An Assessment of Flow of Institutional Credit towards Agriculture in India

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ABSTRACT

This research is a modest attempt to analyze the performance and inequality in the flow of institutional credit to agricultural in India. The study was based on the secondary data compiled from diverse sources for the period 2001-2013 which was conducted during 2013 which. The data has been analysed using ratios, proportions, compound annual Growth rate and Gini coefficient to meet the objectives set out in the study. The results revealed that, the targeted credit flow to the agriculture has shown an increasing trend over the years, meanwhile the actual flow has also shown an increasing trend during the same period. Thus, it reflects in the more than 100 percent of achievement in the credit flow towards agriculture in India. The regional wise analysis reveals that the share of southern region was the highest with 37 per cent of the total credit flow towards agriculture followed by northern, central and western regions, whereas the share of north-eastern region was lowest with 0.32 per cent during the period of 2003 to 13. The study found that the Gini Coefficient (index) was 0.146 (14.6 %) imparting the inequality in the distribution of credit across the region in India was up to 14.56 per cent during the periods from 2003 to 2013. The results showed that the region with higher agricultural development and state domestic product had the greatest amount of the agricultural credit distribution.

The development of agriculture sector is an important key factor in India as it is an agrarian economy. About 70 per cent of the farmers in India are dependent on agriculture for their livelihood. It has been observed that the required growth of productivity in agriculture means that more capital must be invested in it. Farmers need much more capital than they can afford to save because small and marginal farmers were required higher input of capital as their savings are meagre. Credit is a condition that enables a person to extend his or her control over ownership of resources. The Indian agriculture is not only capital starved, but also faces vagaries of nature. Since, farmers expend sizeable part of their resources on purchased inputs; farmers have to take recourse to credit to a much larger extent than in the past for purchase of inputs. Credit is an important input for the development of agriculture. Hence, institutional credit playing a very important role in the development of agricultural sector as a result of credit; Indian agriculture developed over time and showed all signs of resilience to natural shocks like droughts and famines.

Flow of institutional credit in India began with the Government lending to the farmer through the land improvement loan act of 1883 and Agricultural Loan Act of 1884. However, more formal and permanent institutional credit to the agriculture began with enactment of Co operative Societies act of 1904. Though Cooperative Act came in 1904, till 1950s the progress in terms of outreach by cooperatives was limited. The All India Rural Credit Committee recommended that co operative societies as the suitable credit lending agency to village after observing the satisfactory means of financing to agriculture as sound line. This marked (registered) the beginning of the institutional credit to the farmer in India.

The government shifted from the single agency approach to the multi agency approach During 1969, with involving of commercial banks as the dominating agency in lending to the farmer. Commercial banks were used to lending only to the urban sector, only after nationalization of banks, they have started to lend towards the rural sector in particular to the priority sector. Subsequently, Regional Rural Banks established during the year 1975 to focus special attention on the small and marginal farmer, agricultural labourers and rural artisans. Presently, there are only three institutional agencies which are lending credit to the agricultural

sector, namely, Regional Rural Banks, Co operative banks and Commercial banks. These institutional agencies are providing the credit to the farmer based on the credit worthiness of the purpose and expectation on income generation.

The progress of flow of institutional credit to agriculture in India has depended mainly on the Government intervention i.e. package of incentives and policy measures, which the NABARD and the Centre formulate and implement. The institutional credit has witnessed a huge growth in the recent years. The share of institutional agencies in the borrowings of cultivator households increased from mere 7.3 per cent in 1951 to 66.7 per cent in 2012. However, despite such a growth, the credit flow by institution to the rural and agricultural sectors remains dismal, which, more or less, resulted in financial exclusion of the rural masses. The rural and agricultural sectors have to play a very important role to meet the target GDP growth per annum as envisioned in the five year plans. The agricultural credit policies and the economic reform in general aim to have positive influence on the total volume of institutional credit. However, the rural banking system in India made tremendous quantitative achievement by neglecting the qualitative aspects of the credit delivery system (Shivamaggi, 2000). Besides, growth of credit flow the inequalities in the banking system across the regions still persisted (Bell, 1990). Elsewhere, it is also argued that the regions in India that are economically relatively backward have less access to institutional credit than those which are not (Reddy and Laxminarayana, 1997). In view of the above aspects the present study was taken up to analyze the Flow of Institutional Credit towards Agriculture in India.

