 1973-74 to 2006-07. It was estimated to be relatively higher in the early reform (1991-92 to 1998-99) period as compared to that of the pre-reform (1981-82 to 1990-91) period. But it sharply declined during 1999-00 to 2006-07. As regards the direct institutional credit, it significantly and persistently increased during the reform period as compared to that of the pre-reform period. The bulk of the increase was attributed to the baking sector reforms initiated.

The bulk of the increase in the institutional credit, especially in the case of direct ones [redacted] reform period, was attributed to the [redacted] 90s. For the period 1999-00 to 2006- [redacted] from SCARDBs and PCARDBs since [redacted] m PACs. The institutional credit flow [redacted] ictly comparable with earlier periods.

[redacted] ate of Institutional Credit for
[redacted] vities in India (%)

Source: RBI (2009).

Within the direct institutional credit, it has been observed that the investment credit increased slightly more than that of production credit during the entire period. The increase in production credit vis-à-vis investment credit was found to be much higher during the reform (1991-92 to 1998-99) period as compared to the pre-reform (1981-82 to 1990-91) period. The data provided in Table 3 indicate that the RRBs followed by the SCBs registered higher growth rates of short-term institutional credit as compared to that of Co-operatives during the entire period. The increase in the growth rate of short-term institutional credit was higher in respect of RRBs and SCBs as against the Co-operatives during the reform period as compared to that of the pre-reform period. It can be noted that the short-term institutional credit flow by the Co-operative was shrivelled in recent years (Golait, 2007). This is due to the fact that many of Co-operatives were under losses and failed to meet the credit needs of their own members.

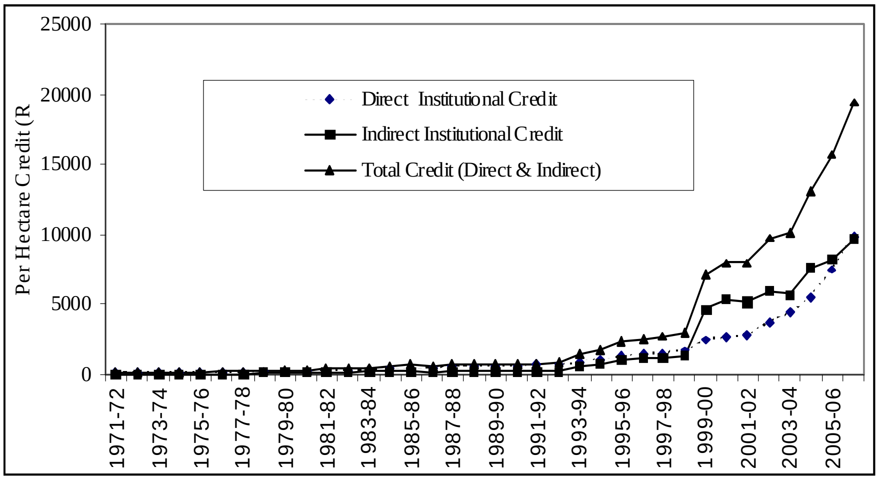
Table 3: Agency-wise Growth Rate of Short-term Institutional Credit for Agriculture and Allied Activities in India (%)

[redacted]

Source: RBI (2009).

