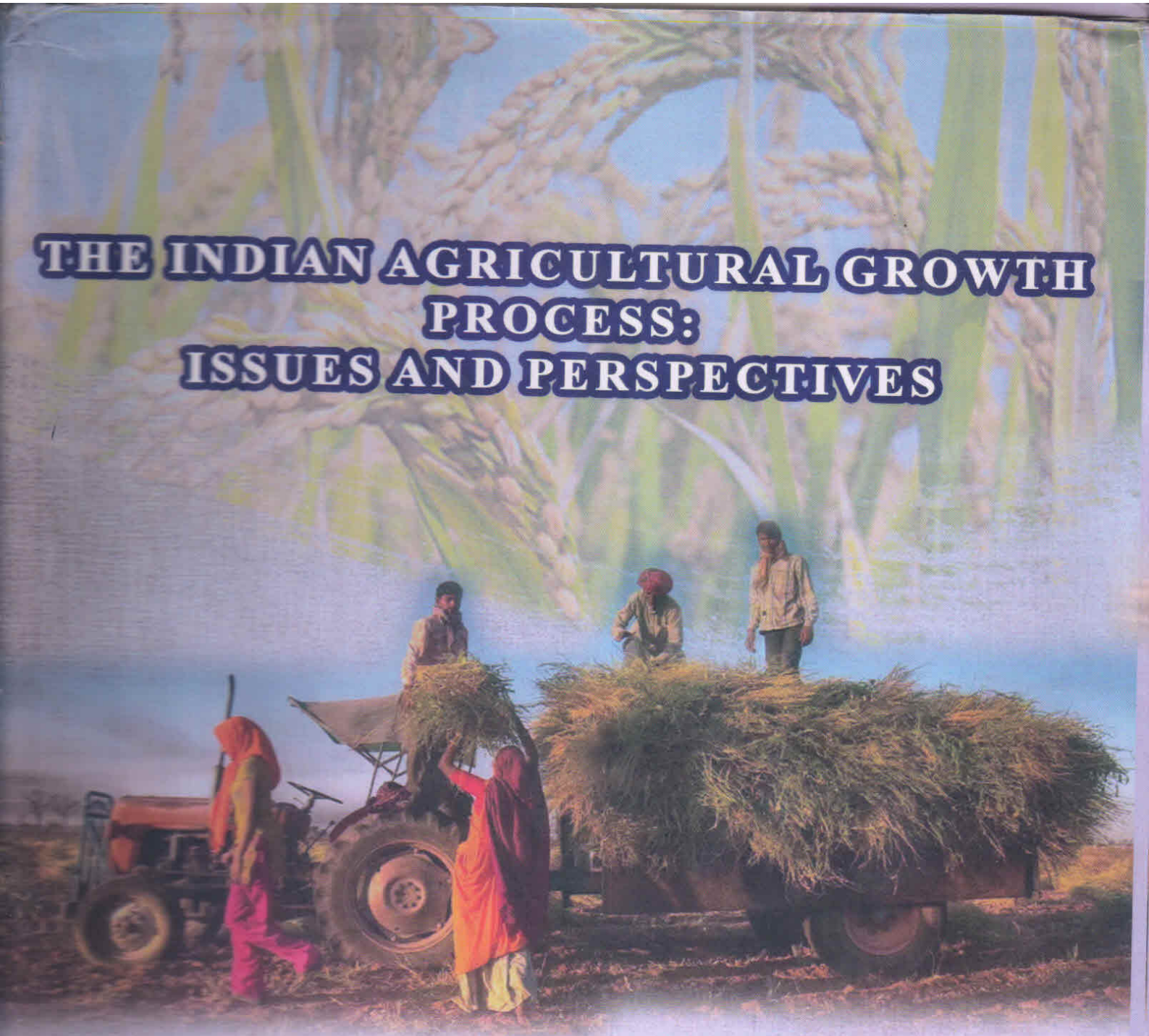
THE INDIAN AGRICULTURAL GROWTH PROCESS: ISSUES AND PERSPECTIVES



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THE INDIAN AGRICULTURAL GROWTH PROCESS : ISSUES AND PERSPECTIVES

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CONTENT

INSTITUTIONAL AGRICULTURAL CREDIT IN INDIA: REGIONAL VARIATION AND ITS CAUSAL RELATION WITH AGRICULTURAL OUTPUT

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I. INTRODUCTION

Credit is an important mediating input for agriculture to improve productivity. The predominance of informal sources of credit for farmers is a concern. There is regional disparity in the distribution of agricultural credit which also needs to be addressed.

