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## CREDIT FLOW TO INDIAN AGRICULTURE: TRENDS AND CONTRIBUTING FACTORS

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# CREDIT FLOW TO INDIAN AGRICULTURE: TRENDS AND CONTRIBUTING FACTORS

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## **Abstract**

*The credit flow to agriculture, especially to small landholders, has declined during the period 1981 to 1998 at the all-India level, while the total volume of net bank credit increased after the introduction of banking sector reforms in 1991. An analysis of factors influencing the flow of agricultural credit reveals that banks prefer to deploy their funds for non-agricultural activities earning higher interest income. The credit deposit ratio and the proportion of rural and semi-urban bank branches are positively related to the credit flow to agriculture.*

## **Introduction**

A majority of the cultivators find borrowing to be necessary as their own farm savings are inadequate to finance various agricultural development activities. Elsewhere, it is argued that credit provides command over resources and facilitates needed liquidity to farmers (Lipton 1976). Following the technological changes and the greater need of credit to farmers, the question of their effective access (timely and adequate loan amount) to institutional credit assumes significance. In this context, credit to agriculture and small-scale industrial sector has always commanded special attention in view of its recognised importance. Since the day of the Rural Credit Survey Committee (1954), one committee after another has come forward with policy recommendations to increase the outreach of the formal financial institutions in rural areas, and especially to small and marginal farmers.

The nationalisation of banks in 1969 brought an increase in the number of branches in rural areas and introduced various policies aimed at social banking. With the establishment of Regional Rural Banks (RRBs) in 1975, another wing was added to the agricultural credit. During the mid-1980s, the mandatory priority sector<sup>1</sup> lending was introduced to ensure adequate credit flow to these sectors. Undeniably, these policy incentives have enabled a very wide network of rural financial institutions. It has to be emphasised here that the rural banking system in India has made tremendous quantitative achievement by neglecting the qualitative aspects

of the credit delivery system (Shivamaggi 2000). A perusal of empirical studies shows that institutional credit is being accessed by the well-to-do among rural people (Adams and Vogel 1986). Furthermore, it has been argued that the Indian policy makers have not been able to arrive at a banking structure and operational system, which are suitable for the credit needs of the agriculturists (Shivamaggi 2000).

Nevertheless, the inequalities in the banking system across the regions and social classes persisted (Bell 1990). This was because of the insistence on collateral (Sarap 1991) which could not be provided by the poor, complicated administration procedures, long distance from the villages to the branches, the cultural gap between bank officials and the poor, political interference, inflexible lending policies and procedures, lack of provision for consumption credit and a widespread belief that the poor were non-bankable.

Although some of the rural poor obtained credit from the Formal Rural Banking System (FRBS), they found that the credit was neither timely nor adequate for their needs. The disbursal of loans without assessing the feasibility, viability and entrepreneurial experience of borrowers led to the widespread problem of fungibility<sup>2</sup>. There were also problems within the banking system such as the lack of linkages between credit and production, extension, marketing, etc.

In the late 1980s, the formal banking system began to face the problems of higher transaction costs<sup>3</sup> (due to lending small amounts to large numbers of borrowers) and recurring losses. In addition, the managerial inadequacy within the banking system caused problems, which resulted in an alarming growth in overdue payments<sup>4</sup>. This, in turn, adversely affected the recycling of credit, and led to lower profit margins. Many Commercial Banks (CBs), RRBs and co-operatives were also incurring losses.

This led to mounting pressure on the government from Indian bankers and some outside agencies, to initiate banking sector reforms so that the FRBS becomes financially viable. Yielding to this pressure, the government appointed the Narasimham Committee in 1991, which recommended measures to improve efficiency, profitability and viability of the banking sector. More relevant recommendations are to bring down the credit target for the priority sector from the current 40 per cent to 10 per cent of aggregate bank credit, deregulation of interest rates, abolition of branch licensing, gradual phasing out of directed credit programmes, closing down of loss-making bank branches and so on. The committee was of the view that easy and timely access to credit was far more important than its cost. Gradual reduction of the Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) to enable the banks to have larger quantum of loanable funds was also recommended. Besides, the

committee took the view that the growth of agriculture and small industry had now reached a point where banks on the basis of their commercial judgement could meet the legitimate productive needs.

The Gupta Committee was set up in 1998 to look into the issues relating to the quality of credit delivered by the banking system. It highlighted the issue of how the quality of lending could help the viability of the banking system. The committee suggested measures to improve the credit delivery system, simplification of procedures for agricultural credit and identifying constraints faced by commercial banks to increase the flow of credit.

The government did not accept all the recommendations made by the Narasimham Committee (1991), especially reducing the target for priority sector. On the whole, during the post-reform period, the RBI has been following the approach of broadening the scope of priority sector by keeping the same target to encourage diversion from direct priority sector lending. Shajahan (1999) has gone to the extent of saying that 'the whole idea is to allow banks to fulfil the target of priority sector, in general, and agriculture, in particular, from total advances by banks, without having to lend directly much more to those areas included in the priority sector in the early 1990s'. Hence, it can be argued that the banking sector reform may have both positive and negative impact on the credit flow to agriculture. First, the reduction of CRR and SLR can be expected to have a positive impact on credit flow to agriculture provided the banks are unable to find alternative and profitable non-agricultural avenues to disburse the credit. Secondly, the de-regulation of interest rates is also expected to have a positive impact on credit flow to agriculture because it has often been argued that what matters to the farmers is access rather than the costs associated with credit. With de-regulation of interest rates and the concomitant increase in returns to banks leading to qualitative credit delivery, one can argue that the credit flow to agriculture could have gone up. Third, the credit norms leading to profitability are also expected to increase the credit flow to agriculture, provided bankers perceive the lending to agriculture as profitable.

