

Gender Analysis of the Structure and Effects of Access to Financial Services among Rural Farmers in Anambra State, Nigeria

M. O. Ugbajah

Faculty of Agriculture, Anambra State University, Igbariam, Nigeria

KEYWORDS Non – Parametric. Investment. Probit Analysis. Respondents. Male and Female

ABSTRACT The study, Gender Analysis of the Structure and Effects of Access to Financial Services in Rural Villages of Anambra State of Nigeria, examined its effect on the rural community. Specifically, it described the socio – economic characteristics of the respondents, the influence of socio – economic factors on male and female farmers' access to financial services, evaluated and compared the effects of male and female farmers' access to financial services on their farm investment decisions/resource allocation. A multistage sampling method was used to select respondents for the study. Primary data were collected through the use of set of structured questionnaires. Non – parametric and parametric statistical tools including means, percentages and probit analysis were deployed to estimate the structure and effects of farmers' access to financial services. Results showed varying effects of access to financial services between male and female farmers in the rural areas of Anambra State. The educational attainment and income from farming had positive effect on probability of access to financial services for the male farmers. Comparatively, the co-efficient of educational attainment and membership of farmer's society had some positive and significant effect on probability of access to informal financial services for female farmers. However, result of the regression analysis showed that there are significant differences in the effects of access to financial services between male and female farmers with males having more access to formal financial services than females. The socio-economic factors should be considered when providing financial services to the rural male and female farmers and the formal institutions should simplify the procedures required for providing financial services to the rural male and female farmers.

INTRODUCTION

The ever increasing food insecurity in Nigeria urgently requires total mobilization and prudent utilization of all available opportunities and potentials towards corresponding development of agricultural production system for the purpose of achieving sustainable food security in the country. Before now, both Federal and State governments have through several programmes pursued rural and agricultural development in Nigeria; the rural environment being always the target of such programme (Udoka 1997). The rural farmers should be the centre piece of increased agricultural production (CBN 2003). The impact of rural farmers in agricultural and economic development cannot be overemphasized. Many studies acknowledged this (Areetey and Udry 1997; Okpukpara 2005; Ugbajah and Orji 2006). However, the rural farmers are faced with different constraints in their course to meet food production target. Many researchers have conclusively acknowledged that access to financial services is a major constraint militating against the rural farmers' agricultural productivity (Deaton 1997; Udry 1990; Zeller 1994; Idachaba 2006). Major problem concerning access to financial services in rural areas is that the income generation and expenditure do not occur at the same time because the type of pro-

duction engaged in by the smallholder farmers is always seasonal. The failure of agriculture in developing world to move forward is one of the major factors contributing to widening the gap in the income earning capacities of the rural farmers (Holden et al. 2004). Therefore, recent economic reforms and development programmes in Nigeria have drawn greater attention to the pressing need for rural sector transformation where the bulk of agricultural products are produced.

Efforts made by the rural farmers to get financial assistance are always constrained by unnecessary strings attached to the financial services, especially collaterals used for assessing the borrower's credit worthiness. Past research results have identified collateral requirements as a major determinant of the financial institutions decision to provide financial services to farmers (Falchamps and Quisumbing 2005; Esson 2003).

These criteria often places unlimited limit on credit requirement for smallholder farming in developing countries including Nigeria (Areetey and Udry 1997). The majority of formal financial institutions in developing and developed countries demand physical collateral such as land. This policy is regressive for the small – scale rural farmers who produce the bulk of food in Nigeria. On the other hand, the informal fi-

nancial institutions use collateral substitutes but the credit obtained from them are enough to carry out a meaningful production. In spite of the strategies to increase access to formal financial institutions in rural areas, the problem still persists (CBN 2002). However, access to financial services is affected by socio-economic characteristics of the rural farmer institutional incentives and constraints that define the financial environment (Ugbajah 2000). Efforts should be made by the formal institutions to provide friendly customer services, such as reducing bureaucratic bottlenecks, transaction cost, and long waiting period (Okpukpara 2005). In view of this therefore, this study was undertaken to examine the comparative econometric gender analysis of the structure and effects of access to financial services on rural farmers. Previous studies by Van Horne (1988), CBN (2002), Adeyemo and Bamire (2005), Ohaka et al. (2005) have pointed that emphasis is placed on micro – finance and credit which require stipulated minimum savings instead of collateral. However none of these studies dealt with the effects and structure of access to financial services by the rural male and female farmers, the gap the present study is designed to fill.

METHODOLOGY

The study was conducted in the rural setting of Anambra State, Nigeria. The dominant criterion for selecting Anambra State is the prevalence of formal and informal financial institutions in most of the rural areas of the State. The state is comprised of four agricultural zones. Four local government areas were randomly selected from the four agricultural zones. One community was selected from each of the selected local government area. Fifteen male and female farmers were selected. In all, 60 male and 60 female farmers were selected; this gave a total of 120 respondents that were used for the study.