Mid-year economic survey 2017-18

(By: FE Online | New Delhi | Published: August 11, 2017 1:31 PM)

The growth of Agricultural Sector has always been the matter of concern for the Indian Economy. Though the growth rate of overall GDP in Indian Economy was 7.7 per cent in Tenth Five Year Plan, 8 per cent in Eleventh Five Year Plan and more than 7 percent expected in Twelfth Five Year Plan but the growth rate of Agricultural GDP was mere 2.4 percent in Tenth Plan, 3.7 per cent in Eleventh Plan and 1.6 per cent in first four years of Twelfth Plan. The development of agriculture requires adequate supply of inputs but majority of farmers do not have their own capital to invest. It leads to the high demand of agricultural credit in India. Agriculture Minister Radha Mohan Singh at the national convention on

challenges in agriculture and future strategies for sustainability at Jabalpur February 12, 2016 said that the small farms, though operating only on 44 per cent of land under cultivation, are the main providers of food and nutritional security to the nation, but have limited access to technology, inputs, credit, capital and markets.

Some researchers explain that the agriculture credit has direct relationship with the income level, farm productivity and agriculture development since low availability of credit leads to low input supply. Sharma and Prasad (1971) stated that the introduction of latest technology without credit facilities would not have significant influence on the income of the farmers. Naryanan (1987) found that most of villagers who took loan were small and marginal farmers and agricultural labourers. He further observed that due to inadequate credit given to them, there was no increment in the income of beneficiaries. But some of the researchers believe that agricultural credit do not have large impact on output. Binswanger and Khandker (1992) found that the output and employment effect of expanded rural finance has been much smaller than in the nonfarm sector. The effect on crop output is not large, despite the fact that credit to agriculture has strongly increased fertilizer use and private investment in machines and livestock. High impact on inputs and modest impact on output clearly mean that the additional capital investment has been more important in substituting for agricultural labour than in increasing crop output. Mohan (2006) studied the overall growth of agriculture and the role of institutional credit. Agreeing that the overall supply of credit to

agriculture as a percentage of total disbursal of credit is going down, he argued that this should not be a cause for worry as the share of formal credit as a part of the agricultural GDP is growing. This establishes that while credit is increasing, it has not really made an impact on value of output figures which points out the limitations of credit.

The other view regarding the agricultural credit and output is that Along with the supply-side constraints, the agricultural crisis as well as the reducing share of agriculture in total GDP began to constrain the credit absorptive capacity of the sector thus placing severe demand constraint on bank credit. (EPW Research Foundation 2007-08).

Having different views on interrelation of agricultural credit and agricultural output the present study tries to explore whether agricultural credit is correlated with gross domestic product and whether they have causal relation with each other or not.

Another issue is that there is regional imbalance regarding institutional credit in India. This paper also tries to explain the trend and disparity of institutional agricultural credit in India and its impact on causal relation of credit and agricultural output.

II. OBJECTIVES

1. To study the trend of institutional credit and its regional imbalance in India during the study period.
2. To analyse the causal relation of institutional agricultural credit and agricultural output at national and state level in India.

III. METHODOLOGY

This study is an analytical research based on secondary data, collected for the period after financial reforms (1995-96 to 2015-16), of India and 12 states chosen two from each region of India. The selection of states is based on their agricultural growth in 2014. To study regional imbalance of institutional agriculture credit supply in six regions of India i.e. Northern, Northern Eastern, Eastern, Central, Western and Southern region the region-wise data of institutional agricultural credit was collected from secondary sources. To analyse the causal relation of agricultural credit and gross state domestic product the states with highest and lowest agricultural growth in each region was selected for which credit and GSDP data are available from 1995-96 to 2015-16. Since GDP/GSDP data series were there on different base year prices so to make them comparative GDP/GSDP at constant prices are calculated taking 2011-12 as base year. To switch from one base year to another, each value in the old real GDP series is multiplied by a constant equal to the ratio of nominal GDP in the new base year to real GDP in the new base year, expressed in the prices of the old base year. To test causality on time series data (from 1995-96 to 2015-16) of India Granger Causality test and panel data of twelve states (from 1995-96 to 2015-16) Dumitrescu and Hurlin (D-H) test is applied. Before applying the test, assumption of non-stationary is checked and series are whitened to make them stationary.

