What Capabilities Matter for Household Food Security? Insight from Rural Women in the Cassava Value Chain in Southwest, Nigeria

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Abstract

This study examines the influence of women's capabilities - control in decision-making in production activities and household expenditures as well as ownership of assets - on household food security using the ordered logit regression model. Using a multi-stage sampling technique, the study uses data collected from 586 primary male and female decision makers from 360 rural households in three Southwest states of Oyo, Osun and Ogun states, Nigeria. The results show that rural women who had control over decision-making on non-farm activities, fish farming, minor household expenditures and major assets had a high likelihood to be more food secure. On the contrary, women who had control over decision-making in cash crop production have a lower probability of being food secure. The study concludes that higher income earned by rural women may not necessarily translate to household food security if it does not allow them to undertake what they value doing or being. The study recommends that policies and projects aimed at improving food security should focus on enhancing women's ownership of major assets and participation in decision-making.

Keywords: Asset ownership, Capability approach, Decision-making, Household food security, Household expenditure, Southwest Nigeria .

Introduction

In an effort to shift the focus of development studies from growth towards issues of personal well-being, agency and freedom, Amartya Sen, a Development Economist and Nobel Laureate, developed the capability approach (Clark, 2005). The approach redefines the concept of wellbeing from the traditional welfare economic indices such as utility, resources and commodity to what people are actually able to be and do (Sen, 1993; Robeyns, 2003). That is, the quality of life must be evaluated by the ability of individuals to have freedom to promote or achieve what they value doing and being. An individual's total capabilities correspond therefore to the overall freedom to lead the life that the person has reason to value (Robeyns, 2003). One of the capabilities important for poverty reduction is derived from food security. This is defined by Dreze and Sen (1989) as the capability to be adequately nourished.

Extrapolating from Sen's capability approach, this can be explained in terms of individual's freedom to make food choices that an individual values and the freedom and ability to implement such. In the context of this study, two factors, participation in decision-making in production activities, and

household expenditures as well as ownership of assets are used as proxies for measuring capabilities. These are important for rural women because merely exercising access through men in their households limit their voice on issues that affect their livelihoods (Diiro *et al.,* 2018).

The capability approach was explained in the context of food security in 1989 by Jean Dreze and Amartya Sen in the book, "Hunger and Public Action." The approach seeks to improve on the limitations of the entitlement and basic needs approach by changing the focus of food security to individual human capability. By doing this, it shifts the attention of food security from access to utilization (Burchi and De Muro, 2012). An important pillar of the capability approach is agency: which is the ability to formulate strategic life choices and to control resources and decisions that affect important life outcomes (Malhotra and Schuler, 2005). The control and freedom to make choices by smallholders, especially women, is very important in agriculture. These include access to and ownership of agricultural production resources such as land, finance, assets and also the freedom to make choices on the use of these resources. These are key determinants of individual agency which contribute significantly to empowerment. Within the context of the household, these capabilities are important because the intra-household power dynamics is a key determinant of resource allocation and welfare (Doss, 2013). Since households may not act in a unitary manner when making decisions, the power of individuals within the household to exert their own preferences may determine welfare outcomes, such as spending on food or healthcare (Browning *et al*., 2006). In order to enhance capability for food security, gender inequalities in access to and control over the use of resources at the household level must be addressed. This is because the needs and concerns of men and women with respect to agricultural resources differ; hence, the ability to make decisions as well as the material and social resources needed to carry out those decisions are vital to household food security. This requires resource mobilization and changes in power relations at the household and community levels (ActionAid, 2012).

Studies have been conducted in Nigeria to identify the underlying gender issues affecting household food security (Fawehinmi and Adeniyi, 2014; Forsythe *et al.,* 2015; Adeyeye and Sanni, 2016), however, many of these have been restricted to analyzing issues of gender roles and responsibilities with food security. Also, many of the studies paid little attention to the dynamics of women's role in the bargaining process in the household and how this can influence household food security. This is important in the context of cassava value chain assessed in this study.

