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Abstract

This study examined gender differentials in labour productivity among small-holder cassava farmers in Ideato Local Government Area of Imo State, Nigeria in 2008. The study data was collected through a multi-stage random sampling technique from 120 cassava farmers, whom consist of 60 males and 60 females. For the male farmers, the coefficients for household size and credit were negatively related to labour productivity and significant at 10.0% level of probability. For the female farmers, the coefficient for farm size was negative, while access to credit was positive; both were significant at 1.0% level of probability. The coefficients for education and age were negative and significant at 5.0% level of probability for all the farmers. The results calls for policies aimed at land re-forms by making more lands and easy accessibility to credit available to women who are younger and more agile for increased labour productivity.

Keywords: Gender, Labour Productivity and Cassava Farmers

Introduction

Nigeria produces the largest amount of cassava in the world, followed in decending order by Brazil, Thailand, the Democratic Republic of Congo (DRC), Ghana, Tanzania, Mozambique, Uganda, and Madagascar (Dayo *et al.*, 2009). Cassava (*Manihot esculenta Crantz*) is an important staple food and cash crop in several tropical African countries especially Nigeria where it plays a principal role in the food economy (Agwu and Anyaeche, 2007). Cassava is a staple food crop in South-Eastern Nigeria and it contributes about 15% of the daily dietary energy intake of most Nigerians and supplies about 70% of the total calories intake of about 60 million people in Nigeria (Ezulike *et al.*, 2006). Nigeria is the world's largest producer of cassava, with about 47,274,320mt and yield of 13.027tonne/ha. The South-East zone is leading in cassava production accounting for over 37% of the National production (NAERLS and NFRA, 2009).

Gender analysis focuses on the different roles and responsibilities of women and men and how these affect society, culture, the economy and politics. Women are often

marginalized in their families and their communities, suffering from a lack of access to credit, land, education, decision-making power and rights to work. Explicitly, gender analysis focuses on the relations between men and women (Spieldoch, 2007). There are 450m women and men working as agricultural labourers worldwide who do not own or rent the land on which they do work nor the tools and equipment they use. These workers comprise over 40% of the world's agricultural labour force often living below the poverty line and forming part of the majority of the rural poor in many parts of the world (FAO-ILO-IUF, 2005).

The number of waged female agricultural workers, currently at 20-30% of the waged workforce is increasing (Spieldoch, 2007). According to the United Nations (2006), women are responsible for over half the world's food production. In developing countries, rural women are responsible for over half the world's food production. In developing countries, rural women produce between 60-80% of the food and are the main producers of the world's staple crops (Ajani, 2008). According to Huston (1993), women share of food production in Sub-Saharan Africa is estimated at 80% while Mijindadai (1993) asserted that in Nigeria women are responsible for about 70% of actual farm work and constitute up to 60% of the farming population.

Influence of labour on agricultural labour utilization has been empirically reported in various micro level studies in Nigeria. Chianu and Tsuji (2004) studied the influence of gender on labour allocation in agricultural production activities in the savannas of northern Nigeria and indicated the various correlations along gender lines. Nweke et al., (2002) pointed out that men increase their labour input in cassava producing areas where cassava is mainly produced for cash and for urban consumers. Ezumah and Domenico (1995) reported the use and distribution of labour in various farm activities in three types of farms operated by Igbo Women in Nigeria. Okoye et al., (2008) studied the determinants of labour productivity among cocoyam among cocoyam farms in Anambra State Nigeria. There is a dearth of information on gender differentials with respect to labour productivity in cassava production.

Agricultural productivity estimates for Nigeria showed a decline in productivity growth from the 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 (Dayo *et al.*, 2009). Because of the domestic roles of women and the lack of freedom to participate in on-farm activities in some communities, there is the tendency to undervalue labour productivity in Nigeria (Dayo *ibid.*, 2009). Studies on gender differentials in labour productivity among small-holder cassava farmers is an important step in formulating policies to reverse these trends in the future.

