

Determinants Of Farm And Off –Farm Income Among Farmhouseholds In South East Nigeria

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Abstract: Agriculture has been considered as one of the important sectors that could help and improve the income distribution problem and its poverty implications in South Eastern Nigeria. This has led to the focus of this study on the determinants of the farm and off farm income among the farm households in South East Nigeria and Imo State in particular. Primary data were collected and ordinary least squared regression model was used to analyze the data collected. Results showed that: Farm size, age, education, occupation and hours spent on farm are important explanatory variables that influenced both farm and off farm incomes.

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Introduction

There has been substantial growth over the past decade in household employment outside own farming (Ibekwe, 2001, Nwaru, 2007). At present, due to the increasing share of off-farm incomes, they cannot be considered as marginal (Ibekwe, 2001). Economies in transition are gradually shifting toward a market economy and this shift has been driven in part by push and pulls factors. Though many farm households do not produce for the market and therefore cannot enjoy the benefits of the market economy evidence suggest that non farm activities in the non farm sector include, manufacturing and services both in self employment and wage employment and also in the agricultural sector wage employment.

Despite the growing importance of farm and of farm activities very little is known about the role they play in the income generation strategies of farm households in developing economies like Nigeria. This paper thus has two objectives. The first is to analyze the determinants of farm households in Imo state to undertake farm and non – farm activities. We postulate that the income from these activities will depend on the farm households, assets financial and human resources. The second objective is to explore the implications of income diversification strategies. It is important to note that promotion of non farm activity is not necessarily improvement in the income distribution unless specific policy interventions are provided.

The common view of the rural sector is that of a sector driven almost entirely by agriculture. Thus rural income is equated with farm income.

Policy makers view policies to combat rural poverty as policies to enhance farm productivity (World Bank, 1996). Despite this narrow view, there is growing evidence in the South Eastern Nigeria that rural sector is much more than farming (Nwaru, 2004) Reardon, et al (2007), summarized the evidence of the nature, importance, determinants and effects rural non farm activity on farm households in developing countries. They showed the growing importance of rural non farm activities which accounted for 25% of employment and as much as 40% of the incomes generated in rural Latin America. In the South Eastern Nigeria, there are two dominant occupations in the rural areas, viz, farm and non farm activities but there is not much research in the diversification and determinants of farm households' farm and off farm incomes.

Materials and Methods

The study was carried out in Imo State, South East Nigeria. Imo State is divided into three agricultural zones namely, Okigwe, Orlu and Owerri Zones. Imo State has a high atmospheric temperature which varies slightly within the year. The mean daily maximum temperature is about 30°C with the highest temperature recorded between February and April (AISAN, 1984). The mean annual rainfall ranges from 2, 400mm in the South to about 1,900mm in the North.

A multi stage random sampling technique was used in the study. The survey consists of the three agricultural zones in Imo State. A list of local government Areas in the three agricultural zones was compiled. From this list of Local Government Areas

a list of farm households was made for each Local Government Area. From this list of farm households compiled which has 100 farm households for each Local Government Area, 30 farm households were randomly selected for Orlu and Owerri agricultural Zones while 40 farm households were also randomly selected for Okigwe agricultural zone due to large number of farm households and farming activities in Okigwe agricultural zone. This gave a sample size of 100 farm households as respondents.

Information gathered included that on self employment, wage employment, farm and off farm activities that do not generate wage or salary earnings, non farm income outside own farming activities among others. Data collected were analyzed using descriptive statistics and ordinary least squared (OLS) method of regression for non farm incomes. The implicit model of the regression is as follows,

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, e)$$

Where;

Y	=	Total farm income or total non –farm income (in Naira)
X ₁	=	Age of household head (years)
X ₂	=	Number of years spent in school (years)
X ₃	=	Farm size (in hectares)
X ₄	=	Occupation (Dummy: 1 for full time farming and 0 for otherwise)
X ₅	=	Household size (Number of persons)
X ₆	=	Farm Investment (in Naira)
X ₇	=	Number of hours spent on farm (hours)
e	=	Stochastic error term.

Different functional forms were tested and the lead equation which is double–log function was selected on the basis of F-ratio, t-ratios, number of statistically significant exogenous variables and a-priori expectations.

Results and Discussion

The aggregate household income estimated in the study area was N216, 319.17 for farm income and N153, 428.24 for off-farm income. The total household farm income was found to be N369, 737. 41. This result is similar to that estimated by Ibekwe (2001). The result showed that farm income was 58.50 percent of total farm household income while non-farm income was 41.50% of the total farm household income. This shows that farm income was the most important source of income for the farm household income. However, the fact that off-farm income forms 41.50 percent of farm households income was an evidence of the growing importance of off-farm income in the study area. This has implication for viewing the role of non farm incomes as complementary by policy makers.

