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An Analysis of Institutional Credit, Agricultural Policy and Investment to Agriculture in India

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Abstract

Credit is an essential factor to determine the production and productivity in agriculture. For providing credit in India both Institutional sectors (Cooperative Banks, Commercial Banks and Regional Rural Banks) and non- Institutional sectors like money lenders, traders, landlords and relatives play significant. In order to increase the flow of credit the government of India introduced agriculture policy in 2004 to multiple credit to the farmers. At the same time, the role of both private and public sectors also contributes for agriculture in India. The cob-douglas production was used to determine the impact of institutional credit to agriculture GDP. In the cobb- douglas production function with agricultural GDP as dependent variable and institutional credit, net irrigated area, consumption of pesticide and consumption of fertilizer are independent variables. It was found that both institutional credit and net irrigated area had significant variables and other two variables are not significant.

Keywords : Institutions, Credit, Policy, Investment

Introduction

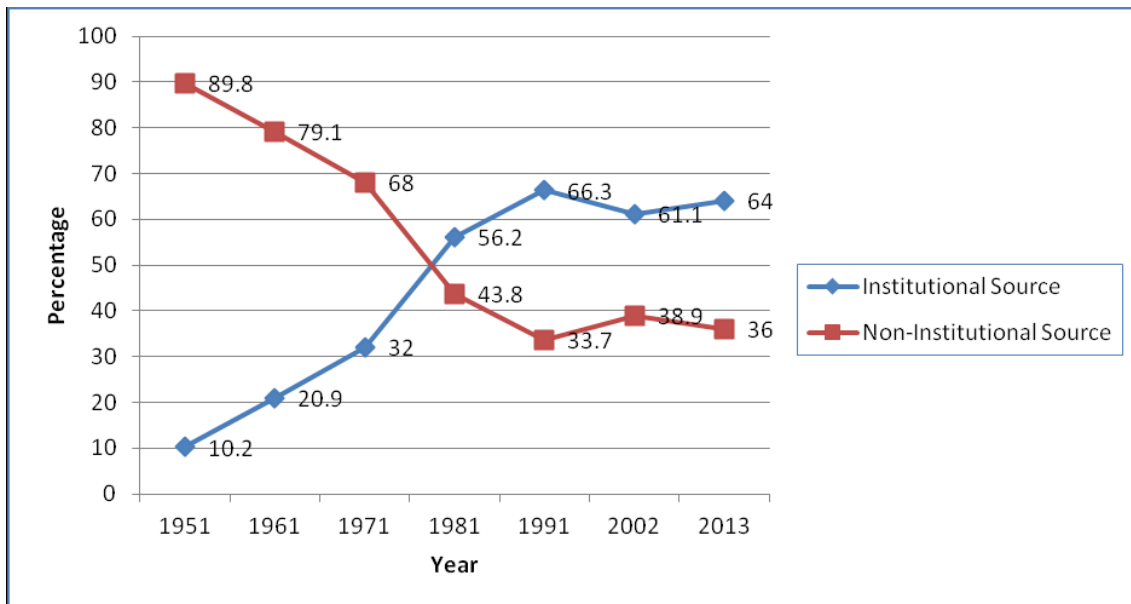
Agriculture is a dominant sector of our economy. Like other products seed, fertilizer, pesticide, credit is also one among the important factor to determine agriculture production. In India, since independence, a large number of institutions are involved in the disbursement of credit to agriculture sector but still the farmers depend on the non-institutional agencies. Banking sectors in developing countries lend a much smaller share of their loan portfolios to agriculture compared to agriculture's share of GDP. This limits investment in agriculture by both farmers and agro-enterprises. It also demonstrates that the barrier to lending isn't due to a lack of liquidity in the banking sectors, but rather a lack of willingness to expand lending to agriculture. Even when available, much of the agriculture funding tends to be informal and short-term, precluding longer-term investments. This informal funding only partially covers the financial needs of farmers and small agribusinesses, and usually at a high cost (*World Bank, 2015*)

