

ANALYSIS OF FACTORS INFLUENCING TRANSACTION COSTS AMONG COCOYAM BUYING HOUSEHOLDS IN ABIA STATE

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ABSTRACT

This study identified factors that influenced transaction cost among cocoyam buying households in Abia state, Nigeria. Data were collected from a random sample of 200 cocoyam buying households. The respondents were drawn from rural and urban markets in the two agricultural zones of the state. Data collected were analyzed using simple statistical tools like frequency table, percentages and multiple regression analysis. The result shows that the trade is dominated by married people, almost equal proportions of females (51.0%) and males (49%) participate in cocoyam marketing in the study area. About 58% of cocoyam marketers were relatively young individuals who are in their youthful age (36-45 years). The result also shows that 92.0% of the cocoyam marketers had one form of education or another while 8.0% had no formal education. Coefficients of farm size, ownership of tractor/vehicles, membership of cooperative society, storage capacity, and number of cocoyam traders in the village were negatively signed and the coefficients for education and good road condition were positively signed. This result shows that education acquired by the households decreased their transaction cost. The transaction costs and participation in buying cocoyam could be improved by reliable information and provision of basic infrastructures to facilitate faster delivery of cocoyam to consumers. There is need to intensify awareness campaigns to popularize the crop nationally and its benefits emphasized.

Keywords: Transaction costs, cocoyam, buying households

INTRODUCTION

Cocoyam (*Colocasia esculenta*) originated from South East Asia (India or Malaysia) and *Xanthosoma Mataffa* originated from tropical America. They were first introduced into Nigeria by Portuguese merchants in the 16th century and, are now Nigeria cocoyams by acclimatization, selection and adaptation processes. Cocoyam is mostly produced in Africa and in Nigeria by peasant farmers (Knipscheer and Wilson, 1980). Nigeria is ranked the highest producer of cocoyam in the world accounting for 40.0% of total world output (Eze and Okorji, 2003).

Transaction cost is a cost incurred in making an economic exchange. A number of different kinds of transaction costs exist. Search and information costs are costs incurred in determining if the required goods are available in the market at the lowest price, etc. Bargaining costs are the costs required to come to an acceptable agreement with the other party to the transaction, drawing up an appropriate contract, etc. Policing and enforcement costs are the costs of making sure the other party sticks to the terms of the contract, and taking appropriate action. Transaction costs include observable and non-observable costs associated with exchange and are the embodiment of access / barriers to market participation by resource poor small holders (Holloway *et al*, 2000 and Makhura, *et al* 2001).

A major element of transaction costs relates to market information. These are costs associated with lack or access to sources of market information. It has been found in Abdulai and Delgado (1999) that the decline in the cost of information and transport flows is as a result of

good infrastructure, which reduces transaction costs. Strasberg *et al* (1999) found that increased human capital has significant positive effects on the effective use of inputs since the chances are that better management skills are available, and thus there is a greater propensity to seek information on operations of the market. The access to information has been viewed in different ways in literature. Theoretically, increased productivity on the farm will lead to lower food prices, raise the disposable incomes of food consumers, and make labour available for the growing industrial sector and initiate the structural transformation processes in a self-perpetuating cycle of growth (Mellor, 1998). The objective of the study was to describe the socio-economic characteristics of the cocoyam buyers and determine factors affecting transaction cost incurred by cocoyam consuming households in Abia State

