Formal Credits Access and Farmers Welfare in Plateau State

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FORMAL CREDITS ACCESS AND FARMERS WELFARE IN PLATEAU STATE, NIGERIA

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ABSTRACT

This is an analysis of the impact of credits from formal financial institutions on the welfare of farmers in Plateau state Nigeria. The study used survey research design and the instrument of questionnaire to capture input variables, output data and welfare data. Data was partly fitted into the Cobb-Douglas production function for analysis to ascertain the impact of credit on productivity, and welfare data were analyzed through descriptive statistics. It was found that credit available to farmers in Plateau state is inadequate to significantly raise farm productivity and hence the welfare conditions of farmers. It was further found that profitability, Net farm Income and welfare status of borrowers were slightly higher than that of non-borrowers. The study therefore recommends a renewed commitment of both government and formal financial institutions towards improved quality and quantity of credit to farmers so as to boost output and welfare conditions of the farmers in the state.

Keywords: Credit, Welfare, Farmers. Gel classification: Q14

1. INTRODUCTION

Theoretical postulations and country experiences in developing regions underscore the crucial role of agricultural growth for poverty reduction. Growth originating in agriculture could be up to four times as effective in reducing poverty as growth originating outside of the agricultural sector (World Bank, 2007). Agriculture and poverty are closely linked, most of the poor live and work in the agricultural sector and low agricultural productivity and incomes prevent their movement out of poverty. There is need for governments of developing countries to resolve the problems of poverty and agricultural decline in rural areas. The means of achieving this is through the revitalization of agricultural sector (Badru, 1997). Capital surpluses must thus be transferred from other sectors of the economy to agriculture, and this is best facilitated by credit institutions (Ajobo and Oguntade, 1996). Such involvement would lead to improved agricultural production

and rural development. Furthermore, it would lead to higher incomes and better quality of life of the rural population. Experience has however shown that while Nigerian farmers over-utilize labor and land, they under-utilize credit. Many reasons are adduced for this but the primary reasons are its insufficiency and limited sources from which it can be obtained (Ajobo and Oguntade, 1996). Over the past decades, higher incomes from agriculture and access to cheaper food have helped hundreds of millions of people to move beyond the US$1 per day poverty line. For example, China, Vietnam, Brazil and Thailand have experienced significant agricultural growth over the last three decades with corresponding decline in poverty. In particular, estimates indicates that Vietnam and China took 40% of their population out of poverty in 10 years with the aid of aggressive agricultural investment and growth. In China, poverty dropped from 33% to 17% between 1990 and 2001 and in India, from 42% to 35% within the same period. (World Bank, 2007)

In Nigeria, economic growth has largely been accounted for by resilient agricultural growth. According to Nigeria Vision 2020 First Implementation Plan for the period 2010-2013, the agricultural sector contributed 73% of GDP growth over the period 1999-2009. With real growth averaging about 7% per annum from 2004-2008, and value added to the tune of 42% of the Gross Domestic Product (GDP) within the same period, the agricultural sector in Nigeria clearly has the potential to be a dominant and leading component of economic growth.Nigeria's agriculture is essentially traditional and subsistence in nature and so given the requirement of finance in the agricultural sector, very few farmers will have capital of their own to invest in agriculture (Agba, 2016). Most farm families hardly have any savings to plough back into production, considering the pattern of their income and expenditure. Thus, the need arises for the provision of credit to the majority of Nigerian farmers. The importance of credit to agricultural development cannot be overemphasized given that credit enables farmers to advantageously use inputs and factors of production, by granting farmers more access to resources through the removal of financial constraints. The traditional argument for the provision of agricultural credit is that additional capital can be temporarily used to enhance the level of household's productive and physical capital (Eswaram and Kotwal, 1990). The provision of credit will reduce the costs of capital. In addition to contributing to the largest share of the Gross Domestic Product (GDP), agriculture has remained the largest non-oil export earner and employer of labour and a key contributor to wealth creation and poverty alleviation in Nigeria (National Planning Commission, 2004). For example, the National Planning Commission (2006) observed that agricultural sector accounted for 41.21 percent of GDP in Nigeria, although agriculture has remained a rural enterprise. The National Bureau of Statistics (2005) indicated that about 65 percent of the working population was engaged in agriculture, fishing and agriculturally based trade.Odoemenem (1991) identified production expansion as the primary motivation of farmers for borrowing, others are profit optimization and improved family standard of living. Yet just a third of the credit needs in rural areas are met by formal lending agencies (Obeta, 1992). He further asserts that this situation has led to the dominance of informal credit associations like cooperatives, community development associations and money lenders. Many reasons are given for the inability of formal institutions to meet credit needs in Nigeria. First, they are controlled from their headquarters located in the cities, thus making them out of touch with the needs of subsistence farmers. Also, untimely release of funds, cumbersome loan procedures and high interest rates limit farmers' access to loan from the formal sector. In light of the substantial resources possessed by formal lending sources relative to inadequacy of credit, there is a need to evolve a means of stimulating formal credit availability to rural areas (Obeta, 1992).Therefore, this research work is designed to address questions like; what is the impact of credit access on the productivity and welfare of farmers in Plateau State. Therefore, the major objectives to be pursued here is to among others, assess the impact of credit access by farmers on farm productivity and welfare in Plateau State. Nigeria.

