Determinants of Transaction Costs for Borrowers among Farmers in Ikwuano Local Government Area, Abia State, Nigeria

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Abstract The study analyzed determinants of transaction costs for borrowers among farmers in Ikwuano Local Government Area of Abia State, Nigeria. The specific objectives were to; examine the socio-economic characteristics of the respondents in the study area, evaluate transaction costs incurred by borrowers in the study area, estimate and analyze factors that affect transaction costs and identify the constraints in accessing credit. Multi-stage randomized sampling technique was used to elicit data from 60 borrowers in the study area. Descriptive statistics were used to evaluate transaction costs and socio-economic characteristics of the respondents while multiple regression analysis was used to measure the determinants of transaction costs. The study showed that distance to the credit institution, age of the farmer, interest rate, loan size and membership of cooperatives were positive and significantly related to transaction costs. Assets of the farmer and information services were negative and significantly related to transaction costs. Level of education of the farmer, savings and gender were positive but not significant to transaction costs. Lack of collateral and high interest rates were the most important constraints of borrowers in the study area. Given that credit is an important policy instrument to facilitate use of modern technologies in rural areas such as the study area, interest rate should be drastically reduced with creation of good infrastructures in view for use of the loans by these farmers who produce the bulk of food consumed by the generality of the people.

Keywords: transaction costs, borrowers, farmers, Ikwuano Local Government, Nigeria

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1. Introduction

Transaction costs are a measure of the factor in the functioning of financial market [1]. The higher the transaction costs the higher the cost of intermediation and thus the less efficient the performance of the financial sector. Transaction costs are derived as the non-expenses received by lenders in evaluating, disbursing and collecting loans and by borrowers in applying, getting approval for or repaying their loans. These costs are largely associated with the information gathering procedures bank need to carry out to determine borrower credit worthiness or to comply with various central bank regulations. Generally, if transaction costs are large, they need to be measured and explained [2]. It has also been agreed on by literature that attempting to observe transaction costs directly will always not only underestimate their importance but can also be derived from observed behavior [3]. However, it requires the construction of models where behavior is specified. In the work by [4], it has been opined that transactions reflect the character of the market, but are mainly embedded in household characteristics and their economic environment. The groundwork for the estimation of production and consumption decision-makings for subsistence agricultural households has been laid by [5].

Credit is an important policy instrument that can facilitate the use of modern technologies leading to increase in production especially in developing countries [6,7]. Credits are also important for modernization of small scale agriculture as well as commercialization being introduced into the rural economy. In 1960's, 1970's and 1980's, credit program at heavily interest rates were common in developing countries. In the course of subsequent reviews and analysis, it was realized that many of these subsidized programs were not effective enough and low interest rate as well as credit availability did not provide sufficient opportunities for an individual's long lasting success [6,8].

A large number of farmers in Nigeria do not have access to credit and transaction costs far exceed those of any other region in the world. Differences in technology can to a large degree account for the observed low credit access to the farmer's [9,10].

While the body of descriptive and theoretical literature on transaction costs is extensive, the empirical literature

has also been lagging. This is important because transaction costs have a large unobservable component and hence their measure can only be indirectly revealed from the behavior of potential factors. In addition, attributes such as travel time and transportation costs are rarely included in most survey's and are unlikely to be comprehensive when included. Also, the relative magnitude of these transaction costs depends on the farmer's access to infrastructure (roads) [11].

The literature on transaction costs has been thin especially in developing countries settings where significant frictions make this question more salient [12]. To date, the literature has typically assumed that transaction costs are exogenously determined and has focused on the various ways that self-sufficiency affects behavior with respect to credit and production [13]. However, little research has been devoted to the study of transaction cost themselves [14].

2. Literature Review

Two broad categories of transaction costs, proportional and fixed transactions, have been identified in literature [15]. According to the seminal work of [16], it is because of the presence of transaction costs associated with information, negotiation, monitoring, coordination and enforcement of contracts that intermediary firms emerge to economize such costs.

A substantive volume of literature has been built on this work and applied to agricultural markets. Building on Coase's work, [17] classified fixed transaction costs into information, negotiation, and monitoring or enforcement costs. Others have differentiated transaction costs into tangible (transportation costs, communication costs and legal costs etc) and intangible (uncertainty, moral hazard, etc) costs [18,19,20]. Research done by [15] introduced a distinction between fixed or lump sum transaction costs, on the one hand, and variable proportional or per-unit costs, on the other hand. They show that both fixed and variable transaction costs impact on the market participation whereas supply decisions, conditional or market participation only depend on variable transaction costs. Proportional transaction costs change according to how much a household sells or buys, fixed proportional costs are independent of the quantities sold or bought [21].

