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DETERMINANTS OF POVERTY AMONG DRY SEASON WOMEN VEGETABLE FARMERS IN KWARA STATE, NORTH CENTRAL NIGERIA

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ABSTRACT

This study examines the determinants of poverty among 120 representative dry season women vegetable farmers in Kwara state, North Central Nigeria using logistic regression model. The poverty status of the dry season women vegetable farmers were also profiled using the Foster, Greer and Thorbecke, (1984) weighted poverty indices. The results of the descriptive statistics show that 30% of the women vegetable farmers have no formal education. The FGT indices indicate that 36% of the women are poor. The results of the logistic regression model reveal membership of cooperative society, type of irrigation system, presence of other sources of income, size of farm land and farming experience as the major determinants of poverty among the women vegetable farmers in the study area. It was suggested that women vegetable farmers in the study area should endeavour to be members of cooperative societies in the state as there are benefits derivable from such association. Cooperative societies could also be harnessed by government to make meaningful improvement in vegetable production and by extension welfare of the women vegetable farmers in the state.

Keywords: Determinants of poverty, Kwara state, logistic regression model, vegetable farming.

INTRODUCTION

Agriculture remains an important sector in Nigeria's economy contributing about forty per cent (40%) of the nation's gross domestic product in the last quarter of 2012 (NBS, 2012). The country is also endowed with a large expanse of cultivable land and a friendly climate for arable crop production. In spite of the country's abundant human and natural resources however, the level and dimensions of poverty and their consequential socio-political and economic effects on the small holder farmers who constitute about 70 percent of the Nation's labour force have continued to be on the increase (Olorunsanya; Omotesho, 2012 and Eze, 2009). Though the Nigerian government at the state and federal levels have come up with various initiatives over the years to stem this trend nevertheless, the sector remains relatively under-developed. Incidence of poverty has continued to be on the increase in Nigeria since the 1980s (UNDP, 2010). In 2004, the incidence of poverty in Nigeria was 54.4 per cent and this increased to 69 per cent in 2010. Incidence of poverty was also higher in the northern part of the country (Kwara State inclusive) with a record

high of 71 per cent (NBS, 2010). Recently, Nigeria ranked 28th of the poorest nations in the world (UNDP, 2010). There is also an established correlation between gender and poverty (Olorunsanya and Omotesho, 2012 and FAO, 2009). Poverty is the inability of an individual to attain a minimum standard of living. It is a social condition characterised by inability of an individual to attain a socially acceptable minimum standard of living (World Bank, 2001). The rural areas and the women folks are the most vulnerable and if the trend is not abated, these categories of individuals might be unable to attain the Millennium Development Goals earmarked for 2015.

The horticultural sub-sector reflects the problems in the agricultural sector in Nigeria. The problems that have bedevilled the agricultural sector in general for some time include among others: the inadequate knowledge about technology of production, insufficient and poor quality planting materials, problems associated with land tenure, poor extension services and insufficient post harvest facilities (Babatola, 2004). In addition to the above, vegetable production in Nigeria is constrained with inadequate infrastructure as well as agronomic and socio-economic challenges (Sabo and Zira, 2008). Vegetables however constitute important parts of human diet needed for healthy living and its production and consumption are presently on the increase in Nigeria. Vegetables are edible portion of herbaceous annual or perennial crops which can be served raw or after a little cooking (Baffour, 2005). Vegetables supply essential micro nutrients in human nutrition and act as preventive agents to several ailments. Increased vegetable production may improve food security and offer employment opportunities to the Nigerian teeming population, especially women who form an emerging proportion of farming population in Nigeria (Mlozi, 2003). Women involvement in agricultural activities especially vegetable production is on the increase in Nigeria (Fabiye *et al*., 2007). Vegetables are highly perishable and this could result in a significant post harvest loss for the women farmers. The resulting low income could also contribute to low level of consumption and poor standard of living for the women farmers. Dry season vegetable farming also requires irrigation facilities which are mostly unaffordable to the women vegetable farmers. In light of the foregoing, this study examines the determinants of poverty status of women vegetable farmers in Kwara State to inform policy for amelioration. The specific objectives of the study are: an examination of the socio-economic characteristics of the women vegetable farmers in the study area; examination of their expenditure pattern; an attempt was also made to profile the poverty status of the women vegetable farmers as well as isolate the determinants of their poverty status.