2. LITERATURE REVIEW

2.1. Conceptual Literature

The concepts of farm credit and agricultural finance can be used interchangeably. Thus "credit" comes from the Latin word *"Credo"* which means "I believe". Hence credit is based upon belief, confidence, trust and faith, it is otherwise called loan. Murray (1953) defined agricultural finance as "an economic study of borrowing funds by farmers, the organization and operation of farm lending agencies and society's interest in credit for agriculture. Credit is a certain amount of money provided for certain purposes on certain conditions with some interest, which can be repaid sooner (or) later. According to Galbraith (2007) credit is the "temporal transfer of assets from one who has to others who has not" or a process whereby control over the use of money is obtained in exchange for promise to pay in the future. Agricultural credit has been variously defined by authors. According to Nwaru (2004):

Agricultural credit is the present and temporal transfer of purchasing power from a person who owns it to a person who wants it, allowing the later the opportunity to command another person's capital for agricultural purposes but with confidence in his willingness and ability to repay at a specified future date. It is the monetization of promises and exchanging of cash in the present for a promise to repay in future with or without interest. Without the willingness and ability to repay, the promise to repay at a future date would be futile.

Credit can be in cash or in kind; however, our concern here is those in cash. This is the control over the use of money, goods and services of another person (Adegeye and Dittoh, 1985). Credit is given at a price usually regarded as the interest rate (Ellis, 1992), which is required to be paid together with the amount borrowed at a specified future period. Credit is an instrument whose effectiveness depends on the economic and financial policies that go with it.Singh, (1977) opined that formal financial institutions refers to all financial institutions registered by the financial regulatory authorities to operate and assist in the advancement of credit to agriculture, industry, services, trade among other functions, while informal financial institutions refer to all those traditional financial institutions that are not registered by the financial regulatory authorities but serve the purpose of advancing credit to the rural poor for agriculture and other purposes. In Nigeria, formal credit to agriculture is captured under the following scheme and institutions; Agricultural Credit Guarantee Scheme Fund (ACGSF), Bank of Agriculture (BOA), Microfinance Banks and Commercial Banks. According to Pareto welfare criterion of optimality and efficiency, any change that makes at least one individual better off without making any one worse off is an improvement in social welfare.

2.3. Theoretical Framework

The Neoclassical Capital theory is a capital based theory whose central concept is aggregate production function. Q=f (K,L) Where Q is total output, f is the functional relation, K is the single homogeneous, malleable capital good and L is homogeneous labour. It is a homogeneous production function of degree one. This implies that given one production process (or technique), the use of more inputs K and L will lead to an increase in output. In the neo-classical theory, F is an increasing function of both K and L. Further, it displays constant returns to scale which means that a proportionate increase in both K and L leads to an increase of output in the same proportion. Two properties follow from constant returns to scale. First, there is diminishing marginal product to each input. If say, successive amounts of K are increased with fixed units of L. this will lead to less than proportionate increase in output. The second property can be presented in per capital terms. An economy with the same capital per man will have the same output per man, although

the absolute level of output will depend upon the absolute amount of capital and number of workers, if we denote capital per man (K/L) by k and output per man (Q/L) by q, then the production function may be written as q= f (k)