Nigeria is the largest producer of cassava in the world with annual production averaging 50 million metric tonnes representing about 20 percent of global output. This is grown largely in rural areas by about 4.5 million smallholders on 3.8 million hectares (IITA, 2016). This makes cassava one of the major staple crops in Nigeria and an important food and income source for millions of families across the country. In addition, the roles and responsibilities among key stakeholders in agricultural activities are often gendered, with male and female actors specializing in different activities along the value chain. According to Oluwasola (2010), men and women participate in all the activities of the value chain, although women dominate processing while men mostly engage in production. Women produce first for

household consumption before selling in local markets while men produce primarily for market, with left over for household consumption. Men almost always sell cassava in its root form, while women sell both cassava roots and processed cassava products (Butterworth *et al.,* 2008).

Hence, understanding women's capabilities in cassava value chain is important in designing strategies aimed at eradicating hunger and poverty among rural households. Based on the foregoing, the study examines the influence of women's capabilities, measured by control in decision-making on production activities and household expenditures as well as ownership of assets, on household food security.

Materials and Methods

Data and sampling

The study uses data collected from primary male and female decision-makers from rural households in three states of Southwest Nigeria: Ogun, Osun and Oyo. The respondents are smallholders who participate in the cassava value chain activities such as production, processing or marketing. A multi-stage sampling technique is used to select the respondents because the study was conducted among rural households. The three states were selected because they had a large population of smallholders involved in the cassava value chain. This was followed by the selection of 10% of Local Government Areas (LGAs) in each of the three states using the Probability Proportional to Size (PPS) technique. Hence, two LGAs were selected from Ogun state and three each from Oyo and Osun states respectively, making a total of eight LGAs. The eight LGAs were purposively selected based on the conditions that they are rural and that they have a high number of cassava smallholders actively participating in the value chain activities. Rural communities were then purposively selected from each of the LGAs while finally; simple random sampling technique was used to select 586 respondents from 360 households. Of these households, 19.4 percent (i.e. 70 households) were female-adult only while the remaining 290 households were dual-adult (the breakdown of the households by LGAs is shown in Table 1). The respondents comprised two adults in dual adult households, that is, the male and female primary decision-makers while in female-adult only households, only one respondent, the female decision-maker was selected. In drawing the sample, a stratified sample of cassava smallholders was developed using the register from the All Farmer's Association of Nigeria (AFAN) and the Agricultural Development Programme (ADP). This was due to the non-availability of a consistent and reliable register of smallholder farmers in the cassava value chain in the study area. The data were collected using a semi-structured questionnaire guide. The questionnaire is an adaptation of the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI) developed by the International Food Policy Research Institute (IFPRI) and Oxford Poverty and Human Development Institute (OPHI), Oxford University under the United States Agency for International Development (USAID) Feed the Future Initiative.

(Alkire *et al.,* 2013). The questionnaire elicited information on the respondents' socio-economic characteristics as well as information on the different domains of empowerment.

Table 1: Sample size of households selected in the study area

State	Local Government	No of Households
Osun	Ayedaade	46
	Ife East	48
	Ife North	42
Oyo	Akinyele	42
	Ona Ara	49
	Oyo West	44
Ogun	Odeda	48
	Abeokuta North	41
Total		**360**

Models for hypothesis testing

This study tests two models using the ordered logit regression model; this model is ideal for testing hypotheses between an ordinal outcome variable and one or more categorical or continuous predictor variables. This model therefore is applicable to this study because the dependent variable, household food security is ordinal. The dependent variable was measured using the Household Food Insecurity Access Scale (HFIAS) measuring tool, adapted from the USAID Food and Nutrition Technical Assistance (FANTA) Project (Coates *et al.*, 2007).

Women's capabilities to have a voice on issues that determine their household food security constitute the independent variables for the two models. These are measured using proxies such as participation in decision-making in production and household expenditures as well as ownership of household assets.

