

Productivity and Efficiency of Agricultural Credit in Andhra Pradesh

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The majority of the population of the developing world, nearly half of it is dependent upon agriculture for their livelihood. Growing literature and empirical evidences illustrate the fact that developing country like India crucially depends on agriculture and allied sectors which play a significant role in rural livelihood, employment and national food security. India's occupational distribution shows that 49 per cent of population is employed in agriculture and allied activities. Agricultural exports form a great share of India's exports. Many subsidiary industries and cottage and village industries subsist on the raw materials provided by agriculture. Therefore the role of agriculture in India's economic and social growth is many and varied. Even in the present context of faster growth of service and industrial sector in India, growth of India an agricultural growth appears impossible. Growth of agriculture things on the volume of production from agricultural operations which becomes a function of land availability in the country and its productivity. Given the supply of land, growth will be greater by mere increase in productivity per unit of land and vice versa. When the productivity is constant, increase in supply of land can enhance agricultural production and growth. A country like India is characterized by scarcity of land resources, especially fertile land for augmenting the production of food and non-food crops. In fact, Indian agriculture is characterized by several discouraging features which impede rather than promote growth. There is abundance of labour, mostly unskilled with patchy land for their subsistence. Agriculture remained as a way of life for many decades and was responsible for the vicious cycle of poverty of India. The only hope for breaking the barriers of growth lies is stepping up the productivity in agriculture for which farmers are encouraged to adopt new agricultural strategy. Agricultural operations, new or old, involve activities such as ploughing, levelling the fields, sowing, transplanting, weeding, spraying of pesticides, fertilizers, harvesting, and irrigating the lands throughout the period. The new farm technology includes the use of improved seeds, fertilizer, pesticides, insecticides, irrigation and intensive use of agricultural inputs. The agricultural operations involve many seasonal and market uncertainties. Agriculture still continues to be a gamble in the monsoon which brings prosperity or disaster. In addition, the drought and flood are harmful to agricultural operations. In addition to these, the overall production of a crop in the entire region would determine the market price of the good. If rice, or a vegetable or a fruit is overproduced in a particular season, this will lead to fall in the price of that good, and this adds to uncertainties. If a family depends solely on its cultivation, it would generate income only at that particular periodical cycle, and all the expenses to run the household, educational expenses of children, health expenses, and any other expenditure have to be managed by the households in addition to the costs of cultivation. Lack of regular income like a salaried class would force the families involved in cultivation to cross utilize the money so as to meet the needs of the household and also to sustain agriculture.

Liquidity and Credit in Agriculture

The liquidity, thus, becomes a core issue in agricultural development and the resultant growth of India. Farmers, who possess high volume of current and fixed assets, have capacity of high purchasing power. When the asset is high enough, farmers may possess a high purchasing power in which case their liquidity level is high. Unfortunately such large and medium farmers in India constitute only a microscopic minority. India is a land of small, medium and landless farmers and tenants who have low or little income, purchasing power or liquidity for whom the very existence becomes a nightmarish experience. They are caught between the devil and deep sea. As they are poor, they do not have purchasing power to buy the necessary where with all of agricultural operations. The investible resource required for current agricultural operations and investment for

agricultural infrastructure are next to nothing. They lead a hand to mouth existence which requires purchasing power for consumption needs. A majority of farmers who happen to be marginal and small, do not own capital to finance expenditure on farm operation. They have to depend on external sources for their operations. This dependence necessitates borrowing from outside agencies. This underlines the philosophy of credit in agriculture. Credit helps in several ways—accessing funds for short term, medium term, and long term investment. The word *credit* has been derived from the Latin word *credo* which means *I believe* or *I trust*, which signifies a trust or confidence reposed in another person. The term credit means, reposing trust or confidence in somebody. In economics, it is interpreted to mean, trusting in the solvency of a person or making a payment to a person to receive it back after some time or lending of money and receiving of deposits. Credit, in general, is finance made available by one party to another. It is different from debt. Debt is the obligation to make future payments while credit is the claim to relieve the payment. In a credit transaction, the amount is equal to the amount borrowed i.e. total volume of debt and credit is equal.

