Institutional Credit to Agriculture Sector in India: Status, Performance and Determinants

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Abstract

The institutional credit has been conceived to play a pivotal role in the agricultural development of India. A large number of institutional agencies are involved in the disbursement of credit to agriculture. However, the persistence of money lenders in the rural credit market is still a major concern. In this backdrop, the present study has examined the performance of agricultural credit flow and has identified the determinants of increased use of institutional credit at the farm household level in India. The study based on the secondary data compiled from several sources, has revealed that the institutional credit to agriculture in real terms has increased tremendously during the past four decades. The structure of credit outlets has witnessed a significant change and commercial banks have emerged as the major source of institutional credit in recent years. But, the declining share of investment credit in the total credit may constrain the sustainable agricultural growth. The quantum of institutional credit availed by the farming households is affected by a number of socio-demographic factors which include education, farm size, family size, caste, gender, occupation of household, etc. The study has suggested simplification of the procedure for a better access to agricultural credit of smallholders and less-educated/illiterate farmers.

Introduction

Credit is one of the critical inputs for agricultural development. It capitalizes farmers to undertake new investments and/or adopt new technologies. The importance of agricultural credit is further reinforced by the unique role of Indian agriculture in the macroeconomic framework along with its significant role in poverty alleviation. Realizing the importance of agricultural credit in fostering agricultural growth and development, the emphasis on the institutional framework for agricultural credit is being emphasized since the beginning of planned development era in India.

A large number of formal institutional agencies like Co-operatives, Regional Rural Banks (RRBs), Scheduled Commercial Banks (SCBs), Non– Banking Financial Institutions (NBFIs), and Self-help Groups (SHGs), etc. are involved in meeting the short- and

long-term needs of the farmers. Several initiatives have been taken to strengthen the institutional mechanism of rural credit system. The main objective of these initiatives was to improve farmers' access to institutional credit. The major milestones in improving the rural credit are acceptance of Rural Credit Survey Committee Report (1954), nationalization of major commercial banks (1969 & 1980), establishment of RRBs (1975), establishment of National Bank for Agriculture and Rural Development (NABARD) (1982) and the financial sector reforms (1991 onwards), Special Agricultural Credit Plan (1994-95), launching of Kisan Credit Cards (KCCs) (1998-99), Doubling Agricultural Credit Plan within three years (2004), and Agricultural Debt Waiver and Debt Relief Scheme (2008). These initiatives had a positive impact on the flow of agricultural credit. However, the inadequacy of credit to agriculture is often a hotly debated topic in India. The persistence of money lenders in the rural credit market is still a major concern. But, most of the

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discussions on the issue of agricultural credit are, by and large, swayed by emotions and the empirical validation of the issues is often lacking. In this backdrop, this study was undertaken to (i) examine the performance of agricultural credit flow including the the issues of inequity in the disbursement of institutional agricultural credit flow, and (ii) identify the factors that are responsible for increasing the use of institutional credit at the household level.

Data and Methodology

Data

The study is based on the secondary data compiled from diverse sources. The data on gross cropped area (GCA) and agricultural gross domestic product (AgGDP) were compiled from the *Agricultural Statistics at a Glance* (2008), published by the Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India (GoI). The data on credit were collected from the *Reports on Currency and Finance*, published by Reserve Bank of India (RBI). The data on wholesale price index (WPI) and disbursement of Kisan Credit Cards (KCCs) were collated from the *Economic Survey*, published by Ministry of Finance, GoI. Data pertaining to investment credit and state-wise distribution of KCCs were compiled from the website of NABARD. Besides, the study also used the unit level data of debt and investment survey carried out by National Sample Survey Organisation (NSSO) during 1992 (48th round) and 2003 (59th round). The debt and investment survey is generally carried out once in 10 years by NSSO and it provides useful information on different dimensions of rural finance.

Methodology

Performance of Agricultural Credit

The performance of agricultural credit system has been assessed in terms of different indicators. The share of agricultural credit in agricultural GDP (AgGDP) and overall GDP and the credit per unit of GCA was examined to assess the overall performance of institutional agricultural credit flow. Temporal changes in the composition of agricultural credit flow were assessed to examine the structural changes in the sources of agricultural credit. The growth of agricultural credit in real terms was estimated to measure the real growth in the institutional agricultural credit flow.

