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Socioeconomic factors influencing the saving efforts of smallholder farmers in Anambra state, Nigeria

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ABSTRACT

Socioeconomic factors influencing the saving efforts of smallholder farmers in Anambra state, Nigeria was examined using 150 respondents selected through multistage and random sampling techniques from Awka agricultural zone of the State. Primary data were collected using pre-tested questionnaires administered by personal interview. Collected data were analyzed by means of descriptive statistics and multiple regressions. Most of the farmers were aged (x=49years) with small farm holdings (x=0.7ha). Means of farm income, non-farm income and expenditure were N232,701, N43,110 and N200,667 per annum. The farmers saved more in physical form (N14,273,550) than in monetary form (N9,025,800). Amount saved was significantly determined by marital status, farm income, non-farm income and expenditure while educational level, age, gender, farm size and farming experience were not significant. Serious constraints to savings were education of the children, poor access to credit and poor income of household heads. Policy in favour of free and compulsory education at the primary and secondary levels, subsidization of tertiary education and use of cooperative and "isusu" groups to provide credit facilities to the farmers would enhance their productivity, income and savings.

1. Introduction

The importance of agriculture in the economic growth and development of all nations of the world cannot be over emphasized. In Nigeria, agriculture remains the largest sector of the economy because it employs about 70% of the nation's population especially those living in the rural area and contributes about 40% of the gross domestic product (GDP) (Central bank of Nigeria (CBN), 2007 as cited in Ugwumba and Omojola, 2013). Agricultural production activities in Nigeria are mostly carried out by smallholder farmers (CBN, 2007). The smallholder farmers account for about 90% of food production in Nigeria and other developing countries (CBN, 2004). Majority of the smallholder farmers reside in the rural areas where they engage in agricultural activities associated with high risk and poor income earnings (Manfred, 1997). This development make them to engage in non-farm activities such as petty trading, masonry, construction, art and craft among others and use earnings from them to supplement farm income (Ugwumba, 2005).

Savings according to Ike and Idoge (2006) is a means of accumulating assets that perform specific function for the saver. It is categorized into financial (monetary form) and non-financial (physical forms such as livestock, grains, and other valuables). Holding a cash reserve maintains flexibility in future use, but also incurs the risk of inflation and of demand from other household or community members. For these reasons, smallholder farmers prefer to hold their savings in the form of food, livestock, and jewelry and other durables, or deposit cash in safe keeping financial institutions (Zeller, 1997). Majority of smallholder farmers also depend on non-institutional means such as friends/relatives, isusu clubs, family meetings, social clubs, age grades and so on (World Bank, 1997).

Agricultural activities in the study area likewise other parts of Nigeria are carried out by smallhoder farmers. The farmers are characterized by small farm holdings, old age, low productivity, hence low income and savings (Ugwumba and Orji, 2006; Ike and Umuedafe, 2013). Socioeconomic factors of the farmers may the reason behind existing low level of savings, hence the prevailing poverty situation among the farmers. Small-holder famers are constrained from accessing credits from financial institution because of delays in disbursement, high interest rates, and fears and uncertainties (Ugwumba and Muojekwu, 2012); inexperience, low level of education and lack of awareness of existing loan activities (Mesike and Okoh, 2008). Hence rural farmers are constrained to commit greater levels of their personal resources to production activities. With low investment, output becomes low, which leads to low income and as well as translates to poor or low savings. This situation perpetuates the vicious cycle of poverty. Based on this backdrop, the study examined the determinants of saving efforts of smallholder farmers in Awka agricultural zone of Anambra State, Nigeria by specifically summarizing the socio-economic factors of the farmers; establishing annual farm income, non-farm income and expenditure; ascertaining the determinants of savings; and identifying constraints to saving efforts of the farmers. The findings generated will enable formulation of policies for increased productivity, income, and thus savings of the farmers.

