

Role Of Agricultural Credit In Natural Rubber Production In Edo And Delta States, Nigeria

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Abstract: The study examined the role of agricultural credit in natural rubber production in Edo and Delta states of Nigeria. The data used for the study was obtained from a sample survey of 100 smallholders using a simple random sampling procedure. Data were analyzed using descriptive statistics and production function. The result indicates that agricultural credit has a significant relationship with farm size, education and contacts with extension agent. The production function analysis revealed that the coefficient of the amount of credit had the highest significant value when compared to that of family size, level of education and farming experience indicating that supply of credit enhanced the income of rubber farmers and it clearly defines its role in improving farmers' productivity.

[MESIKE, C.S. **Role Of Agricultural Credit In Natural Rubber Production In Edo And Delta States, Nigeria.** World Rural Observations 2012;4(1):13-15]. ISSN: 1944-6543 (Print); ISSN: 1944-6551 (Online). <http://www.sciencepub.net/rural>. 3

Keywords: Agricultural credit, income, rubber, production function

1. Introduction

Agriculture as a sector depends more on credit than any other sector of the economy because of the seasonal variations in the farmers returns and a changing trend from subsistence to commercial farming. Credit may provide farmers opportunity to earn more money and improve their standard of living (Vogt, 1978). According to Adegeye and Ditto (1985), agricultural credit is define as the process of obtaining control over the use of money, goods and services in the presents in exchange for a promise to repay at a future date.

The demand for agricultural credit depends on the cost of credit (interest rate) and the returns on investment (Marginal Efficiency of Capital). If the Marginal Efficiency of Capital is greater than the cost of credit, more credit will be demanded. If Marginal Efficiency of Capital is less than the cost of credit, a rational farm investor will demand for less credit. Provision of credit can help to develop small farmers, but not essential for agricultural development (Johnson, 1987). Credit is merely an accelerator; like a car accelerator, it can cause disaster if misused. Persuading small farmers to accept credit, unless they know how to use it skillfully, would do them a disservice. Credit should be a crutch to help farmers raise their productivity and living standards but not a financial cross to which they will eventually be nailed (Johnson, 1987).

The desire of farmers to increase fund for both consumption and investment leads to borrowing on the part of the farmers. The opportunity for supplementing income with

credit is vital in determining farm households' attitudes towards farm and non-farm investment (Aryeety, 1997). The sourcing of credit is done through agricultural credit institutions. The agricultural credit institutions conditions depend on trade theory in explaining the supply and demand for financial services. The farmers demand for savings and credit facility hinge on expected gain over time. Thus, savings denote the inter-temporal trade-off of current consumption for future consumption, while credit is extended against a future repayment obligation or claim (World Bank, 1994). The volume of credit granted to farmers, which has been hinged on deposit mobilized from the farmers, has not adequately addressed the credit gap. Unless agricultural credit is systematically institutionalized for small farmers, agricultural development cannot be materialized. Due to smallholdings, low crop yields and small income, there is very little saving among the majority of the rubber smallholders in Nigeria. Therefore, it is very important that credit agencies come up to help rubber smallholders in undertaken improved farm practices.

2. Methodology

2.1. Data collection

A simple random sampling procedure was adopted to collect the data used in this study. The data was collected from 100 rubber smallholders in the farm settlement centre located in Edo and Delta states. The farm settlements are Iguoriakhi in Edo state, Utagbuno and Mbiri in Delta state of Nigeria.

2.2. Data analysis

In order to investigate the role of credit in rubber production, distribution tables and a regression of average income of rubber smallholders on family size, level of education, amount of credit and farming experience was estimated. To establish the relationship of the dependent variable to the explanatory variables, a production function was employed as follows:

$$Y = A F^{\alpha_1} L^{\alpha_2} C^{\alpha_3} X^{\alpha_4} e^{\epsilon} \quad (1)$$

Where,

Y = Income from rubber farm per year (Naira)

A = Constant

F = Number Family size

L = Level of education (Years)

X = Amount of credit (Naira)

C = Farming experience (Years)