MATERIAL AND METHODS

The study was based on the secondary data compiled from diverse sources. The data on gross cropped area (GCA) and agricultural gross domestic product (AgGDP) were culled from the Agricultural Statistics at a Glance, published by the Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India (GOI.). The secondary data on credit flow and region wise distribution of agricultural credit were collected from Handbook of Indian economy (2013), Reserve Bank of India, Bombay and Indiastat

website. The regional disparity in the distribution of agricultural credit was analyzed based on the region wise data. The analysis was carried out by taking the data pertaining to the year 2001 to 2013.

Analytical Techniques

The share of agricultural credit in agricultural GDP (Ag.GDP) and overall GDP, share of different agencies in the institutional flow and the credit per unit of GCA was examined to assess the overall performance of institutional agricultural credit flow.

Compound Growth Rate

Growth rates have been estimated using an exponential function through OLS method after transforming original data into semi-log specification. The form of the exponential is as follows

$Y_t = Ae^{rt}$ - 1

Where,

Y_t is the credit flow at the time t

r indicates the instantaneous growth

t refers to the time period

Gini Coefficient:

Gini Co-efficient has been employed in order to analyze the inequality in the distribution of credit across the different region. The Gini coefficient is based on the Lorenz curve, a cumulative frequency curve that compares the distribution of a specific variable with the uniform distribution that represents equality. The Gini Coefficient ranges from 0 to 1, 0 representing perfect equality and 1 total inequality (total concentration). Although the level of inequalities is reflected in the value of the Gini coefficient itself, the interpretation of the coefficient is usually done in comparative terms, i.e., coefficient of 0.2 will represent a lower level of inequality than a coefficient of 0.4. The Gini coefficient can be calculated as follows.

$$G = 1 - \sum_{i=0}^{N} (\sigma Y_{i-1} + \sigma Y_i)(\sigma X_{i-1} - \sigma X_i) - - - - 2$$

Where,

G indicates the Gini co efficient

Y indicates the actual distribution,

X indicates the equality in the distribution

i refers to the number of regions

Table 1. Target and Achieving of Agriculture Credit (in crore or per cent).

Year	Targeted	Achieved	% achieved
2003-04	80000	86981	108.7
2004-05	104608	125309	119.7
2005-06	141000	180486	128.0
2006-07	175000	229400	131.0
2007-08	225000	243569	108.2
2008-09	280000	541793	193.4
2009-10	325000	384741	118.3
2010-11	375000	426531	113.7
2011-12	475000	511029	107.5
2012-13*	575000	439228	76.3

Source: www.agrico.nic.in Note: * indicates up to Jan 2013

Table 2. Agency-wise Credit Flow to Agriculture in India (in crore).

YEAR	Co-operative bank		RRB		Commercial Bank		Total
2000-01	20801	(39.38)	4219	(7.99)	27807	(52.64)	52827
2001-02	23604	(38.04)	4854	(7.82)	33587	(54.13)	62045
2002-03	23716	(34.09)	6070	(8.73)	39774	(57.18)	69560
2003-04	26959	(30.99)	7581	(8.72)	52441	(60.29)	86981
2004-05	31424	(25.08)	12404	(9.90)	81481	(65.02)	125309
2005-06	39404	(21.83)	15223	(8.43)	125859	(69.73)	180486
2006-07	42480	(18.52)	20435	(8.91)	166485	(72.57)	229400
2007-08	43684	(17.93)	24814	(10.19)	175072	(71.88)	243570
2008-09	36762	(12.80)	26724	(9.31)	223663	(77.89)	287149
2009-10	63492	(16.51)	35218	(9.16)	285799	(74.33)	384514
2010-11	78121	(16.68)	44293	(9.45)	345877	(73.85)	468291
2011-12	87963	(17.21)	54450	(10.65)	368616	(72.13)	511029
2012-13*	11203	(2.20)	63681	(12.55)	432491	(85.24)	507375
CAGR	7.81%		23.03%		25.69%		20.73%

Source: www.indiastat.com
Note: Figures in the parenthesis indicates the share in percentage, * indicates up to Jan 2013

RESULTS AND DISCUSSION
Extent of achievement in the Flow of Institutional Credit:

Agricultural credit flow has started depicting growth after the nationalization of banks and it has been growing continuously since then. The Government has been providing crop loan at concessional interest rates since 2006-07. The government has started providing interest subvention by 3 per cent during the financial year 2011-12, thus bringing down the effective rate of interest to 4 per cent per annum. This interest subvention is provided to those farmers who repay their short term crop loans on time. In 2009-10 the subvention rate for timely repayment of crop loans was 1 per cent which was raised to 2 per cent in 2010-11 and further to 3 per cent in 2011-2012.