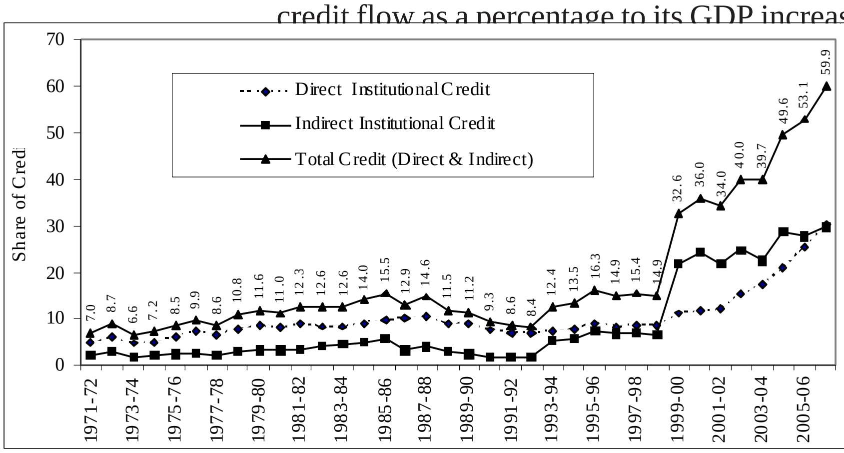
An effort has also been made to estimate the institutional credit flow (direct and indirect) per hectare cultivated area. The data presented in Figure 2 show that the intuitional credit per hectare increased gradually up to 1990-91, and picked up sharply since 1991-92 till 1998-99, and from 1999-00 onwards, it drastically increased partly owing to the inclusion of data from SCARDBs and PCARDBs. Nevertheless, the institutional credit for agriculture and allied activities has been on the gradual increase; the increase was no doubt expedited after the baking sector reforms. The data also indicate that the per hectare direct institutional credit was slightly higher than that of indirect institutional credit up to 1998-99, and thereafter it was lower partly owing to the data inconsistency.

Figure 2:
Agricultural Credit Flow per Hectare Cultivated Area in India (Rs/ha)



Source: RBI (2009).

The data provided in Figure 3 illustrate that the institutional credit flow, both direct and indirect, for agriculture and allied activities as a percentage to GDP from agriculture was estimated at about 60 per cent during 2006-07. The increase was quite faster during second part of the reform period. This shows that huge amount of institutional credit has gone into the agricultural sector. It has been observed that the agricultural credit flow as a percentage to its GDP increased with some fluctuations during 1971-



3:

of GDP from Agriculture in India

Source: RBI (2009).

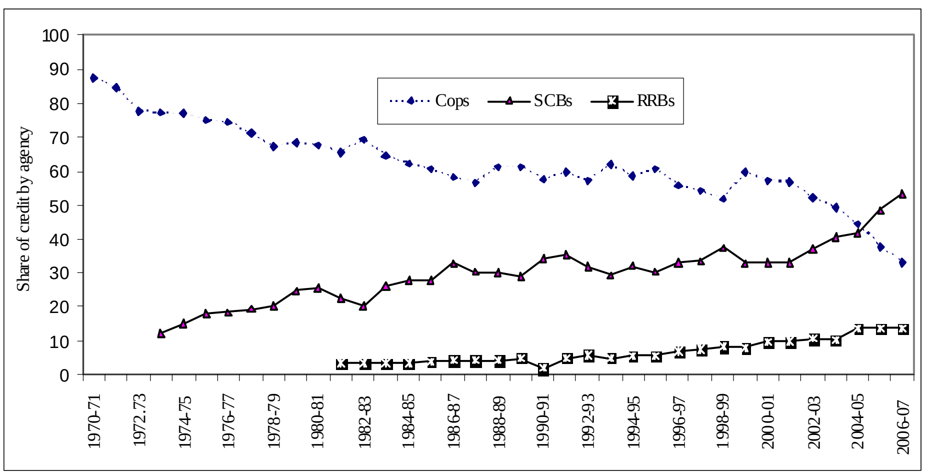
It increased up to the mid-1980s; began to decline in the late 1980s; again started to increase since the 1990s. Similar observation was also made by a couple of studies (Sahu and

Rajasekhar 2005;Ahmad and Masood, 2009). The increase in the institutional credit flow for agriculture as a percentage to its GDP in the 1990s may be due to the reform measures introduced in the banking sector, and since 1999-00 the bulk of the increase may be due to the inclusion of data from SCARDBs and PCARDBs. An increasing trend, however, was perceptible after the banking sector reforms.