Adam smith monumental work, "An enquiry into the Nature and Causes of the Wealth of Nations" Published in 1776, was primarily concerned with the problem of economic development, though he did not expound any systematic growth theory, yet a coherent theory has been constructed by the economist like the natural law theory, Adam smith believed in the doctrine of "Natural law " in economic affairs. He regarded everybody as the best judge of his self-interest who should be left to pursue it to his own advantage. In furthering his own interest he would also be furthering the common good. In pursuance of this, each individual was led by the "invisible hand" which guided market mechanism. He however emphasized that; capital accumulation must precede the introduction of division of labor. Like the modern economist, Smith regarded capital accumulation as necessary condition for economic development. So the problem of economic development was largely the ability of the people to save more and invest more in a country. This theory is useful because credit is sought to improve the capital base of the farmer and the study believes that if farm capital (credit) is improved productivity and output will be increased thereby by increasing farmers' welfare.

2.3. Empirical Literature

Aku, (1991) in her work titled "An Evaluation of the impact of institutional agricultural loans on farm resource use efficiency in Kaduna State". Used survey method of research and employed cross sectional data to achieve the objectives of study. Production function model were developed and linearized so as to apply OLS technique of regression. Descriptive tools were also employed to describe the effects of loans and other socio-economic effects on production output. It was found that borrowers had larger farms and incomes compared to non-borrowers who did not have access to credit. Furthermore, the study also found that the use of modern tools had escalated the cost of production of the farmers, the implication of this is that non-borrowers were located at a higher technological function than borrowers, it was concluded that unless credit amount was high enough to enable the borrowers bring their resource base to the level of the rich non-borrowers, the result obtained would be unclear, inconclusive and the difference in the regression coefficient for the two groups of farmers would be inconsistent. Nwaru, Essien and Unuoha (2011) conducted a research in Akwa-Ibom state on the problem of determinants of informal credit demand and supply using primary data obtained through multistage sampling technique. Data were collected and analyzed using two stage least square method and the variables used in the study were credit demand and supply, farm income, profit, education, interest rates and experience. It was found that farm income, profit, education, and interest rates determine credit demand while liquidity, experience and interest rates determine credit supply.

Feder, (2008) estimated a switching regression Model for households in China and distinguished between farm households that are credit - constrained and those that are not credit-constrained using a simple random technique of data collection, the method of analysis used was regression as well as other simple analytical tools like simple percentages, pie charts, bar charts, histogram etc. the study used variables like credit access, farm income, productivity, gender, farmers' experience etc. He found that farm households with access to credits enjoy a higher standard of living due to higher farm output than those without access to credits.

Pitt and Khandker (1998) examined the impact of group based credit programs on the poor households in Bangladash: Does the gender of participants matter? They used three programs: Grameen bank, BRAC, and RD-12 in Bangladesh on a variety of individual and household outcomes, including school enrolment, labour supply, asset holding, fertility and contraceptive use. They found credit to be a significant determinant of many household outcomes, and that

credit program has a significant effect on the well- being of poor households in Bangladesh. However, Murdorch, (1998) argued that data obtained were not consistent and the statistical model was not sufficiently aggregative.

From the best of my knowledge, among the studies reviewed, there is none of the study that is situated in Plateau state and given that the state is an agrarian state the study believes that it is necessary to fill this gap in knowledge. Also, none of the studies used the methodology that is employed in this study. Therefore this research work believes that there is need to enrich literature in the area of credit impact on farmers' welfare in the state.

