CONTENTS

Determinants of Frequency of Disbursement of Credit to Food Crop Farmers by Informal Lending Groups in Akwa Ibom State of Nigeria: A Poisson Regression Approach.

by

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Abstract

The study examined factors that affect the number of informal credit disbursed to food crop farmers in Akwa Ibom State. A multi-stage random sampling technique was used to select 90 informal lending groups from 6 villages across two agricultural zones in the state. Poisson regression model was employed to determine factors that influenced the number of informal credit disbursed to male and female food crop farmers in the study area. Descriptive analysis of respondents revealed that more than 60% of the lenders have more than 10 years experience. The empirical analysis revealed that; the lender's liquidity ratio, leverage ratio, surety presented to the lender, lender's experience, and amount of interest rate charge by lenders are significant determinants of number of loans informal lenders disbursed to both male and female food crop farmer in Akwa Ibom state. It is therefore recommended that periodic training should be organized for informal lenders in the rural communities and lenders should form co-operative groups to enhance information sharing among them. Farming communities should also be encourage to form co-operative societies and community based advocacy groups where financial resources could be sought for as a group as well the involvement of local government authorities in monitoring activities of informal lending institutions in their domains..

Introduction

The provision of credit has increasingly been regarded as an important tool for raising the income of rural populations, mainly by mobilizing resources for more productive uses **(Yehuala, 2008)**. Credit for smallholder farmers in the developing economies is assuming increasing importance due to the need to increase productivity in the face of limited capital base and increase population (IFAD, 2001). Meanwhile, limited access to financial services by small holder farmers remain a huge challenge in most Sub-Saharan African countries. In Nigeria, successive governments had formulated and implemented agricultural credit policies and programmes and established credit institutions in a bid to make credit accessible to rural farmers. Some of these include the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB); Peoples' and Community Banks; Agricultural Credit Guaranteed Scheme and Micro finance Banks among others. Despite the lofty intent of governments of Nigeria towards making credit available to majority of rural farmers; greater proportion of rural farmers still do not have access to formal credit sources. The nature and operation of formal credit sources have failed to deliver credit to majority of farmers and in promoting a viable delivery system ((Olajide, 1980; Egbe, 2000 and Udoh, 2005). The failure of formal credit sources to serve the poor is due to a combination of high risks, high costs and consequently low returns associated with such businesses. The issue of accessibility and sustainability of formal credit sources by government intermediation have been greatly debated and criticized. Lack of enforcement of loan contracts (Hoff and Stiglitz, 1990), low and poor recovery performance (Oyatoye, 1983) and government imprudent interference

(Braverman and Guasch, 1989) are some of the factors alleged for the poor performance of these government directed credit schemes. To a large extent, provision of these 'soft' credits to the intended beneficiaries is fraught with difficulties. Notably among them is the problem of delinquency among the beneficiaries, which is a common feature of the public credit schemes in most developing countries (Osuntogun, 1980 and Akinwumi, 1988). Awoke (2004) reported that high rate of default arising from poor management procedures, loan diversion and unwillingness to repay loans has been threatening the sustainability of most public agricultural credit schemes in Nigeria.

The short coming of the formal credit sources created a significant differential in credit acquisition and supply among rural farmers and hence introduced a dichotomous financial system in the rural part of Nigeria. The informal credit sources in the country emerged due to insufficient credit sources to the rural poor majority farmers. The formal and informal credit sources co-exist with differences in accessibility. The two sources continue to be the major sources of agricultural credit in the country, though their proportion differs. Singh (1993) asserted that the basic distinction between the formal and informal sectors is that the latter operates outside the rules and regulations imposed on the farmer by the formal financial institutions. Formal and informal credit sources are imperfect substitutes

The failure of formal financial sector in most developing economies as in Nigeria to serve the poor has forced majority of rural farmers to rely on informal finance sources (Musinguzi and Smith 2000; Fraslin, 2003, Udoh, 2005). The reasoning is that farmers' adoption of new innovations essentially requires the use of some improved farm inputs, which must

be bought. Therefore, to finance the purchase of necessary production inputs, farm households need to obtain credit. Thus, access to adequate credit can significantly increase the ability of poor farmers to acquire essential agricultural inputs and expand the scope of production.