The closure of loss-making branches is expected to lead to reduction in the credit flow to agriculture. This is because most of the loss-making branches during the pre-reform period had been located in rural and semi-urban areas. If these branches were closed, the credit flow to agriculture would have come down<sup>5</sup>.

Thus, the banking sector reforms would have both positive and negative impacts on credit flow to agriculture. In this context, the following questions arise. What have been the trends in credit flow to agriculture? Has there been any difference in real and nominal growth rates between the pre-reform and post-reform periods? What factors governed the credit flow to agriculture during the pre- and post- reform periods?

This paper seeks to address these questions by analysing the data collected from the Report on Currency and Finance (RCF), and Banking Statistics (BS) on total outstanding credit provided by the Scheduled Commercial Banks (SCBs). In order to work out the real growth rates of credit flow to agriculture, the outstanding credit amount in each year has been deflated by the prices of wholesale price index of primary articles. A point to be noted is that the data from the above sources do not include the credit provided by co-operative societies for agriculture.

## **Interest Rates and Supply of Agricultural Credit**

From the supply side, interest rate plays an important role in determining the credit flow to agriculture. In general, the interest rate on agricultural loans is kept low to promote agricultural growth and to assist the rural poor in developing countries. Several decades of experience on the impact of low interest rates indicates that cheap loans did not appear to have either increased agricultural output or reached the rural poor<sup>6</sup> (Adams and Vogel 1986). Gonzalez-Vega (1984), and Ladman and Trinnermier (1981) argue that subsidised interest rates are the major contributing factors for fungibility on the part of borrowers and credit diversion on the part of lenders, low lender revenue and political intervention into the credit market.

Thus, if the interest income is greater than or at least equal to the cost of lending (break-even condition<sup>7</sup>), this may positively influence the financial institutions to increase the supply of agricultural credit. However, the default rate plays an important role in determining the break-even level of interest rate for a financial institution. Higher the default rates, higher the break-even interest rate that has to be charged. But, given the administrative interest rate, the banks cannot increase their lending rates irrespective of the default rate. Therefore, the banks will try to bring down the break-even condition of lending rate to the economic criterion<sup>8</sup> of rate of interest by reducing the default rate and the cost of lending. In order to reduce the default rate, banks can adopt the process of credit rationing<sup>9</sup>. Furthermore, if there is rationing, there would exist an excess demand for credit than the size of loan sanctioned at the profit maximising rate. Even in the absence of interest rates' restriction, as the probability of default risk is more due to imperfect information in the rural credit market, non-price credit rationing<sup>10</sup> is widely accepted in most of the LDCs (Gonzalez-Vega 1984). Besides, low interest rate leads to low return and poor supervision, which may cause overdue and more risk to the financial institutions. In order to avoid all these problems, financial institutions may concentrate on a select few, those who have creditworthiness with excellent loan collateral and those who take large loans. This may lead to low credit flow to the agricultural sector. This suggests that a ceiling on lending rate has two kinds of impact on the

institutional credit market. The first type of impact can be observed in access to credit by different category borrowers and the second one can be observed in the flow of credit.

These impacts of interest rate ceiling seem to have happened in India. In the case of India, the provision of cheap credit to agriculture gives rise to two kinds of credit subsidy<sup>11</sup>. First, the interest subsidy accrues to agriculture because the rate of lending to this sector is lower compared to the other sectors of the economy. The second type of credit subsidy is the difference between the cost of supplying credit to the agricultural sector, including defaults and rate of interest received from outstanding credit. Using the above conceptual framework, Katula and Gulati's study (1992) reveals that concession in interest rates automatically brings up cross subsidisation. They are of the view that of the three types of banks in India, i.e., Commercial Banks (CBs), RRBs and Co-operatives, only commercial banks have the scope for cross subsidisation. It happens in the case of CBs because they lend to a wide variety of sectors and have the possibility to lend to those activities that earn interest of more than 16 per cent. Besides, they have also estimated that during the 1980s, the total credit subsidy to agriculture was 7.36 per cent of the outstanding. This implies that 7.36 per cent of the total loanable funds could not come back to the banking system, and to that extent the quantum of funds available to formal banks has come down. This is further corroborated by Bishnoi's (1991) argument that interest subsidy to priority sectors compared to the industrial sector has been the major contributing factor for lower credit flow to the agricultural sector.

Can financial institutions go for higher lending rate to get a good margin out of their deployment of funds to the agriculture sector? The Agricultural Credit Review Committee (1989) and the Committee on Financial System (1991) had recommended enhancement of lending rates to cover risk and additional costs associated with it. In this context, a study made by Gadgil (1992) reveals that, by and large, farmers could afford higher interest rates if accompanied by an improvement in the quality of lending.

In theory, however, a question was raised on whether one could take higher lending rate as the criterion of the profitability. Since the borrower offers different levels of default risk, which adjusted the interest rate itself (because of moral hazard and adverse selection problem) and increases the default risk to such a level that the higher rate of interest would not compensate for additional risk (Stiglitz and Weiss 1981). This implies that the bank may incur more loss with the increased lending rate and it may adversely affect the viability of the system. It may also happen that many good borrowers may move out from the formal credit market with increasing lending rate. Relating to this, Basu (1997) is of the view that it is the default risk, rather than the ceiling on interest rate, which is the major contributing factor of non-profitability and non-viability.