Methodology

The study area is Ideato Local Government Area of Imo State. A multi-stage random sampling technique was used for the study. The farmer participatory research involved 120 farmers, 60 males and 60 females from three sub-circles drawn from 5 circles randomly selected from 2 blocks in the zone. Primary data was collected with the aid of a well structured questionnaire and included such variables as output, land, capital, Labour, fertilizer, planting materials, age, household size, education, access to credit, membership of cooperative societies and number of extension contacts, etc.

Analytical Procedures

The log-linear model derived from the semi-log functional form was the econometric model specified for explaining labor productivity following Ukoha (2000) and Okoye *et al.*, (2008) in cocoyam production. This functional form is the most popular in applied research because it is easiest to handle mathematically (Koutsoyiannis, 1979). It is only when satisfactory results are not obtained from these models that other forms will be tried out, following Ukoha, (2000). The model is described thus:

$$Y/N = f(\ln EDU, \ln AGE, \ln HHS, \ln HA, \ln DEP, \ln CASS, \ln FERT, \ln CREDT, COOP)$$

Where

Y = Casssava output in kg

EDU = Farmers level of education in years

AGE = Age in years

HHS	=	Household size
HA	=	Farm size in hectares
DEP	=	Capital input in naira made up of depreciation, charges on farm tools and equipment, interest on borrowed capital and rent on land
CASS	=	Planting materials in bundles
FERT	=	Fertilizer input in kg
CREDIT	=	Access to credit (dummy variable; 1=access, 0=no access)
COOP	=	Membership of cooperative societies (dummy variable; 1=member, 0=non member)
Yield (tons/ha) =		$\frac{\text{Sample output (kg)}}{\text{Area harvested (m}^2\text{)}} \times 10$
<u>Yield</u>	=	Labor productivity (kg/manday)
N		

Average Statistics of Cocoyam Farmers

The average statistics of the sampled cassava farmers are presented in Table 1. On the average, a typical cassava male farmer in the LGA is about 48years old, 10years of education, household size of 9persons, 10years of education, 1.6ha of land, spent N166.16 on capital inputs, planted 70bundles of cassava, used 275kg of fertilizer, utilized 149mandays of labour and had contact with extension agents 3times. The average female cassava farmer is 49years old, with 11years of education, household size of 10persons, cultivated 0.8ha, spent N108 on capital inputs, planted 40bundles of cassava, used 237kg of fertilizer, utilized 143mandays of labour and had contact with extension agents once. An average male cassava farmer produced and output of 12t, yield of 7t of cassava with labour productivity of 47.29. Their female counterparts produced an output of 7t, yield of 9t of cassava with labour productivity of 63. Female farmers had more yield and were more labour productive while their male counterparts had more land. Akinsanmi et al., (2005) found out that female heads of households are more efficient with the use of labour while male heads are more efficient with the use of land.

Table 1: Average Statistics of Cassava Farmers by Gender in Ideato LGA of Imo State, Nigeria.

Variable	Male	Female	Total
Education	10.03 (4.77)	10.73 (4.23)	10.38 (4.50)
Age	47.67 (9.93)	49.18 (6.94)	48.42 (8.56)
Household size	9.40 (5.24)	9.50 (4.02)	9.45 (4.65)
Farm size	1.59 (0.58)	0.83 (0.55)	1.53 (0.57)
Depreciation on capital inputs	166.16 (178.34)	108.17 (43.04)	137.41 (132.89)
Cassava bundles	70.35 (47.16)	40.11 (93.90)	53.63 (71.31)
Fertilizer	275.00 (126.72)	237.50 (118.47)	256.25 (123.59)
Labour	149.13 (255.61)	143.7 (38.19)	146.41 (39.63)
Output	12,231.08 (8,520.58)	7,283.75 (3,781.81)	12,757.39 (8,142.38)
Number of extension contacts	3.41 (2.14)	1.40 (1.38)	2.13 (1.85)
Yield	7,425.41 (3,834.97)	8,932.11 (5,971.35)	8,115.92 (4,703.16)
Labour productivity	47.29 (32.96)	62.92 (47.95)	67.15 (40.63)