History of Agricultural Credit in India

Traditionally, the farmers of India were borrowing from the non-institutional sources such as private moneylenders, traders and similar individual lenders. These informal lenders adopted foul means to exploit the already impoverished farmers in the form of collecting exorbitant interest rate. Their methods of lending and exacting the labour of this class were so nefarious that they kept the farmers in perpetual indebtedness. The exploitation of this group in the credit market is one of the most pervasive and persistent features of rural life in India, Darling's Statement (1925), that , the Indian peasant is born in debt, lives in debt and dies in debt, still remains true for the great majority of farming households in India. Under this enveloping scenario, agricultural productivity could not increase; purchasing power was proverbially low and the poverty of the farmers was peaking. Government felt that to end this impasse and to meet the surging demand for credit the rational of Government intervention was considered imperative. The genesis of Government intervention in the supply of credit dates back to British period itself. The earlier attention on Institutional finance for agriculture emerged from the Taccavi loan (at low rate of interest) system introduced in 1793 and the loan was used for the digging of wells for agricultural purpose. In addition, an Act was passed in 1883 to offer credit to construct well, tank, preparation of land for irrigation, drainage and reclamation and permanent improvement of land for agricultural purpose. Further, the Agriculturists Loan Act was passed in 1884 as a sequel to the Report of the Famine Commission (1880) to provide the advance amount of loans to durable land owners to support the purchase of seed or cattle and for the relief of distress. These efforts were insufficient. Frederic Nicholson's Report (1892) and Irrigation Commission Report (1903) suggested co-operative form of credit which ultimately culminated in the passage of Cooperative Credit Societies Act, 1904 which paved the way for the creation of primary co-operative credit societies especially in rural areas.

In addition, the Cooperative Credit Societies Act of 1912 to constitute all types of credit and non-credit societies was also passed. By the report of the Maclagen Committee in 1915, the Provincial Cooperative Banks were established with a 3-tier cooperative credit structure and it was extended to all the provinces by 1930. The Royal Commission on Agriculture added fillip to agricultural credit by its Report of 1935 with the establishment of the Reserve Bank of India (RBI) in 1935. Special attention was paid to agricultural credit through its Agricultural Credit Department (ACD). RBI directed other banks to follow the functions regarding the extension of agricultural loan to rural poor.⁶ It conducted studies on agricultural credit in 1936 and 1937, and found that most of the farmers accessed credit only from money lenders and the problems of farmers in availing credit from money lenders in the rural areas were huge. Thus, RBI planned to strengthen cooperative movement, its structure, and its role in providing agricultural credit in future.

Further, the All India Credit Survey Report in 1951-52 advocated the policy of extending institutional credit⁷ since less than 9 per cent of the credit was only accessed by the farmers from institutions while more than 75 per cent of credit was borrowed from money lenders, traders and landlords in 1954. The Committee reported (based on field observations) that agricultural credit was inadequate, not for right purpose, and not for the right people. Thus, the Committee recommended a well-defined role for commercial banks for disbursing agricultural credit. To enable large scale provision of credit and the extending of banking facilities in rural areas, the Act was passed to establish the State Bank of India (SBI) in 1955. Since then Government of India focused on promotion of co-operatives and concentrated on establishment of commercial bank branches in rural areas after 1969. The National Credit Council in 1968 recommended the adoption of multi-agency approach to meet the credit needs of farmers. All India Rural Credit Review Committee in 1969 found that the cooperatives have not realized the expectations of mobilizing deposits and disbursing credit at the retail level. The Review Committee felt that the efforts of the co-operatives had to be supplemented by other institutions and have recommended adoption of multi-agency approach to provide credit in rural areas with a much larger role for commercial banks.