3. NUTRITIONAL AND ECONOMIC IMPORTANCE OF MAIZE.

1The composition of maize endows it with many health benefits. The high fiber content prevents constipation and colorectal cancer. Antioxidants neutralize the effects of harmful free radicals that cause diseases like cancer. The antioxidant betacryptoxanthin prevents lung cancer, while lutein prevents age related vision loss. Antioxidants slow cognitive decline and conditions like Alzheimer's. Vitamin C boosts immunity and fights infections, while the presence of vitamin E gives maize anti-aging properties. Thiamine is required for boosting memory, cognitive functions and nerve health, and pantothenic acid is essential for energy, as it is linked to carbohydrate, protein and lipid metabolism. Folate is an essential requirement, especially during pregnancy. The phosphorus helps to maintain normal growth, kidney function and bone health. Magnesium boosts the latter, as well as regulates the heart rate. Finally, maize lowers LDL cholesterol and guards against cardiac diseases, diabetes and hypertension. The traditional maize, like other cereals, also provides proteins, lipids and little water. Maize has also diuretic properties when taken as a tea and is a component in certain oils, corn oil and syrup. One of the nutritional benefits of maize comes from its rich carbohydrate that is derived from its abundant starch. Maize is also very rich in thiamine or vitamin B1, which is necessary for the brain to absorb glucose and to transform that food into energy. Biotin or Vitamin B7 give nutritional benefits to maize, since the deficiency of this vitamin in the body affects the state of the skin and hair. The nutritional benefits of maize are also determined by its vitamin A, which functions as an antioxidant in preventing diseases such as cancer. The high fiber content is another characteristic linked to the nutritional benefits of maize. This condition makes it suitable for diets that are made to lose weight and those made with the aim of lowering cholesterol levels. Recent clinical studies in Japan, published in the journal Biochemical and Biophysical Research Communications have shown that purple corn (Zea mays L.) could be a great ally in the fight against diabetes and obesity. Anthocyanin is the name of the pigment that gives color to purple corn. Last year a research team from Japan Doshisha University, Kyoto, was born to see that the purple corn extract increases the activity of a gene that regulates the function of fat cells. Obesity and diabetes are the great evils of this new century, and the properties of the purple corn then open new hope in preventing it.Purple corn extract or juice is a powerful antioxidant. This corn is also a good inhibitor of cholesterol and is a protector of the retina, stimulating blood circulation and also prevents the development of colorectal cancer. Promotes tissue regeneration, prevents cardiovascular diseases, retards degenerative processes in general, has anti-wrinkle action, increases blood circulation, encourages diuretic action, so that in future instead of the harmful soft drinks, take purple corn juice.

Maize otherwise known as corn is important to the economy due to its wide range of uses. Maize primarily used as feed for livestock, suggesting the dependence of livestock industry on corn production. It is also used to create a variety of food and nonfood products such as corn meal. Sweeteners, corn oil, starch and ethanol which is used as a cleaner burning alternative to gasoline. Maize is the most important crop grown in the United States. America produced about 32 percent of the world's maize crop making it the global leader in maize production in 2010. China is the largest producer of maize. The global demand for maize imports continues to

increase. There is considerable competition from other coarse grain like wheat, which can substitute as feed for livestock depending on availability.

The subsequent abundance of maize in the top producing countries can be attributed to genetic modification of the plant and credit supply especially in China, India and indonesia. As of 2010, 86 percent of the United States of America's Maize was genetically modified. According to Agba, 2011. Genetically modified maize is more resistant to the major contributors of crop destruction, such as pest and diseases. This in turn requires less need for pesticide application and results in more efficient crop production.

4. METHODOLOGY

Plateau State is one of the thirty - six states that make up the Federal Republic of Nigeria, including the Federal Capital Territory, Abuja. The state is located in the middle belt zone within latitude 80° 22' and Longitude 80° 32' East and 100° 38' East and has a total land area of 26,899 square kilometers. Plateau state is bordered in the North - west by Kaduna State, in the North - east by Bauchi state, in the South - West and West by Nassarawa state and in the South East by Taraba state. The state is made up of seventeen Local Government Areas.

Plateau State is blessed with natural endowments in the areas of Agriculture, Tourism and Solid minerals. The state enjoys an invigorating weather which makes it most attractive to tourists, especially the foreign ones. Also, its rich tourist potentials are intimidating when compared to other states of the federation. In the areas of solid minerals, the state is equally endowed tremendously, as it can boast of commercial and large scale availability of the following minerals; Tin, Zircon, (Galena, Tantalite, Gemstones, Monazite, Columbite, Kaoline etc. Also the state produces a lot of agricultural products, excess of which are sold and transported to other parts of the country and for exports.