METHODOLOGY

The study was carried out in Abia State Nigeria. The study area lies between latitudes $05^{\circ} 6'$ N and $05^{\circ} 24'$ North of the Equator and Longitudes $07^{\circ} 18'$ and $07^{\circ} 24'$ East of the Greenwich Meridian. Abia State has a common boundary with other states, namely Imo State in the West, Ebonyi and Enugu in the North, Akwa Ibom and Cross River States in the East and Rivers in the South. The state is made up of seventeen Local Government Areas (L.G.As) and has three agricultural zones namely: Umuahia, Aba and Ohafia. Cocoyam is one of the staple foods in Abia State, and is produced and marketed in all the zones of the state. The study covered two (Ohafia and Umuahia) out of the three agricultural zones in Abia state. The local governments that were selected are Bende, Ohafia, Umuahia North and Umuahia South LGAs. Multistage random sampling technique was used in selection of the agricultural zones and respondents. Two local government areas were randomly selected from each of the two agricultural zones, giving a total of four local government areas. These local governments are Bende, Ohafia, Umuahia North and Umuahia South LGAs. Five communities were randomly selected from each LGA giving a sample of 20 communities. One market was randomly selected from each of the chosen communities. The communities and markets chosen are Osa Ibeku -Ogwumabiri; Ohuhu- Nkwoegwu; Ndume Ibeke- Ahia Eke; Nkwochara- Ori Amaenyi and Isieke in Umuahia North, Olokoro- Ahia Ukwu; Ubakala- Apumiri; Ubakala- Nsirimo; Afor Ibeji and Umuokpara in Umuahia South, Uzuakoli- Ogumabili; Ozitem- Nkwo Ozitem, Igbere – Nkwo Ebele; Bende- Afo Bende in Bende, Ebem; Asaga; Amaekpu Isiugwu in Ohafia. Ten cocoyam buyers were selected randomly from each chosen community/market. This gave a total number of 200 cocoyam buying households. The primary data were collected with a structured questionnaire. Descriptive statistics such as frequency and percentage and ordinary least square regression analyses were used for analyses. Four functional forms viz: linear, double log, semi log and exponential were fitted. The lead equation was selected based on estimated econometric and statistical criteria such as number of significant variables and the conformity of their signs to *a priori* expectations, magnitude of R^2 value and F-Ratio.

Empirical Model

The model is implicitly expressed thus;

$$Y = f(X_1, X_2, X_3, X_4, \dots, X_{20}, u_i) \dots \dots \dots (1)$$

Y = Transaction cost in Naira

X₁ = Farm size (ha);

X₂ = Total Income (naira);

X₃ = Own Tractor/Vehicle dummy (owns tractor = 1; Does not own =0);

X₄ = Own Motorcycle dummy (owns = 1; Does not own =0);

X₅ = Own Bicycle dummy (owns bicycle = 1; Does not own =0);

- X_6 = Extension Visits (number);
 X_7 = Educational level (yrs);
 X_8 = Distance to nearest market (Km);
 X_9 = Road condition to nearest town are good dummy (Good =1; Bad =0);
 X_{10} = Membership of Cooperatives dummy (Member =1; Not member = 0);
 X_{11} = Access to credit dummy (Access =1; No access =0);
 X_{12} = Household Size (Number);
 X_{13} = Gender dummy (1=female; 0=male);
 X_{14} = Age of household head (yrs);
 X_{15} = Own a GSM/phone, radio or TV dummy (owns = 1; Does not own =0);
 X_{16} = Dependency ratio (the number of household inmates aged between 14 and 17 and above 60 per household member of working age);
 X_{17} = Time of Leisure (hrs);
 X_{18} = Storage Capacity (kg);
 X_{19} = Native dummy (they take the value '1' if the farmer is native and '0' otherwise.);
 X_{20} = Price of cocoyam (₦/kg);
 b_{1-20} = Coefficients to be estimated;
 U_i = error term

RESULTS AND DISCUSSION

The results in Table 1 show the socio-economic characteristics of the cocoyam buyers in the study area. From the findings, almost equal proportions of females (51.0%) and males (49%) are involved in buying cocoyam in the study and (58%) of cocoyam marketers are relatively young individuals who are in their youthful age (36-45 years). The result finding stated, that transaction and participation in cocoyam marketing is dominated by married people. This implies that the trade is a source of income to the families from which they meet their basic needs. The result reveals that majority of the respondents (45.0%) had household sizes of 5-6 persons and findings also shows that 92.00% of the cocoyam marketers had one form of education or another while 8.0% had no formal education. This shows that literacy level was high amongst them and could enhance marketing technology. Obasi (1991) noted that level of education enhances the marketing efficiency and the ability to evaluate new techniques and these could as will have influence in transaction cost in the trade.

