
SOCIO-ECONOMIC FACTORS AFFECTING COCOA PRODUCTION IN GBONYIN LOCAL GOVERNMENT AREA OF EKITI STATE, NIGERIA.

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ABSTRACT

The study carried out an economic analysis of Cocoa production in Gbonyin Local Government Area of Ekiti State. Data for the study were collected during year 2011 farming season from 100 respondents who were selected through two-stage sampling procedures. Descriptive statistics and multiple regression analyses were used in data analysis. The study revealed that 91.84% of the farmers are male while 8.16% are female with the farmers having mean age of 65 years, mean household size of 8 people, and majority of the farmers have both primary and secondary education. With an adjusted R^2 value of 0.736, the regressions analysis show that variables that were significant accounted for 73.6% of the total variation in output. Household size, quantity of agro-chemical and educational level were significant factors influencing output of cocoa in the study area. It was recommended that more farmland should be open for cocoa production. Credit should be made available at low interest rate to enable the farmers have better access to it and inputs like agrochemicals and improved cultivars of cocoa should be supplied at low price in order to boost cocoa production and to encourage youth participation in cocoa production in the study area.

Keywords: Cocoa, Descriptive Statistics, Regression Analysis and Ekiti State.

INTRODUCTION

Cocoa (*Theobroma cacao* L.) which belongs to the family *Sterculiaceae* and genus *Theobroma* was discovered in 18th century at the Amazon basin in North America and later spread to other tropical areas of South and Central Africa (Opeke, 2005). Since the end of the First World War, West Africa has been the highest producer of cocoa. The crop was introduced into Nigeria in 1887 and for a long period of time the crop has generated substantial foreign exchange earnings for the

country (Ayorinde, 1996). It is produced in fourteen states of the country; Ondo, Cross River, Oyo, Osun, Ekiti, Ogun, Edo, Kogi, Akwa Ibom, Delta, Abia, Kwara, Ebonyi and Rivers with an annual production rate of 400,000 metric tons.

The contribution of cocoa to the National economic development is enormous. The cocoa sub sector still offers quite a sizeable number of employment both directly and indirectly. In addition, it is an important source of raw materials as well as source of revenue to the government of cocoa producing states. Because of its importance, The National Cocoa Development Committee (NCDC) was established in 1999 by former President Obasanjo with the goal of increasing Nigeria's production substantially to 600,000 tons. It collaborates with the Cocoa Development Units of all cocoa producing states in providing improved seedlings and approved chemicals at 50 percent subsidy. This was in an effort to diversify the export base of the nation, improve the quality of cocoa beans and increase farmer's income. The momentum of support for the sector has however waned and need to be revitalized (Global Agricultural Information Network, GAIN, 2011)

South-West Nigeria is regarded as the cocoa belt of the country, accounting for 70% of Nigeria's annual cocoa production of 242,000 metric tonnes in 2008 (GAIN, 2011). This is probably because government developed interest in the cultivation of cocoa in 1887 when cocoa seedlings from the old botanical garden at Ebute metta (Lagos) were sent to Ibadan for trial, this is why cocoa cultivation gained it earliest impetus around this region (Opeke, 2005). Despite the rich history of cocoa in Nigerian economy, evidence has shown that the growth of cocoa production has been declining in recent years and this has among other reasons led to the fall in the fortune of the sub-sector. Villalobos

(1989) identified some of these factors as low yield, inconsistent production patterns, disease incidence, pest attack and use of simple farm implements. In addition, Oduwale (2004) identified ageing cocoa farms as one of the factors responsible for the decline in cocoa production in South Western Nigeria. He observed that about 60% of cocoa farms in the country were over 40 years old. Furthermore, cocoa production in Nigeria witnessed a downward trend after 1976 when its export declined from 216, 000 metric to 150, 000 metric tons in 1986. In 1994, the production increased to 268, 000 and later reduced to 105, 000 metric tons in 2002 (FOS, 2006). It is important to suggest that fluctuation in cocoa production may have been influenced by the socioeconomic circumstances of the producers. This study therefore attempted to examine the socio-economic factors of cocoa farmers and determine factors affecting cocoa production in the study area.