In this study, an attempt has been made to review the credit flow to agriculture against their planned programme and actual achievements. The results are presented in Table 1. The annual plan of allocation of credit for the agriculture sector has aggregated Rs.80000 crore during 2003-04. It was steadily increased to Rs. 225000 crore during 2007-

08 and further increased to Rs. 575000 crore during 2012-13. Thus, during the 10-year period, 2003-04 to 2012-13 the targeted credit has increased almost more than 7 times. The credit disbursements also increased at the matching pace. The achievement increased from Rs. 86981 crore during 2003-04 to Rs. 439228 crore during 2012-13.

During the 10-year reference period (2003-2013), in every year the target was achieved. The rate of achievement was 108 per cent during 2003-04 and it was the highest in 2008-09 with 193 per cent. The average percentage of target achievement in the credit flow was around 125 per cent during the period from 2003 to13. Over the years, the targeted credit flow to the agriculture has been increasing in one hand and on the other hand actual flow has also shown increasing trend during the same period. This has reflected in more than 100 per cent of achievement in the credit flow to the agriculture. The achievement of the targeted credit might have been influenced by many factors such as market demand for credit during the reference year, incentives extended, initiatives made by the credit agencies and the pattern of allocation of the credit targets. These results are in corroborating with the results of Anjani *et al*., 2010.

Trends in the Flow of Intuitional Credit to Agriculture:

To overview the trend and performance of institutional credit, share of agricultural credit in the Agriculture GDP, Share of different agencies in the institutional credit flow, availability of loan per hectare and compound annual growth rate have been used. In India a multi-agency approach comprising co-operative banks, scheduled commercial banks and RRBs has been followed for purveying credit to agricultural sector. The policy of agricultural credit is guided mainly by the considerations of ensuring adequate and timely availability of credit at reasonable rates through the expansion of institutional framework, its outreach and scale as also by way of directed lending. Over time, spectacular progress has been achieved in terms of the scale and outreach of institutional framework for agricultural credit.

The flow of institutional credit to agriculture and allied activities has greatly helped the farmers who have no resources on their own. Table 2 gives the flow of institutional credit to the agriculture from

2000 to 2013. Institutional credit flow to agriculture increased manifold over time. The flow of credit to agriculture in nominal terms increased from Rs.52827 crore in 2000-01 to Rs.507375 crore in 2012-13 i.e. over 10 times. The flow of credit from Commercial Banks has been increased from Rs.27807 crore in 2000-2001 to Rs. 432491 crore in 2012-13 as against from Rs. 20801 crores to 11203 crores by Co operative bank during the same period. Commercial banks and RRBs together extended credit to 77.49 lakh new farmers during 2009-10 and cooperative banks to 13.43 lakh, thus taking the total number of farmers brought newly under the banking system to 90.62 lakh.

Table 2 also gives linear trend in share of different agencies involved in the credit flow during the period 2000-13. The estimates showed that between period of 2000-01 and 20012-13, co-operative banks lost their share in flow of credit by 1.83 percentage point every year whereas, RRB's marginally gains the share by 0.35 per cent every year. On the other hand commercial banks gain their share substantially i.e., 2.8 per cent point annually. Finally, share of commercial bank to the agricultural credit was highest with the 68.32 per cent on average base for the ten years, whereas co operative bank and RRB had the share of 21.17 per cent and 10.51 per cent, respectively.

Compound Annual Growth Rate: The compound annual growth rates were used to estimate institutional credit and the agencies growth rate and results are presented in the Table 3. Agricultural credit which was on a declining trend during 1990-2000 has picked up in early 2000s and continued till 2006-07, but it was again showing a declining trend in the recent years. 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. The average agricultural credit flow from SCBs has registered an annual growth rate of 25.69 per cent during the period of 2001 to 2013. The credit flow from RRBs has grown at an annual growth rate of 23.03 per cent during the same period. The lowest growth was registered by the co-operative banks i.e., 7.81 per cent per annum. The growth of agricultural credit was high i. e, 44 per cent between 2005 and 2006; this was due to the implementation of credit

package i. e, doubling of credit within 3 year of implementation.

The estimated growth models the total institutional agricultural credit and the agencies involved in the flow credit to the agriculture for the period of 2001 to 2013 are as follows.

