



**PROFITABILITY OF COCOA PRODUCTION ENTERPRISES IN ILE-  
OLUJI/OKE-IGBO AND IDANRE LOCAL GOVERNMENT AREAS OF ONDO  
STATE, NIGERIA**

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**ABSTRACT**

The study examined the profitability of cocoa production enterprises in Ile-Oluji/Oke-Igbo and Idanre Local Government Areas of Ondo State using a two-stage sampling procedure. Data used for this study were collected using well structured questionnaire, which were administered to 100 Cocoa farmers through personal interview. The data were analysed using descriptive statistics, budgetary and regression analysis. Results showed that the annual gross margin, net profit and return/naira invested were ₦428,715.22, ₦417,070.29 and ₦3.75 per hectare respectively. Results of the multiple regression analysis indicated that production cost (Labour, Chemical, Fertilizer and Transportation costs) was shown to have explained about 69% of the systematic variation in the Gross Margin of cocoa producers in parts of Ondo State. The serious factors that affected cocoa productions in the study area were inadequate finance, incidence of pests and diseases, climatic problems, poor access to input and transportation problem. The study concluded that there should be improvement in the production processes of cocoa through the provision of adequate credit facilities and good road networks for farmers in the study area, so as to ensure the sustainability of the enterprise in the area.

**Keywords:** Credit; Employment; Farm holdings; Income; Productivity

**INTRODUCTION**

Cocoa (*Theobroma cacao*) is one of the most important perennial crops worldwide. It remains significant in terms of revenue generation. At the farmers' level, it is important in terms of employment and income generation. Cocoa, a plantation crop, was the dominant foreign exchange earner in Nigeria from the early 1960s through the 1970s (Olujide and Adeogun, 2006). It also remains a major export crop. In 1998 a revenue of 7,459.3 million naira (US \$ 53,280 at ₦140 per US\$) was derived from dried cocoa beans and this accounts for half of the income attributed to the total export of major agricultural products (CBN, 1998). In quantitative terms, the contribution of the cocoa sub-sector to Nigeria's total agricultural export earnings averaged 70.6% between 1971 and 1975, 89.8% between 1976 and 1980, 84.6% between 1985 and 1987, 76.8% between 1986 and 1990, and 53.3%

between 1992 and 1996. These figures indicate a declining trend, a reflection of the less important roles, which the agricultural sector has assumed in export earning, having been strongly dominated by oil exports in more recent years (Agboola, 2005).

According to Akinwale (2000), cocoa is grown mainly by smallholders in Nigeria, particularly in Ondo State, which accounts for about 60% of Nigeria's output. It is the principal source of income for millions of such farmers, their families and workers. It provides essential sources of earnings for the people and benefits the economy of the State (Akinwale, 2000).

Despite the number of years of cultivation of cocoa in Nigeria and in Ondo State, cocoa production is still faced with the problem of declining yield, mainly attributable to old age of the cocoa trees, inadequate care for cocoa plantations, current prices effect, diseases such as blackpod, Cocoa Swollen Shoot Virus (C.S.S.V) and *Capsid*. The sustainability of this very important sector of the economy is critical. The major challenge before researchers therefore, is to evolve ways of ensuring the continuous availability of cocoa and its bi-products to meet the ever increasing global demand. One way of doing this is to improve the income earning capacity of the resource-poor smallholders (Emokaro and Erhabor, 2005) responsible for producing the bulk of the cocoa output in Nigeria. The average cocoa farmer is highly rational in the economic sense, ever seeking ways of maximizing the returns from his lean resources, which are not only scarce but have alternative uses.

In the light of all these problems associated with the productivity of cocoa and its income generation to producers, governments, marketers and industrialists. It becomes pertinent to ask if farmers and the State government are generating enough income from cocoa production to ensure the sustainability of the industry. What is the effect of production cost on the gross margin of farmers in the study area? Again, are the factors militating against the yield / productivity of cocoa in the past still the same today?

The objective of this study was to analyze the profitability of cocoa production enterprises and to determine the effect of production cost on the gross margin of farmers in the study area. A profiling of constraints faced by farmers in cocoa production was also carried out.

Although, much work have been done on cocoa production and its contribution to income generation in the past, not much has been done in the area of the contribution of cocoa to income generation in Ile-Oluji/Oke-Igbo and Idanre Local Government Areas of Ondo State. Findings from this current effort would provide relevant information to key stakeholders on the contribution of cocoa production to income generation in Ondo State. It would also provide valuable insight into the operational problems facing cocoa production in the study area and help to suggest ways to remedy or manage the situation for improved income generation and by implication, profitability.

## **MATERIALS AND METHODS**

### **Study Area**

The study was conducted in Ondo State, Nigeria but was limited to two major cocoa producing areas of the State which are Ile-Oluji/Oke-Igbo and Idanre Local Government Areas (LGAs). These areas comprise of three notable communities; Ile-Oluji, Oke-Igbo and Idanre. These communities are notable for producing the largest tonnage of cocoa beans in

the State and in fact in the country as a whole. These areas lie roughly between Latitudes 7.21°N and 7.11°N and Longitudes 5.10°E and 5.12°E. The areas also have a population figure of 172,870 and 129,024 respectively according to 2006 population census. They occupy a land area of approximately 800 km<sup>2</sup> and 1,914 km<sup>2</sup> respectively.