IV. TREND OF INSTITUTIONAL AGRICULTURAL CREDIT IN INDIA

Agricultural credit is being rendered by all banking institutions: scheduled commercial banks, regional rural banks (RRBs) and cooperative institutions. In order to improve the flow of credit to the agricultural sector, the Reserve Bank had advised public sector banks to prepare Special Agricultural Credit Plans (SACP) in 1994-95. Under the SACP, the banks are required to fix self-set targets for achievement during the financial year. The targets are generally fixed by the banks about 20 to 25 per cent higher over the disbursements made in the previous year. With the introduction of SACP, the flow of credit to agricultural sector has increased significantly. Institutional ground level credit to agriculture was 2203243 lakh rupees in 1995-96 and increased to 10785326 lakh rupees in 2004-05. The Mid-Term Review of Annual Policy of RBI for 2004-05 made the SACP mechanism applicable to private sector banks from the year 2005-06. With a view to doubling credit flow to agriculture within a period of three years and to provide some relief to farmers affected by natural calamities within the limits of financial prudence, the Union Finance Minister announced several measures on June 18, 2004. Accordingly, the Reserve Bank and NABARD issued necessary operational guidelines to banks. Due to these and other policy measures agricultural credit which was 17642400 lakh rupees in 2005-06 became more than double (38405100 lakh rupees) in 2009-10 and 87752704 lakh rupees in 2015-16 (Figure 1).

The growth rate of institutional ground level agricultural credit during the period 1995-96 to 2015-16 was 19.4 per cent. When it was calculated for the two sub-periods it was 13 percent during 1995-96 to 2004-05 and 16.7 per cent during 1995-96 to 2015-16.

One of the major objectives of nationalisation of banks in India was to narrow inter-regional and inter-state disparities in banking development, and with its help, reduce disparities in economic and social development in general. In this respect, the agricultural sector, which has been the mainstay of underdeveloped regions and states, required added credit support from the banking institutions in those areas as they have been historically neglected. Judged against this background, the inter-regional disparities in credit distribution by scheduled commercial banks for agricultural in particular appear to be very wide. The region-wise data of ground level agriculture credit show large imbalances among the regions. During the period 1995-96 to 2015-16 the Southern region is getting the highest share in ground level credit to agriculture then Northern region and then comes Western and Central region. The eastern and North Eastern regions have got very small share in total institutional agricultural credit disbursed in India (Figure 2). The figure 2 also shows fluctuations in percentage share of various regions in agricultural credit in India. The percentage share of Southern and North Eastern region has increased slightly. After high fluctuations the share of Northern and Eastern region has increased tremendously whereas Western and Central region has shown greater slow down during the study period. Figure 3.a and 3.b show the

comparative picture of percentage share of various regions in the year 1995-96 and 2015-16 and also support the above explained fact.

The coefficient of variation of ground level credit in India is showing long-run positive trend which means regional imbalance has increased during 1994-95 to 2015-16 (Figure 4).

V. INSTITUTIONAL AGRICULTURAL CREDIT AND AGRICULTURAL OUTPUT IN INDIA

To analyze the causal relation of agricultural credit availability with agricultural output in India first of all correlation between these variables is computed at national level and at state level also for the selected states.

The table 2 shows that there is high positive significant correlation between institutional agricultural credit and Gross State Domestic Product (GSDP) of all states except Goa. National data also shows high positive significant correlation between institutional agricultural credit and Gross Domestic Product (GDP).

Now to test causal relation between institutional agricultural credit and agricultural output Granger causality test is applied on national level time series data for the period 1995-96 to 2015-16 and Dumitrescu Hurlin (D-H) Panel Causality Tests is applied for the Panel Data of 12 states for the study period.

Before going for both type of causality tests, unit root test and correlogram technique is applied on both series to test the assumption of stationarity and non-autocorrelation.

Since series are found to have unit root and autocorrelation different treatments are applied to whitened them in other words they are made stationary and autocorrelation free before applying the causality test. (Results in table 3,4,5,6,9,10,11)

The results of causality tests are given in table 7 and Table 12.

The table 7 shows that at 10 percent level of significance it can be concluded that India's Institutional Agricultural Credit Granger Cause GDP at Constant Prices (2011-12) of India which means Institutional Agricultural Credit precedence GDP in India and GDP can be forecasted on the basis of Institutional Agricultural Credit.

Since there is regional imbalance in distribution of agricultural credit it is necessary to test the causality at state level also. The selected states as explained earlier are the states with highest and lowest growth rate of agriculture and fulfilling the requirement of data as per the need of the study in the each region.

The state level data analysis results presented in table 12 verifies the result received from the analysis of national level data of agricultural credit and output. It can be concluded at 10 per cent level of significance that Ground Level Credit to agriculture homogeneously cause gross state domestic product.

VI. CONCLUSION AND POLICY SUGGESTIONS

The causality test has proven that institutional agricultural credit causes the agricultural output or institutional agricultural credit has impact on GDP of the nation or GSDP of states so by increasing the availability of

institutional agricultural credit agriculturally backward states can increase their agricultural output and grow at higher rate. Though many policy measures are taken to fulfil this need but larger imbalance among various regions regarding the institutional credit in India shows some regions require more attention.