From the findings 16.0% buy from the farm, 65.5% buy from market and 18.5% buy from stores (Table 2). The result reveals that majority of the transaction takes place in the market places. These suggest that most cocoyam business activities which accomplish the marketer objectives are done in the market. Agricultural marketing is greatly attached to population growth and urbanization. Improved marketing is effective in increasing agricultural productivity, farmer motivation, reduction in the cost of exchange services, and hence reduction in the gap between producer and consumer prices to mutual benefit (Njoku, 2006).

In the analysis of the factors affecting transaction cost among cocoyam buying households in Abia State, Nigeria, using multiple regression model the semi log function emerged as the lead equation. The results are presented in Table 3. Coefficients of farm size, ownership of tractor/vehicles, membership of cooperative society, storage capacity, and number of cocoyam traders in the village were negatively signed. The negative signs conform to a priori expectations. The inverse relationship between farm size and transaction indicates that households that buy cocoyam still operate at subsistence level (small holders) and such households may not explore economics of scale through bulky purchases. Furthermore, ownership of vehicle/tractor was highly significant suggesting that it significantly reduced the

transaction cost (transportation related problem was high among this category of cocoyam consumers). The results agree with Makhura (2001) who reported that households who own a tractor/vehicle tend to use them for other activities other than in purchasing crops. Membership of consumer cooperative societies, enable the respondents to buy at a better price. Increase in number of cocoyam traders in the villages encouraged competition which reduced cost. Membership of cooperatives was negatively signed implying that cooperative members have access to market information which reduce their cost of information search/sourcing. This is in agreement with the outcome of study by Goetz (1992)

Contrary to expectation, the coefficients of education and good road condition were significant and positively signed. This result shows that education acquired by the households raised their transaction cost in cocoyam buying. The society regarded cocoyam as food for the poor and to the educated, buying cocoyam appear to be an inferior good or commodity..

The positive coefficient of distance implies that transaction cost increase with distance. This confirms the findings of Larson (2006) who had a positive sign for distance in his study on transaction costs and the opportunity for internal trade in Nicaragua. A positive coefficient for gender indicates that the female buyers will not incur more transaction cost than their male counterparts as it is a female crop and they are more experienced. These are expected because cocoyam production and marketing is mostly done by women following Okoye *et al* (2007). It was possible that women bargained better than their male counterparts.

With respect to the diagnostic statistics, the R^2 of 0.786 implies that the regression model explained 78.6% of variation in transaction costs by the independent variables. The significance F-ratio indicated goodness of fit of the regression line.

CONCLUSION

The result of the study showed that there were high levels of participation of married people in the trade. This implies that the trade provided a means of livelihood to the families. The result also showed that education acquired by the different households raised their transaction cost in the buying of cocoyam. The transaction and participation in buying cocoyam is improved by reliable information and provision of basic infrastructures such as roads and communication facilities as these facilitated faster delivery of cocoyam to consumers and ensured high marketing efficiency. Based on the negative significant values of variables membership of cooperative society, storage capacity and number of cocoyam traders in the villages, it is recommended that awareness campaigns be intensified to popularize the crop nationally and its benefits emphasized.

