



# EFFECTS OF TRANSACTION COSTS ON RETAIL PRICE: A CASE STUDY OF MELON MARKETERS IN AWE LOCAL GOVERNMENT AREA OF NASARAWA STATE, NIGERIA



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**Abstract:** This study assessed the transaction cost of melon marketing in Awe Local Government Area of Nasarawa State, Nigeria, with a view to evaluating the gross margin and determining the factors influencing the retail price of Melon in the study area. A multi-stage sampling technique was adopted to select 60 respondents for the study. Data were analyzed using descriptive, inferential, and Gross Margin analysis. The results on the socio-economic characteristics of the respondents revealed that majority (57%) of the sampled marketers were male. Also, the results revealed that larger proportion (23.0%) of the marketers were between the ages of 36 and 40 years with a mean age of the 38 years. Majority (77%) of the marketers were married, with larger proportion (30.0%) having marketing experience of between 6-10 years. The mean marketing experience was 13 years. Larger proportion (33.0%) of the respondents had between 6-10 persons as family size with a mean household size of approximately 11 persons. Majority (81.0%) had attended one form of education or the other. The effects of marketing cost on final price of melon in the study area showed an  $R^2$  value 0.685. However, the variables such as cost of loading, cost off-loading, distance from farm to market, quantity of melon transported and cost of transportation were positively related to the final price of marketing melon. Furthermore, the significant variables that influence the final price were; cost of loading, cost of off-loading, and distance from farm to market. Cost of loading and distance from the farm to market were significant at 1%. Also the coefficient for cost of off-loading was significant at 10%. The generated revenue from the sales of melon was ₦35,093.33, whereas the total costs incurred from the melon marketing was ₦32,645.0 with a net income of ₦2,448.30. The identified constraints include; poor feeder road (68.3%), price instability (66.7%), and low demand/supply (31.7%). It is recommended that government and stakeholders should help provide good infrastructure for efficient marketing such as good feeder roads that link the rural areas to major cities. Also there should be regular capacity building to empower the marketer to get skills for effective negotiations so as to reduce in transaction costs (loading, off-loading, security) and farm gate price will reduce final price.

**Keywords:** Melon, marketing, transaction, costs

## Introduction

'Egusi' melon (*Citrulluslanatusthumb* Mansf) is a native of Africa, which has probably been introduced to Asia, Iran and Ukraine (Schippers, 2016). It is one of the popular seed vegetables grown in Nigeria, especially in South Western and Eastern parts of the country. Egusi melon seeds are popular condiments in Nigerian local soups. Melon seed is a good source of oil, protein, minerals, vitamins, and energy in form of carbohydrates. The seed contained 4.6 g carbohydrates, 0.6 g proteins, 0.6 g crude fibre, 33 mg vitamin C, 17 g Ca, 16 mg P and 230 mg K per 100 g edible seeds (Gorski, 2015).

Transaction costs refer to costs incurred when looking for a trading partner, negotiating with them, making a contract and enforcing it. Transaction costs could be in terms of money spent or the opportunity cost of time spent. Access to new and better-paying markets for agricultural products is vital in enhancing and diversifying the livelihoods of poor subsistence or semi-subsistence farmers (Alene *et al.*, 2016). Assured markets have implication on producer decision with regards to choice of input as well as on the choice of marketing channel for the output. A market exchange involves transactions costs which can be fixed or variable. These transaction costs are related to limited market produce, difficulty in enforcing contracts, reliability on middlemen, location in remote areas and inability to meet stringent food safety norms (Granovetter, 2015).

Considering that agriculture remains a major sector in most economies in Africa, commercialization of the sector necessitates improving the ability of smallholder farmers to participate in markets. The importance of market participation is based on the premise that incomes and, hence, the livelihoods of smallholder farmers are likely to improve if they gain greater access to markets for the commodities they produce. Markets and improved market access for poor rural households are a prerequisite for enhancing agriculture-based

economic growth and increasing rural incomes. Intensification of agricultural production systems and increased commercialization must be built upon the establishment of efficient and well-functioning markets and trade systems that keep transaction costs low, minimize risk and extend information to all actors, particularly those living in areas of marginal productivity and weak infrastructure (IFAD, 2013; World Bank, 2018).

However, in most developing economies, smallholder farmers find it difficult to participate in markets because of the numerous constraints and barriers. The costs associated with exchanging goods or services tend to inhibit the participation of smallholder farmers and traders in markets (Holloway *et al.*, 2010; Pingali *et al.*, 2015).