The assumption that GSDP of various states do cause the institutional agricultural credit in India is rejected, so it cannot be concluded that states with higher GSDP can have larger share in institutional credit in India in subsequent years or lower GSDP of some states is creating constraint for absorption of agricultural credit. Regional imbalance in supply of agricultural credit cannot be determined by agricultural output but disparity in agricultural output of various states can be explained by the regional disparity in supply of institutional agricultural credit. So if the agricultural growth rates of some agriculturally backward states like Gujrat, Rajasthan, Bihar, Karnataka, Meghalaya, Goa etc. are to be accelerated some special agricultural credit policies are to be made for these states. For example less interest rates can be charged, proportion of agricultural credit is to be increased, awareness among farmers are to be created and procedures of taking loan should be made easy so that supply and access to credit can be increased which will lead the growth of agriculture in these states.

VII. REFERENCES

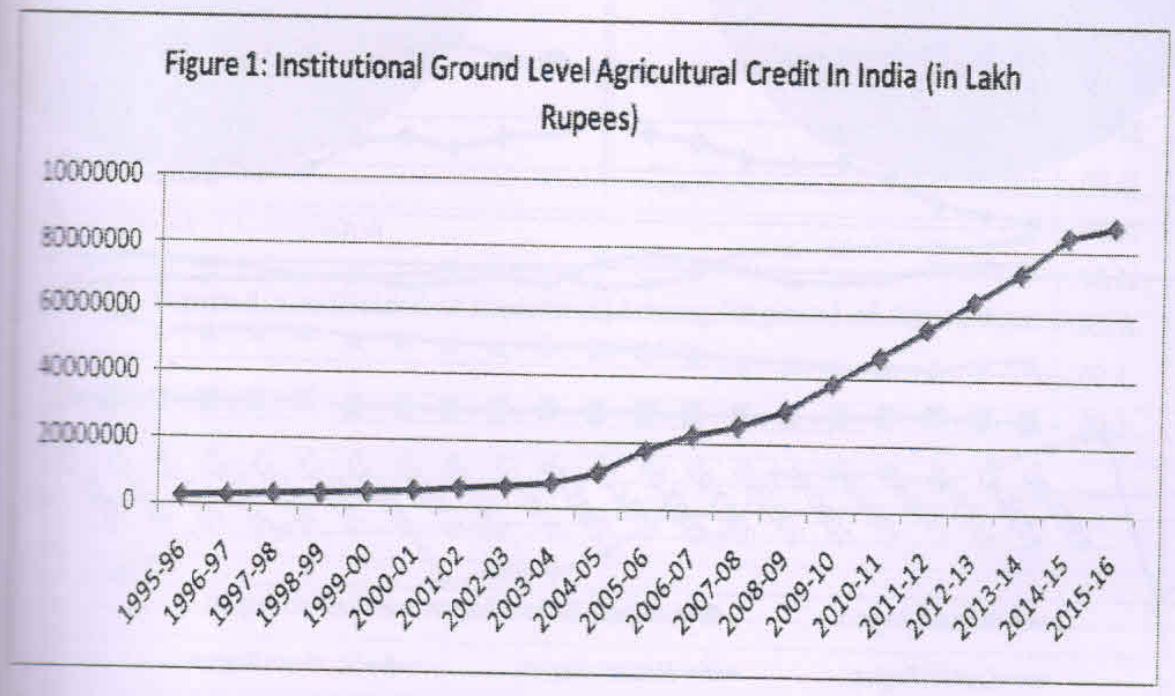
1. **Binswanger, H. and S. Khandker (1992).** The Impact of Formal Finance on Rural Economy of India. World Bank, Working Paper No. 949.
2. **EPW Research Foundation (2007-08).** Agricultural Credit In India: Changing Profile And Regional Imbalances. EPW Research Foundation Mumbai, 2007–08
3. **Das A., M. Senapati and Joice Joh (2009).** Impact of Agricultural Credit on Agriculture Production: An Empirical Analysis in India, Reserve Bank of India, Occasional Papers, 30(2), pp 75-100.
4. **Golait, R. (2007).** Current Issues in Agriculture Credit in India: An Assessment, RBI Occasional Papers, 28, pp 79-100.
5. **Mohan, R. (2006).** Agricultural Credit in India – Status, Issues and Future Agenda. Economic and Political Weekly, 41: 1013-1021
6. **Naryanan (1987).** Problems of Agriculture Loans, Kurukshetra, 35(7): 17-18
7. **Ratan Lal Godara, Partap Singh and Sanjay Singla (2014).** Agriculture Credit in India: An Analytical Study. International Journal of Latest Trends in Engineering and Technology (IJLTET), 3 (3), January.
8. **Sharma J.B. and B. Prasad (1971).** An Assessment of Production Credit Needs in Developing Agriculture Economies, Indian Journal of Agricultural Economics, 26(4): 503-511.

9. **Sriram M. S. (2007).** Productivity of Rural Credit: A Review of Issues and Some Recent Literature. Indian Institute of Management, , Working Paper No.2007-06-01.