In addition, the All India Rural Credit Review Committee (1969) strongly recommended that the commercial banks should provide increasing agricultural finance in rural area. The Committee's recommendation became the pathway of policy for nationalization of 14 major Commercial Banks in July 1969 and another 4 Banks in April 1980. Based on the recommendations of Narasimham Committee Report, Government of India established Regional Rural Banks (RRBs) in 1975 for exclusively meeting the credit needs of marginalized sections of the rural population, small and marginal farmers. Both commercial banks and RRBs were guided by the priority sector lending policy of providing credit to various deserving sectors/sections including agriculture and allied activities. The National Bank for Agriculture and Rural Development (NABARD) was set up in July 1982 for the promotion and development of agriculture by an Act of 1981. Special Agricultural Credit Plans (SACP) were evolved to monitor and augment the flow of credit to agriculture by public sector banks in 1994 and private sector banks in 2004. Kisan Credit Card (KCC) scheme was introduced in August 1998 to provide adequate and timely credit support from the banking system to the farmers for their cultivation needs including purchase of all inputs in a flexible and cost-effective manner. NABARD had advised banks to extend coverage through expanding their outreach by lending to more farmers including non-wilful defaulters, oral lessees, tenant farmers, share croppers, who may have been outside the fold of the scheme, as also new farmers. The important policy farm credit package was announced in June 2004 with the consultation of RBI, NABARD, and commercial banks, with the aim of doubling the flow of institutional credit to agriculture in the ensuing three years. A scheme was announced for Agricultural Debt waiver and Debt relief in 2008, which covered direct agricultural loans extended to marginal and small farmers and other farmers by SCBs, RRBs, Cooperative credit institutions including urban cooperative banks and local area banks. The rehabilitation package aimed at establishing a sustainable, viable farming, and livelihood support system through debt relief to farmers, improved supply of institutional credit, crop-centric approach to agriculture, assured irrigation facilities, watershed management, better extension and farming support services and subsidiary income opportunities through horticulture, livestock, dairying, and fisheries.

Issues in Farm Credit

Indian agrarian organization has evolved from the caste structure, where most of the landlords belong to the high castes, and share-cropping farmers belong to the intermediary class, and the landless agricultural labourers belong to the most oppressed Scheduled Castes who are deprived of land rights in the traditional caste system. Agriculture in those days was meant for subsistence and the lands in the villages were not cultivated exhaustively. Given the surplus accumulated with the landlords, and a vast majority of the rural population has no alternative occupation than rendering labour in the agrarian production, agricultural activities could be carried out without much need for liquid cash in hand. However, the advent of education, together with emergence of government employment enabled the land controlling families to diversify their occupations and descendants took up jobs in the Government. This resulted in a process where communities which had not owned land in the earlier era could gain access to land as land became redundant for those who have gained employment in the government sector. This together with policies such as land reforms provided the space for the labouring communities to gradually gain land ownership. Unlike the earlier era, lands then came to be owned by families who were labourers or sharecroppers earlier, and these new land owners needed different support system to cultivate their lands.

In cultivation process, the gestation period differs from crop to crop and it plays vital role in converting the inputs into outputs, and farmers have involved selling their output to recover the costs of input such as payment of labour involved, costs of capital, and other fixed and variable costs. Starting from a preparation of the land for cultivation, the farmers would need financial support. On most occasions, the farmers would have borrowed money from the money lenders or middlemen who work as money lenders. In this context, the farming household will be increasingly burdened by the interest on the borrowing and hence, the family cannot wait till they get a good price for crop, rather they would try to give off their harvest so as to reduce their debt. All these gain a greater seriousness when related to the land ownership structure and occupational diversification in farmers households. A farmer who possesses a low volume of asset and hence low purchasing power is bound to borrow money due to lack of liquidity. Therefore, availability of credit has to be converted into entitlement to credit and only strengthening the assets and skills of the poor farmers and their earning capacities can do this. It shows that the demand for credit is the function of availability of assets and the purchasing power of farmers. Credit may be needed to encourage farmers to have its productive use having a demonstration effect. An increase in income due to demonstration effect may be used for having more capital. Credit is needed for day-to-day farming operations, family expenses and long-term improvements on the farm. However, farmers needed to invest in farming activities and then realize the income at later days; sometimes after a year which depends on the duration of the crop. Thus, the farmer needs liquidity in hand, enough to spend on both family and farm. It indicates that unless a farmer is able to raise enough liquidity when required during the crop season, the input use is going to be sub optimal. It shows that when the interest rate is high, the

