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CONSTRAINTS TO EFFECTIVE PARTICIPATION OF SMALL HOLDER MALE AND FEMALE CASSAVA FARMERS IN FORMAL MARKET IN IMO STATE, NIGERIA.

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Abstract
Due to the incidence of insecurity in Nigeria, most cassava producers should participate more in the formal market which is adjudged to be safer, profitable and reliable in marketing of farm produce than informal marketing. The paper therefore examines the constraints faced by smallholder cassava producers in formal market participation in Imo State. The data were collected by the use of multi-stage random sampling procedure. The data were collected from 120 smallholder cassava farmers who participated actively in formal market (60 males and 60 females) in two agricultural zones of Imo State. Data were analyzed using simple descriptive statistics (Means and percentages) and regression models. The results show that most of the male and female cassava producers were relatively young but not in their active age. Majority of the respondents were married couples with an average family size of 6 persons and above. The male farmers had many years of experience and large farm size than their female counterparts. The female farmers were more educated than their male counterparts. The regression showed the significant variables that influenced the cassava producers' participation in the formal market as age, household size, years of experience, cooperative membership and gender. Twelve problems were identified as major constraints to the market participation of the male respondents, while 14 constraints were the major problems affecting the female producers. Based on the findings of the study, it was recommended that government and private organizations should encourage young people and women who are smallholder cassava producers through the provision of access to input and land facilities, good road, improved production technologies to reduce drudgery and enable them to participate more in the formal market to improve income and food security in the study area.

Key words: Constraints, cassava farmers, gender, Imo state

Introduction

Cassava is among the major staple food crops in Nigeria with wide range of industrial and commercial uses (NBS, 2013). Cassava can be used to produce garri, fufu, tapioca, flour, etc. Fufu and lafun have value chains very similar to that of *garri*, except that they require additional processing (Kambewa and Nyembe, 2008).

Most of the cassava farmers in Southeast and Imo State in particular are regarded as small holder farmers in view of the nature of their small farm size and subsistence activities. They are classified as small holder farmers from the deduction of Federal Ministry of Agriculture and Rural Development, (FMARD) who classified farms with less than 5 hactares as small scaled, as reported by Ejiogu and Amanze (2013)

Women play significant roles in cassava production and post-harvest processing that are often the basic determinants of the size and quality of the final commodities produced (International Finance Corporation, 2016). The right to use productive resources such as credit, improved technology, and access to land, improved varieties, and improved methods of processing, storage and organized marketing is central to understanding rural women and men's opportunities for economic advancement (FAO, 2016).

Market may mean a physical or visual place where buying and selling takes place, a group of people carrying on buying or selling, or the commodity traded. Marketing is the undertaking of creation, promotion, and delivery of products, and services to the end users (Kotler and Armstrong, 2006). Markets provide a link between the local and global economy and help in facilitating economic efficiency through promoting the exchange of goods and services for the end users. Marketing is a societal process that discerns consumers' need and wants, focusing on a product or services offered. Access to market gives actors chance to specialize according to the areas they have advantages of ownership and therefore enjoy the business earnings (Duncan, 2007).

Agricultural markets offer farmers the opportunity to sell specialized produce and thereby enjoy profits from trade. Agricultural marketing covers all the services involved in moving an agricultural product from the farm to the consumer. It acts as an agent of rural development as it plays a coordinating role by steering demand and supply with respect to place, form and time utilities, Promoting pro-poor opportunities in the commodity and service market (PrOpCom, 2007). Market access for smallholder rural farmers provide local to global connections that prove to be both opportunities and challenges for rural smallholder farmers (IFAD, 2010). Through access to different markets, farmers are enabled to access inputs and credit, market their produce, access other consumption goods as well as learn about and adopt new technologies. It plays a remarkable role in ensuring better incomes and welfare for farmers through diverse channels (Gani and Adeoti 2011). Before choosing the type of market, the actors first check the costs of transactions and profits associated. The combinations of all these factors enable actors to desire formal or informal market for the flow of their products.