In Nigeria, the informal credit sources have played more significant roles in agricultural financing than formal sources since it is closer to the rural farmer. Some of the informal credit sources that are popular in Nigeria are; savings cooperatives, rotating savings and credit associations, lending and gifts from relative and friends, merchants, various clubs, village banks, and money lenders (Otu 2003; Udoh, 2005, Oni et al., 2005 and Ugbomeh et al., 2008). According to Dutta and Mangablehm (2004), these informal credit sources (lenders) usually apply rationing mechanism based upon the attributes of the borrowers such as; strength of previous business relationships, reputation in the market, acceptance of interlinked credit contracts, debt-service capacity, wealth status and the kind of business they finance. Aleem (1990) argue that informal lenders mainly use the established relationship with borrowers as a screening and credit rationing mechanism. Due to the important role played by the informal lenders in making financial services available to majority rural farmers in Nigeria, it is important to investigate source specific factors that could enhance their sustainability.

In Akwa Ibom State specifically, the role of informal lenders in financing agricultural activities is enormous owing to the fact that more than 80% of farmers in the State operate on small scale basis (Akpan et al., 2010). They cannot afford the stringent requirements of formal credit sources and are therefore left with very

little access to financial services from the formal financial system (Udoh, 2005). This implies that farmers in the State might not achieve efficiency in resource utilization and increase productivity if left totally at the mercies of formal credit sources. Therefore, it is imperative to determine informal credit lender specific characteristics that could affect their activities in Akwa Ibom State. Significant characteristics could be used as rudimentary policy variables in formulating effective and sustainable policy framework for the sub sector. The imperfect or unbalanced dualism in the financial system in the rural part of the State where most agricultural activities take place is an indication of the developing nature of the country. Hence the informal credit sources are integral part of human and physical development drivers in the State and as such for now, their sustainability should be given due priority attention.

Based on the need to increase agricultural production especially among food crop farmers and the increasing importance of informal credit sources in financing food crop production in the State, this study seeks to determine informal lender's specific factors influencing the number of credit disbursed to male and female food crop farmers in Akwa Ibom State.

Theoretical facts about informal Lending
The frequency of loan disbursed by informal lending institutions to beneficiaries depends on certain attributes of lending outfits other factors remaining constant. These, according to Mpuga (2004) include the interest charge on loan; the probability of loan defaults influenced by a number of factors that include the expected returns of the project, the terms of the loan, market imperfections and borrower characteristics (Okurut et al., 2004 and Kochar 1997); the informal lenders' assessment of the borrowers' debt

service capacity (outstanding debt as proportion of total household income) (Zeller, 1994); the borrower's reliability or surety and the borrowers' acceptance of interlinked credit contracts (Udry, 1990). Critical assessment of the coefficients of these factors forms the basis of judgment by lending institutions to grant loan to intending beneficiaries. Thus the number of loans disbursed by the institution will depend on the level of optimization of these institutions related factors *ceteris paribus*. Informal credit markets are characterized by imperfect or asymmetry information (Baydas *et al.,* 1994), and this arises because borrowers have better information about their potential risk of default than the lenders (Aleem, 1990). This is also because credit histories of borrowers are not documented and pooled. The cost of overcoming the imperfection in information about the borrower by the lender is a function of certain attributes of a lender which it incorporates into interest charge on loan. Therefore the extent to which the lending institutions bear the cost of asymmetric information in the credit market, the more they disburse loan to beneficiaries.

LITERATURE REVIEW
Several literatures have variously pointed out the inevitable role played by the informal credit sector in agricultural development of rural economies. In 1990, Aleem discovered the significant role of interest rate and running cost of informal lending in the rural credit market of Pakistan. Another study on the determinants of credit rationing among formal and informal lenders was conducted by Zeller (1994) in Madagascar. The regression results showed that the probability of applying for informal credit increases with age, years of education, and number of sick days of household during the recall period. On the other hand, the probability of being credit constrained by the

informal lender increases with age, and years of education. The study also identified the leverage ratio of household as the most important determinant for loan rationing. Physical collateral plays a minor role in credit rationing. Godquin and Sharma (2005) looked at the production and consumption credit constraint in the Philippines. The authors reported that the presence of credit programs among villages and the proximity of households to rural banks reduce the probability of being credit constraint. Zapata (2006) studied credit decision and rationing rules of informal lenders in the Philippines. He sampled 55 informal lenders and employed Ordinary Least Squares (OLS) technique to discover current capitalization, initial capitalization and increase sale volume of borrowers as important criteria for loan disbursement. Oluwasola and Alimim (2008) studied determinants of agricultural credit supply among small scale farmers in south western Nigeria. The result of this work indicated that interest rates charged, the level of savings of respondents, the amount of loan demanded and the proportion of previous loan repaid where the major determinants of credit supply.

