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Cassava Production and Gender Factor Challenges Affecting Cassava Production in Ebonyi State, Nigeria

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Abstract: *Despite the numerous records on the production, processing and marketing of cassava in Ebonyi State, Nigeria, there seems to exist no empirical record on the production and gender factors challenges affecting the production of the product in Ebonyi State, Nigeria. The study specifically identified and analysed those gender related factors affecting cassava production in Ebonyi State, Nigeria. The study adopted a combination of multi-stage and purposive sampling techniques in the selection and collection of data from120 male and 120 female cassava farmers. Data collected were analyzed using both descriptive and inferential statistics in line with objectives of the study. Analysis of the data collected shows that at $P \leq 0.05$, the income level, access to market, equipment and appropriate technology, level of education, access to education, access to extension services, and technology and training were the identified challenges to cassava production. Similarly, the income level of women, the poor entrepreneurial attitude of women, poor access to technology and training, women gender, poor access of women to western education, their poor access to production capital, and access to market were identified to have strong effect significance as being significant on the production of cassava in the area. The study further revealed that women produce much of the product in the State, cultivating an average of 4.1 hectares against the 2.5 hectares cultivated by the male gender. Again, majority of the women (58.3%) grow the crop as mono crop while 36.4% of the male gender grew the crop as mono crop. Based on the study recommended appropriate lending mechanisms to enhance gender participation in cassava production in the State, establishment of effective marketing system that will safe and adequate delivery of the product from the point production to incentive driven areas.*
Key words: *Gender, factor, challenges, cassava, production.*

I. Introduction

Cassava (*Manihot spp*.) has been identified alongside yams, rice, maize, sorghum, and millet as the main food crops in Nigeria (NEEDS, 2004). It is a perennial root crop that grows in non-ideal conditions and represents a major staple crop in Africa, South America and Asia and was introduced in Nigeria by returnee slaves from America (Nwibo, 2011). Nigeria's production accounts for 19% of world the world output and 34% of Africa's output. Nigeria produces more than 45 million metric tons (MT) of cassava, thus emerging as the world's largest producer. About one-third of the total national output comes from the Niger Delta region where many livelihoods depend on cassava as a main source of food and income. The Nigerian cassava system, characterized by small-scale farmers that cultivates less than 2 hectares of cassava (average of 0.5 ha), is subsistent in nature, primarily cultivated for the traditional food market, is subsistence in nature and not oriented to the industrial market. Any surplus cassava is either processed on the farm, or sold to local processors. The average production figures per hectare in Nigeria were 10.5 MT/ha in the early 1970s, 11.5 MT/ha in the 1980s, 10.5 MT/ha by the end of 1980s, and 11.5 MT/ha in the 1990s and up to 17.3 MT/ha in 2004. Ebonyi State is ranked 19th in cassava production in Nigeria and cultivates 29,000 hectares, producing 435,000MT and 15MT/ha annually (Cassava Master Plan, 2006).

Cassava is used mainly for two main purposes in Nigeria: 90% as human food and only 5-10% as secondary industrial material (used mostly as animal feed). About 10% of Nigeria's industrial demand consists of HQCF used in biscuits and confectioneries, dextrin pre-gelled starch for adhesives, starch and hydrolysates for pharmaceuticals produces and as seasonings. 70% of cassava processed as human food is *gari*. Other common cassava products human foods are *lafun* and *fufu/Akpu.* Processed products can be classified into primary and secondary products. The former, e.g., *garri*, *fufu*, starch, chips, pellets are primary products which are obtained directly from raw cassava roots, while the latter are obtained from the further processing of primary products (e.g. glucose syrup, dextrin, and adhesive are obtained from starch). Among all the products of cassava, garri is the favoured derivative as it has a longer shelf-life than the other processed products. According to Ezedinma *et al.* (2006), 70 percent of the labour involved in the production and processing of cassava in Nigerian is done by women in rural areas.

Despite the important role cassava plays in the economy as food security and income generation, its production and marketing in Nigeria, there seems to exist no empirical record on the gender challenges facing

its production in Ebonyi State, Nigeria. In order to provide solution to the problem the study identified and analysed those gender related factors affecting cassava production in Ebonyi State, Nigeria.

