

## PRODUCTIVITY OF COCOA FARMERS IN EMURE LOCAL GOVERNMENT AREA OF EKITI STATE

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### Abstract

This study examined the relationships between socio-economic characteristics of farmers and productivity of cocoa in Emure Local Government Area of Ekiti State, Nigeria. Multistage sampling technique involving a purposive selection of the local government area, random selection of wards (40% intensity), random selection of villages and then farmers proportionately. Two hundred and forty eight (248) copies of structured questionnaire were used to elicit information from the selected farmers. Data were analyzed using descriptive statistics, multiple regression and t-test statistics. The socio-economic characteristics show that majority of the cocoa farmers are literate (61.1%), more than 50 years old (60%), have family sizes greater than 5 persons (74%) and have over 10 years farming experience (92.4%). It was observed that 58 percent of the variation that occur in the production of cocoa could be explained by the independent variables included in the regression model (age, marital status, education, household size etc.) and that these factors jointly influence productivity of cocoa (F-value =3.07 was significant at 0.01 level of probability). Age of the farmers had a negative influence on productivity while other variable were positively influential. DHAP Malmquist Productivity Index was used to analyze the total factor productivity (TFP) which measures how much cocoa is produced by the farmers relative to the amount of economic inputs used between 2005 and 2014. Efficiency change positively impacted on total factor productivity growth during the period, while technological change showed a technical regression of 0.975, which contributed to the decrease in total factor productivity growth by 2.8% during the period.

**Keywords:** productivity, socio-economic, household, farmers

### Introduction

Agriculture is the largest and oldest industry in the world. It is a vital sector of the Nigerian economy, supplying food for the population and providing raw materials for the industry ([www.mbendi.com](http://www.mbendi.com)) remains a major source of economic activity in Nigeria. In an era where diversification of the national economy is proposed to change the economic fortunes of the country, agriculture remains the major option that is expected to change the narratives. Major cash crops like Cocoa and rubber contribute to the national GDP while cocoa has in recent years seen some small growth in its contribution and is expected to contribute more if more attention is given to cocoa production in Nigeria. Cocoa as a major part of Agriculture plays its role in the provision of foreign exchange, and cannot be overlooked as it remained for a long time, the main machine for the earnings. In terms of sustainable employment, agriculture is by far the most important sector of Nigeria's economy, engaging about 60% of the labour force (CBN, 2003).

Nigeria produced 367,020 tones of cocoa in 2008 and 399, 200 tones in 2010 and its export as a percentage of production increased from 1% in 2006 to 143% in 2008 but decreased to 60% in 2010 (MAFAP, 2013). The National Cocoa Development Committee (NCDC), made up of the 14 cocoa producing states in the country with Ekiti State among the first five most productive state, has distributed new high yield cocoa seedlings to cocoa farmers, and continues to allow the purchase of chemicals and inputs at 50% subsidy.

Effect of change in cocoa production on socio-economic development of the farmers in Emure Local Government cannot be understood without carrying out a study of this nature. The study helps to determine the factors affecting cocoa production and how it has affected the socio-economic development of farmers. How the effect of change has affected the farmers standard of living.

### Methodology

The study area is located between Latitudes 7° 21' and 7° 32' North and Longitudes 5° 26' and 5° 37' East. Emure is bordered by Ise/Orun in the east and Gbonyin in the North and located in the Southern part of Ekiti which shares boundary with Ondo State.

Primary data was collected using semi-structured questionnaire and observation techniques. Data collection using multi-stage sampling techniques centered on respondent's demographics and socio-economic characteristics such as age, marital status, educational status, household size, sex, income, asset of farmers and impact of cocoa production on livelihood.