Methodology

The study area: The study was conducted in Akwa Ibom State which is located in the Niger Delta region of Nigeria. It lies between latitudes $4^\circ 33'$ and $5^\circ 33'$ North and longitudes $7^\circ 25'$ and $8^\circ 25'$ East and bordered by Cross River in the East; Rivers State in the West, Abia and Ebonyi States in the North. The State comprise of 31 Local Government Areas (LGAs) divided into six agricultural zones of Uyo, Ikot Ekpene, Oron, Eket, Abak and Etinan with a population of about 3.9 million people (Okpongette, 2002; NPC, 2006). The main food crops grown in the State are cassava, maize, plantain, cocoyam, okra, fluted pumpkin, water leaf and rice.

Sampling techniques and data collection:

A multistage sampling technique was used in this study. Two Agricultural Zones, Uyo and Abak were randomly selected from the six Agricultural Zones of the State. In the second stage, three Local Government Areas each from the two Agricultural Zones were randomly selected. The LGAs are: Uruan, Ibesikpo and Uyo in Uyo zone and Etim Ekpo, Abak and Ukanafun in Abak zone. In the third stage, one Clan was randomly selected from each of the six Local Government Areas selected. These clans were, Ibiaku Uruan in Uruan, Ibesikpo Asutan in Ibessikpo, Uyo in Uyo, Uruk Ata in Etim Ekpo, Otoro in Abak and Ikot Akpan in Ukanafun local government areas. In the fourth stage, one village was randomly selected from each of the Clans. The villages were Utit Uruan, Nung Udoe, Ikot Akpa Abia, Nkwot, Uruk Uso and Idem villages respectively.

Furthermore, from the six chosen villages, lists of informal credit sources were obtained from the village secretaries who were the key informants. A sample frame of 7 informal credit sources namely; friends relatives and neighbors, money lenders, rotating savings and credit associations, pawn brokers, village cooperatives, family credit association and village thrift were identified. From the sample frame, 4 informal credit sources (village cooperative, family, credit association, rotating savings and money lenders) per village were purposively selected due to their organized records and consistency in operation. A total of 90 lenders (or informal credit sources) were selected in all. Lenders specific characteristics and the total number (or frequency) of loans given to male and female food crop farmers by them were collected.

The analytical techniques:

The preponderance of small values and the clearly discrete nature of the dependent variable (positive numbers or count data) with non-negative integer suggest the use of a Poisson maximum likelihood regression (Greene 2000). The log-linear regression in the Poisson model naturally accounts for the non-negativity of the Poisson distribution dependent variable (Winkelmann and Zimmermann 1995, Gujarati 2005). The Poisson probability distribution is given as:

$$f(Y_i) = \frac{\mu^{Y} e^{-\mu}}{Y!} \quad \text{......................(1)}$$

Where $Y_i = 0, 1, 2, 3,$

$f(Y_i)$ denotes the probability that the variable Y_i assumes non-negative integer values only. Since in Poisson regression the mean value of the dependent variables is equal to the variance (Greene 2000; Gujarati 2005), hence the Poisson regression model may be written as:

$$Y = E(Y_i) + U_i = \mu + U_i \quad \text{..................(2)}$$

The Y's are independently distributed as Poisson random variable with mean for each respondent expressed as:

$$\mu_i = E(Y) = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + ... + \beta_k X_{ki} \quad \text{......(3)}$$

The X's are the specified independent variables that might cause variability in the mean value of the dependent variable. The partial or marginal effect of X's on the mean value of Y_i is given as follows:

$$\frac{\delta\mu}{\delta X's} = X'Se\,\beta1 + \beta2X2i + \beta3X3i + ... + \beta KXKi = \beta's\mu i \quad \text{......(4)}$$

Following the above equations, the Poisson model for the study was stated as follows:

$$FOL = \beta_0 + \beta_1 LIQ + \beta_2 SUR + \beta_3 LEV + \beta_4 EIL + \beta_5 INT + \beta_6 NLI + e \quad \text{........(5)}$$

Where

FOL = Frequency of lending to male or female farmers by i[th] lender (measured as number)

LIQ= Liquidity status of ith lender (measured by current asset/current liability)

SUR= Availability of a surety or guarantor (Binary; 1 if surety considered and 0 if not)

LEV= Leverage ratio of ith lender (Measured by current debt/owners equity)

EIL = Experience in lending; being the total number of years the lender has been in the business of lending money.