2. Materials and methods

Anambra State is one of the 36 states of Nigeria and lies to the Eastern part of Nigeria with Awka as its capital city. The state is located between latitude 60 45' and 50 44' N and longitude 60 36' and 70 29' E. It has an estimated population of 4,182,032, with the male population of 50.9% and female 49.1% (National Population Commission (NPC), 2006). The state is blessed with fertile soil and favourable climate which makes it possible for agricultural activities engaging more than 70% of the rural population (Anambra State Economic Empowerment Development Strategy (SEEDS), 2006). Anambra State has the largest commercial city in the South-Eastern Nigeria making it possible for agricultural products to be marketed. Multistage, purposive and simple random sampling methods were used to select 140 respondents for the study. Primary data were collected through the use of structured questionnaire administered via personal interview. The questionnaire was designed to collect information on farmers' socio-economic characteristics including farmers' age, education, marital status, family size among others; annual farm and non-farm incomes of the small holders; distribution of households' savings and constraints to savings. The Likert-type-scale was deployed in determining the degree of seriousness of savings problems. The responses were disaggregated as follows: very serious = 4, serious = 3, moderately serious =3 and not serious = 1. To make inferential statement, the mean score was compared with the critical mean, 2.5 (ie 4+3+2+1 = 10/4 = 2.5). If the calculated mean of a problem was greater than the standard critical value then that problem was regarded as very serious.

Collected data were analyzed using descriptive statistical tools such as means, frequency counts and percentages, and multiple regression analysis. The regression model is implicitly specified as: SAV = f(AGE, GEN, EDL, MTS, HOS, NOD, FMS, FME, AFI, ANI, AEP; ei)

Where:

SAV=Annual savings (N)
AGE=Age of farmer (years)
GEN=Gender (dummy: male = 1, female = 2)
EDL=Educational level (years)
MTS=Marital status (dummy: married = 1, unmarried =2)
HOS=Number in household
NOD=Number of dependents
FMS=Farm size (hectare)
FME=Farming experience (years)
AFI =Annual farm income of household head (N)
ANI=Non-farm income of household head (N)
AEP=Annual expenditure (N)
ei= Error term

Four functional forms of the regression model (linear, exponential, semi-log and double-log) were tried with the data. The one that gave the best fit in terms of economic, statistical and econometric apriori criteria was chosen as the lead equation.

3. Results and discussions

3.1. Socioeconomic statistics of the farmers

A summary of the socioeconomic factors of the farmers is captured in table 1. The farmers on the average were 49 years old, attained 5 years of formal educational, 6 persons per household, 0.7ha of farm size, and 24.6 years of farming experience. These findings depict the preponderance of subsistence farming in the area, being operated on small farm holdings by aged farmers with little or no formal education. Ugwumba and Orji (2006), Chukwuji (2006) and Nenna and Ugwumba (2012) reported similar developments in their respective studies on traditional farming system and its effects on farm Cash income in old Njikoka Local Government Area of Anambra State, Nigeria; factor productivity and technical efficiency in cassava-based food crop production systems in Delta State, Nigeria; and influence of socio-economic variables on palm oil production in Delta Central Agricultural Zone of Delta State, Nigeria.

Table 1
Socioeconomic statistics of the farmers.

Variable	Mean	Minimum	Maximum
Age (years)	49	18	70
Education (years)	5	0	16
Household size	6	1	10
Farm size(hectare)	0.7	0.2	4.0
Farming experience (years)	24.6	2	40

Source: Computed from field survey data, 2013.Source.

3.2. Annual Farm income, non-farm income and expenditure of the farmers

Table 2 shows distribution of the farmers according to annual farm, non-farm income and expenditure. Majority (83.33%) of the farmers realized less than N100,000 as annual non-farm income; a higher range of N100,001-300,000 was realized by most of the farmers (70%) from farm income while the same range of N100,001-300,000 was estimated for the expenditure made by most (76%) of the farmers. Mean annual

expenditure of N200,667 constituting 72.76% of total mean annual income (farm income N232,701 + non-farm income N43,110) was incurred by the farmers, implying that only 27.24% or N75,134 was the average annual savings of the farmers, hence a reflection of the low level of annual income realized by them. This result corroborates Ike and Umuedafe (2013) which reported that income had positive relationship with the volume of savings and capital accumulation.