For farmers, transaction costs are those costs associated with factors such as access to assets, or they can be same for all farmers in a particular location such as land quality or producing a specific product such as perishable fruits and vegetable. Interaction between the unique features of food system and other household and specific characteristics can further exacerbate transaction costs.

3. Research Methodology

3.1. Study Area

The study was carried out in Ikwuano Local Government Area of Abia State, Nigeria. Ikwuano lies between latitude 5.5 N and longitude 7.5 E. Ikwuano Local Government Area has fifty seven villages and seventeen communities. The annual rainfall ranges from 1600mm to 1700mm and average temperature is within 26°C and 32°C. One of the daily occupations of the people is farming and small holder farmers predominate in her agricultural occupation; a large number of these farmers are petty traders. The major arable crops grown are yam, cassava, cocoyam, rice, maize, melon and a variety of vegetables. The common perennials are oil palm, cashews, mangoes, oranges, kola nuts, avocado etc. Some of the farmers keep livestock such as goat, poultry and pigs while few practice fish farming. Fish farming is a relatively emerging enterprise in the area. The cash crop grown in Ikwuano is cocoa.

3.2. Sampling Technique

The sampling method used was stratified multi-stage randomized technique. Ikwuano is made up of four major historic clans viz Ibere, Oloko, Ariam and Oboro, from which the existing autonomous communities and villages stemmed from. . In the first stage, two of the historic clans namely Ariam and Oboro were randomly selected from the Local Government Area. In the second stage, three autonomous communities were selected in Oboro clan because it is a relatively large clan and for proximity to the researchers for valid data collection well as greater percentage of autonomous communities and population of farmers; an autonomous community was however selected in Ariam clan. In the third stage, a village was selected from Awom and Umugbalu autonomous communities respectively because each had only a village while two villages were selected randomly in each of Ebo and Ariam autonomous communities. Ariam Elulu and Ariam Alala were selected in Ariam autonomous community while Umuokwo and Umuariaga were selected in Ebo autonomous community.

Six villages were therefore selected for the study. However for the fourth stage, ten farmers were randomly selected from each village. This made up a total of sixty farmers which served as sample size.

3.3. Method of Data Collection

Data was obtained from primary source. The primary data was collected by the use of well structured questionnaires. The questionnaires were distributed to the sixty farmers. For the purpose of this study, some of the following information was utilized; interest rate, collateral, area of land owned by the borrower, distance to the credit institution and distance to farm, size of dependants, household size, delinquency in repayment, level of education of household head. Also, the several constraints to credit access were determined.

3.4. Analytical Procedure

Descriptive statistics using means was used to analyze the characteristics of transaction costs which include all the costs other than interest rate costs that are incurred by borrowers in the course of obtaining the credit. The credit can be considered as the sum of the financial costs (interest payment) plus the transaction costs. Therefore the total cost of obtaining credits is:

$$TCC = IC + TC \qquad (1)$$

Where TCC = total credit costs; IC = interest cost, and TC = transaction costs

Following [22], the relationship was implicitly stated as

$$TCM_i = f(Z_i) \quad (2)$$

Where TCM_i = Transaction cost measure for ith transaction and Z_i = Matrix of explanatory variables that affect the measure

Explicitly, the model is specified thus:

$$TCM = b_0 + b_1 Z_1 + b_2 Z_2 \\ + b_3 Z_3 + b_4 Z_4 + b_5 Z_5 + b_6 Z_6 \quad (3) \\ + b_7 Z_7 + b_8 Z_8 + b_9 Z_9 + b_{10} Z_{10}$$

Where Z_1 = Age (years), Z_2 = Education (years), Z_3 = Asset value (naira), Z_4 = Distance to lending institution (kilometers), Z_5 = Loan size (naira), Z_6 = Information about financial services (dummy variable; yes = 1, no = 0), Z_7 = Membership of Cooperative/social organization (dummy variable; yes = 1, no = 0), Z_8 = Saving account (dummy; yes = 1, no = 0), Z_9 = Interest rate (percentage), Z_{10} = Gender (dummy variable; yes = 1, no = 0), b_0 = intercept, and b_1 - b_{10} = coefficients to be estimated.

To analyze the factors that affect transaction costs, the data obtained were fitted by means of the ordinary least squares (OLS). Four functional forms of linear, exponential, double log and semi log were employed to specify the relationship between transaction costs and each of the variables in the transaction costs opined from literature that could affect transaction costs. The best functional form was chosen based on certain econometric criteria such as high coefficient of multiply determination and number of significant variables.

