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International Journal of Applied Research and Technology
ISSN 2277-0585

Publication details, including instructions for authors and subscription information:
http://www.esxpublishers.com

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Available online: February 28, 2014

To cite this article:

Ugwumba, C. O. A. and Chiekezie, N. R. (2014). Gender Access to Bank of Agriculture Loans by Cooperative Farmers in Awka Agricultural Zone of Anambra State, Nigeria. *International Journal of Applied Research and Technology.* 3(2): 67 – 74.

International Journal of Applied Research and Technology
Vol. 3, No. 2, February 2014. 67 – 74.

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(Received: 11 October 2013 / Accepted: 25 October 2013 / Published: 28 February 2014)

Abstract

This study examined gender access to Bank of Agriculture loans by co-operative farmers in Awka Agricultural Zone of Anambra State, Nigeria. It specifically described socio-economic characteristics of the farmers, determined influence of socio-economic characteristics of the male, and female farmers on amount of loan obtained and identified constraints to accessing the loans. Purposive, multistage, and random sampling techniques were employed to select 140 respondents. Data were collected through structured questionnaire and analyzed using descriptive statistics, multiple regression, and chow statistic. The male farmers were younger, better educated and owed larger farm land than the females who were older, more full-time farmers, but had fewer contacts with extension agents. Amount of loan obtained was significantly determined by farm size, membership of farmers' societies and household size for the male farmers; farm size and educational attainment for the female farmers; and farm size and contact with the extension agents for the male and female farmers together. Serious constraints to accessing the loans by farmers were prolonged processing procedure, incomplete disbursement of approved amount, high cost of transaction and high interest rate. Policies should be tailored towards measures that would improve access to loan by male and female farmers such as expansion of extension services, provision of adequate credit facilities and encouragement of farmers' co-operatives.

Keywords: Gender, Determinants, Agricultural Credit, Anambra State, Nigeria

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Introduction

Agricultural credit is an important factor in improving agricultural productivity and strengthening rural economy in most developing countries. In fact, it is an important financial support that a small farmer can get in order to bridge the gap between his income and expenditure on the field. Lack of finance is one of the main reasons for low per acre productivity in our agriculture. The matter of enhancing agricultural productivity therefore largely depends on the availability of credit facilities to the farmers in their respective areas. Majority of poor farmers have continued to face limited access to financial services, and where these services are made available, they are often at a very high cost (Okojie *et al.*, 2010). Access to credit by rural farmers is affected by a number of socio-economic factors which include educational attainment of the farmers, household size, asset ownership status, gender–related factors, membership of saving/credit group, and farming experience (Schrieder, 1995).

Bank of Agriculture (B.O.A) is the Nigeria's premier agricultural and rural development finance institution. An empirical review of the exact role of B.O.A in funding small farmers' vis-à-vis the actual fund disbursed to these farmers will provide a basis for justification of its establishment to support small farm holdings. Since the inception of the B.O.A., large sums of money have been allocated to it for disbursement to farmers under the bank's different credit portfolios for rural agricultural development. Cooperatives are autonomous association of persons who unite voluntarily to meet their common socio-economic needs and aspiration through a jointly owned and democratically controlled enterprise (Okwoche *et al.*, 2012). A major reason for organizing agricultural cooperative societies is its ability for social change, rural transformation and enhanced well-being of the rural communities. In addition, it enables the financial institutions to be fully utilized available resources to provide answers to many of the financial problems of the cooperatives.

The term, gender is used to describe a set of qualities and behaviours expected from men and women by their society. According to Moock, (1986), gender is a basic key to the understanding of social structures and actions including decision-making process and responsibilities, willingness to take risks and the right to benefits derived from improved technology within the whole society. The social relations of gender include all aspects of social activities, particularly the exercise of authority, access to and control of resources for production, distribution of income and remuneration of rewards for work, cultural and religious activities (Adeola and Ayoade, 2009). Gender is a useful socio-economic variable available to analyze roles, responsibilities, constraints, opportunities and incentives of the people involved in agriculture. Both men and women play critical roles in agriculture throughout the world by producing, processing and providing the food that are consumed. World Bank (2003) recorded that women make up to 60-80percent of agricultural labour force in Nigeria, depending on the region and they produce two-thirds of the food crops. Yet, the widespread assumption that men and not women make the key farm management decisions has prevailed. Sadly, female farmers in the country are among the voiceless, especially with respect to influencing agricultural policies and decision making in agriculture (Ogunela and Mukhtar, 2009). Women in Anambra State contribute more than men in terms of labour input in farming and are solely responsible for household management duties (National Agricultural Extension and Research Liason Services (N.A.E.R.L.S.), 2000). According to Etowa *et al.* (2009), women contribute a greater percent of farm labour; they repay loans faster but have less access to credit than men (Ugwumba *et al.*, 2009).