Equation (1) was simplified by taking the log of both sides

$$\ln Y = \ln A + \alpha_1 \ln F + \alpha_2 \ln L + \alpha_3 \ln X + \alpha_4 \ln C \quad (2)$$

The coefficient of the explanatory variables represents their respective elasticities. The concept of elasticity, which explained the percentage change in the dependent variable due to percentage change in the explanatory variable, was written as follow:

$$\alpha_1 = \frac{\ln Y}{\ln F}, \quad \alpha_2 = \frac{\ln Y}{\ln L}, \quad \alpha_3 = \frac{\ln Y}{\ln X},$$

$$\alpha_4 = \frac{\ln Y}{\ln C}$$

Where α_1 is the elasticity of family size and it could be interpreted as the percentage change in income due to one percent change in family size. The elasticity of family size, level of education, farming experience and credit could also be explained likewise.

3. Results and Discussion

The frequency distribution of education level of farmers in Table 1 indicates that a large proportion of the respondents, that is, 42% were illiterate, only 33% had education up to primary school level, 18% had education up to secondary school level and only 7% respondents had education up to university level.

Table 1: Distribution of respondent according to educational level

Educational level	Frequency	Percentage
Illiterate	42	42
Primary	33	33
Secondary	18	18
University	7	7
Total	100	100

The relationship of the amount of credit demanded with the farm size, level of education and extension agent contacts in Table 2 show that the farm size correlated positively with the amount of credit obtained from different institutions. Possible reason is that farmers with larger farm size can afford to demand for bigger amount of credit because they have relatively large piece of land which serve as bank collateral. Result in Table 2 also show that farmers with higher level of education demanded large amount of credit when compared with farmers with low education. The possible reason might be that educated farmers have better understanding of the role of credit in enhancing productivity. The results in Table 2 also show that the number of contacts with extension agents also had significant effect on the amount of credit demanded. This is because extension contacts expose farmers to information, which stimulate adoption of credit (Mesike and Okoh 2008).

Table 2: Correlation of amount of credit to farm size, level of education and contact with extension agents

Amount of credit	frequency	Average farm size (Acres)	Average level of education (years)	Average number of contacts with extension agents
100,000-200,000	47	2	7.4	2
201,000-300,000	26	4.2	8.6	2
301,000-400,000	18	5.7	11.3	3
401,000-500,000	7	8.3	12.8	5
Above 500,000	2	12.4	15.3	6
Total	100			

Table 3 shows the contributions of inputs on farmers' income. The result revealed that family size, level of education, amount of credit and farming experience positively affected farmers' income. The coefficient of the family size indicates that 1% increase in the family size will increase the farmer's income by 0.04%. This indicates that unemployed rural labor could be absorbed in the rubber industry in Nigeria. The coefficient of education was 0.24, which indicates that 1% increase in the level of education would increase farmer's income by 0.24%, implying that education is an important sector for future investment purpose in rural areas. Hence, education is critical for improving

rubber farmers' income. The coefficient of farming experience indicates that 1% increase in the farming experience would increase the farmer's income by 0.03%.

Amount of credit had the highest significant value when compared to that of family size and level of education, implying that supply of credit is more important than family size and education for improving farmers' productivity. The coefficient of credit indicates that 1% increase in credit demand would raise farmer's income by 0.26%. The value of the coefficient of determination (R^2) indicate that 78% of variation in the dependent variable is explained by the independent variables.

Table 3: Contributions of inputs on income

Variable	Coefficient estimate	Standard error	t-statistic
Constant	4.35	0.1703	25.54*
Family size	0.04	0.012	3.33*
Level of education	0.24	0.118	2.03**
Farming experience	0.03	0.014	2.14**
Amount of credit	0.26	0.042	6.19*

$R^2 = 0.78$;

*, ** indicates 1% and 5% significant level

4. Conclusion

The study indicates that credit supply enhanced the income of farmers and it clearly defines the role of credit in natural rubber production. It not only helps to expand the economies of size but also helps to increase the productivity of rubber smallholders from the available resources

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1/6/2012