Most of the inhabitants of these areas are involved in farming. They mainly produce cocoa, plantain and food crops such as maize, cocoyam and yam. While some among them manage small hectares of oil palm, and kola nut farms. The farmers in these areas still use the old traditional methods of cropping depending mostly on hoes and cutlasses as their main farming implements.

### Sampling Techniques

A two – stage sampling procedure was used in selecting 100 farmers from the two identified areas. Firstly, 10 villages were randomly selected from the two LGAs. Thereafter, a simple random sampling method was used to select 10 Cocoa farmers from each of the 10 villages giving a sample size of 100 respondents.

### Data Collection

The data used for this study were obtained from a primary source through sample survey with the aid of a well structured questionnaire, personal interviews and observations since most of the respondents had no formal education.

### Data Analysis

The data collected were analyzed using descriptive statistics such as tables, figures, means, frequency counts as well as budgetary analysis such as gross margin, return per naira invested, net returns and multiple regression analysis.

Gross Margin Analysis was used in determining the profitability of the production enterprise. Gross Margin is the difference between total revenue and total variable cost and is given as;

$$GM = TR - TVC \text{ (Olukosi and Erhabor, 2005).}$$

Where; TR = Total Revenue, TVC = Total Variable Cost

Returns per Naira invested were used in assessing the viability of the business, and is given as:

$$\text{Return } \text{₦}^{-1} = \frac{GM}{TVC}$$

Where; GM = Gross Margin, TVC = Total Variable Cost

Net Returns, which represents the total profit, which was determined using;

$$\text{Net Return} = TR - TC \text{ (Olukosi and Erhabor, 2005).}$$

Where; TR = Total Revenue, TC = Total Cost

The multiple regression analysis was used in determining the effect of production cost on gross margin. The simple linear regression (ordinary least square method) was used to analyze this (Emokaro and Ekunwe, 2009; Emokaro and Egbodion, 2014). The model in explicit form is stated as;

$$GM_i = \beta_0 + \beta_1 LC_i + \beta_2 CC_i + \beta_3 CF_i + \beta_4 TRC_i + \mu_i$$

Where; GM = Gross margin (₦), LC = Labour cost (₦), CC = Cost of chemical (₦), CF = Cost of fertilizer (₦), TRC = Transport Cost (₦),  $\mu_i$  = Stochastic error term

To profile constraints militating against cocoa farming in the study area, the various constraints faced by cocoa producers in the study area were ranked on a Likert scale. This approach was from Emokaro and Erhabor (2005). This is a five-point scale which employs an ordinal level of measurement. Responses to the various constraints were scored in such a way that each response indicating the most serious constraint was assigned the highest score of five (5). The responses were categorized as; Very serious (VS) = 5; Serious (S) = 4, Moderately serious (MS) = 3; Least serious (LS) = 2; Not serious (NS) = 1. For a given constraint, the mean was computed by summing the score on each item and then dividing by the total number of responses.

## RESULTS AND DISCUSSION

### Profitability Analysis

The result obtained from the data analysis is presented in Table 1. The different values of total variable cost, total revenue, gross margin and net returns per farmer per hectare in respect to the average farm holdings of 2.3 hectares were stated explicitly. The various values were arrived at as shown below;

TR – Total Revenue = ₦1,249,150, TVC – Total variable cost = ₦ 263,105, Depreciated Total Fixed Cost = ₦ 26,783.33, TC = TVC +DTFC = ₦ (263,105 + 26,783.33) = ₦ 289,888.33, GM = TR –TVC = ₦ (1,249,150 – 263,105) = ₦ 986,045.00 Net Profit/Returns = TR –TC = ₦ (1,249,150 – 289,888.33) = ₦959,261.67 and Return/Naira Invested = GM/TVC = 986,045/263,105 = ₦ 3.75

The result of the analysis showed that the average annual net profit per hectare was ₦ 417,070.29. This is an indication of the gain accruing to an individual on the average. The return per naira invested of ₦3.75 implies that for every naira a farmer invests in cocoa production, he will recover an amount ₦3.75 times the money invested. This high return per naira invested therefore showed that cocoa production was a viable enterprise in the study area. The mean farm size of 2.3 ha/farmer indicates that cocoa farmers in the study area were smallholders. This is in accordance with the findings of Akinwale (2000), who stated that cocoa is mainly grown by smallholders in Nigeria, particularly in Ondo State. It is also closely linked with the findings of Idowu, *et al.* (2007), who stated that the overall average size of farm holdings for most cocoa farmers in the South-West region of Nigeria was 2.19 hectares. It was indicated in this report that cocoa production takes place on smallholdings and thus, a representative cocoa farmer in South-Western Nigeria is a smallholder producer.