Section I

Institutional and Non-institutional Credit to Agriculture in India

Broadly, there are two sources of credit to the farmer's i.e institutions like Commercial Banks, Regional Rural Banks and Cooperative Banks. The Non-institutions are moneylenders, traders and relatives. Before the first plan in 1951 almost all the financial needs to rural sector vis-à-vis agriculture were provided by the moneylenders (*Pradhan,2013*). On the recommendation of All India Rural Credit Survey Committee (AIRCS) in 1969 adopted multi-agency approach towards the agriculture and rural credit (*Hoda and Terway 2015*). On sources of credit, the survey revealed high levels of dependence on non-institutional channels. Nearly 40% of all loans came from informal sources with 26% advanced by moneylenders. Marginal land holding households suffer the most with only 15% of their credit from institutional sources such as the government, cooperatives and banks—for households in the highest land class (with land more than 10 hectares) the ratio is 79 per cent (*Bera Sayantan 2014*).

Chart I Institutional and Non-institutional Credit to Agriculture in India



Source : Hoda and Terway (2015)

In 1950-51, the share of institutional credit agencies was 10.2 per cent but it has increased to 66 per cent in 1991 and again it declined to 64 per cent in 2012-13. Whereas the sources from the non-institutional credit agencies were 89.8 per cent, 33 per cent and 36 per cent in the respective years (Chart I).

Institutional and Non-institutional Credit to Rural Areas: State-wise

The state wise share both institutional and non-institutional credit to rural areas in India was depicted in table 1. It was found that at All India level the share of institutional agencies was 29 per cent in 1971 (26th round) and increased to 57 per cent in 2002 (59th round) whereas the share of non-institutional was 71 per cent in 1971 (26th round) and decreased to 43 per cent in 2002 (59th round).

Table 1 Share of Institutional and Non-Institutional Agencies in Major States in Rural Areas

(in %)

States	Institutional				Non-Institutional			
	1971 (26 th)	1981 (37 th)	1991 (48 th)	2002 (59 th)	1971 (26 th)	1981 (37 th)	1991 (48 th)	2002 (59 th)
Andhra Pradesh	14	41	34	27	86	59	66	73
Assam	35	31	66	58	65	69	34	42
Bihar	11	47	73	37	89	53	27	63
Gujarat	47	70	75	67	53	30	25	33
Haryana	26	76	73	50	74	24	27	50
Himachal Pradesh	24	75	62	74	76	25	38	26
Jammu & Kashmir	20	44	76	73	80	56	24	27
Karnataka	30	78	78	67	70	22	22	33
Kerala	44	79	92	81	56	21	8	19
Madhya Pradesh	32	66	73	59	68	34	27	41
Maharashtra	67	86	82	85	33	14	18	15
Orissa	30	81	80	74	70	19	20	26
Punjab	36	74	79	56	64	26	21	44
Rajasthan	9	41	40	34	91	59	60	66
Tamil Nadu	22	44	58	47	78	56	42	53
Uttar Pradesh	23	55	69	56	77	45	31	44
West Bengal	31	66	82	68	69	34	18	32
All India	29	61	64	57	71	39	36	43

Source : Pradhan (2013)

From 1971 to 2002, both the institutional and non-institutional agencies are not followed uniform pattern in terms of share to rural areas in total debt. Compared to 1991, the image had changed in some of the major states. The state wise share during 2002 shows that in the rural areas, institutional credit agencies accounted for 85 per cent in Maharashtra, followed by Kerala (81 per cent), Himachal Pradesh and Orissa (74 per cent each) and Jammu & Kashmir (73 per cent). In contrast, not even 50 per cent of the debt was contracted through the institutional credit agencies in the rural areas of Andhra Pradesh (27 per cent), Rajasthan (34 per cent), Bihar (37 per cent) and Tamil Nadu (47 per cent).

Also important point is that, in Andhra Pradesh from 1971 to 2002, the share of non-institutional was high but in Haryana in 2002 both institutional and non-institutional was same. Regarding the non-institutional share, both in Kerala and Maharashtra it was very low in 2002 i.e 19 and 15 respectively.

Flow of Credit to Agriculture: Agency Wise

Under Multi-National Approach in India there are three important agencies providing credit to agriculture i.e Cooperative Banks, Commercial Banks and Regional Rural Banks.