Data for the study was generated from both primary and secondary sources. Structured questionnaires and oral interviews were used in collecting the primary data. The questionnaire collected information on socio – economic characteristics and institutional variables. This included family size, level of education, asset index, index of modern technology, amount of financial services (Credit and Savings) received, membership of saving/credit group among others.

Secondary data was collected through review of related literature.

The model for the probit analysis was explicitly specified as:

$$\begin{aligned} F_s &= F_{sa} + b_1 F_{sEd} + b_2 F_{sFs} + b_3 F_{sMf} + b_4 F_{sHs} + b_5 F_{sIc} + e \\ \ln F &= \ln F_a + b_1 \ln F_{Ed} + b_2 \ln F_s + b_3 \ln F_{mf} + b_4 \ln F_{Hs} + b_5 \ln F_{Ic} + e \end{aligned}$$

Where Y = total amount of savings and credit in both institutions.

F_s = Probability of access to formal financial services (₦)(1 = access, otherwise = 0)

ln F = Informal financial services (₦)(1 = access, otherwise = 0)

PF = Pooled formal financial services (₦)

Pin F = Pooled informal financial services (₦)

Ed = Level of education attainment in years

F_s = farm size in hectares (ha)

Mf = Membership of farmers society (dummy)

Hs = Household size in numbers

Ic = Income (₦)

e = stochastic error term

The multiple regression model was explicitly specified as;

For the male and female farmers formal financial services {F(m + f)}

$$F(m + f) = F_{sa} + b_1 F_s Ed + b_2 F_s F_s + b_3 F_s Mf + b_4 F_s Hs + b_5 F_s Ic + e$$

Informal financial services for male and female {ln F(m + f)}

$$\ln F(m + f) = \ln F_a + b_1 \ln F_{Ed} + b_2 \ln F_s + b_3 \ln F_{mf} + b_4 \ln F_{Hs} + b_5 \ln F_{Ic} + e$$

t – test was used to test the stability of the probit coefficient and is given as:

$$T = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2 + S_2^2}{n_1 + n_2}}}$$

$$S_n^2 = \frac{\sum (\bar{X}_n - \bar{X})^2}{n}$$

Where $\bar{X}_n$ = mean score

S_2 = variance

n = Sample size

The chow test was conducted to compare access to financial services (formal and informal) institutions among the male, female and pooled data. This was used in determining the significance of the regression analysis on access to financial services for the male and female farmers.

RESULTS AND DISCUSSION

Results of the study were presented in Tables 1, 2 and 3a. It was observed that the co-efficient

of educational attainment and income from farming has a positive relationship with probability of access to financial services and significant at 0.05 probability level.

Table 1: Probit model estimates of the effects of factors affecting probability of access to formal financial services by male farmers

Variable	Coefficient	Standard error	Coefficient = t_{col}	Standard error
Ed	0.014229	0.04790	2.971	0.05
Fs	-0.025545	0.02102	-2.215	Ns
Mf	0.073326	0.4587	1.599	Ns
Hs	0.028891	0.01461	0.198	Ns
IcF	0.000003794	0.00000221	1.709	0.05
Constant	-2.9761	1.220	-2.439	

NS= Not significant at 0.05 probability level

Source : Field survey 2009

Table 2: Probit model estimates of effects of factors affecting probability of access to formal financial services by female farmers

Variable	Coefficient	Standard Error	Coefficient - t_{cal}	Standard error
Ed	0.031883	0.009302	3.427	0.05
Fs	-0.05355	0.03952	-1.355	Ns
Mf	0.16121	0.08766	1.839	0.05
Hs	0.0013770	0.341	0.045	Ns
Icf	0.0000062598	0.000004071	1.537	Ns
Constant	-0.16121	0.2324	0.694	

Ns = Not significant at 0.05 probability level

Source : Field survey 2009

The result of the coefficient of educational attainment and membership of farmers' society were statistically significant, indicating positive

relationship between the two variables and access to financial services. The results of the multiple regression analysis revealed that the coefficient of multiple determinations of 78% and 63%, 84% and 71%, and 73% and 81% was obtained for the male, female and pooled analysis respectively. This implies that the three explanatory variables explained 78% and 63%; 84% and 71%; and 73% and 81% of Y (total amount of savings and credit in the formal and informal financial institutions) for male, female and pooled data respectively. The model has a good fit for the test.

The result of the analysis revealed that the coefficient of multiple determinations of 78% and 63%, 84% and 71% and 73% and 81% was obtained for the male, female and pooled analysis respectively. This implies that the three explanatory variables explained 78% and 63%, 84% and 71%, and 81% of Y (total amount of savings and credit in the formal and informal financial institutions) for the male, female and the pooled data respectively. The chow test was significant with 1.64714 formal and 1.8464 informal male, 1.63809 formal and 1.8171 informal female and 1.7854 formal and 1.5333 informal financial services for the pooled regression analysis.