The first model tests the influence of rural women's control of decision-making of productive and income generating activities on household food security. The independent variable, intra household decision-making, was measured in four areas of day-to-day activities of rural dwellers. These are food crop farming, cash crop farming, non-farm economic activities and wage and salary employment. In addition, respondents' control of intra household decision-making on major and minor household expenditures was measured. Respondents were asked to state the person responsible for decision-making in each of the activities. Each respondent's answer was constructed as a multiple response from any options which include self, spouse, other household member, other non-household member or any possible combination. These are categorized into a dummy variable which takes the value '1' if the respondent takes part in decision-making either individually or jointly with other partners or '0' if otherwise (The definition of variables is described in Table 2).

Table 2: Definition of variables

Variable Name	Definition	Variable Type
Household food security	Food security status of respondent	Ordinal
Food crop farming	Control over decision-making on food crop farming (Yes = 1; No = 0)	Dummy
Cash crop farming	Control over decision-making on cash crop farming (Yes = 1; No = 0)	Dummy
Livestock raising	Control over decision-making on livestock raising (Yes = 1; No = 0)	Dummy
Non-farm economic activities	Control over decision-making on non-farm economic activities (Yes = 1; No = 0)	Dummy
Wage and salary employment	Control over decision-making on wage and salary employment (Yes = 1; No = 0)	Dummy
Fish farming	Control over decision-making on fish farming (Yes = 1; No = 0)	Dummy
Major household expenditures	Control over decision-making on major household expenditures (Yes = 1; No = 0)	Dummy
Minor household expenditures	Control over decision-making on minor household expenditures (Yes = 1; No = 0)	Dummy
Land	Ownership of land (Yes = 1; No = 0)	Dummy
Major assets	Ownership of major assets (Yes = 1; No = 0)	Dummy
Minor assets	Ownership of minor assets (Yes = 1; No = 0)	Dummy
Age	Age of the respondents (years)	Continuous
Household Size	Members of the women's household (number)	Continuous
Income	Average annual income from agricultural activities (Naira)	Continuous
Education	Respondents' highest educational qualification	Ordinal
Experience	Years of experience in agricultural activities (years)	Continuous
Extension	Access to extension services (1 = None; 2 = Rarely; 3 = Often)	Ordinal
Farm Size	Size of rural women's farm (Hectares)	Continuous
Empowerment Projects	Participation in empowerment projects (Yes = 1; No = 0)	Dummy
Labour-saving adoption	Adoption of labour-saving technologies (Yes = 1; No = 0)	Dummy
Mobile technology adoption	Adoption of mobile phone for agricultural activities (Yes = 1; No = 0)	Dummy

The second model tests the influence of rural women's ownership of assets on household food security. Assets in this context include land, major assets and minor assets. Major assets include large livestock, fish pond, non-farm business equipment, house/other structures, large consumer durables, means of transportation, etc. Minor assets include small livestock, small poultry, and small consumer durables like radio and cooking utensils. This classification is based on the recommendation of the WEAI (Alkire *et al.,* 2013). However, land was categorized separately from major assets because it is the most important agricultural asset and factor of production that women are deprived of especially in rural communities (Gray and Kevane, 1999). The respondents were asked if they own any of the items. Similarly, the response was categorized into a dummy variable taking value of '1' if respondents either own the assets solely or jointly or '0' if otherwise.

In order to effectively estimate the regression model, the study controls for other variables that may influence household food security. These include respondents' age, educational qualification, household size, income, access to extension services, participation in empowerment projects, adoption of labour-saving and mobile phone technologies.

The ordered logistic regression model with multiple predictors can be constructed for Y (household food security) as follows:

$$logit\ (Y) = In\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta 1X1 + \beta 2X2 \ldots \beta nXn \quad \ldots. (1)$$

π = Probability (Y = *outcome of interest* | $X1 = x1, X2 = x2$)

$$= \frac{e^{\alpha+\beta 1X1+\beta 2X2}}{1+e^{\alpha+\beta 1X1+\beta 2X2}} \quad \ldots. (2)$$

Where π is the probability of the event, α is the Y intercept, βs are estimated using the maximum likelihood (ML) method (Schlesselman, 1982). This method maximizes the likelihood of reproducing the data given the parameter estimates.