Formal market refers to reliable (contract arrangement) and lucrative (profitable) markets or the high value markets. Baloyi, (2010) listed fresh produce markets, supermarkets and agro-processors as formal markets for farmers' participation. Formal markets are the direct confrontation circuits of sellers and buyers in a local or regional location known by all, (Baloyi, 2010). Advantages of engaging in direct or contract marketing are that the marketing

margins can be reduced, the producer can obtain a higher price for products and sales volume is guaranteed. For cassava marketing, the quality and quantity are spelt out by the end users before the farmer makes any sale. The major disadvantages are that the farmer must make sure that he has enough produce of satisfactory quality to deliver to the end users or retailers at all times and that the quality of what he produced meets the consumers and also retailer standards (Adams, 2004).

On the other hand, informal market is a market where there is no involvement of any formal arrangement (e.g. contract) for a sale of goods between a farmer and a buyer. The informal markets include the pre-harvest negotiations/contract between buyers and sellers as opined by Hauwa, (2017). It is called informal market because this is beyond the formal sales channel and cannot be recognized in the regional statistics. This market seems like a normal traditional supply chain where consumers typically buy and sell most of their cassava product, like fresh cassava roots from the farmers or small independent retailers as obtainable in the study area.

The situation of agricultural product markets in rural areas especially in Imo State is insecure and does not allow cassava farmers to maximize profit. Lack of vertical linkages in the marketing channel often leads actors to opt for the informal market as stated by Ajok, (2015).

Agricultural market participation refers to the integration of farmers into the input and output markets of agricultural products with a view to increasing their income levels, (Ehui and Holloway, 2002). Sebatta et, al, (2014) defined market participation as the quantity or proportion of the harvested output that is marketed. It is about accumulating portions of cassava and cassava value added products meant for sales. Cassava producers can participate in the markets either as output sellers or input buyers, thereby giving market participation a demand and a supply side. Both the decisions to enter the market as a seller or buyer is motivated by the theory of optimization where the households seek to maximize utility subject to the cash budget and available resources (Barret, 2008). Beyond production activities, farmer participation in marketing allows transitioning from subsistence to commercial farming. However, for resource poor farmers, especially those living in rural areas, the cost and risk of participating in markets is too high. In order for market participation to be effective, factors of production such as labour, land and funds for investment and working capital from banks and other financial agencies (Mwongoso, Kiwia, Komba, & Kafere, (2015), have to be obtained from the market. Cassava farmers' market participation generates employment opportunities to the local communities through activities like sorting, grading, transportation among others and this eventually leads to the development of rural roads and industries in the rural areas. Most actors who participate in the market are food secure because the income derived from the sales of their outputs enables them to purchase staple foods and meet other basic requirements. In summary, it can be concluded that cassava farmers participate in the market to access inputs, sale of outputs (economic gains), and networking and food security. The economic gains act as push factors for the actors' engagements in the markets.

This study is an attempt to provide information on socioeconomic factors influencing the decision of cassava producer to sell in the formal markets. Determining the socio-economic factors that affect market participation will provide empirical evidence to scholars and stakeholders in cassava value chain, extension service providers, government and

development partners, and in turn provide basis for policy makers in formulating policies that will ensure equal gender participation in the various markets.

This study becomes imperative to ascertain the socio-economic characteristics of the respondents, determine the factors that influence the respondents' participation in the formal market and describe the constraints faced by the respondents in the formal market.

METHODOLOGY

This study was conducted in Imo State. A three stage random sampling technique was employed to select respondents for the study. The first stage was a purposive selection of two agricultural zones (Owerri and Orlu) in the State based on the intensity of cassava production. This was followed by random selection of four Local Government Areas, from each of the agricultural zone viz, Ngor-okpala and Owerri West in Owerri zone, Ohaji Egbema and Oru West in Orlu zone. Two communities, based on the intensity of cassava production were purposively selected from each of the LGA and 10 households were randomly selected from each community, giving a sample size of 80 households.

The data were collected using primary and secondary data. The primary data was sourced through structured questionnaire and oral interview schedule. The source of secondary data was from journals, internet, published and unpublished reports and other periodicals.
Percentage and arithmetic means were used to capture objectives 1 and 3, while objective 2 was determined using tobit regression.