It is, thus, evident that a range of transaction cost denies small scale farmers from participating in the markets efficiently. It follows that this lack of competitive activity by small-scale farmers does, ultimately, not lead to any of linkage benefits as anticipated. There is therefore a need for alternative institutions that can overcome barriers to market participation. In other parts of Africa (such as Ethiopia) farmers have the alternative to use brokers to market their grain (Jabbar *et al.*, 2008). In South Africa, however, some farmers (particularly maize producers) tend to engage institutions such as cooperatives and millers to take their grain for processing, and storage, and these sometimes provide transport services. Despite this a large proportion of this grain is consumed and only a minor portion is sold, implying the persistence of barriers to remunerative options.

As far as Nigeria is concerned, few studies have also been conducted with respect to transaction costs and market participation. These include, Okoye *et al.* (2010) on cassava farmers in South Eastern Nigeria, and Ohajianya and Ugochukwu (2011) on sweet potato farmers in South Eastern Nigeria.

Consequently, the need to accelerate the transformation of sub-sector to market oriented agriculture requires not only access to input and output markets but also understanding of transaction cost incurred by the small scale farmers when marketing the produce. This study attempted to fill this gap. It is based on this backdrop that this study intends to provide answers to the following research questions;

- i) What are the demographic characteristics of melon marketers in the study area?
- ii) What are the factors affecting final (retail) prices of melon in the study area
- iii) What are the cost and returns among the various marketers involved in melon marketing in the study area?
- iv) What are the constraints to effective transaction of melon among the marketers in the study area?

The objectives of the study are to:

- i) describe the demographic characteristics of melon marketers in the study area;
- ii) determine the factors affecting final prices of melon in the study area
- iii) analyze the cost and returns marketers involved in melon marketing; and
- iv) identify the constraints to effective transaction of melon among the marketers

Inefficiency in melon marketing system may arise from high transaction cost of melon between producers, middlemen and consumers. For instance, transportation cost may arise due to poor feeder roads between producing and consuming areas. If the efficiency of the marketing system for melon is to be improved so as to facilitate its contribution to increased marketing and reduced cost of transaction, there is the need for the understanding of the level of pricing efficiency and integration of marketing system and the constraints to efficient marketing of the crop. Some of the costs are related to physical details of the transaction, such as transport, marketing, packaging or handling. Others result from information asymmetries and contract enforcement problems, which cause economic agents to incur expenditures associated with search, recruitment, co-ordination, supervision, management and litigation. The point is reiterated by Zaiwet and Dunn (2008) who indicate that transaction costs include high transport costs due to the distance of the farm from the market, poor or non-existent infrastructure, high marketing margins due to monopoly power, and high costs of searching and monitoring contracts.

Transaction costs also result from information inefficiencies and institutional problems, such as the absence of formal markets. The presence of transaction costs is often reflected by the difference, or discrepancy, between perceived buying and selling prices (De Janvry *et al.* 2011). When these discrepancies occur, sellers experience low selling price and consequently might feel discouraged to sell, while buyers experiencing a high buying price, become discouraged to buy. Thus, the market will fail when the cost of a transaction through market exchange creates a disutility greater than the utility gain that it produces. In other words, the result is that the market is not used for the transaction (Fafchamps and Minten, 2001).

## **Material and Methods**

### ***The study area***

The study was conducted in Awe Local Government Area of Nasarawa State. The state is within the Middle Benue Trough of Nigeria which lies between latitude 7° 45' and 9° 25' N of the equator and between longitude 7° and 9° 37' E of the Greenwich Meridian. The geographical coordinates of Awe Local Government Area of Nasarawa State are 8° 22' North, 9° 15' East and has an altitude of 181.5 m above sea level

(Obaje, *et al.*, 2006). The Local Government Area is made up of 11 districts namely Awe north, Awe south, Baure, Tunga, Kanje, Abini, Kekura, Azara, Wuse, Akiri, and Ribi (Nasarawa Agricultural Development Programme-NADP, 2005).