Here, no empirical analysis has been made of these issues. But, by taking into account the above explanation as the proxy, one can say that the banks may be moving towards a higher profit-oriented portfolio through diversion of loans from lower to higher return sector. This leads to: Does the interest income loss due to concessionary interest rates adversely affect the credit flow to agriculture? Does the financial institution concentrate to extend its credit facility to a particular category of borrowers? These questions are discussed later.

## Credit Flow to Agriculture

Soon after independence, the share of Formal Rural Banking System (FRBS) in the total credit was found to be insignificant. The nationalisation of banks in 1969, introduction of RRBs and priority sector lending have had the desired impact in so far as the supply of credit flow to agriculture was concerned. The share of agriculture in the total credit provided by the formal banking system was only 7.1 per cent in 1969 and it increased to 15.72 per cent of the total net bank credit by 1980.

The total outstanding credit disbursed by all the Scheduled Commercial Banks was Rs. 28,391.73 crores in 1981. This had gone up to Rs.329,944.44 crores by 1998 at an annual growth rate of 15.30 per cent (Table 1). The growth rate has been faster after 1991 compared to the period 1981-90. One of the important contributing factors was the policy decision to slash CRR and SLR to increase funds availability to the banking sector. The CRR declined from 15 per cent of demand and time liability in 1991 to 9 per cent in 1999, while the SLR declined from 38.5 per cent to 25 per cent during the same period respectively. Besides, the investment on government and other approved securities and balance with the RBI of SCBs declined. Furthermore, the borrowing from RBI was stepped up after 1991 to facilitate more funds to the SCBs (RBI 1999).

**Table 1: Growth Rate of Share of Credit to Different Sectors from the Total Bank Credit of SCBs (including RRBs)**

Year	Agriculture	Industry	Transport Operators	Professional Services and Personal Loans	Trade	Finance	Others	Total
1981-90	14.92	14.96	8.89	21.07	10.20	—	19.95	14.78
1991-98	9.48	15.76	8.11	19.89	14.00	24.67	17.59	15.40
1981-98	12.01	15.80	7.24	21.50	12.59	—	16.89	15.30

*Sources:* Banking Statistics (various issues)



Was the rapid growth in the total credit the same across all the sectors? Table 1 shows that the credit disbursed to industry, trade and finance, and others increased at a higher rate than that to agriculture during the post-reform period. Although, credit disbursed to agriculture has increased at an annual growth rate of 12.01 per cent during the period 1981-1998, the growth rate for the pre-reform period was 14.92 per cent, while it was only 9.48 per cent during the post-reform period. In the case of transport operators, professional services and personal loans (PS-PL) and others also, the growth rates during the pre-reform period were higher than the post-reform period. On the other hand, the rate at which credit was disbursed to industry, trade and finance was higher in the post-reform period. This suggests that the rate at which credit was disbursed to agriculture at the all-India level seems to have declined.

What were the trends in the proportion of credit to agriculture from SCBs? Table 2 shows that agriculture accounted for about 16.44 per cent of the total credit in the early 1980s, thus barely approaching the target fixed under the priority sector lending. This, by and large, remained around 16 to 17 per cent in 1980s. However, the proportion progressively declined to about 11 per cent in the late 1990s. This was uniform across different bank groups. While RRBs provide between two-thirds to one-half of the total credit to agriculture, the proportion in the case of SBI and associate banks, nationalised banks and Other Scheduled Commercial Banks (OSCBs) was much less. Thus, one can conclude that the credit flow to agriculture even in proportionate terms declined during the post-reform period.

**Table 2: Bank Group-wise Per Cent Share of Outstanding Credit of SCBs to Agriculture**

Triennium Ending with	SBI and its Associates	Nationalised Banks	Foreign Banks	Regional Rural Banks	Other Scheduled Commercial banks	Total
Dec-83	19.23	15.35	0	64.66	5.90	16.44
Dec-86	21.56	14.89	0	59.24	5.00	17.05
Dec-88*	19.38	16.48	0	55.47	5.10	17.53
Jun-89**	18.87	16.62	0	54.52	4.79	17.34
Mar-92	16.98	14.79	0.47	51.56	8.87	15.18
Mar-95	13.37	12.66	0.45	50.27	6.33	12.72
Mar-98*	11.64	11.47	0.30	48.10	5.24	11.01

Sources: Banking Statistics (various issues)

Note: \* Two years average

\*\* One year figure

Tables 1 and 2 do not include credit from co-operatives, which have traditionally been playing a key role in so far as short-term credit to agriculture is concerned. Table 3 includes the co-operative credit in the total outstanding credit flow. The total outstanding credit disbursed by Co-operatives and the SCBs was increased from an average of Rs. 12,549 crores in 1981-84 to Rs.60, 815 crores in 1997-98. The Co-operatives accounted for one-half of agricultural credit in the early 1980s. Their share gradually declined to about one-third by the late 1990s, while that of SCBs and RRBs increased.

**Table 3: Percent Share of Institutional Credit for Agriculture and Allied Activities**

Triennium ending with	Co-operatives	Scheduled Commercial Banks	Regional Rural Banks	Total (Rs. in Crores)
1983-84	52.03	44.69	3.28	12, 549
1986-87	47.16	48.24	4.59	19, 784
1989-90	41.91	52.35	5.74	28, 034
1990-91*	39.19	55.41	5.40	32, 884
1993-94	41.13	52.78	6.09	37, 555
1996-97	37.83	55.05	7.12	49, 772
1997-98*	35.17	57.19	7.64	60, 815

Sources: Report on Currency and Finance (various issues)

Note: \* One-year figure

From the empirical evidence one can see that credit to agriculture has been rapidly flowing in the last 18 years. The growth rate of credit to agriculture (in nominal term) was 10.74 per cent (compound growth rate) during the period 1981-98, while in real terms it was only 2.24 per cent for the same period (Table 4).