Going by the agency-wise share of credit deployment, the data show that the share of short-term institutional credit for agricultural and allied activities by the Co-operatives persistently declined during 1971-72 to 2006-07; the decline was quite discernible in recent years (Figure 4). The corresponding increase occurred in respect of SCBs and RRBs during the same period. It can be noted that SCBs are playing an important role in purveying the institutional credit for agriculture and allied activities.

The Co-operatives which historically played a key role in meeting the credit needs of the peasant communities are losing their ground level gravity. The social responsibility of the banking institutions is to ensure equitable coverage of peasants and provision of need-based adequate credit as and when they require. In this direction, the KCC scheme has been introduced in lieu of annual crop-loan system since 1998.

Figure 4:
Distribution of Short-term Credit by Banking Institutions in India (%)



Source: RBI (2009).

5. KISAN CREDIT CARD SYSTEM IN INDIA

5.1. Concept of Kisan Credit Card

The introduction of the KCC scheme is a landmark in the rural credit delivery system in India. The credit card concept is not so new in agriculture. In 1964, Syndicate Bank organized a separate "Agricultural Finance Department". Through this, it carried out various innovative methods to increase the agricultural production and productivity. The more important of these schemes are those for financing the production of hybrid seeds, production of export varieties of banana, purchase of pump sets, power tillers, tractors and other agricultural machinery. An innovation made by the banks is the issuing of 'AGRICARDS' to farmers to in order to enable them to get their requirements of seeds, fertilizers, pesticides and spare parts for machinery, on credit from approved dealers (RBI, 1999). This was perhaps the first "Agricultural Credit Card" in India.

After ACRICARD, the nationalized banks like Canara Bank, Vijaya Bank, Corporation Bank and Dena Bank launched their own 'Agricultural Credit Cards', following the direction of the RBI. The cards for the welfare of the farmers are known as 'Farmer's Green Card'. This card enables the farmers to obtain credit from the branches of the bank from where the card is issued. The institutional credit should emerge as an instrument of promoting growth with equity and social justice. The major schemes of the agricultural credit disbursement system in general have not produced the desired results in terms of direction, quantum and quality of credit flow. The banking institutions have not been adequately effective in transforming credit structure of weaker sections because of the complex tiering of funds through RBI - NABARD - Commercial Banks - State Co-operative Banks - District Co-operative Banks - Primary Agricultural Credit Societies simply leading to increase in the cost of credit.

The performance of rural financial institutions has been far from their expectations and objectives for which they have been set up. Only one-third of the cultivators's credit needs was fulfilled (Tyagi and Singh 1998). It is also viewed that the demand for investment credit in agriculture has not met fully in recent years. To give an impetus to the steady flow of adequate credit to agriculture, the RBI set up a one man High-Level Committee headed by Shri R.V. Gupta on "Agricultural Credit through Commercial Banks" in December 1997 to suggest measures for improving the credit delivery system as well as simplification of procedures for agriculture credit.

The Gupta Committee (RBI, 1998) submitted its report on April 21, 1998 and recommended to launch the KCC scheme as an important means to assess comprehensively the credit needs of the farmers, taking into account track record, credibility, capability as well as technical viability of the proposal. The short-term credit needs of the farmers should include all requirements directly and indirectly related to production, post-harvesting and household expenses. Considering the requirements of the farmers, on the one hand, and major developments in the banking sector, on the other hand, the KCC scheme was introduced by the then Finance Minister Sri Yashawant Sinha in his (1998-99) budget speech and accordingly, NABARD was asked to formulate a model scheme for issue of KC card to farmers on the basis of their landholdings for uniform adoption by the banks so that the farmers may use them to readily purchase agricultural inputs such as seeds, fertilizers, pesticides, etc. and draw cash for production purpose, as and when they require. The timely credit to farmers in a flexible and cost effective manner was the main aim of the KCC scheme. Accordingly, a model kisan card scheme was formulated by NABARD and was circulated among the banks in August 1998.