Table 1. Classification of Transaction costs

Type of costs	Definition
Traveling costs	Costs incurred by borrowers in visiting the banks
Opportunity costs	Total cost of the time spent in processing the credit
Paperwork costs	Cost of completing the forms (charged by intermediaries) including: photocopies of documents, getting pictures, obtaining personal documents, application fees and others.
Office (legal) costs	Legal fees paid to law firms, attorneys and public offices.
Guarantee and collateral costs	Costs incurred for the loan before (mortgaging) the credit being issued
Expert and controlling costs	Costs imposed on borrowers for the control and monitoring (supervision) of their credit by experts.
Other costs	Other cost incurred in the process of obtaining credit
Transaction costs	A summation of the above would be the total costs of fulfilling the requirements for obtaining a credit loan.

To assess the transaction costs, the sources were identified and classified then the cost of meeting each one of the requirements imposed by the banks for each type of contract was determined. The transaction costs were classified into seven categories according to the kind of expenditure needed to be made to meet requirements. These categories are summarized in Table 1.

4. Results and Discussion

4.1. Socioeconomic Characteristics of Farmers that Borrow for Farming

Table 2 show the distribution of farmers who borrow for their farm work in the study area. It indicates that the difference between the male and female borrowers was about 6.66% implying that the female are comparatively only very little behind the men in agricultural purposes. Men are expected to have more likelihood to reduce transaction costs than the female.

The result further show that majority of these respondents were married implying that more reasonable decisions are expected to be made by these farmers. Given that the greater percentage of the farmers was below 60 years (86.67%), it implies that most of the farmers are energetic and agile.

To this [22] had maintained is an indicator of borrowing experience because it corroborates with experience arguing that experienced borrowers are expected to have lower transaction costs. Only 1.62% of the respondents in the study area had a household size of less than three persons. Majority (51.67%) had between 3-5 persons. The results show that majority (78.33%) of the respondents do not belong to any form of social organization while 21.67% belong to one form or the other. Respondents who belong to social organizations are expected to have lower transaction costs of borrowing

because cooperatives have better credibility status in terms of credit worthiness than individuals.

Table 2. Frequency Distribution of Respondents According to Socio-economic Characteristics

Variable	Frequency	Percentage (%)
Gender		
Male	32	53.33
Female	28	46.67
Total	60	100.00
Age		
21-30	05	8.33
31-40	21	35.00
41-50	13	21.67
51-60	13	21.67
61-70	08	13.33
Total	60	100.00
Marital Status		
Married	44	73.33
Single	14	23.33
Divorced/separated	02	3.33
Total	60	100.00
Educational Attainment		
Primary	12	20.00
Secondary	32	53.33
Tertiary	16	26.67
Total	60	100.00
Farming Experience		
1-5	10	16.67
6-10	19	31.67
11-15	08	13.33
16-20	09	15.00
Above 21	14	23.33
Total	60	100.00
Household Size		
1-3	01	1.67
3-5	31	51.67
6-8	16	26.67
9-11	07	11.67
Above 11	05	8.33
Total	60	100.00
Membership of Cooperative		
Yes	13	21.67
No	47	78.33
Total	60	100.00

Source: Field Data, 2012

4.2. Transaction Costs Characteristics

Table 3.Transaction Characteristics and Borrower Costs

Transaction characteristics	Means
Application fee	N1,270,560.69
Contracted amount	N512,500.00
Waiting time (months)	3.70
Interest rate charge %	N126,333.52
Term of contract (months)	15.40
Number of visits to the financial institution	12.52
Distance from the financial institution (km)	9.31
Time spent for each visit (hrs)	4.81
Traveling (back and forth trips) costs per visit	N152.50
Paperwork costs	N180.63
Office (legality) costs	N1,286.11
Guarantee, collateral (mortgage) costs	N7,831.90
Expert and supervising costs	N5,803.82
Other costs	N3,513.17
Total transaction costs	N145,147.40

Source: Field Data, 2012

The transaction characteristics and borrower cost are presented in Table 3.

Findings show that the contracted amount (N512,500.00) is at a lower level than the applied loan size (N1,270,560.69). That is, an average borrower did not receive as much credit as he applied for. Following submission of applicants, people who had been accepted as loan receiving individuals had to wait for 3-7 months to receive their share of the loan. Results show that borrowers visited the lending institutions 12.52 times on the average with each visit taking about 4.81 hours. The borrowers had to travel about a distance of 12.52km to the lending institutions. The term of contract was 15.4months, on the average. The overall transaction cost measure (TCM) 145,147.40 which was equivalent to 28.32% of the annual financed fund. The results indicate that the financial institutions impose significant transaction cost on their clients.

4.3. Determinants of Transaction Costs

The results of factors that affect transaction costs are presented in Table 4. The linear form was chosen as the lead equation.