4.1. Research Design and Sampling Method

Survey research design was the method used. Futhermore, purposive sampling technique was used in this study to obtain a representative sample of the population from which data were collected from Riyom, Barkin Ladi, Jos south, Mangu, Bokkos and Pankshin local government areas. The selected local governments happen to be the major producers of maize in the state. The procedure used involves dividing farmers into group of borrowers and non- borrowers. Questionnaires were used to elicit data on 222 beneficiaries of formal credit and 208 non beneficiaries totaling 430 respondents across the six local government areas. Also, the formal financial institutions whose lending activities were captured in this study include commercial banks, Microfinance banks and the bank of agriculture within the State.

4.2. Analytical Technique

Production function provides measurement of useful economic tools such as marginal productivity of factors of production, Factor intensity, Efficiency of production and returns to scale. The purpose of the production function is to determine relationship between variable inputs in production and output. The greater the extent to which the variable inputs are able to explain the variability in output the larger is the influence which the inputs have on output. For this study, the Cobb- Douglas production function was used and data was obtained from farmers whose major crop cultivated is Maize and fitted into three different functional forms, namely: linear, semi log and double log functions. The best of fit function was judged by R^2 values, sign and significance of the regression coefficients using T – statistics. This analysis was used to obtain the parameters for the measurement of productivity.

The explicit form of the production function is specified as

Q= f (HL, FL, FERT, SD, CHEM, FS, CAP,) (1)

Where Q is quantity of output of Maize produced by the two categories of farmers (in kilogram weight)

HL = Number of Hired Labour in days

FL = Number of Family Labour in days

FERT = Quantity of fertilizer used in Kg,

SD = Quantity of seeds in Kg,

CHEM = Chemicals used in litres,

FS = Farm Size in hectares,

CAP = Capital (in Naira). The inputs considered as capital here includes cutlasses, basins, hoes, etc.

4.3. Econometric Specification

The econometric form of equation 1 is

$$Q = a_0 + a_1 HL + a_2 FL + a_3 FERT + a_4 SD + a_5 CHEM + a_6 FS + a_7 CAP + \mu \tag{2}$$

Q, a_0, a_1, a_2, a_3, a_4, a_5, a_6, a_7, are parameters to be estimated and elasticity of response of the X_{ith} variable factors, HL,FL,FERT,SD,CHEM,FS, CAP and μ were defined as above $a_0 > 0$, $a_1 > 0$ $a_2 > 0$, $a_3 > 0$, $a_4 > 0$, $a_5 > 0$, $a_6 > 0$, $a_7 > 0$, and μ is random error term. Equation 2 above will be tested along with its semi log and double log forms so as to select the set of results with the best fit. Also the same equation (2) shall be used to fit the variables of credit beneficiaries and non creditbeneficiaries which are the comparable groups.

Three estimated regression functions were used to construct the F-ratio in order to test for significance and difference between the production function of the beneficiaries of credit and the non-beneficiaries of credit. From the pooled regression function (ie the function that pooled the beneficiaries and non-beneficiaries) and the unrestricted residuals from the two unrestricted regression functions (that of beneficiaries and non-beneficiaries), these statistics are used to construct the f-ratio and test the hypothesis at 5% level of significance.

$$F = \frac{(RSS_R - RSS_{UR})/k}{RSS_{UR}/(n_1 + n_2 - 2k)} \tag{3}$$

Where:

RSS_R - restricted residual sum of squares

RSS_{UR} - unrestricted residual sum of squares

k   - Number of parameters estimated

n_1 - number of observations in the restricted data

n_2 - number of observations in the pooled data

Gross margin analysis was also employed to determine the overall gross margin per hectare and the Net Farm Income (NFl) per hectare. The essence is to measure the profitability of maize production. The Gross Margin and Net farm Income is estimated using equation 2 and 3 below.

$$GM = TVP - TVC \tag{4}$$

$$NFI = GM - TFC \tag{5}$$

TVP = Total value of production,

TVC = Total variable Cost.

NFI = Net Farm Income and.

TFC = Total fixed cost.

5. RESULTS AND INTERPRETATION

5.1. Estimation of Cobb-Douglas Production Function for Maize.

Table 1 presents results for three regression functions,(ie the pool, beneficiaries and non-beneficiary functions). In order to find out whether there a statistical significant difference between the beneficiaries and non-beneficiaries functions, the three regression functions have been used following the Chow break point procedure to construct the f-ratio for the test. Hence the F-ratio of 9.53 at the 5% level of probability is statistically significant, thereby concluding that there is a significant difference between the production functions of the beneficiary and non-beneficiary. This may be as a result of formal credit.

