

DETERMINANTS OF AGRICULTURAL CREDIT BY SCHEDULED COMMERCIAL BANKS – A COMPARATIVE STUDY IN THE PRE AND POST REFORM PERIOD

R. Annapoorani¹, S. Gandhimathi² & G. Mookambigai³

¹ Professor of Economics, Avinashilingam Deemed University for Women, Coimbatore-43

² Assistant Professor of Economics, Avinashilingam Deemed University for Women, Coimbatore-43

³ UGC Project Fellow, Department of Economics, Avinashilingam Deemed University for Women, Coimbatore-43

ABSTRACT: Agricultural credit is one of the most crucial inputs in the adoption of technological innovations, modernization of agriculture, to improve productivity and for all agricultural development programmes. Scheduled commercial banks were a predominant source of institutional credit to the farmers. The share of SCBs in total institutional credit to agriculture has increased from 50.03 per cent in 1998-99 to 77.89 per cent in 2008-09. The research study on "Determinants of Agricultural Credit by Scheduled Commercial Banks - A Comparative Study in the Pre and Post Reform Period" was formulated with the objectives of to compare the provision of agricultural credit by SCBs between pre and post reform period and to identify the determinants of agricultural credit provided by SCBs during the pre and post reform period. The study was related to the period 1980-81 to 2006-07 and the required data were compiled from the secondary sources.

Compound growth rate, t test and regression analysis were used for the analysis. The study found that the direct agricultural credit provided by the scheduled commercial banks at constant prices had shown an increasing trend with fluctuation. In the post reform period the share of direct agricultural credit at both current and constant prices had declined. In the pre reform period, the amount of deposits alone was statistically significant and it had positive relationship with the direct agricultural advances. But in the post reform period, along with the amount of deposits, the area under high yielding varieties was also statistically significant. As such to increase the direct agricultural advances, the commercial banks should be strictly regulated to follow the percentage of net bank credit towards direct agricultural advances. Further, proper extension services should be made to increase the area under high yielding variety seeds.

CREDIT is sine-qua-non for agriculture. Credit has been considered not only as one of the critical inputs in agriculture, but also an effective means of economic transformation (Vyas, 2004). It is one of the most crucial inputs in the adoption

of technological innovations, modernization of agriculture, to improve productivity and for all agricultural development programmes. Agricultural production in India depends upon millions of small farmers. It is the intensity of their effort and the efficiency of their technique that will help in raising yields per acre. Because of inadequate financial resources and absence of timely credit facilities at reasonable rates, many of the farmers even though otherwise willing are unable to go in for improved seeds and manures or to introduce better methods or techniques. Provision of sufficient and timely credit at fair rates of interest has therefore to be considered as an integral part of agricultural development and credit will continue to play a crucial role in securing the objectives of high growth rate of agriculture. Agricultural credit by promoting agricultural and related business also plays an important role in poverty alleviation and creation of employment.

The institutional source of credit has an important role in the development of forces of production in agriculture and changes in the rural socio-economic structure. The introduction of institutional credit in India was viewed as a protective measure to serve the farmers from the grip of money lenders.

The importance of institutional credit has been increasingly felt and it is observed that institutional credit can exercise a 'pull' effect becoming a catalyst in the development process while still retaining the characteristics of being a lubricant.

EVOLUTION OF INSTITUTIONAL AGRICULTURAL CREDIT SYSTEM IN INDIA

The institutional sources of agricultural credit delivery system in India are operated through scheduled commercial banks (SCBs), co-operatives and regional rural banks (RRBs). In India, one of the objectives of the credit policy is to minimize the role of non-institutional sources, mainly the moneylenders in the flow of agricultural credit. (Anjani Kumar *et. al*, 2007). The practice of extending institutional credit to agriculture can be traced back to the period when farmers were provided with such credit by the Government during drought years. The Co-operatives Societies Act was passed in 1904 and was seen as the premier institution for disbursing agricultural credit. All through the 1970s and 1980s the contribution of co-operative banks to total institutional credit flow to agriculture has been the highest. In 1975, another agency for providing institutional credit, i.e., the Regional Rural Banks emerged on the rural credit scene, on the recommendation of the Working Group of the Rural Banks, to fill the credit gap of small and marginal farmers and the weaker sections.