This result is similar to that of Reardon et al (1998) which noted that some households are “pushed” to diversify their activities to non farm sector to cope with external shocks to their farming activities. This is because It often pays more than farming and generates cash. The estimated farm and non farm income function are presented in table 1.

Table 1: Estimated farm and off –farm income functions

Variables	Farm income	Off-farm income
Intercept	-945584	-1628230.0
Age of Household head (X ₁)	-0.0641* (0.0209)	-0.0616* (0.0267)
Education of household head (x ₂)	0.8190 * (0.0227)	0.0749 * (0.0261)
Farm size (x ₃)	0.1737 * (0.0413)	-0.0143 * (0.0069)
Occupation (X ₄)	0.0552 * (0.0169)	-0.0106 * (0.0413)
House hold size (x ₅)	0.0917 * (0.0308)	-0.0521 (0.0473)
Farm investment (X ₆)	0.0655	-0.0748

	(0.0591)	(0.0667)
Value of farm out put	0.0914 * (0.0297)	-0.0054 * (0.0197)
R²	0.7244 15	0.7853
F – ratio	7705 *	21.4545*

Source: Field Survey Data, 2009

* = Significant at 5%

Figures in parenthesis are standard errors

Estimated Farm Income Function

The F-ratio was statistically significant at 5 percent level of significance which was the level chosen for this study. This implies that the estimated farm income function was adequate for use in prediction and analysis. The R² implied that 72 percent of the variation in farm income was explained by the independent variables.

Land was a very important resource in the study area. Due to the fragmented nature of farm holdings, an increase in farm size in form of land consolidations will increase farm income through better economies of Scale (Ibekwe, 2001; Nwaru, 2004). The small size of farm holdings has been one of the factors that are driving people out of farm business and has been regarded by many authors as one of the push factors (Readon, et al, 1998). Education was significant and positively correlated with farm income. This conforms to Alimba (1995). Education and training produce a labour force that is skilled. Unskilled agricultural wage labour is supplied by rural households. This has implication for poor wages and low income.

The age of household head was significant and negatively correlated with farm income. This may be due to the fact that the older the farmer the less productive the farmers will be. This equally has implication for farm productivity. Occupation of house hold head was significant and positively correlated with farm household income. Variation in types of activities pursued by households has been shown to be related to the income level of the farm household (Ibekwe 2001). Hence non farm incomes are forms of diversification of incomes and insurance against risks of set back in farm income.

Farm household size was significant and correlated with farm income. This may be due to the fact that increase in farm household size means increase in family labour. This has implication for availability of labour during peak periods of farm activities. Farm investment is positively correlated with farm income and significant at five percent. Farm investment can lead to improve productivity through employment of modern farm technologies. The variable, hours spent on farm work was significant and positively correlated with farm

income. This means that increased hours of farm work contributes to improved farm income due to hard and efficient work. This has implication for off farm activities (Alimba and Akubuilu, 2005)

Estimated Off-farm Income Functions.

The F- ratio for off farm income was significant; the R² was 0.7843 and also significant at five percent. This means that the regression equation has correctly specified the non zero relationships in the specified off farm income model.

The age of household head was significant at five percent and also negatively correlated with off-farm incomes. This is in line with a-priori expectation since the older the farmer the more likely he is to receive lower income in the employment market outside the farm.

The parameter, education was significant and positively correlated with off farm income. Farm households with more education tend to pursue non-agricultural self employments such as handicrafts, commerce, tools, machinery repairs and agro processing (Lanjouw, 1999). Education and training produces a labour force that is mobilized, more skilled, prone to risk taking and adaptable to the needs of a changing economy (Eboh and Ocheoha, 2002). Farm size was negative and significant at five percent. This conforms to a priori expectation. Increase in off farm activities will definitely reduce income from farm activities. This has implication for diversification of resources from farm activities which in turn will lead to reduced farming scale and consequently reduced farm income.

Occupation is negatively correlated with off farm income. This may be due to the fact that off farm activities compete with farm activities in terms of household resources. Household size is not significant and it is also negatively correlated with farm household income. Also the parameter farm investment was not significant but was also negatively correlated with off-farm income. These are in line with a priori expectation as they play little or no role in off farm employment the variable hours spent on the farm was significant but negatively correlated with off farm income. This is also in line with apriori expectation as more hours spent on farm

means less hours available for off farm employment and consequent income.

CONCLUSION:

We have shown the importance of off farm activities in South East Nigeria. At present more than 40% of the income from farm households came from off farm activities, this suggests that the off farm activities should no longer be considered as “marginal” as they have so often by policy makers. The reasons to diversify income are various. Agricultural activities are the most important source of income among the farm households accounting for 58.50 percent of the total farm household income. Within this category the most important source of income is income from crops. Households also were engaged in many different activities in both farm and off farm.

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