The diagnostic test for the ordered logit model for this study was undertaken using the proportional odds assumption. This is based on the assumption that the relationship between the coefficients of the pair of outcome groups in an ordinal variable is the same across all categories. In testing the proportional odds assumption for the ordered logistic regression, the Omodel command in STATA 13 was used (StataCorp, 2005). This command does a likelihood-ratio test of the null hypothesis which states that there is no significant difference in the coefficients across each pair of groups in the outcome variable. A non-significant p-value signifies the acceptance of the null hypothesis and consequently the conformity with the proportional odds assumption; otherwise, it implies a violation.

Results

Socioeconomic characteristics of the respondents

Findings from the analysis of the socioeconomic characteristics of the respondents are presented in Table 3. The result shows that most of the rural women (47.9%) were between the ages of 31–50 years, followed by those who were less than 30 years. However, the lowest proportion of the respondents fell between the age group of 51 - 60. Also, the findings reveal that about half of the respondents (50.3%) belonged to a medium sized household of between 5 - 10 members. A larger proportion (56.9%) of the women had marginal land size of less than 1 hectare. Similarly, more than half of the rural women (59.1%) had low annual income which was a maximum of N200, 000 ($555.6, based on US dollar exchange rate of N360 to $1). With regards to academic qualification of the rural women, the highest proportion of women (36.4%) had no formal education while about 33.3% had primary education with a meagre 4.5% having tertiary education. Findings from this study showed that the respondents were relatively experienced in agriculture with about one-third (30.8%) having experience of between 6 and 10 years and about 18.4% with more than 20 years' experience in farming. With regards to participation in empowerment projects, only 30.4% of the respondents indicated that they participated in at least one form of empowerments projects. Majority (76.9%) of the respondents adopted mobile phones for

their agriculture and production activities while only 42.2% of the respondents reported the adoption of labour-saving technologies.

Rural women's control of decision-making in production activities and household expenditure

The respondents' participation and roles in decision-making around production and household expenditures are presented in Table 4. The results reveal a high level of participation of rural women in food crop farming and minor household expenditures with about 94.7% and 94.2% respectively. Expectedly, only a few of the rural women (15.8%) participated in wage and salary employment.

However, more than half (59.7%) of the rural women participated in non-farm economic activities. These include trading, *gaari*, *iru* and oil palm processing. In addition, a smaller proportion of the rural women participated in cash crop farming (44.2%) and major household expenditures (47.2%).

A similar pattern was observed for the variable on decision-making in production activities and household expenditures. Majority of the respondents participated actively in decision-making in minor household purchases (88.6%) and food crop farming (80.9%) (Table 4). However, a smaller proportion of the rural women participated actively in decision-making either solely or jointly on issues such as major household expenditures (33.3%), cash crop farming (38.6%) or wage and salaried employment (14.1%).

Table 3: Socio-demographic characteristics of rural women smallholders

Socio-demographic variables	Group	Percentage
Household Size		
Small	<5	38.1
Medium	5-10	50.3
Large	>10	11.6
Age (years)		
Young	<30	30.4
Mid age	31-50	47.9
Old	51-60	10.6
Aged	>60	14.3
Highest educational qualification		
No Formal		36.4
Quaranic		0.6
Adult Education		0.3
Primary		33.3
Secondary		24.9
Tertiary		4.5
Farm Size (Ha)		
Marginal farms	<1	56.9
Small	1-2	14.0
Semi-medium	2-4	12.5
Medium	4-10	13.4
Large	>10	3.3
Experience in agriculture (years)		
Inexperienced	<5	17.6
Relatively experienced	6-10	30.9
Experienced	11-20	33.1
Very experienced	>20	18.4
Income from agricultural activities (annual)		
Low	<= ₦200,000	81.9
High	> ₦ 200,000	18.1
Participation in agricultural empowerment projects		
Yes		30.4
No		69.6
Access to extension		
Not at all		53.5
Rarely		34.3
Often		12.3
Technology adoption		
Labour-saving		42.2
ICTs		76.9