The most important feature of rural credit in India is the phenomenal expansion of credit from institutional sources. Three phases can easily be marked in this regard. In the first phase (early '50s to late '60s) the emphasis was to replace the informal sources of credit. The second phase started with

nationalization of commercial banks that led to the expansion of branches of SCBs in rural areas.

Agriculture was regarded as a priority sector for commercial bank lending. The third phase starts with early 80s when Integrated Rural Development Programme was launched to alleviate poverty. Many committees were constituted during the last two and half decades to review and monitor the flow of institutional agricultural credit in India.

The foundation for building a broader credit infrastructure for rural credit was laid by the Report of All India Rural Credit Survey (1954) under the chairmanship of A.D.Gorwala. After this, the commercial banks are actively involved in the disbursement of agricultural credit.

The All India Rural Credit Review Committee (Chairman: Shri B. Venkatappiah) was set up in July 1966 to review the supply of rural credit in the context of the Fourth Five Year Plan in general, and the requirements of the intensive programmes of agricultural production in different parts of the country, in particular, and to make recommendations for improving the flow of agricultural credit. After a comprehensive review, the Committee recommended that the commercial banks should play a complementary role, along with co-operatives, in extending rural credit. Further, under the Social Control Policy introduced in 1967, the scheduled commercial banks have been given a special responsibility to set up their advances for agricultural and allied activities in the country.

The nationalisation of banks in 1969 and the report of The All India Rural Credit Review Committee (1969) recommended multi agency approach to agricultural credit and suggested enhancing the role of the scheduled commercial banks in providing agricultural credit. The concept of priority sector was introduced in 1969 to underscore the imperative of financing the agricultural sector.

The social control and the subsequent nationalisation of major commercial banks in 1969 acted as a catalyst in providing momentum to the efforts of leveraging the commercial banking system for extending agricultural credit. The outreach of banks was enlarged considerably within a relatively short period of time.

The concept of priority sector was introduced in 1969 to underscore the imperative of financing certain neglected sectors like agriculture. The channeling of credit to the priority sectors was sought to be achieved through the stipulation that a certain proportion of the total net bank credit be deployed in these sectors by specific target dates. Decentralised credit planning through the Lead Bank Scheme was also introduced, under which, each district was placed with one of the commercial banks (called the district Lead Bank) to spearhead the credit allocation for, inter alia, agricultural lending. In order to emphasise the developmental and promotional role assigned to the

Agricultural Refinance Corporation in addition to refinancing, the Corporation was renamed as the Agricultural Refinance and Development Corporation (ARDC) by an amendment to the Act in 1975.

Several institutional innovations introduced and/or tried at different points of time during the seventies and eighties include system wide innovations viz., lead bank scheme, district credit planning, annual action plan, farmers service societies, LAMPS, District Level Coordination Committees (DLCCs), Block Level Coordination Committees (BLCCs) and State Level Bankers Committees (SLBCs).

The report by Agricultural Credit Review Committee (1989) under the chairmanship of A.M. Khusro opined that the commercial banks are to emerge as a strong system to be able to provide effective and timely credit to the rural areas.

Furthermore, weaknesses in the performance of rural financial institutions since 1991 resulted in the setting up of various committees to look into their operations such as: The high level Committee on Agricultural Credit through Commercial Banks (Chairman R.V. Gupta, RBI 1998), Expert Committee on Rural Credit (Chairman: V.S.Vyas, NABARD, 2001). These committees made far-reaching recommendations having bearing on agricultural credit by the institutions, with special reference to SCBs.

Reserve Bank of India and National Bank for Agriculture and Rural Development have implemented most of the recommendations of the Advisory Committee on Flow of Credit to Agriculture and Related Activities from the Banking System (Chairman: V.S. Vyas, RBI 2004). The Advisory Committee recommended that both public and private sector banks should increase direct advances to agriculture from 13.5 per cent to 18 per cent. The committee recommended an increase in the quantum of credit for marginal and small farmers at 40 per cent, apart from reducing the cost of agricultural credit.

Agricultural credit provided by SCBs is classified into two categories – direct finance which directly affects the agricultural production system and indirect finance, which is for agricultural input subsidy system such as financing distribution of fertilizers, pesticides and seeds. The flow of direct institutional credit to agriculture and allied activities increased sharply from Rs. 744 crores in 1970-71 to Rs. 9,829 crores in 1990-91 registering a growth rate of 7.6 per cent per annum.