marginal and small farmers have two options are either to borrow because of high indebtedness or to switch over to other cheap sources of credit. In this case, the medium and large farmers are least bothered about interest rates. It shows that high interest rate does not deter the medium and large farmers from using on farms. Demand for credit depends both on the kind and cash expenditure. The cost for supplying credit on time, transportation cost and the part of credit used as wages which are given to hiring labourers, it is considered as a part of credit cost. When this production cost is high enough and production is low to meet the principal of the debt, the borrower is bound to get trapped in Vicious Cycle of poverty.

Thus, the farmers need credit on time and the timely supply of credit also influences the demand for credit. Perhaps the demand for credit is basically low during the off season, while it is high in the crop season. When institutional credit is not supplied on time, the borrowers might switch over to a costly non-institutional source of credit. Hence, the interest rate may not be an effective instrument to change the demand from short-term credit and thus a credit policy based on different interest rate may not achieve the desired objective. Interest rate does not inhibit the acquisition and use of outside funds and it is profitable to borrow even at higher than the current interest rate without being detriment to the amount of borrowings. The demand for credit depends also on the terms of finance and purpose for which loans are taken. Usually, for short periods, credit is demanded in high volume by marginal and small farmers while long period credit is demanded in high volume by medium and large farmers because these farmers have enough product surplus and capital reserve to manage the short term requirements. The demand for credit may be considered as a function of available assets with farmers, progressive and un-progressive farmers, interest rate, availability of technology, cost of credit in cash and in kind, extent of indebtedness, timely supply of credit, government policy and inter-linkages of credit with factor and product market and size of farms. The credit is needed to reinforce the viability of both the borrowers and lenders by an effective interest rate; it plays an important role in the supply of agricultural credit. In this case, when average transaction and administrative cost decreases over the period, the interest margin does not matter in providing credit as much as the volume of business matters. Therefore, agricultural credit should improve its validity through expansion in business volume rather than the increase in their gross margin. It clearly shows that financial institutions may make the supply of agricultural credit viable even by lowering the lending interest rate and by improving the efficiency to decrease the transaction and administrative cost. When government lowers the interest rate and opens the operation of financial institutions to private sectors and to foreigners, the competition among lenders is bound to increase the marginal efficiencies for lowering the transaction and administrative cost to make agricultural credit more viable. However, such a liberalized policy does not ensure the return of credit in time.

This study attempts to focus the dynamics of agricultural credit at the grass root level by collecting primary data, to understand the credit requirements of the farmers cultivating various seasonal and perennial crops. This will then be analysed along with policies relating to rural credit, and the dynamics of rural credit market. The primary focus of this study is to address the question of access of farmers to formal credit for agriculture by relating the pattern of credit requirements with the nuances of institutional functioning that determines the sanction of agricultural credit to farmers. It is equally important to assess the repayment capacity of farmers which depends on productivity and efficiency of credit used. Credit provided should lead to increase in productivity and production of agriculture and the consequent income and a surplus over cost of production and profit or income ploughing back on agricultural investment. Some of these aspects have been researched in prosperous and irrigated agricultural areas. However, required attention has not been given to assess how the issues of agricultural credit discussed above operate in an irrigated and dry region in agriculturally backward area. This research gap or void is filled by the present study and hence becomes the problem of the study. Particularly, the study is focused on accessibility, inadequacy, productivity and efficiency of agricultural credit in irrigated and dry areas in the state of Andhra Pradesh. The most of the studies are focusing on demand and supply, distribution, utilization, income generation, and cost and return of the credit. Specifically, these aspects of the study have mostly been done in the developed regions or irrigated regions. In view of this gap, this study has attempted to measure the issues on agricultural credit in the irrigated and dry region. The objective is to estimate the productivity and efficiency of agricultural credit used by the farmers and to suggest suitable measures to bridge the supply demand gap in agricultural credit and to enhance the productivity and efficiency of agricultural credit in Chittoor District of Andhra Pradesh State.