The chow test result for the formal and informal financial services was less than the chow test result from the pooled data in the access to financial services between male and female farmers.

Therefore this implies that the null hypothesis which stated that there is equal access

Table 3a: The empirical regression line for male, female and pooled regression analysis formal and informal financial services

Dependent Variable = Total Amount of savings and credit in formal financial institutions

	Male farmer formal financial services	Female farmer formal financial services	Male farmer informal financial services	Female farmer informal financial services	Pooled formal financial services	Pooled informal financial services
Constant term	2.9010 (0.1545)	10.759 (4.596)	7.7190 (2.2274)	5.4765 (2.552)	10.243 (3.8140)	6.1013 (1.9242)
Hs	4.823 (-1.709)	16.707 (-6.5177)	13.2335 (-6.5177)	3.2846 (-0.519)	6.0376 (1.0335)	10.684 (1.9184)
Ed	3.6167 (1.2846)	21.277 (9.447)	15.794 (6.2206)	8.1627 (4.0577)	4.4301 (2.1151)	10.489 (1.1621)
Fs	4.0519 (1.9483)	18.882 (7.141)	5.5123 (2.0531)	6.1510 (2.6403)	1.7351 (0.3743)	16.805 (3.8809)
R ²	0.78044	0.83662	0.633857	0.712584	0.7254081	0.80891
R ²	0.73714	0.77354	0.58717	0.74228	0.71900	0.84341

Values in parentheses are standard error coefficient

Source : Field survey 2009

Table 3b: The empirical regression line for male, female and pooled regression analysis formal and informal financial services.

Dependent Variable = Total Amount of savings and credit in formal financial institutions

	<i>Male farmer formal financial services</i>	<i>Female farmer formal financial services</i>	<i>Male farmer informal financial services</i>	<i>Female farmer informal financial services</i>	<i>Pooled formal financial services</i>	<i>Pooled informal financial services</i>
Constant term	2.9010 (0.1545)	10.759 (4.596)	7.7190 (2.2274)	5.4765 (2.552)	10.243 (3.8140)	6.1013 (1.9242)
Hs	4.823 (-1.709)	16.707 (-6.5177)	13.2335 (-6.5177)	3.2846 (-0.519)	6.0376 (1.0335)	10.684 (1.9184)
Ed	3.6167 (1.2846)	21.277 (9.447)	15.794 (6.2206)	8.1627 (4.0577)	4.4301 (2.1151)	10.489 (1.1621)
Fs	4.0519 (1.9483)	18.882 (7.141)	5.5123 (2.0531)	6.1510 (2.6403)	1.7351 (0.3743)	16.805 (3.8809)
R ²	0.78044	0.83662	0.633857	0.712584	0.7254081	0.80891
R ²	0.73714	0.77354	0.58717	0.74228	0.71900	0.84341

Values in parentheses are standard error coefficient

Source: Field survey, 2009

between male and female farmers in both formal and informal financial institutions is rejected. It also confirms earlier results that male and female respondents have unequal access to formal financial services. It also means that the regression equation based on the pooled data set is not statically significant and that male and female access to formal financial services cannot be reasonably explained by a single equation. In the same vein, the chow test for pooled model based on access to informal financial services shows the pooling of data for male and female access to informal financial services is not significant. This means that the regression equation for male access to informal financial is significantly different from the regression equation for female access to informal financial services (Table 3b).

The Implications of the Study for Sustainable Financial Services and Food Security

The result of study revealed that access to financial services in both formal and informal financial institutions had significant effect on rural male and female farmers' agricultural productivity. The role of rural farmers access to both formal and informal financial services in agricultural development such as increasing investment possibilities, resource allocation, and enabling rural farmers to adopt modern and more efficient agricultural technologies for production, processing and storage among others cannot be over emphasized. The study also revealed

that the male farmers' access to formal financial services is higher than the female farmer's access to formal financial services. On the other hand, female farmers' access to informal financial services was significantly higher than male farmers' access to informal financial services. The major problems encountered by the rural male female farmers were collateral assets required by the formal financial institutions which were more peculiar for the female farmers than the male farmers. Also, there were problems of filling up of detailed and lengthy forms that were hardly understood by the farmers, and traveling very long distances to get to the financial institutions. It also takes the financial institutions a very long time before the financial services are provided to the farmers.