Source: Field survey data, 2008. Numbers in parenthesis are standard deviations

The data in Table 2 show the results of the econometric analysis for Male and Female Cassava Farmers in Ideato LGA of Imo State, Nigeria. The F-ratios were significant at 1% while R² was 0.79 and 0.95 for the male and female farmers respectively, which

implies that the variables in the model were able to explain 79 and 95% of the variability in labour productivity by male and female farmers respectively.

Table 2. Determinants of Labour Productivity in Cassava Production according to Gender in Ideato L.G.A of Imo State, Nigeria.

Production Factors	Coefficients	
	Males	Females
Constant term	-1169.658 (-2.408*)	-1689.710 (-5.975***)
In EDU	-45.840 (-2.899**)	-25.438 (-3.255**)
In AGE	-371.084 (-2.856**)	-88.666 (-3.394**)
In HHS	-69.920 (-1.976*)	16.884 (0.775)
In HA	-6.897 (-0.188)	-128.143 (-4.299***)
In DEP	28.864 (0.909)	7.763 (0.592)
In CASS	26.341 (1.114)	-2.909 (-0.542)
In FERT	-13.460 (-0.421)	79.367 (1.690)
In CREDIT	-201.199 (-2.267*)	962.362 (13.417***)
In COOP	29.076 (1.507)	-2.831 (-0.187)
R ²	0.796	0.958
F	19.070***	97.446***

Source: Field survey data, 2008. Numbers in parenthesis are t-values

* , ** and *** = significant at 10, 5 and 1% respectively.

The signs of the coefficient for education and age were negative and significantly related to labour productivity for the male and female farmers in the study are. This implies that increase in education and age will lead to a corresponding decrease in labour productivity. The negative effect of education is unexpected and may suggest the strong competing effect of diverting skills to other off-farm employment opportunities as the level of education increases (Holloway *et al.*, 2000). The negative effect of age is

expected and may indicate agility leading to increased labour productivity, following Okoye *et al.*, (2008) in their study on gender productivity of cocoyam in Anambra State.

The coefficient of household size and access to credit for the male farmers were negative and significantly related to labour productivity at 10.0% level of productivity. This implies that any increase in these variables will lead to a corresponding decrease in labour productivity. This may be due to the fact that the male farmers divert most of the credit to other non-farm activities like health, paying of children school fees as well as other innumerable households' demands emanating from large house holdings. The coefficient of credit access for female farmers was positive and significant at 1.0% level of probability. Anyanwale and Alimi (2004) in Oyo State found out that although men had more of their requested loans granted than women, women obtained more loans than men in absolute terms.

The coefficient for farm size was negative and significant at 1.0% level of probability, indicating that small farm sizes led to increased labour productivity for women. Women relatively hold small parcels of less fertile land that are less conducive to efficient farming practices (Anosike and Fasona, 2004). This has led to the adoption of different farming methods to increase yields. Consequently, female farmers tend to manage labour more effectively to increase productivity.

The coefficients of farm size and fertilizer for the male farmers were negative but not significant as well as depreciation on capital inputs, number cassava bundles planted and membership of cooperative societies which were negative. For the female farmers' the coefficients for household size, depreciation on capital inputs and fertilizer were positive but not significant as well as cassava bundles planted and membership of cooperative societies which was negative.

Conclusion

The study showed that women were more labour productive than their male counterparts in cassava production in the study area. Formal education opportunities should be made available and targeted especially to the girl child, provision of easily accessible credit facilities as well as birth control policies. There is also need for land re-form policies to make more lands available to women who form the bulk of the population in cassava production.

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