



DETERMINANTS OF SMALLHOLDER FARMERS' WELFARE IN PLATEAU STATE, NIGERIA

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ABSTRACT

This study analyzed the determinants of farmers' welfare in plateau state, Nigeria using data collected from a sample of 120 farmers. Welfare function was specified and estimated using Ordinary Least Squares (OLS) regression. The results showed that household size have negative significant effect on welfare, while age of household heads, level of education and farm size has a positive significant effect on welfare. Recommendations included policies which will reduce household size such as fertility control measures should be the focus upon. Also policy should focus more on relatively younger farmers since this category of farmers have lower welfare level compared to the elderly ones.

Keywords: Determinants, farmers, welfare, regression model, Nigeria

INTRODUCTION

Agriculture is a very important sector of the Nigeria economy, employing about 70% of the total active labour force and contributing about 42% of Gross Domestic Product (GDP) (Ajibefun, 2004). Nigeria farmers have been described as been very poor with low income, especially in the rural area where the farmers are facing low agricultural production (Ijere, 1992). For this reason, they are unable to provide enough funds for agricultural activities.

Welfare though not observable could be said to represent the people's standard of living. In theory, household's consumption expenditure on food and education is used as proxy for welfare indicators (Quarthey, 2005). Large household size contribute to poor productivity, affecting farmers welfare status, reduces income generation of a household, and reduces the level of development of household. Many household's in Nigeria especially in rural areas which cannot afford to purchase necessary farm inputs or implement such as fertilizers, pesticides and improved seeds, which bring about increases in productivity and hence, increases households income and which will proactively affect the socio-economic wellbeing of household positively (Ukoha *et al.* ,2007).

A large number of farmers in Nigeria, both in rural and urban areas operate at the subsistence level and small scale business. In light with the aforementioned, an investigation of the factors affecting the welfare of farmers in Plateau State is therefore necessary.

This study therefore analyzes the determinants of farmers' welfare in Plateau State, Nigeria.

The specific objectives of the study are to:

- i examine the socio-economic characteristic of farmers
- ii determine the factors which influence the welfare of farmers in Plateau State of Nigeria.

Conceptual Framework/ Literature Review

Welfare (a state of well-being), on the other hand, is defined in terms of the level of utility reached by a given individuals. This level is a function of goods and services that he or she consumes. This is "welfarist" approach to wellbeing, as greater importance is attached to the individual's perception of what is considered useful to him or her. In particular, planners generally favour adequate food, improved access

to education, health care, housing, clean water etc (Ravallion, 2000). According to Ukoha *et al.*, (2007) the central objective of rural development involves raising income and outputs as well as existing assets in order to improve the welfare of rural people in totality. Determinant of households welfare programme is aimed to give a base level of income of people who are financially crippled in order to make provision for itself, the idea is that, both rural and urban households needs capital to increase in their productivity /production ratio, in order to reduce poverty and low welfare status of households to a maximum level in the society.

Brucks (2003), identified households mean level of education as having a significant positive effect on households welfare, He argued that, “The level of education of the mother is likely to have a greater positive impact on households food consumption than the level of education of the male head”. According to Keyereme and Thorbeeke (1991), age composition of households, their employment status and maturity index affect their welfare. Quartey (2005) found that, household size and physical asset endowment influence households welfare. Physical asset variables identified include land, livestock, farm equipment and non-farm assets.

There are some empirical studies identifying the factors which explain welfare existence of households. For example, Adams and Paje (2003), suggest that micro credit has significance positive impact on welfare, production, income equality and poverty alleviation. Kabber (2001) noted that, positive impact of micro credit goes beyond economic empowerment dimension, using the impact assessment criteria; they concluded that, micro credit had positive impact on the recipient assets, ownership, political awareness and joint decision making. Both the economic and non-economic positive impact of micro credit contributes to the enhancement of the welfare of the recipient.

Conclusively, earlier studies on welfare have identified micro credit, human assets, household income and household scale of business as factors which explain households welfare (Ukoha *et al.*, 2007).

Olaniyan (2000) in a study on Nigeria found that human capital endowments were significant determinants of the probability of a rural household being poor. Specifically, the education level of the head of the household was a significant influence on the probability of that household being poor. The impact of regional variables on rural poverty indicated that there were also significant geographic differences in the probability of a household falling into poverty.