However the economic reforms of 1990 gave a big push to the rural credit delivery system of the scheduled commercial banks. Today, farmers take more loans from scheduled commercial banks compared to any other agency depicting a fundamental change in the attitude among borrowing farmers.

Between 1998-1999 to 2008-2009, the agricultural credit provided by SCBs increased from Rs 18,443 crores to Rs 2,23,664 crores. The proportion of credit provided by SCBs in total agricultural credit increased from 50.03 per cent to

77.89 per cent (Trend and progress of banking in India, RBI 2008-09). The SCBs cater to the needs of farmers with a network of 30,633 rural branches as on June 2007.

REVIEW OF EARLIER STUDIES

In recent years research attempts were focused on analyzing the provision of agricultural credit by the SCBs. Hanumantha Rao (1994) analysed the growth and expansion of institutional credit, particularly through commercial banking. Kamalakannan and Namasivayam (2007), in their study on "Institutional agricultural credit in the post reform period", highlighted the fact that agricultural credit is one of the most crucial inputs in all agricultural development programmes and that after nationalization of commercial banks, banking sector in India has played an important role in providing assistance to agriculture and allied activities.

Gopakumar (2006) in the study on, "Changes in banking practices - current scenario" found that the credit to priority sector driven mainly by agriculture has almost doubled in the recent years.

Kataria and Chahal (2006) in the study on, "Performance of rural credit delivery system of scheduled commercial banks", brought out the fact that the scheduled commercial banks in India have been directed to meet a target of 18 per cent of net bank credit for direct lending to agriculture and in this regard efforts of banks should reorient their policies in order to surmount obstacles in the way of achievement of 18 per cent for the upliftment of rural India.

Naidu and Siva Sankar (2007) in the study on, "Factors influencing agricultural credit: A case study" noted the fact that large size farmers were benefitted more from institutional credit. The study revealed that the major proportion of total credit comes from institutional agencies and the role of scheduled commercial banks was quite creditable.

Vasudevalu and Rukmini Reddy (2007) briefly explored the flow of agricultural credit and viewed that institutional sources of credit is continuously increasing in the country and also found that the flow of agricultural credit by the scheduled commercial banks has increased tremendously when compared to the co-operatives and RRBs.

NEED FOR THE STUDY

The available literature reveals that large number of studies have been conducted on various aspects of institutional agricultural credit. However very few studies have identified the determinants of agricultural credit by scheduled commercial banks in the pre and post reform period. As such, the current study on "Determinants of Agricultural Credit by Scheduled Commercial Banks - A Comparative Study in the Pre and Post Reform Period" is expected to fill up this research gap.

OBJECTIVES OF THE STUDY

The current study is undertaken with the following objectives

- To analyse the trends in the provision of agricultural credit by scheduled commercial banks in India,
- To compare the provision of agricultural credit by SCBs between pre and post reform period and
- To identify the determinants of agricultural credit provided by SCBs during the pre and post reform period.

METHODOLOGY

Rationale for Selecting Scheduled Commercial Banks

The current study is related to the provision of agricultural credit by the SCBs due to the fact that the SCBs were a predominant source of institutional credit to the farmers. The share of SCBs in total institutional credit to agriculture has increased from 50.03 per cent in 1998-99 to 77.89 per cent in 2008-09, as evident from Table 1.

Table 1
Flow of Institutional Credit to Agriculture

Year	Co-operatives		Regional Rural Banks		Scheduled Commercial Banks		Total
	Amount (Rs. crores)	Per cent to total	Amount (Rs. crores)	Per cent to total	Amount (Rs. crores)	Per cent to total	Amount (Rs. crores)
1998-99	15957	43.29	2460	6.67	18443	50.03	36860
1999-00	18260	39.55	3172	6.87	24733	53.57	46165
2000-01	20718	39.28	4220	8.00	27807	52.72	52745
2001-02	23524	37.96	4854	7.83	33587	54.20	61965
2002-03	23636	34.02	6070	8.74	39774	57.24	69480
2003-04	26959	30.99	7581	8.72	52441	60.29	86981
2004-05	31231	24.96	12404	9.91	81481	65.12	125116
2005-06	39403	21.88	15223	8.45	125477	69.67	180103
2006-07	42480	18.52	20435	8.91	166486	72.57	229401
2007-08	48258	18.95	25312	9.94	181088	71.11	254658
2008-09	36762	12.80	26724	9.31	223663	77.89	287149

Source: RBI; Trend and progress of banking in India; 2009-10.