Relationship between Agricultural Credit and Efficiency

The credit is an important input to improve productivity in agriculture. Access to institutional credit enables the farmers to purchase inputs on cash, tide over periods till receipt of payment from sale of produce, which at times is delayed and staggered, and also to invest to enhance productivity and also output. In rural area of India, the farmers in order to meet the regular expenses readily depend on two sources of credit namely, institutional and non-institutional sources. The institutional sources consist of commercial banks, cooperative banks, and regional rural banks (RRBs). The non-institutional sources include money lenders, commission

agents, relatives, and friends. Flow of institutional credit to agriculture has improved substantially over the years and stood at Rs. 959826 crore (provisional) and the total number of agricultural loan accounts stood at Rs. 9.74 crore (provisional) as on 28 February 2017. Out of this, crop loan accounts stood at Rs. 8.09 crore (provisional). To improve further agricultural credit flow, the credit target for 2017-18 has been fixed at Rs. 1000000 crore as against Rs. 900000 crore for 2016-17. The agricultural credit and its relationship with technical efficiency have been broadly discussed with different econometric estimation techniques, which depend on the underlying assumptions. The various researchers in different regions of the world have applied the propensity score matching method; other researchers have used the Stochastic Production Function (SPF). A Cobb-Douglas kind of SFA is widely employed by many empirical studies, particularly in those associated with developing agriculture. To look at the efficiency of agricultural credit on crop production in the study blocks, the stochastic frontier approach was used. Stochastic production frontier models were introduced by Aigner, Lovell, and Schmidt and Meeusen and Van den Broeck. Since then, stochastic frontier model became a well-liked subfield in econometrics. Kumbhakar and Lovell provide introduction. Half-normal, exponential and truncated normal models are demonstrated to measure credit efficiency on crop production with collected data of capital and labour. These attempted to estimate a Cobb- Douglas production function.

Crop Wise Efficiency

The study measures the efficiency of agricultural credit on crop production in the Chittoor and Tirupati divisions. The result of descriptive statistics analysis in Chittoor is presented in Table-1.

Table-1
Descriptive Statistics Analysis of Paddy Crop in Chittoor District of Andhra Pradesh

Chittoor Division				
Variables	Unit	Mean	Minimum	Maximum
Output	Kg/Acre	1219.032	165	8345
Area	Acre	0.826	0.12	11
Seed	Kg/Acre	31.234	6	125
Fertilisers	Kg/Acre	125.941	11	655
Manures	Tractor /Acre	0.211	1	5
Pesticides	Litre/Acre	0.866	0.11	4
Labour	Man days/Acre	69.642	19	352
Credit	Rupees	32936.45	1350	290000
Tirupati Division				
Variables	Unit	Mean	Minimum	Maximum
Output	Kg/Acre	965.844	85	3265
Area	Acre	0.7465	0.2	4
Seed	Kg/Acre	21.324	0.5	85
Fertilisers	Kg/Acre	123.065	11	345
Manures	Tractor /Acre	0.125	1	4
Pesticides	Litre/Acre	0.642	0.11	3
Labour	Man days/Acre	55.056	8	265
Credit	Rupees	41212.65	2500	450000

