

Institutional Credit and Agricultural Production: An Empirical Evidence from Pakistan

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Abstract

In our prevalent and deprived agrarian sector, sufficient credit provision is a serious problem to implant technological advancements and achieve technical efficiency, moreover to hire efficient inputs to improve and rise agriculture output/income collectively and alleviate poverty eventually. In the middle of embroiled informal credit sector and recent increase in banking services in last decade shrink the attention to intend the formal sector's optimum potential. In this perspective, this study is going to explore the relationship of agriculture credit on agriculture output. We analyze the role of institutional credit on agricultural production using the time series data for the period of 1970 to 2008 and to give suggestions and recommendations about the promotion of institutional credit in agriculture sector of Pakistan. Cobb-Douglas production function is estimated using simple OLS, and all the variables are transformed to per cultivated hectare. Results show that agricultural credit, availability of water, cropping intensity and agricultural labor force has significant positive impact on agricultural production. The study recommends that institutional credit should be provided by the concerned organizations in order to boost agricultural output. The credit provision should be made to ensure the contribution of agriculture sector in economic development of the economy.

Keywords: Agricultural Production, Institutional credit, Pakistan

1.1 INTRODUCTION

Agriculture is essential to economic growth and development in Pakistan. It has been considered as the backbone for the economy of Pakistan since its independence (1947). It is still contributing around 21% to GDP and 43.7% to total employment. Besides contributing 43.7% in labor force, 66% of the population of Pakistan residing in non-urban places, depending upon agriculture sector for their income directly or indirectly. Different kinds of crops are cultivated here in Pakistan which includes food crops like wheat, rice, sugarcane, cotton and maize and besides these some cash crops i.e. cotton, sugarcane, tobacco etc. The agriculture sector also provides raw material to the agro-based industry of Pakistan and plays a vital role in the exports of the country. Where 64% of exports are basically based on agricultural raw materials. So any plan modified for agriculture market will impact the economic system and a huge section in the population in the country (Economic survey of Pakistan, 2013-14).

Any development in agriculture sector will directly influence the improvement of the socioeconomic life of the rural populations. The Government of Pakistan is aware of the vitality of agriculture credit and making all efforts for promotion and development of agriculture finance in the country. Resultantly, the flow of credit to agriculture sector is showing improvement and all steps have been taken to the credit availability to the farming community at affordable rates in order to advance agriculture production. A well-established linkage of loaning institutions is working to come across the financial requirements of farmers particularly in the rural parts of the entire country. Currently, 31 commercial, Islamic and microfinance banks with around 3,900 agriculture designated branches are facilitating farmers by extending agriculture credit throughout the country. These include 19 commercial banks, 2 specialized banks, 3 Islamic banks and 7 microfinance banks. These banks provide production and developmental loans to farmers for agricultural activities including crops production, poultry, livestock, orchards forestry, fisheries, nurseries etc. State Bank of Pakistan, keeping in view the increasing demand of credit has provisionally set an indicative agriculture credit disbursement target of Rs 380.0 billion during 2013-14 as against Rs 231.0 billion fixed last year. Out of which Rs 188.0 billion is allocated to 5 major

Commercial Banks as a group, Rs. 69.5 billion to Zarai Taraqiati Bank Limited (ZTBL), while Rs 90.4 billion to fourteen domestic private banks (14 DPBs), also Rs. 21.6 billion to seven Microfinance Banks (7 MFBs) and Rs. 10.0 billion to Punjab Provincial Cooperative Bank Limited (PPCBL) and at the last 0.5 billion were targeted to 3 Islamic Banks. (Report of SBP, Micro Finance, 2013-14).

