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Determinants of Deprivation among Part–time Cassava Farming Households in the Humid Tropic

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Abstract

As cost of living rises and people's wages / salaries do not cover their basic food and dietary needs, interest in part-time farming has risen. Part-time farming activities are being practiced by different people as a food security strategy from vulnerable households. But these part-time farms have had limited success in providing food/nutrition security, increasing incomes and improving well-being. Understanding the factors underlying their persistent deprivation is imperative when designing policies and programmes to meet their needs and improve their welfare. Farm level survey data collected from 60 households with the aid of questionnaire were used to estimate the determinants of deprivation by Tobit regression model. Using the maximum likelihood approach, asymptotic parameters estimates were evaluated to describe determinants of deprivation. Sex, marital status, household size, education, farm income and labour were significant determinants of deprivation.

Keywords:
Determinants, Deprivation, Part-time,Households, Tropic.

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INTRODUCTION

Poverty is an unacceptable deprivation in human well-being that can comprise both physiological and social deprivation. Physiological deprivation includes the non-fulfillment of basic material or biological needs, including inadequate nutrition, health, education and shelter (World Bank, 2000). The concept of physiological deprivation is thus closely related to, but can extend beyond low monetary income and consumption levels (World Bank, 2000). Social deprivation widens the concept of deprivation to include risk, vulnerable, lack of autonomy, powerlessness and lack of self-respect. DFID, EC, UNDP and World Bank (2002) documented that one in five people on the planet – two-thirds of them, women – live in abject poverty. While the last century saw great progress in reducing poverty and improving well-being, poverty remains a global problem of huge proportions. Of the world's 6 billion people, 2.8 billion live on less than US$ 2 a day, and 1.2 billion on less than US$ 1 a day. Sub-Saharan Africa has the highest poverty rates in the world (Shackleton et al 2009). It is also experiencing the highest rates of migration from rural to urban areas (UN – Habitat, 2006). These two dynamics alone demand innovative responses and programmes. These two have merged as the locus of poverty has slowly shifted from rural to urban areas, such that more than 56% of the world's absolute or chronic poor are concentrated in cities and urban areas (Drescher & Mackel, 2001). Nigeria is facing twin challenges of reforming economy and reducing poverty (Etim et al 2010). The Human Development Report by UNDP (2005) shows that Nigeria is one of the poorest among the poor countries of the world. With Human Poverty Index HPI – 1 value of 38.8%, Nigeria is ranked 75th among 103 developing countries.

Over five hundred million people live on cassava throughout the world, eating its roots or tubers due to their high energy content and its leaves that are an abundant source of protein and vitamins A and B (Kormawa et al 2001; Tchabana 2002; Udoh & Etim, 2007). Cassava is an important food staple, in tropical Africa and had the potential to become a cash crop in many African countries (Qirschot, 2004). In Nigeria, cassava is primarily a food crop. According to Nweke (2004), in the year 2000, 90% of total produce in Nigeria was used as food and the balance as livestock feed. Total production in 2005 was 38 million tons (FAO, 2006).

Over the years, cassava production has become an important sub-sector of agriculture in the country (Balogun; 2009). Nigeria is the largest producer of cassava in the world with annual output of about 31.4 million metric tones (FAO, 2006). Every part of cassava is useful. As noted by Nweke (2004), the roots are processed and prepared as a subsistence crop for home consumption and for sale in village markets and transported to urban centers. Cassava leaves are consumed as vegetable in Congo, Madagascar, Sierra Leone, Tanzania and Zambia (Fresco, 1986; Dostie et al 1999; Haggblade and Zulu, 2003; Udoh and Etim, 2007). In Nigeria, traditionally, cassava is produced on small-scale family farms passively by resource poor part-time farmers. As social and physiological deprivation continues to rise, and people's incomes cannot meet their dietary and nutritional needs, interest in part-time farming has increased. But these part-time farms though supplements income and food in households, have had limited success in providing food security and improving well-being. Understanding and identifying the factors underlying their persistent deprivation is important, when designing policies to meet their needs and improve their welfare. This study was conducted to identify the factors that influ-

ence deprivation or poverty among part-time cassava farming households and statistically estimating its determinants.