10. **The Fertiliser association of India (2011-12),** Statistical Data Base, The Fertiliser association of India, New Delhi (http://www.faidelhi.org/statistical-database.htm).

11. http://economictimes.indiatimes.com/articleshow/50978336.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst accessed on 19.08.2017

Appendix



Source: "Agricultural Credit In India: Changing Profile And Regional Imbalances" by EPW Research Foundation Mumbai, 2007–08 and Statistical Data Base, The Fertiliser association of India

Table 1: Growth Rate of Total Agricultural Credit in India

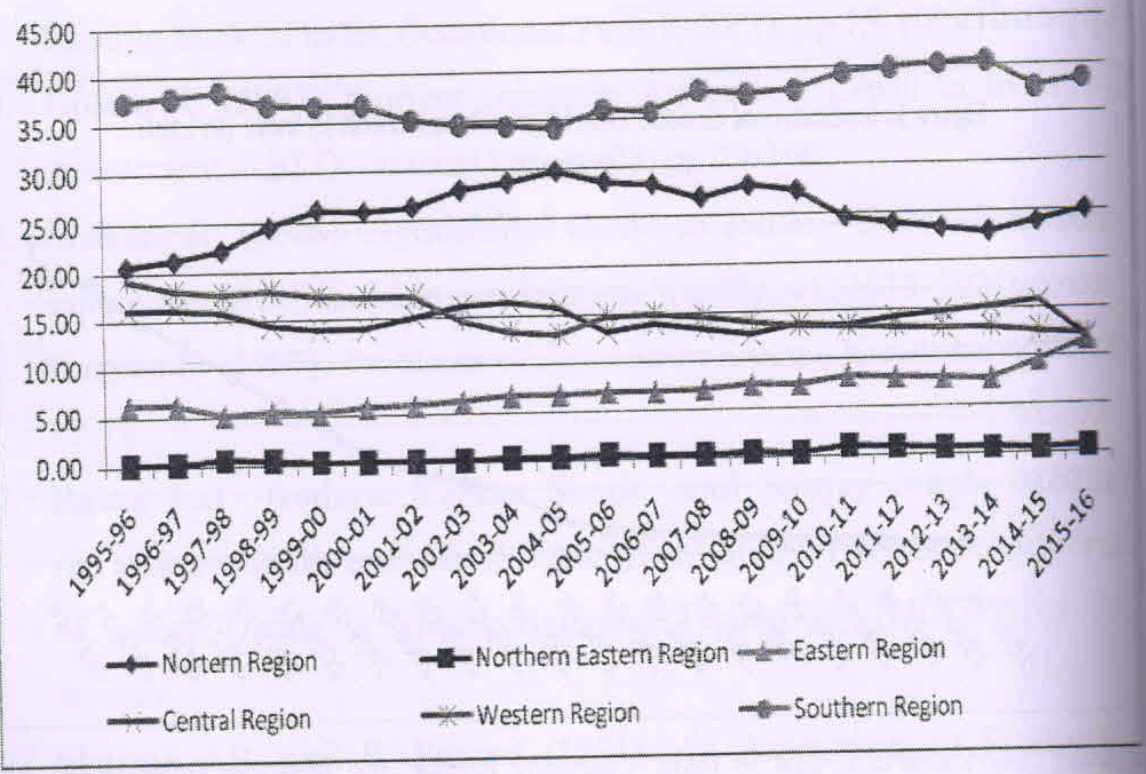
Period	R^2	F-Value	β
1995-96 to 2015-16	.964	504.527(.000)	.194*(.000)
1995-96 to 2004-05	.731	21.761(.002)	.130*(.002)
1995-96 to 2015-16	.987	664.579(.000)	.167*(.000)