METHODOLOGY

The Study Area

The study was carried out in Plateau State of Nigeria in the year 2010. It has a cold climatic condition due to its high altitude with its highest point around the Jos wildlife park, measuring over 450m above the sea level. It lies within the southern limit of guinea savannah ecological zones and lies between 7^o and 25^o east. The temperature of this area is on average of 18^oC (maximum) and the amount of rainfall annually is between 131.75cm and 146cm during the month of August. The vegetation shows the savanna woodland modified by relief and climate, some species of original vegetation that have survived in specialized location of an occasional occurrence shows that its an upland region. The estimated population of this area is 3,178,712, in accordance with the population census conducted 2006 in the different parts of the state. Due to the fertility nature of the land or soil, tomatoes, maize, potatoes, guinea corn etc, are major different crops varieties planted or grown. The different ethnics groups found in this region are Afizere, Birom, Fulani, Igbos, Yorubas and Hausas

Data Source and Sampling Procedure

Data used for this paper was obtained from a sample survey of households in Plateau State of Nigeria. A Multistage sampling technique with simple random selection was adopted in collecting the data used in this study. Two agricultural zones were randomly selected from the three agricultural zones in the state namely the Northern and the Southern zones. Three Local Government Areas were randomly selected from each of the two agricultural zones. The Local Government selected included Riyom, Barkin Ladi, Jos South, Shendam, Langtan North and South Local Government Area. Five districts were then selected from each of the Local Government Areas to give a total of 30 districts. Two villages/wards were randomly selected from each district. A total of 60 villages/wards were selected for the study for a wide

coverage. Two farmers were randomly selected from each village to give a total of 120 farmers for the study. Data on household socio-economic/demographic characteristics, monthly expenditures, income were collected with the aid of structured questionnaires.

Analytical Technique

Analytical Techniques employed include descriptive statistics (frequency tables and percentage) and regression model for estimating the variables associated with welfare status of the respondent.

The study objective was analyzed by estimating the following welfare function.

$$W_i = F(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U_i)$$

Where;

W_i = Welfare level of the farmer (proxy by expenditure on food and non food expenditure)

U_i = Error term

X_1 - Male dummy = 1 if the farmer is a male and 0 otherwise

X_2 - Age of the farmer (in years)

X_3 - Married dummy = 1 if the farmer is married and 0 otherwise

X_4 - Number of years of formal education (in years)

X_5 - The household size (numbers of persons in household)

X_6 - Farming dummy = 1 if the primary occupation is farming and 0 otherwise

X_7 - The farm size (in ha)

X_8 - The physical asset (Farm equipment, value of livestock and non-farm assets (₦))

Four Functional forms (Linear, Exponential, Semi-log and Double log) were fitted and exponential function was chosen as the best based on the significance of the coefficients and the value of the coefficients of multiple determination (R^2).

RESULTS AND DISCUSSION

Socio-Economic Characteristics

The socioeconomic characteristics of the respondent were presented in Table 1. From the table, majority of the respondents (64.2%) are male while 35.8 percent of the respondents are female. A higher proportion of (83.33%) of the sample farmers fell in the active age bracket of 30-50years. Therefore, the majority of the respondents are middle-aged people. This distribution has two implications on poverty. This distribution ranked all the respondents on the average at their economically active age which implies that they can go about their daily activities in order to earn income with which catering for their family basic needs is enhanced. It also shows that they are still at the child bearing age which leaves much to be desired because, the larger the family size, the more thinly spread is the family's income. Thus, these can result in reduction in poverty on basic needs. Thus leading to poverty aggravation. Majority (70.0%) of the sampled farmers was married, 22.5 percent were widowed, this will as a matter of fact, affect their level of living as the burden of catering for themselves and children (as often the case in most Nigerian families) shift completely to the women. The percentage of single-headed household is 7.5 percent. Also, the distribution of educational status revealed that a high proportion (46.7%) of the farmers had secondary education while 28.3percent had primary education level. About 53.3 percent of them have farming as their primary occupation while 25.0 percent are engaged in artisan. Breakdown of other trades include 11.7 percent as civil servant while 10 percent as traders.

Household size of respondents indicated in Table 1 shows that a greater share of the sampled households have household size of between 9 to 12, 70 respondents representing 58.3 percent are in this group. The impact of large family size is such that it reduces the per capita expenditure of the family thereby aggravating poverty in these households.

Farm size of respondents reveals that 83.3 percent of the respondents operate between the land mass of 1-2 hectare. The result shows that there are abundance of land mass of farm size for farming activities which can influence the welfare status of respondents if properly managed with subsidized improve varieties and pesticides etc. The income of a household is a function of the number of persons working in the household and sometimes the level of educational attainment. Income is a determinant of household expenditure since it serves as the budget constraint to the amount that can be spent within a period.

Table 1: Socio Economic Characteristics of the Respondents

Gender	Frequency	Percentage (%)
Male	77	64.2
Female	43	35.8
Age (years)		
20-30	2	1.7
31-40	42	35.0
41-50	58	48.3
51-above	18	15.0
Marital Status		
Married	84	70.0
Single	9	7.5
Widow	12	10.0
Widower	15	12.5
Educational Status		
Primary	34	28.3
Secondary	56	46.7
Tertiary	28	23.3
Adult education	2	1.7
Occupation		
Farmers	52	43.3
Traders	42	35.0
Civil Servant	12	10.0
Artisan	14	11.7
Household size		
<3 person	8	6.7
3 – 6 person	12	10.0
7 – 10	70	58.3
11 – above	30	25.0
Income		
Less than 5,000	15	12.5
5,100-10,000	58	48.3
10,100-15,000	17	14.2
15,100-20,000	20	16.7
Greater than 20,000	10	8.3
Farm Size		
<1hectare	14	11.7
1-2hectare	100	83.3
3-4hectare	6	5.0
Total	120	100

Source: Field Survey, 2010

Therefore, about 92 percent of the respondents earned per capita income that is below ₦20,000 which is less than the minimum wage of the government workers (₦15,000), while only 8 percent earned above ₦20,000.

