

PRODUCTIVITY DIFFERENTIALS ALONG GENDER LINES OF COCOA FARMERS IN ABIA STATE, NIGERIA

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Abstract

This study examined productivity differentials along gender lines of cocoa farmers in Abia state, Nigeria in 2015. Multi-stage random sampling technique was used to elicit data from 120 cocoa farmers, whom consist of 60 males and 60 females. Data were collected using a well structured questionnaire and interview schedule administered on the respondent. Data were analyzed using profitability analysis and semi-log regression function. For the male farmers, the coefficients for education, farm size, fertilizer, input and planting materials were positively related to productivity and significant at 5% level of probability while capital inputs was significant at 1%. For the female farmers, the coefficient for age was negatively related to productivity and significant at 1%, while education, farm size, capital input and fertilizer inputs were positive; both were significant at 1.0% and labour was significant at 5% level of probability. From the profitability analysis, the female cocoa farmers were more profitable with the profit of N1412432 than their male counterparts with the profit of N1373643. The results call for policies aimed at land reforms by making more lands and easy accessibility to credit available to women who are more efficient for increased productivity and profitability.

Key words: cocoa, gender, productivity, profitability

INTRODUCTION

The issue of gender analysis has been a subject of raging global debate over the years. Essentially, it focuses on the relations between men's and women's realities resulting from both sex (biological differences) and gender (social differences). The word gender means more than sex. Aina [1] viewed the issue of gender as a process by which individuals are born into biological categories of female and male. This could become the social categories of women and men through the acquisition of locally defined attributes of femininity and masculinity. Most developing countries like Nigeria are still hinged on cultures which limit women's participation in agriculture and access to land, loans, improved seedlings, etc. According to Ajani [2] women are responsible for over half of the world's food production and they provide 60-80% of agricultural labour. More so, they are the main producers of the world's staple crops. This shows how important women are in developing countries'

agriculture.

Cocoa is one of the major foreign exchange earners for some African countries, such as, Nigeria, Cote d'Ivoire, Ghana, and Cameroon. About 70% of the world supply of cocoa originates from Africa. Reports from the cocoa association of Nigeria [4] showed that, Cote d'Ivoire is the world's leading cocoa producing countries with 1,650,000 tonnes, followed by Ghana with 800,000 tonnes. Indonesia in third with 520,000 tonnes and Nigeria occupying the fourth position with 280,000 tonnes. Cocoa farming presents one of the best investment opportunities in agribusiness. The cocoa plant is a small, evergreen tree that grows exclusively in the deep tropical regions of the world. A cocoa tree usually matures and begins to bear fruit (pods) when it is about four or five years old. On the average, a single cocoa tree produces between 20 and 30 pods at a time. Each pod contains about 20 to 50 seeds, known as cocoa beans. These beans are the goldmine of the cocoa plant because they are processed into cocoa liquor, cocoa butter, cocoa powder and

chocolate.

Under male dominated social structures and political systems, women do not derive equal access to land, technology, education and resources. This has also made the measurement of gender disparities in agricultural productivity to be complicated. According to Dayo [5], agricultural productivity estimates for Nigeria showed a decline in productivity growth from 1960s to the 1980s. Nigeria has witnessed strong growth in the past few years, averaging 8.8% real annual GDP growth from 2000 to 2007[5]. Because of the domestic roles of women and lack of freedom to participate in farm activities in some communities, there is the tendency to undervalue labour productivity in Nigeria [5].

Lack of separate data on actual gender responsibility and productivity in agricultural production is a big challenge to meaningful agricultural and development planning in most developing countries. The records in agricultural extension usually work with the whole farm families since every member of the family is engaged in one way or the other in food production activities without necessarily comparing the contributions of each member. There is therefore need to identify the areas of gender involvement and the role of each member of the farm family in order to plan holistic agricultural programme that will address the problem of gender differential in agricultural productivity. Hence, the need to articulate this study became imperative.

Therefore, this study is aimed at analyzing productivity differentials along Gender lines among cocoa Farmers in Abia State. Specific objectives include examine the cost and return of male and female cocoa farmers in the study area and factors influencing the productivity of male and female cocoa farmers.