Table 3
Estimated savings of the farmers in monetary and physical forms.

Range	Farm income Frequency%		Non-farm income Frequency%		Expenditure Frequency%	
Less than100,000	12	8	125	88.33	16	10.67
100,000 - 300, 000	105	70	20	13.34	114	76.00
300,001 – 500,000	28	18.66	5	3.33	17	11.33
Above 500,000	5	3.33	-	-	3	2.01
Mean	232,701	43,110		200,667		
Minimum	26,350		6,400	37,600		
Maximum	768,500	450,000		768,000		

Source: Computed from field survey data, 2013.

3.3 Annual savings of the farmers in monetary and physical forms

Estimated savings of the farmers in monetary (cash) and physical forms are presented in table 3. The result indicated that the farmers had more (61.20% or N14,237,550) of their savings in physical forms (goats, sheep, grains, yams, cassava products, etc) than the 38.38% or N9,025,800 saved by the farmers in monetary form (ie cash). A mean savings in cash of N60,172; minimum of N8,051 and maximum of N167,520 were computed per farmer as against the mean, minimum and maximum savings in physical forms of N94,917; N26,600; and N245,000 per farmer respectively. The savings in physical forms were mostly in form of yams (42.71% or N6,080,500) followed by cassava products 29.01% or N4,131,000; goats N2,750,000 or 19.31%; sheep N888,500 or 6.24%; grains N350,000 or 2.46%; and lastly other storable farm products N37,550 or 0.26%.

Table 2
Distribution of the farmers by farm income, non-farm income and expenditure.

Variable		Amount (N)			Percentage	
Cash			9,025,800	38.80	60,172	
Physical items	:	14,237,550	61.20		94,917	26,600
Goats			2,750,000	19.31	-	
Sheep			888,500	6.24	-	
Grains			350,000	2.46	-	
Yams			6,080,500	42.71	-	
Cassava products	4,131,000	29.01		-	-	

Source: Computed from field survey data, 2013.

3.4. Determinants of saving efforts of the farmers

The multiple regression technique was adopted to predict the effects of socio economic factors of the farmers on household savings. The predictors used are age of the producer, represented by AGE, gender (GEN), educational level (EDL), farming experience (FME), farm size (FAS), household size (HOS), number of dependents (NOD), marital status (MTS), annual farm-income (AFI), annual non-farm income (ANI) and annual expenditure (AEP). The MINITAB statistical package was adopted in running the analysis and outputs of the functional forms are presented in table 4.

Out of the four functional forms of the regression model (linear, exponential, semi-log and double log), output of the linear form was chosen based on best fulfilment of economic, statistical and econometric a priori criteria (ie signs, number and magnitude of significant regression parameters). Out of the 11 predictors that were included in the model, four, namely marital status, annual farm income, annual non-farm income, and annual expenditure were significant and the other 7 (gender, age, educational level, farming experience, farm size, house hold size, number of dependants) were not significant.

Marital status has a negative and statistically significant influence on savings at 5% level. By implication, more the married farmers, more dependents in the households, and consequently more family expenses and lower saving efforts of the farmers. This also implied a lower well-being for the farmers who had larger household size. This conforms with Orebiyi (2005) which reported same negative relationship between marital status and savings on determinants of saving mobilisation by cooperative farmers in Kwara State.

Result of the analysis showed that the farmer's farm-income had positive and statistically significant effect on savings at 5% level of probability. This implied that the volume of saving was sensitive to farm income of the farmers. It gives an indication that a farmer with large farm income is likely to save enough to increase production. This conforms to Ike and Umuedafe (2013) that agricultural productivity is largely dependent upon the portion of income farmers save from their farming activities.

Non-farm income is one of the major determinants of volume of savings of the rural farmers in the study area. Non-farm income is positive and statistically significant. This shows that non-farm income is a part of farmer's total income and hence important contributor to saving efforts of the farmers.

Expenditure was found to be negative and statistically significant at 5% probability level. This is in accordance with apriori expectations and implied that the farmers who spent more of their income on family upkeeps would save less.

