

Emerging growth & trends of agricultural credit in Uttar Pradesh: An overview

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Abstract

Agriculture sector has been playing an important role in economic development as well as for improving socio-economic conditions of small and marginal farmers in Uttar Pradesh. Capital plays an important role for increasing agricultural production, productivity, income, employment, and food security. However, capital formation is a major problem faced by this particular sector. Farmers are basically facing the problems of access to adequate credit, timely and low cost credit from institutional sources. Therefore, to raise the agricultural production, an adequate and timely credit is essential. The government has brought several reforms in banking sector to increase the agricultural credit for agricultural development in Uttar Pradesh. But, credit institutions have been failed to provide credit to the marginalized section of farmers. Credit institutions are facing various constraints like recovery problem, security problem and sound socio-economic problems in the state. The major challenge of the credit institutions is to provide adequate credit, remove inequality among farmers, and increase productivity. The purpose of this study is to analyse the growth of agricultural credit in Uttar Pradesh. This study is based on both primary and secondary data. Primary data has been collected from Bundelkhand region and Western region of Uttar Pradesh. Credit is a vital tool for increasing economic activities, supporting farmers for better protection as well as for bringing about a balance in the economy. Credit must be provided timely to the farmers for increasing agricultural production.

Keywords: agricultural credit, annual growth rate, and banking institutions, etc

Introduction

Agriculture sector has been playing important role in the economic development of Uttar Pradesh. Majority of the population depends on agriculture sector for employment, income, food security and livelihood in the state. The state of Uttar Pradesh has accounted 12 percent of the country's area and 16.17 percent of the population. The state is predominantly by small and marginal farmers. The operational holdings of small and marginal farmers were 13 percent and 79.5 percent in 2010-11 in the state. The reporting area of the state is 24.2 million hectare, out of which forest area is 1.6 million hectare and net sown area is 16.56 million hectare in 2012-13. The gross cropped area 25.82 million hectare, gross irrigated area is 20.19 million hectare and net irrigated area is 13.9 million hectare in 2012-13 in the state. The state is contributing 21.55 percent to the total national production of food grains, vegetables, fruits and milk production and 40 percent to the total production of potato and sugarcane. In spite of having significant importance of the state, agriculture sector has been suffering from low productivity, low income, and lack of credit, inputs, technology, power, marketing, transportation, inadequate irrigation facilities, fragmented land holdings, floods, droughts, illiteracy and poverty. Further it is facing mainly the problem of capital. It is very serious problem of marginalized section of farmers in the state. These farmers are facing the problems like, underutilization of resources, unavailability of fertilizers and seeds, lack of marketing infrastructure, lack of access to information, lack of employment opportunity, drought, floods, cost, prices, and

lack of medical facilities, illiteracy and inadequate credit in the state. Among these problems, credit is a major problem of the farmers in Uttar Pradesh.

The farmers are disadvantageous of accessing credit in Uttar Pradesh. Farmers are suffering from indebtedness under public and private institutions. Credit is required for improving socio-economic conditions of the farmers. Farmers require a credit package covering production, investment and consumption credits, and if necessary, credit for redemption of prior debts. Such packages are not available to them in formal credit markets in the state of Uttar Pradesh. The farmers are also handicapped to access the market facilities. There are many issues and challenges of farmers in the state. Education and skills are important for improving farming practices as well as productivity. Literacy and mean years of education are lower of marginalized farmers. Several studies were conducted on agricultural credit at state level and national level since independence. Therefore, important studies are mentioned here like, Swami Nathan, (1991) ^[13] has pointed out that availability of concessional credit has been supporting the farmers to adopt new technology, encourage investment in machinery and irrigation and increase agricultural productivity. Mallikarjuna, K.G. (2013) ^[3] has pointed that the share of institutional credit has been increased and non-institutional credit has been decreased during 1950-51 to 2010 at national level. Satpathy, A.R. (2011) ^[10] has concluded that institutional source of the agriculture credit play a significant role in agriculture development. Rahman, J. & Sheereen, Z. (2011) has explained that the share of the direct finances had

