



**DETERMINANTS OF BORROWING DECISION AND TRANSACTION COSTS OF
ARABLE CROP FARMERS IN ABIA STATE, NIGERIA**

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ABSTRACT

The study examined determinants of borrowing decision and transaction costs of arable crop farmers in Abia State. A multi-stage sampling technique was used to select 120 arable crop farmers in the study area. Data were analysed using descriptive statistics (means and percentages) and inferential statistics (gross margin analysis, transaction cost measure and regression analysis). The cost and return analysis show that purchase price was the most important cost variable in the arable crop farming business. On average, an arable crop farmer realized a gross margin of ₦200,674,000. Furthermore, application fee, contracted amount, interest rate charge, paper works, office (legality) costs, collateral costs, amount of loan applied, distance to lending institutions, transportation cost and loan period were the transaction cost characteristics that affects borrowing decision of arable crop farmers in the study area. The result of the regression analysis reveals Pseudo R² of 0.1902, meaning that 19.02% of variations in borrowing decision and transaction costs of arable crop farmers in Abia State was explained by the independent variables included in the model. The constraints of arable crop production in the study area were poor of storage facility ($\bar{x} = 2.52$), poor demand of products ($\bar{x} = 3.76$), unfavourable government policy ($\bar{x} = 3.43$), lack of collateral ($\bar{x} = 3.01$), inadequate labor inputs ($\bar{x} = 2.98$), lack of credit facilities ($\bar{x} = 3.10$), delayed loan acquisition period ($\bar{x} = 3.11$) and complex documentation processes ($\bar{x} = 2.83$). It can be concluded that arable crop farming business in the study area was profitable and generated a good revenue. Based on the findings it was recommended that extension services should be made available to farmers in the study area in order to increase the awareness of various credit sources and arouse the interest of farmers in the area in the use of credit. Credit institutions should be located near the farmers to reduce transaction costs and policies should also be targeted to reduce interest rate for farmers.

Keywords: Borrowing, Costs, Decision, Farmers and Transaction

INTRODUCTION

Arable crop production refers to the systematic use of land to grow crops. To have a consistent supply of their precious produce, farmers monitor how fertile their land is and follow a process of preparation after the previous year's harvest (Osundare *et al.*, 2020). Arable crops consist of plants whose aerial part has herbaceous consistency (cereals, leguminous plants, potatoes, cotton, beetroot, fodder plants, vegetables, etc.). Seedbeds for use on the holding itself are included in the corresponding crop sections. Arable crop production is known as a standardized use of land to grow crops. Farmer detects how productive their land is and then they follow a procedure of construction after the previous year's harvest to have a persistent supply of their valuable produce (Ololade and Olangunju, 2013). Arable crop production refers to the systematic use of land to grow crops. To have a consistent supply of their precious produce, farmers monitor how fertile their land is and follow a process of preparation after the previous year's harvest. Arable farming includes growing crops like wheat and barley instead of growing vegetables and fruits or keeping animals. It is used to accomplish the rising demand of food. It can be performed



mainly in small scale, commercial or on large agricultural farms. Arable agriculture manipulates soil to a great extent in order to fertilize crop plants to feed the increasing human population (Osundare *et al.*, 2020).

Borrowing decision is typically seen as a money or debt decision. In reality, it's an investment decision. Borrowing can help you in achieving objectives if used properly. However, there may be negative consequences if credit is not used responsibly. Borrowing money allows you to get what you want today, but at an additional cost. When borrowing money, people are able to make a purchase today by “renting” someone else’s money. The expense of renting this borrowed money is called interest.. Alabi *et al.* (2021) identified some constraints facing arable farmers in obtaining the borrowing loan and agricultural facilities which aids production activities to include lack of collateral property, lack of fertilizer input, poor-quality feeder roads, lack of credit facilities, inadequate labor input, and complicated, costly administrative procedures to obtain a loan and transaction costs.

Transaction costs are the non-interest expenses incurred by borrowers as well as lenders. They result from the information gathering procedures of banks to determine borrower creditworthiness and/or to comply with Central Bank regulations. Transaction costs are a measure of the "friction" existing in the functioning of financial markets. They are likely to increase the cost of intermediation beyond the level imposed by the explicit interest rate. As a result, the efficiency of the financial Sector in the performance of its resource allocation function may decline. Transaction costs is the costs of running an economic system of companies, and unlike production costs, decision-makers determine strategies of companies by measuring transaction costs and production costs (Williamson, 2016). Transaction costs are the total costs of making a transaction, including the cost of planning, deciding, changing plans, resolving disputes, and after-sales (Young, 2013). Therefore, the transaction cost is one of the most significant factors in business operation and management (Downey, 2018). Transaction cost refers to the various costs of information search, condition negotiation and transaction implementation that are accompanied by transaction behavior (Ketokivi and Mahoney, 2017).