METHODOLOGY

The study was conducted in Gbonyin Local Government Area of Ekiti. The area is located between Latitude $7^{\circ}25'$ and $8^{\circ}5'N$ and between Longitude $4^{\circ}45'$ and $5^{\circ}46'E$. The temperature of the area ranges between $21^{\circ}C$ to $28^{\circ}C$. A two stage sampling technique was used to collect the data used for the study. The first stage was the random selection of four villages from the major cocoa producing villages in the area. In the second stage, 25 farmers were selected randomly from each of the four villages giving a sampling size of 100 respondents. However, data collected from only 98 respondents were useful for the study. Primary data collected with the use of questionnaire were analyzed using descriptive statistics and regressions analyses. Descriptive statistics measures such as percentage, frequencies and means were used to describe characteristics of the cocoa farmers. Regression analysis was used to ascertain the independent Variables that have significantly affected cocoa production in the study area. Data from the survey were fitted into four functional forms of the multiple regression models (linear, semi-log, double-log and exponential). Based on the number of significant variables, significance of the F-value, sign of the coefficients and value of the coefficient of multiple determination (R^2), double-log functional form was chosen as the lead equation and used to determine the socio-economic factors that affect cocoa production in

the area.

The double-log regression model is specified as;

$$Y = a + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 + \dots + b_{12} \log X_{12} + e$$

Where,

Y = Annual cocoa output (Kilograms)

b_1, b_2 = parameters to be estimated.

X_1 = Age of the farmers (year)

X_2 = Farm size in hectare

X_3 = Labour use (Man/day)

X_4 = Household size (Number)

X_5 = Quantity of Agro-chemical used in litres

X_6 = Age of the plantation (Year)

X_7 = Year of farming experience

X_8 = Membership of association (Member = 1, Non-Member = 0).

X_9 = Level of education (Informal

Education = 0, Primary = 1, Secondary =

2, Tertiary = 3)

e = error term

RESULTS AND DISCUSSIONS

Socioeconomic Characteristics of the Respondents

Socioeconomic characteristics including age, gender, marital status, education level, household's size, farming experience, farm size, sources of capital and land tenure systems affecting cocoa production in the study area are discussed in this subsection. The distribution of the respondents according to their socioeconomic characteristics is therefore presented in Table 1.

Table 1: Socioeconomic characteristics of the respondents in the study area

Characteristics	Frequency	Percentage
Age		
21 – 30	5	5.10
31 – 40	13	13.27
41 – 50	17	17.35
51 – 60	25	25.51
>60	38	38.78
Gender		
Male	90	91.84
Female	10	8.16
Marital Status		
Single	1	1.02
Married	92	93.88
Widow	4	4.08
Widowers	1	1.02
Level of Education		
Non-formal	20	20.41
Primary	34	34.69
Secondary	33	33.67
Tertiary	11	11.23
Household Size		
1 – 5	33	33.67
6 – 10	52	53.06
11 – 15	13	13.27
Farming Experience		
11 – 20	27	27.55
21 – 30	35	35.71
31 – 40	15	15.31
41 – 50	5	5.10
>50	16	16.33
Farm Size		
0.5 – 1	24	24.49
1.5 – 2	33	33.67
2.5 – 3	27	27.55
3.5 – 4	8	8.16
4.5 – 5	6	6.12
Sources of Capital		
Self-Finance	70	71.43
Bank Loan	10	10.20
Cooperatives	18	18.37
Land Acquisition		
Rent	13	13.27
Purchase	9	9.18
Inheritance	75	76.53
Gift	1	1.02
Total	98	100

Source: Field Survey, 2011

As shown in table 1, the study revealed that the majority of cocoa farmers were male and married. This agrees with Oluyole and Sanusi (2009) who found out that 92% of cocoa farmers in Cross Rivers State were male. This implies that only few women own cocoa farms in the study area. This is in spite of the fact that, farming activities like harvesting, processing and marketing involve women participation. In view of the fact that cocoa is a perennial plant, land tenure system which discriminates against women in land allocation might have contributed to their low level of ownership of cocoa farms. The farmers are of age and well experienced in cocoa farming with

about 64% of the farmers within the age bracket of 51 years and above. Contrary to Yunusa (1999), who opined that farmers who are between the ages of 31-50 years are usually innovative, motivated and adaptive, majority of the respondents fall outside this age range but have literacy level that is high.

Determinants of Cocoa Production

This subsection examined the determinants of cocoa production among the respondents. This is as presented in table 2.