1.2 STATEMENT OF THE PROBLEM:

Agriculture sector of Pakistan is confronting many challenges in form of the shortage of energy and water, along with rising prices of inputs like seeds, pesticides, fertilizers, etc. Most of the time small farmers are facing difficult situations which make them unable to continue their farming. In order to continue they are always in need of credit for the purchase of seeds fertilizers and others agricultural inputs. This credit is whichever arises from farmer's savings or borrowings. In less developed countries like Pakistan, there is no chance to save money by the farmer's (specially small farmers) so that's why farmers borrow money from lenders. There are two types of lenders one is formal which include ZTBL, commercial banks, micro finance banks and Islamic banks provides short term, medium term and long term agricultural loans to farmers. The informal lender consist of lending money from relative, friends, village shopkeepers, commission agents etc. Most of the time their terms and conditions are so stick in order to lend credit for agricultural purpose.

The present study is aimed to check and analyze the impact of institutional credit on agricultural production and to present their contribution towards agriculture growth in the economy.

1.3 OBJECTIVE OF THE STUDY

The present study is aimed:

1. To analyze the role of institutional credit on agricultural production in Pakistan.
2. To check the relation of agricultural credit on agricultural production in the economy.

1.4 SIGNIFICANCE OF THE STUDY

Every sort of business where capital is an important part of its operation always require credit such as agriculture sector also need agricultural loans in order to increase the productivity of the sector as well as to bring significant improvement in the welfare and standard of the farming community of the country. But these always exist a problem of the lack of availability of resources mainly credit for the farmers so there exist a gap between their income and required expenditure of the farming sector for the fulfillment of that sector effectively there is need of such sources which provide loans for the farmers which mostly consist of institutional sources as they have formed and well stabilized framework for the provision of such kind of loans. Pakistan agriculture sector almost fulfill the food demand of the country by own production in order to fulfill the country demand for food and all agricultural products there is always need of agricultural credit to boost this sector. Beside this agricultural loans also helps in the development of farmer's individual life standard too. Which alternatively brings improvements and technological advancement in the production side of the sector. As a result technically efficient production side will produce more and more output as well as the profit.

2.1 THEORETICAL FRAMEWORK OF THE STUDY

This section consist of following main sections.

2.2 AGRICULTURE CREDIT

It is the credit or loan given to the farmers for the purpose to fulfill the needs of the agriculture sector, or it is the funds available to the farmers for the development of their agricultural sector is called agricultural loans or credit.

2.3 CLASSIFICATION OF AGRICULTURAL CREDIT

Agricultural credit can be classified into 3 types in term wise, these are short term credit, medium term credit and long term credit.

2.3.1 SHORT TERM CREDIT

These credit consist of the duration of one year of time period or below it these credit usually given to meet the daily routine type needs of the farmers for example purchasing seeds fertilizer pesticides etc. also these loans are utilized by farmers in order to meet their consumption needs till the harvesting season short term credits mostly uses as a portion of working capital.

2.3.2 MEDIUM TERM CREDIT

This period consist from 1 year to 5 years these loans are provided for the purchase of livestock, construction and improvement and advancement in the water canals and for others agricultural equipment's these loans are given by specialized banks and other financial institutions here the farmers should pledge his all type of property.

2.3.3 LONG TERM CREDIT

Long term credit vary from more than five years these loans are given in order to develop and improve the

sinking of the wells as well as tube wells recovery and purchase of extra land and repayment of farmer's credit as well as the purchase of tractors agricultural machinery harvesters . On the other hand it also use for the purpose to start poultry and dairy farms and at the end it helps in the development of agro-based industries these loans may be used in productive and unproductive purposes.

2.4 SOURCES OF AGRICULTURE CREDIT

There are basically two types of agricultural loans for farmers these are Institutional sources of credit and non-institutional sources of credit. **Institutional credit** are those credit which are provided by the institutions like ZTBL the commercial banks provincial governments cooperative and micro finance banks along with Islamic banks for agriculture development. These loans are provided after its specified procedure and concerned terms and conditions. By **non-institutional credit** mostly comprise of loans taken from friend's relative money lender "arthiys and others commission agents. These loans have no proper documentation or others rule and regulations that's why most of the time farmers facing a tough time while getting these loans. The interest charges against such loans are also higher as compare to others.

Concluding theoretical frame work the study conclude that there are always a need of agricultural credit specially taken from institutions rather than non-institutional sources.