The KCC scheme covers all the short-term credit needs of the farmers, including crop loan and other items of production credit/ working capital/ short-term requirements for non-farm activities. The predominant idea behind this approach was to ensure farmers to get adequate credit to meet all of their short-term credit needs through the single window of kisan card. The provision of timely and adequate credit for development of rural economy, in general, and agriculture, in particular, has been a major worry of the formal banking institutions in India since their nationalization.

5.2. Objectives of the KCC Scheme

The KCC scheme aims at provision of adequate and timely credit support from the banking institutions to the farmers for their cultivation needs including purchase of inputs in a flexible and cost effective manner. It is expected to expedite the flow of credit to the farmers overcoming delays in sanction and release of loans (Prasad and Rama, 2005). The borrowers' advantages were in the form of timeliness in availability of credit and reductions in interest burden due to flexible operation. The banks are also benefited in the form of minimum paper work, reduction in workload for branch staff by way of avoiding repeat appraisal and processing of loan papers. Besides, the transaction cost tends to reduce, fund can be better utilized and also recoveries of loans become easy. The salient features of the KCC system is presented in Box 1.

The beneficiaries covered under the scheme are provided with a credit card and a passbook or a credit card cum passbook incorporating the name, address, particulars of landholding, borrowing limit, validity period, a passport size photograph of holder, etc. The borrower is required to produce the card-cum passbook whenever he/she operates the account.

5.3. Progress of Kisan Credit Card in India

There has been a rapid increase in the number of KC cards as also in the amount flowed to the agricultural sector since its inception. The data presented in Table 4 show that since the inception of the KCC scheme, the Co-operatives, SCBs and RRBs have together issued 830.68 lakhs of KC cards up to 31st December 2008. The Co-operatives account for 24.7 per cent, SCBs accounts for 54.4 per cent and RRBs account for 20.9 per cent in 2007-08. It is evident that the share of cards issued by SCBs followed by the Co-operative banks was found to be higher as compared to that of RRBs. The performance in the issue of KC cards has been improved, especially in the case of SCBs, over the year.

Table 4: Distribution of Kisan Credit Cards by Banking Institutions in India (Lakhs)

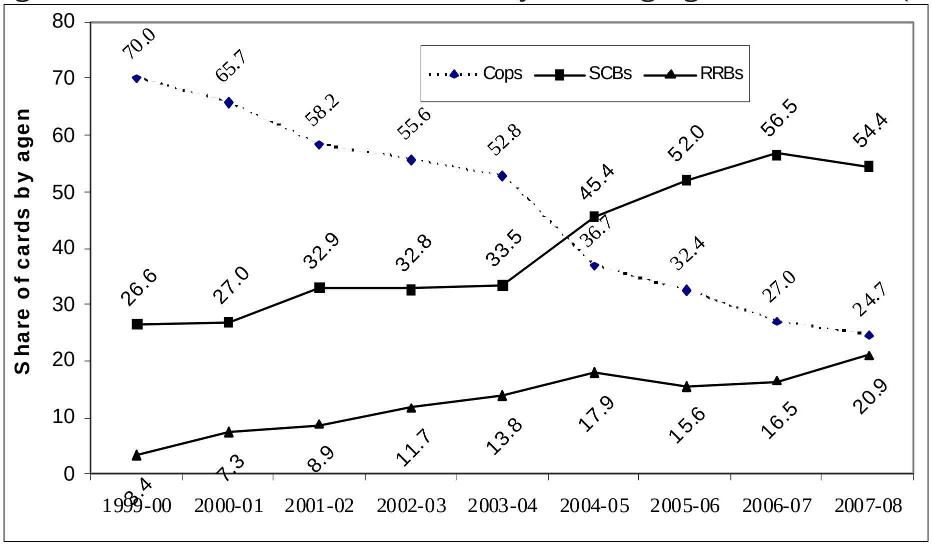
[redacted]

Note:* Up to December 2008.
Source: NABARD (www.nabard.org).