Estimated growth equation of the total institutional credit:

$$Y=46377+0.20(t) \text{-- - - - - - - - - - - - - - - 3}$$

Estimated regression equation of the RRBs

$$Y=3714+0.23(t)\text{- 4}$$

Estimated regression equation of the Co-operative Bank

$$Y=20020+0.078(t)\text{- - - - - - - - - - - - - - - - - - 5}$$

Estimated regression equation of the Commercial Bank

$$Y=23986+0.25(t)\text{- - - - - - - - - - - - - - - - - - - 6}$$

Where,

Y= Natural logarithm of Credit

Co- efficient 't' indicates the instantaneous growth

Disparity in the Flow of Institutional Credit: In addition to the growth of credit flow, its distribution across different regions has been of concern to academicians and policy makers all along. Table 4 gives the flow of institutional credit across the different regions from 2003 to 2013. There are wide variations in the flow of institutional credit across different zones. The region wise analysis reveals that, the share of southern region was highest with 37 per cent of the total credit followed by northern, central and western regions, whereas the share of the north-eastern region was lowest with the 0.32 per cent during the period of 2003-13 (Table 6). It was as high as Rs.89125 cores in the southern region, 73879 careers in Northern region and Rs. 21256 crores in central regions, while it was as low as Rs. 314 crores in North Eastern region during 2012 to 2013 (Table 4).

The accessibility to institutional credit was higher in the Southern region where the level of agricultural development is also higher. Similar results were reported in the studies conducted earlier during the 1980s (Rao, 1994). It is kind of vicious cycle operating in less developed States. Less availability of credit influences adversely the adoption of modern technology and private capital investments, which in turn lowers the productive capacity of the agricultural sector and results in lower productivity and production. Consequently, the demand for agricultural credit for short and long-term purposes is dampened. These findings are in confirmity with the results of the study conducted by Ramesh (2007) and Gandhimathi *et al.* (2012).

The regional disparity in the distribution of agricultural credit among the different zones was calculated using the Gini inequality index. Table 5, gives the computation technique and the result of Gini co-efficient. The higher the index imparts the higher disparity in the distribution of credit across regions. It was found that the Gini coefficient (index) was 0.146 (14.6 %) imparting the inequality in the distribution of credit across the region in India was up to 14.56 per cent during the periods of 2003 to 2013.

Performance of Agricultural Credit: The share of agricultural credit in total credit falling in the recent years despite there is significant growth in the flow of agricultural credit. This can be 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 share of agricultural credit in the agricultural GDP, share of agricultural credit in the overall GDP, trends in credit per hectare of net sown area and the return per hectare of net sown area. The performance of agricultural credit in terms of these indicators seems to be noteworthy (Table 6).

The ratio of Agricultural credit to the Agricultural GDP connotes the amount of loan availability per unit of agricultural GDP in the same way availability of amount of credit per unit of total GDP is dictated by the ratio of Agriculture credit to total GDP. Interestingly, the share of agricultural credit as a proportion of Agriculture GDP has been rising continuously since 2001 up to 2012. It was only about 13.11 per cent in 2001-02 and which was rose to 69.55 per cent in 2011-12. The agricultural credit as a proportion of total GDP increased during 2001 to 2010. It was accounted for about 2.96 per cent of GDP in 2000-01 and has increased to 9.59 percent of GDP during 2010-11. The ratio of Agricultural credit to Agricultural GDP

Table 3. Compound Annual Growth Rate of institutional Credit to Agriculture (Per cent).

YEAR	Co-operative bank	RRB	Commercial Bank	Total
2001-2013	7.81	23.03	25.69	20.73

Source: www.indiastat.com

Table 4. Region -wise Ground Level Credit (GLC) Disbursements under Agriculture and Allied Activities in India (Crore).

REGION	2003-04	2004-05	2005-06	2007-08	2008-09	2009-10	2010-2011	2011-12	2012-13
Northern	21819	32125	50448	68280	84343	68918	58220	67586	73879
N. Eastern	300	407	936	958	1514	274	266	365	314
Eastern	5047	7238	12216	17822	22398	6686	10405	14525	15231
Central	12487	17142	23134	33820	38295	17050	19297	19063	21256
Western	10122	14111	26178	37251	42251	13530	12544	11586	14562
Southern	26137	36819	63463	95835	112343	25500	78114	75214	89125

Source: Hand Book of Indian Economy (2013)

Table 5. Estimation of Gini Coefficient.

Region	Credit (Y)	Equality (x)	αX	αY	$\alpha X_{i-1} - \alpha X_i$ (B)	$\alpha Y_{i-1} + \alpha Y_i$ (A)	A*B
Northern	0.283	0.167	0.167	0.283	0.167	0.283	0.047
N. Eastern	0.005	0.167	0.333	0.287	0.167	0.570	0.095
Eastern	0.071	0.167	0.500	0.359	0.167	0.646	0.108
Central	0.141	0.167	0.666	0.500	0.167	0.858	0.143
Western	0.142	0.167	0.833	0.641	0.167	1.141	0.190
Southern	0.358	0.167	1.000	1.000	0.167	1.641	0.273

Sum 0.85639   Gini co-efficient= 0.146 (14.56 %)

Table 6. Ratio of Agricultural Credit to Agricultural GDP and Total GDP (Crore/Per cent).