To model the factors influencing the level of participation in the formal market, Tobit model was used.
Model specification
The implicit model is specified thus:
$Y= f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13}, \varepsilon)$ (1)
Where :
Y= level of participation (quantity produced/quantity sold)
X_1 = age (years)
X_2 = education (Years)
X_3 = household size in number
X_4= experience (years)
X_5 = access to credit (dummy, yes =1, No = 0)
X_6 = membership of cooperative (dummy, Yes=1, NO = 0)
X_7 = extension contact in number
X_8 = cost of transportation (Naira)
X_9 = unit cost of cassava root (Naira)
X_{10} = cost of intermediate product (Naira)
X_{11} = gender (dummy, male= 1, female =0)
ε = error term

REULTS AND DISCUSSION
SOCIOECONOMIC CHARACTERISTICS OF RESPONDENTS

Table 1 shows the average statistics of the socio-economics characteristics of the respondents. The results show that the average age of the respondents was 51 years each for

the male and female producers. This implies that most of the male and female cassava producers in the study area were relatively young, but not likely in their active age. Thus, labour productivity of these farmers was not expected to be high. The implication may be that many of the male and female cassava producers may not be actively involved in cassava farming. The aging cassava farmer would not easily participate in the market or even adopt productivity-enhancing technology and modern farming practices which are needed for transformation in cassava production (Oni, 2016).

The findings also show a mean household size of 8 and 7 persons for the male and female respondents respectively. This household size is adjudged slightly higher than the recommended family size in Nigeria of 4 persons (Ejiogu and Amanze, 2013). It may be deduced that generally, that the male and female cassava producers had large household size and thus probably spend more on food and other household necessities. Okpara (2015) confirmed this in a study where he noted that most household in the Southeast had large household size. He asserted that large household size is essential as it influences the availability and supply of unpaid labour especially in cassava production, processing, and marketing as they are labour intensive. This result was also an indication of family labour supply in small holder food crop production and marketing as in most part of Africa, Nigeria inclusive following Taphee, (2015). Otitoju and Arene (2010) noted the importance of large household size in labour supply along the production process. On the contrary, large household size may also be an additional responsibility on the household heads according to Adebayo, Lamboll, and Westby (2008) can help in influencing the cassava market participation since enough manpower will produce surplus for market. The result on the level of education shows that cassava producers had an average of 5.6 and 6.48 years of education for the male and female actors respectively. The findings agree with the findings of Nwaru (2004) who found out that a greater percentage of farmers in south East, Nigeria attended secondary school or its equivalent. However, the female producers had higher level of educational attainment than their male counterparts did. This is in support of the findings of Onumadu and Onuoha, (2015), who revealed that the female headed household had more education than the male headed households. He went further to assume that this might be because of the realization of the number two millennium development goal, which has to do with closing the gap between boys and girls in education. Economic activities can be restrained or improved by the overall level of education of individual or household head. Basic education enhances the overall quality of the farmer by providing him/her with basic numeric and literacy skills (Okoye, 2013), thus increasing the level of market participation.

The result shows that the male and female producers had a mean of 19 and 18 years farming experience respectively. This indicates that the male producers had more years of farming experience than their female counterparts. The result is in consonance with the study of Kwaghe (2006) that found out that respondents with many years of experience are more willing to change towards market oriented production. Farmers with more years of farming and marketing experience manage risk compared to farmers with few years of farming experience following Tashikalma (2011).

The result also reveals that the average farm size of the male and female actors in the formal market were 3.19 and 1.98 hectares respectively. This result is an indication that the male farmers had larger farm land than their female counterparts,. The finding is in line with the study of as Ejiogu and Amanze,(2013) who reported that structure of land holdings in Nigeria has become dualistic which lead to a few large and many small farms.

The distribution of the respondents by marital status shows that majority (more than 50%) of the producers, were married. The preponderance of the married people could create potential for increased farm labour supply which would contribute positively to cassava production (Oni, 2016). This means that cassava production, processing and marketing are carried out by married people more than single persons following the study of Okpara, (2015). Nwaru, (2004) in line with this thought opined that the stability of the married creates a better room for efficient use of resources, thus their ability to participate in the market is equally enhanced.

On cooperative membership, the results showed that majority of the producers, (79 and 80 percent of the male and female respectively) were members of cooperatives. Those who belonged to cooperative societies are likely to participate in collective market than their counterparts that function individually. The farmers may enjoy the assumed benefits accrued to co-operative societies through pooling of resources for a higher farm expansion, efficiency, and effective management of resources, profit maximization and market participation. Ajayi (2002) observed that membership of cooperative societies has advantages of accessibility to micro-credit, input subsidy and could serve as avenue for cross-breeding ideas and information that will enhance their market participation.