MATERIALS AND METHODS

This work was carried out in Abia State, Nigeria. Abia state was created in 1991 having been carved out from the old Imo State. The citizens are predominantly Igbos. Abia state is located in the south eastern

region of Nigeria. The state is approximately within latitudes 4° 41' and 6°14' north of the equator and longitudes 7°, 10' and 8° east of the Greenwich meridian. It has seventeen Local Government Areas that are divided along three agricultural zones namely Ohafia, Umuahia, and Aba [1, 6].

Primary data was used for the study. Multi-stage sampling technique was used in the selection of the respondents. In the first stage, five local government areas were randomly selected. In the second stage, one autonomous community was randomly selected from the five local government areas. In the third stage, two villages were randomly selected from each of the communities giving a total of 10 villages. In the third stage, 12 cocoa farmers (6 males and 6 females) were purposively selected from each community given a total of 120 cocoa farmers in detailed study.

Data analysis

The cost and returns was analyzed using profitability analysis

$$\pi = TR - TC$$

Where

π = Profit

TR = Total revenue

TC = Total Cost

TR = PQ

P = price per unit of output

Q = Quantity of output

TC = TVC + TFC

Where

TVC = Total Variable Cost

TFC = Total Fixed Cost

Factors influencing productivity was analyzed using the log-linear model derived from semi-log functional form was the econometric model specified for explaining productivity following Ukoha [8] and Okoye et al., [7] in cocoa production.

$$Y = (x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8) \dots \dots \dots 3.1$$

where:

Y – Productivity of male and female cocoa farmers (output/labour use in man-day)

X₁ – Farmers level of education

X₂ – Age in years

X₃ – Household size

X₄ – Farm size in hectares

X₅ – Capital input in Naira
 X₆ – Planting materials in bundles
 X₇ – Fertilizer input in kg
 X₈ – labour in mandays

RESULTS AND DISCUSSIONS

The total fixed cost of the male farmers was N 470,627 and the total fixed cost of the female farmers was N 468,398, the total variable cost of the farmers were N 3,473,010 and N 3,431,360 for male and female cocoa farmers respectively which gave rise to the total cost of the both group of farmers as N 3,943,637 for the male and N 3,899,488 for the female farmers. (Table 1)

Table 1. Profitability analysis of male and female cocoa farmers (N)

	Male	Female
FIXED COST		
Land	313,500	316,250
Capital consumption allowance	157,127	151,878
Total Fixed Cost	470,627	468,398
VARIABLE COST		
Labour	2,113,100	2,279,050
Fertilizer	219,410	310,310
Cocoa seedlings	1,140,500	842,000
Total Variable Cost	3,473,010	3,431,360
Total Cost	3943637	3,899,488
Revenue	5,317,280	5,311,920
Profit	1,373,643	1,412,432
GM	TR-TVC = GM	

The revenue realized from the cocoa production were N 5,317,280 and N 5,311,920 for both male and female farmers respectively while the profit of both group of farmers as N 1,373,643 and 1,414,232 respectively. This result implies that the female farmer spent lesser than the male farmers and yet had higher profit than the male farmers and so has the higher profitability in cocoa production in the study area.

The regression estimates of the factors influencing productivity of the male and

female cocoa farmers is presented in table 2 and table 3 respectively.

Table 2. Factors influencing productivity of the male cocoa farmers

VARIABLES	SEMI LOG ⁺
INTERCEPT	-83066.17 (-2.28)***
EDUCATION	822.185 (2.21)**
AGE	1117.941 (0.15)
HOUSEHOLD SIZE	1818.952 (0.73)
FARM SIZE	19473.18 (2.00)**
CAPITAL INPUT	19473.08 (5.14)***
FERTILIZER INPUT	3005.85 (2.07)**
PLANTING MATERIAL	11648.54 (2.07)**
LABOUR	-2411.364 (-0.62)
R ²	0.8969
R ⁻²	0.8746
F- RATIO	40.25***

Source: Survey data, 2015

*** = significant at 1 percent

** = significant at 5percent

* = significant at 10 percent

+ = lead equation

(.) t= ratio

The semi-log functional form was chosen as the lead equation for both groups of farmers. The choice of the lead equation was based on the magnitude of the coefficient of determination (R²), the number of significant variables and the conformity of the signs borne by the coefficient variables to a priori expectation. The coefficient of determination was 0.8969 and 0.9036 for the male and female cocoa farmers respectively. These imply that 89.69% and 90.36% of the variation in productivity of the male and female cocoa farmers respectively were explained by the variables included in the model. The f-ratios were significant at 1% indicating the goodness of fit of the model. The significant variables influencing the productivity of the male cocoa farmers were years of education, farm size, capital inputs, fertilizer and planting materials.