**Table 4: Growth Rate of Institutional Credit for Agriculture (Outstanding Figures) in Per Cent**

Year	Co-operatives		Scheduled Commercial Banks		Regional Rural Banks		Total	
	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
1981-91	9.58	2.69	16.63	9.30	23.21	15.46	13.58	6.44
1991-98	7.15	- 1.35	10.29	3.17	14.99	6.64	9.36	1.61
1981-98	8.12	- 0.18	12.47	3.83	16.97	7.99	10.74	2.24

Sources: Report on Currency and Finance (various issues)

The growth rates are uneven across the sub-periods as well as across the bank groups. The credit in both nominal and real terms grew at a much faster rate during the period 1981-91 as compared to the post-reform period of 1991-98. Across the bank groups also a similar pattern is observed and in the case of co-operatives the situation is still grim. The growth of credit flow, in nominal as well as in real terms, has come down in the case of all bank groups. More importantly, the credit flow from co-operatives in real terms declined both during the entire period and in the second sub-period. Interestingly, the growth rates of credit flow from RRBs are higher in both nominal and real terms probably due to a low base as compared to other financial institutions. Within the agricultural credit the share of commercial banks and RRBs have increased during the post-reform period on the one hand, whereas, from the net bank credit the share has come down for each group of banks, on the other hand.

The foregoing section concludes that the credit flow to agriculture has declined during the 1990s. The decline has been uniform across bank groups. In the case of co-operatives, there has been a drastic reduction in the flow of credit to agriculture. The indicators are that the credit flow to non-agricultural activities such as industry, trade, finance, etc., has been increasing at the cost of that of agriculture. It will be, therefore, interesting to analyse the contributing factors to this decline. However, this analysis has been done only for credit flow to agriculture from scheduled commercial banks.

## **Contributing Factors**

The Reserve Bank of India has initiated several measures towards the deregulation of interest rates in the 90s. In the liberalised interest rate structure, the gradation of interest rate is now based on the size of the loan. Although there is some difference between the interest rate on priority and non-priority sectors, the advances to the former are no longer cheaper compared to the latter. The Commercial Banks including Regional Rural Banks are free to fix up their lending rates on various schemes. They charge 10 to 13.5 per cent interest to the small borrowers with credit size up to Rs. 25,000, whereas the lending rate varies from 14 to 21 per cent to big borrowers for a credit limit of above Rs. 2 lakhs, depending on the purpose of borrowing.

But the gradation of lending rates with respect to the size of loan raises the question of whether it has boosted credit to the agricultural sector. From the available literature on this topic one can summarise that increasing interest rates or collateral requirement would increase the risks of the bank's loan portfolio, either by discouraging safer investor or by inducing borrowers to invest in riskier projects and therefore, decrease the bank profit (Stiglitz and Weiss 1981). Besides, it can be stated that at

a higher rate of interest, entrepreneurs are not prepared to borrow or invest. In order to boost capital accumulation and infrastructure development, higher investment is needed. This is possible only through lowering the lending rate. With this expectation, banks have reduced the prime lending rate to the minimum level of 12.5 per cent.

Here, the issue is that banks are interested in increasing their volume of business in the sector at a lower rate of interest where they are expecting good margin of profit out of their investment. So, it is not the interest rate alone; rather the other risk factors, including default, really govern the profitability and flow of institutional credit. In this paper, the performance of banks with respect to profit has not been discussed but there has been an attempt to find out some indicators which could explain that banks are concentrating at profit-oriented portfolio and are affecting the credit flow to agriculture.

During the pre-reform period, credit flow to agriculture varied between 15.78 and 17.74 per cent, whereas during the post-reform period it drastically came down from 14.95 to 10.69 per cent (Table 5). Credit flow to the non-agricultural sector has continuously increased during the same reference period. In the agricultural sector, for a credit limit of Rs. 25,000 and less, the proportion of finance has been increasing during the pre-reform period. This is mainly due to the target-oriented system of lending prescribed by the central bank and different policies without reference to the cost of funds. Lack of alternative investment opportunity for rural bank branches may be another factor contributing for this increasing flow of credit. But, during the post-reform period, finance for both size of credit limit is coming down in the case of the agricultural sector. In the non-agricultural sector, although the share of credit flow for the credit limit of Rs.25,000 and less was increasing up to the last part of 80s, it went down in the 90s. Importantly, the share of non-agricultural sector from the total credit for above Rs. 25,000-credit limit has been increasing in the last two decades. Thus, based on the volume of outstanding credit, Table 5 shows that, the banks have been moving towards non-agricultural sector lending.

The percentage of loan accounts in the agriculture sector from total bank accounts has been declining during both pre - and post-reform periods (Table 6). It is interesting to see that although the proportion of accounts in the case of the agriculture sector for the credit limit of Rs. 25,000 and less was declining during the pre-reform period, the proportion of credit flow was increasing. This may be possible by adopting the credit rationing process to minimise transaction costs associated with lending activity, by reducing the number of accounts for better supervision and monitoring. The proportion of both accounts and amounts has been increasing in the non-agricultural sector during the pre-reform period and this might be due to the interest rate charged as an increasing function of the volume of the loan.