Due to the location of the study area in the tropical sub-humid climatic belt, the mean annual temperature is high. The highest temperature is recorded from January to March. A single maximum temperature is achieved in the month of March when maximum temperatures can reach 39°C. Minimum temperature on the other hand can drop to as low as 17°C in December and January. The annual rainfall is between 127 – 154 mm received over seven to eight months (April–October) of rainy season with five months of dry wind spell with harmattan starting from November to March. The onset of rain begins in the month of April which brings about a noticeable decline in temperature in the study area. This is made possible by the blanket effect of cloud cover over the area. Rainfall ceases by the end of October when a further decline in temperature in the area is made possible in November/December by the coming of the harmattan winds. The relative humidity in the study area rises from February to a maximum of about 88% in July. Steady rains commence in April, when the relative humidity will be at about 75%. During this period, the southern part of the state comes under the influence of the humid maritime air mass (Obaje *et al.*, 2006).

The predominant soil parent materials in the area are derived from cretaceous sandstones, siltstone, shale, limestone and ironstone of undifferentiated basement complex. These rocks are frequently overlain by gravely lateritic iron pans probably formed in the late tertiary era which is associated with concretion gravels and accumulation of alluvial deposits in “rivers flood plains”. The climatic phenomena and rock grade have yielded different soil types (Chaanda *et al.*, 2010). In the study area, the vegetation type is dominantly characterized with southern guinea savanna and some elements of northern guinea savanna with interspersions of grassland, tree savanna, fringing woodland or gallery forest along the valleys (Chaanda *et al.*, 2010).

The people in the study area are mainly farmers. The major crops they produce include yam, cassava, melon, guinea corn, and other grains in large quantities for both consumption and trade. Substantial numbers of nomads reside in the area and are the main suppliers of milk, eggs, butter, hides and skin. The indigenous people are mainly farmers and the Hausas are petty traders. The Ibos and Yorubas are mainly traders in utensils, automobiles and building materials particularly in the local government headquarters and villages.

### **Sampling Size and Sampling Technique**

A two-stage sampling technique was adopted in this study. The first stage was the purposive selection of four districts (Azara, Wuse, Akiri, and Ribi) out of the eleven districts in Awe LGA. The second stage involved the random selection of three (3) villages from each of the selected districts. The final stage was the random selection of five (5) melon marketers from each of the selected villages, making a total sum of 60 respondents that were used for the study. Data for the study were finally obtained using primary sources through structured questionnaires which were administered to the selected fish sellers.

### **Method of data analysis**

Data for this study were analyzed using inferential and descriptive statistics. The descriptive statistics involved the use of frequency, percentages, and mean. These were used to analyze objective i, and iv of this study. These include the demographic characteristics of melon marketers in the study area; and the constraints to effective transaction of melon among marketers in the study area. Multiple linear regression

models were used to analyze (objective ii) the factors affecting final prices of melon in the study area. The budgetary analysis was applied in the determination of the cost and returns associated with melon marketing in the study area.

**Multiple regression specification**

Multiple regressions were used to identify the factors that affect farm households retail price of Melon. The model is specified as:

$$Y = b_0 + b_1X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + u$$

**Where:** Y = retail price of melon (₦); X<sub>1</sub> = cost of transport (₦); X<sub>2</sub> = cost of loading (₦); X<sub>3</sub> = cost of off-loading (₦); X<sub>4</sub> = cost of security (₦); X<sub>5</sub> = distance covered from farm to market (km); X<sub>6</sub> = quantity of melon transported (kg); B<sub>0</sub>-B<sub>6</sub> = regression parameters to be estimated; U = error term

**Gross margin analysis**

Gross Margin is expressed as follows:

$$GM = TR - TVC$$

**Where:** G.M = Gross Margin; TR = Total Revenue; TVC = Total Variable Cost; Gross Margin is used when fixed cost is negligible

**Results and Discussion**

**Socio-economic characteristics of the respondents**

**Gender:** The results on the socio-economic characteristics of the respondents presented in Table 1 revealed that majority (57%) of the sampled marketers were males while 43% were females. This implies that more male marketers were involved in melon marketing in the study area. The reasons might be that melon marketing requires physical strength that female marketers may not possess. Besides, the women have no access to productive resources like the men in the study area. These results are in consonance with that of Olubunmi *et al.* (2018) who in their study of economic analysis of melon marketing in Lagos state, Nigeria, observed that more male were involved in melon marketing than female.

**Age: (years):** The results on the age of the marketers revealed that 23.0% of the marketers were between the age of 36 and 40 years, 22.0% were within the age range of 41-45 years, and 20.0% were between the ages of 31 and 35 years. The mean age was approximately 38 years. This implies that the marketers were in their economic active age in the marketing of melon and would be able to convey the bulky agricultural produce within the market. This supports the findings of Isibor, and Ugwumba (2014) who also reported that melon marketers in Nnewi Metropolis of Anambra State, Nigeria, were young and within their economic active age with a mean age of 39 years.