The growth rates were calculated separately for four sub-periods to capture the implication of different policy initiatives taken during different periods. The regional disparities in the flow of institutional agricultural credit were assessed by estimating the coefficient of variation (CV).

Determinants of Farmers' Access to Institutional Credit

The flow of agricultural credit depends on the availability of funds with financial institutions, rate of interest, and the government policies. A number of socio-economic variables affect the amount of agricultural credit to be borrowed by the households. To capture different factors responsible for the use of agricultural credit by farming households, Tobit model was used. Tobit model is preferred when the dependent variable is censored so as to avoid the loss of information. Tobit model used in the study was of the form:

$$Y_i^* = X_i \, \beta + \varepsilon_i \quad ...(1)$$

where, Y_i^* is the share of institutional credit in total borrowings of the farming households. Thus, the value of the dependent variable ranges between 0 and 1. The vector X_i represents explanatory variables used in the regression analysis. The explanatory variables included in the model were: X_1 = Age of household-head (years), X_2 = Gender of household-head (male = 1, otherwise = 0), X_3 = Household size (number), X_4 = Operated land-size (hectares), X_5 = Social group (ST=1, otherwise = 0), X_6 = Social group (SC=1, otherwise = 0), X_7 = Social group (OBC=1, otherwise = 0), X_8 = Educational level (Primary = 1, otherwise = 0), X_9 = Educational level (Secondary = 1, otherwise = 0), X_{10} = Higher secondary or certificate / diploma (Course = 1, otherwise = 0), X_{11} = Graduate and above = 1, otherwise = 0, X_{12} = Household type (Agricultural labour = 1, otherwise = 0), X_{13} = Household type (Other labour = 1, otherwise = 0), X_{14} = Household type (Self-employed in agriculture = 1, otherwise = 0) and X_{15}= Household type (Other occupation, otherwise = 0); and ε_i = Error-term.

Performance of Agricultural Credit

Institutional Credit Outlets and their Shares

Agricultural credit started depicting a growth after bank nationalization and it has been growing

Table 1. Institutional credit flow to agricultural sector

(Rs in crore)

Year (TE)	Co-operative banks	Region rural banks	Scheduled commercial banks	Total
TE 1972-73	824	0	18	952
	(86.5%)	(0.0%)	(1.9%)	
TE 1981-82	2109	168	1245	3553
	(59.4%)	(4.7%)	(35.0%)	
TE 1991-92	4763	526	4988	10277
	(46.3%)	(5.1%)	(48.5%)	
TE 2001-02	20923	4082	28709	53713
	(39.0%)	(7.6%)	(53.4%)	
TE 2008-09	42162	23866	174775	240803
	(17.5%)	(9.9%)	(72.6%)	

Note: During TE 1972-73, remaining 11.6 per cent of total loan was issued by the state government

Sources: (a) Economic Survey and NABARD Databank (various issues)

(b) Website of Reserve Bank of India (RBI)

continuously since then (Table 1). This has resulted in a significant increase in the access of rural cultivators to institutional credit and the contribution of informal agencies as credit sources has declined. The share of institutional agencies in the total agricultural credit supply was 7 per cent in 1951, which rose to 66.3 per cent in 1991. The next decade witnessed a slight decline in its share and it fell to 64.3 per cent in 2002-03 (Figure 1). The government has made renewed efforts to enhance the credit supply and the agricultural credit through institutional sources has more than quadrupled in the past seven years in nominal terms (Table 1). The efforts like nationalization of banks, establishment of RRBs, strengthening of credit institutions etc. have been quite effective in reducing the role of informal agencies in rural credit market. However, still non-institutional agencies continue to play a significant role in the rural credit market. Inspite of all these developments, the age-old problems of rural credit still persist. These include reliance of borrowers on moneylenders and other informal sources despite their usury and exploitation. Kumar *et al.* (2007) have reported that the interest rate being charged by the informal sources was to the tune of 36 per cent to 120 per cent per annum.