Table 4: Distribution of rural women's participation in production and income generation activities

Production activities and household expenditure	Participation in production activities and household expenditures (Percentage)	Decision-making in production activities and expenditures (Percentage)
Food crop farming	94.7	80.9
Cash crop farming	44.2	38.6
Livestock raising	66.4	60.6
Non-farm economic activities	59.7	55.6
Wage and salary employment	15.8	14.1
Major household expenditures	47.2	33.3
Minor household expenditures	94.2	88.6

Ownership of assets by rural women

Majority of the rural women solely or jointly owned minor assets such as small poultry (60.8%), small livestock (63.6%) and small consumer durables (63.9%) (Table 5).

However, a little above half indicated that they own major assets like agricultural land (54.7%) and house or other structures (53.3%) while very few (2.8%) indicated ownership of large livestock (e.g. oxen, cattle) and fish pond or fishing equipment (2.8%).

Rural women's control over decision-making in production activities and household food security

This study reveals that rural women's control of decision-making in non-farm economic activities ($\beta = 0.005$; $p < 0.10$), fish farming ($\beta = 0.016$; $p < 0.01$) and minor household expenditures ($\beta = 0.014$; $p < 0.05$) is positively associated with household food security (Table 6). However, control over decision-making in

Table 5: Distribution of rural women's sole or joint ownership of household assets

Household assets	Percentage
Agricultural land (pieces/plots)	54.7
Large livestock (oxen, cattle)	2.8
Small livestock (goats, pigs, sheep)	63.6
Chicken, Ducks, Turkeys, Pigeons	60.8
Fish pond or fishing equipment	2.8
Nonfarm business equipment (generator used for recharging, sewing machine, brewing equipment, fryers)	42.2
House or other structures	53.3
Large consumer durables (refrigerator, TV, sofa)	41.7
Small consumer durables (radio, cookware)	63.9
Other land not used for agricultural purposes (pieces/plots, residential or commercial land)	47.5
Means of transportation (bicycle, motorcycle, car)	35.6

cash crop farming (β = - 0.01; p < 0.01) is negatively associated with household food security. In addition, controls such as age (β = 0.034; p < 0.01) and income (β = 0.830; p < 0.05) are positive determinants of household food security while experience in agriculture (β = - 0.034; p < 0.05) is a negative determinant. The likelihood-ratio test result of the model (p = 0.1049) shows that the proportional odds assumption is not violated.

Table 6: Influence of rural women's control of decision-making of production activities and household expenditures on household food security

Parameters	Coefficient	SE
Food crop farming	- 0.007	0.009
Cash crop farming	- 0.010	0.003***
Livestock raising	0.001	0.003
Non-farm economic activities	0.005	0.003*
Wage and salary employment	0.000	0.003
Fish farming	0.016	0.006***
Major household expenditures	- 0.001	0.003
Minor household expenditures	0.014	0.006**
Age	0.034	0.011***
Education	0.002	0.073
Income	0.830	0.348**
Experience	-0.034	0.014**
Extension	-0.170	0.172
Farm Size	-0.021	0.037
Observation	294	
Log Likelihood	-589.435	
LR chi2 (14)	0.000	
Prob > chi2	46.320	
Pseudo R2	0.037	

SE = Standard error; *p < 0.10, ** p < 0.05, ***p < 0.01

Ownership of assets and household food security

Ownership of major assets (β = 0.740; p < 0.05) is positively associated with household food security (Table 7). In addition, factors such as age (β = 0.032; p < 0.01), income (β = 0.974; p < 0.01), participation in empowerment projects (β = 0.475; p < 0.10) and the adoption of technologies such as labour-saving technologies (β = 0.535; p < 0.05) and mobile phone (β = 0.782; p < 0.05) have positive influence on household food security. On the contrary, years of experience in farming (β = - 0.036; p < 0.05) is negatively associated with household food security.