**Marital status:** Results in Table 1 further showed that majority (77%) of the marketers were married, while only 10% were Single. This may be related to the fact that marriage comes with more responsibilities, and hence, the need for household head to engage in multiple livelihoods such as melon marketing that could provide sufficient income for the family up keep. This is in line with findings of Mohammed (2011) who reported that melon marketers in Ifelodun Local Government Area, Kwara State, Nigeria were married.

**Marketing experience (years):** The marketing experience as shown in Table 1 revealed that larger proportion (30.0%) had marketing experience between 6 and 10 years, 28.0% had experience of 11-15 years, and 18.0% had between 16 and 20 years' experience. The mean marketing experience was 13 years. This implies that the marketers are fairly experienced in their business, can therefore be able to identify possible problems and are likely to proffer solutions where needed. This is in line with Muhammad (2014) who observed that melon marketers in selected Local Government Area of Kano

State were experienced with a mean marketing experience of 16.3 years.

**Household size:** The results on household size indicated that larger proportion (33.0%) of the respondents had between 6 and 10 persons, 27.0% had between 11-15 persons, and 22.0% had between 1-5 persons. The mean household size was approximately 11 persons. The result indicates that majority of the respondents' household size was large; this will help the respondents not to spend much money hiring labourers for the marketing of melon in the study area. This result is in agreement with Isibor, and Ugwumba (2014) who stated that in the presence of constraints to labour availability, large households tend to use family members as sources of labour in the marketing of agricultural commodities. On the other hand, larger household size could lead to lower income resulting from increase in consumption expenses.

**Educational level:** The educational status of the marketers showed that larger proportion (43.0%) had attended primary education, 20.0% had secondary education, and 18.0% had tertiary education. It was observed that majority (81.0%) had attended one form of education or the other. The above result implies that the marketers in the study area were educated and can read or write. It is expected that the majority of these respondents will be articulate enough in their decision making processes, managerial skills and high level of awareness on market information, for increased, sustainable and profitable marketing. The level of educational attainment of an individual may indicate productivity potential in both farming and non-farming enterprises (Abdullahi and Delgado, 1999). The more educated an individual is the more effective and efficient he/she is in marketing activities, the more the income earned and probably saved.

**Table 1: Distribution of respondents according to their socio-economic characteristics**

Variable	Frequency	%	Mean
<b>Gender</b>			
Male	34	57	
Female	26	43	
Total	60	100	
<b>Age (year)</b>			
25-30	10	17	
31-35	12	20	
36-40	14	23	37.9 years
41-45	13	22	
46-50	11	18	
Total	60	100	
<b>Marital status</b>			
Married	46	77	
Single	6	10	
Divorced	3	5	
Widow	5	8	
Total	60	100	
<b>Educational level</b>			
Primary	26	43	
Secondary	12	20	
Tertiary	11	18	
Adult education	1	2	
No formal Education	10	17	
Total	60	100	
<b>Marketing experience</b>			
1-5	825	13	
6-10	18	30	
11-15	17	28	12.6 years
16-20	11	18	
>21	6	10	
Total	60	100	
<b>Household size</b>			
1-5	13	22	
6-10	20	33	
11-15	16	27	10.5Persons
16-20	11	18	
Total	60	100	

Source: Field Survey, 2019

**Table 2: Factors affecting melon price in the study area**

Variable	Coefficients	Std. Error	t-value	Sig.
Constants	28176.585	899.080	31.339	.000
Cost of loading (₦)	5.275	1.195	4.415	.000*
Cost of security (₦)	-1.086	4.589	-.237	.814 <sup>NS</sup>
Cost of off-loading (₦)	9.769	5.217	1.872	.067**
Distance to market (Km)	98.799	16.661	5.930	.000*
Quantity transported (Kg)	4.625	18.280	.253	.801 <sup>NS</sup>
Cost of transportation (₦)	2.026	2.061	.983	.330 <sup>NS</sup>
R <sup>2</sup> = 0.68				
Adjusted R <sup>2</sup> = 0.65				

Source: Field survey, 2019\* = Significant at 1%, \*\* = Significant at 5%

**Factors affecting melon prices**

The effects of marketing cost on final price of melon in the study area are presented in Table 2. The R<sup>2</sup> value which measures the proportion of the variation dependent variable (Y) that is explained by the independent variables included in the model was 0.685. This indicates that the model explained 68.5% of the variation in dependent variables. However, the variables included in the model are cost of loading, cost of loading, cost of security, distance from farm to market, quantity of melon transported and cost of transportation. Furthermore, the significant variables that influence retail price are; cost of loading, cost of offloading, and distance from farm to market.