The coefficient of multiple determination (R2) value of 0.75 showed that 75% variation in annual savings of farmers was accounted for by the predictor variables; hence the remaining 25% was due to random disturbance. The F-statistic value of 31.43 was statistically significant suggesting that the estimated linear regression equation was a goodness of fit. The Durbin-Watson statistics value of 1.51 which lies within the bench mark of 2.0 signified the absence of autocorrelation among observations of the same variable.

3.5 Constraints to saving efforts of the farmers

The farmers encountered some constraints in their efforts to save. These constraints included poor access to credit, delay in loan disbursement, low agricultural yield, long distance to saving institution, education of children, low income of household head, and poor future value of saving items. Result of the ranking of the problems as shown in table 5 showed that saving to educate the children was the most serious constraint with a mean score of 4.87. This implied that the farmers attached serious importance to their children's education in agreement with Adeyemo and Bamire (2005) which asserted that a healthy and educated labour force holds the key to productivity and overall growth of an economy. The second serious problem was poor access to credit with mean score of 4.37; the 3rd was poor income of household head with mean score of 4.35; and poor future value of savings items scored 3.11 to become the 4th serious problem militating against saving by farmers. The problems of the low agricultural yield with mean score of 1.99, long distance to saving institution (1.80), delay in loan disbursement (1.77), and low educational attainment (1.34) were not serious constraint to the farmers saving efforts because their mean scores were below the critical mean of 2.50.

4. Conclusion

Smallholder farmers in Awka agricultural zone of Anambra State earned income mainly from their farming

activities and saved more in physical forms than in monetary (cash) form with the main objective of giving their children good education. Policies in favour of free and compulsory education at the primary and secondary levels, subsidization of tertiary education and use of cooperative and "isusu" groups to provide credit facilities to the farmers would enhance their productivity, income and savings.

Table 4
Estimated determinants of savings of the farmers.

Predictor	Linear	Exponential	Semi-log	Double-log
Constant	31828(2.25)	4.64(33.70)	-480808(-10.10)	0.7184(1.94)
AGE	-172.4(-1.32)	-0.001158(-0.91)	4602(0.28)	-0.0026(-0.02)
GEN	-793(-0.32)	0.00096(0.04)	-3763(-0.38)	-0.01577(-0.21)
EDL	-199.0(-0.70)	-0.0002288(0.82)	271(0.27)	0.000114(0.01)
FME	78.9(0.55)	-0.000655(-0.47)	7225(1.45)	0.03020(0.78)
FAS	2290 (1.55)	0.02168 (1.51)	7115 (1.12)	0.058849 (1.18)
HOS	-1303(-0.86)	-0.01322(-0.90)	-8383 (-0.55)	-0.0611 (-0.51)
NOD	471(0.30)	0.00484(0.32)	2672 (0.60)	0.00941(0.27)
MTS	-13385(-2.19) *	-0.16997(-2.85) *	-32990(-1.33)	-0.4879(-2.52)*
FMI	0.17451(11.00)*	0.00000128(8.25) *	4946(7.34) *	0.48027(6.99) *
ANI	0.03672 (3.18) *	0.00000013(1.18)	1478.5(3.59) *	0.011276(3.52) *
AEP	-0.03949 (2.41) *	0.00000014(0.87) *	34459(3.55) *	0.27584(3.66) *
R2	75.0%	60.6%	65.4%	65.3%
R2(adj)	72.6%	56.9%	62.1%	62.0%
F-statistics	31.43	16.11	19.80	19.72
D-Wstatistics	1.51	1.63	1.5.7	1.72

Source: Computed from field survey data, 2013. Notes: * = significant at 5% probability level. D-W statistic = Durbin-Watson-statistic. Figures in parenthesis are t-statistic values.

Table 5
Ranked constraints to savings.

Constraints	Calculated mean	Rank
Education of children	4.87*	1st
Poor access to credit	4.37*	2nd
Poor income of household head	4.35*	3rd
Poor future value of saving items	3.91*	4th
Low agricultural yield	1.99	5th
Long distance to saving institution	1.80	6th
Delay in loan disbursement	1.77	7th
Low educational attainment	1.34	8th

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