The government should be involved in the provision of financial services to the rural male and female farmers bearing in mind the socio – economic factors when providing financial services to them. Informal financial institutions should be encouraged by providing occasional grants to enhance their performance in terms of amount of credit they give to rural farmers as well as expand their institutional base. This is because they control larger segment of rural farmers. Formation of informal saving financial groups should be encouraged because distance is also one of the factors responsible for low access to formal financial services. In addition, the government should promulgate and effectively implement laws that could enforce formal banks to establish certain percentages of their branches in the rural areas. Also, it is im-

portant to encourage farming activities by providing that improve the income of the rural farmers.

CONCLUSION

The male and female farmers' in Anambra State had unequal access to financial services. The male farmers had greater access to formal financial services while the females had greater access to the informal financial institutions. The Nigerian governments have made continuous effort through various programmes and project to improve access to financial services by the rural farmers. However, results have been disappointing. Particularly, rural farmer's access to formal financial institutions is constrained by a number of factors such as accessibility, bureaucratic bottlenecks and long waiting periods and financial service instrument. Several results emerged from the probit analysis result, but the important issue to note is that effects of access to formal financial services among the male farmers is significantly greater/higher than that of the female farmers, while the access to informal financial services had greater effect for the female farmers.

RECOMMENDATIONS

The informal financial institutions should be equipped by providing them with occasional grants to enhance their performance in terms of amount of financial services they give to rural farmers.

This will help to expand their institutional base since they have the largest control of the rural female farmers. There is need to establish financial institutions nearer to the rural areas. It was observed from the study that travelling cost incurred by the rural farmers in search of financial services reduces their demand for financial services for agricultural production.

REFERENCES

- Adeyemo B, Bamire A S 2005. Saving and investment patterns of cooperative farmers in south-western Nigeria. *Journal of Social Science*, 11: 183 -192.
- Aretey E, Udry C 1997. The characteristics of informal financial markets in sub-Saharan Africa. *Journal of African Economics*, 6(1):1-3.
- Central Bank of Nigeria 2002. *Baseline Survey of Micro – Financial Institutions in Nigeria*. Lagos: CBN Publications.
- Central Bank of Nigeria 2003. *An Appraisal of Federal Government's National Poverty Eradication Programme Bulletin*, 27(1): 1.
- Daeton 1997. *The Analysis of Household Surveys: A Micro – econometric Approach to Development Policy*. Baltimore: John Hopkins University Press. P. 85.
- Esson R 2003. Savings and Savers: An Analysis of Saving Behaviour among Cape Town's Poor. Center for Social Science Research, *Working Paper No. 59*. Cape Town, South Africa: Southern African Labour and Development Research Unit.
- Falchamps M, Quisumbing A 2005. Assets at marriage in rural Ethiopia. *Journal of Ethiopia*, 77(1): 1 – 25.
- Holden S B Shiferaw, Pender J 2004. Non-farm income, household welfare sustainable land management in a less favored area in Ethiopian Highlands. *Food Policy*, 29(4): 369 – 392.
- Idachaba F S 2006. Rural development in Nigeria: Foundations of sustainable economic development. *Ife Journal of Agriculture*, 8: 111 – 118.
- Ohaka CC Arene CJ, Mkpada M 2005. Effects of Social Capital on the Performance of Formal Agricultural Micro – Credit Groups in Imo State, Nigeria. *Proceedings of the 19th Annual FAMAN Conference Delta State University, Abraka*, pp. 190 – 195.
- Okpukpara B C 2005. Determinants of Choice of Financial Institutions among the Rural Savers: Implications for a Sustainable Rural Financial Savings Mobilization for Agricultural Development in Nigeria. *Proceeding of the 19th Annual Conference of the Farm Management of Nigeria Delta State University, Abraka* 2005, pp. 299 – 314.
- Udoka D I 1997. The Role of Local Government in Grassroots Agricultural Production. *Paper presented at 12th Annual South East Zonal Farming System Research and Extension Workshop NRCRI Umudike 4th November, 1997*.
- Udry C 1990. Credit markets in Nigeria: Credit as insurance in a rural economy. *World Bank Economic Review*, 4(3): 21.
- Ugbajah MO 2000. *Comparative Econometric Analysis of the Structure and Determinants of Male and Female Farmers Access to Financial Services in Anambra State*. M. Sc. Project, Unpublished. Department of Agricultural Economics, University of Nigeria, Nsukka.
- Ugbajah MO Orji E C 2006. Studies on the Determinants of Access to Financial Services among Male and Female Farmers in Anambra State. *Proceeding of the 40th Annual Conference of the Agricultural, Society of Nigeria (A S N) Held at National Root Crops Research Institute, Umudike Abia State, Nigeria*, pp. 110 – 104.
- Van Home J C 1988. *Financial Management and Policy*. 7th Edition. New Delhi: Mohan Markhja, P. 105.
- Zeller M 1994. Determinants of credit rationing: A study of informal lenders and formal credit groups in Madagascar. *World Development*, 22(12): 19.