According to Okunmadewa (2001), poverty is more easily recognized than defined. Hence, a universally acceptable definition of the term has remained elusive. Poverty is defined as total poverty as the expectation overtime of the poverty measured at each point in time. Poverty can be chronic (structural) or transitory, depending on how long poverty is expressed by an individual or a community. Chronic poverty is long term, persistent, the causes of which are largely structural and endemic, while transitory poverty is temporary, transient and short term in nature. Transitory poverty is defined as total poverty minus chronic poverty. Since the nineteenth century when rigorous studies in poverty began researchers have tried to establish fixed yardsticks against, which to measure poverty. Ideally, such a yardstick would be applicable to all societies and should establish a fixed level, usually known as the poverty line below; which poverty begins and above which it ends. A traditional measure of poverty stipulates that the number of people living on less than US$I per day. Although this traditional measure of poverty is commonly used, many in the development community have supported measures such as Millennium Development Goals (MDGs) that use a complex set of conditions as yardsticks in assessing the entire living situation of poor people (Rosegrant et al 2005).

Absolute poverty is a situation of lack of access to resources required to obtain the minimum necessities required to maintain physical efficiency. Relative poverty, on the other hand, is the inability to attain a given minimum contemporary standard of living. Poverty can also be subjective. This refers to whether or not individuals or groups feel they are poor. Subjective poverty is closely related to relative poverty since those who are defined as poor in terms of standard of the day will probably see and feel themselves to be poor.

MATERIALS AND METHODS

Study area, sampling and data collection procedure:

The study was conducted in Ukanafun Local Government Area of Akwa Ibom State. Ukanafun is located in North central of Akwa Ibom State and shares geographical boundaries with Etim Ekpo, Abak and Oruk Anam. It lies between latitude 4044' and 5000' North and longitude 7051' and 7055' East of the equator. The area occupies a land area of about 254.8 square kilometres. It has an estimated population of 127,033 (NPC 2006). The area lies within the humid tropical rainforest zone with two distinct seasons dry and wet season. The occupation of the inhabitants reflects the economic activity of the inhabitants. The settlement comprises mainly people from the ethnic group known as Annang but has settlers from other ethnic groups.

The settlement pattern is dispersed and the inhabitants engage in part-time farming activities and other commercial ventures within and around their houses as a way of augmenting and supplementing family income and food supplies.

Primary data obtained from farming households using structured questionnaire were used for this study. Specifically 60 cassava farming households were selected using two-stage sampling technique. The first stage involved the random selection of two out of five clans viz; Northern Ukanafun and Southern Ukanafun. The second stage was the random selection of 30 households to make a total of 60 farming households.

Analytical Technique

The Tobit regression model, a hybrid of the

Table 1: Determinants of Deprivation

Variable	Coefficient	Standard Error	Z – value
Sex of the Household Head X1	0.0652	0.0089	7.326***
Age of Household Head X2	-0.0018	0.0131	-0.137
Marital status of Household Head X3	0.1872	0.0723	2.589***
Household Size X4	0.0359	0.0094	3.819***
Education X5	-0.2504	0.0981	-2.552***
Farm size X6	0.1763	0.1972	0.894
Farm income X7	-0.2004	0.1103	-1.817*
Access to information X8	0.0310	0.0228	1.360
Value of Assets X9	0.1967	0.1392	1.413
Farming Experience X10	0.0885	0.6980	0.127
Labour X11	0.1874	0.0698	2.685***
Constant	0.3014	0.0925	3.258***
Sigma σ	0.3210	0.1543	2.080**

Source: Tobit Regression Results, 2009.
***,**,* denote significance @ 1%, 5% and 10% respectively.

discrete and continuous dependent variable was used to estimate the determinants of deprivation among part-time cassava farming households in Ukanafun. The model originates from the work of Tobin (1958) and has been extensively used by economist to measure the effect of changes in the explanatory variables (Xi) on the probability of being poor and the depth or intensity of poverty (McDonald & Moffit, 1980). The Tobit model can be used to determine the impact of the explanatory variables on the probability of being poor using a function.

$$q_i = P_i = X_i\beta + e_i \text{ if } P_i > P_i^*$$
$$O = X_i\beta + e_i \text{ if } P_i \leq \beta P_i^*$$
$$i = 1,2,\ldots\ldots\ldots\ldots..60$$

Where qi is the dependent variable, it is discrete when households are not poor and continuous when they are poor.

Pi* = Poverty depth, when poverty line (z) equals the expenditure per adult equivalent.

Xi = Vector of explanatory variable.

β = Vector of unknown coefficient.

Table 2: Mean and Maximum Values of Explanatory Variables

Table shows summary statistics of some explanatory variables. The maximum value of education is 13 years whereas the mean and minimum values are 8 years and 4 years respectively. The mean, minimum and maximum values of age are 43, 24 and 61 years respectively. The mean value for farm size was 201 square metres while the minimum and maximum values were 92 and 421 respectively. The maximum and minimum income accruable to farming households were ₦23,800 and ₦5,900 respectively. The mean labour and experience in farming were 49 mandays and 12 years respectively.

