Full Length Research Paper

Socio-economic determinants of tomato retail marketing in Ibadan Southwest Local Government area of Oyo State, Nigeria

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This study examined the socioeconomic determinants of tomato retail marketing in Ibadan southwest Local Government Area, Oyo State, Nigeria. The study was based on the primary data obtained in a cross section survey of 80 randomly selected tomato retail marketers drawn by multi-stage sampling across four (4) markets in the study area. The data were collected by personal administration of questionnaire designed to elicit information on the tomato retail marketers socio-economic characteristics and transportation and storage costs among others. The study data were analysed using descriptive and regression analysis. The result revealed that the modal age group for the tomato retail marketers was 31 to 50 years. Also, the average number per household was found to be of 5 persons with 71.3 and 82.5% being male. 86.3% of the respondents were educated with 5 to 15 years of marketing experience of about 60%. Also, about 81% of the respondents made tomato retail marketing their primary occupation. The regression analysis revealed that Age (X_1), Years of marketing experience (X_2), purchase cost (X_4), labor cost (X_5) and transportation cost (X_6) were statistically significant at $p \leq 0.05$, $p \leq 0.05$, $p \leq 1$, $p \leq 0.05$, $p \leq 0.01$ and $p \leq 0.1\%$, respectively out of the six postulated explanatory variables. The coefficient of multiple determination (R^2) was 0.789 which shows that about 79% variations in profit of the tomato retail marketers were caused by variations in the Six (6) postulated explanatory variables. The gross margin analysis results revealed that the gross margin (profit) was ₦38, 076.00 per month. The study therefore concluded that transportation and storage cost were the major factors influencing profitability of retail tomato marketing in the study area. Hence, policy issue aim at encouraging tomato retail marketing will focus on provision of good transportation and storage facilities.

Key words: Socio-economic, gross margin, tomato, retail marketing, Oyo State.

INTRODUCTION

Adejobi et al. (2011) posited that among the wide range of agricultural crops, especially vegetables occupy an important place because of their economic potentials. Among different vegetables grown in Nigeria, tomato

clearly stands out as the most important both in scale of production and level of consumption. Whereas, other vegetables mostly have restricted demand in Nigeria, as they are consumed exclusively only by the urban rich, demand for tomato is universal, for it is consumed by both the rich and poor. Fadama vegetable production and marketing activities such as handling, transportation and distribution employ a large number of labour force (Adepetu, 2005).

Adepetu (2005) also posited that, tomato production accounts for a total land area of one million hectares cultivated annually making up about 18% of the average daily consumption of vegetables in Nigerian homes. Tomato is cultivated almost throughout Nigeria and the most important areas lie between 7.50 and 130N mostly around urban areas in the Northern and Southern-Western parts of the country. Tomato is an herbaceous plant commonly grown as an annual, though perennial tomato culture is an established practice in many parts of South America.

According to (Purseglov, 1992), tomato is a short lived perennial, grown as an annual, branching herb with hairy weak trailing stems, hairy leaves and variable in shape. Lycopersicon is a relatively small genus within the extremely large and diverse family Solanaceae. The family Solanaceae is an important source of vegetable and desert crops including potato, egg plant, various pepper, the tree tomato and tomato, *Lycopersicon esculentum* among others. The African tomatoes on the other hand were introduced by European merchants and colonizers. Therefore, the African tomatoes were probably descended from varieties bought from Europe (Villareal, 1980).

Adegbola et al. (2012) stated that Nigeria is undeniably the 14th largest producer of tomatoes, second to Egypt in Africa at 1.51 million metric tonnes valued at ₦ 87.0 billion with a cultivated area of 254,430 ha being the biggest producer in Sub-Sahara Africa. Although, most of these tomatoes are locally not processed, leading to increasing import dependency of tomato paste to the tone of 65,809 tons valued at ₦11.7 billion annually. With this potential, it is unbelievable that Nigeria could still be importing tomatoes products of any kind.