The share of different institutional agencies in the agricultural credit flow is also depicted in Table 1. A perusal of Table 1 reveals that the institutional sources of agricultural credit flow have undergone a structural change. The share of scheduled commercial banks (SCBs) has increased from a mere 1.9 per cent in TE
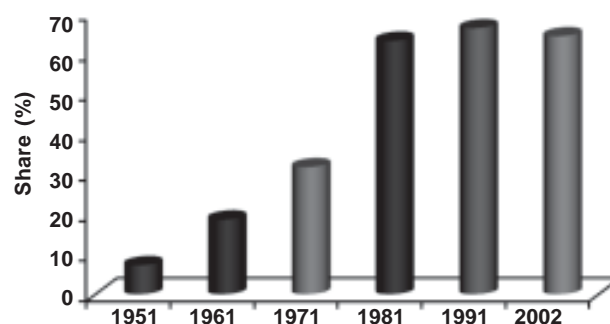

Figure 1.   Share of institutional credit in total borrowing of farm households in India

Source: Mohan (2004); NSSO 59th Round (2003)

1972-73 to 73 per cent in TE 2008-09. Prior to nationalization, the commercial banks were virtually not lending credit to the agricultural sector. The share of RRBs in institutional credit disbursement increased from about 5 per cent during TE 1981-82 to 10 per cent during TE 2008-09. The co-operative banks which were the primary source of institutional credit to agriculture have witnessed a sharp decline in their share in agricultural credit, which has consistently declined from 86.5 per cent in TE 1972-73 to 18 per cent in TE 2008-09.

Trends in Agricultural Credit Performance Indicators

In spite of impressive increase in the flow of agricultural credit, the recent years have again been characterized by a concern over the falling share of agricultural credit in total credit. It is mainly attributed

to the high growth witnessed by the non-agricultural sector in recent years. The share of agriculture in national income has also declined. The correct yardstick to look at the progress of agricultural credit is evaluation of agriculture as a proportion of AgGDP and trends in real agricultural credit in terms of per unit gross cropped area. The performance of agricultural credit in terms of these indicators seems to be noteworthy. Interestingly, the share of agricultural credit as a proportion of AgGDP has been rising continuously since 1970. It was only about 5 per cent in TE 1972-73, which rose to about 8 per cent in TE 1981-82 and made a quantum jump in recent years and rose to 31 per cent in TE 2008-09.

The agricultural credit as a proportion of total GDP increased during the 1980s, but declined during 1990s. Later on, it increased again and accounted for about 6 per cent of GDP in TE 2008-09. The agricultural credit per hectare of gross cropped area has shown an increasing trend with a tremendous rise in recent years. It has increased from Rs 375 in TE 1972-73 to Rs 5651 in TE 2008-09. About fifteen-fold increment has been registered in agricultural credit in real terms during the period 1970-2008.

These indicators suggest that the agricultural credit system is geared to the agricultural growth and the availability of credit to the rural cultivators has increased substantially.

Compound Annual Growth Rates of Agricultural Credit

The compound annual growth rates of institutional agricultural credit in real terms have been estimated and are presented in Table 3. The institutional agricultural credit in real terms has registered a significant positive growth (7%) and this positive growth rate has been registered by all the agencies involved in the disbursement of agricultural credit. During the past four decades, the average agricultural credit flow from SCBs has registered an annual growth rate of 13 per cent. The credit flow from RRBs has grown at an annual growth rate of 14 per cent during the period 1970-71 to 2008-09. The lowest growth has been registered by the co-operative banks (4%).

The sub-period-wise results are more enlightening. The agricultural credit disbursement from the SCBs grew at the rate of 52 per cent per annum during the

Table 2. Flow of agricultural credit

Years (TE)	Agricultural credit /AgGDP (%)	Agricultural credit /Total GDP (%)	Agricultural credit /GCA (Rs /ha)
TE 1972-73	4.99	2.06	375.13
TE 1981-82	7.71	2.67	565.48
TE 1991-92	6.76	1.99	753.55
TE 2001-02	11.65	2.77	1849.55
TE 2008-09	30.88	5.54	5651.36

Sources: (a) Economic Survey and NABARD Databank various issues
　　　　(b) *Agricultural Statistics at a Glance* (2008)

Table 3. Compound annual growth rates of institutional agricultural credit in real terms

(Per cent)