**Table 5: Credit Limit-wise Distribution of Outstanding Credit by SCBs from Total Net Bank Credit (in per cent)**

YEAR	Agricultural Sector			Non-Agricultural Sector		
	Rs. 25,000 and Less	Above Rs. 25,000	Sector Total	Rs. 25,000 and Less	Above Rs. 25,000	Sector Total
Dec-81	8.62	8.51	17.13	10.40	72.47	82.87
Dec-82	8.37	8.26	16.63	9.64	73.73	83.37
Dec-83	8.96	6.82	15.78	10.63	73.59	84.22
Dec-84	8.84	8.68	17.52	11.13	71.35	82.48
Dec-85	9.68	7.26	16.94	11.83	71.22	83.06
Dec-86	10.06	6.72	16.78	13.08	70.14	83.22
Dec-87	10.40	7.34	17.74	14.23	68.03	82.26
Dec-88	10.47	7.08	17.56	14.71	67.73	82.44
Jun-89	10.32	7.02	17.34	15.05	67.61	82.66
Mar-90	9.36	6.58	15.94	13.79	70.27	84.06
Mar-91	8.25	6.70	14.95	13.75	71.30	85.05
Mar-92	8.18	6.63	14.80	13.73	71.47	85.20
Mar-93	7.15	6.42	13.58	12.60	73.82	86.42
Mar-94	6.92	6.09	13.00	11.38	75.61	87.00
Mar-95	6.15	5.67	11.83	9.99	78.18	88.17
Mar-96	5.60	5.71	11.31	8.64	80.05	88.69
Mar-97	5.23	5.89	11.12	7.94	80.94	88.88
Mar-98	4.94	5.75	10.69	7.52	81.79	89.31

Sources: Banking Statistics (various issues)

**Table 6: Credit Limit-wise Distribution of Loan Accounts by SCBs from Total Number of Accounts (in per cent)**

YEAR	Agricultural Sector			Non-Agricultural Sector		
	Rs. 25,000 and Less	Above Rs. 25,000	Sector Total	Rs. 25,000 and Less	Above Rs. 25,000	Sector Total
Dec-83	49.30	1.13	50.43	46.28	3.29	49.57
Dec-84	49.10	1.07	50.17	46.65	3.18	49.83
Dec-85	49.09	1.10	50.19	46.65	3.15	49.81
Dec-86	47.80	1.05	48.86	48.09	3.06	51.14
Dec-87	46.30	1.10	47.40	49.42	3.18	52.60
Dec-88	45.55	1.11	46.66	50.08	3.26	53.34
Jun-89	44.07	1.17	45.23	51.34	3.43	54.77
Mar-90	44.29	1.24	45.53	50.75	3.72	54.47
Mar-91	42.75	1.26	44.00	52.15	3.85	56.00
Mar-92	40.90	1.21	42.11	54.07	3.82	57.89
Mar-93	40.84	1.37	42.21	53.37	4.42	57.79
Mar-94	41.33	1.48	42.81	52.23	4.96	57.19
Mar-95	41.03	1.68	42.71	51.77	5.52	57.29
Mar-96	40.83	1.85	42.68	50.75	6.57	57.32
Mar-97	38.32	2.18	40.50	51.75	7.76	59.50
Mar-98	37.83	2.71	40.53	49.56	9.90	59.47

Sources: Banking Statistics (various issues)

Both the proportions of accounts and amounts from the net bank accounts and amounts respectively have come down in the agricultural loan for credit limit of Rs. 25000 and less during the post-reform period. Although the proportion of accounts for the credit limit of Rs. 25,000 and above has been increasing, the net credit flow has come down in the same reference period. Here, one can argue that banks are adopting non-price credit rationing and minimising the lending risk by disbursing less amounts compared to the projection cost.

From the above empirical evidence one can find out that the proportion of accounts and amounts in agricultural lending is coming down during the post-reform period. In the non-agricultural sector, for below Rs. 25,000 credit limit, the proportion of accounts and amounts has been coming down during the post-reform period, whereas its proportion has been increasing for more than Rs. 25,000 credit limit during the same period. It implies that the banks are concentrating more in the non-agricultural sector because of less transaction costs involved, less risky and better returns rather than the agricultural sector. This may be one of the important factors for lower institutional credit flow to agricultur .

In this context, the question arises whether interest income loss is due to concessionary interest rates adversely affecting the flow of credit to agriculture. The income from the deployment of funds to agriculture depends upon the policy of targeted lending with concessional interest rates. Against this backdrop, Bishnoi's Model (1991) has been adopted to estimate the interest rate subsidy in agriculture compared to the industrial sector. However, since the lending rate is fixed for the credit limit of Rs. 25,000 and less, the interest rate subsidy has been estimated by taking the flow of credit to both the sectors (agriculture and industry) for the credit limit of Rs 25,000 and above.

The annual average interest rate in the case of agriculture can be calculated as:

$$r_{it} = \frac{\sum_{m=1}^n (r_{imt} \times X_{imt})}{\sum X_{it}}$$

Where,

$r_{imt}$  = the mean of  $m^{\text{th}}$  interest range for agriculture sector for the  $t^{\text{th}}$  period

$X_{imt}$  = the outstanding credit in  $m^{\text{th}}$  interest range for agriculture for the  $t^{\text{th}}$  year

$X_{it}$  = total outstanding credit for agriculture for the  $t^{\text{th}}$  year

Similarly, we can estimate the annual average commercial interest rate charged by the bank to the industrial sector. That is:

$$r_{ct} = \frac{\sum_{m=1}^n (r_{cmt} \times X_{cmt})}{\sum X_{ct}}$$

Where,

$r_{cmt}$  = the mean of  $m^{\text{th}}$  interest range for industrial sector for the  $t^{\text{th}}$  period