Table 1: Social Economic Characteristics of the Cocoyam Marketers

Gender	Number of marketers	Percentage (%)
Male	98	49.0
Female	102	51.0
Age (years)		
26-35	19	9.5
36-45	116	58.0
46-55	53	26.0
56-65	12	6.0
Marital status		
Married	176	88.0
Single	8	4.0
Divorced	2	1.0
Widowed	14	7.0
Household Size		
1-2	15	7.5
3-4	50	25.0
5-6	90	45.0
7-8	39	19.5
9-10	6	3.0
Educational Level		
No Formal Education	16	8.0
Primary Education	42	21.0
Secondary Education	83	41.5
Tertiary	59	29.5
Total	200	100.0

,Source: Field survey. 2011

Table 2: Distribution of respondents based on where they buy cocoyam

Place	No of Marketers	Percentage (%)
Farm	32	16.0
Market	131	65.5
Stores	37	18.5
Total	200	100.0

Source: Field survey, 2011

Table 3: OLS Estimates of Factors affecting Transaction cost by Cocoyam Buying Households

Variables	Linear	Double Log	Semi log ⁺	Exponential
Constant	9677.638*** (4.199)	6.671** (2.822)	-199.078 (.0.844)	9.144*** (16.793)
Farm Size	-85.248 (-0.219)	-0.055 (-0.754)	-131.470 (-1.801)	-0.008 (-0.088)
Total Income	-0.007 (-1.014)	-0.582*** (-8.545)	-107.159 (-1.572)	-6.162*** (-3.608)
Own Tractor/Vehicle	49.112 (0.123)	-0.023 (-0.191)	-784.236*** (6.560)	-0.039 (.0.415)
Own Motorcycle	-293.335 (-0.661)	-0.147 (-1.051)	-95.818 (-0.688)	-0.090 (-0.858)
Own Bicycle	711.735*** (4.952)	0.119 (0.921)	54.937 (0.427)	0.120 (1.146)
Extension Visits	737.603 (1.233)	0.611*** (3.165)	-64.757 (-0.337)	0.179 (1.265)
Education	-151.937* (-2.479)	-0.223 (-1.099)	470.693* (2.329)	-0.029* (-1.979)
Distance	-81.212 (-1.334)	0.506*** (3.286)	-752.337*** (-4.908)	-0.015 (-1.058)
Good road Condition	805.749*** (-3.083)	-0.160 (-1.102)	884.429*** (6.110)	-0.054 (-0.495)
M/ship of coop	780.976 (1.472)	0.009 (0.059)	-65.926*** (-4.146)	0.167 (1.330)
Access to credit	-1848.862* (-2.520)	-0.690** (2.835)	-316.336 (-1.303)	-0.512*** (-2.954)
HHS	-872.419*** (-5.060)	-0.339 (-1.185)	-111.039 (-0.389)	-0.159*** (-3.878)
Gender	-631.647* (-1.302)	-0.134 (-0.625)	527.301* (2.549)	-0.123 (-1.118)
Age of HH	-22.597 (-0.600)	0.408 (0.739)	576.101 (1.046)	-0.004 (0.489)
Own GSM, radio/TV	-128.564 (-0.600)	0.408 (0.739)	576.101 (1.046)	-0.004 (-0.489)
Dependency ratio	671.291 (0.757)	0.443** (2.500)	556.318* (2.292)	0.017 (0.111)
Time and leisure	30.432 (0.303)	0.072 (0.768)	-71.771 (-0.762)	0.008 (0.317)
Storage Capacity	19.698*** (1.261)	0.207 (1.410)	-561.43*** (-3.830)	0.006 (1.592)
Native dummy	-887.681*** (-2.432)	-0.121 (-0.883)	-133.461 (-0.975)	-0.003 (-0.025)
Price of Cocoyam	0.366 (0.319)	0.180 (1.001)	98.095 (0.547)	1.845 (0.680)
Number of cocoyam traders in Village	0.051 (0.215)	0.439*** (4.824)	-84.028** (-2.714)	6.992** (2.675)
R²	0.553	0.614	0.786	0.438
F- Ratio	10.497	4.396	13.759	2.703

Source: Computed from field survey (2011) *, **, *** =significant at 10.0%, 5.0% and 1.0% alpha level of probability.
+Lead equation. ***, ** and * represents 1%, 5% and 10% levels of probability

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