Period	Co-operative banks	Regional rural banks	Scheduled commercial banks	Total (Rs)	Credit / ha of GCA
1970-71 to 1979-80	1.79	-	52.36	6.29	5.71
1980-81 to 1989-90	3.81	9.51	10.82	6.42	6.03
1990-91 to 1999-00	7.88	15.93	12.41	10.08	9.66
2000-01 to 2008-09	7.99	27.05	25.28	21.15	18.20
1970-71 to 2008-09	3.89	14.41	13.27	7.47	7.00

Sources: (a) Economic Survey (2008) and NABARD Databank (various issues)
　　　　(b) *Agricultural Statistics at a Glance* (2008)

Table 4. Share of investment credit in total agricultural credit

(Per cent)

Years (TE)	Co-operative banks	Regional rural banks	Scheduled commercial banks	All
TE 1985-86	11.2	39.5	22.6	14.4
TE1991-92	16.3	62.1	18.3	17.6
TE 1995-96	15.8	44.7	15.9	16.1
TE 2001-02	17.7	28.4	7.5	11.7
TE 2005-06	11.8	14.1	3.2	6.0

Source: NABARD Databank (Various issues)

Table 5. Compound annual growth rate of agricultural investment credit in real terms

(Per cent)

Period	Co-operative banks	Regional rural banks	Scheduled commercial banks	All
1983-84 to 1990-91	3.04	8.99	1.05	4.12
1991-92 to 2000-01	8.33	6.45	-0.73	4.28
2001-02 to 2005-06	-9.30	0.19	22.90	2.95
1983-84 to 2005-06	5.89	5.65	-0.39	4.02

Source: NABARD Databank (various issues)

1970s. It was attributed to the nationalization of commercial banks in 1969 and mandatory lending for the priority sector of agriculture. Later on, agricultural credit by commercial banks grew at the rate of 11 per cent per annum during 1980s and 12 per cent during the 1990s. From 2000 onwards, it has registered a growth rate of 25 per cent per annum. Similarly, the growth rate of agricultural credit by co-operative banks has increased in each decade. It was 2 per cent per annum during the 1970s and 4 per cent per annum during the 1980s. It stepped up to 8 per cent during 1990s and has been continuing at 8 per cent during 2000 onwards. A similar trend has been observed in lending by RRBs. The growth rates per annum were 10 per cent during the 1980s and 16 per cent during the 1990s. The RRBs have registered a higher annual growth rate of 27 per cent during 2000 onwards. The agricultural credit per hectare of GCA has also witnessed a significant growth in real terms. On average, it has registered 7 per cent growth per annum during the past four decades. The highest growth was achieved during the period 2000-01 to 2008-09 (18%).

Investment Credit

Investment credit is meant for building productive assets to enhance agricultural production. It plays a significant role in ensuring a sustainable agricultural

growth. But, the share of investment credit in total agricultural credit has been declining continuously and it is pervasive across all institutional sources of agricultural credit. The share of investment credit has decelerated from 18 per cent in TE 1991-92 to 12 per cent in TE 2001-02 and further to 6 per cent in TE 2005-06 (Table 4). It is not favourable to accelerating agricultural growth. A balance between short-term operational credit and long-term investment credit has to be maintained to ensure sustainable agricultural growth. The declining share of investment credit indicates that farmers seem to borrow more short-term credit in order to meet their input needs to maintain continuity in agricultural operation and do not pay adequate attention to the long-term capital formation for agriculture. From the supply side, short-term credit entails a lower credit risk, lower supervision and monitoring cost and a better asset-liability management. These factors probably could induce a faster expansion of the short-term agricultural credit from financial instititions.

The compound annual growth rates of institutional investment credit to agriculture in real terms have been estimated and are presented in Table 5. The investment credit in real terms has registered a modest positive growth of 4 per cent / annum. The agricultural institutional credit flow from co-operative banks has

registered an annual growth rate of 6 per cent during the period 1983-84 to 2005-06. In fact, SCBs registered a slight decline. The sub-period-wise results are more revealing. The growth rate of co-operative banks was accelerated during the decades of 1980s and 1990s. It was 3 per cent per annum during 1980s and 8 per cent per annum during 1990s. But, during the next decade, it registered a sharp fall and was -9.3 per cent per annum. The investment credit disbursement from the SCBs has depicted wide fluctuations. It grew at the rate of only 1 per cent per annum in 1980s, but dropped to - 0.73 per cent per annum in 1990s. However, from 2000 onwards, it has grown again at an impressive rate of 23 per cent per annum. The investment credit flow from RRBs has registered an annual growth rate of 9 per cent from 1983-84 to 1990-91. It has shown a growth rate of 9 per cent per annum in 1980s and of 6 per cent per annum in 1990s, but it has decelerated steeply during 2000s.