MATERIALS AND METHODS

This study was carried out in Kwara State, North Central, Nigeria. The State is located between latitudes 7^0 45' N and $9^0$30' N and longitude $2^0$30' E and $6^0$25' E with a topography that is mainly plain lands to slightly gentle rolling. Kwara State is stratified into 16 Local Government Areas (LGAs) among which are Asa and Ilorin West LGAs and a land area of 32,500km^2 out of which 75.3% is cultivable. The state has two main climatic seasons, the dry and wet season with annual rainfall that ranges between 1000mm to 1500mm and average temperature that lies between 30ºC and 35ºC. The rainy season lasts between April to October while the dry season starts in November and ends in March of the following year giving ample

opportunity for dry season vegetable farming. The population of the state is put at 2,371,089 (National Population Commission, 2006). Agriculture remains the mainstay of the economy in Kwara State as in the other parts of Nigeria. Vegetable production is a major economic crop in the state which is of particular economic importance during the dry season. Major fruits and vegetables grown in the state include tomatoes, *amaranthus*, pepper, okra, lettuce, cucumber, cabbage and rosette. Women constitute the bulk of the vegetable farmers and Asa Local Government Area has the highest number of vegetable farmers in the state.

Asa and Ilorin West Local Government Areas were purposively selected for the study because of their high involvement in vegetable farming (KWSN, 2010). Primary data obtained through randomly selected representative women vegetable farmers were used for the study. Two villages were randomly selected from each of the two purposively chosen Local Government Areas. Thirty vegetable farmers were then randomly chosen from each of the selected villages making a total of 120 representative women vegetable farmers in all. Descriptive statistics and Foster, Greer and Thorbecke (1984) class of weighted poverty indices as well as logistic regression model were used as analytical tools for the study. The Logistic regression model was used to isolate the major determinants of poverty among women vegetable farmers in the study area. The poverty lines used for the study were obtained using 2/3 and 1/3 of average income of the women vegetable farmers to obtain the moderate and core poverty lines respectively.

Measure of Poverty and its Determinants

The poverty status of the women vegetable growers was profiled using Foster, Greer and Thorbecke (1984) class of weighted poverty indices and is specified as follows:

$$P_\alpha = 1/n \sum_{i=1}^{q} (z - y_i / z)^\alpha \quad \text{..... .....} \quad (1)$$

Where n is the sample population, q is the number of poor women farmers, z is the poverty line, *Yi* is the income of the *ith* individual. Head count index (P_0) is the percentage of the proportion of the poor among the population and this was obtained thus:

$$P_o = q/n = H \quad \text{.....(2)}$$

Poverty gap index is simply the average depth of poverty for the population. Poverty gap index is given as:

$$P_1 = HI = 1/n \sum_{i=1}^{q} (z - y_p / z)^1 \quad \text{.....(3)}$$

Poverty severity index (P_2) gives an indication of the distribution of poverty among the poor and is expressed as follows:

$$P_2 = H(I)^2 = 1/n \sum_{i=1}^{q} (z - y_p / z)^2 \quad \text{.....(4)}$$

Logistic regression model was used to identify the determinants of poverty among the women vegetable farmers in the study area. The logistic regression model is specified as follows:

$$P(Y=1, 0) = e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \ldots + \beta_n X_n} / 1 + e^{\beta_0 + \beta_1 X_1 \ldots + \beta_n X_n}$$

where:
Y= Poverty Status of the women vegetable farmers and is equal to 1 if the farmers are Poor and 0 otherwise
B_i= the estimated parameters
e_i= the error term

X_i are the hypothesised independent variables and they are further specified as follows:

X_1= Age of the women farmers in years
X_2= Level of education of the women farmers
X_3=Farm size in hectares
X_4=Participation in cooperative society, a dummy which = 1 for membership and 0 otherwise
X_5= Presence of other sources of income, a dummy which = 1 if yes and 0 otherwise
X_6=Type of irrigation system, also a dummy= 1 if modern and 0 otherwise
X_7=Access to improved seed varieties
X_8= Experience in vegetable farming in years

RESULTS AND DISCUSSION

Socio-Economic Characteristics and Production Data of Women Vegetable Farmers in Kwara State

The results of the descriptive statistics are shown in Table 1. The results show that over 29 % of the women vegetable farmers were within the age bracket of 41-50 years, meaning they were in their middle age. Thirty per cent of the women vegetable farmers had no formal education and 46 per cent had only primary education. This indicates low level of education among the women vegetable farmers. This finding is in agreement with earlier studies that women have low level of education in Kwara state as well as in Nigeria (NBS, 2006; Olorunsanya and Omotesho, 2012).

Seventy-seven per cent of the women vegetable farmers did not belong to any cooperative society. This result is not in agreement with Olorunsanya, (2004) who found out that cooperative membership avail farmers some social and economic benefits. Interestingly, the women farmers had large household size; over 48 per cent had more than five members per household. Large household size could provide ample labour supply for farming but could also result in more mouths to feed which could put more pressure on household income and resources (Martins and Fernandes, 2008; FAO, 2008; Fagernas and Wallace, 2007).). Farm holdings are relatively small in the study area with 59 % of the women vegetable farmers having less than half an acre of land for vegetable production. Irrigation facility for farming is still the local type with its attendant drudgery, only 28 % of the women farmers used modern irrigation method. Farming activity in the study area as in most parts of Nigeria is still at the rudimentary stage.