YEAR	Agr. credit (crore)	Agr. GDP (crore)	Total GDP (crore)	Agr. Credit/Agr. GDP (per cent)	Agr. Credit/Total GDP (per cent)
2001-02	62045	473249	2097726	13.11	2.96
2002-03	69560	438966	2261415	15.85	3.08
2003-04	86981	482676	2538170	18.02	3.43
2004-05	125309	482910	2877701	25.95	4.35
2005-06	180486	594487	3389621	30.36	5.32
2006-07	229400	619190	3952241	37.05	5.80
2007-08	243570	655080	4581422	37.18	5.32
2008-09	287149	654118	5282086	43.90	5.44
2009-10	384514	656975	6133230	58.53	6.27
2010-11	468291	700390	7306990	66.86	9.59
2011-12	511029	734782	8276665	69.55	8.88
2012-13	507375	786737	9461013	64.49	8.32

Source: www.indiastat.com and www.agrico.nic.in

and Credit to total GDP were highest during the period of 2011-12 and 2010-11 i.e, 69.55 % and 9.59% respectively. Similar results were found by the study conducted by Anjani *et al.*, 2010.

Availability of Loan per Hectare: The agricultural credit per hectare of gross cropped area has shown an increasing trend with a tremendous rise in recent years (Table 7). It has increased from Rs 2850 in 2000-01 to Rs 33134 in 2012-13. About twelve-fold increment has been registered in agricultural credit in real terms during the period 2000 to 2013. Similarly, return per hectare of gross cropped area has shown an increasing trend wherein it was only Rs. 24412 during 2000-01 jumped to Rs 51378 during 2012-13. The availability of credit and return were highest with a Rs. 33134/ ha and Rs. 51378/ ha during 2012-13.

       One of the vital indicators to assess the performance of credit is the ratio of credit to the return, it indicates the amount of credit required to get the one unit of return, adding to this ratio has been increasing over the periods of 2000 to 2012 with a highest ratio of 0.70 during the year of 2011-12. These ratios indirectly indicate the efficacy of the credit that is as the ratio increases and decreases the efficacy of the credit is decreasing and increasing respectively. Hence, there is an inverse relationship between the ratio and the efficacy of the credit.

CONCLUSION

Analysis of performance of agricultural credit in India reveals that, though overall flow of credit increases over the year, there are several gaps in the system such as, inadequate supply of credit and inequality in the flow of credit. The competition and search for higher returns has made commercial banks to explore profitable avenues and activities for lending such as financing of contract farming, extending credit to the value chain, financing traders and other intermediaries, which needs to be encouraged. The co-operative credit structure needs to be revamped to improve the efficiency of the credit delivery system in rural areas. Merging and revamping of RRBs that are predominantly located in tribal/backward regions which acts as a potentially significant institutional arrangement for financing the hitherto unreached population. The region wise analysis reveals that the share of southern region was highest with 37 per cent to the total credit followed by northern, central and western regions, whereas the share of the north-eastern region was lowest with the 0.32 per cent. It shows that the region with higher agricultural development and state domestic product had greater amount of agricultural credit distribution.

       To conclude, an assessment of agriculture credit situation brings out the fact that the credit delivery to the agriculture sector continues to be inadequate and it appears that the banking system is still hesitating on various grounds to provide credit to farmers. The situation calls for concerned efforts

Table 7. Availability of Loan, Return Obtained and the credit to return ratio per hectare (in crores).

Year	Loan /ha	Return/ Ha	Credit –Return ratio
2000-01	2850	24412	0.11
2001-02	3295	25134	0.13
2002-03	3962	25001	0.15
2003-04	4576	25393	0.18
2004-05	6542	25211	0.25
2005-06	9349	30794	0.30
2006-07	11872	32044	0.37
2007-08	12438	33451	0.37
2008-09	14634	33336	0.43
2009-10	19635	33548	0.58
2010-11	30441	45529	0.67
2011-12	32888	47288	0.70
2012-13	33134	51378	0.64

Source: www.agrico.nic.in

to augment the flow of credit to agriculture, alongside exploring new innovations in product design and methods of delivery, through better use of technology and related processes. Efforts are needed to augment the flow of credit to the agriculture as it has a pivotal role in the development as well as well being of the farming community.

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