Table 2 Agency Wise flow of Credit to Agriculture in India

(Rs in crore)

Year / Agency	COB	AGR	CB	AGR	RRBs	AGR	Total
1998-99	15957		2460		18443		36860
1999-00	18260	14.43	3172	28.94	24733	34.11	46268
2000-01	20718	13.46	4220	33.04	27807	12.43	52827
2001-02	23524	13.54	4854	15.02	33587	20.79	62045
2002-03	23636	0.48	6070	25.05	39774	18.42	69560
2003-04	26875	13.70	7581	24.89	52441	31.85	86981
2004-05	31231	16.21	12404	63.62	81481	55.38	125309
2005-06	39403	26.17	15223	22.73	125477	54.00	180485
2006-07	42480	7.81	20435	34.24	166485	32.68	229400
2007-08	48258	13.60	25312	23.87	181088	8.77	254658
2008-09	45966	-4.75	26765	5.74	228951	26.43	301908
2009-10	63497	38.14	35217	31.58	285800	24.83	384514
2010-11	78121	23.03	44293	25.77	345877	21.02	468291
2011-12	87963	12.60	54450	22.93	368616	6.57	511029
2012-13	111203	26.42	63681	16.95	432491	17.33	607375
2013-14	119964	7.88	82652	29.79	509005	17.69	711621
2014-15	138469	15.43	102483	23.99	599691	17.82	840643
CGR	13.55		24.5		22.72		

Source: Indiastat.com

Note : COB – Cooperative Bank, CB- Commercial Bank, RRB – Regional Rural Bank

Note : In total the credit includes from other agencies

The performance of credit agencies to agriculture was worked out. It can be seen from the table 2 that the annual growth rate of cooperative banks increased from 14.43 per cent in 1999-00 to 15.43 per cent in 2014-15 followed by commercial banks 28 per cent to 23 per cent and RRB was 34.11 per cent to 17.82 per cent in the same periods. But the compound growth rate for commercial banks was 24.5 per cent, 22.72 per cent for RRB and only 13.55 per cent for Cooperative banks. The important point is that after 2004-05 the total credit has increasing trend due to the introduction of multiple credit policy by the government. *Kumar et al (2010)* have reported that the credit flow from RRBs has grown at an annual growth rate of 14 per cent during the period 1970-71 to 2008-09. The lowest growth has been registered by the co-operative banks only 4 per cent and also pointed out by *Rahman and Sheeran (2011)*, the share of cooperatives as the percentage declined during pre and post reform

period in both short and long term. The reason is that lack of adequate financial resources. Compared to pre reform period, the share of RRBs share has increased during post reform period.

Flow of Investment Credit: Agency Wise

Investment credit is meant for building assets to enhance agriculture production. The term 'Capital' strictly implies building up of capital assets like pumpsets, tractors etc. Therefore the role of term credit becomes significant for capital formation in agriculture sector for raising the agriculture production (Shakula et al 2012). The financial requirements of farmers can be classified into three short, medium and long terms. The short term includes less than 15 months, medium term includes 15 months to 5 years and long term has more than 5 years (Sundaram and Dutt 2012)

Table 3 Agency Wise flow of short term Credit to Agriculture in India

(Rs in crore)

Year	COB	Share %	Commercial Banks	Share %	RRB	Share %	Total
Short Term Credit							
2000-01	16528	49.61	13486	40.48	3245	9.74	33314
2001-02	18787	46.38	17904	44.20	3777	9.32	40509
2002-03	19668	43.14	21104	46.29	4775	10.47	45586
2003-04	22640	41.18	26192	47.64	6088	11.07	54977
2004-05	27157	35.70	38791	51.00	10010	13.16	76062
2005-06	34930	33.16	57640	54.71	12712	12.07	105350
2006-07	38622	27.89	83202	60.09	16631	12.01	138455
2007-08	40515	22.08	122289	66.64	20715	11.29	183519
2008-09	40230	19.12	147818	70.24	22413	10.65	210461
2009-10	56946	20.58	189908	68.64	29802	10.77	276656
2010-11	69038	64.43	216773	66.91	38121	35.57	323932
2011-12	81829	20.66	266928	67.38	47401	11.97	396158
2012-13	102592	21.67	314951	66.52	55957	11.82	473500
2013-14	113574	19.82	388730	67.84	70697	12.34	573001

Source: Agricultural Statistics at a Glance (2014)