According to CBN (2017) food growth rate has been put at 2.5% while the population growth rate is 3.2% leaving a food deficit of 0.55%. The abysmal performance of the agricultural industry can be attributed majorly to inefficiency of resource utilization which in turn affects the quantity of inputs purchased and timing of input availability and utilization. The arable farmers are characterised by strong dependence on rain which is unreliable, crude implements, little or no savings, and low level of income, small farm sizes, high labour intensive farm operations and all other characteristics that put them in the abject poverty cycle. To break this cycle of poverty, the capital base of arable crop farmers must be improved through loan accessibility and moderate transaction costs. This, therefore, informed the need for this study so as to bridge the knowledge gap on the determinants of borrowing decision and transaction costs of arable crop farmers in Abia State. In order to actualize the determinants of borrowing decision and transaction costs of arable crop farmers in Abia State, the following research questions becomes necessary; what are the socio-economic characteristics of the respondents? What are the costs and returns of arable crop production in the study area? What are the transaction cost characteristics that affects borrowing decision of arable crop farmers? What are the factors influencing arable crop farmers’ borrowing decision and transaction costs? What are the constraints facing arable crop production in the study area?



MATERIALS AND METHODS

The Study Area

The study was conducted in Abia state, Nigeria. The state is located within the Southeastern Nigeria and lies between longitudes 04⁰ 45’ and 06⁰ 07’ East of the Greenwich Meridian and Latitudes 07⁰ 00’ and 08⁰ 10’ North of the equator. The State is blessed with young and vibrant population who are largely homogeneous in socio psychological characteristics with a lot of farmers and local organizations and very strong in terms of popular grassroots organizations (Igwe and Egbuson, 2013). Abia state is divided into 17 Local Government Areas (LGAs), which is grouped into three (3) agricultural zones namely, Ohafia, Umuahia and Aba zones. Its population stood at about 2,883,999 persons with a relatively high density of 580 persons per square kilometer. Agriculture is the dominant economic activity and main source of employment in the State providing employment and income for more than 70.0 per cent of the population. The people are predominantly farmers and have the potentials for the production of agricultural produce and products such as palm oil, cassava, vegetables, palm kernel, yam, and rice and they also engage in food processing.

Sampling Technique and Sample size

The study adopted a multi-stage random sampling technique in the selection of respondent. In the first stage, two Local Government Areas (LGAs) were selected randomly from each of the three agricultural zones of the state, thus giving a total of six LGA’s. The second stage involved a random selection of two communities from each of the Local Government Areas, giving a total of 6 communities. The last stage of sampling involved the random selection of ten arable crop farmers. In all, a grand total of one hundred and twenty (120) farmers were selected for the study.

Method of Data Collection

Data were collected by the use of structured questionnaire

Analytical Technique

Data were analysed using descriptive statistics (means and percentages) and inferential statistics (gross margin analysis, transaction cost measure and regression analysis).

Gross Margin Analysis

The model for gross margin analysis is specified as:

The gross margin model (GM) is expressed as follows:

$$GM = TR - TVC \quad \dots(1)$$

where:

GM=Gross Margin (₦); TR –Total Revenue of farmers (₦); TVC – total variable cost (₦) and $TR = P \cdot Q$ (N)

where:

P – price of rice produced in naira per kilogram

Q – output of rice produced in kilogram

Net farm income (NFI) is stated thus:

$$NFI = \sum_{i=1}^n P_i Y_i - \sum_{j=1}^m P_j Y_j - \sum_{k=1}^k G K \quad \dots(2)$$

NFI – net farm income (naira per annum)

P_i – product unit price (naira/unit)

P_j – price per unit variable input (naira/unit)

GK – total fixed input cost (where $k = 1, 2, 3, \dots k$ fixed input)