In order to motivate the banks and to support their efforts to generate greater publicity for popularizing the KCC scheme, NABARD has been providing financial assistance to Co-operative Banks and RRBs with an allocation of Rs.6 crore and Rs.1.1.crore, respectively. Besides, NABARD has launched 10 lakh Meghdoot Post Cards with a message to distribute KCC through rural post offices all over the country. The farmers can get an adequate and timely credit with reduced interest rates and cost of the credit as well.

Figure 5 provides the trends in the distribution of KC cards by different baking institutions in India during 2000- 2008. The share of KC cards distributed by the Co-operatives registered a persistently declining trend, whereas in the case of SCBs followed by RRBs witnessed a track record progress in the issue of KC cards during the same period and more so since 2003-04, when the doubling of credit flow for agriculture was announced.

Figure 5: Share of Kisan Credit Cards by Banking Agencies in India (%)



Note: Cops: Co-operatives; SCBs: Scheduled commercial banks; RRBs: Regional rural banks.
Source: Table 4.

The data provided in Table 5 show that there has been a rapid progress of KCC scheme in terms of cards issued and amount sanctioned during 2003-2009. It has been observed that the total number of cards and amount sanctioned was almost doubled in a span of ten years. The progress was faster in respect of SCBs and RRBs. The Co-operatives showed an absolute decline in the number of cards issued during the same period. There has been a significant improvement in the average credit limit sanctioned per card, registering an increase from Rs 31,839 in 2003 to Rs. 43,709 in 2009. The average credit limit sanctioned per card was found to be much higher in the case of SCBs followed by RRBs as compared to that of Co-operatives in 2009.

As the average credit limit sanctioned per card increased by 89 per cent in the case of SCBs, the number of farmers obtaining the credit from SCBs seemed to have gone up significantly and that from the Co-operatives declined during the same period. Per hectare (gross cropped area) credit sanctioned for production purpose also increased from Rs. 1,491 to Rs 18,504 during the same period. After the introduction of KCC, the farmers seemed to be much better in terms of their access, adequacy and timely availability of institutional credit, as compared to that of earlier annual crop-loan system. It is evident that the SCBs are playing an important role in the implementation of the KCC scheme.

Table 5: Distribution of Cards and Average Credit Limit Sanctioned under the KCC Scheme by Banking Institutions in India

[redacted]

Note: The figures in parenthesis indicate percentage to all.
Source: NABARD (www.nabard.org).

5.4. Regional Pattern of KCC

A considerable regional variation existed in the distribution of cards and average credit limit sanctioned under the KCC scheme. The data provided in Table 6 indicate that Uttar Pradesh issued highest number of KC cards, estimated 154.23 lakhs in 2009, followed by Andhra Pradesh, Maharashtra, Tamil Nadu, Madhya Pradesh, Karnataka and others. On the other hand, Himachal Pradesh, Jharkhand, Assam and Uttarakhand had the lowest number of KC cards. The issuing of KC cards was not uniform across the baking institutions in different parts of the country. It has been observed that, in most cases, the coverage of farmers by the Co-operatives and SCBs was predominant as compared to that of RRBs.