Haruna et al. (2012) defined agricultural marketing as the performance of all the activities involved in the flow of agricultural products and services from the initial points of agricultural production until they reach the hands of the ultimate consumers. It is interested in everything that happens to crops after its leaves the farm gate; making decision, taking actions and bearing the responsibility of the action. Agricultural marketing also involves all processes that take place from when the farmer plans to meet specified demands and market prospects to when the producers finally gets it to the consumers. It also recognizes the mutual independence between farmers and marketing middlemen which is the whole essence of marketing in management decision making (Haruna et al., 2012).

Dittoh (1994) defined Agricultural marketing as all activities that aid the movement of commodities from the farms to the consumers and these include assemblage of goods, storage, transportation, processing, grading and financing of all these activities. Olukosi and Isitor (2004) explained that the marketing task involves transferring goods from producers to consumers. It is the marketing function that ensures that consumer acquires the product in the form, places and time desired. As the economy of a nation grows, the gap between consumers and producers widens and the task of marketing becomes more complex (Abbott, 1987). Therefore, this study broadly examines socio-economic determinants of tomato retail marketing in Ibadan Southwest Local Government Area of Oyo State, Nigeria.

MATERIALS AND METHODS

Study area

This study was conducted in Ibadan southwest Local Government of Oyo State. Ibadan southwest. Ibadan South-West is a Local Government Area in Oyo State, Nigeria. Its headquarters are at Oluyole Estate in Ibadan. It has an area of 40 km² and a population of 282,585 at the 2006 census. It is bounded in the West by Ido Local Government, east by Ibadan North and Ibadan South East Local Governments, north by Ibadan North West and Ido Local Governments and South by Oluyole Local Government.

Sources and method of data collection

This study was based on primary data collected by personal administration of questionnaire/interview schedule for farm households in the study area. Information were sought on socio – economic and demographic characteristics such as; age, sex, religion, household size and years of experience.

Multi-stage sampling technique was used to select a cross section of 80 tomato retail marketers from the study area. Four (4) markets were randomly selected out of the markets in the study area. Twenty (20) tomato retail marketers were randomly selected from each of the four markets targeting a total of 80 tomato retail marketers in the study area.

Analytical techniques

Quantitative (econometric) and descriptive techniques were employed to analyse the data collected. Descriptive analyses such as the frequency distribution, ages, mean, mode, standard deviation and standard error were used to analyse the socio-economic and demographic characteristics of the tomato retailers in the study area.

The gross margin model was specified from estimation of total expenses (costs) as well as various returns or revenue within a marketing period.

Total Cost (TC) = TVC + TFC $\qquad$ (1)

where, TVC = Total variable cost; TFC = Total fixed cost.

Total Revenue (TR) = Q. Py $\qquad$ (2)

where, Q = Quantities of tomatoes sold in a baskets; Py = Unit price

of tomatoes in baskets.

Gross Margin (GM) = GI = TVC   (3)

where, GI = Gross income; TVC = Total variable cost.

Net Income (NI) = GI –TC   (4)

To determine the profitability of tomato marketers, some profit ratios were calculated to show the overall performance of the business thus:

Gross Ratio (GR) =TC/TR   (5)

where, TC = Total cost; TR = Total revenue.

Operating Ratio (OR) = TVC/TR   (6)

where, TVC = Total variable cost; TR= Total returns.

Fixed Ratio (FR) = TFC/TR   (7)

where, TFC = Total fixed cost; TR= Total revenue.

Regression analysis

Regression analysis was used to analyze the determinants of profit margin. An Ordinary Least Square regression model was estimated. The explanatory variables included in the model are age of marketers, years of marketing experience, marital status, start-up capital, labour cost and transportation cost. The empirical regression analysis used is implicitly stated as:

Profit = f $(X_1, X_2, X_3, X_4, X_5, X_6)$ (8)

Where X_1 = Age (years); X_2 = Years of marketing experience (years); X_3 = marital status (1=married, 0-otherwise); X_4 = Start-up Capital (₦); X_5 = Cost incurred on labour (₦); X_6 = Cost incurred on Transportation (₦).