Σ – summation or addition signs



Transaction Cost

$$TCC = IC + TC \quad (1) \quad \dots(3)$$

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

Following Hosseini *et al.* (2012), the relationship is implicitly stated as

$$TCM_i = f(Z_i)$$

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

Implicitly, the model is specified thus:

$$TCM_i = f(Z_1, Z_2, Z_3, Z_4, Z_5, Z_6, Z_7, Z_8, Z_9, Z_{10})$$

Where

TCM = transaction cost measure

Z₁=Age (Years); Z₂=Education (Years); Z₃=Asset value (Naira); Z₄=Distance to lending institution (kilometers); Z₅=Loan size (Naira); Z₆=Information about financial services (Yes = 1, No = 0); Z₇ =Membership of Cooperative/social organization (Yes = 1, No = 0); Z₈ = Saving account (Yes = 1, No = 0); Z₉ = Interest rate (Percentage) and Z₁₀ = Gender (Yes = 1, No = 0)

RESULTS AND DISCUSSION

Costs and Return of Arable Crop Production in the Study Area

Table 1 shows the estimated cost and return of selected arable crop farmers in the study area. The result showed purchase price as the most important cost variable in the arable crop farming business. On average, an arable crop farmer realized a gross margin of ₦200,674,000. The findings implies that arable crop farming business in the study area was profitable and generated a good revenue. This finding is in line with the finding of Cuevas (2018) that arable crop farming is profitable and lucrative. The study is also in agreement with that of Olomola (2016) pointing out that arable crop farming is profitable with the gross margin or profit of processing of arable crop farming amounted to ₦4,365,650.

Table 1: Costs and returns of arable crop production in the study area (n = 120)

Variable	Amount (₦)
Fixed Cost Items	
Wheelbarrow	198,000
Scale	4,650,000
Total fixed cost	4,848,000
Variable Cost Items	
Cost of buying arable crops	20,835,000
Transportation cost	15,156,000
Packaging	8,471,000
Labour	31724000
Total Variable Cost	76,186,000
Return	
Feed crops	236,160,000
Industrial crops	40,700,000
TOTAL REVENUE	276,860,000
GROSS MARGIN	200,674,000

Source: Field Survey, 2024



Transaction Cost Characteristics that Affects Borrowing Decision of Arable Crop Farmers

Table 2 shows the transaction cost characteristics of arable crop farmers in the study area. The study revealed that the transaction cost characteristics of arable crop farmers include; application fee, contracted amount, interest rate charge, paper works, office (legality) costs, collateral costs, amount of loan applied, distance to lending institutions, transportation cost and loan period with mean values of 3.46, 2.76, 2.98, 2.60, 3.11, 3.65, 3.23 and 2.94 respectively which were above the acceptable mean value of 2.50. This showed that arable crop farmers engaged in transaction costs which aided their borrowing decisions.

Table 2: Distribution of respondents according to livelihood activities

S/N	Transaction cost characteristics	Mean	Rank
1	Application fee	3.46	Rejected
2	Contracted amount	2.76	Accepted
3	Interest rate charge	2.17	Accepted
4	Paper works	2.01	Accepted
5	Office (legality) costs	2.98	Accepted
6	Collateral costs	2.60	Accepted
7	Amount of loan applied	3.11	Accepted
8	Distance to lending institutions	3.65	Accepted
9	Transportation cost	3.23	Accepted
10	Loan period	2.94	Accepted

Source: Field Survey, 2024

Bench mark = 2.5

Estimated Factors Influencing Arable Crop Farmers’ Borrowing Decision and Transaction Costs

Probit regression model was used to determine factors influencing arable crop farmers’ borrowing decision and transaction costs in the study area. Table 3 shows the result of the maximum likelihood estimates of the probit model. The result showed Pseudo R² of 19.02% (0.1902) showing strong explanatory power of the model. Coefficients of five out of nine explanatory variables were statistically significant with different signs and these variables are marital status, level of education, household size, membership of cooperative society and farming experience.

Marital status of respondents was significant at 1% level and positively related to arable crop farmers’ borrowing decision and transaction cost in the study area. This implies that as arable crop farmers gets married, their responsibility increases and as such becomes more serious in arable crop farming and borrowing decision that will put food on their table. This is in line with apriori expectation because marital status is attributed to the fact that married people are more settled as it relates to giving appropriate attention to borrowing decisions and transition cost (Key *et al.*, 2018).

Level of Education was significant at 1% level and positively related to arable crop farmers’ microcredit access in the study area. This implies that as marketers acquired more education, they engage more into and microcredit use in their arable crop farming; this is in line with apriori expectation because better education has the has a way of enabling arable crop farmers get better information capable of enhancing their borrowing decisions and transaction costs (Safi *et al.* 2018). This is in collaboration with the findings of Ololade and Olangunju (2013) who reported that as farmers acquired more education, they become more exposed to latest innovations regarding their farming activities and decisions.

