Gender Differentials in Food Output and Food Security in Anambra State Southeast Nigeria

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The study assessed the quantity and value of food crop outputs of the gender categories in the Anambra state. At this research estimated the quantity and energy content of food stuffs consumed as well as required by each gender headed households, estimated the extent and magnitude of food security and insecurity in the area among the gender categories and examined the determinants of food security in the area among household categories. The samples were drawn from a stratified population which was divided into two gender-headed household categories so as to ensure a homogenous population. Data were collected using questionnaire and interview schedule from 3 communities which were selected using purposive sampling method. Two villages were selected from each of the communities. Ten respondents which comprises of 5 males and 5 females were randomly selected from each village, thus giving a sample size of 60 respondents (30males and 30females) used for the study. Data were analyzed with the use of descriptive and inferential statistics. Logistic regression was used to correlate the food security status and socio-economic features of the various gender-headed households. The result shows that the male-headed households produced 5077.17 kg of food crops output as against the female-headed households' 2733.27 kg. Also the male-headed households required 1183.50 kilocalories (Kcal) energy worth of food crops daily to be food secure but consumed 2246.90kcal. This implies that they are food secure since the Kcal consumed was greater than required. The female-headed households, on the other hand, required 1161.90kcal daily but consumed 684.72kcal. This implies that the female-headed households are less food secure than male-headed households in the state. Those factors found to affect the food security status of households in the area should be emphasized for effective policy intervention strategy. **[Onyemauwa, N. E et al. Gender Differentials in Food Output and Food Security in Anambra State Southeast Nigeria. International Journal of Agricultural Science, Research and Technology in Extension and Education Systems, 2013; 3(1):53-59]**

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1. Introduction

The "gender" refers to economic, social and cultural attributes and opportunities associated with being male or female (UN, 2001). In almost all societies, women and men differ in their activities and undertakings, regarding access to and control over resources, and participating in decision making. 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). Sen (1999) posited that the concept of gender is not limited to the male or female species, but goes further to assess the relations between them, as are constantly being renegotiated in the context of changing political, economic, social and cultural environments of the local and national level.

The World Food Summit of 1996 defined food security as existing "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life". Commonly, the concept of food security is defined as including both physical and economic access to food that meets people dietary needs as well as their food preferences (FAO, 1996). Maxwell (1996) contends that whenever the concept is introduced in the title of a study or its objectives, it is necessary to look closely to establish the explicit or implied definition. Food security is said to exist when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Nyam, 2005). According to Offiong (2001) food security in sub-Saharan Africa has deteriorated since

independence, with food shortages becoming very rampant. Food security is traditionally discussed in terms of either food self-sufficiency or food self-reliance (FAO, 2003). The report contends that the former requires production of food in the quantities consumed domestically, while the latter requires domestic availability. Self-sufficiency rules out imports as a major source of supply while self-reliance has no such restriction. Studies shows that around 925 million people are chronically hungry due to extreme poverty, while up to 2 billion people lack food security intermittently due to varying degrees of poverty (FAO, 2010).

Food insecurity has remained a problem to different countries of the world, and the case of Nigeria is not likely to be different. Most studies on food insecurity have focused mainly on rural farming communities without regards to gender (Ohajianya, 2004). It is very clear that focus on gender differentials in the knowledge of technologies for coping with output shortages has not yet been properly addressed (Ohajianya, 2004). Women may have temporary or illegal use of land but their ability to own or inherit land is restricted in much of the developing world. Even in countries where women are legally permitted to own land and other productive resources such as Uganda, research from women's land link Africa shows that cultural norms have excluded them from land ownership (FAO, 2012). In most developing countries a woman's use of land is restricted to temporary cultivation rights, allocated to her husband. She provides food and other goods for the household. She is not entrusted the land if her husband dies (FAO, 2010). The single most important factor affecting women's situation is the gender gap in command over property (Agarwal, 2010).

According to the Food and Agricultural Organization of the United Nations, the average minimum daily energy requirement is about 1800 kilocalories (7500 kg) per person. Comparing this figure to what is obtainable in south eastern Nigeria, the location of the study area; there is a contrast owing to the limiting factors towards increased food output and food security especially in the rural areas (Babatunde et al, 2007). The food crop productions are majorly done by women (Ukeje, 2003). These women who are contributing majority to food output by working more hours on the farm are often marginalized in their families and their communities and sometimes suffering from a lack of access to credit, land, extension services etc. (Spieldoch, 2007). The need to increase food crop output in Nigeria for food security requires that the gender role in food security be examined with a view of pointing out gender specific characteristics that can increase food security. However this research work will provide a policy that will encourage the gender category that plays significant role in contributing to food security.