Table 4. Estimation of the Determinants of Transaction cost for Borrower in Ikwuano LGA, Abia State

Variable	Linear +	Exponential	Cobb-Douglas	Semi-log
Age	999.7952	0.0421	1.782	44546.81
	(3.20***)	(3.32**)	(3.40***)	(2.86***)
Education	278.7464	0.0272	0.1968	2476
	(0.66)	(1.58)	(1.52)	(0.65)
Asset	-2.8328	-0.0001	-0.4078	-11007.03
	(-2.66***)	(-1.88*)	(-3.48**)	(-3.17**)
Distance	1320.682	-0.0551	-0.3435	-7288.734
	(2.53**)	(-2.59*)	(-1.79*)	(-1.28)
Loan size	72.6835	0.0035	0.9594	16773.19
	(3.67***)	(4.35***)	(7.07***)	(4.17***)
Info	-5652.315	-0.1691	-0.1476	-4930.809
	(-1.89*)	(-1.39)	(-1.40)	(-1.58)
Coop	9753.923	0.1544	0.1947	12333.16
	(2.50**)	(0.94)	(1.48)	(3.16***)
Savings	1835.109	0.3084	0.1619	-820.5582
	(0.46)	(1.90*)	(1.18)	(-0.20)
Interest	13941.39	0.0054	-0.2332	10914.35
	(3.27***)	(0.03)	(-1.45)	(2.29*)
Gender	852.0413	-0.7773	0.0216	4309.052
	(0.66)	(-1.48)	(0.52)	(3.52***)
Constant	-30163.47	7.9431	1.6122	-139428.8
	(-1.97*)	(12.71***)	(0.70)	(-2.04*)
R^2	0.8324	0.6820	0.8108	0.8508
F-ratio	24.33	10.51	18.85	25.09

Source: Field Data, 2012
N/B: * = significant at 10%; ** = significant at 5%; and *** = significant at 1%

The coefficients of age, asset, loan and interest were highly significant relative to distance, Cooperative membership and information.

There is a significant relationship between age and total transaction costs by farmers. It implies that the older a farmer becomes the more costs he would likely incur in his transaction for borrowing for his farm operation. Asset on the other hand was negative in sign though highly significant in affecting transaction. This means that the transaction costs will reduce as the farmers' asset base increases. Farmers in the rural areas would generally incur more costs because they may lack the necessary collateral for borrowing to the extent required to optimize production capacity given their prevailing technology.

Loan size coefficient was positive in sign and had a high significant effect on transaction cost. Given the prevailing technology of these rural farmers, farmers must

incur more costs to obtain bigger loan size to meet their farm needs. This scenario is in tandem with work by [22].

The coefficient of interest rate was positive as expected and significant at 1% probability level. This means that credit facilities with higher interest rate would lead to borrowers incurring more transaction costs per unit of credit. Again this is expected given the nature of more credit to farmers in Nigeria.

Distance from an applicant's household to the lending institution has a positive sign with respect to transaction costs. It was significant at 5% probability level. This implies that any increase in the distance of borrower's residence would lead to a corresponding increase in the cost of transaction. Many studies have confirmed the fact that the further away the lender and borrower are from each other the more the transaction cost would be [22,23,24].

The coefficient of Cooperative was significant at 5% level but negative in sign. This implies that farmers who belong to social organizations had less transaction costs than their counterparts who do not belong to any in the study area as expected. Information coefficient on the other hand was the least significant (at 10% level). However, it was negative in sign as expected. Findings by [2] had maintained that information facilitates transactions. The more informed of financial services a farmer is the lower the transaction costs incurred.

5. Conclusion and Policy Recommendations

This study was carried out to examine the determinants of transaction costs for borrowers in Ikwuano Local Government Area, Abia State. The objectives described the socio-economic characteristics of the respondents, evaluated transaction costs, analyzed factors affecting transaction costs and examined constraints in accessing credits. The results show that variables such as distance to the credit institution, loan size, age of farmer, interest rate and membership of cooperative organizations were positively related to transaction costs while assets of the borrower and financial information were negatively related to transaction costs. However, the coefficients of education, savings and gender were positively related to transaction costs but not significant in the study area. The results also show that lack of collateral and high interest rates were the most important problems faced by the borrowers in the study area.

The empirical study therefore highlights the importance of transaction costs in financial markets. The financing of farmers at low or no interest rate can become expensive with increasing transaction costs. Thus, not only should interest rate be reduced, but also, enabling environment should be provided for rural farmers to make the best out of the received loans. Based on the findings of the study, the recommendations made in an attempt to reduce transaction costs for borrowers among farmers in the study include that policy targets should aim at making credit available for young farmers. To encourage participation, credit institutions should be located near the farmers to reduce transaction costs and policies should also be targeted to reduce interest rate for farmers.

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