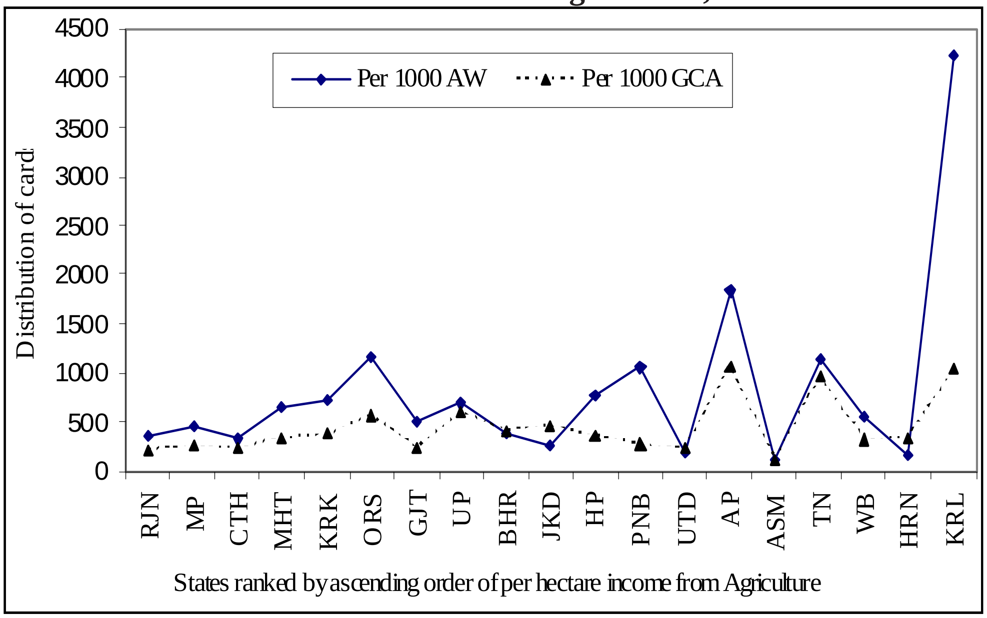
Table 6: Distribution of Kisan Credit Cards by Major States in India, 2009

Source: NABARD (www.nabard.org).

The states such as Orissa, Maharashtra, Chattisgarh, Madhya Pradesh, Rajasthan, etc., had greater presence of Co-operative banks, compared with that of SCBs and RRBs in 2009. Similarly, in the states of Assam, Himachal Pradesh, Tamil Nadu, Andhra Pradesh, Punjab, etc., the share of SCBs was quite predominant as compared to that of Co-operatives and RRBs. The states with greater number of Co-operatives had less number of SCBs and vice versa.

As far as equity in the distribution of KC cards is concerned, the results are not satisfactory. The data provided in Figure 6 indicate that, in most cases, the states with lower per hectare income from agriculture such as Rajasthan, Madhya Pradesh, Maharashtra, Karnataka, Gujarat, Bihar and Jharkhand had less number of KC cards per 1000 agricultural workers and gross cropped area, as compared to the states with higher per hectare income from agriculture. From this, it follows that the farmers from agriculturally prosperous states are more accessible to institutional credit for agricultural production as against the farmers from agriculturally backward states. This pattern of distribution of KC cards may cause further widening of regional disparity. The uneven coverage of the KCC scheme may be attributed to lack of awareness on the part of the farmers and no specific and appropriate parameters are followed while implementing the scheme in the areas with different levels of agricultural prosperity.

Figure 6: Distribution of KC Cards by the States Ranked in Ascending Order of Per Hectare Income from Agriculture, 2009



Note: AW: Agricultural workers; GCA: Gross cropped area.
Source: Table 6.

The data provided in Table 7 show that the average institutional credit limit sanctioned per card was not uniform across different parts of the country. The average credit limit sanctioned under the KCC scheme was estimated to be highest in Gujarat with Rs.148803 followed by Uttarakhand (Rs105769), Punjab (Rs. 94190), Haryana (Rs,78189) and others, while it was estimated to be lowest in Jharkhand with Rs.19684 followed by Assam (Rs. 21771), Andhra Pradesh (Rs 26661) and others.

Table 7: Distribution of Institutional Credit per KC Card by Major States and Sources in India, 2009

[redacted] credit limit sanctioned. [redacted] as perceptible. This can [redacted] tern and credit needs of [redacted] es seem to have smaller [redacted] griculturally prosperous [redacted] limit sanctioned by the [redacted] have adverse impact on [redacted]

[redacted] r the KCC scheme on [redacted] he fact that the income [redacted] l factors such as rainfall, [redacted] nsoon, the production in [redacted] edit is adequately made available. With a given set of factors influencing the quantum of income in agriculture, an effort has been made to examine the impact of kisan credit on agricultural income.