To analyze the response of maize output to formal credit the study used Cobb- Douglas production function. The production analysis is carried out in the counter- factual for the purpose of netting out credit effect. In this case, three production functions are each estimated for Maize, one for beneficiaries, non-beneficiaries, and consequently a pooled function. The aim is to carry out Chow test by constructing the F-test so as to test the hypothesis that: there is significant difference between the estimated production function of beneficiaries and non-beneficiaries.

Table 1 Output Regression Results

	Pooled		Borrowers		Non borrowers	
Variables	Coefficient	s.e	Coefficient	s.e	Coefficient	s.e
C	0.3772	(2.715)	0.875	(4.391)	0.328	(6.605)
HL	0.703	(0.1839) *	0.636	(0.330) *	0.343	(0.219)
FL	0.699	(0.1290)	0.142	(0.168)	0.133	(0.223)
FERT	0.4299	(0.2991)	0.318	(0.531)	-0.613	(0.468)
SD	0.3171	(0.4319)	1.581	(0.890)	0.225	(0.469)
CHEM	-0.1282	(0.1091) *	0.374	(0.167)	0.068	(0.141)
FS	0.1120	(0.709) *	0.709	(0.641)	0.806	(.657)
CAP	0.3743	(0.3871)	0.402	(0.255)	0.264	(0.667)
DW	1.95		2.15		1.67	
Efficiency	1.455		1.509		1.388	
Returns to scale	1.395		3.414		1.266	
F-cal	9.53					
F-tab	1.96					

Source: Computation from Field Results (2013)

Table 1 above also shows the estimated production functions of farmers studied (ie pooled, borrowers and non-borrowers). From the results, the values in parentheses are the standard errors, the estimated coefficients are partial elasticities. The sum of the partial elasticities would determine the total elasticity. The constant term is transformed to measure efficiency of production.

The table also shows borrower's regression results of farmers. In this table, the partial elasticity values for all other variables are less than one except Seeds (SD). Some of the variables are negatively signed which is in disagreement with the apriori expectation. Apart from Hired labour, all other variables in the production function tested insignificant at 5% confidence level. The equation implies that considering all other factors constant, an increase in each of Hired

labour (HL), Family labour (FL), Fertilizer (FERT), Seeds (SD), Chemicals (CHEM), Farm size (FS) and Capital (CAP) by one percent led to an increase in maize output by 0.636, 0.142, 0.318, 1.581, 0.374, 0.709 and 0.402 respectively. The total elasticity is 3.414 meaning that the production function exhibits increasing returns to scale.

The results for non-borrowers production function of farmers in the table above indicates that the partial elasticity values for all the variables are less than one and fertilizer is negatively signed as against our apriori expectation, none of the variables is statistically significant. The equation implies that considering all other factors constant, an increase in each of Hired labour (HL), Family labour (FL), Fertilizer (FERT), Seeds (SD), Chemicals (CHEM), Farm size (FS) and Capital (CAP) by one percent led to an increase in maize output by 0.343, 0.133, 0.613, 0.225, 0.068, 0.806, and 0.264 respectively. The value of total elasticity is 1.26 meaning that the production function exhibits increasing returns to scale

An estimated efficiency parameter value of 1.509 for borrowers as against 1.388 for non-borrowers' shows that farmers who borrowed were more efficient compared to non-borrowers, the study attributes this efficiency to credit. The study also found that borrowers have higher profitability of N97990.19 as against non-borrowers with a profitability level of N 91999.99. Also, the Net Farm Income of borrowers and non-borrowers is N86222.20 and N78666.91 respectively, this higher profit and Net farm income in favour of borrowers is believed to be due to credit.

5.2. Impact of Credit on Small Scale Farmers in Plateau State

Results of non-borrowers on their state of housing shows that 24% lived in comfortable houses 45.2% lived in averagely good houses, while 30.8% lived in sub-standard houses based on village rating. The result for borrowers revealed that 22.5% lived in comfortable houses. 45.1% of the farmers lived in averagely good houses while only 32.4% of were below average in their living standards. This result was not very clear in explaining the differences between credit users and noncredit users in terms of their welfare level which may be due to the fact that house construction is a capital intensive project, so it will take a longer period for a significant difference to exist between these two groups of farmers.