Sectoral Distribution of Agricultural Investment Credit

The sectoral distribution of agricultural investment credit, depicted in Table 6, has undergone a significant change during the past two decades. The shares of minor irrigation and government sponsored programs in total investment credit have witnessed a significant decline. The shares of fisheries and plantation & horticulture have also declined.

The share of minor irrigation in total investment credit, which was about 28 per cent in TE 1990-91, declined to 11 per cent in TE 2000-01 and further to

7.5 per cent in TE 2005-06. The share of farm mechanization was about 15 per cent in TE 1990-91, it went up to 31 per cent in TE 2000-01, but dropped to 14 per cent in TE 2005-06. Similarly, the share of government sponsored programs has declined from 32 per cent in TE 1990-91 to 5 per cent in TE 2005-06. The shares of land development, animal husbandry and non-farm sector have witnessed substantial growths during this period. The most notable change has been observed in the case of non-farm sector. Its share of about 3 per cent in TE 1990-91 has increased to 29 per cent in TE 2005-06.

Equity in Institutional Credit to Agriculture

The avowed objectives of agricultural policy in India are to make credit easily accessible to the all regions and classes of farmers. However in reality, a skewed distribution of institutional credit across regions has been found to persist. In view of glaring disparities in the distribution of agricultural credit across regions, it is argued that the benefits of institutional credit have largely accrued to the relatively prosperous regions and richer sections within each region.

The extent of variations in the distribution of institutional credit can be gauged from the fact that the institutional credit per hectare in 2007-08 in Assam (Rs 1979) was about one-eighth of the national average (Rs 15936) and about 3 per cent of Kerala (Rs 56890). There seems to be a direct relationship between institutional credit flow and the level of agricultural development (Table 7). For instance, per unit disbursement of institutional credit has been significantly

Table 6. Sectoral distribution of agricultural credit

(Per cent)

Sector	TE 1990-91	TE 1995-96	TE 2000-01	TE 2005-06
Animal husbandry	7.89	10.23	15.35	11.92
Farm mechanisation	14.75	22.87	31.14	14.49
Fisheries	1.26	2.98	0.57	0.35
Govt. sponsored programs	31.88	19.77	14.37	4.98
Land development	0.94	0.73	1.52	4.49
Minor irrigation	28.32	20.33	11.25	7.55
Non-farm sector	2.95	13.61	15.33	28.99
Plantation & horticulture	5.26	4.40	3.92	3.27
Self-help group	0.00	0.00	1.54	11.05
Others occupational	6.77	5.08	5.00	12.89

Source: NABARD Databank (various issues)

Table 7. Distribution of institutional agricultural credit across major states of India

(Rs / ha)

States	1990-91	2000-01	2007-08
Andhra Pradesh	1120	4604	23441
Assam	54	311	1979
Bihar	233	1075	8880
Gujarat	501	2809	12626
Haryana	482	2964	34012
Himachal Pradesh	207	2555	19490
Jammu & Kashmir	191	764	7893
Karnataka	546	3432	15448
Kerala	2766	7666	56890
Madhya Pradesh	320	698	9627
Maharashtra	387	1352	12138
Orissa	319	479	6730
Punjab	856	5352	46593
Rajasthan	168	667	6673
Tamil Nadu	2857	9403	52427
Uttar Pradesh	376	1529	29065
West Bengal	329	1708	14025
All India	549	2169	15936
Coefficient of variation	121.88	94.15	80.71

Source: Report of Advisory Committee on *Flow of Credit to Agriculture and Related Activities from Banking System*, RBI, Mumbai, 2004

higher in states like Haryana (Rs 34012/ha), Kerala (Rs 56890/ha), Punjab (Rs 46593/ha), Tamil Nadu (Rs 52427/ha), and low in states like Assam (Rs 1979/ha), Bihar (Rs 8880/ha), Madhya Pradesh (Rs 9627/ha), Orissa (Rs 6370/ha), Rajasthan (Rs 6673/ha), etc. However, regional disparities in the distribution of institutional credit seem to have declined over time. The coefficient of variation in the distribution of institutional credit across states was 122 per cent in 1990-91 which declined to 94 in 2000-01 and further to 81per cent in 2007-08. But, 81 per cent is quite a significant level which reveals that the regional disparities in institutional credit flow do exist and are still a part of rural credit system.