Table 2: Regression Estimation for factors affecting cocoa production in the study area

Factors	Linear Function	Exponential Function	Semi-Log Function	Double-Log Function
Age (X_1)	0.060 (0.524)	0.089 (0.232)	0.026 (0.283)	0.076 (0.673)
Farm Size (X_2)	0.123 (1.059)	0.032 (0.783)	0.111 (0.983)	0.046 (0.415)
Labour used (X_3)	-0.028 (-0.276)	-0.028 (-0.673)	-0.067 (-1.879)	-0.165 (-1.679)
Household Size (X_4)	0.244 (2.408)*	0.223 (2.240)*	0.028 (1.089)	0.202 (2.065)*
Agrochemicals (X_5)	0.233 (1.982)*	0.303 (2.377)*	0.282 (2.614)**	0.331 (2.821)**
Plantation Age (X_6)	-0.072 (-0.679)	-0.042 (-0.856)	-0.092 (-0.568)	-0.082 (-0.783)
Farming Experience (X_7)	0.018 (0.163)	-0.013 (-0.326)	0.062 (0.541)	0.053 (0.468)
Membership of Association (X_8)	0.128 (1.251)	0.154 (1.456)	0.149 (1.684)	0.172 (1.693)
Level of education (X_9)	-0.036 (-0.34)	-0.043 (-0.129)	-0.014 (-0.829)	0.001 (3.522)**
R-square	0.503	0.402	0.571	0.736
F-ratio	3.952	3.502	3.78	4.256**

Source: Field Survey, 2011

Double-log is the lead function** Significant at 1%, * Significant at 5% level

Values in parentheses are the t-values

Table 2 shows the result of regression analysis. However, only three variables were significant. These were household size, quantity of agrochemical and level of education. They all have positive effect on cocoa production. This is in line with the findings of Lawrence (2011) which show that family size, level of education, purchase of insecticide and amount of insecticide among others are the factors having positive impact on managerial ability of cocoa farmers in Akinyele Local Government Area of Oyo State. As shown in Table 2, increasing household size would increase the output of cocoa among the farmers. Being a way of life, agricultural production is often carried out at household level. This therefore implies that larger household size might increase labour availability for cocoa production. Apart from increasing labour availability, larger households might imply reduced cost of production as a result of reduction in the use of hired labour in cocoa production among the farmers. This finding is consistent with the findings of Adewumi and Adebayo (2008) who found household size to be a significant factor in sweet potato production in Kwara State. Quantity of agro chemicals used was also found to significantly affect the output level of cocoa in the study area positively. This is probably due to the fact that, the use of agro chemicals such as pesticides would reduce infestation of diseases

while the herbicides would reduce weed infestation. All these give room for bumper harvest.

Education is an important factor in agricultural production. Education level of the cocoa farmers also significantly influenced the level of output. This finding agrees with Fakoya and Daramola (2008) observation that when farmers are sufficiently educated, they have enhanced ability to adopt innovations. This may therefore promote farmers' adoption of innovations, disposition to extension services and also enhance compliance with loan application and documentation procedures when making use of loan facilities. Since the literacy level in the study area has been observed to be relatively high, it is likely that farmers with higher level of education are likely to have better access to agricultural information which would enhance their production positively. As such, the more educated a farmer is the more productive such a farmer would be because of the possibility of their higher level of exposure to new ideas and technologies. The coefficient of multiple determinations R^2 of 0.736 implies that about 73.6% of the variations in cocoa output could be explained by the independent variables included in the model. The significance of F-value also indicates that all the variables jointly influenced output of cocoa significantly.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the research, it can be concluded that household size, quantity of agrochemicals and the level of education of farmers are the major factors affecting cocoa production in the study area. In order to improve cocoa production, this study recommends that: Special production credit facilities should be provided to cocoa farmers to be able to

- access labour required for production; ii. In view of the effect of household size on

labour availability, efforts should also be made to encourage domestic production of agrochemicals so as to reduce the price at which agrochemicals are made available to the farmers. However, farmers should be educated on the appropriate use of the chemicals to prevent its negative consequences on

- iii. Education being a key to success and a

significant factor in cocoa production in the area; farmers could be encouraged to improve on their level of education for better performance. Training programmes should therefore be organized for the farmers to avail themselves of the opportunities that exist for them to improve cocoa production. This may require the intervention of the extension agents and other stakeholders in the cocoa subsector; New disease-resistant, high yielding and early maturing varieties of cocoa should be made available to the farmers for rehabilitation of the old cocoa farms; and

iv. Programmes that would involve young school leavers in cocoa farming should be put in place so as to have youthful age in cocoa production.

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- iv. New disease-resistant, high yielding and early maturing varieties of cocoa should be made available to the farmers for rehabilitation of the old cocoa farms; and
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