Given the data constraint at the state level, the gross cropped area, total production credit (TPC), consumption of chemical fertilizers (CCF), annul average rainfall (AAR), net irrigated area (NIA), total agricultural workers (both cultivators and labourers) (AW) and consumption of electricity for agricultural purpose (CEA) were identified as the main factors, inter alia, contributing to the quantum of gross state domestic product from agriculture and allied activities (GSDPA). The results of correlation matrix (see, Appendix 1) indicate that gross cropped area, chemical fertilizers, production credit provided under the KCC scheme, agricultural workers, net irrigated area and electricity used for agricultural purpose are the important determinants of agricultural income. The annual average rainfall is negatively associated with agricultural income but it is not statistically significant. This may imply that the heavy rainfall occurred "odd time" seemed to have caused huge loss of agricultural production.

As most of the explanatory variables are found to be highly correlated among themselves (multicolinearity), a few explanatory variables such as gross cropped area, production credit and agricultural workers, are found to fit the log-linear regression model. Although the consumption of chemical fertilizers are positively and significantly associated with agricultural income, it is dropped from the model, as it is also positively and significantly associated with production credit (see, Appendix 1). There are some other important determinants of agricultural production such as use of pesticides, electricity, machinery, etc. These variables are not included in the model as they can be purchased with the availability of production credit. Given the data constraints and multicolineaity problem, the following log-linear regression model is fitted.

$$\ln GSDPA = \alpha + \beta_1 \ln GCA + \beta_2 \ln TPC + \beta_3 \ln AW + u$$

where GSDPA is the gross state domestic product from agriculture, GCA is the total cropped area, TPC is the total production credit provided under the KCC scheme and AW is the total number of agricultural workers (both cultivators and labourers), refers to the constant, 1 to 4 are the slope coefficients of the parameters and u is the error term. The results of the model are presented as follows:

Note: Figures in brackets indicate the't' values and ***, ** and * refer to 1, 5 and 10 per cent level of significance, respectively.

The F value shows that the model was statistically significant at the 1 per cent level, explaining about 90 per cent variation in the agricultural income. The elasticity of GCA indicates that one per cent increase in per hectare cultivated area leads to 0.42 per cent increase in the agricultural income. It is statistically significant at the 1 per cent level. The elasticity of TPC shows that one per cent increase in production credit results in an increase of 0.36 per cent agricultural income, whereas in the case of AW, it contributes to an increase of 0.09 per cent of agricultural income, but it is statistically insignificant. It is evident that adequate and timely provision of credit provided under the KCC scheme is also one of the important factors, among others, determining the quantum of agricultural income.

6. CONCLUSIONS AND POLICY OPTIONS

The foregoing analysis reveals that the growth rate of total institutional credit for agricultural sector was much higher than the growth rate of GDP originating from agriculture. The growth of institutional credit was higher during the reform period than that during the pre-reform period. The indirect institutional credit registered higher growth than that of direct institutional credit during the entire period. It was estimated to be much higher during the reform vis-à-vis pre-reform period.

The investment (long-term) credit increased slightly more than that of production (short-term) credit during the whole period. The increase in production credit vis-à-vis investment credit was found to be much higher during the reform period as compared to the pre-reform period. Across agencies, it has been observed that the RRBs followed by the SCBs registered higher growth rate of short-term institutional credit as compared to that of Co-operatives during the entire period. The increase in the growth rate of short-term institutional credit was observed to be relatively higher in respect of RRBs and SCBs as against the Co-operatives during the reform period as compared to that of the pre-reform period. The short-term institutional credit flow by the Co-operative has shrivelled in recent years.

The bulk of the increase in the institutional credit flow for agriculture and allied activities during the pre-reform period was attributed to the banking sector reforms initiated to ensure adequate and timely credit for agriculture and allied activities in the early 1990s. For the period 1999-00 to 2006-07, it was partly due to the inclusion of data on institutional credit provided by SCARDBs and PCARDBs since 1999-00 under the Co-operative sector, while for earlier years, it covered only from PACs. The data show that the intuitional credit per hectare increased gradually up to 1990-91, and picked up sharply since 1991-92 till 1998-99, and from 1999-00 onwards, it drastically increased owing partly to the inclusion of data from SCARDBs and PCARDBs. The data also indicate that the per hectare direct institutional credit was slightly higher than that of indirect institutional credit up to 1998-99 and thereafter it was lower due to the data inconsistency problem. Nevertheless, the institutional credit for agriculture and allied activities has been on the gradual increase; the increase was, no doubt, expedited after the banking sector reforms.