Variable		Borrowers		Non Borrowers	
		Frequency	Percentage	Frequency	Percentage
Impact of farming on food needs	very well	90	40.5	35	16.8
	Average	81	36.5	73	35.1
	below average	51	23.0	100	48.1
	Total	222	100.0	208	100.0
Impact of farming on housing needs	very well	50	22.5	50	24.0
	Average	100	45.1	94	45.2
	below average	72	32.4	64	30.8
	Total	222	740.0	208	100.0
Impact of farming on children's' education	very well	30	13.5	17	8.2
	Average	89	40.1	71	34.1
	below average	103	46.4	120	57.7
	Total	222	100.0	208	100.0
Impact of farming on health needs	very well	67	30.2	22	10.6
	Average	121	54.5	92	44.2
	below average	34	15.3	94	45.2
	Total	222	100.0	208	100.0

Source: Field Survey (2013)

On children's education, the results for non – borrowers showed that 8.2% were doing very well, 34.1% were on the average in terms of accessing education for their children, while 57.7% said they were below average in terms of accessing education for their children. Results for borrowers showed that 13.5% were on the average in terms of their children's education, 40.1% reported that they were on the average in terms of their children's education needs while 46.4% reported that they were below average in accessing good education for their children. This results confirms the theoretical expectation that credit users would have higher living standard compared to noncredit users, as it was seen, though the difference between credit users and noncredit users is not significant, borrowers had better access to education for their wards compared to non-borrowers.

Results collected on the impact of credit on health status of credit users indicated that 10.6% of the farmers reported that they enjoyed very good quality health services. 44.2% were on the average in terms of health access, while 45.2% of the farmers were below average in terms of access to health services. The results for noncredit users indicates that 30.2% of the farmers had access to high quality health care services 54.5% of the farmers were on the average in terms of access to health care services, while 15.3% of the farmers were below average in terms of access to health care services. These results have again shown that the quality of life for borrowers is higher than non-borrowers. Better access to health services of borrowers, improved access to food needs and access to education for the children are believed to be due to credit access. Credit access has helped the farmers to increase their inputs in production thereby improving their farm productivity, output and improved income which has led to increase in their welfare. It is rather unfortunate that the credit available was not in sufficient quantity as revealed by farmers. Probably if there were additional credit available for farm use as well as reduced bottlenecks for accessing credits, most farmers would have benefited and hence the impact would have been more commendable.

6. SUMMARY AND RECOMMENDATIONS

This study has assessed the impact of credits on the productivity and welfare of farmers in Plateau state. The study found a positive but insignificant relationship between credit and farmer's productivity and welfare. This objective was achieved through the use of Cobb-Douglas production function model which was adapted to fit the various inputs in the production model of borrowers and non-borrowers. It was found that, only hired labour was significant in the borrowers production function, the rest of the variables tested insignificant to output. For non borrowers' production function none of the variables was significant to output, in other words the contribution of all the inputs included in both production functions did not significantly impact output. The Gross margin of farmers who borrowed was higher than those that did not borrow. This is because the efficiency of borrowers was higher than that of non-borrowers due to borrowers increase in inputs quality as a result of credit received from formal financial institutions. The study therefore concludes that though the contribution of inputs was insignificant for both borrowers and non-borrowers with the exception of hired labour which tested significant to output in the borrowers production function. The higher gross margin and Net farm value in favour of credit users and an improvement in welfare indicators have shown further evidence of the benefit of credit to farmers in Plateau state. The test of hypothesis also shows that there is a significant difference between the production function of borrowers and that of non-borrowers, this is attributed to credit received. In line with the above findings, the study recommends that government should help to enhance higher volume of credits to farmers through supervision and insistence on adherence of formal financial institution's lending requirement to agriculture. Also, financial institutions are encouraged to intensify their lending efforts towards farmers, this way it is believed that farm output will significantly increase leading to increase in farmers' welfare and improved availability of food for man and animals.

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