The first stage involved a purposive sampling of Emure local Government area among 16 LGAs that make up Ekiti State. Emure was chosen because of the large population of cocoa farmers in the LGA. The second stage involved selection of the wards. There are ten (10) wards out of which four wards were purposively selected for the study. Selection was based on homogeneity in cocoa production and socio economic characteristics. The third stage involved selection of the villages from each ward. Three villages are randomly selected. The sample frame was determined by adopting Krejcie and Morgan's (1970) table for determining sample frame, for a given population of 500, a sample size of 217 would be needed to represent a cross-section of the population. Therefore, the sample size of 248 farmers was considered appropriate for a population 697 farmers (approximated to 700). Since the cocoa farming populations are within this range, 248 respondents were selected from the total number of farmers from ADP list of farmers.

### Results and Discussion

Table 1, shows that majority (97.6%) of the respondents involve in cocoa farming are males and that about 60% of the cocoa farmers are 50 years and above in age with a mean age of 51.3 years. Nwanko *et al.* (2009) reported that the most active farmers age group engaged in agricultural production is within 31-50 years. Only about 21% of the respondent were within this age group and this could negatively influence production rate (Yusuf 2005).

Majority of the farmers (49%) have household size that range from 6-10 persons and only about 26% had less. This is an indication that there is an advantage of family labour but on the contrary, the study reveals that most of the respondent makes use of hired labour for the farm activities. This corroborates Okoruwa and Ogundele (2006) that large family size does not

necessarily translate to higher use of family labour because some of the young able bodied family member may prefer to work other jobs than farming.

Although about 61.1 percent of the farmers are literate only about 4.4% have tertiary education. Most of them have over 10 years farming experience with 11-20 years (24%), 21-30 years (19.7%), 31-40 years (22%), 41-50 years (22.1%) and greater than 50 years (4%). This may be the reason for the perceived request for extension workers to the farmers in the local government. Although Ajani (2000) has slated that year of farming experience increase agricultural productivities among farming household in Nigeria, there is need for innovation in the field of agriculture and therefore the need for extension services.

**Table 1: Socio-economic Characteristics of Respondents in Emure Local Government Area**

Characteristics	Frequency	Percentage
Age (Years)		
20-29	29	11
30-39	36	15
40-49	37	14
50-59	81	32
60-69	54	21
>70	11	7
Mean: 41.3(years)	79 (Years), Min: 26 (years).	
Max:		
Sex		
Male	242	97.6
Female	6	2.4
Marital Status		
Married	229	92.3
Single	10	4.0
Widowed	9	3.6
Household size		
1-5	66	26
6-10	122	49
11-15	41	17
16-20	16	7
21-25	2	0.8
26-30	1	0.4
Highest Level of Education		
No formal Education	97	38.7
Primary	38	15.3

Secondary	102	4L1
Tertiary	11	4.4
<b>Years of Cocoa Farming</b>		
1-10	19	7.6
11-20	59	23.8
21-30	49	19.8
31-40	55	22.2
41-50	55	22.2
>50	11	4.4

Table 2 below shows the result of the regression analysis. The estimated R-square value of 0.58 indicating that 58 percent of the variation that occur in the production of cocoa could be explained by the independent variables included in the regression model. The F-value of 3.07 was significant at 0.01 percent level of probability and implies that the independent variables jointly influenced the productivity of cocoa in the study area. The factors that were found related to the productivity of cocoa include age, marital status, education and years of experience in cocoa production.

The estimated coefficient was significant at 1 percent level of probability and negatively influential to the productivity of cocoa. This implies that as the age of farmer increases productivity of cocoa decreases. This could be attributed to the fact that the older the farmer, the less the willingness to take risk and try innovation that may increase cocoa output. More so, older farmers are less receptive to innovation unlike younger farmers.

The parameter estimated for education showed a positive relationship with productivity of cocoa at 1 percent level of probability. The negative coefficient of education reveals that a high level of education results to increase in productivity of cocoa farmers. Educated farmers are able to gather, understand and use information from research and extension more easily than illiterate farmers.