Poverty Profile of Women Vegetable Farmers in Kwara State, Nigeria

A relative poverty line of N11,600 per month was estimated from the data generated from the survey.

Table 1: Socio- Economic Characteristics of Respondents

Characteristics	Frequencies
Age in Years	
20-30	15 (12.5)
31-40	21 (17.5)
41-50	35 (29.2)
51-60	30 (25)
>60	19 (15.8)
Level of Education	
No Formal Education	36 (30)
Arabic	4 (3)
Primary	55 (46)
Secondary	25 (21)
Membership of Cooperative	
Yes	27 (22.5)
No	93 (77.5)
Household Size	
1-5	61 (50.8)
6-10	53 (46.7)
above 10	3 (2.5)
Farm Size in Acre	
<0.5	70 (59)
0.5-1	44 (36)
Above 1	6 (5)
Type of Seed	
Improved	86 (72)
Local	34 (28)
Irrigation System	
Improved	34 (28)
Local	86 (72)

Source: Field Survey, 2011. Figures in parentheses are percentages of total. n= 120

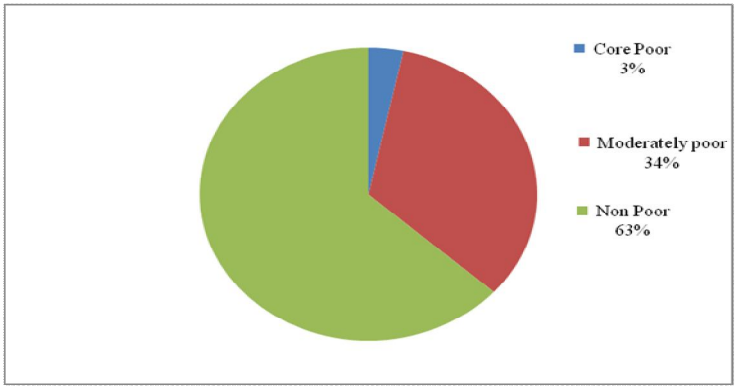

Figure 1: Pie Chart Showing the Poverty Status of Women Vegetable Farmers in Kwara State

Source: Calculated from field data, 2011

Using this benchmark 36 per cent of the women vegetable farmers was poor. This is far below the estimated poverty incidence for Nigeria (NBS, 2010). The finding is not also in agreement with Omonona, (2000); NBS, (2006) and Olorunsanya and Omotesho, (2012). The three studies found poverty to be higher among farming households in Kogi and Kwara states respectively.

Determinants of Poverty

The variables fitted for the logistic regression were as specified in the methodology. The regression results show that the following variables significantly influenced the poverty status of the women vegetable farmers in the study area. These are: membership of a cooperative society, the type of irrigation facility available to the farmer, presence of other sources of income aside from farming, size of farm holdings and farming experience.

Table 2: Log Likelihood Estimates of Logistic Regression for Determinants of Poverty Status of Women Vegetable Farmers in Kwara State

Variables	Coefficient	Z Values
Constant	1.262	1.992
Membership of Cooperative Society	-3.156	-2.285**
Level of Education	-0.238	-0.727
Type of Irrigation	-2.659	-3.014***
Use of Improved Seed	0.543	0.546
Other income sources	-1.150	-1.933*
Size of Farm Land	-0.661	-2.430**
Age of household head in years	0.018	0.082
Farming Experience	-0.072	2.483***
Log Likelihood	85.258	

Source: Data Analysis, 2011. Note***, **, * denote significance at 1%, 5%, and 10% respectively

Similar result has been obtained in Kogi state among rural farming households (Omonona, 2000). The study found household and farm size as well as membership of cooperative society to be some of the determinants of poverty status of rural farming households in Kogi States, Nigeria.

CONCLUSION

The study concludes that poverty exist among the women vegetable farmers in the state, although at a lower percentage than what obtains in the agricultural sector as a whole. This might not be unconnected with other sources of income available to the women vegetable farmers. The study recom-

mends that more of the women vegetable farmers should adopt modern method of irrigation as well as endeavour to belong to a cooperative society to avail themselves the benefits in such associations. These include among others: access to credit facility, improved irrigation facilities and availability of certified vegetable seeds for planting. Cooperative society could also be used as a policy instrument by government to improve on the welfare of the women vegetable farmers in the state.

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