II. Methodology

The study was carried out in Ebonyi State of Nigeria. The State lies approximately between 7^0 30^1E and 5^o40^1N with a land mass of approximately 5,932 square kilometres and a population of 1,453, 882 persons (NPC, 2006). Created as a State in 1996, the state is made up of thirteen (13) Local Government Areas and it is divided into three (3) agricultural zones, namely: Ebonyi North, Central and South zones. The major crops grown in the area are, rice, yam, cocoyam, maize, cassava, groundnut, vegetables and fruits, while fishing activities are predominant in the southern zone of the State.

The study adopted a combination of multi-stage and purposive sampling techniques in the selection and collection of data from120 male and 120 female cassava farmers. Thus, 240 cassava farmers were used as sample size. Data collected were analyzed using both descriptive and inferential statistics in line with objectives of the study. The empirical model was used to show the relationship between cassava production and included exogenous variable. The null hypothesis which states that the gender challenges have no significant effecting in the production of cassava in Ebonyi State, Nigeria was tested using F* test at 0.05 level of significance.

Multiple Regression Model

The ordinary least square multiple regression was employed to achieve the effect of gender challenges have on the production of cassava in Ebonyi State, Nigeria.

The model of fit was expressed explicitly as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{10} X_{11} + \beta_{10} X_{12} + et$$

Where,

Y	=	Output of cassava (in naira)
β_0	=	Constant
β_1- β_{12}	=	Coefficients of regression
X_1	=	Gender
X_2	=	Income level
X_3	=	Level of education
X_4	=	Access to education
X_5	=	Access to extension services
X_6	=	Access to production capital
X_7	=	Cultural practices
X_8	=	Manpower development
X_9	=	Entrepreneurial attitude
X_{10}	=	Access to market
X_{11}	=	Technology and training
X_{12}	=	Equipment and appropriate technology
et	=	Stochastic error term

III. Results and Discussion

Factor Challenges Affecting Male Cassava Farmers in the Production of Cassava

Regression analysis of Ordinary Least Square was employed to determine the best line of fit for the male gender challenges affecting cassava production in Ebonyi State Nigeria. The selection of the line of fit was based on the number of significant variables, their signs and the value of R-squared. The regression result (Table 1) shows that income level, access to market, equipment and appropriate technology were significant at $P \leq 0.05$ level while, level of education, access to education, access to extension services, and technology and training were significant at $P \geq 0.05$ leve. The R^2 of 0.705 indicates that about 71% of the included factor challenges provided the best fit for the regression model. Hence, if these significant explanatory variables were to be enhanced, production of cassava in the State will be increased, thus will contribute in boosting the food security situation of Ebonyi State.

The finding on access to market is justified as the farming households sell both fresh and processed cassava using many distribution systems. Corroborating this, Futa (1992) inferred that the product can be harvested, transported to town fresh, or processed but, the bad condition of rural roads makes the transportation of fresh cassava or processed products to market difficult. Therefore, improved access to market would result to rapid spread of cassava production and possibly increased market demand. Such facilities as good network roads, market structure affect the occupation and income status and hence farmers relative contributions in the household.

The negative signs of entrepreneurial attitude, technology and training confirm that the variables have no impact on the male cassava farmers in boosting cassava production in Ebonyi State.

Table 1: Coefficient Estimates of the Regression Model of the Effect of Male Factor Challenges Affecting Cassava Production on the Cassava Output

Variables	Parameter	Coefficients	Standard Error	t-value
Constant	β_0	1.904	0.351	9.940*
Gender	β_1	0.013	0.702	1.005
Income level	β_2	0.261	0.005	6.041**
Level of education	β_3	0.017	0.709	2.748*
Access to education	β_4	0.036	0.623	6.023*
Access to extension services	β_5	0.182	0.032	2.609*
Access to production capital	β_6	0.011	0.940	1.456
Cultural practices	β_7	0.064	0.077	0.798
Manpower development	β_8	0.079	0.048	2.142
Entrepreneurial attitude	β_9	-0.050	0.012	-1.730
Access to market	β_{10}	1.924	0.687	1.434**
Technology and training	β_{11}	-0.327	0.671	1.256*
Equipment and appropriate technology	β_{12}	0.098	0.326	2.128**