$X_{cmt}$  = the outstanding credit in  $m^{\text{th}}$  interest range for industry for the  $t^{\text{th}}$  year

$X_{ct}$  = total outstanding credit for industry for the  $t^{\text{th}}$  year

The interest subsidy rate ( $S_{it}$ ) is the difference between average lending rate for industry (proxy for commercial interest rate) and the average lending rate to the agriculture sector. It implies that:

$$S_{it} = r_{ct} - r_{it}$$

To maintain the parity, while calculating the interest rates subsidy, only outstanding figures of both the sectors have been taken into account. This is due to the fact that the interest income loss depends upon interest rate subsidy or outstanding credit or both. Accordingly, the interest income loss denoted by ( $L_{it}$ ) can be calculated as

$$L_{it} = S_{it} X_{it}$$

Hence, the total interest income loss to the bank is the product of interest rate subsidy and outstanding credit at the end of the year for the agriculture sector. Based on the above model, the interest income loss on agricultural finance has been estimated in Table 7.

Table 7 shows that the interest rate subsidy was more during the pre-reform period compared to the post-reform period. Importantly, the difference between the annual average commercial interest rate and the annual average interest rate in the case of agriculture was less during 1990s compared to 1980s. Furthermore,  $r_{ct}$  has always been greater than that of  $r_{it}$  for the entire period. This implies that banks have been cross subsidising the agricultural sector. In other words, if the amount of credit going to agriculture was disbursed to the industrial sector, the bank



**Table 7: Estimated Interest Income Loss due to Agricultural Credit**

Year	$r_n$ (for Rs.100)	$r_{ct}$ (for Rs.100)	$S_n$ (for Rs.100)	AOC (in Rs. Crores)	IIL (in Rs. Crores)
Dec-81	13.50	15.37	1.87	2,621.82	49.03
Dec-82	13.24	17.03	3.79	2,952.29	111.89
Dec-83	12.45	15.79	3.34	2,655.35	88.69
Dec-84	11.99	15.70	3.71	3,999.21	148.37
Dec-85	12.00	15.89	3.89	3,792.01	147.51
Dec-86	12.06	15.82	3.76	4,048.50	152.22
Dec-87	12.16	15.12	2.96	5,009.47	148.28
Dec-88	12.20	15.03	2.83	5,491.27	155.40
June-89	11.37	14.88	3.51	6,181.23	216.96
Mar-90	12.83	15.32	2.49	6,837.87	170.26
Mar-91	13.51	15.68	2.17	8,319.11	180.52
Mar-92	14.95	17.25	2.30	9,048.64	208.12
Mar-93	15.71	17.68	1.97	10,436.02	205.59
Mar-94	15.57	17.19	1.62	10,704.58	173.41
Mar-95	15.43	16.52	1.09	11,961.58	130.38
Mar-96	15.85	17.65	1.80	14,551.98	261.94
Mar-97	15.86	17.40	1.54	16,756.64	258.05
Mar-98	15.37	16.77	1.40	18,975.84	265.66

Source: Banking Statistics (various issues)

Note: AOC = Agricultural Outstanding Credit

IIL = Interest Income Loss

would have got more interest income out of it. The amount of interest income loss by all scheduled commercial banks including RRBs was Rs. 49.03 crores in 1981. As a result of administrative lending rate and accumulative outstanding credit to agriculture, the interest income loss increased to Rs. 265.66 crores in 1998. Thus, the increasing interest income loss may be attributed to less credit flow to the agricultural sector.

### **Bank Branch Expansion and CDR**

Another important contributing factor for the low credit flow to agriculture is the declining trend in the expansion of rural bank branches in all the regions of the country during the post-reform period. Since the expansion of branches was considered as the cause for the losses of rural banking,

there has been a marginal decline of rural bank branches which has been noticed every year from 1994. In the Southern Region (SR), Western Region (WR) and Central Region (CR), the rate of decline of rural bank branches is relatively more compared to the other regions. The overall growth rate of rural bank branches came down from 6.11 per cent during the pre-reform period to -0.76 per cent during the post-reform period (Table 8). This happened mainly due to closing down of the loss-making bank branches or merger with other banks. In the case of RRBs, the bank branches were merged with the sponsoring bank. A declining number of bank branches may not be an important contributing factor for the declining trend of agricultural credit flow so far as the total volume of credit is concerned. But, decline in the density of rural and semi-urban bank branches may adversely affect both loan demand and deposit supply. As a result, growth in private investment for agricultural development and financial deepening of both rural and semi-urban sectors may be severely affected. Thus, with the increasing population pressure, the access to banking facility by rural population may have come down.

**Table 8. Region-wise Growth Rate of Rural Bank Branches (in per cent)**

Year	NR	NE	ER	CR	WR	SR	Total
1981-90	5.22	10.00	7.47	7.81	5.31	3.95	6.11
1991-99	-0.56	-0.42	-0.36	-0.93	-0.95	-1.06	-0.76
1981-99	2.55	5.33	3.99	3.72	2.38	1.59	2.95

*Sources:* Banking Statistics (various issues)

*Note:* NR: Northern Region

ER: Eastern Region

WR: Western Region

NE: North Eastern Region

CR: Central Region

SR : Southern Region

The other important factor for the low flow of institutional credit to agriculture can be attributed to the declining trend of Credit Deposit Ratio (CDR) at the all-India level, particularly in rural and semi-urban areas. Since the quantum of credit disbursed to the priority sector and agriculture are calculated as a percentage of net bank credit disbursed, which, in itself is reducing, it automatically follows that the quantum of credit disbursed to these sectors as the proportion of total bank deposit also declines (Shajahan 1998).