The coefficient of household size was positive and significant at 1% probability level, this



implies as the number of household increases, the probability of much involvement in farming activities also increases and vice versa. Statistically, it means that the more the respondent have greater household size, the more likelihood of maker better borrowing decisions in their arable crop farming. This implies that households with large sizes, have higher family labour and increased revenue (Ololade and Olangunju, 2013).

The coefficient of farming experience was found to be positively related and significant at 1% level. This implies that as years of experience of arable crop farmers' increases their probability of microcredit access or use in their arable crop farming also increases and vice versa. This can be attributed to the fact that majority of the arable crop farmers are educated. This is in agreement with Olomola (2016), that the years of experience of farmers enables them to gain more skills and knowledge on borrowing decisions and transaction costs. Also, the coefficient of membership of cooperatives was found to be positively related and significant at 1% level, implying that arable crop farmers who belonged to cooperative society, engaged more in arable crop farming as they have more access to loan, information on new innovations and techniques, extension contacts etc.

3: Factors influencing arable crop farmers' borrowing decision and transaction costs

Variables	Estimate	Std. Error	Z-value
Constant	-2.3186	0.8858	-2.63***
Age	0.496	0.293	1.690
Level of Education	-0.008	0.011	-0.727***
Household size	-0.086	0.047	-1.829
Farm size	0.0197	0.0255	0.77
Farming Experience	0.273	0.253	1.082***
Membership of cooperative	0.2034	0.02195	-9.27***
Gender	0.1142	0.0360	3.17***
Marital status	0.005	0.003	1.667***
Access to loan	-0.220	0.3504	-0.63
LR χ^2	44.60***		
Prob > χ^2	0.0000		
Pseudo R ²	0.1902		
Log likelihood	-94.963		

Source: Computed from field survey data, 2024

Note: ***, ** and * implies statistical significance at 0.01, 0.05 and 0.10 probability levels respectively.

Constraints Facing Arable Crop Production in the Study Area

The result shows that seven (7) variables were the perceived constraining factors affecting arable crop production in the study area as their mean values were greater than the bench mark of 2.5. The Table 4 further review that the constraints were poor of storage facility ($\bar{x} = 2.52$), poor demand of products ($\bar{x} = 3.76$), unfavourable government policy ($\bar{x} = 3.43$), lack of collateral ($\bar{x} = 3.01$), inadequate labor inputs ($\bar{x} = 2.98$), lack of credit facilities ($\bar{x} = 3.10$), delayed loan acquisition period ($\bar{x} = 3.11$) and complex documentation processes ($\bar{x} = 2.83$). The finding of this study agrees with the findings of Pessali (2016) and Pham and Huynh (2020) that unfavourable government policy, and complex documentation processes and lack of collateral affects borrowing decision of farmers.



Table 4: Constraints facing arable crop production in the study area

S/N	Constraints	Mean	Rank
1	Poor of storage facility	2.52	Accepted
2	Poor demand of products	3.76	Accepted
3	Unfavourable government policy	3.43	Accepted
4	Lack of collateral	3.01	Accepted
5	Inadequate labor inputs	2.98	Accepted
6	Lack of credit facilities	3.10	Accepted
7	Delayed loan acquisition period	3.11	Accepted
8	Complex documentation processes	2.83	Accepted

Source: Field Survey, 2024

Bench mark = 2.5

CONCLUSION AND RECOMMENDATIONS

Based on the findings on the analysis of the determinants of borrowing decision and transaction costs of arable crop farmers in Abia State, it is concluded that arable crop farming business in the study area was profitable and generated a good revenue. The transaction costs characteristics of arable crop farmers include application fee, contracted amount, interest rate charge, paper works, office (legality) costs, collateral costs, amount of loan applied, distance to lending institutions, transportation cost and loan period. Also, the study concluded that the borrowing decision and transaction costs of arable crop farmers in the study area faced constraints such as poor of storage facility, poor demand of products, unfavourable government policy, lack of collateral, delayed loan acquisition period and complex documentation processes. The following recommendation were made based on the finding; extension services should be made available to farmers in the study area in order to increase the awareness of various credit sources and arouse the interest of farmers in the area in the use of credit; 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; and credit institutions should adopt on-time and complete credit disbursement as a measure to reduce loan default and delinquency.

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