The result of the likelihood-ratio test of proportionality of odds for this model is non-significant (p = 0.2660). This confirms that the proportional odds assumption of the ordered regression model is not violated.

Table 7: Influence of rural women's ownership of assets on household food security

Parameters	Coefficient	SE
Land	0.121	0.296
Major assets	0.740	0.340**
Minor assets	0.087	0.470
Age	0.032	0.011***
Household Size	0.046	0.034
Income	0.974	0.315***
Education	-0.005	0.075
Experience	-0.036	0.015**
Empowerment Projects	0.475	0.249*
Labour-saving adoption	0.535	0.241**
Mobile technology adoption	0.782	0.329**
Observation	269	
Log Likelihood	-540.579	
LR chi2 (11)	47.250	
Prob > chi2	0.000	
Pseudo R2	0.041	

SE= standard error; *p < 0.10, ** p < 0.05, ***p < 0.01

Discussion

The study found most of the rural women to be young, have low academic qualification, belong to a medium size household, have high farming experience and low average monthly income. Similarly, about a third of the women participated in agricultural empowerment projects. This implies a young female agricultural workforce with the ability to participate actively in agriculture and other production activities. The medium household size reduces the cost of living and potential for poverty but with a downside of reduction of potential agricultural labour (Anigbogu *et al.,* 2015). The annual income of N200, 000, which translates to an average monthly income of about N16, 666 ($46.3) is less than the N18, 000 ($50.0) minimum wage in the country and the poverty threshold ($1.9 per day; $57 per month) defined by the World Bank (Lingnau, 2016). The low income and education of rural women could be attributed to biased gender roles and relations which put women at a disadvantage. Gender discrimination has also been reported as one of the main factors influencing girls' enrolment in school.

According to Fapohunda (2012), most girls in the rural areas of Nigeria do not attain more than primary education. This may be due to adolescent pregnancy, early marriage and greater household labour burden placed on them. This limits their opportunities for higher education.

The study also reveals a high participation of rural women in food crop farming and minor household expenditure but low land cultivation of less than 1 hectare, low participation in cash crop farming, wage and salaried labour and major household expenditure. While high participation in food crop farming affirms the practice where food crop is the primary source of livelihood of majority of rural women in Nigeria (Oladejo *et al,.* 2011), low participation in salaried jobs can be attributable to either low rate of availability of such jobs in rural areas (Oluwatayo, 2009) or limitation of rural women to participate in such activities due to their low level of education (Fapohunda, 2012). In addition to food crop farming, non-farm economic activities such as processing (cassava, locust beans *(iru)* and oil palm), and, petty trading, attracted a high participation of rural women in the study area. These serve as income generating activities that are used by rural women to supplement their livelihoods and that of their households. Cultivation of small land size, low participation of rural women in cash crop farming and major household expenditure is explained by gender roles and patriarchy prevalent in rural areas in the region. For example, women, especially the married, rarely had rights over land. They exercise access through their husbands (Aluko, 2015) which according to Fapohunda (2012), is usually smaller and less fertile than those of men. Also, patriarchy may be used to explain women's low control in decision-making on issues such as major household expenditures and cash crop farming. Major economic activities, such as cash crop farming and decisions on major household expenditures are regarded as the exclusive preserve of men (Doss, 2002; FAO, 2011) while women spend most of their income on minor household needs such as food and clothing (Doss, 2011; Njuki *et al,* 2011). These are due to social construction of gender roles which restricts women's participation to producing subsistence crops largely for home consumption.

Greater participation of women in household decision-making has been identified as predictors of positive outcomes in terms of household food and nutrition security (FAO, 2011). This study reveals that rural women's control of decision-making in non-farm economic activities, fish farming and minor household have positive association with household food security. However, control over decision-making in cash crop farming is negatively associated with household food security. Similarly, farmers' age and income from agricultural activities are positively associated with food security while experience in agriculture is negatively associated with household food security.