To examine the relative contribution of different factors to the flow of institutional credit for agriculture, let us specify the model as follows:

$$Y = f(X_1, X_2, X_3)$$

Where,

Y = Supply of agricultural credit

$X_1$  = Credit supply to non-agricultural sector at the interest range of above 18 per cent

$X_2$  = Credit Deposit Ratio

$X_3$  = Share of rural and Semi-urban bank branches from total number of branches.

The structural coefficients are estimated by simple least square method and the equation is given by:

Y	Equation	R <sup>2</sup>	Durbin Watson
Y =	-33.998 - 0.052X <sub>1</sub> * + 0.141X <sub>2</sub> ** + 0.491X <sub>3</sub> # + φ (-2.734) (2.432) (2.214)	0.780	2.342

Note : Figures in the brackets are t values of the coefficients.

\* Significant at 1 per cent probability level

\*\* Significant at 3 per cent probability level

# Significant at 4 per cent probability level

The regression coefficients of different explanatory variables, their standard errors and the value of R<sup>2</sup> are represented in the tabular format. From the above model it can be observed that the supply of agricultural credit is negatively related with the supply of non-agricultural credit at more than 18 per cent rate of interest range. Since banks have the opportunity to invest outside of the agriculture sector at above 18 per cent rate of interest, their preference to agriculture is coming down because of the higher risk involved with lower return. This may lead to lower credit flow to agriculture. The CDR and bank branches are positively related with the supply of agricultural credit. However, there is a decline in the credit flow to agriculture. Thus, the positive and significant coefficient of the proportion of rural and semi-urban bank branches indicates that the decreasing number of bank branches may not be an important contributing factor for the declining trend of agricultural credit so far as total volume of credit flow to this sector is concerned. Furthermore, the positive association of CDR does not necessarily increase the proportion of credit flow to agriculture from net volume of bank credit. This is due to the fact that over a period of time the volume of credit going to the agriculture sector and deposits have been increasing in absolute terms. It is also possible that the bankers may be disbursing agricultural loans to those activities that are less risky or concentrating on certain category of borrowers.

In this context, a question may be raised. Is the reduced credit for agriculture uniform across the size classes of landholding? In order to analyse the distribution of accounts of direct finance to agriculture across different size-classes of landholding, we have utilised the data from the Reports on Currency and Finance.

## Access to Credit Facility

An analysis of the data shows that the proportion of accounts in the size class of 0-2.5 acres of holding has been declining from 42.2 per cent to 35.1 per cent during the post-reform period (Table 9). Based on the distribution of loan accounts, Table 9 also reveals that there is an increasing access to credit facility given by banks for all sizes of landholding during the 1980s. This higher access to credit can be attributed to the policy of supply based lending. However, the proportionate share of number of accounts for the marginal farmers (0-2.5 acres) has been declining during the 1990s. This indicates that the access to credit facility by marginal farmers is reducing. So far as the small farmers are concerned (2.51-5.0 acres), there is marginal improvement in accessing credit facility during the 1990s. The percentage of accounts in the size class of holding for

**Table 9: Distribution of Loan Accounts by SCBs**

Year	Direct Finance				Indirect Finance	Total
	Up to 2.5 Acres	Above 2.51 to 5 Acres	Above 5 Acres	Total Direct Finance		
Mar-81	37.8	16.5	18.8	73.2	26.8	100
Mar-82	25.2	12.3	12.4	49.9	50.1	100
Jun-83	36.5	18.3	17.3	72.1	27.9	100
Jun-84	38.6	22.6	17.6	78.8	21.2	100
Jun-85	36.9	25.1	18.2	80.2	19.8	100
Jun-86	38.0	24.0	19.3	81.3	18.7	100
Jun-87	39.0	26.4	19.9	85.2	14.8	100
Jun-88	41.5	26.7	19.2	87.4	12.6	100
Jun-89	41.1	27.3	18.6	87.0	12.9	100
Jun-90	40.0	26.4	18.7	85.6	14.4	100
Jun-91	42.2	26.2	19.3	87.8	12.2	100
Jun-92	41.2	27.9	21.0	90.2	9.8	100
Jun-93	40.4	28.9	21.6	91.0	9.0	100
Jun-94	38.9	27.6	24.6	91.1	8.9	100
Jun-95	38.7	28.9	24.0	91.7	8.3	100
Jun-96	34.7	29.0	29.2	92.9	7.1	100
Jun-97	35.1	28.4	29.5	93.1	6.6	100

Sources: Report on Currency and Finance (various issues)

above 5 acres of land has increased from 18.7 per cent in 1990 to 29.5 per cent in the year 1997. The data on access to credit facility shows that more and more number of medium and large size farmers (above 5 acres of land) are obtaining credit from banks. This supports the argument that access to credit is positively associated with the size of landholding. This information suggests that the better-off among the farmers are getting larger access to credit compared to small and marginal farmers. Thus, even by the end of 1990s, the access to credit was noted to be governed by the security that the stock of capital (land) was offered to agencies advancing credit rather than by factors influencing the demand for credit.