RESULTS AND DISCUSSION

Socioeconomic characteristics of tomato retail marketers

The result revealed that the modal age group for the tomato retail marketers was 31 to 50 years. Also, the average number per household was found to be of 5 persons with 71.3 and 82.5% being male. 86.3% of the respondents were educated with 5 to 15 years of marketing experience of about 60%. Also, about 81% of the respondents made tomato retail marketing their primary occupation (Table 1).

Gross margin (profitability) analysis of retail tomato marketing

It is importance to analyze the marketing cost of retail Tomatoes marketing because is a key determinant in the profit margin that accrues to the marketer. Adejobi (2005) defined marketing cost as the difference between the amount paid by the consumers of final products and the total amount received by the producer. This is the cost incurred during the marketing process.

The profitability of marketing of retail tomatoes within a period of one month is indicated in Table 2. The table revealed that variable cost accounted for ₦ 56,170.00 (99.99%) and fixed cost ₦ 54.00 (0.01%) of the total cost of marketing retailed tomatoes in the study area. The results further indicated that the cost of acquisition (86.00%), cost of empty basket (2.04%), transportation cost (2.5%) and cost of loading and offloading (2.2%) were the major variable costs incurred in tomato retail marketing. Based on the computation per basket, the average basket of tomato was 50 kg and average price per basket was ₦1,050.00, total cost of marketing was ₦ 56,224.00 while the total revenue of ₦ 94,300.00 was realized making a net income per month of ₦ 38,076.00. In view of this costs and returns analysis, the retail tomato marketing in Ibadan Southwest was highly profitable because the gross ratio (0.60) was positive and less than one.

Socio-economic determinants of tomato marketing

Table 3 shows the regression analysis revealed that the F-value was 4.01 and was significant at 1% suggesting that the model is fit. The coefficient of multiple determination (R^2) was 0.789 which shows that about 79% variations in profit of the tomato retail marketers were caused by variations in the six postulated explanatory variables. Six explanatory variables were included in the model, out of which five of the coefficients of the variables were significant. These include; Age (X_1), marketing experience (X_2), capital (X_4), Labor cost (X_5) and Transportation cost (X_6) statistically significant at $p<0.05$, $p<0.01$, $p<0.05$, $p<0.01$ and $p<0.1$ % respectively.

Age

The coefficient of this variable was significant at 5% ($p<0.05$) and carries a negative sign; indicating that as the retailer grows older, the lower their profit.

Marketing experience

The coefficient of this variable was significant at 1% ($p<0.01$) and carries a positive sign; indicating that the longer the years of experience of the marketer in sales of Tomatoes, the higher their profit margin. This conforms to the *apriori* expectation in that longer experience enables the marketer to acquire indigenous methods of keeping fresh tomatoes, thereby reducing the age loss due to

Table 1. Demographic and socio-economic characteristics of respondents.

Variable	Frequency	(%)
Age group (years)		5.0
≤30	12	10.0
31 to 40	22	27.5
41 to 50	20	32.5
Above 50	26	
Gender		
Male	14	17.5
Female	66	82.5
Education		
No formal	11	13.8
Primary	22	27.5
Secondary	47	58.8
Marital status		
Single	10	12.5
Married	54	67.5
Widowed	8	10.0
Divorced	8	10.0
Household size		
2 to 3	19	23.7
4 to 5	57	71.3
6 and above	4	5.0
Years of experience		
Below 2	3	3.8
2 to 5	12	15.0
5 to 7	18	22.5
Above 8	47	59.7
Religion		
Christian	27	33.8
Muslim	50	62.5
Others	3	3.8

Source: Field Survey, 2010.

damages and this in turn increases the profit level.