Lack of access to credit is part of a larger problem of inadequate credit availability for small farmers, especially women (Ukeje, 2003). They are discriminated against and in most cases marginalized (Ijere, 1992; Nnadi and Akwuiwu, 2005). Gender bias against women produces a whole range of adverse side effects on women advancement (Ebo and Ogbazi, 1990). It is, therefore, imperative that agricultural credit must be made available without bias if female farmers are to improve their agricultural productivity and enhance food supplies. Hence, this study which examined the socio-economic variables that influenced credit accessibility among male and female co-operative farmers. Specifically, the study examined socio-economic characteristics of the male and female cooperative farmers that benefited from B.O.A. loans, determined the influence of socio-economic characteristics of the male and female farmers on amount of loan obtained; determined the influence of socio-economic characteristics of the male farmers on amount of loan obtained; determined the influence of socio-economic characteristics of the female farmers on amount of loan obtained and identified problems militating against accessibility of the loans by beneficiaries.

Materials and Methods

This study was carried out in Awka agricultural zone of Anambra State, Nigeria. Purposive, multistage and random sampling methods were used to select 160 respondents. At stage I, Awka agricultural zone was purposively selected since the zone houses the headquarters of B.O.A in the state. At stage II, two co-operative societies were randomly selected from each of the five (5) constituent L.G.As (Awka North, Awka South, Njikoka, Anaocha, and Dunukofia) of the zone, giving a total of ten co-operative societies. At stage III, random selection of 16 co-operators (8 males and 8 females) who received loan during the last production year were made from each of the 10 co-operative societies to arrive at a total of 160 respondents (80 males and 80 females). Data were collected through the use of structured questionnaire. At last, 140 copies of the returned questionnaire (70 males and 70 females) were found useful and thereafter utilized to collate data for analyses. Data on constraints to credit access were collected by means of a 4-point Likert-type scale. The scale is given as very serious = 4, serious = 3, moderately serious =2 and not serious=1. To make inferential statement, the mean score is compared with the critical mean (2.50). If the calculated mean of a problem is greater than the standard critical value, then that problem is regarded as very serious. Data collected were analyzed using descriptive statistics (means, frequency counts, and percentages) and mean ranking for constraints to credit access. Ordinary least squares regression was used for determinants of amount of credit accessed by the male and female farmers' together, male and female farmers separately.

The implicit and explicit forms of the multiple regression model employed for the analyses are respectively given as:

ALO = f (AGE, MRS, EDU, EXP, MFG, HHS, EXC, FST, FLS; e) and

ALO = $\beta o + \beta_1 AGE + \beta_2 MRS + \beta_3 EDU + \beta_4 EXP + \beta_5 MFG + \beta_6 HHS + \beta_7 EXC + \beta_8 FST + \beta_9 FLS; e$

Where:

ALO = Amount of loan obtained (₦)
AGE = Age (years)
MRS = Marital status (dummy: married = 2; otherwise = 1)
EDU = Educational attainment (years of formal education)
EXP = Farming experience (years)
MFG = Membership of farmers group (number)
HHS = Household size (number in household)
EXC = Extension contact/visit (number of visits per year)
FTS = Farming status (dummy: full-time = 2; part-time = 1)
FLS = Farm size in number of hectares.
e = Error term
βo = Constant
$\beta_1 - \beta_{12}$ = Coefficients of the parameter estimates

Four functional forms of the multiple regression models (linear, exponential, semi-log and double log) were fitted with the data and tried with MINITAB statistical package. In addition, the Chow statistic was used to test for significant difference between parameters of the male and female regression outputs. At 5% level of significance, the decision rule for the chow statistic was to accept Ho if p (F-statistic) > 0.05, otherwise reject.