Table 3. Factors influencing productivity of the female cocoa farmers

VARIABLES	SEMI LOG ⁺
INTERCEPT	6.10149 (6.12)***
EDUCATION	10896.37 (3.36)***
AGE	-91.263 (-2.83)***
HOUSEHOLD SIZE	-905.634 (-0.42)
FARM SIZE	46218.99 (3.08)***
CAPITAL INPUT	11702.76 (4.24)***
FERTILIZER INPUT	3996.006 (2.51)**
PLANTING MATERIAL	-5801.338 (-0.61)
LABOUR	33.294 (2.39)**
R ²	0.9036
R ²	0.8838
F- RATIO	45.70***

Source: Survey data, 2015

*** = significant at 1 percent

** = significant at 5percent

* = significant at 10 percent

+ = lead equation

(.) t= ratio

On the other hand, the significant factors influencing the productivity of the female cocoa farmers were years of education, age of the farmer, farm size, capital inputs, fertilizer and labour.

The coefficient of education is significant at 1% level of probability and positively related to productivity of the male and female cocoa farmers respectively, these imply that the higher the educational attainment of the farmer, the higher his productivity. This conforms to a priori expectation. Education increases the ability of one to understand, evaluate and adopt innovations/improved farming practices which would lead to increase in productivity.

The coefficient of the age is significant at 1% and negatively related to the productivity of the female cocoa farmers while it is insignificant for the male cocoa farmers. This is because as the farmer grows older, he becomes less energetic and his ability to cope with the labourous nature and daily demands of farm work declines.

The coefficient of the farm size of the cocoa farmers was significant at 5% and positively related to the productivity of the male farmers while it is significant at 1% and also positively related to the productivity of the female cocoa farmers. The result implies that the productivity of both male and female farmers increases with the increase in farm size of the farmers. This is because, the farmers may be enjoying economics of scale and also making use of mechanization to be able to take care of large farm size and also maintain it.

The coefficient of capital inputs of the cocoa farmer is significant at 1% and positively related to the productivity of both male and female cocoa farmers. The result implies that the productivity of both male and female cocoa farmers increases with increase in capital inputs, the farmer can be able to increase his farm size, purchase more planting materials, fertilizers, herbicides and insecticides to improve and maintain his farmland for higher productivity.

The coefficient of fertilizer input of the cocoa farmer is significant at 5% and positively related to the productivity of male farmers and also significant at 1% and positively related to the productivity of the female farmers. The result implies that the higher the fertilizer input of the farmers, the higher the productivity. Proper applications of fertilizer in a farmland increase the nutrient capacity of that farmland and thereby increasing the level of productivity of the farmers.

The coefficient of planting materials is significant at 5% and positively related to the productivity of the male farmers, while it is insignificant for the female farmers. The result implies that productivity of the male farmers increases with increase in planting materials. This is because with the increase in planting materials, the farmer will be able to cultivate more farmlands in other to be able to exhaust the planting materials he has and that leads to increase in the productivity of that farmer.

The coefficient of labour is significant at 5% and positively related to the productivity of the female farmers while it is insignificant for the male farmers. These imply that

productivity increases with the increase in labour of the female farmers.

CONCLUSIONS

The study showed that women are more productive than their men counterpart in cocoa production in the study area. Recent studies show that women are becoming increasingly significant in production also. Men still play central roles in land preparation and ploughing but women provide the bulk of the labour for weeding, harvesting, transporting and processing. Women play an integral part in agricultural production in developing countries and based on the findings of the study the following recommendation were made. Female farmers should be encouraged by eliminating any barrier that could engender inequalities in their access to productive resources of the farm. Agricultural inputs, improved seed varieties should be made available to small-holder cocoa farmers to improve production and provision of easily accessible credit to farmers to increased production should be encouraged.

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