3. LITERATURE REVIEW

As a sector agriculture highly depend upon credit as compare to any other sector in whole economy, the reason is due to the seasonal variations in the income as well as the shifting development to commercial farming from subsistence farming. Therefore agricultural loan will indeed offer them opportunity to increase their return and as a result it will also improve their living standard. (Vogt 1978). In Pakistan it is not so easy for small farmers to be stay for a longer period with the agricultural sector, because they are always in need of the fulfillment of their required credit for the purchase of agricultural inputs for their production but unfortunately only large land holders get and receive large portion of these loans because of the influences. That's why the small farmers couldn't get the loans which latterly create a negative impact on their agricultural development as well as social welfare, on the other hand due to higher prices of most of the agricultural inputs these small farmers are not able to save money for that reason to be stay in this sector they need agricultural credit from others different sources. (M. Zafar 2011)

Pakistan agricultural sector mostly consist of subsistence farmers who can't afford to use high quality seeds fertilizers in order to improve their productivities, because of lack of availability of finance it is then influence the per acre productivity of agriculture sector of the country. In order to increase agricultural output there is always a need of proper and efficient availability of finance and credit facilities to the farming community in their concerned regions. (Ahmad, 2007). Specifying the role of agricultural credit on wheat production Arif conduct a study in 2001 which contain the micro credit disbursement by ZTBL on agricultural output. His study was conducted in three villages of district Attock in which he was analyzing the effect of agricultural credit on wheat production as well as all those factors which make hurdles for getting loans from ZTBL, the study shows that all the respondents properly used the loans to purchase agricultural inputs which bring a significant increase in cropping intensity as well as a marvelous increase was also observed in the production of wheat. As in concluding his study states that agricultural credit bring a positive impact on wheat production. (Arif 2001). By observing agricultural credit impacts, Waqar calculated that because of proper utilization of agricultural credit the income and saving of the respondents increased as the increased in monthly income was observed to be 73% along with and upward trend was observed in the opportunities of employment in those targeted areas beside all these there was observed a positive impact on living standard of those targeted beneficiaries of the agricultural loans. (Waqar 2002).

From the above studies we conclude that agricultural credit has a significant effect on the agricultural productivity. The present study will attempt to address the role of institutional credit on agricultural production and to find out its contribution towards agriculture sector and its development.

4.1 METHODOLOGY

4.1.1 Data Description

The current study used time series (secondary data) collected from various publications of ZTBL and Government of Pakistan from 1970 to 2008 about the agricultural output, agricultural loans, water availability and labor force in agricultural sector. Area of the study include whole agriculture sector of Pakistan.

4.1.2 Model Specification:

In this study, we used multiple regression model as it transformed all variables into per cultivated hectare. logical relation of the independent variables are such that agricultural production is affected by the main factors such as available water, labor forces and if we include agriculture credit then we can easily check its impact or role in the increasing productivity of the wheat production.

Estimated equation of cobb-Douglas production is as followed

$$LGDPA = \alpha_0 + \alpha_1 LINCA + \alpha_2 LALF + \alpha_3 LAWA + \alpha_4 DUMMY + U$$

Where

Dependent Variable (LGDPA) = Natural logarithm of agricultural output per cultivated hectare.

Independent Variables are,

LINCA = Natural logarithm of agricultural credit per cultivated hectare.

LALF = Natural logarithm of agricultural labor force per cultivated hectare.

LAWA = Natural logarithm of farm gate availability of water per cultivated hectare.

DUMMY = for bad years (1- for years 1974-75, 1983-84, 1992-93 and 2000-01, other wise 0)

4.1.3 Cobb -Douglas production estimation by using OLS

The given table shows that the final model is free from multicollinearity, heteroscedasticity and autocorrelation. The data was stationary at the second difference where test statistic value was greater than critical values at 1%, 5% and 10%. Result shows that agricultural production is influence by all the explanatory variables in the model. R2 value shows that 96% of the total variations in the agricultural production are explained by independents variables. All the variables are significant and according to expectations. Agricultural credit is positively related to agricultural production and explores the thing that one percent increase in institutional credit will increase agricultural production by sixteen percent. Dummy variable is significantly negatively related to agricultural production, which shows that uncertainties like droughts; floods etc. will decrease agricultural output.