increased continuously during the pre-reform period and declined during the post-reform period, and the share of indirect finance has decreased during the pre-reform period and increased during the post-reform period. Muhammad, I. (2003) ^[2] has explained positive relationship between institutional credit and agricultural GDP. Shahu, G.B. and Rajasekhar, D. (2005) ^[11], analysed commercial banks provided access of funds to the agriculture activities to earn the interest income in the rural areas. Tyagi, V. (2012) ^[15] has highlighted that an inadequate credit delivery system affects the growth of the new technology. Arora, R.U. (2009), shows that bank credit has declined since the economic reforms in Uttar Pradesh. Most of the studies focused on institutional and non-intuition agricultural credit development and flow of agriculture credit for the development of agriculture sector as well as problems of agricultural credit at state and national level. However, none of the study is to analyses the systematic pattern growth and trends of agricultural credit for the development of agriculture sector in Uttar Pradesh. Hence, in this paper an attempt is made to analyse the growth and trends of agricultural credit in Uttar Pradesh. It is macro level study confining to Uttar Pradesh. The study is based on secondary data and primary data. The study period of the secondary data is 2002-03 to 2013-14 and for primary data is 2015. On the other hand, to analyse the impact of the agriculture credit on small and marginal farmers, we have taken 300 samples of small and marginal farmers in which General farmers are 50 (16.67%), OBC farmers are 100 (33.33%) and SC farmers are 150 (50.00 %) in Uttar Pradesh. We have taken 25 (General), 50 (OBC) and 75 (SC) small and marginal households from the Garmau village of Jhansi district of Bundelkhand region. Similarly, We have taken 25 (General), 50 (OBC) and 75 (SC) category small and marginal households farmers from Pipala village of Bulandshahr district of western region. We have taken only those small and marginal households who have taken agricultural credit from formal and informal sources in the villages of both regions of Uttar Pradesh. Simple statistical tools and credit growth model have been used to show the growth and trends of agricultural credit in Uttar Pradesh.

Agricultural Credit

Agriculture credit is mainly classified into direct and indirect. Direct financing credit is provided directly to the farmers for productive purpose and the indirect credit is given to institutions engaged in the supply of production inputs and

other services to the farmers. Direct credit is given for land improvement, crop production, purchase of inputs, machinery equipment's, development of dairy, poultry and development of the plantation such as tea, coffee, rubber, coconut and cashew nut. On the other hand, indirect credit is given for financing agricultural co-operatives/ farmer's service societies/ cooperative marketing societies, financing for distribution of farm inputs, financing state electric board, financing for storage facilities (warehouses and cold storage), financing for establishment of regulated markets, custom service units, financing for agro-industries co-operations, food co-operation of India

Agriculture credit is classified into period wise and purpose wise. Period wise credit falls into two categories (a) short term (b) long term. The disbursement of short term agricultural credit are granted for the periods of 6 to 18 months. The purpose of the short term agricultural credit is to meet the seasonal requirement of seeds, fertilizers, insecticides and hiring of labour. The long-term agricultural credit are granted for periods longer than 5 years. Long term agricultural credit are granted for permanent improvement on farm mechanization, land development, dairy development, plantation, horticulture and irrigation. Purpose wise agricultural credit is classified like; (i) productive purposes (ii) consumption purposes and (iii) Unproductive purposes. Productive purposes of agricultural credit meant for agricultural productivity, buying seeds, fertilizers, manure and agricultural implements, digging and repair of wells and tube wells, payment of wages, improvements of land. Consumption purposes of the credit meet the basic needs of the farmers. Indian farmers often borrow credit for productive purposes and use for unproductive purposes like celebration of marriage, birth, death, litigation, religious functions and festival. Therefore, conditions of the farmers in state are not changed. The farmers are suffering from low productivity, low income and engrossed in debt trap in Uttar Pradesh.

Agricultural credit is classified again as institutional and non-institutional credit agencies. There are three sources of institutional agricultural credit agencies operating in rural areas (a) Co-operative Banks, (b) Commercial Banks (CBs) and (c) Regional Rural Banks (RRBs). The main non-institutional sources of the agricultural credit are moneylenders, friends, relatives, shopkeepers, landlords, traders and government agent.

Table 1: Flow of Agricultural credit in Uttar Pradesh during 2002-03 to 2013-14

Year	Short Term (ST)	Long Term (LT)	Total agricultural Credit
2002-03	3635.9	2806.4	6442.3
2003-04	4212.4	3635.6	7848.1
2004-05	6207.2	4755.3	10962.5
2005-06	9191.3	4576.7	13768.1
2006-07	12071.6	6395	18466.9
2007-08	13051.2	6765.3	19816.6
2008-09	15015.1	5855.9	20871
2009-10	19615.7	9439.9	29055.6
2010-11	21024.1	13216.8	34240.9
2011-12	25549.1	13756	39305
2012-13	31854.4	15086.3	46940.8
2013-14	41374.7	14844.2	56218.9