The agricultural growth and corresponding support for institutional credit are the functions of technological change. Much of inter-state or inter-regional disparities in the institutional credit flow may emanate from the differences in resource endowments or lack of appropriate technology for different regions/ states. Under such circumstances, comparing agricultural credit flow in isolation may mask the real issues. Therefore, efforts should be made to enhance the resource base by making investment in capital formation which, in turn, will be helpful to bridge the flow of institutional credit between advanced and backward states. The distribution of institutional credit across farm-size categories is also skewed (Table 8). Though, the majority of farmers (82%) in India possess less than two hectares of land, they together account for only 50 per cent of the institutional credit; while18 per cent of the farmers having more than two hectares of land, account for 49 per cent of the institutional credit. The skewed distribution of institutional credit in agriculture seems to emanate from the skewed distribution of land. It may be mentioned that 18 per cent of these farmers operate about 53 per cent of the total cultivable land in the country. The share of farmers having up to 2.5 acres of land, in total institutional credit has declined from 27 per cent in TE 1982-83 to 25 per cent in TE 2005-06. However, the share of farmers operating 2.5-5 acres of land has increased from 19 per cent in TE 1982-83 to 25 per cent in TE 2005-06. The share of large farmers, operating greater than 5 acres of land, in institutional credit has witnessed a modest decline from 53 per cent in TE 1982-83 to 49 per cent in TE 2005-06.

Progress in Kisan Credit Card Scheme

The Kisan Credit Card (KCC) Scheme was introduced in 1998-99 to facilitate farmers' access to short-term credit from the formal financial institutions. The credit under this scheme is sanctioned in proportion to the size of owned land, but there is some flexibility for the farmers cultivating leased-in land, in addition to their owned holding. The KCC scheme has made a rapid progress and till 31 March, 2009, about 80.8 million KCCs have been issued by the co-operative banks, commercial banks and RRBs (Table 9). The share of co-operative banks and commercial banks in distribution of KCCs was 44 per cent and 43 per cent, respectively; the remaining 14 per cent was issued by RRBs. The growth in distribution of KCCs has been phenomenal. The distribution of KCCs grew at the rate of 44 per cent per annum; the highest growth rate (75%) was witnessed by RRBs. The distribution of KCCs by co-operative banks grew at the rate of 46 per cent per annum during this period. The KCCs issued by the commercial banks witnessed an annual growth rate of 42 per cent during this period.

Table 8. Distribution of institutional agricultural credit by SCBs to farmers according to size of landholdings

(per cent)

Period	Up to 2.5 acres		Above 2.5 acres to 5 acres		Above 5 acres	
	Number of accounts	Credit amount	Number of accounts	Credit amount	Number of accounts	Credit amount
TE 1982-83	51.12	27.31	23.99	19.35	24.91	53.29
TE 1991-93	46.96	29.40	30.71	24.79	22.33	45.81
TE 2001-02	39.79	25.50	30.44	25.61	29.77	48.90
TE 2005-06	42.29	25.41	30.57	25.34	27.13	49.25

Source: RBI, *Report on Currency and Finance* (various issues)

Table 9. Progress in the distribution of Kisan Credit Cards (Agency-wise)

(million)

Year	Co-operative banks	Regional rural banks	Scheduled commercial banks	Total
1998-99	0.16	0.01	0.62	0.78
1999-00	3.75	0.18	1.99	5.91
2000-01	9.36	0.83	5.38	14.56
2001-02	14.8	1.66	8.45	23.9
2002-03	19.38	2.62	11.15	32.14
2003-04	24.26	3.89	14.24	41.39
2004-05	27.82	5.62	18.64	51.07
2005-06	30.42	6.87	22.8	59.08
2006-07	32.72	8.28	27.61	67.59
2007-08	34.81	10.05	32.21	76.05
2008-09	35.87	11.26	33.67	80.80
Share in Total (%)	44.39	13.94	41.67	100
CAGR (%)	45.87	75.27	42.12	44.25

Note: Term loan financing under KCC was introduced in August 2004
Source: NABARD and Economic survey

The higher growth rate witnessed in the distribution of KCCs is reflected in higher density of KCCs. On an average, two-thirds of the farming households possess KCCs in India. However, the distribution of KCCs has depicted a significant variation across states. The distribution of KCCs and its intensity in terms of per unit farming household and per unit farm size is presented in Table 10.