Studies have shown that Nigeria has the required condition for food security (Akinyele, 2009). These required conditions are initiated by the Federal Government in programs such as National Program for Food Security (NPSF), Operation Feed the Nation (OFN), Cassava initiative programs etc. which is aimed towards increasing food objectives. Even though these programs have achieved increased food crop production in the country, there is still evidence of food insecurity and poverty among various households in Nigeria. Despite the increased food production, Nigerians are currently groaning under the weight of rising prices of food items (Adesina, 2012).

Women are the major producers of food crop production contributing about 58% of the total agricultural labour in the south west, 67% in the southeast, 58% in the north central (FAO, 2005). Evidence have shown that women involve in virtually all the food crop production process ranging from hoeing, weeding, harvesting, transporting, storing, processing, marketing and domestic chores (IFAD, 2006). Despite the facts from the ongoing analysis that women are supposed to be food secured yet they are highly food insecure which result to the use of diverse coping strategies for ensuring food security for their households (FAO, 2005). This could be as a result of women having difficulties in gaining access to resources such as land, credit and other productive inputs.

Men and women perform different functions; have unequal decision power and difference in access to production resources in agricultural production (Ironkwe et al, 2007). Because of these differences, men and women's views, needs and priorities to improve their productive potentials differ strongly and could affect their various outputs generally in food crop production and processing. It is on this premise that this study seeks to find out the food security status of different gender headed households in Anambra location of Southeast Nigeria in view of the recent global food crisis.

The study will specifically assess and compare the value of food crop output of men and women in the area, estimate the quantity and energy content of cassava and other food stuff produced and consumed as well as required by each gender headed households, estimate the extent and magnitude of food security in the area among the gender headed households, and examine the determinants of food

security among the gender-household categories in the area.

2. Materials and methods

The study location, Anambra, is located in the south east geopolitical zone of Nigeria within latitude $6^{o}19^{'}$ north and $7^{o}01^{'}$ east. It has a population of 4,177,828 people which stretches over about 60 kilometres between surrounding communities with a population density of 862.5 inh per square kilometre (NPC 2006). The state is bordered by Delta state to the west, Imo state to the south, Enugu state to the east and Kogi state to the north.

The sampling frame consisted of three communities Ezinifite, Igboukwu and Uga which were selected using purposive sampling method. This is because the area is known basically for food production. The population from which the samples were drawn was stratified into two gender categories. This was done so as to make the sample population homogenous. Two villages were selected from each of communities giving a total of 6 villages and 10 respondents which comprised of 5 males and 5 females were randomly selected from

Data that was used for the study were collected from primary source. Primary data were collected using questionnaires and interview schedule. The questionnaires were administered to the respondents by the researcher. Variable on which data were collected include age, gender, marital status, household size, age of various individual, type and quantity of food crops consumed in kg, fraction of the annual yield kept for family consumption and sale, the cost of cultivated and harvested food crops among others.

Data were analyzed with the use of simple descriptive statistics, food security index and inferential statistics.

The food security index used followed Babatunde et al, (2007) and Olomu (1995) and is given thus:

$Z_i = Y_i / R$

Where, Z_i = food security status of ith household

Y_i = daily per capita Calories intake of the ith household

R = recommended per capita daily calories

The logistic model used to identify the determinants of food security among farm households is stated in the implicit from as

$Z_i = \beta x_i + u_i$

Where,

Z_i = the food security status of the ith household

X_i = vector of explanatory variables

U_i = the error term

β = vector of the parameter estimate

Where X_i ranges from 1-6

X_1 = total annual household income (₦): This refers to the sum total of the earnings of the household in a month from farm. The income is expected to boost household's food production and also access to more quantity and quality food. The expected effect of this variable on food security is positive.

X_2=farm size: farm size is then total farmland cultivated by the household measured in hectares. The larger the farm size, the higher the production level. It is thus expected that household with larger farm size are more likely to be food secure than those with smaller farm size.

X_3=quantity of food output by the household from their own farm measured in kilogram.

X_4=ages of household: the age of household's head in years is expected to have impact on his labour supply for food production.