Determinants of Farmers' Welfare

The regression result of the welfare function is presented in Table 2. Different functional forms were estimated in order to select the one that best fit the situation at hand. In all the equations, the coefficients of multiple determinations R^2 was statistically significant at 1%. The exponential function was chosen as the lead equation because its coefficient of multiple determination is fairly high (0.501) and the model has more significant explanatory variables than other models. Only the result of this model will be discussed in the subsequent sections.

Table 2: Regression Result of the Determinants of farmers Household monthly Expenditure

Variables	Coefficients	T- statistic
Constant	8.829	10.15
Male dummy	0.104	0.51
Age of the household head	0.204**	2.22
Married dummy	-0.181	-0.87
Years of Education	0.568***	3.02
Household Size	-0.492**	-2.53
Farming dummy	0.527	0.71
Farm Size	0.718***	4.11
Physical Asset	0.075	1.41

$R^2 = 0.501$.

Source computed from field data 2010, *** and ** mean significant at 1, and 5 percent level respectively Source computed from field data 2010, *** and ** mean significant at 1, and 5 percent level respectively.

Age of household head has a positive significant effect (at 1% significance level) on welfare of farmers. This is consistent with life-cycle hypothesis, which postulates that demographic variables affect consumption or welfare (Ukoha *et al.*, 2007). This implies that elderly ones know how to manage their income and resources more efficiently than the young ones.

Educational status of household head has a positive coefficient (at 1% significance level). This indicates that, household with an educated head or farmers are more likely to have an improved welfare status than one with an uneducated head.

Household Size has a negative coefficient (at 5% significance level) on welfare of farmers. This mean that, the larger the household size, the more difficult it may be for the household to meet the basic requirement such as education for children, proper nutrition, and adequate housing, all of which tends to reinforce poverty. This conforms to the findings of which (Ukoha *et al.*, 2007).stated that household size is the major determinants of farmer's welfare.

Farm Size: - This variable has a positive coefficient and significant at 1 percent level. This implies that, the larger the farm size, the higher the likelihood of improving the welfare status of household, other things being equal.

CONCLUSION AND RECOMMENDATION

The result of this study indicates that age of household head, educational status of household head and farm size have a positive effect on household welfare. On the other hand, household size has a negative effect on farmer's welfare. To improve household's welfare therefore, agricultural extension service should be intensified for younger and less experienced farmers. Furthermore, other government policies aimed at improving farmers welfare should focus on relatively younger household heads because this category of household heads have lower welfare status than the aged ones. The positive relationship between household farm-size and households welfare implies that policies on land use decree should be utilized properly especially for household heads that are mainly farmers. The positive relationship between household educational status and household welfare implies that the farmers need to be educated and enlighten in other to improve their household welfare status. Therefore, policies which reduce household size will improve household welfare specifically; fertility control measures which the farmers can understand and adopt should be the focus.

REFERENCES

- Adams, R.H and J Paje (2003): Impact of International Migration and Remittances on Poverty, A Paper Presented at the DFI/WB Conference on Migrant Remittance London Pp.: 9-10.
- Ajibefun I.A, (2004): Determinant of Technical Efficiency and Policy Implication on Traditional Agricultural Production. Empirical Study of Nigerian Food Crops farmers. A final Research Reports Admitted to African Economic Research Consortium, Nairobi, Kenya.
- Bruck, T, (2003): Household Cropping Choice and the Determinants of Income and Consumption in Post War Rural Mozambique. A Paper Submitted at the European Economic Association Annual Meeting Instockholm.
- Ijere M.O (1992): *Leading Issue in Rural Development ACENA Publishers, Enugu*; Pp3.
- Kabber, N, (2001): Conflict Over Credit-Re-Evaluating the Empowerment of Potential Loans to Women in Rural Bangladesh, 29:63-64
- Keyereme, S. and E. Thorbeeke (1991): Factors Affecting Food Poverty in Ghana. *Journal Development Studies*, 28:39-52
- Olaniyan,O (2000): The Role of Household Endowment in Determining Poverty in Nigeria. *Journal of Nigeria Economics Society* 5:1-22..
- Quartey P. (2005): The Impact of Migrant Remittances on Households Welfare Ghana, University of Legon. A Paper Submitted to the African Economics Resources Consortium (AERC) Nairobi, Kenya.
- Ravallion M, (2001): Measuring Aggregate Welfare in Development Countries. How well do National Accounts and Surveys Agree? World Bank Working, Washington D.C, Pp 2665
- Ukoha,O.O,Mejeha,R.O and Nte,I.N. (2007): Determinants of Farmers Welfare in Ebonyi State, Nigeria. *Pakistan Journal of Social Science* 4 (3):351-354.