Source: NABARD & State Level Banking Committee

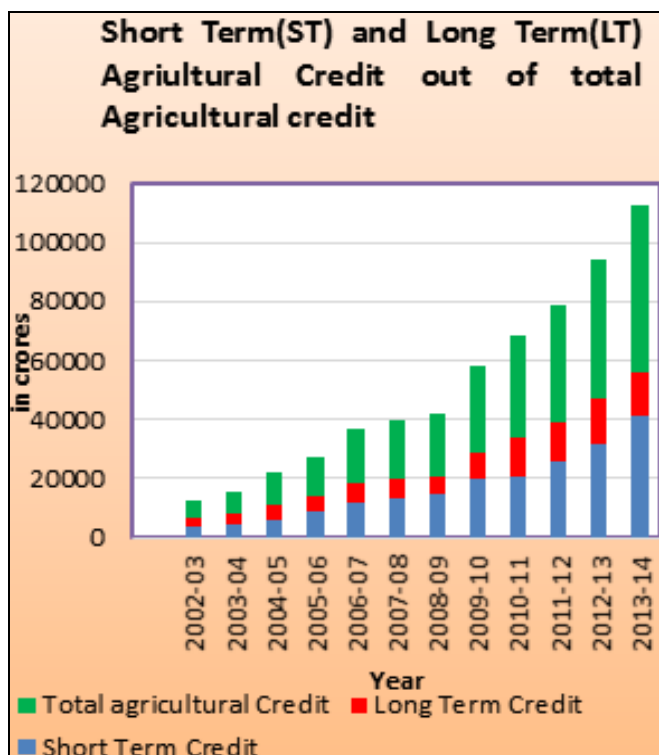


Fig 1: Flow of Agricultural Credit in Uttar Pradesh Uttar Pradesh during 2002-03 to 2013-14

Growth & Trends of Agriculture Credit

Credit plays an important role for raising agricultural productivity, income and standard of living of farmers. Availability and access to adequate, timely and low cost credit from institutional sources is of great importance especially to the marginalized farmers. It is observed that easy access to financial services at affordable cost positively affects the productivity, asset formation, income, and food security of the farmers. The major role of the government is to bring all the farmers within the banking fold and promote complete financial inclusion.

The government has launched several programmes and policies to improve the flow of agriculture credit in Uttar Pradesh. The emphasis of the policies has been on progressive institutionalization for providing timely and adequate credit support to all farmers. It also improve to adopt modern technology and improve agricultural practices for increasing

agricultural production and productivity. These policies lays emphasis on augmenting credit flow at the ground level through credit planning, adoption of region-specific strategies and rationalization of lending policies and procedures. These policy measures have resulted in the increase in the share of institutional credit of the farmers. The flow of agricultural credit has been shown by Table-1 & Figure-1 in Uttar Pradesh. The figure shows that the flow of short term credit was Rs. 3635.9 crore in 2002-03 and increased to Rs.41374.7 crore in 2013-14 whereas long term credit was Rs. 2806.4 crore in 2002-03 and increased to Rs. 14844.2 crore in 2013-14. The flow of total agricultural credit was Rs. 6442.3 crore in 2002-03 and increased to Rs. 56288.9 in 2013-14 in Uttar Pradesh. It is observed that the credit has increased with the times within ten years. Short term and long term agricultural credit have increased during 2002-03 to 2013-14.

Table 2: Annual growth rate of ST, LT & total Agricultural Credit in Uttar Pradesh

Year	Short Term (ST)	Long Term (LT)	Total Agricultural Credit
2002-03	-	-	-
2003-04	15.86	29.55	21.82
2004-05	47.36	30.8	39.68
2005-06	48.07	-3.76	25.59
2006-07	31.34	39.74	34.13
2007-08	8.11	5.78	7.31
2008-09	15.05	-13.44	5.32
2009-10	30.64	61.2	39.22
2010-11	7.18	40.01	17.85
2011-12	21.52	4.08	14.79
2012-13	24.68	9.67	19.43
2013-14	29.89	-1.6	19.77

Source: NABARD & State Level Banking Committee

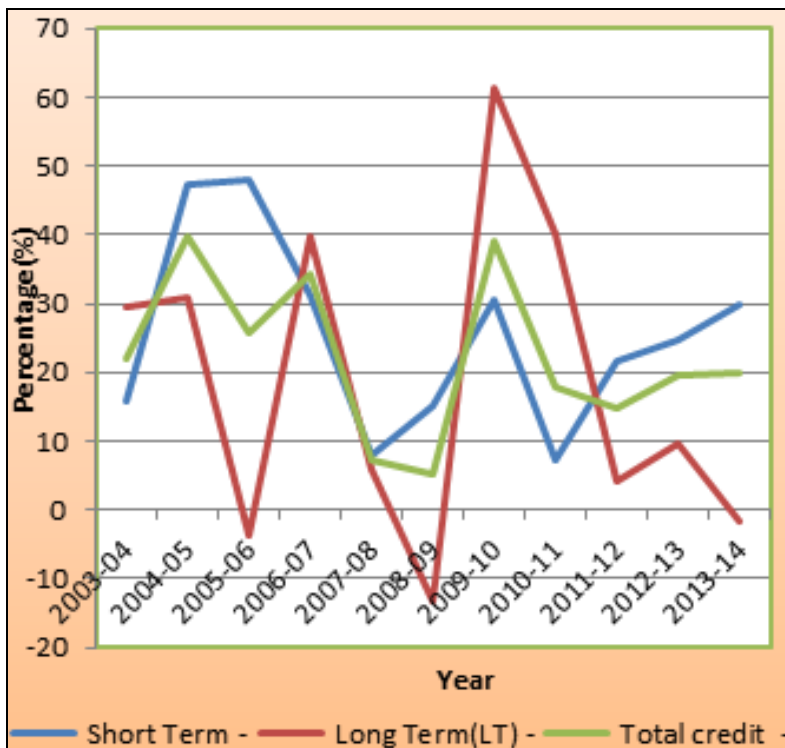


Fig 2: Annual growth rate of ST, LT & total Agricultural Credit in Uttar Pradesh

The annual growth rate of short term, long term and total agricultural credit have been described by the table-2 & figure-2 in the same period in Uttar Pradesh. There is insignificant growth rate of short term, long term and total agricultural credit in Uttar Pradesh during 2002-03 to 2013-14.