Results and Discussion

Table 1. The result showed that majority (72.10%) of the farmers fell within the active age range of 31-50years. The male and female farmers recorded average age of 44years and 46years respectively. This implied that the farmers belonged to an age range considered to be economically active and highly productive (Ebewore, 2010). On educational level, 71.1% of the farmers obtained formal education with the males recording average of 7.6 years and the females 7.1 years. Ninety percent of the male farmers were married against 60% of the females. Majority (62.1%) of the respondents had household size of 5 persons with the male and female farmers average of 6 and 5 persons respectively. This result reflected moderate household size, meaning that the farmers with moderate household size were likely to incur less family expenses, invest the loan wisely, earn higher income and repay better as similarly reported by (Anyiro and Oriaku, 2011). Farm size averaged 3 hectares for the male farmers and 2.5 hectares for the females. In all, 78.2% of the farmers had a range of 1-3 hectares as farm size, indicating the subsistence and smallholder nature of the rural farmers (Ugwumba and Omojola, 2013). The survey further indicated that a greater percentage (73.4%) of the farmers had farming experience ranging from 21-30 years. The mean years of farming experience attained by the farmers were 25.7 years for the female and 28.1 years for the male farmers. About 80.7% of the farmers belonged to different social groups. This might have enabled them easier access to the loans. Full-time farming was practiced by 44.3% and 60% of the male and female farmers respectively while 85.7% of the farmers were visited by extension agents. This is in agreement with the studies of Nnadozie and Ibe (1996) and Rahman (2008) that more women participate in agriculture than men.

The multiple regression technique was adopted to predict the influence of the farmers' socio-economic factors (independent variables) on amount of loan obtained (dependent variable). The parameters estimated were age represented by AGE, marital status (MRS), educational attainment (EDU), farming experience (EXP), membership of other farmers group (MFG), household size (HHS), extension contact/visit (EXC), farming status (FST) and farmland size (FLS). The

MINITAB statistical software was used to run the analysis. Out of the four functional forms of the regression model (linear, exponential, semi-log and double-log) fitted with the data, output of the linear form gave the best result in terms of economic, statistical and econometric *a priori* criteria and was chosen for discussion.

Out of the nine regressors included in the model as shown in Table 2, two of the variables (extension contact and farm size) exerted positive, statistical and significant influences on amount of loan obtained at 5% probability level. Extension contact had a positive and significant influence on amount of loan obtained by the respondents. This implied that the farmers who had more contacts with extension agents were likely to produce more output, income and thus repay better. Similarly, the positive co-efficient of farm size (11.88) was significant and in accordance with *a priori* expectation. Expansion of cultivated areas is a necessary requisite that could increase chances of accessing credit. It agrees with the result of Ike and Ugwumba (2009) that a large farm size owner would have a better chance to seek credit. With regards to output of the male farmers' regression (Table 3), farm size, membership of other farmers' groups, and household size exerted statistical and significant influences on amount of loan obtained. The positive coefficient of membership of cooperative groups implied that the farmers who belonged to more social groups than others were likely to gain easier access to higher credit. This is because cooperative societies facilitate access to loan. The co-efficient of household size was negative and statistically significant at 5% level. This implied that the chances of farmers utilizing accessed credit increase with decrease in household size due to decrease in family expenditure. Household size is an important factor in rural production because it determines labour available to the individual farmer (Foin, 2007). On the contrary, farmers with less household size tend to access more credit in other to acquire aid for farming activities especially in form of paid labour.

Result of the determinants of amount of loan obtained by the female farmers (Table 4) indicated that, in addition to farm size which exerted positive and statistical significant influence, the coefficient of educational attainment was negative and statistically significant at 5% level. This is contrary to *a priori* expectation of positive relationship between educational attainment and amount of loan obtained. This result also meant that the farmers who had no formal education could access and effectively utilize higher loan amounts probably because they belonged to more social groups than the educated ones. The values of R^2, R^2 (adjusted), F-statistic and Durbin-Watson statistic in the regression outputs for the male, female, and male and female farmers together (Tables 3, 4 & 2 respectively) indicated that the model was a good fit, and more so, that the respondents' socio-economic characteristics exerted joint significant influence on amount of loan obtained by the farmers with minimal autocorrelation among observations of each of the variables.