Description	Unit	Mean value	Minimum value	Maximum value
Age	Years	43	24	61
Education	Years	8	4	13
Farm size	Square metres	201	92	421
Farm income	Naira (N)z	2,080	5,900	23,800
Value of Assets	Naira	49,500	38,000	110,000
Farming Experience	Years	12	7	32
Labour	Mandays	49	28	121

z ₦ is Naira, Nigerian Currency. To Convert to US$ divided by 157.

ei = Independently distributed error term.

The explanatory variables specified as determinants of deprivation are:

Xi = Sex of the household head (D = 1 if female, 0 if male)

X2 = Age of the household head in years

X3=Marital status of the household head (D = 1 if married, 0 if other wise).

X4 = Household size measured as number of persons in household.

X5 = Education level of household head in years.

X6 = Farm size in square metres.

X7 = Farm income in naira.

X8 = Access to information (D = 1if yes, 0 if otherwise).

X9 = Value of assets in naira.

X10 = Farming experience in years.

X11=Labour in mandays.

RESULTS AND DISCUSSION

From the maximum likelihood estimates of the Tobit regression, the results show that sigma σ 0.3210 with a z – value of 2.080 and is significant (P < 0.10). This means that the model has a good fit to the data and that the model has explained significant non-zero variations in factors influencing poverty. The coefficient of sex of the household head is 0.0652. This implies that relative to the female-headed households, the level of poverty will be reduced by 0.0652 for male – headed households.Hence, having a poverty depth of 0.2362 as against 0.3014 for female – headed households. This could be attributed to the involvement of male –headed household in different forms of off-farming activities. The coefficient of marital status of household head is 0.1872, this implies that the poverty status of household headed by married people will be increased by 18.72% to become 48.86% while that of households headed by unmarried people will remain as 30.14%. The reason for this is, married households tend to have larger household size which raises the dependency ratio thereby increasing poverty.

The household size has coefficient of 0.0359, implying that a unit increase in the size of household members will raise deprivation by 3.59%. This is obvious because most dependents particularly children contribute less to family labour and income. The family on the other hand, spends money in educating and training them in school and craft respectively. Similar results had been reported by Musgrave (1980), Lipton (1983), World Bank (1991), Schubert (1994) and Etim et al (2009) that a larger sized household is associated with greater poverty incidence. The coefficient of years of formal education is – 0.2504. This means that the poverty depth is decreased by 0.2504, for individuals in families whose heads have formal education to become 0.051. Households without formal education have a poverty depth of 0.3014. This may be attributed to the fact that highly educated households heads have the ability to adopt improved farming technique faster than the non-educated ones. This however, increases the productivity and incomes of the educated heads with subsequent improvement of welfare amongst them. Similar findings were reported by Schubert (1994) and FOS (1999).

The coefficient of farm income is 0.2004 and is significant (P < 0.10) implying that a naira increase in income from sales of cassava will decrease poverty by 20.04%. This is true because with increased income, other household demands will be met and welfare improved.

The regression coefficient for labour employed in farm operations is 0.1874. The implication is that manday rise in labour employed in farm operations will raise the poverty depth by 0.1874. The confirms the assertion by Etim (2007) that increase in family labour is as a result of more

household members and high dependency ratio tends to raise the poverty status of households.

CONCLUSION

This study estimated the determinants of physiological deprivation among part-time farming households using the Tobit estimation. Maximum likelihood estimates and coefficient were derived from a specified Tobit regression model estimated by maximum likelihood method. Findings reveal that sex, marital status, household size, education, farm income and labour were important determinants of poverty among the part-time farmers. The mean age of the farmers was 43 years and maximum value of labour employed was 121 mandays.

REFERENCES

1- Balogun, O. S., C. A. Ugwuanyi and O. Ayoola 2009. Resource Productivity of Small Cassava Production in Kaura Local Government of Kaduna State in Proceedings of the 43rd Annual Conference of the Agricultural Society of Nigeria held in National University Commission 20th – 23rd October, 2009.

2- DFID (Department for International Development), EC (European Commission), UNDP (United Nations Development Programme) and World Bank 2002. Linking Poverty Reduction and Environmental Management. Policy Challenges and Opportunities. DFID, EC, UNDP and World Bank.