Source: Author's Calculation

*Significant at 1 per cent level of significance

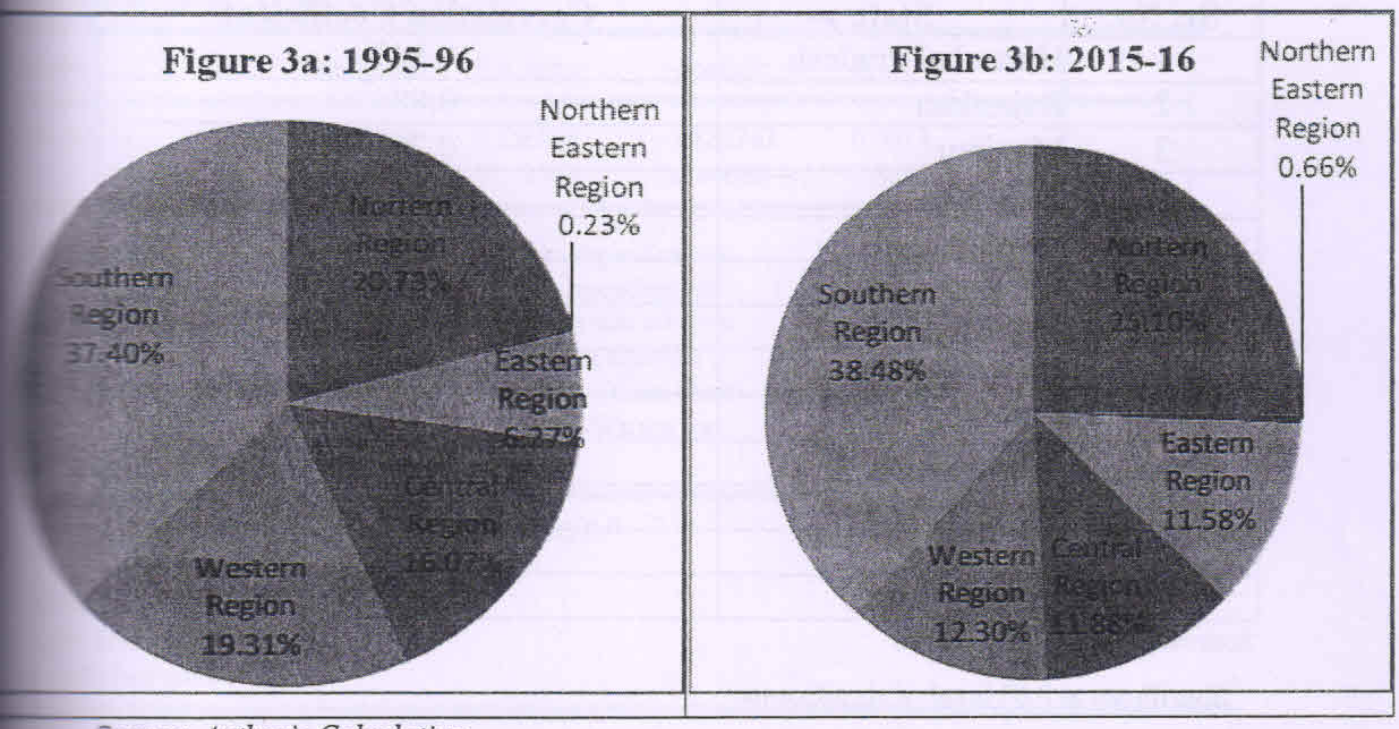
Figures in the parentheses are p-value

Figure 2: Percentage Share of Various Regions in Agricultural Credit in India

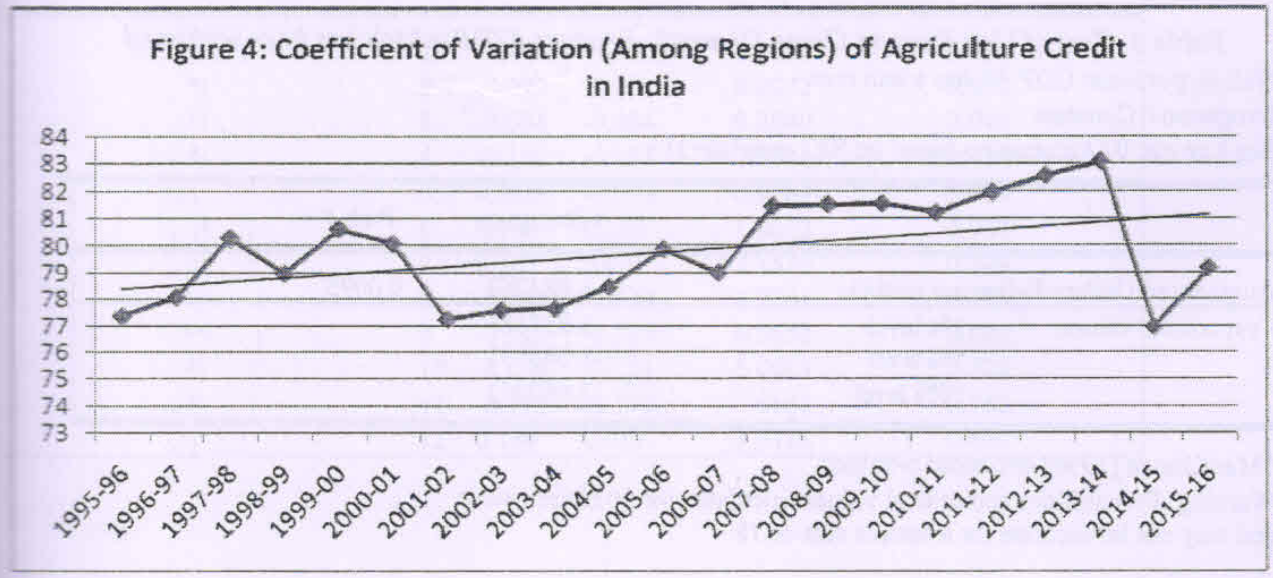


Source: Author's Calculation

Figure 3: Percent Share of All Regions in Institutional Agricultural Credit in India (1995-96 and 2015-16)