Table: 1 Cobb-Douglas production estimation by using OLS

Variables	Coefficients Estimates
Constant	6.01**
LINCA	0.16**
LALF	0.64*
LAWA	1.10**
DUMMY	-0.067**
AR(1)	0.255*
MA(1)	0.979*

Source: OLS result

R2= 0.96 F=160.1 Durbin-Watson Statistics=1.96

*=99% Significance level

**= 95% Significance level

5. MAJOR FINDINGS OF THE STUDY

Following are the major findings derived from the study.

- The institutional credit have a positive role in the increase of agriculture output.
- The institutional credit in agriculture sector reduced the problems of the farmers regard financing and improve their level of production.
- In 2008-09 agriculture disbursement was at peak.
- The percentage ratio of the small farmers towards advancing agriculture credit from commercial banks is higher than the medium and large farmers.
- There is a massive increase in the advancement of institutional credit in agriculture sector of Pakistan since 1994-95.
- Agriculture credit is positively related to agriculture production in Pakistan.
- One percent increase in institutional credit will bring increase of 16% increase in agriculture production in Pakistan.
- The increase in agriculture production will lead to also support the agro based industry of Pakistan and also increase the export of Pakistan.

6. CONCLUSIONS

Institutional credit disbursement shows an increasing trend during some past years. In 2007-08, credit disbursement was at its peak. ZTBL and Commercial banks add up to major share in formal agricultural credit disbursement. From 2000-01, commercial banks heighten their loan portfolio for agriculture sector. Increase in development and production loan portfolio from the entire formal institutions give boost to agricultural output. Agricultural credit was positively significant to agricultural GDP while, availability of water, crop intensity, agricultural labor force per cultivated hectare were the factors that enhance agricultural GDP.

7. POLICY RECOMMENDATIONS

It is recommended to enlarge the agricultural credit disbursement particularly to small farmers. To take into custody the uncertainty in agriculture sector, crop insurance scheme must be initiated. This may be helpful in

getting required recovery rates of agricultural loans. Agricultural credit given to farmers on the basis of productivity will help in targeting the needy persons and this will also shrink the loan losses. Because when productivity of such a farmer increases, then by selling agricultural output, he will be able to return the loan easily. In the bad times, share of consumption loans should be increased. Besides, relaxation of collateral for small loans will be helpful for poor farmers. Above and other similar options for agricultural credit will be helpful in removing rural poverty.

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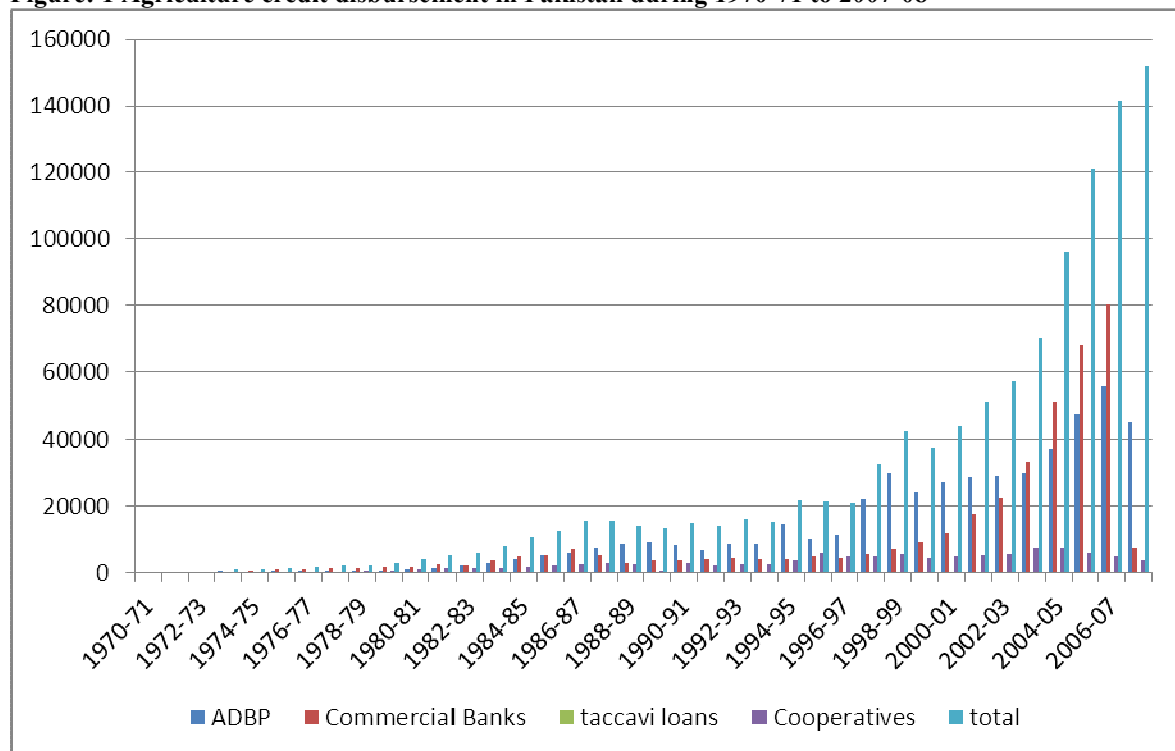
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Appendix:

AGRICULTURE CREDIT DISBURSEMENT IN PAKISTAN FROM 1970-71 TO 2007-08

Explanation of the given figure. The figure expresses the disbursement of agriculture credit in Pakistan from the period 1970-71 to 2007-08 in this bar chart. It give a clear view of all the institution credits in agriculture sector the chart easily explain the impressive increase in these credit from 1994-95 and onward . The data is taken from Economic survey of Pakistan (various issues).

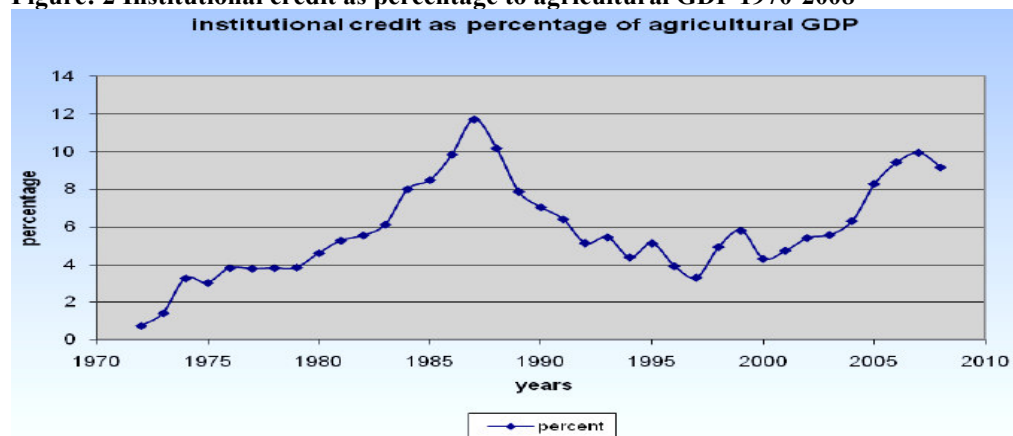
Figure: 1 Agriculture credit disbursement in Pakistan during 1970-71 to 2007-08



Institutional credit as percentage to agricultural GDP 1970-2008

The given figure below shows, the situation of institutional credit as percentage to agricultural gross domestic product (GDP) for the period of 1970-71 to 2008. Institutional credit as percentage to gross domestic product was at its highest point during 1986-87. After this period, there is a decreasing trend in this percentage. This ratio is somewhat at a better condition during 2006-07 but again in 2007-08 institutional credit as percentage to gross domestic product declines.

Figure: 2 Institutional credit as percentage to agricultural GDP 1970-2008



Sources: Economic Survey of Pakistan 2003-04, 2008-09.
Agricultural Development Bank of Pakistan.
Agricultural Statistics of Pakistan 2004-05

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