3- Dostie, B., L Rabenasola and J. Randriamamony, 1999 La Filiere Manioc: Amortisseur Oublie de Vulnerables Antananarir. Institut National de la Statisque.

4- Drescher, A. W. and R. Mackel 2000 Urban and Peri-urban Food Security: The Example of Lusaka (Zambia), APT-Reports 11:Urbanization, Vulnerability and Resource Management in Developing Countries, Freiberg, Germany, 56-79.

5- Etim, N. A 2007. Analysis of Poverty Status of Rural Farm Households in Akwa Ibom State, Nigeria. Unpublished Ph.D Dissertation. Department of Agric. Economics, Michael Okpara University of Agriculture, Umudike, Nigeria.

6- Etim, N. A., O. O. Ukoha and A. U. Akpan 2010. Correlates of Poverty among Urban Farming Households in Uyo, Nigeria. Agriculture and Social Science 6(2): 29-33.

7- FAO (Food and Agriculture Organization) 2006. Data base Results. FAO, Rome. http: //www.fao.org

8- FOS (Federal Office of Statistics) 1999. Poverty and Agricultural Sector in Nigeria. Federal Office of Statistics Abuja, Nigeria.

9- Fresco, L., 1986. Cassava in shifting cultivation: A Systems Approach to Agricultural Technology Development in Africa. Amsterdam, the Netherlands: Royal Tropical Institute.

10- Hagblade, S. and B. Zulu, 2003. Conservation farming in Zambia EPTD Discussion Paper 108. Washington D.C. International Food Policy Research Institute.

11- Kakwani, N. 1993 Measuring Poverty: Definition and Significance Test with Application to Cote d'Ivoire. In Lipton, M. and J. Van der Gaag (Eds.), Including the Poor. The World Bank, Washington, DC.

12- Kormawa, P., M. Tshiunza, A. Dixon, E. Udoh and V. Okoruuwa, 2001. Varietal Characteristics of Cassava: Farmers' Perceptions and Preferences in the Semi-Arid Zone of West Africa. Proceedings of the 8th Triennial Symposium of the International Society for Tropical Root Crops-Africa Branch (ISTRC-AB), Held at IITA, Ibadan.

13- Lipton, M. 1983 Labour and Poverty. World Bank Staff Working Paper No. 616 Washington DC, The World Bank.

14- Musgrave, P. 1980 Household Size and Composition, Employment and Poverty in Urban Latin America, 28(2) Economic Development and Culture Change.

15- NPC (National Population Commission) 2006. Population Census of the Federal Republic of Nigeria: Analytical Report at the National Population Commission, Abuja.

16- Nweke, F., 2004. New challenges in the Cassava Transformation in Nigeria and Ghana. EPTD Discussion Paper No. 118 International Food Policy

Research Institute, Washington, D. C. USA.
Okunmadewa, F. Y. 2001. Poverty Reduction in Nigeria. A Four Point Demand. An Annual Guest Lecture of The House, University of Ibadan.
17- Qirschot, Q. T. Ngendello and A. Westby, 2004. Improving Cassava Proceeding for the Market from Field to Market. LEISA. Magazine on Low External Input and Sustainable Agric., 20:3.
18- Rosegrant, M. W., S. A. Cline, Li., T. B. Sulser and R. A Valmonte – Santos 2005. Looking Ahead. Long Term Prospects for Africa's Agricultural Development and Food Security. 2020 Discussion Paper 41. International Food Policy Research Institute, Washington. DC.
19- Schubert, R. 1994. Poverty in Developing Countries. Its Definition, Extent and Implications. Economic 49/50:17-40.
20- Shackleton, C. M., M. W. Pasquini and A. W. Drescher 2009 African Indigenous Vegetables in Urban Agriculture: Recurring Themes and Policy Lessons for the Figure.
21- Tchabana, B., 2002. A Cassava Parasite in Unmasked at Last. Coraf Action. Quart Newslet. Res. Agric. Dev. West and Central Africa, 22:5.
22- Thorbecke, E. 2004 Conceptual and Measurement Issues in Poverty Analysis. WIDER Discussion Paper, UNU/WIDER. Helsinki.
23- UN-Habitat 2006 State of the World Cities 2006/2007: The Millennuim Development Goods and Urban Sustainability, UN-Habitat/Earthscan, London.
24- World Bank 1991 Indonesia. Strategy for a Sustained Reduction in Poverty. Washington, DC.
25- World Bank 2000. World Development Report. 2000-2001: Attacking Poverty. Oxford University Press, New York.