## Profitability of Cocoa production enterprise

Table 1: Profitability analysis of annual Cocoa production/ha

Items	Amount (₦)	
	per person	per ha
<b>Fixed cost Items</b>		
Cost of tools/equipment	19,630.00	8,534.78
Cost of fixed asset	7,153.33	3,110.14
Depreciated cost (total)	26,783.33	11,644.93
<b>Variable Cost Items</b>		
Labour cost	159,520.00	69,356.52
Chemical cost	60,590.00	26,343.48
Fertilizer cost	5,745.00	2,497.83
Transport cost	37,250.00	16,195.65
Total variable cost	263,105.00	14,393.48
Revenue	1,249,150.00	543,108.70
Gross Margin	986,045.00	428,715.22
Net profit	959,261.67	417,070.29

Average Farm Size = 2.3 hectares

### Effect of Production Cost on Gross Margin

The relationship between gross margin and production cost is shown in Table 2. The results showed that production cost (Labour, Chemical, Fertilizer, Transportation costs) explained about 69% of the systematic variation in the producers' gross margin. The F-statistics, which is an indication of the overall "goodness of fit" of the model showed that there was a significant linear relationship between gross margin and some of the production costs (labour and transportation cost) at 5% level of significance but did not show significant linear relationship with other costs (chemical and fertilizer cost) at the same level of significance, although the cost of fertilizer had a positive relationship with gross margin. The result showed that a unit increase in labour and transportation costs will respectively increase gross margin by ₦0.58 and ₦9.12.

The model specification for the entire sample is;

$$GM = 636595.549 + 0.579LC - 0.987CC + 0.791CF + 9.118TRC$$

(166128.463) (0.224) (2.535) (6.009) (4.268)

Adjusted R-Squared (R)<sup>2</sup> = 0.687, F-Statistics = 3.352

Table 2: Parameter Estimate of the Production Model

Variables	Coefficient (B)	T	P-value
(Constant)	636595.549	3.832	.000
Cost of Labour	.579*	2.590	.011
Cost of Chemicals	-.987	-.389	.698
Cost of Fertilizers	.791	.132	.896
Cost Of Transportation	9.118*	2.136	.035

F = 3.352; p<0.050. Adjusted R square = 0.687

## Constraints to Cocoa Production

Identified constraints to cocoa production in the study area are presented in Table 3. The results show, climatic problems (extreme climatic conditions), incidence of pests and diseases, poor access to credit, poor transportation and poor access to input were the major constraints faced by cocoa farmers (since these variables had a mean of at least 3). While, constraints of poor access to land and labour had means less than 3, and as such were not considered as major constraints in the study areas. This is in accordance with the findings of Oyekale, *et al.*, (2009), who opined that weather and climate together with the incidence of pests and diseases have greater influence on the three phases of cocoa production, ranging from seedling phase to processing phase. This result also corresponds with the findings of Olujide and Adeogun, (2006), who stated that the constraints limiting the productivity and reducing the quality and market value of cocoa were pests, diseases, parasites, lack of credit facilities, inadequate input (money, seedlings, tools etc), the lack of subsidies and incentives, the low price demand by the final product due to poor marketing system and difficulty to access growers' farmlands due to poor road network.

Table 3: Constraints in Cocoa Production

Constraints	Very serious		Serious		moderately serious		least serious		not serious		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Mean	SD
Climatic Problems	76	76.0	20	20.0	3	3.0	1	1.0	-	-	4.71*	0.6
Pest & Disease Problem	73	73.0	23	23.0	3	3.0	1	1.0	-	-	4.68*	0.6
Credit Problem	4	4.0	43	43.0	40	40.0	11	11.0	2	2.0	3.36*	0.8
Transport Problem	4	4.0	44	44.0	31	31.0	16	16.0	5	5.0	3.26*	0.9
Input Problem	6	6.0	29	29.0	49	49.0	13	13.0	3	3.0	3.22*	0.9
Land Constraint	3	3.0	10	10.0	47	47.0	30	30.0	10	10.0	2.66	0.9
Labour Constraint			4	4.0	9	9.0	40	40.0	47	47.0	1.70	0.8

\*Serious (mean > 3.00)

## CONCLUSION

This study showed that cocoa production is a viable enterprise and thus a principal source of income to farmers in the study area. There is therefore a great need to improve its production in order to ensure the sustainability of the industry. This would go a long way in improving the living standards of the farmers and boosting the growth of the economy in the study area. Again, the ever increasing demand for cocoa and its by-products worldwide, calls for development and improvement in the cocoa production sector.

Effort should be made to improve access to credit facilities so that cocoa farmers can have more finance to invest in cocoa production since it has been shown to be very profitable in the study area. Cocoa farmers should be encouraged and advised to join cooperatives or credit societies to harness enough funds for their production.

Finally, transportation was not only a constraint to cocoa production but was also shown to contribute significantly to gross margin. Farmers should be assisted with the provision of good road networks. This would in no small way help the farmers in evacuating their proceeds from the farm gates to the markets.

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