The highest intensity in distribution of KCCs was observed in Punjab (2.02). The distribution of KCCs was more than two-times the number of operating households in Punjab. Some other states which have distributed more number of KCCs than the number of farming households are: Haryana (1.44), Andhra Pradesh (1.06) and Orissa (1.04). The performance of states like Assam, Bihar, Himachal Pradesh and Jammu & Kashmir in distribution of KCCs has been dismal. For instance, only 5 per cent of the farming households in Jammu & Kashmir and 13 per cent in Assam have obtained KCCs. In Bihar and Himachal Pradesh, only about one-fourth of the farming households have received KCCs. The density of KCCs in terms of operational area varied from 0.07 / ha in Jammu & Kashmir to 1.76 / ha in Kerala.

Determinants of Farmers' Access to Institutional Credit

Tobit model was applied to identify the factors that determine the quantum of credit borrowed from the institutional sources. The variables included in the model and related hypotheses are defined below.

Table 10. State-wise distribution of Kisan Credit Cards: 2008

States	No. of KCCs issued (million)	Intensity of KCCs	
		No./ household	No./ hectare
Andhra Pradesh	12.17	1.06	0.85
Assam	0.34	0.13	0.11
Bihar (includes Jharkhand)	3.06	0.26	0.45
Gujarat	2.46	0.58	0.25
Haryana	2.19	1.44	0.62
Himachal Pradesh	0.25	0.28	0.26
Jammu & Kashmir	0.07	0.05	0.07
Karnataka	4.21	0.59	0.34
Kerala	2.76	0.42	1.76
Madhya Pradesh (includes Chhattisgarh)	5.90	0.56	0.27
Maharashtra	7.19	0.59	0.36
Orissa	4.22	1.04	0.83
Punjab	2.02	2.02	0.50
Rajasthan	4.37	0.75	0.21
TamilNadu	4.87	0.62	0.70
Uttar Pradesh (includes Uttarakhand)	14.62	0.65	0.78
West Bengal	2.69	0.40	0.49
All India	80.80	0.67	0.51

Source: NABARD and Agricultural Census Division, Ministry of Agriculture, New Delhi

It was hypothesized that the age of decision-maker may influence the amount of credit as it will act as a proxy of experience. Female-headed households were hypothesized to have less access to formal credit than male- headed households. The education level was hypothesized to influence the amount of formal credit positively, i.e. higher the level of education, higher is the probability of accessing the formal credit sources for loan. Different households' types were supposed to influence the credit decision differently. Irrigated environments were hypothesized to influence the quantum of formal credit positively.

The variables used in the model with descriptive statistics are summarized in Annexure I. The final estimation results of Tobit model are presented in Table 11. The effect of age on borrowing from institutional sources was significant and positive. It was expected because with age, people mature and hence have better appreciation for the source of credit. The effect of gender was positive, which implied that the households headed by males were able to get higher amounts of loan from the institutional agencies. It may be mentioned here that only 11 per cent of the rural households in the study area were estimated to be headed by females. The bigger household-size and larger farm-size increased the probability of taking credit from the institutional sources. The bigger size of household could spare a family member to pursue the loan disbursement procedures from the institutional sources. The credit requirement of larger farm-size was more because of its higher requirement of inputs and services. The large-farm size also enhanced the repayment capacity and thus facilitated credit disbursement from the institutional source. The results have reconfirmed the vulnerability of weaker sections in getting credit from the institutional sources. It was observed that the households belonging to scheduled castes, scheduled tribes and other backward castes could get less credit from the institutional source than the general caste households.

The effect of education on the use of credit outlet was interesting. The higher the level of education, the higher was the probability of having bigger loans from the institutional sources. The education makes the borrower wiser not to take credit from non-institutional sources at the higher rates of interest. Higher education also helps the farmers to have better access to credit; they may appear to lenders to present less of a credit risk; they are more likely to be aware of financial opportunities and it may be easier for them to visit financial institutions, do the required paper work for loan applications and interact with officials in the financing institutions. This suggests the need for simplification of credit disbursement procedure by the institutional sources so that even the illiterates could have increased access to institutional credit in the rural areas.