From the table 3, the share of credit agencies to short term loans to the farmers is presented. The share of cooperative banks has been decreasing their share from 49.61 per cent in 2000-01 to 19.82 per cent in 2013-14. On the other hand, the share of commercial banks and RRBs has been increasing from 40.48 per cent to 67.84 per cent and 9.74 per cent to 12.34 per cent in the

respective years. Whereas for medium and long term credit to agriculture in table 4 revealed that both commercial banks and RRBs dominated by providing the loan. The share of Cooperative banks was 21.47 per cent in 2000-01 and it declined to 4.61 per cent in 2013-14. The commercial banks share has been increasing every year from 73.39 per cent to 86.77 per cent and the share of RRBs also increasing their share from 4.99 per cent to 8.63 per cent during the study periods. The average share of loans issued by the cooperative banks declined from 59.84 per cent from 1975- 91 to 28.72 per cent in 2003-2013. The average for commercial banks (39.47 % to 60.23%) and RRBs was 4.21 per cent to 11.05 per cent in the same period (Table 5)

Table 4 Agency Wise flow of Medium and Long term Credit to Agriculture in India

(Rs in crore)

Year	COB	Share %	Commercial Banks	Share %	RRB	Share %	Total
	Medium and Long Term Credit						
2000-01	4190	21.47	14321	73.39	974	4.99	19513
2001-02	4737	22.00	15683	72.82	1077	5.00	21536
2002-03	3968	16.55	18670	77.88	1295	5.40	23974
2003-04	4235	13.23	26249	82.02	1493	4.67	32004
2004-05	4074	8.27	42690	86.69	2394	4.86	49247
2005-06	4474	5.95	67837	90.29	2511	3.34	75136
2006-07	3858	4.24	83283	91.58	3804	4.18	90945
2007-08	4964	6.78	64122	87.52	4179	5.70	73265
2008-09	5802	6.34	81133	88.72	4352	4.76	91447
2009-10	6551	6.07	95892	88.91	5415	5.02	107858
2010-11	5578	4.37	115933	90.81	6160	4.82	127671
2011-12	6134	5.34	101688	88.52	7049	6.14	114871
2012-13	8611	6.43	117540	87.80	7724	5.77	133875
2013-14	6389	4.61	120275	86.77	11956	8.63	138620

Source : Agricultural Statistics at a Glance (2014)

Note :COB= Cooperative Bank

Table 5 Average share of loans issued from various financial institutions towards Agriculture & Allied Activities

(in%)

Year	Co-operatives	Commercial Banks	RRBs
1975-75 to 1990-91	59.84	36.47	4.21
1991-92 to 2002-03	53.63	39.48	6.89
2003-04 to 2012-13	28.72	60.23	11.05

Source: Hoda and Terway (2015)

Section II

Agricultural Credit Policy in 2004

The Central government had declared a 'New Deal' for rural India through stimulating rural based economic activities (*Kannan, 2011*). In order to increase the credit flow, the Government of India has initiated several policy measures to improve the accessibility of farmers from the institutional sources of credit particular one is to double credit policy in 2004 to agriculture over a period of three years. The main objective of these policies has been on progressive institutionalization for providing timely and adequate credit support to all farmers with focus on small and marginal farmers and weaker sections of society which will use to adopt modern technology and improved agricultural practices.

Table 6 Target and Achievement of Agriculture Credit Flow in India

(Rs crore)

Year	Target	Achievement	% of Achievement
2004-05	10500	125309	1193.42
2005-06	141000	180485	128.00
2006-07	175000	229400	131.09
2007-08	225000	254658	113.18
2008-09	280000	301908	107.82
2009-10	325000	384514	118.31
2010-11	375000	468291	124.88
2011-12	475000	511029	107.59
2012-13	575000	607375	105.63
2013-14	700000	711621	101.66
2014-15	800000	840643	105.08

Source: [Indiastat.com](http://indiastat.com)

In 2004, the government takes a decision on to double the flow of agriculture credit in three years with reference to base year 2003-04. The flow of agriculture credit since 2003-04 has consistently exceeded the target. In 2005-06 the achievement of target was 128 per cent. Against the agriculture credit flow target of Rs. 325,000 crore during 2009-10, the achievement as on March, 2010 is Rs. 384514 crore forming 118% of target. Target of credit flow for 2011-12 is Rs. 475000 crore but the achievement was 107 per cent. From 2011-12 to 2014-15, the percentage share of achievement more or less similar.