X_5=educational status of household head. Education is a social capital which could impact positively on household ability to take good and well informed production and nutritional decisions.

X6=Household size: Household size is measured by the number of adult individual members of the household. It also includes the number of every individual within the household.

3. Results and discussion

Survey result presented in Table 1 shows the quantity and value of food crop output of male headed households and female headed households. It reflects the mean output of food crops in kilograms and the mean value of the output of food crops in naira (Nigerian currency) of the various gender headed households. Survey result in shows that 43.33% or 13 of the male headed households produced between 100 and 4000kg of food output, 30% or 9 of the male respondents produced between 4001 and 8000kg and 26.64% or 8 produced between 8001 and 1200kg of food crop output. Also in the female headed household it was observed that 80% or 24 persons produced between 100 and 4000kg, 10% or 3 persons produced between 4001 and 8000kg, and 10% or 3 persons between 8001 and 1200kg of food crop output. The mean output for both male and female headed households was 5077.17kg and 2733.27kg respectively. This implies that the male headed household produces more food crop than the female headed household and these contradicts Ukeje (2004) who noted that women are responsible for food production producing between 60 and 80% of food more than men.

Result from survey presented in table 1 indicates that 40% or 12 of the male headed households derived between 10000 and 110,000 naira worth of food crop output annually, 46.67% or 14 derived 110,001 and 211,000 naira, 6.67% or 2 farmers derived 211,001-312,000 and 2 farmers also derived 312001-413000 naira worth of food crop output. Table1 shows further that in female headed households 23 or 76.67% of the respondents earned between 10,000 and 111,000 naira, 20% or 6 of the respondents generated between 111,001 and 211,000 naira while 3.30% or just 1 respondent generated between 312,0011 and 413,000 naira. The mean calculated for the male headed households and female headed households was 132,951.50 naira and 89,278.33 naira respectively. This implies that the male headed household generates more revenue from their food crop output than the female headed households. This is as expected since their output in physical terms was also greater than that of women in the area.

Survey result of the quantity and energy content of the food stuff consumed as well as required by each respondent household is shown in Table 2. The energy content is measured in kilocalories/day. It was observed in table 2 that 16 farmers or 53.33% of the male headed households consumed between 100 and 1200kcal of the food stuff daily, 6 or 20.00% of them consumed between 1201 and 2400 kcal/day while 8 or 26.67% of them consumed between 2401 and 3700 Kcal of food stuff daily. In the female headed households, 25 or 83.33% of the households consumed between 100 and 1200Kcal of food stuff daily, 3 or 10% of them consumed 1201 and 2400Kcal/day while 2 or 6.67% of them consumed between 2401 and 3700Kcal/day. The computation of food energy requirements of the households was done following the classification of calorie content of different food stuff required by different age and sex groups by Olomu (1995).

Result of table 2 shows that the average quantity of foods stuff consumed by the male and female headed household daily is 2246.9Kcal and 684.7Kcal respectively. The result shows also that in the male headed household 33.33% or 10 of the respondents requires between 100 and 1000kcals daily, 63.33% or 19 requires between 1,100 and 2000 kcal and 3.33% or just 1 requires between 2100 and 3000kcal daily so as to be food secured . In the female headed household 10 or 33.33% requires between 1100 and 2000kcal, 20 or 66.67% requires between 1100 and 2000kcal to be food secured.

The average energy content required per day by the male and female headed household was 1183.5Kcal and 1161.9Kcal respectively. Table 2 shows that the mean value (2246.9kcal) of the energy content of food crops consumed is greater than the mean value required which was (1183.5kcal) by the male households while they required 1161.9 kcal/day. This implies that the average male headed household is more food secure than the average female headed household in the area. Survey result on the food security profile of the household respondent categories shown in table 3 indicates that 60% or 18 households in the male headed households were food secure while 40% or 12 households were food insecure. In the female headed household, 23.33% or 7 households were food secure while 76.64% or 23 households were food insecure. This implies that the male headed households were more food secure than the female-headed households in the area since greater (60%) proportion of the male headed households were food secure compared with 23.33% of the female headed households that were food secure. In other words greater numbers of the female headed households in the area were food insecure.