Source: *Author's Calculation*



Source: Author's Calculation

Table 2: Correlation coefficient between Ground Level Credit to Agriculture and Gross State Domestic Product (1995-96 to 2014-15) N=20

Sr. No.	State	Correlation Coefficient
1	Himachal Pradesh	0.847*
2	Rajasthan	0.880*
3	Manipur	0.761*
4	Sikkim	0.952*
5	Odisha	0.946*
6	Bihar	0.737*
7	Madhya Pradesh	0.962*
8	Uttar Pradesh	0.894*
9	Goa	-0.021
10	Maharashtra	0.857*
11	Andhra Pradesh	0.898*
12	Karnataka	0.799*
	India	0.963*

Source: *Author's Calculatio*

*Significant at 0.01 level of significance

Table 3: Test of Unit Root on Gross Domestic Product (GDP)which has been whitened

Null Hypothesis: GDP_W has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.881263	0.0095
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 18

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP_W)

thod: Least Squares
te: 08/26/17 Time: 01:33
mple (adjusted): 1999 2016
luded observations: 18 after adjustments

riable	Coefficient	Std. Error	t-Statistic	Prob.
DP_W(-1)	-0.996729	0.256805	-3.881263	0.0013
	13.66283	97.11363	0.140689	0.8899

quared	0.484938	Mean dependent var	-10.80363
justed R-squared	0.452746	S.D. dependent var	555.7830
E. of regression	411.1493	Akaike info criterion	14.98023
um squared resid	2704700.	Schwarz criterion	15.07916
g likelihood	-132.8221	Hannan-Quinn criter.	14.99387
-statistic	15.06421	Durbin-Watson stat	1.910341
(F-statistic)	0.001325		

Table 4: Correlogram of GDP Whitened

te: 08/26/17 Time: 01:33
mple: 1996 2016
luded observations: 19

utocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. | . |	. | . |	1	0.005	0.005	0.0006	0.980
.* | . |	.* | . |	2	-0.094	-0.094	0.2072	0.902
.* | . |	.* | . |	3	-0.084	-0.084	0.3840	0.944
.* | . |	.* | . |	4	-0.146	-0.157	0.9541	0.917
. | . |	. | . |	5	-0.029	-0.050	0.9783	0.964
.* | . |	. |* . |	6	0.164	0.130	1.8012	0.937
.* | . |	. |* . |	7	0.107	0.083	2.1816	0.949
.** | . |	.** | . |	8	-0.265	-0.279	4.7261	0.786
.** | . |	.** | . |	9	-0.215	-0.225	6.5658	0.682
.* | . |	.* | . |	10	-0.094	-0.111	6.9603	0.729
.* | . |	.* | . |	11	-0.110	-0.177	7.5661	0.752
.* | . |	. | . |	12	0.189	0.039	9.6113	0.650

Table 5: Unit Root Test on Institutional Agricultural Credit

Null Hypothesis: INST_AGRI_CREDIT has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.021949	0.0009
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(: INST_AGRI_CREDIT)
Method: Least Squares
Date: 08/26/17 Time: 01:32
Sample (adjusted): 1999 2016
Included observations: 18 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
: INST_AGRI_CREDIT (-1)	-1.391484	0.277081	-5.021949	0.0001
C	497474.0	633944.7	0.784728	0.4441

R-squared	0.611839	Mean dependent var	-127380.2
Adjusted R-squared	0.587579	S.D. dependent var	4106640.
S.E. of regression	2637286.	Akaike info criterion	32.51284
Sum squared resid	1.11E+14	Schwarz criterion	32.61177
Log likelihood	-290.6155	Hannan-Quinn criter.	32.52648
F-statistic	25.21997	Durbin-Watson stat	1.624319
Prob(F-statistic)	0.000125		

Table 6: Correlogram of Insttitutional Agrricultural Credit

08/26/17 Time: 01:28
le: 1996 2016
ded observations: 19

correlation	Partial Correlation		AC	PAC	Q-Stat	Prob
. *| . |	. *| . |	1	-0.200	-0.200	0.8910	0.345
. *| . |	. *| . |	2	-0.114	-0.160	1.1936	0.551
. *| . |	. *| . |	3	-0.023	-0.087	1.2068	0.751
. | . |	. | . |	4	0.067	0.026	1.3279	0.857
. |* . |	. |* . |	5	0.126	0.145	1.7831	0.878
. *| . |	. | . |	6	-0.120	-0.047	2.2254	0.898
. *| . |	. *| . |	7	-0.124	-0.134	2.7330	0.909
. **| . |	.**| . |	8	-0.106	-0.207	3.1429	0.925
. |* . |	. |* . |	9	0.206	0.088	4.8405	0.848
. | . |	. | . |	10	-0.047	-0.021	4.9376	0.895
. *| . |	. | . |	11	-0.080	-0.024	5.2561	0.918
. *| . |	. *| . |	12	-0.172	-0.192	6.9450	0.861