It is observed that the annual growth rate of short term credit is positive but there are various fluctuations in the growth rate of short term credit during 2002-03 to 2013-14 periods. The annual growth rate of the long term agricultural credit has become negative in same years. On the other hand, the annual growth of total agricultural credit is positively slope but there are various fluctuations in the growth of agricultural credit. It is seen that the short term credit have been preferred by the

banks on account of lower risk. But, investment in agriculture is possible only with the long term loans because long term loans are larger payback periods and initial development for many agricultural investments. Accordingly, it may be observed that there is a strong positive correlation between the long term credit disbursed and private sector capital formation in agriculture. The long-term credit leads to the capital formation in agriculture sector in the state. A decline in long term credit reduces the ability of the farmers to invest in productivity augmentations in Uttar Pradesh. Inadequate long term agricultural credit for improving production capacity and productivity enhancement increase risk of the banks short term loans.

Table 3: Percentage share of Short Term (ST) and Long Term (LT) Agricultural Credit out of Total Agricultural Credit in Uttar Pradesh during 2002-03 to 2013-14

Year	Short Term (ST)	Long Term (LT)
2002-03	56.40	43.60
2003-04	53.70	46.30
2004-05	56.60	43.40
2005-06	66.80	33.20
2006-07	65.40	34.60
2007-08	65.90	34.10
2008-09	71.90	28.10
2009-10	67.50	32.50
2010-11	61.40	38.60
2011-12	65.00	35.00
2012-13	67.90	32.10
2013-14	73.60	26.40

Source: NABARD & State Level Banking Committee, U.P.

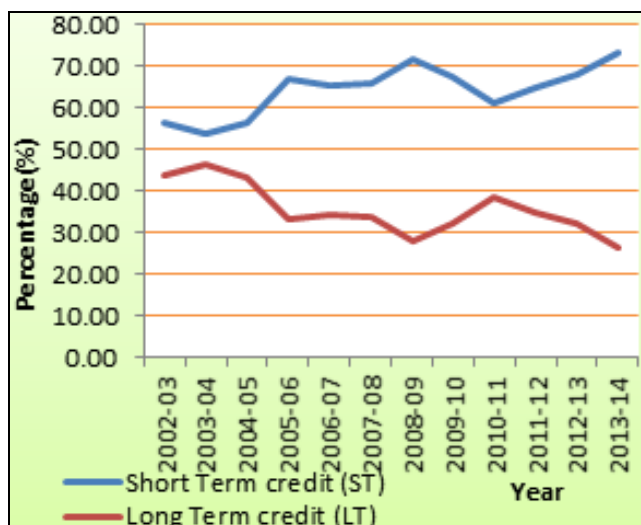


Fig 3: Percentage share of Short Term (ST) and Long Term (LT) Agricultural Credit out of Total Agricultural Credit in Uttar Pradesh during 2002-03 to 2013-14

The share of short term and long term agricultural credit out of total agricultural credit has been explained by Table-3 & Figure-3 in Uttar Pradesh. The percentage of short term credit was 56.40 percent in the year 2002-03 and increased to 73.60 percent in 2013-14. In case of long term credit, the share of long term credit was 43.60 percent in 2002-03 and decreased to 26.40 percent in 2013-14. It is clear that the short term credit is increasing and long term credit is decreasing during the period 2002-2013. Obviously, it is observed that the share of short term credit has been increasing in Uttar Pradesh on account of lower risk for the banks. On the other hand, long term credit has high risk in term of recovery of loans and repayments. Banks do not prefer to provide long term credit for small and marginal farmers in Uttar Pradesh. Therefore, farmers prefer to take credit from moneylenders, friends and relatives.

Agricultural Credit & Agriculture GDP

Agricultural credit and agricultural gross domestic product has positive relations. Table-4 and figure-4 analyses the relation between the agriculture credit and agricultural gross domestic product during 2002-2013.

Table 4: Agriculture Credit and Agriculture GDP in Uttar Pradesh during 2004-05-2013-14

Year	Agriculture Credit	Agriculture GDP
2002-03	6442.3	-
2003-04	7848.1	-
2004-05	10962.50	70167.10
2005-06	13768.10	71813.50
2006-07	18466.90	73512.00
2007-08	19816.60	76140.60
2008-09	20871.00	79151.70
2009-10	29055.60	78502.90
2010-11	34240.90	82344.10
2011-12	39305.00	87261.90
2012-13	46940.80	91579.10
2013-14	56218.90	94035.10

Source: NABARD & State Level Banking Committee, U.P.