INT = Interest amount; this is the total amount the lender received as interest charges on money lent.

NLI = Income from other sources apart from lending business

The equation was estimated for both male and female food crop farmers in the study area.

Results and discussion

Distribution of sampled informal lenders by years of lending experience:

Table 1 shows the distribution of the sample lenders based on years of lending experience. It indicates that more than 60% of the lenders have been in business of lending for more than 10 years. On the average, lenders have been in the business of lending for about 13 years. Due to the high risk involved in informal credit lending, lenders would usually lend out money on the basis of their past experiences.

Determinants of frequency of credit disbursed to the crop farmers:

Factors influencing number of credit disbursed by the informal lending institutions are summarized and presented in Table 2. The diagnostic test shows that the Chi-Square is significant at 1% probability level and this attests to the normality of the regression errors. The lower value of AIC for female respondents reveals that female data responded better than male data. In all, the test statistics show the fitness of the models which implies that the independent variables are important explanatory factors of the variations in number of credit disbursed to male and female food crop farmers by the lenders in

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the study areas.

The coefficient of leverage ratio (LEV) is negative on a priori basis. It is also

Table 1: Distribution of sample lenders by years of lending

Years of Lending	Frequency	Percentage
1-10	34	37.78
11-20	34	37.78
21-30	18	20.00
>30	4	4.44
Total	90	100
Mean value	13.21	

Source: Field survey, 2008

The empirical result reveals that for male and female respondents the coefficient of liquidity ratio is significant at 1% probability level and positively related to the number of credit disbursed by informal lenders. The implication of this is that the number of credit that informal lenders disburse to male and female food crop farmers in Akwa Ibom state has a direct relationship with liquidity status of the lender. The partial effect of liquidity ratios on the number of credit disbursed by the lenders for male and female respondents are marginal indicating a slight positive change or increase in the number of credit disbursed when there is a unit increase in the liquidity ratio of lenders.

significant at the 1 percent probability level and implies that the higher the leverage ratio the lower the tendency for the informal lenders to disburse loans to both the male and female farmers in the State. This is expected because informal lenders have limited capital base; and this becomes a constraint to the number of loans disbursed to beneficiaries. Comparatively, the marginal effect of leverage ratio on the number of loans disbursed to male farmers is greater than the female counterpart. This implies that, for every unit increase in the leverage ratio of lenders there is a lower disbursement of loans to the male farmers than for the female farmers in the State. It is likely that the female crop farmers are more committed to loan repayment than their

Table 2: Poisson regression estimates of determinants of frequency of credit disbursed to male and female farmers by informal lending institutions in Akwa Ibom state.

Variables	Male Respondent			Female Respondent		
	Coefficient	t-value	Partial Effect	Coefficient	t-value	Partial effect
Constant	1.976	4.54	-	0.359	0.57	-
Liquidity (LIQ)	5.34e-006	3.69	0.00016***	2.38e-005	3.38	0.000073***
Leverage (LEV)	-0.122	-3.94	-3.609***	-0.031	-3.52	-0.095***
Surety (SUR)	0.622	4.95	18.405***	0.071	2.19	0.217**
Experience (EIL)	-0.0167	-1.43	-0.494	0.002	1.95	0.0061*
NL. Income (NLI)	3.69e-005	0.93	0.00109	-7.72e-008	-0.32	2.36e-007
Interest (INT)	-3.07e-005	-3.26	-0.000908***	-0.0001	-3.07	-0.00031***
Log-Likelihood	-54.28			-36.81		
AIC	122.55			87.62		
Chi-Square	283.47(0.000)***			95.43(0.000)***		
	0.612			0.634		

Source: Computed from field survey data, 2008, ***, **, * represent significant levels at 1, 5 and 10 percent. Probability computed at mean levels of variables.

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male counterpart.

The co-efficient of availability of surety is (SUR) positively correlated to the number of loan disbursed to both the male and female farmers in the State. It is also significant at 1% probability level. This implies that a the borrower's ability to present surety increases his or her tendency to obtain loan from lenders. The magnitude of partial effect of surety on the number of credit given to farmers indicates that it is the most important variable a lender seeks for from male and female farmers in the State. This result agrees with Adanan (2005) in Pakistan and Zeller (1994) in Madagascar.