The chow statistic was used to test the null hypothesis of no difference between the influences of socio-economic characteristics of the male and female farmers on amounts of loan accessed by them. The chow test gave a p (F-statistic) value of 2.77, which is greater than 0.05 at 5 percent level of significance. This implied that there was no statistically significant difference between regression outputs of the determinants of amount of loan obtained by the male farmers from the determinants of amount of loan obtained by the female farmers. Problems encountered by the farmers in obtaining Bank of Agriculture loans are shown in Table 5. Based on the analysis, delays in processing the loan scored a mean of 3.86 which was above the critical mean of 2.50 to become the most serious problem encountered by the farmers. This was followed by untimely disbursement of the approved loan, high cost of transaction and high interest charged with mean scores of 3.66, 3.40 and 3.31 respectively. Complicated procedures, incomplete disbursement of approved amount, difficult mode of repayment, far distance of bank from household and inadequate collaterals for the loan respectively scored means of 2.37, 2.28, 1.16, and 1.11 to become weak problems militating against access to credit by the farmers. Foin (2007) and Ugwumba *et al.* (2009) identified similar problems to have affected access to loans by farmers.

Conclusion and Recommendations

Cooperative Farmers in Awka Agricultural zone of Anambra State obtained loans from Bank of Agriculture and utilized same to enhance their productivity. Amount of loan obtained by the male farmers, female farmers or male and female farmers together was significantly determined by farm size. Minimization and simplification of loan administration procedures and implementation of the group lending strategy, which has proved to enhance repayment and increase participation of the poor and vulnerable in agricultural activities, by the banks will ameliorate the challenges being faced by the farmers in accessing loans. More so, expansion of extension services by the government will create adequate awareness and guarantee faster and easier access to the bank's facilities and better repayment by the farmers.

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Tables

Table 1: Summary of socio-economic characteristics of the respondents

	Male	Female	Male & Female
	Mean/ Percentage		Mode/ Percentage
Age	44years	46years	31-50years (72.1%)
Education	7.6years	7.1years	71.1%
Marital status	90%	74%	82.6%
Household size	6	5	4-9 (62.1%)
Farm size	3ha	2.5ha	1-3 (78.2%)
Farming experience	28.1years	25.7years	21-30years (73.4%)
Membership of social groups	89%	72.9%	80.7%
Full-time farming	44.3%	60%	57.9%
Contact with extension agent	85.7%	85.7%	85.7%

Source: Computed from survey data, 2013.

Table 2: Estimated determinants of amount of loan obtained by the male and female farmers together

Predictor	Linear	Semi-log	Exponential	Double-log
Constant	-14253(-0.43)	-3904(-0.03)	4.6797(44.55)	4.6699(13.18)
AGE	895.9(1.01)	38762(0.41)	0.003601(1.28)	0.1266(0.45)
MRS	433.7(0.46)	26867(-0.81)	-0.01109(-0.40)	-0.01109(-0.11)
EDU	-403.5(-0.50)	1099(0.46)	-0.003425(-1.34)	-0.003716(-0.51)
EXP	-1062.3(-1.24)	4133(0.12)	-0.004285(-1.58)	-0.00076(-0.07)
MFG	13206(1.52)	32784(1.10)	0.004602(1.68)**	0.12360(1.37)
HHS	-2386(-1.28)	-20098(-0.82)	-0.004969(-0.84)	-0.02787(-0.38)
EXC	9372(1.78)**	2876(1.14)	0.02988(1.79)**	0.0006615(0.86)
FST	-1860(-0.18)	-25042(-0.69)	-0.01475(-0.44)	-0.1071(-0.98)
FLS	60346(16.34)**	309401(14.91)**	0.17742(15.15)**	0.94434(15.13)**
R^2	68.20%	65.30%	64.80%	65.20%
R^2 (adjusted)	66.00%	62.90%	62.40%	62.80%
F-statistic	30.97	27.19	26.61	27.03
D-W statistic	1.75	1.59	1.70	1.58

Source: Computed from field survey data, 2013. Notes: ** = Significant at 5% level. D-W statistic=Durbin Watson statistic. AGE, MRS, EDU, EXP, MFG, HHS, EXC, FST, FLS are already defined. Figures in ( ) are t-statistic values.