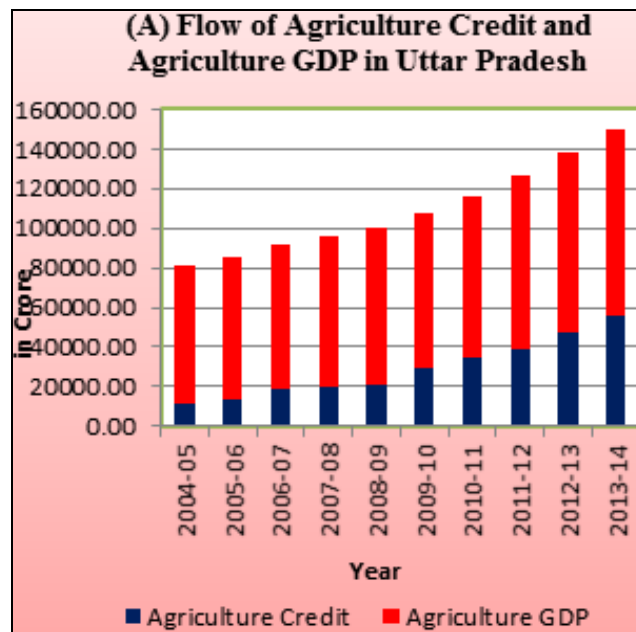


Fig 4: Agriculture Credit and Agriculture GDP in Uttar Pradesh during 2004-05-2013-14

The credit for agriculture has been increasing last few years. Institutional credit has been increasing in the state. The intuitional credit is impressive. The credit flow seems to increase the agricultural productivity significantly. The increased credit has actually resulted in higher credit intensity in agriculture. Table-4 clearly shows that agriculture credit was Rs. 6442.3 crore in 2002-03 and increased to Rs. 56218.90 in the year 2013-14. While, agriculture gross domestic product was Rs. 70167.10 crore in 2004-05 and increased to Rs. 94035.10 crore in the year 2013-14. It is clear that agricultural credit has impact on agricultural GDP. The Credit is influencing the GDP. There is positive relation between credit and GDP.

The annual growth rate of agriculture credit and agriculture GDP have been analysed by Table-5 & figure-5 in Uttar Pradesh

Table 5: Annual growth rate of agriculture credit Agriculture GDP in Uttar Pradesh in U.P.

Year	Agriculture Credit	Agriculture GDP	Agriculture Credit as % to Agriculture GDP
2002-03	-	-	-
2003-04	-	-	-
2004-05	-	-	-
2005-06	25.59	2.35	19.17
2006-07	34.13	2.37	25.12
2007-08	7.31	3.58	26.03
2008-09	5.32	3.95	26.37
2009-10	39.22	-0.82	37.01
2010-11	17.85	4.89	41.58
2011-12	14.79	5.97	45.04
2012-13	19.43	4.95	51.26
2013-14	19.77	2.68	59.79

Source: NABARD & State Level Banking Committee

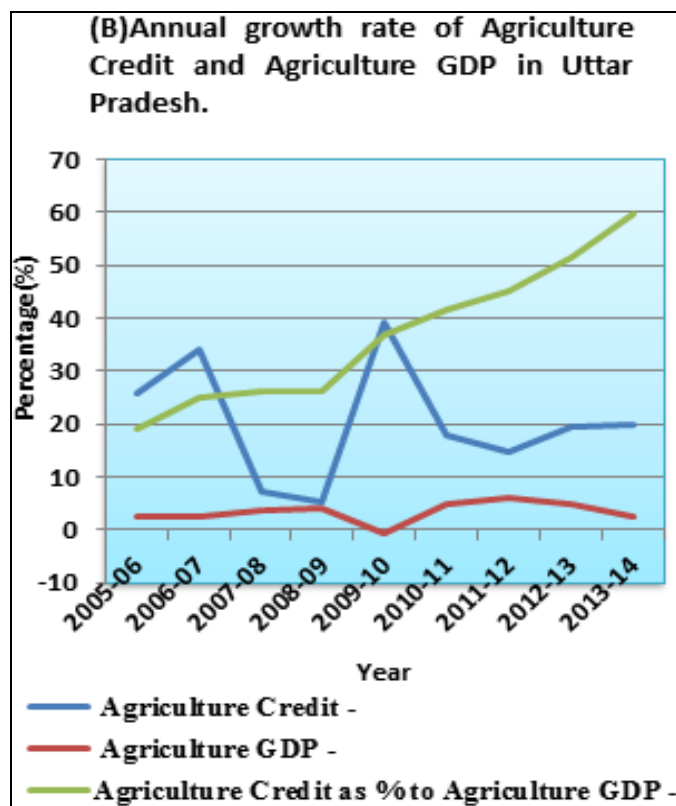


Fig 5: Annual growth rate of & Agriculture credit Agri. GDP

It is clear that annual growth rate of agriculture credit was 25.59 percent in 2004-05 and decreased to 5.32 percent in 2008-09 and then further increased to 19.17 percent in 2013-14. The annual growth rate of agricultural GDP was 2.35 percent in 2004-05 and become negative (-0.82) percent in 2009-10 and later it increased to 2.35 percent in 2013-14 in Uttar Pradesh. The annual growth of agriculture credit and agricultural GDP has been showing fluctuations during 2004-