The study has found mixed evidence about the relationship between lending experience (EIL) and the number of loan disbursed farmers in the State. In the case of male respondents the coefficient of experience is negative and not statistically different from zero, while it is positive and statistically significant for female farmers. This means that experienced lenders prefer giving loan to female farmers than their male counterpart. This might be attributed perceived relatively higher frequency of loan defaults among the male farmers.

The sign of the coefficient of interest amount charged by lenders is negative and significant at 1 percent probability level as expected. That is, the higher the level of interest charged by the lending institutions, the lower the number of loans disbursed to beneficiaries. However, the magnitude of the partial effect of interest on the number of loan disbursed to male and female farmers indicates that only marginal change occurs on the number of loan disbursed when there is a unit change in interest rate charge by the lender.

The probability that a female food crop farmer in Akwa Ibom State will be given a loan facility by the informal lenders in the rural community is about 0.634 (note this was calculated at the mean value of variables).

CONCLUSION AND POLICY RECOMMENDATIONS

This study assessed informal lending institutions specific factors that affect the number of loans disbursed to food crop farmers (male and female) in Akwa Ibom State. Empirical evidence from the Poisson regression estimates indicate that the lender's liquidity ratio, leverage ratio, number of surety presented by borrowers, lender's experience, and amount of interest charged by lenders are important factors influencing the number of loans disbursed food crop farmers in Akwa Ibom state. The study also indicated that the probability of female food crop farmers obtaining loan from informal lenders is higher than that of male folks. This could be attributed to high degree of loan trustworthiness and lower loan default among female food crop farmers. The magnitude of partial effect of the explanatory variables on numbers of loans disbursed to farmers in the State shows that; the sureties presented by the beneficiaries, leverage ratio and the lender's experience are the most important factor that influence loan disbursement.

Based on the results obtained in the study, it is recommended that;

- Informal lenders should be encouraged to form co-operative groups to enhance their ability to pool financial resources together and increase their liquidity and leverage.

- To also enhance quantum disbursement of loans at reduced interest rates from the informal credit institutions, government and international agencies involved in rural agricultural financing should channel their funds through these institutions.

- Farmers should also be encouraged to form cooperative societies and community based advocacy groups where financial resources could be sought for as a group or the groups acting as a surety for lenders. This will enhance loan acquisition and payment as well as lower default tendencies.
- Credit policies and programmes formulated and implemented should be gender mainstreamed.

REFERENCES

Adanan, Q.(2005). A Study of Informal Finance Markets in Pakistan. Pakistan Microfinance Network, Isamabad, Pakistan.

Akinwumi, J. A., (1988). Lending through group, paper presented at the agricultural loan management course organized by the IAAM, 31st Octber-11th November Ibadan

Akpan, S. B.; E. J. Udoh, and A. E. Aya, (2010). *Fertilizer manure substitution among arable crop farmers in Akwa Ibom State: Empirical evidence. Global Journal of Agricultural Sciences .9 (1), 37-40.*

Aleem, I., (1990). Imperfect information, screening, and the costs of informal lending: A study of a rural credit market in Pakistan. *The World Bank Economic Review*, 4(3), 329-349.

Awoke, M. U., (2004). Factors affecting loan acquisition and repayment patterns of small holder farmers in Ika North West of Delta State, Nigeria. *J. Sustain. Trop. Agric .Res.,* 9:61-64.

Baydas, M.M., R.L. Meyer & N. Aguilera-Alfred (1994). Credit rationing in small- scale enterprises: Special microenterprise programmes in Ecuador. *Journal of Development Studies* 31(2): 279-309

Braverman, A. and Guasch, J. L., (1989). Rural credit in LDES: Issues and Evidences, *Journal of Economic Development, 14: 7-34.*

Dutta, D. and Mangableh, I., (2004). A socio-economic study of the borrowing process: The case of micro entrepreneurs in Jordan. *School of Economics and Political Science Working Papers ECON 2004-7*, University of Sydney.

Egbe, A. B., (2000). Financial Institutions and Agricultural Finance: The role of the Central Bank of Nigeria. *CBN Economic and Financial Studies*, Vol.29, Pp 141.

Fraslin, J. H., (2003).Paving the way forward for Rural Finance. An International Conference on Best Practices. Case Study-Agricultural Lending Practices: Methodology and Programs.