Source: Filed Data

From the Table-1 shows that, the average output of paddy in Chittoor division was found to be 1219.032 kg/ acre with minimum and maximum production of 165 kg/area and 8345 kg/acre, respectively. While, the average farm size was about 0.826 acre cultivated under paddy with maximum and minimum of about 0.12 acre and 11 acre. The average seed used was 31.234 kg/acre with minimum and maximum of 6 kg/acre and 125 kg/acre. Furthermore, the average fertilizer used was 125.641 kg/acre with minimum of 11kg/acre and a maximum of 655 kg/acre, respectively. The mean value of manure was 0.211 tractors/ acre, and maximum was 4 tractor/acre used in Chittoor division. The average value of pesticide was 0.866 litre/acre while minimum was 0.11 litre/acre and maximum 4 litre/acre. The mean value of labour used was 69.642 man-days/acre with minimum and maximum of 19 man-days/ acre and 352 man-days/acre respectively. The average credit received was Rs. 32936.45 per acre, with minimum of Rs. 1350 and a maximum of Rs. 290000 per acre. The technical efficiency is derived from a stochastic production frontier (SFA) function and efficiency level is The technical efficiency indices range from 75 per cent to 95 per cent for paddy crop. The minimum and maximum technical efficiency of paddy is 0.792 per cent and 0.954 per cent with an average of 0.896 per cent, which indicate that around 10 per cent of paddy production is lost due to technical inefficiency. The efficiency level shows that about 92 per cent of paddy farmers are more than 86 efficiency level. About 2.16 per cent of the farmers in the range between 75 and 80 per cent, while 10.42 per cent of them in the range between 81 and 85 efficiency levels. About 48.96 per cent of paddy farmers are in the highest range between 91 levels and 95 levels

in the study area. In Tirupati, paddy production is determined mainly by area and seed, the coefficients of which are positive and statistically significant. The increase in one per cent of area and seed increase production by 0.746 per cent and 0.175 per cent. The largest and significant elasticity is found with respect to seed with a value of 0.065. The fertilizer elasticity is positive with a value of 0.115. Seeds and fertilizers contribute to increase in production. The marginal effect values indicate that area and seed are important in paddy production. The result of technical efficiency indicates that if the average farmer could achieve the technical efficiency level of his most efficient counterpart, then average farmers could increase their output by 0.28 per cent approximately. Though, 92.16 per cent of the farmers are more than 55 per cent technically efficient, 36.92 per cent of the farmers are with highest efficiency level between 81 and 94 per cent.

The findings and conclusions of the study have also indicated some deficiencies in the agricultural credit scenario which imply certain suggestions for policy making of the Government in the future. Firstly, the study area is dominated by farmers hailing from suppressed and oppressed communities such as Most Backward Classes, Scheduled Castes and Other Backward Classes and most of these farmers depend on agriculture for their livelihood and prosperity. Their welfare and betterment are strongly linked to the development of agriculture and the consequent profitable and efficient agricultural production. But this kind of production is made possible by the liberal provision of institutional credit. The results of the study show that the existing institutional structure is not congenial for such a liberal provision of credit. Therefore, the Government has to think of alternative system of institutional financing based on pragmatic and down to earth policy decisions. One suggestion made by the farmers during the personal interview is that borrowing by the farmers from the institutional agencies should be made a right rather than a charity by the institutional agencies. They should not be left to the vagaries of whims and caprice of the officials of commercial banks, regional rural banks and cooperatives. Given the improved pragmatic procedures, the farmers should be enabled to borrow from the institutions as a matter of right just as a ration card entitles the card holder certain items of food from the ration shops. The credit card of the farmers should entitle them to get the prescribed amount of credit on time. This only can ensure the provision of adequate timely and cheap credit to farmers which even today are a critical variable in agricultural development. Farmers require guidance in the planning of their agricultural operations like the use of seeds, fertilizers, pesticides, etc., assistance in raising crops and in general help for their income. In fact, agricultural productivity improvement and agricultural credit should go simultaneously. It should be the responsibility of the institutions to teach farmers improved farm methods and also provide adequate cheap credit. In other words, extension work should be improved and this work can be done more efficiently by the cooperative societies and commercial banks. Therefore, commercial banks and cooperatives should restructure their functions in such a way that they become both institutions of credit and production linkage.

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