Table 7: Pairwise Granger Causality between Ground Level Institutional Agricultural Credit in India and Gross Domestic Product (GDP) of India

Sample: 1996 2016, Lags: 4		
Null Hypothesis:	F-Statistic	Prob.
India's Institutional Agricultural Credit Does Not Granger Cause GDP Constant of India	4.16045	0.0596*
GDP Constant of India Does Not Granger Cause India's Institutional Agricultural Credit	1.74925	0.2573

Source: Author's Calculation

Table 8:Panal Unit Root Test on Institutional Agricultural Credit Whitened

data from Inst_Agri_Credit using a 2 lag AR for the sample 1996 2015)

unit root test: Summary

INST_AGRI_CREDIT

08/24/17 Time: 23:13

1996 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-Sections
Null: Unit root (assumes common unit root process)			
Levin, Lin & Chu t*	-1.24584	0.1064	12
Null: Unit root (assumes individual unit root process)			
Im, Pesaran and Shin W-stat	-4.12274	0.0000	12
ADF - Fisher Chi-square	60.0084	0.0001	12
PP - Fisher Chi-square	447.574	0.0000	12

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

9: Correlogram on Panal Data of INST_AGRI_CREDIT

08/24/17 Time: 23:53

1996 2015

observations: 216

correlation	Partial Correlation		AC	PAC	Q-Stat	Prob
|	.|. |	1	-0.062	-0.062	0.8423	0.359
|	.|. |	2	-0.020	-0.024	0.9319	0.628
|	.|. |	3	0.019	0.017	1.0149	0.798
|	.|. |	4	0.043	0.045	1.4289	0.839
|	.|. |	5	-0.041	-0.035	1.8079	0.875
|	.|. |	6	-0.024	-0.027	1.9341	0.926
|	.|. |	7	-0.031	-0.037	2.1469	0.951
|*	.|* |	8	0.100	0.095	4.4049	0.819
|	.|. |	9	-0.058	-0.043	5.1575	0.820
|	.|. |	10	0.000	0.000	5.1575	0.880
|	.|. |	11	-0.057	-0.064	5.9131	0.879
|	.|. |	12	0.015	-0.000	5.9667	0.918

Table 10: Panel Unit Root Test on GSDP whitened

(Whitened data from GSDP using a 3 lag AR for the sample 1996 2015

unit root test: Summary

GSDP_W

08/24/17 Time: 23:14

1996 2015

ous variables: Individual effects

pecified lags: 1

-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.26926	0.0005	12	180
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.53828	0.0000	12	180
ADF - Fisher Chi-square	62.6976	0.0000	12	180
PP - Fisher Chi-square	107.103	0.0000	12	192

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Table 11: Correlogram of Panel Data of GSDP_W

Date: 08/24/17 Time: 23:55

Sample: 1996 2015

Included observations: 204

rrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
|	.|. |	1	-0.012	-0.012	0.0310	0.860
|	.|. |	2	-0.010	-0.010	0.0527	0.974
|	.|. |	3	-0.046	-0.047	0.5044	0.918
|	.|. |	4	-0.034	-0.035	0.7405	0.946
|	.|. |	5	-0.040	-0.042	1.0710	0.957
|	.|. |	6	0.068	0.064	2.0582	0.914
|	.|. |	7	-0.017	-0.019	2.1175	0.953
|	.|. |	8	-0.038	-0.043	2.4352	0.965
|	.|. |	9	0.013	0.015	2.4720	0.982
|	.|. |	10	0.013	0.014	2.5081	0.991
|	*|. |	11	-0.092	-0.092	4.3356	0.959
|	.|. |	12	-0.039	-0.049	4.6675	0.968

Table 12: Pairwise Dumitrescu Hurlin Panel Causality Tests between Ground Level Institutional Agricultural Credit and Gross State Domestic Product (GSDP) of States

Sample: 1996 2015 Lags: 3			
Null Hypothesis:	W-Stat.	Zbar-Stat.	Prob.
GSDP does not homogeneously cause GROUNDLEVEL CREDIT	3.589	-0.3779	0.7055
GROUND LEVEL CREDIT does not homogeneously cause GSDP	6.968	1.7126	0.0868*

Source: Author's Calculation

*Significant at 0.10 level of significance