Godquin, M. and M. Sharma, (2005). If only I could borrow more! *Production and Consumption Credit Constraint in the Philippines.*

Gujarati, D. N., (2005). *Basic Econometrics.*, 4th edition. New Delhi, Tata Mc Graw- Hill Publishing Company Limited.

Greene W. H., (2000). *Econometric analysis.* Fourth Edition. USA, Prentice Hall.

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Determinants of Frequency of Disbursement of Credit to Food Crop Farmers ...: A Poisson Regression Approach.

Hoff, K. & J. E. Stiglitz, (1990). Imperfect information and rural credit markets Puzzles and policy perspectives. *World Bank Economic Review* 4(3)

International Fund for Agricultural Development (IFAD)(2001). The Challenge of Ending Rural Poverty. Rural Poverty Report 2001. London, Oxford University Press

Kochar, A., (1997). An empirical investigation of rationing constraints in rural credit markets in India. *Journal of Development Economics* 53: 339-371

Mpuga, P., (2004). **Demand for Credit in Rural Uganda: Who Cares for the Peasants?** A paper presented at the Conference on Growth, Poverty Reduction and Human Development in Africa Centre for the Study of African Economies

Musinguzi, P. & P. Smith. (2000). Savings and borrowing in rural Uganda. *Savings and Development* 24(2): 123-138

Ugbomeh, G.M, Felix O. A., Victor I. A., and Ukaro O., (2088). Determinants of Loan Repayment Performance Among Women Self Help Groups in Bayelsa State, Nigeria. *Agriculturae Conspectus Scientificus, 73 (3):189-195*

National Population Commission (2006) National Population Census 2006

Okurut N, Andrie S. and Servaas, van der Berg (2004). Credit Demand and Credit Rationing in the Informal Financial Sector in Uganda. African Development and Poverty reduction Forum Paper.

Okpongette, M. O. (2002) Basic Concept of T&V System as Related to the Implementation of the UAES. Unpublished Training Manual of the Akwa Ibom State Agricultural Development Programme, Uyo. 8pp.

Olajide, O. A., (1980).Financing Enterprises in Nigeria through Cooperative. *Nigeria Institute of Social and Economic Research* (NISER), Ibadan

Oni, O. A., Oladele, O.I and Oyewole, I. K., (2005). Analysis of factors influencing loan default among poultry farmers in Ogun state Nigeria. *Journal of central Europeans Agriculture; 6 (4):619-624.*

Osuntogun, A., (1980). Some aspects of farm level credit use in Nigeria, Saving and Development, 4(1): 40-45

Otu, M. F., (2003). Informal Credit Market and Monetary Management in Nigeria: Occasional Paper Central Bank of Nigeria Research Department, 29, 510

Oyatoye, E. T. O., (1983). An economic appraisal of small farmer's credit scheme: a case of Western Nigeria, *Saving and Development, 3(7): 13-32*

Singh, R. P., (1993). Segmentation and interest rate in rural credit markets: Some evidence from Eastern Uttar Pradesh, India. *Bangladesh J. Agric. Econs.* 14(2): 107-117

Udry, C., (1990). Credit markets in Northern Nigeria: Credit as insurance in a rural economy. *World Bank Economic Review* 4(3): 251-269

Idiong C. I.*, U. A. Essien** and S. B. Akpan***

Udoh, E. J., (2005) "Demand and Control of Credit From Informal Sources by Rice Producing Female farmers of Akwa Ibom State. Nigeria". *Journal of Agriculture and Social Sciences*, 1 (2):152-155

Winkelman, R and K. F Zimmerman, (1995). Recent developments in count data modelling: Theory and application. *Journal of Economic Survey*, 9:1-24.

Yehuala, S., (2008). Determinants of smallholder farmers access to formal credit: The case of Metema Woreda, north Gondar, Ethiopia. A published thesis of Faculty of the Agriculture Department of Rural Development and Agricultural Extension School of Graduate Studies Haramaya University.

Zapata, N., (2006). Credit decision and rationing rules: A study of informal lenders in the Philippines. *Philippine Management Review*, 13:117-126.

Zeller, M., (1994). Determinants of Credit Rationing: A study of Informal lenders and Formal Credit Groups in Madagascar. Food Consumption and Nutrition Division, International Food Policy Research Institute, Washington, D.C. U.S.A.