Section III

Investment in Agriculture: Public and Private

Investment in agriculture plays a vital role in improving agriculture output. Investment is the creation of capital or the net addition to capital stock. It is usually measured by Gross Capital Formation (*Mallick,2010*). In India, the two sources are public and private.

**Table 7 Gross Capital Formation in Agriculture and Allied Sector
(2004-05 constant prices)**

(Rs crore)

Year	GCF ag PU	GCFagPVT	Total	Share (%) PU	Share (%) PVT
2000-01	8085	54024	62109	13	87
2001-02	9712	71006	80718	12	88
2002-03	8734	64780	73514	12	88
2003-04	10805	59116	69921	15	85
2004-05	16187	59909	76096	21	79
2005-06	19940	66664	86604	23	77
2006-07	22987	69070	92057	25	75
2007-08	23257	82484	105741	22	78
2008-09	20572	106555	127127	17	83
2009-10	22719	110443	133162	18	82
2010-11	21500	109723	131223	17	83

Source : Planning Commission data and Service (2015)

The share of public sector during 2000-01 was 13 per cent and it increased to 17 per cent in 2010-11. On the other hand, the share of private was 87 per cent to 84 per cent in the respective years. Due to the adoption of multiple credit policy in 2004-05, the share of public sector has increased to 21, 23 and 25 during 2004 to 2008. As pointed out by *Singh Poonam (2014) and Deokar and Shetty (2014)*, from 1980-2000, the share of public sector was decreased but after 2000-01, both public and private sector investment was increasing trend. The reason for decreasing public sector investment due to increasing current expenditure to meet higher subsidies on food, fertilizer, electricity, irrigation, credit and other farm inputs rather than creating assets(*Thomas and Mani 2015*)

Section IV Methods of Data Collection

The study is based on secondary data. The data was collected from books, journals, records from government agencies and their Annual Reports like NABARD, Planning Commission Data and Services and Reserve Bank of India. The statistical tools like percentage share, Annual Growth Rate, Compound Growth Rate and Cobb-Douglas production function also used in this paper. The formula for computing Cobb-Douglas production function is

$$AGDP = \beta_0 (\text{constant}) + \beta_1 \text{ Net Irrigated Area} + \beta_2 \text{ Consumption of Fertilizer} + \beta_3 \text{ Consumption of Pesticides} + \beta_4 \text{ Institutional credit} + \varepsilon$$

where:

AGDP = Agricultural gross domestic product measured in million tonnes

NIRA= net irrigated area in million hectares

CFER = consumption of fertilizer (NPK) lakh tones

CPES = Consumption of pesticide in thousand tones

ε = random error

Results and Discussion

To estimate the production function in order to determine the impact of institutional credit to agriculture GDP during the 1999 – 2014 was used as time period. In the cobb- douglas production function with agricultural GDP as dependent variable and institutional credit, net irrigated area, consumption of pesticide and consumption of fertilizer are independent variables.

Table 8 The OLS Estimates of Cobb-Douglas Production Function

Variables	Coefficient estimates	t-values	Significance
Constant	2.906	5.761	0.000
Net irrigated area	1.100	3.508	0.005
Consumption of fertilizer	0.034	0.215	0.834
Consumption of pesticides	0.315	1.831	0.094
Institutional credit	0.062	3.203	0.008

R square 0.973 F – Statistics = 99.148 Durbin-Watson = 2.212

It was found that coefficient of variables like net irrigated area and institutional credit have significant but other two variables included in the model consumption of fertilizer and pesticide are not impacting agricultural GDP

significant. R square for the model is 0.973 which mean the variables included in the model are able to explain 97 per cent variation of the agriculture GDP during the study period.

Section V Concluding Remarks

In agriculture, credit playing an important role for improving production and productivity. Regarding the credit, though institutional share was low during independence after that it has increased but still the role of non-institutions also contributing to agriculture. The agency wise performance was found that the cooperative bank has been decreasing compared to commercial banks and Regional Rural Banks in short, medium and long term even though the agriculture credit policy was introduced. In terms of investment, the share of public sector was decreasing during the study period while that private investment had increased. From the cob-douglas production function both institutional credit and net irrigated area had significant variables and other two variables are not significant.

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