Table 3: Estimated determinants of amount of loan obtained by the male farmers

Predictor	Linear	Semi-log	Exponential	Double-log
Constant	-79115(-1.64)	-1304(-0.07)	4.4645(31.34)	4.6641(9.84)
AGE	-162(-0.11)	-2332(-0.02)	0.000254(0.07)	-0.0776(-0.19)
MRS	23155(1.14)	73574(0.89)	0.04563(0.81)	0.19044(0.47)
EDU	1160(1.90)	6045(1.75)**	0.001677(0.54)	0.012619(1.34)
EXP	1569(1.10)	69648(1.03)	0.004680(1.02)	0.2796(1.52)
MFG	35671(2.22)**	82328(1.44)	0.11710(2.47)**	0.2896(1.86)**
HHS	-7096(-2.06)**	68328(-1.42)	-0.019567(-1.94)**	0.1843(-1.40)
EXC	7213(0.88)	5790(1.44)	0.002071(0.86)	0.01282(1.17)
FST	-5718(-0.40)	-14911(-0.29)	-0.03492(-0.82)	-0.1147(-0.81)
FLS	63539(11.88)**	323264(10.33)**	0.18697(11.85)**	0.99649(11.70)**
R-SQUARED	74.20%	70.00%	74.00%	74.20%
R2-ADJUSTED	70.40%	65.50%	70.10%	70.30%
F-STATISTIC	19.22	15.53	18.95	19.15
D-W STATISTIC	1.57	1.35	1.76	1.57

Source: Field survey, 2013.Notes: ** = Significant at 5% level. D-W statistic = Durbin-Watson statistic. AGE, MRS, EDU, EXP, MFG, HHS, EXC, FST, FLS are already defined. Figures in ( ) are t-statistic values.

Table 4: Estimated determinants of amount of loan obtained by the female farmers

Predictor	Linear	Semi-log	Exponential	Double-log
Constant	88825(162)	172661(1.00)	5.0797(27.49)	5.4658(9.77)
AGE	-328(-0.28)	-73745(0.59)	- 0.002432(-0.56)	-0.3652(-0.90)
MRS	583(-0.06)	-673(-0.02)	- 0.23334(-0.69)	-0.0871(-0.79)
EDU	-2763(-2.01)**	-6521(-2.02)**	-0.011851(-2.57)**	-0.02923(-2.81)**
EXP	-1185(-1.16)	-6653(-0.17)	-0.004313(-1.25)	-0534(-0.43)
MFG	-7644(-0.80)	-26720(-0.84)	-0.02652(-0.83)	-0.0943(1.92)
HHS	1548(0.70)	32645(1.19)	0.006124(0.83)	0.13367(1.51)
EXC	4669(0.75)	80(0.03)	0.001452(0.69)	-0.00508(-0.05)
FST	-7400(-0.47)	038718(0.79)	-0.001501(-0.28)	-0.0892(-0.55)
FLS	63370(12.25)**	322698(12.17)**	0.18697(10.95)**	0.99649(11.65)**
R-SQUARED	72.50%	72.00%	68.60%	70.50%
R2-ADJUSTED	68.30%	67.70%	63.90%	66.100%
F-STATISTIC	17.54	17.11	14.56	15.93
D-W STATISTIC	1.71	1.71	1.56	1.57

Source: Field survey, 2013. Notes: ** = Significant at 5%level. D-W statistic=Durbin Watson statistic. AGE, MRS, EDU, EXP, MFG, HHS, EXC, FST, FLS are already defined. Figures in ( ) are t-statistic values.

Table 5: Problems encountered by the farmers in obtaining loans

Parameter	Mean	Ranking of mean
Prolonged processing procedure	3.86**	1st
untimely disbursement of approved amount	3.66**	2nd
High transaction cost	3.40**	3rd
High interest rate	3.31**	4th
Complicated procedures	2.37	5th
Incomplete disbursement of approved amount	2.28	6th
Difficult mode of repayment	1.16	7th
Distance of household to the bank	1.11	8th
Inadequate collateral/securities	1.11	9th

Source: Field survey, 2013.