## **Conclusion**

The findings of the study are based on the macro time-series data. This study has used descriptive analysis to see the trend in the flow of institutional credit to agriculture and the contributing factors. During the post-reform period, with the objective of the banking system changing (i.e., profitability and viability), the flow of credit to the agricultural sector has declined. The theoretical and empirical discussions suggest that ceiling in lending rate has two kinds of impact on the institutional credit market. The first type of impact can be observed in access to credit by different category borrowers and the second one can be observed in the flow of credit. The break-even condition of interest rate is more than the actual lending rate because the risk factors are involved in the former. Had there been a prompt repayment, both the rates of interest would have been the same. So, it is not the interest rate alone which governs the profitability and the flow of institutional credit. If the rural branches were depressing the profits of the banks, the branch licensing policy was partly responsible for the same. During the post nationalisation period the banks were forced to go to rural and non-banked areas. The Regional Rural Banks were compelled to serve the villages identified by the sponsor banks, but not considered by them to set up RRB branches. As a result, many villages seem to appear in the banking map with less business potential. In this context, if there will be a declining trend of rural and semi-urban bank branches it may adversely affect credit widening and access to banking facility. Besides, it may increase their borrowing costs and they may be reluctant to approach the financial institutions for credit.

## Notes

1. Initially, the priority sector included agriculture, small-scale industries and exports. In the later stage, the coverage of priority sector was widened to include tiny industries, small business, rural artisans, professional and self-employed persons, housing, transport operators, and other weaker sections in addition to agriculture and small-scale industries. Export sub-sector was excluded from the later stage of priority sector.
2. It implies the process of financial substitution. For a detailed discussion, see Von Pischke and Adams (1980), Ladman and Trinnermeier (1981), and Adams and Vogel (1986).
3. A study made by Satish and Swaminath (1989) found that the average cost of lending of CBs, Primary Agricultural Co-operative Societies (PACs), RRBs and Land Development Banks (LDBs) was greater than the average interest income from the agricultural sector. Discussing the viability of rural credit institutions, Gadgil (1986) emphasised the high cost of transaction, and the mounting loan delinquencies, which were eroding the strength of the rural credit institutions. Desai and Namboodiri (1992) found that all Rural Financial Institutions (RFIs), except PACs, prevailed under constant returns to scale (CRS) in their transaction cost from the period 1961 to 1981. PACs suffered from scale diseconomies in their transaction costs for the same reference period. For more detailed information, see, Tables 6 and 7.
4. The causes of overdue payment have been briefly discussed in Khusro (1989). The issues relating to overdues, default rate, political intervention on sanction and recoveries of loans, and defective lending policies have been discussed in Rajasekhar and Vyasulu (1990), Vyasulu and Rajasekhar (1991), and Kahlon (1991).
5. In the earlier role of 'social banking', banks were the instruments of the state in the development process, which is now oriented towards profit maximisation which guides the evaluation of pre-reform branch licensing policy. The savings rate in India, in fact, is positively associated with the availability of bank branches. The evidence shows that rural branches have increased their share of deposits and credit between 1969 and 1996 from 3.0 and 0.2 per cent to 15.4 and 12.4 per cent, respectively (Kohli 1999). For more detailed analyses, see, Fry (1988), Pandit (1991), and Desai (1993).
6. The question of why formal credit is used to a lesser extent by small and potential borrowers is adequately explained in the literature. McKinnon (1973) and Shaw (1973) are of the view that the ceilings on interest rates do not permit banks to incorporate the additional administrative costs that are involved in advancing small loans and supervise them. The formal borrowers basically ration credit to the small borrowers in order to reduce their transaction costs (Gonzalez-Vaga 1984, and Anderson and Khambata 1985) which are high for servicing small borrowers. Consequently, banks advance loans to those who offer lower risk and better security. The higher borrowing costs incurred by small potential borrowers compared to large

borrowers discourage them from approaching the formal credit institutions ( Adams and Nehman 1979, Aron 1981, Timberg and Aiyar 1984, Sarap 1990)

7. (Income from loan portfolio) ( (Cost of lending)

$$(1 + r) \sum (1 - p_j) X_j \geq \sum (1 + i + a_j) X_j \text{ ————— (*)}$$

where  $X_j$  = size of each loan

$i$  = interest paid per unit of principal on borrowing and deposits

$$a = \sum a_j X_j / \sum X_j$$

$a_j$  = administrative cost per unit of capital

$r$  = lending interest rate

$$p = \sum p_j X_j / \sum X_j \text{ (expected default rate on loan)}$$

$p_j$  = per unit loss of principal due to default on a loan size for  $X_j$

By substituting the above values in the equation (\*) we can obtain

$$r \geq (i + a + p) / (1 - p) \text{ ————— (break-even condition of interest rate)}$$

For more details, see, Anderson and Khambata (1985) and Hulme and Mosely (1996).

8. The marginal efficiency of capital must be greater than or at least equal to the rate of return on lending (i.e., lending rate of interest). The economic benefit of investment on loans depends on the amount repaid by the borrowers. For more details, see, Anderson and Khambata (1985).
9. It refers to a situation where at the going rate of interest in the credit transaction, the borrower likes to borrow more money but it is not permitted by the lender (Basu 1997, Ray 1998). Fried and Howitt (1980) are of the view that credit rationing exists as a part of an equilibrium risk sharing arrangement between Formal Financial Institutions (FFIs) and the borrower. Credit is invariably rationed in terms of ability to offer collateral (Rudra 1982; Binswanger and Sillers 1983; Von Pischke et al 1983; and Sarap 1991). For a more detailed discussion on the impact of interest rate ceiling and credit rationing, see, Gonzalez-Vega (1984), Anderson and Khambata (1985), and Basu (1997). Eaton and Gersovitz (1981) have suggested a model with endogenous default costs where default leads to exclusion from the credit market. Given this, a contract is enforceable provided that each payment is less than the value of future access from the credit market.
10. Through changes in the size of loan. For more details, see, Jafee (1971), and Gonzalez-Vega (1984).
11. For a detailed discussion, see, Katula and Gulati (1992).

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