Traditionally, cash crop farming is regarded as the pre-occupation of men; however, the results from this study confirms previous studies showing a gradual increase in women's participation and decision-making (Saito, 1994; Doss, 2002; Mehra and Rojas, 2008).

This may however be counterproductive to household food security because notional incomes in the form of subsistence food crop production goes a long way in safeguarding household food consumption more than an equivalent amount of income generated by growing cash crops. Also, in cash crop farming, activities may increase the value of time so that the implicit cost of subsistence production increases (Longhurst, 1998). In addition, evidence has shown that when women's income increases, men tend to withdraw their contribution to household budget and instead concentrate their expenditures on luxuries (World Bank, 2009). Hence, women's participation in cash crop farming may not necessarily improve household food security despite opportunities for rising income.

Similarly, control on decisions on minor household expenditure was found to be directly associated with household food security. This is because rural women prioritise food stock in daily household expenditure (Kennedy and Peters, 1992; Quisumbing *et al.,* 1995). Studies have shown differences in spending pattern between men and women in the household. For example, Levin *et al.* (1999) showed that while women invest more resources for caring for themselves and their children by providing the basic necessities of food and clothing, men invest in human capital (health, education, and household services), in addition to heavy spending on adult goods that include leisure activities and luxury items. According to Ibnouf (2009), while women earn lower incomes, they however, tend to allocate more of these earnings to food items for their household. This ensures regular availability of food and reduces the tendency for food shortages in the home (Kalansooriya and Chandrakumara, 2014).

Furthermore, this study reveals that women's ownership of major assets is positively associated with household food security. This is supported by Kariuki *et al* (2013) who argued that increasing women's control over assets, especially major assets such as physical and financial assets, has positive effects on food security, child nutrition, and other issues important to the well-being of the woman. Major assets also imply the level of wealth of the family and have been found to determine the level of food security in the home (Kariuki *et al*, 2013). For example, women who own livestock and exotic chicken had diets that were twice as diverse as those who did not, consumed more eggs and gained higher income from sales that were used in purchasing greater diversity

of food. Similarly, poorer households in Nigeria were found to be inclined to selling their cattle or livestock rather than consuming them because of need of more money (Kariuki *et al*, 2013). Hence, owning livestock is both a measure of household wealth and security in trying times (Kassie *et al.*, 2014). Other asset of influence on household food security is large livestock. This is because the more animals a household has, the higher likelihood it can withstand shocks (Dittoh *et al.,* 2015). Sale of these animals helps to diversify household income thereby enhancing food security.

Lack of access to individual, non-public transportation has been shown to negatively affect food choice. Ownership of bicycle or motorcycle is a poverty measure and determines the economic viability of a given household (Kassie *et al.*, 2014). It is used in transporting farm produce to the market; hence, households without it will depend on the largely unreliable public transportation, since in most rural communities, use of cars as a form of transportation is less common. Within the context of the household however, this form of transportation, especially in rural South West Nigeria, is owned and controlled by men. This negatively affects household food security as women have to depend on men to either access food or transport their agricultural produce to market. This makes them sell at farm gate or any nearby market at little profit (World Bank, 2009).

Conclusion and Recommendation

The study concluded that enhancing the capability of rural women through control of decisions on minor household expenditure, non-farm economic activities and ownership of major assets will go a long way in enhancing household food security. Surprisingly, the study found out that enhancing rural women's capabilities in cash crop production would not guarantee household food security.

In order to enhance household food security, the study recommends the liberalization of access and ownership of major assets, in addition to enhancing women's decision-making on production and income generating activities.

Furthermore, policies and programmes aimed at enhancing food security among rural households must not only focus on increasing income but on increasing the capability of rural women to exploit additional sources of income such as non-farm economic activities; introduce labour-saving technologies that will free women's time to participate in other income generating activities; and engage men and community leaders to eradicate practices and traditions that restrict women's ownership of major assets and participation in decision-making.

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