*P = 0.01(99%), **P = 0.05(95%), R-squared (R^2) = 0.705, Adjusted (R^2) = 0.681
Source: Field survey, 2012

Factor Challenges Affecting Female Cassava Farmers in the Production of Cassava

The study employed Ordinary Least Square to determine the best fit for the female gender factors affecting cassava production in Ebonyi State Nigeria. From Table 2 it was observed that the R^2 of 0.669, about 67% of included female factor challenges were explained as providing the best fit as the factor challenges affecting cassava production in Ebonyi State. Specifically, the income level of women, the poor entrepreneurial attitude of women, and their poor access to technology and training have at 0.01 level of significance positive effect on the production of cassava in Ebonyi State. Meanwhile, women gender, poor access of women to western education, their poor access to production capital, and access to market were identified to have strong effect at $P \leq 0.05$ level of significance on the production of cassava in the area. However, the earlier findings of Nweke and Eneta (1999) that cassava production in Africa is female gender sensitive, justified the finding the study that education level, access to extension services, cultural practices, equipment and technology have no significant effect on the production of cassava by the female gender. Again this finding confirmed Makarau, e*t al.* (2011) that women are the major player in cassava production activities but are constrained by access to available credits from financial institutions which might lead to reduced scale of production. Consequently, access of women to better production capital through increase participation in income producing activities would improve will enhance their access to land and other production resource.

Table 2: Coefficient Estimates of the Regression Model of the Effect of Female Factor Challenges Affecting Cassava Production on the Cassava Output

Variables	Parameter	Coefficients	Standard Error	t-value
Constant	β_0	-0.037	0.045	1.045*
Gender	β_1	0.627	0.153	3.796**
Income level	β_2	0.061	0.037	2.710*
Level of education	β_3	-0.037	0.006	1.661
Access to education	β_4	0.040	0.105	0.462**
Access to extension services	β_5	-0.146	0.407	1.176*
Access to production capital	β_6	0.133	0.562	2.426**
Cultural practices	β_7	-0.247	0.209	2.002
Manpower development	β_8	0.381	0.063	3.450
Entrepreneurial attitude	β_9	0.539	0.301	2.603*
Access to market	β_{10}	0.168	0.475	0.685**
Technology and training	β_{11}	0.163	0.069	1.114*
Equipment and appropriate technology	β_{12}	-0.270	0.411	1.570

*P = 0.01(99%), **P = 0.05(95%), R-squared (R^2) = 0.669, Adjusted R-squared (R^2) = 0.620
Source: Field survey, 2012

Size of cropped land

Cassava production in Ebonyi State has been observed to be female gender sensitive (Table 3). From the analysis, women produce much of the product in the State, cultivating an average of 4.1 hectares and producing 56.4 metric tons as against the 2.5 hectares and 28.6 metric tons cultivated and produced by the male gender. This finding corroborated Cassava Master Plan (2006) survey that Ebonyi State cultivates 29,000 hectares, produce 435,000MT(15MT/ha) annually. The study further revealed that majority of the women (58.3%) grow the crop as mono crop while 36.4% of the male gender grow the crop as mono. This finding goes to infer that male gender prefer intercropping cassava with other crops like yam which are being regarded as male gender sensitive. Consequent upon this, Nwakwushue, *et al.* (2011) inferred that Nigerian women play significant roles in agricultural sector as records shows that 78% of women are active in roots and vegetable crop production in Plateau State of Nigeria

Table 3: Size of cropped land

Gender	Mean size of hectare cultivated	Mean output (Metric ton)	Form in which it is cultivated	Percentage
Male	2.5	28.6	Mono	44(36.4)
			Mixed	76(63.3)
Female	4.1	56.4	Mono	70(58.3)
			Mixed	50(41.7)

Source: Field survey, 2012

IV. Conclusion and recommendations

Cassava production in Ebonyi State Nigeria has been observed to be female gender sensitive and it is characterised by various production challenges which on closer analysis has shown that there exist a significant difference between genders on the challenges affecting its production.

Based on the findings, the study recommended appropriate lending mechanisms to enhance gender participation in cassava production in the State, establishment of effective marketing system that will safe and adequate delivery of the product from the point production to incentive driven areas.

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