Period of the Study

The study was related to the period 1980-81 to 2006-07. The period 1980-81 is significant since it represents the third phase in the expansion of credit from institutional sources and it was characterized by growing overdues in respect of loan payment and loan write-offs resulting in non-viability and sickness of formal rural credit institutions. The year 2006-07 was chosen due to the fact that it is the latest year for which the required data were available.

Database of the Study

Data relating to amount of direct and indirect credit provided by the SCBs, aggregate deposits of SCBs, area under food crops, area under commercial crops, gross and net irrigated area, area under HYV seeds, quantity of fertilizer consumption, use of pesticides, quantity of food grains production and quantity of commercial crops production for the reference period were compiled from the following sources:

- Report on Trends and Progress of Banking in India – Reserve Bank of India, various issues.
- Statistics relating to banks in India – Indian Institute of Bankers, various issues.
- Agricultural statistics – Ministry of Agriculture, Government of India.

The monetary values of agricultural credit provided by SCBs were divided by Gross Domestic Product (GDP) deflator.

Hypothesis Formulated

The current study formulated the following hypothesis:

- There is no significant difference in the amount of agricultural credit provided by SCBs in pre and post reform period and
- There is no significant relation between provision of agricultural credit and net sown area, net irrigated area, area under high yielding varieties, consumption of fertilizer, consumption of pesticides, food grains production, commercial crop production, area under food crops, area under non food crops and deposits of commercial banks.

Quantitative Tools Used

Compound Growth Rate

Compound growth rate was calculated to find out the change in the provision of credit by SCBs in pre and post reforms period. The formula used as $r = \text{antilog}(\beta) - 1 * 100$, where 'r' is compound growth rate. For calculating compound growth rate, SPSS 16.0 was used.

T' test Analysis

To find out the whether there is any significant difference in the provision of agricultural credit by SCBs in pre and post reform period, the current study applied 't' test by using SPSS 16.0 version.

Step Wise Regression Analysis

The stepwise regression analysis was employed to analyse the determinants of agricultural credit disbursement by the scheduled commercial banks in the

pre and post reform period. In the stepwise regression analysis, the explanatory variables which had greater explanatory power were first selected. The variables which had less explanatory power and collineared were excluded from the analysis.

In the next step, the variable which had next best explanatory variable was absorbed in the analysis. In the present study, the variables such as net sown area, net irrigated area, area under high yielding varieties, consumption of fertilizer, consumption of pesticides, food grains production, commercial crops production, area under food crops, area under non food crops and deposits of commercial banks were put in to the stepwise regression analysis. The form of the regression equation used in the study was

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10}$$

where,

- Y = Credit provided by SCBs (Rs. in crores)
- X1 = Net sown area (in million hectares)
- X2 = Net irrigated area (in million hectares)
- X3 = Area under high yielding varieties (in million hectares)
- X4 = Consumption of fertilizer (in million tonnes)
- X5 = Consumption of pesticides (in million tonnes)
- X6 = Food grains production (in million tonnes)
- X7 = Commercial crops production (in million tonnes)
- X8 = Area under food crops (in million hectares)
- X9 = Area under non food crops (in million hectares)
- X10 = Deposits (in crores of rupees).

The above equation was estimated for direct and indirect agricultural credit provided by the commercial banks in the pre and post reform period separately. SPSS 16.0 version was used to estimate the regression model.

FINDINGS OF THE STUDY

Trends in the Provision of Agricultural Credit by the SCBs

The introduction of institutional credit in India was viewed as a protective measure to save the farmers from the grip of moneylenders. The importance of institutional credit has been increasingly felt with the passage of time for the development process. After nationalization, commercial banks played a crucial role in providing credit to the agricultural sector. Table 2 and 3 depicts the trend in the provision of agricultural credit by the SCBs.