Table 1. Distribution of Quantity and Value of Food Crop Output of Male and Female-headed Households

Variable	Male-headed-households		Female-headed-households	
	Frequency	percentage	Frequency	percentage
Quantity of food crop output(Kg)				
100-4000	13	43.33	24	80.00
4001-8000	9	30.00	3	10.00
8001-12000	8	26.64	3	10.00
Total	30	100.00	30	100.00
	Mean= 5077.17		Mean=2733.27	
Value of Food Crop Output (₦)				
10000-110000	12	40.00	23	76.67
110001-211000	14	46.67	6	20.00
211001-312000	2	6.67	0	0.00
312001-413000	2	6.67	1	3.30
Total	30	100.00	30	100.00
	Mean=132,951.50		Mean=89,278.33	

Source: Field Survey Data, 2012

Table 2. Distribution of Quantity and Energy content of food stuff consumed and required by Household categories

Variable	Male-Headed-Households		Female-Headed-Households	
	Frequency	Percentage	Frequency	percentage
Quantity and Energy content of food stuff consumed(Kcal/day)				
100-1200	16	53.33	25	83.33
1201-2400	6	20.00	3	10.00
2401-3700	8	26.67	2	6.67
Total	30	100.00	30	100.00
	Mean=2246.90		Mean=684.72	
Quantity and energy content of food stuff required (kcal/day)				
100-1000	10	33.33	10	33.33
1100-2000	19	63.34	20	66.67
2100-3000	1	3.33	0	0.00
Total	30	100.00	30	100.00
	Mean=1183.50		Mean=1161.90	

Source: Field Survey Data, 2012

Table 3. Distribution of Food Security Status of the Gender-headed Households

Variable	Male-Headed Households Frequency	Percentage	Female-Headed Household Frequency	Percentage
Food secure	18	60.00	7	23.33
Food insecure	12	40.00	23	76.57
Total	30	100.00	30	100.00

Source: Field Survey Data, 2012

Table 4. Estimates of logistic regression on the determinants of food security status of gender-headed households

Variables	Male Headed Households Coefficients	Probability	Female Headed Households Coefficient	Probability
Total crop value	0.000057	0.059*	1.265723	0.025**
Farm size	-0.2479456	0.073*	0.175832	0.059*
Total crop output	0.2635765	0.198	5.87(-06)	0.073*
Age	0.5438566	0.085*	2.39 (-06)	0.121
Formal education	5.10(-06)	0.072*	0.07129	0.645
Household size	-1.455226	0.038**	15.07109	0.042**
Constant	-11.65212	0.177	17.79826	0.030
LR Ch^2	27.44		15.85	
Prob >Chi^2	0.0001		0.0146	
Log likelihood value	0.670		0.3925	
	-6.468		-12.267	
Number of observations	30		30	

Source: Field Survey Data, 2012

Age of Household Head: This variable has a positive coefficient and was significant at 10% for the male headed household implying that the older the male household heads the higher the probability that the household would be food secured. Also this variable has a positive coefficient but not significant for the female headed households in the area.

Educational Status of Household Head: In the male headed household, this variable has a positive coefficient and is significant at 10%. This impels that male households with an educated head are more likely to be food secure. In the female headed household, the variable has a positive coefficient but was not significant which implies that educational status of household head does not have any effect on the food security status of female headed households in the area.

Household Size: This variable has a negative coefficient and is significant at 5% level for the male headed households implying that as the male headed household size gets larger, the probability of the household becoming food insecure increase i.e. larger

size household are more likely to be food insecure than small size households. In the female headed household, the variable has a positive coefficient and is significant at 5%. This implies that the higher the household size, the higher the probability of the household being food secure. It is likely that the larger household size contributes in farm production activities which increase food crop output and which turn increase the calories available to the household for consumption (Table 4).

4. Conclusion and Recommendations

The food security indices estimated for the various gender headed households in this study is a fair representation of the extent and dimension of food security and insecurity in this part of the country. The conclusion that could be drawn from this study is that the male headed household produces more food crop output and are more food secure than the female headed households. The high food insecurity status of the female headed households can be traced to lack of access to land, high cost of production inputs and lack of sufficient funds for the production activities. It is likely that this led to poor output generation and which in turn resulted to poor consumption and poor food security status. Female headed households should be encouraged to join farmers' cooperative societies in the area where they can source for credit facilities at subsidized inputs to improve their productive capacity and reduce their food insecurity profile. Those factors identified as influencing the food security status of the households should be emphasized in intervention strategies if the food security status of the households in the area is to improve.

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