05 to 2013-14. The annual growth rate of agricultural credit has been significant to influence agricultural GDP in Uttar Pradesh. In the same way, table-5 also explains the proportion of agriculture credit as percentage to agriculture GDP during 2002-03 to 2013-14. It clearly shows that the proportion of agriculture credit as agriculture GDP was 19.17 percent in 2004-05 and increased to 59.79 percent in 2013-14. It also observed that the share of agriculture credit as percentage to agricultural GDP has been continuously increasing during 2004-2013 in the state. The banks are willing to increase credit for agriculture development. The increased credit enables the agriculture to improve repayment capacity. However, the state government is willing to intervene more on the inputs side rather than agricultural productivity and price side.

Credit Growth Model

The growth of agriculture sector is influenced by several factors such as agricultural inputs, credit, irrigation, weather conditions, and government policies and programmes. It is very difficult to analyse the effect of all the factors in simple framework, since the mechanism through which these variables affect crop output growth varies. The study examines the determinants of aggregate credit growth at state level through the neo-classical growth model. The aggregate production function can be written as:

$$NSDP = F(COA) \dots\dots\dots (i)$$

Where NSDP is the Net State Domestic Product at constant prices and COA is the credit of agriculture. The specified equation can be written as following:

$$NSDP = \alpha + \beta COA + u_i \dots\dots\dots (ii)$$

Whereas α & β are parameters, and u_i is stochastic variable. Similarly, we would like to estimate the impact agriculture credit on yield of food grain. Then, the proposed model is as following from:

$$YOF = \alpha + \beta COA + u_i \dots\dots\dots (iii)$$

Where YOF is yield of food grain, COA is credit of agriculture. All the variables are in logarithmic form. The model was estimated through the ordinary least squares (OLS) method. Two model were estimated because of multicollinearity. The results of the equation (i) and (ii) have been presented by model (1) and model (2) in the Table-6. The model (1) shows that the effect of agricultural credit is positive and significant impact on net state domestic product during 2002-03 in Uttar Pradesh. Model (2) also shows that the effect of agricultural credit on yield of foodgrains was positive and significant impact on agricultural production during the same period.

Table 6: Regression results of agricultural credit growth model during 2002-03-2014-15

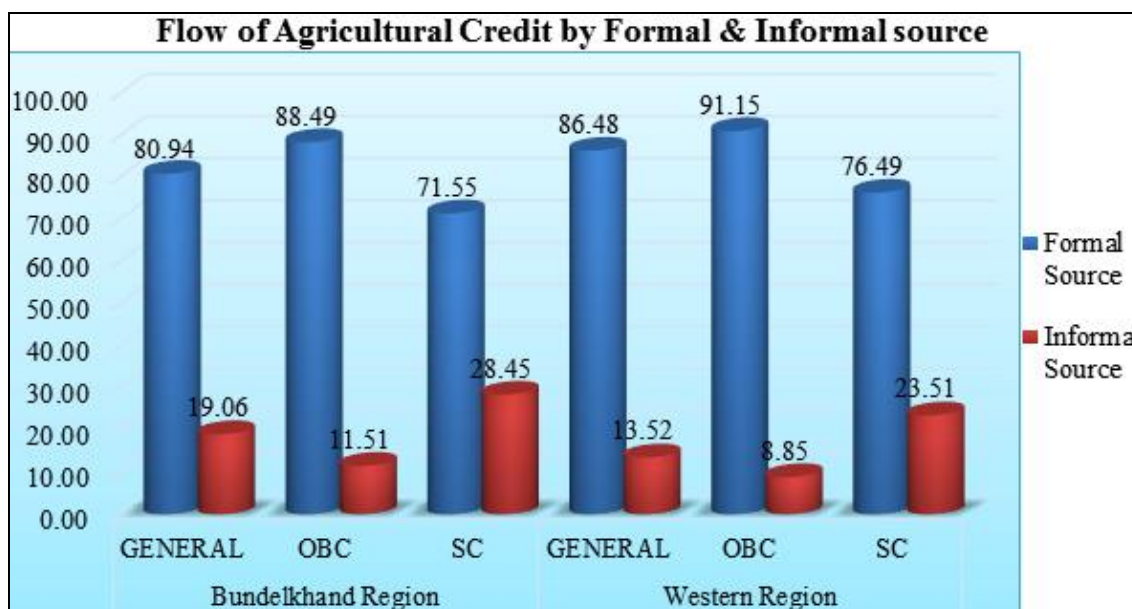
Independent Variable	Model (1) Dependent Variable: Net State Domestic Product(NSDP)			Independent Variable	Model (2) Dependent Variable: Yield of foodgrains		
	Coefficient	t- value	P-value		Coefficient	t- value	P-value
Agriculture Credit	.1433231	13.06	0.000	Agriculture Credit	.1171861	6.02	0.000
Constant	9.841905	89.32	0.000	Constant	6.552163	33.53	0.000
R – squared	0.9395			R – squared	0.7673		