Table 2
Trend in the Provision of Agricultural Credit by SCBs in the Pre Reform Period

Year	Direct credit				Indirect credit				Total credit	
	Amount at current prices (Rs. Crores)	Per cent to total credit	Amount to constant prices (Rs. Crores)	Per cent to total credit	Amount at current prices (Rs. Crores)	Per cent to total credit	Amount at constant prices (Rs. Crores)	Per cent to total credit	Amount at current prices (Rs. Crores)	Amount at constant prices (Rs. Crores)
1980-81	517	100	25.04	100	0	0	0	0	517	25.04
1981-82	623	100	27.22	100	0	0	0	0	623	27.22
1982-83	565	100	22.75	100	0	0	0	0	565	22.75
1983-84	872	100	32.37	100	0	0	0	0	872	32.37
1984-85	1035	100	35.57	100	0	0	0	0	1035	35.57
1985-86	1252	100	40.10	100	0	0	0	0	1252	40.10
1986-87	1482	100	44.42	100	0	0	0	0	1482	44.42
1987-88	1672	86.27	45.77	86.3	266	13.73	7.28	13.73	1938	53.05
1988-89	1765	90.10	44.59	90.1	194	9.90	4.90	9.90	1959	49.49
1989-90	1898	90.17	44.18	90.2	207	9.83	4.81	9.83	2105	48.99
1990-91	2048	91.10	43.09	91.1	200	8.90	4.21	8.90	2248	47.29

Source: Compiled from Report on trend and progress of banking in India, RBI.

In the pre reform period the direct agricultural credit provided by the scheduled commercial banks at current prices had increased from Rs. 517 crores in 1980-81 to Rs. 2048 crores in 1990-1991. Till the year 1986 - 1987, the scheduled commercial banks did not provide any indirect agricultural credit. Hence, the share of direct agricultural credit at current prices was almost 100 per cent in that period. From 1987 - 1988 onwards, the share of indirect agricultural credit ranged between 8.90 per cent and 13.73 per cent.

The direct agricultural credit provided by the scheduled commercial banks at constant prices had shown an increasing trend with fluctuation. In the pre reform period, from 1987 - 1988 onwards, the percentage share of direct agricultural credit ranged between 86.27 per cent to 91.10 per cent at constant prices.

The above facts revealed that the share of direct agricultural credit was higher than indirect agricultural credit both at current and constant prices. Hence in the pre reform period, the scheduled commercial banks did not give much attention towards indirect agricultural credit.

In the post reform period the share of direct agricultural credit at both current and constant prices had declined. But the share of indirect agricultural advances had raised. This implies that the post reform period, the direct attention towards agricultural sector was neglected.

Table 3
Trends in the Provision of Agricultural Credit by SCBs in the Post Reform Period

Year	Direct credit				Indirect credit				Total credit	
	Amount at current prices (Rs. Crores)	Per cent to total credit	Amount to constant prices (Rs. Crores)	Per cent to total credit	Amount at current prices (Rs. Crores)	Per cent to total credit	Amount at constant prices (Rs. Crores)	Per cent to total credit	Amount at current prices (Rs. Crores)	Amount at constant prices (Rs. Crores)
1991-92	2341	92.20	43.30	92.2	198	7.80	3.66	7.80	2539	46.97
1992-93	2432	93.90	41.32	93.9	158	6.10	2.68	6.10	2590	44.01
1993-94	2860	89.60	44.18	89.6	332	10.40	5.13	10.40	3192	49.31
1994-95	3842	86.82	54.07	86.8	583	13.18	8.20	13.18	4425	62.27
1995-96	4628	81.71	59.68	81.7	1036	18.29	13.36	18.29	5664	73.04
1996-97	5625	81.57	67.30	81.6	1271	18.43	15.21	18.43	6896	82.51
1997-98	6233	76.60	69.95	76.6	1904	23.40	21.37	23.40	8137	91.31
1998-99	7742	79.49	80.41	79.5	1997	20.51	20.74	20.51	9739	101.15
1999-00	9505	73.48	95.05	73.5	3431	26.52	34.31	26.52	12936	129.36
2000-01	10704	72.96	103.66	73.0	3967	27.04	38.42	27.04	14671	142.08
2001-02	12661	61.31	119.06	61.3	7990	38.69	75.13	38.69	20651	194.19
2002-03	16825	72.88	152.39	72.9	6261	27.12	56.71	27.12	23086	209.10
2003-04	24134	72.98	211.35	73.0	8936	27.02	78.25	27.02	33070	289.60
2004-05	29978	57.98	248.85	58.0	21728	42.02	180.36	42.02	51706	429.21
2005-06	45644	62.19	363.79	62.2	27751	37.81	221.18	37.81	73395	584.97
2006-07	65245	62.73	495.65	62.7	38766	37.27	294.49	37.27	104011	790.15

Source: Compiled from Report on trend and progress of banking in India, RBI

More over, due to non repayment and over dues problems, the banks preferred indirect advances than the direct advances. In 2006 – 2007, the percentage share of indirect agricultural credit provided by scheduled commercial banks had reached 37.27 per cent at current price and constant prices

The study tried to find out whether there is significant difference in the provision of agricultural credit by SCBs in the pre and post reform period by using 't' test. The results of 't' test are shown in Table 4.