The effect of major occupation of a household on the use of institutional credit was mixed. The households with self-employment in agriculture depicted higher probability of availing higher amounts of institutional credit; labour households obviously had fewer propensities to avail institutional credit. This seems to be rational as the households whose major occupation is agriculture, obviously need higher amounts of credit.

Table 11. Estimates of Tobit regression

Explanatory variables	Coefficient	t-value
Age of household-head	0.09868*	7.15
Gender of household-head, (male=1, otherwise=0)	1.89837*	2.57
Household size	0.16033*	2.49
Operated land-size (ha)	1.18063*	14.36
Social group		
ST=1, otherwise=0	-6.96248*	-9.62
SC=1, otherwise=0	3.49309*	-5.93
OBC=1, otherwise=0	-1.82026*	-4.23
Education level		
Primary=1, otherwise=0	2.61911*	5.67
Secondary=1, otherwise=0	3.27122*	6.58
Higher secondary or certificate / diploma Course=1, otherwise=0	3.59646*	3.79
Graduate and above=1, otherwise=0	4.24205*	3.97
Household type		
Agricultural labour=1, otherwise=0	-1.8462*	-2.37
Other labour=1, otherwise=0	0.48568	0.53
Self-employed in agriculture = 1, otherwise=0	1.55796*	2.46
Other occupation=1, otherwise=0	1.43836*	1.49
Constant	-33.209***	26.96
Number of observations	54254	
F- value	84.77	
σ	16.43	

*indicates at 1 per cent level of significance.

Conclusions and Policy Implications

The agricultural performance engrosses many production factors; agricultural credit is one of them. The performance of institutional credit to agriculture and the determinants of institutional agricultural credit use at households' level have been analyzed. The study has shown that the institutional credit flow to the agriculture has been increasing for the past four decades. However, different patterns in the growth of agricultural credit have been observed during different sub-periods. The structure of the sources of credit has witnessed a clear shift and commercial banks have emerged as the major source of institutional credit to agriculture in the recent years. Further, the portfolio of institutional credit to agriculture has also changed and the share of investment credit in total credit has declined over time. The declining share of investment credit may constrain the agricultural sector to realize its full potential. Regional disparity in disbursement of agricultural credit has been glaring, though in recent years it has shown

some evidence of convergence. Inequity in the distribution of institutional credit across different categories of farmers also persists. The choice of a credit outlet and the quantum of institutional credit availed by farming households have been found to be affected by a number of socio-demographic factors. The effect of education has indicated the need for capacity building of borrowing farmers. Imparting training to borrowers regarding procedural formalities of financial institutions could be helpful in increasing their access to institutional credit. Further, procedure for loan disbursement could be made simple so that it may not be difficult for the less-educated and illiterate households to access institutional financing agencies for credit. The weaker sections of the society like SCs, STs and OBCs and smallholders are more exposed to non-institutional sources for their borrowings and thus end up paying higher rates of interest, which have a negative bearing on their economic situation. This needs to be ameliorated by strengthening the on-going special schemes for these groups.

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Annexure I

Mean and standard deviation of explanatory variables used in Tobit model

Explanatory variables	Mean	Standard deviation
Age of household head	45.435	13.377
Gender of household head (Male=1, otherwise=0)	0.910	0.286
Household size (No.)	5.191	2.492
Operated land size (ha)	0.872	1.908
Social group		
ST=1, otherwise=0	0.058	0.234
SC=1, otherwise=0	0.220	0.414
OBC=1, otherwise=0	0.459	0.498
Education level		
Primary=1, otherwise=0	0.912	0.454
Secondary=1, otherwise=0	0.201	0.401
Higher secondary or certificate / diploma Course=1, otherwise=0	0.034	0.182
Graduate and above=1, otherwise=0	0.027	0.162
Household type		
Agricultural labour=1, otherwise=0	0.257	0.437
Other labour=1, otherwise=0	0.116	0.320
Self-employed in agriculture=1, otherwise=0	0.401	0.490
Other occupation=1, otherwise=0	0.085	0.278