The distribution of the respondents according to access to credit shows that, the male (79%) had more access to credit than their female counterpart (50%). This result is line with a prior expectation where the males are expected to have more access to credit than their female counter parts.

Table 1 equally reveals that majority (91 and 64 percents) of the male and female farmers respectively have their own land. This implies that majority of the male farmers in the study area made use of their own farm land and managed their land as they desired.

On the variety of cassava used, the table indicates that most of the male and female farmers respectively use local varieties as well as improved varieties.

From Table 1 also, about 86 and 100 percent of the male and female farmers sourced their stem cuttings from their own farm. This study is in line with the study carried out by Mmasa and Msuya (2012) on plantain value chain mapping in South Western Nigeria and mapping of sweet potato value chain in Tanzania who found that farmers usually acquire seeds for planting from their farms and fellow farmers and not from recognized source agents.

On the Cropping systems used by the farmers, Table 1 equally shows that 91% of male and 30% of female were engaged in cassava sole cropping. The result also indicates that 9% of male and 70% of female engaged in inter cropping. This result is an indication that the male farmers engaged more in cassava sole cropping while the female were involved more in intercropping. This is in line with the study of Osuji, Mejeha, Nwaru, Nwankwo, & Nwaiwu, (2017), who noted that cassava is intercropped with crops such as maize, melon and vegetable in the study area.

TABLE 1: Frequency Distribution of the respondents according to socioeconomic characteristics

Variables (Means) VRIABLES (MEANS)	MALE	FEMALE
Age	51	53
Household size	8	7
Educational level (Years)	5.06	6.5
Marketing experience	21	18
Farm size	3.19	1.9
DUMMY (%)		
Marital status	85	95
Member of coop.	75	80
Access to credit	63	50
Tenure system	77	23
Own farm	23	77
Rented farm		
Variety of cassava (%)	80	100
Local	16	13
Improved		
Source of stems (%)	86	100
Own farms	23	50
Fellow farmers	16	11
Market	21	25
ADP		
Cropping system (%)	91	30
Sole cropping	9	70
Inter cropping		

Source: field survey, 2019.

SOCIO-ECONOMIC FACTORS INFLUENCING LEVEL OF MARKET PARTICIPATION BY THE RESPONDENTS.

The empirical relationships between selected socio-economic factors influencing level of participation in the formal market by the respondents were examined. The Tobit estimates of the factors influencing the level of participation in the formal market were shown. The Chi square value was significant at 5% level of probability indicating goodness of fit of the Tobit regression line.

The results show that the coefficients of the age of the producers were significant but negative at (5%). This implies that any increase in age will lead to decrease in probability and intensity of participation in formal market. This finding is in line with the report of Hauwa, (2017) who stated that as the respondent ages on, he or she gathers more experience thus plans and organizes business hence increased market participation. The implication is that increased age decreases participation at the formal market but may favor informal market participation. This is also an indication that younger producers would participate more at the formal market than their counterparts who are relatively aged.

The coefficient of household size was significant and positively related with level of participation at formal market among producers at 5% level. This implies that any increase in number of household sizes will lead to an increase in probability and intensity of participation

at formal market by the producer. This is expected and in accordance with a prior expectations. The more the household size, the more the farmer will produce for the formal market probably due to availability of labor supply from the family. This findings is in contrast to the report of Mwena *et al.*, (2013) whose study in the economics of harvesting and marketing of selected indigenous fruits in Mwinga district of Kenya, reported that large family size negatively influenced the extent of farmers market participation in the formal market as more of the farm produce will be held for income consumption at the informal market.

The coefficients of years of experience were positively signed and significant at 10% level of probability for cassava producers. This implies that any increase in the years of experience as a producer will lead to an increase in probability and intensity of producers' participation in the formal market.

The coefficient of cooperative membership was significant at 5% and positively related to level of market participation. This is an indication that any increase in cooperative membership will lead to an increase in probability and intensity of participation of cassava producers at formal market. This may be as a result of efforts made by cooperatives in creating markets for fresh root in the study area. As observed by Ekong (2003) and Ajayi (2002) that membership of cooperative societies has advantages of accessing input subsidy and markets for their products. These advantages would help the actors to obtain reliable information on production of fresh cassava roots and time of marketing. Also this report is in line with the study of Hauwa, (2017) who reported in his findings that group participation influences farmer's participation in soya beans production especially female farmers.