Cost of loading was positive and significant at 1% which implied that an increase in the cost of loading will result a corresponding increase in final prices of melon in the study area. Also the coefficient for cost of off-loading was positive and significant at 10% implying that an increase in off-loading cost will result to a corresponding increase in final prices of the commodity. The coefficient of distance from farm to market was positive and significant at 1% which also shows an increase in the distance to the market will lead to a corresponding increase in the final price of melon in the study area. However, the cost of security was observed to be negatively related to the final prices marketers get in the marketing of melon, implying that increasing this variable would decrease the final prices of marketing melon in the study area. The above results collaborate with the findings of Ukwuaba (2017) who observed that the prices of marketed melon Enugu State were strongly related to cost of loading and off-loading, tax by government agencies, and total cost of transportation.

**Costs and returns associated to melon production**

The results in Table 3 indicated that the total revenue realized from the sales of a 50 kg melon was ₦35,093.33, whereas the total costs incurred in marketing of a 50 kg melon was computed at ₦32,645.0. This result showed that there is a positive net income of ₦2,448.30. This implies that though the margin is low, but melon marketing business is a profitable venture in the study area. This finding corroborated with that of Mohammed (2011) who reported that melon marketing was profitable in Ifelodun Local Government Area, Kwara State, Nigeria.

**Table 3: Costs and returns to melon production**

Items	Cost (₦)	% VC
<b>A: Revenue</b>		
Revenue from melon sales (50Kg)	35,093.33	
<b>B: Variable Costs (50 kg of Melon)</b>		
Purchase of Melon seeds (50 kg)	31,418.33	96.24
Storage cost	207.5	0.64
Tax paid	252.5	0.77
Handling Cost	99.2	
Transportation Cost	250.8	0.77
Loading Cost	226.7	0.69
Security Cost	64.2	
Off-loading Cost	125.8	0.39
Total variable cost (TVC)	32,645.0	
<b>Net returns (Revenue-TC)</b>	<b>2,448.3</b>	
<b>RNI = TR/TVC</b>	<b>1.075</b>	

Source: Field survey, 2019

**Table 4: Distribution of respondents based on constraints faced by melon marketers**

Constraints	Frequency	Percentage	Ranking
Tax Paid	6	10.0	6 <sup>th</sup>
Storage Facilities	7	11.7	5 <sup>th</sup>
Poor Feeder Road	41	68.3	1 <sup>st</sup>
Price Instability	40	66.7	2 <sup>nd</sup>
Demand/supply	19	31.7	3 <sup>rd</sup>
Government Policy	6	10.0	6 <sup>th</sup>
Market information	8	13.3	4 <sup>th</sup>

Source: Field survey, 2019\*Multiple responses

**Constraints faced by melon marketers**

Inefficiency of agricultural marketing system and Inadequate marketing of agricultural produce has been a major problem limiting agricultural expansion (Care, 2004). The result as presented in Table 4 shows the constraints faced by melon marketer in the study area. It was revealed that major constraints affecting melon marketing were poor feeder road (68.3%), price instability (66.7%), and low demand/supply (31.7%). The above results support the findings of Olubunmi (2018) who stated in their study of economic analysis of melon marketing that the respondents were faced with constraints such as poor transportation system and variability in prices of the commodity. Similarly, Girei *et al.* (2013) in their study identified insect pest infestation, inadequate storage facilities, poor credit facilities, inadequate market infrastructure and lack of uniform measure and long chain of distributors.

**Conclusion**

Melon marketing in the study area was dominated by male marketers. The business was observed to be profitable as indicated by the positive value of net revenue. The level of profitability will improve if adequate measures are taken to mitigate marketing problems as defined to be responsible for low final prices obtained by the marketers in the study area. It is recommended that: government relevant stakeholders should help provide good infrastructure for efficient marketing such as good feeder roads that link the rural areas to major cities, and marketers should be educated so as to get adequate price negotiations that will help in reducing transaction cost at all levels

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