It is also important note that the first model explains least of the variation 93 percent on NSDP compared to the second model where R- squared was 76 percent.

Primary data Analysis

Figure-6 shows the social category-wise percentage of agricultural credit flow by formal and informal sources. The bar diagram shows that the share of agricultural credit flow by formal source in general, OBC and SC farmers is 80.94

percent, 88.49 percent and 71.55 percent whereas the share of agricultural credit flow by informal source is 19.06 percent, 11.51 percent and 28.45 percent in General, OBC and SC in the Bundelkhand region. On the other hand, the share of agricultural credit flow by formal source in General, OBC and SC farmers is 86.48 percent, 91.15 percent and 76.49 percent whereas the share of agricultural credit flow by informal source is 13.52 percent, 8.85 percent and 23.51 percent in General, OBC and SC in the of western region.



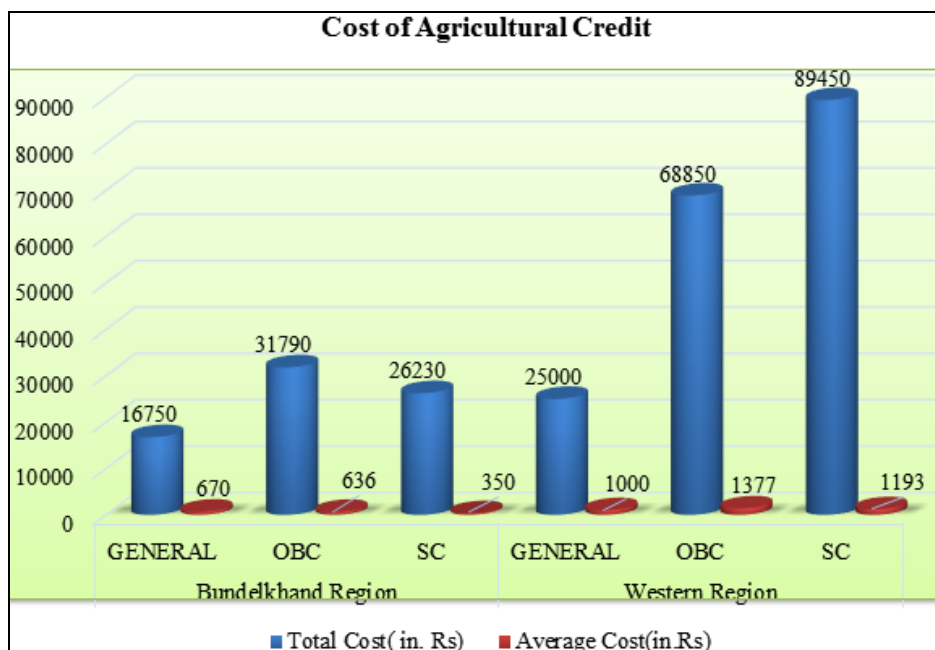
Source: Field Survey data

Fig 6: Category wise percentage of Agricultural Credit Flow by Formal and Informal sources

It is found that the percentage of agricultural credit flow by formal source in western region is higher than Bundelkhand region. The situations of SC farmers are miserable because majority of SC farmers are taking credit from informal sources in both regions. But the percentage of agricultural credit flow by informal sources among SC farmers of western region are lower than the SC farmers of Bundelkhand region. There is need to expand the bank branches in the villages of Bundelkhand region. There is also need to change the strategy of banks in SC farmers in both regions of Uttar Pradesh.

The figure-7 shows the category wise cost incurred during sanctioning agricultural credit in Bundelkhand and Western region of Uttar Pradesh. The cost of agricultural credit during transaction in General, OBC and SC farmers is Rs. 16750, Rs. 31790 and 26230 in the village of Bundelkhand region. In the same way, the cost of agricultural credit during transaction in General, OBC and SC farmers is Rs. 25000, Rs. 68850 and

Rs. 89450 in the village of western region. On the other hand, the average cost of agricultural credit during transaction in General, OBC and SC farmers is Rs. 670, Rs. 636 and Rs. 350 in the village of Bundelkhand region. The average cost of agricultural credit during transaction in General, OBC and SC farmers is Rs. 1000, Rs. 1377 and Rs. 1193 in the village of western region. It is observed that the cost of agricultural credit during transaction in Bundelkhand region is less than western region. Similarly, the average cost of the Bundelkhand region is less than western region but the average cost of SC farmers in western region are larger than Bundelkhand region. The schedule cast farmers are affording high cost due to non-cooperative behavior of banks. The banks are mostly in the favour of General and OBC farmers in the western region of Uttar Pradesh. The SC farmers are giving more bribes to receive credit from the banks.