The coefficients of gender were significant and positively signed at 5% for producers probability for participation.. This is an indication that there will be increase in probability of market participation among the male producers than the females. This finding is in line with the report of Adjimoti, (2013) who noted that men have preference for market participation in cassava production stage unlike their female counterparts.

Table 2: Tobit Estimates for factors influencing the level of participation by the chain actors in Formal market.

Variables	Parameters	Producers
Constant	Bo	1.1823
Age of the actor in years	b_1	-0.0036 (-2.81)**
Educational level	b_2	-0.0095 (-1.29)
Household size in numbers	b_3	0.0034 (2.95)**
Years of experience in years	b_4	.0097 (2.42)*
Access to credit	b_5	0.0227 (0.25)
Cooperative society	b_6	0.1652 (2.65)**
Extension contacts	b_7	.0093 (0.11)
Cost of transport	b_8	9.9206 (0.03)
Unit cost of cassava root	b_9	0.0002 (0.70)
Cost of intermediate product	b_{10}	6.5708 (0.04)
Gender	b_{11}	0.1820 (2.68)**
Chi^2		12.23 **
Log likelihood		-11.7613

Field survey, 2019.
Figures in parenthesis represents t – values,***, ** and * = Significant at 1%, 5% and 10% respectively.

The result in Table 3 presents constraints faced by the male and female cassava producers in cassava market participation. These include high cost of input, inadequate capital, climate change, high cost of labour, bad road network, pest and diseases, low yield, illiteracy, low price, lack of high quality planting materials and limited mechanization, ownership of land and small farm size. Hence the inability to participate in market could be attributed to the existence of the various problems associated with market participation.

A three point likert scale of very important, important and not important was used. The Table revealed that all these constraints are very important except illiteracy with a mean of 1.82, land ownership with a mean of 1.54 and low price with a mean of 1.62 which are not important constraints in cassava production market participation in the study area for the male respondents.

This is an indication that illiteracy, land ownership and low price were never constraining factors for male farmers producing enough surpluses for market participation. However, the females identified all the factors listed above as constraints that may hinder the female cassava producers from participating in the market except climate change with a mean of 1.94. The implication is that the female respondents were faced with more constraining factors than their male counterparts in the study area in terms of market participation. These may be the reasons why male respondents participate in market more than their female counterparts.

Table 3: MEAN DISTRIBUTION OF RESPONDENTS ACCORDING TO CONTRAINTS FACED BY CASSAVA FARMERS IN MARKET PARTICIPATION

CASSAVA CONSTRAINTS	MEAN OF MALE	MEAN OF FEMALE	TOTAL
High cost of inputs	2.40	2.48	2.44
Inadequate capital	2.58	2.68	2.63
Climate change	2.20	1.94	2.03
Lack of technical kdge	2.37	2.66	2.57
High cost of labour	2.25	2.26	2.25
Bad road	2.10	2.20	2.15
Pest and diseases	2.40	2.90	2.65
Low yield	1.82	2.30	2.06
Illiteracy	1.64	2.20	1.94
Low price of cassava	2.30	2.20	2.25
Inadequate planting materials	2.40	2.56	2.48
Access to mechanization	2.58	2.68	2.63
Small farm size	2.25	2.69	2.47

Field survey, 2019

CONCLUSION AND RECOMMENDATIONS

Formal market participation is a key factor in achieving food security policies in relation to smallholder farmers. Identifying and addressing the socioeconomic factors that affect their participation and the constraints faced by these small scale cassava producers in formal market participation is pertinent for improving their wellbeing.

To this end, it's therefore recommended that:

- Gender sensitive policies should be vigorously pursued by government and Nongovernmental organization in the study area and Nigeria at large, if self-sufficiency in cassava production is to be achieved. This may include making value

addition to agricultural produce an important part of their women empowerment programmes.

- The female actors should be given more access to land, inputs, credits and loan to enable them to participate more in the formal market and to add more value that may help them to be more productive, increase value in business and market oriented.

- Also, measures to increase cassava output by the farmers should be put in place by agricultural development agencies. This may include provision of high-yielding varieties to the farmers at no cost or subsidized rate. Besides, there is need to encourage the youths to engage in farming, as this will not only influence their decision to add value but also the amount of value added.

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