**Table 2: Result of the Regression Analysis for the relationship between socio economic characteristic and productivity**

Variables	Coefficient	Std. lirror	1 -value
Constant	1657.92	1855.53	0.89
Age Marital status	-83.489 799.688	40.951 392.43	-2.04** 2.04**
Education	753.062	332.43	2 27**
Household size	104.984	76.65	1.37
Farm size	228.744	341.939	0.67
Experience Income	93.162 0,002	39.406 0.002	2.36** 0.67

\*\* = significant at 1% level of probability R-squarc = 0.58F-value = 3.07\*\*

Moreover, educated farmers are likely to be less risk-averse and therefore more willing to try out modern technologies. Tanko and Opara (2010) opined that education raises the technical competence of an entrepreneur and enables the entrepreneur to cope with the complexities associated with adoption of improved technologies. The coefficient obtained for farmers' years of experience in cocoa production was positive and significant at 1 percent level of probability. This shows that increase in experience in cocoa production would increase the productivity of cocoa in the study area. Farming experience is an important factor determining both the productivity and the production level in farming activities. Generally, it would appear that up to a certain number of years, farming experience would have a positive effect on the productivity of the farmers this is because experience could be associated with skill accumulation which could enhance productivity and resource allocations.

Marital status was positive and significantly related to productivity of cocoa. This implied that married household obtained more output than unmarried household. This could be linked to access to family labour. It is expected that family labour would be more available where the household heads are married (Amaza *et al.*, 2009).

Table 3 below shows the Total factor productivity (TFP) which measures how much cocoa is produced by the farmers relative to the amount of economic inputs used. Therefore, TFP growth measures how much productivity grows or declines overtime. The DEAP Malmquist Productivity Index was used to analyze the TFP of cocoa producers between 2005-2014. The rule is  $MPI < 1$  implies an increase and  $MPI > 1$  implies a decline.

From the information gotten from secondary data, Table 3 below shows that from 2005 on average efficiency change was 1.000 and technological change was 0.957. This indicated that efficiency change had positively impacted on total factor productivity growth during the period, while technological change had shown a technical regress of 0.975, which contributed to the decrease in total factor productivity growth by 2.8% during the period. Scale efficiency and pure technical efficiency advance positively. During 2006 on average, the result revealed that, the country had witnessed a cocoa productivity decrease by 16.7%. This was shown by the contributions from efficiency change of 1.000 and technological change of 0.801 at the time. The source of decrease to total factor productivity growth was due to technological regress from the technological change. From 2007 as indicated by Table 3, on average total factor productivity decrease in growth by 1.35%. During this period efficiency change had positive impact on total factor productivity growth. It can be deduced from Table 3, that from 2008 the country had on average experienced a tremendous increase in cocoa productivity growth of 3.35%. It was found that the technical efficiency change components, scale efficiency and pure technical efficiency advanced.

**Table 3: Cocoa Farmers productivity growth and performance**

Year	Technical efficiency change	Technical change	Scale efficiency change	Total factor productivity change
2005	1.454	0.957	1.454	-2.845
2006	1.000	0.501	1.000	1.677
2007	1.019	1.030	1.019	1.355
2008	1.031	1.547	1.081	52.48
2009	1.000	1.735	1.454	1.718
2010	1.000	1.076	1.276	1.373
2011	1.000	1.380	1.218	1.437
2012	1.113	0.890	1.113	1.647
2013	1.990	0.843	1.990	45.27
2014	1.000	0.914	1.000	1.414
Mean	1.113	1.326	1.113	1.477

Efficiency change and technological change scores were 1.990 and 0.843, respectively. This has shown the commitment of government towards agricultural sector with a view to increasing cocoa productivity in the country.

### Conclusion

Farming experience is an important factor determining both the productivity and the production level in farming activities. Generally, it would appear that up to a certain number of years, farming experience would have a positive effect on the productivity of the farmers this is because experience could be associated with skill accumulation which could enhance productivity and resource allocations. But with age, there is need for innovation in practices due to technological advancements. There is high need for young educated men and women to be involved in agricultural productivity because educated farmers are likely to be less risk-averse and therefore more willing to try out modern technologies.

Government's commitment towards agricultural sector has led to increases in food, rural incomes and a drastic reduction in rural poverty. This study has therefore established that technical efficiency change components, scale efficiency and pure technical efficiency advanced between 2005 and 2014.

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