Table 4
Estimated 'T' Value to Find Out the Significant Difference in the Provision of Agricultural Credit by SCBs in the Pre and Post Reform Period

Variables	T values	Standard Error
Direct credit	2.629 **	2.6157
Indirect credit	2.433*	0.83704
Total credit	2.562*	3.24674

* Statistically significant at five per cent level

** Statistically significant at one per cent level

Table 4 shows that there was significant difference in the provision of direct credit, indirect agricultural credit and the total agricultural credit provided by the scheduled commercial banks between pre and post reform periods. The credit disbursed by the commercial banks was significantly higher in the post reform period when compared with the pre reform period.

Comparative Analysis of the Growth Rate of Agricultural Credit by the SCBs in Pre and Post Reform Period

The estimated compound growth rate of agricultural credit by the SCBs during the pre and post reform period is presented in Table 5.

Table 5
Estimated Compound Growth Rate of Agricultural Credit by SCBs in Pre and Post Reform Period

Period	Direct credit	Indirect credit	Total agricultural credit
Pre reform period	7.1 (83.45**)	-15.3 (-3.07*)	8.6 (82.01 **)
Post reform period	17.0 (93.66**)	34.8 (79.53**)	20.5 (94.67**)

Figures in paranthesis indicate 't' values

* Statistically Significant at 5 per cent level

** Statistically Significant at 1 per cent level.

A shift in the composition of agricultural credit by the SCBs is reflected by the growth rates. The growth rate of direct credit was considerably higher (17 per cent) during the post reform period than the pre reform period (7.1 per cent). The growth rate of indirect credit registered in the post reform period was 34.8 per cent. This might be due to the fact that in the pre reform period the SCBs did not provide indirect credit till 1986-87. In the pre reform period the compound growth rate for indirect agricultural credit was negative.

In the pre-reform period the estimated growth rate of total agricultural credit by SCBs was 8.6 per cent, while in the post-reform period, it was 20.5 per cent.

Identification of the Determinants of the Provision of Agricultural Credit by the Scheduled Commercial Banks in the Pre and Post Reform Period

The economic reforms of 1991 was expected to have favorable effect on the distribution of agricultural credit by the scheduled commercial banks. Hence the determinants of the flow of agricultural credit were also assumed to vary between pre and post reform periods. Flow of agricultural credit by scheduled commercial banks is influenced by many factors like, net sown area, net irrigated area, area under high yielding varieties, consumption of fertilizers, consumption of pesticides, food grains production, commercial crops production, area under food crops, area under non food crops and deposits of commercial banks. To identify the determinants of the flow of agricultural credit, stepwise regression analysis was employed.

In the stepwise regression analysis the variables such as net sown area, net irrigated area, area under high yielding varieties, consumption of fertilizers, consumption of pesticides, food grains production, commercial crops production, area under food crops, area under non food crops and deposits of commercial banks were put into the analysis. But only the deposits and area under high yielding varieties were retained in the stepwise process. Remaining variables were excluded from the analysis. The results of stepwise regression analysis for the retained variables are shown in Table 6 and 7.

Table 6
Estimated Stepwise Regression Coefficients of Agricultural Credit by SCBs in the Pre Reform Period

Type of credit	Variables	Co efficient	Standard error	T value
Direct credit	Constant	9.360	5.037	1.858
	Deposits	0.010	0.002	5.642**
	R2	0.780		
	Adjusted R square	.755		
	F value	31.835**	2.210	.030*
Indirect credit	Constant	-5.691	.001	.006*
	Deposits	.003		
	R2Adjusted	.586		
	R square	.540		
	F value	12.731*		

* Statistically significant at 5 per cent level

** Statistically significant at 1 per cent level

Table 7
Estimated Stepwise Regression Coefficients of Agricultural Credit by SCBs in the Post Reform Period

Type of credit	Variables	Co efficient	Stand error	T value
Direct credit	Constant	-199.000	32.741	-6.078**
	Deposits	.033	.002	13.461**
	HYV	.988	.309	3.194*
	R2Adjusted	.961		
	R square	27.44		
	F value	161.693**		
Indirect credit	Constant	-97.731	16.389	-5.963**
	Deposit	.018	.002	11.182**
	R2	.899		
	Adjusted R square	.892		
	F value	125.045**		