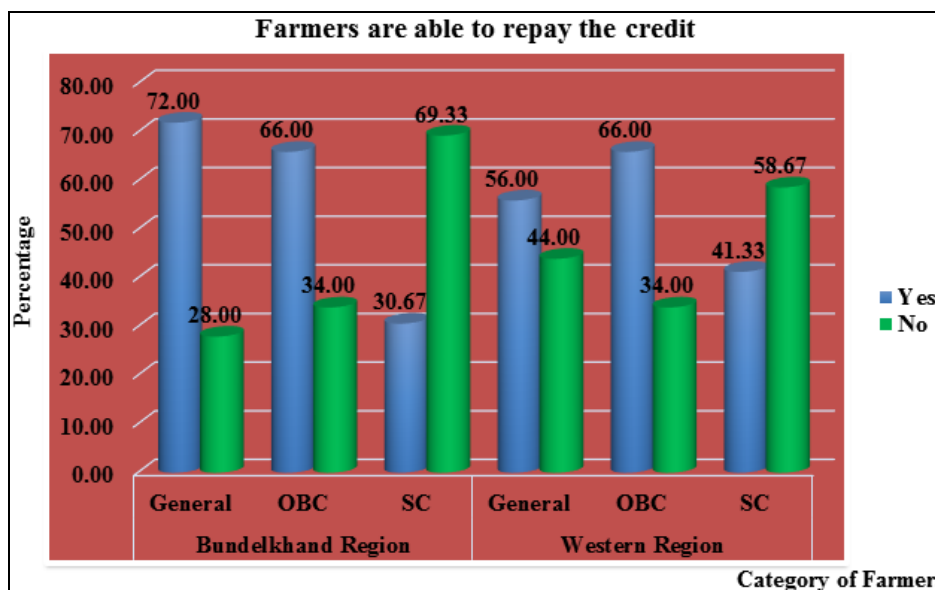


Source: Field Survey Data

Fig 7: Category wise costs incurred during sanctioning Agricultural Credit

The social category wise percentage of repay of agricultural credit is analyzed in the table-6.18 and also fig.6.18. The

figure in the table are presenting in both in absolute numbers and percentage in bracket.



Source: Field Survey Data

Fig 8: Percentage of repaying capacity of credit of Farmers

The bar diagram highlights the percentage of the farmers who are able to repay the credit in the villages of both regions. The figure shows that 72 percent General, 66 percent OBC and 31 percent SC farmers are able to repay the credit in the village of Bundelkhand region whereas 56 percent General, 66 percent OBC and 41 percent SC farmers are able to repay the agricultural credit in the village of western region respectively. It is found that more than half SC farmers are not able to repay the credit in the villages of both regions. But the western region SC farmers are better than Bundelkhand

region. The figures also reflects that the ability to repay credit of the SC farmers are more worst compare to General and OBC farmers in the regions of the state. There is need to make programme and policies at regional and national level to improve the condition of Schedule caste farmers.

Conclusion

Credit plays very crucial role for increasing agricultural productivity, income and employment in Uttar Pradesh. It is seen that agricultural credit is influencing the agricultural

GDP. The regression results shows that the effect of agricultural credit is positive and significant on net state domestic product and yield of foodgrains. The share of short term credit is increasing whereas the share of long term credit has been decreasing in Uttar Pradesh. But agricultural development depends more on long term credit so that it is the major concern of the state. In spite of significant growth of agricultural credit majority of marginalized farmers depend on non-institutional agencies for credit. It is also observed that farmers are not able to get adequate timely financial assistance from the banks. Therefore, the farmers are leaving the agriculture and migrating to other states for employment. The empirical analysis shows that the percentage of agricultural credit flow by formal source in western region is higher than Bundelkhand region. The situations of SC farmers are miserable because majority of SC farmers are taking credit from informal sources both the regions. It is also found that the cost of agricultural credit during transaction in Bundelkhand region is less than western region. Similarly, the average cost of the Bundelkhand region is less than western region but the average cost of SC farmers in western region is larger than Bundelkhand region. On the other hand, it is also found that more than half SC farmers are not able to repay the credit in the villages of both regions. There is need to make programme and policies at regional and national level to improve the condition of schedule caste farmers. There is also need to change the strategy of banks towards SC farmers in the villages of both regions of Uttar Pradesh. The government has to take necessary strategies to protect the agriculture sector as well as increase agricultural credit

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