The institutional credit flow for agricultural development, as a percentage to its GDP increased with some fluctuations during 1971-72 to 2006-07. It increased up to the mid-1980s when the expansion of bank branches took place; began to decline in the late 1980s which was due to the crisis in banking institutions, especially in respect of Co-operatives and RRBs; then it started to increase since the 1990s, the bulk of which was owing to the reform measures initiated by the government. The credit deployment by different agencies reveals that the share of short-term institutional credit for agricultural and allied activities by the Co-operatives persistently declined during 1971-72 to 2006-07; the decline was quite discernible in recent years. The corresponding increase occurred in respect of SCBs and RRBs during the same period.

The share of KC cards distributed by Co-operatives registered a persistently declining trend, whereas in the case of SCBs, followed by RRBs, witnessed a sharp rise during the same period. After the introduction of KCC, the farmers seemed to be much better in terms of their access, adequacy and timely availability of institutional credit, as compared to that of earlier annual crop-loan system. At the aggregate level, there is no doubt that the SCBs have been playing an important role in the implementation of KCC scheme. A considerable regional variation existed in the coverage of farmers under the KCC scheme and the average credit limit sanctioned.

The data on distribution of KC cards indicate that the states with lower per hectare income had less number of KC cards per 1000 agricultural workers and gross cropped area, as compared to the states with higher income per hectare income from agriculture. This pattern of distribution of KC cards may cause further widening of regional disparity. The lopsided coverage of KCC scheme may be attributed to lack of awareness on the part of the farmers, and no specific parameters are followed while implementing the scheme in the states with different levels of agricultural prosperity.

The results of correlation matrix indicate that gross cropped area, chemical fertilizers, production credit provided under the KCC scheme, agricultural workers, net irrigated area and electricity used agricultural purpose were found to be the important determinants of agricultural income. The annual average rainfall was negatively, but statistically insignificant, associated with agricultural income. This may imply that the heavy rainfall occurred "odd time", seemed to have caused loss of agricultural production. The results of Cobb Douglas production function reveal that gross cropped area, production credit and agricultural workers, among others variables, were found to be the important factors determining the quantum of agricultural income. It is evident that adequate and timely provision of credit provided under the KCC scheme was also one of the important factors, among others, determining the quantum of agricultural output.

Notwithstanding the significant progress made by the banking institutions after the reform measures, the quantum of institutional credit flow for agriculture and allied activities continues to be inadequate. For effective utilization of the production as well as investment credit obtained by the farmers, some concerted efforts should be made to ensure adequate indirect institutional credit flow for development of critical infrastructures such as irrigation, electricity, marketing, storage, extension services, etc. The Co-operative credit structure needs immediate revamping to ensure adequate flow of credit by improving efficiency in the credit delivery system in rural areas. In this regard, the Vaidyanathan Committee's recommendations that recapitalization of Co-operatives should be implemented. Adequate financial, administrative and technical support should be provided to the RRBs so as to make them more viable and the poor man's bank in true sense.

Keeping the equity and adequacy of institutional credit in mind, there is a need to upscale the outreach of the KCC scheme to cover all the eligible farmers by creating mass awareness and giving wider publicity of the scheme through NGOs/SHGs. The credit limit sanctioned under the scheme should also be based on the cost of cultivation and the credit needs of the farmers. As there had been a considerable regional variation in the coverage of the KCC scheme, a special attention should be paid to ensure [redacted]mit so as to avoid the regional [redacted]er.

[redacted]-06 (cross section data)

Note: * Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

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