* Statistically significant at 5 per cent level

** Statistically significant at 1 per cent level

In the pre reform period, the amount of deposits alone was statistically significant and it had positive relationship with the direct agricultural advances. As such the increase in the amount of deposits would increase the distribution

of direct agricultural credit in the pre reform period. Similarly, indirect advance was significantly influenced by the deposits. Hence, in nutshell, in the pre reform period, the bank related factor - amount of deposits determined the distribution of both direct and indirect agricultural advance.

But in the post reform period, along with the amount of deposits, the area under high yielding varieties was also statistically significant. It had positive relationship with the distribution of direct agricultural credit. The increase in the area under high yielding variety had increased the direct distribution of agricultural credit in the post reform period. However, bank related factor - deposits factor alone emerged as a significant factor to determine the distribution of indirect agricultural advances. All the estimated models for both pre and post reform periods hold good as indicated by the significant R^2 value and 'F' value.

In both pre and post reform period the deposits of commercial banks alone emerged as a significant factor of determining indirect agricultural credit. It had positive relationship with the distribution of indirect agricultural credit.

CONCLUSION

To conclude, in the pre reform period, the scheduled commercial banks did not give much attention towards indirect agricultural credit. In the pre reform period, the bank related factor amount of deposits' determined the distribution of both direct and indirect agricultural credit. In the post reform period, along with the amount of deposits, the area under high yielding variety seeds increased the distribution of direct agricultural advances.

POLICY RECOMMENDATIONS

1. After the banks nationalisation, though many rural branches are opened, all the farmers are not able to get adequate credit and there is further scope for raising deposits. One measure to mobilize deposits and to fulfill the credit needs of the farmers is opening of ATM centre in the rural areas.
2. In the post reform period, the direct advance was neglected and importance was given towards indirect agricultural credit. To increase the direct agricultural advances, the commercial banks should be strictly regulated to follow the percentage of net bank credit towards direct agricultural advances.
3. The area under high yielding variety seeds could contribute much towards the distribution of direct agricultural advances and also agricultural production. Hence, proper extension services should be made to increase the area under high yielding variety seeds.

References

Economic Survey, Government of India Publication, New Delhi, 2008-09.

- Gopakumar (2006), "Changes in Banking Practices – Current Scenario", *Southern Economist*, Vol. 45, No. 14, pp. 15-17.
- Hair F. Joseph, Anderson E. Rolph, Tatham L. Ronald, Black C. William (2003), "Multivariate Data Analysis", V Edition, Pearson Education Publishers, New Delhi, pp. 196-197.
- Handbook of Statistics on Indian Economy, Reserve Bank of India, 2008-09.
- Hanumantha Rao C.H. (1994), Policy Issues Relating to Irrigation and Rural Credit in. G. S. Bhalla, (ed), "Economic Liberalization and Indian Agriculture", Institute for Studies in Industrial Development, pp. 287-307.
- Kamalakannan and Namasivayam (2007), "Institutional Agricultural Credit in Post Reform Period", *Southern Economist*, Vol. 46. No. 2, pp. 13-16.
- Kataria and Chahal (2006), "Performance of Rural Credit Delivery System of Scheduled Commercial Banks: A Study", *Southern Economist*, Vol. 45, No. 11, pp. 9-11.
- Kumar Anjani, Singh K. Dhiraj & Kumar Prabhat (2007), "Performance of Rural Credit and Factors Affecting the Choice of Credit Sources", *Indian Journal of Agricultural Economics*, Vol. 62, No. 3, pp. 297-313.
- Report on Trend and Progress of Banking in India, Various Issues.
- Singh Balwinder (2000), "Agricultural Credit – Sources, Problems and Emerging Issues", Deep & Deep Publications, New Delhi.
- Singh Sultan (2007), "Banking Sector Reforms in India", Kanishka Publishers, New Delhi.
- Vasudevalu and Rukmini Reddy (2007), "Agricultural Credit in India–An Analysis", *Southern Economist*, Vol. 45, No. 20, pp. 11-14.
- Vyas V.S. (2004), "Report of the Advisory Committee on Flow of Credit to Agriculture and Related Activities from the Banking System", Reserve Bank of India.