Initial start - up capital

The coefficient of this variable was significant at 5% ($p<0.05$) and carries a positive sign; indicating that the higher the marketing cost, the higher the profit margin of the marketer. This conforms to the apriori expectation in that if high capital is incurred by the marketer, the more the profits that will accrue to the marketers.

Labour cost

The coefficient of this variable was significant at 1%

($p<0.01$) and carries a negative sign; indicating that the lower the labour cost, the higher the profit margin of the marketer. This conforms to the apriori expectation in that if less labour cost is incurred by the marketer, the more the profits that will accrue to the marketer for each sale made.

Transportation cost

The coefficient of this variable was significant at 10% ($p<0.1$) and carries a negative sign; indicating that the lower the transportation cost, the higher the profit margin of the marketer. This conforms to the apriori expectation in that if less transportation cost is incurred by the marketer, the more the profits that will accrue to the

Table 2. Gross margin analysis of retail tomato marketing in naira per basket.

Cost items	Returns ((₦)/month)
Variable cost	
Acquisition cost	48,300
Transportation cost	1,420
Cost of empty basket	2,400
Cost of loading and off-loading	1,250
Taxes	1,400
Labour	1,000
Cost of water	400
Total variable cost (TVC):	**56,170**
Fixed cost (FC)	
Depreciation on rent	54
Total fixed cost (TFC):	54
Total cost: (Naira):	**56,224**
Returns	
Gross income (Q x P. y) (46 x 2,050)	94,300
Net income (GI – TC)	38,076
Return/Naira invested (GI/TC)	1.68
Profitability ratio	
Operating ratio (TVC/GI)	0.6
Fixed ratio (TFC/GI)	0.0006
Gross ratio (TC/GI)	0.6
Total ratio:	1.201

Source: Field Survey (2010).

Table 3. Regression result of the determinants of Tomato Retail Marketing Profit Margin

Independent variables	Coefficient	Significant
Constant	4.283	0.000
Age	-0.001**	.0164
marketing experience	4.712***	.0083
Marital status	0.442	.213
capital	-2.661**	.013
Labour cost	-5.111***	.000
Transportation cost	-4.274*	.086
R^2		.791
Adjusted R^2		.762
F-value		4.01

Source: Field Survey (2010). *,**,*** refer to significant at 10, 5 and 1%, respectively.

marketer for each sale made.

CONCLUSION AND RECOMMENDATION

This study was designed to examine the socioeconomic determinants of tomato retail marketing in Ibadan Southwest Local Government Area of Oyo State, Nigeria. Data from 80 retail tomato marketers were used for this study. The descriptive analysis result revealed that the modal age group for the tomato retail marketers was 31 to 50 years. Also, the average number per household

was found to be of 5 persons with 71.3 and 82.5% being male. 86.3% of the respondents were educated with 5 to 15 years of marketing experience of about 60%. Also, about 81% of the respondents made tomato retail marketing their primary occupation. The profitability analysis of marketing of retail tomatoes revealed that variable cost accounted for ₦ 56,170.00 (99.99%) and fixed cost ₦ 54.00 (0.01%) of the total cost of marketing retail tomatoes. Based on the computation per basket, the average basket of tomato was 50 kg and average price per basket was ₦1,050.00, total cost of marketing was ₦56,224.00 while the total revenue of ₦94,300.00 was realized making a net income per month of ₦38,076.00.

In view of this costs and returns analysis, the retail tomato marketing in Ibadan Southwest was highly profitable because the gross ratio (0.60) was positive and less than one. The regression analysis revealed that the F-value was 4.01 and was significant at 1% suggesting that the model is fit. The coefficient of multiple determination (R^2) was 0.789 which shows that about 79% variations in profit of the tomato retail marketers were caused by variations in the six postulated explanatory variables. Six explanatory variables were included in the model, out of which five of the coefficients of the variables were significant. These include; Age (X_1), marketing experience (X_2), Purchase cost (X_4), Labor cost (X_5) and Transportation cost (X_6) statistically significant at $P<0.05$, $P<0.01$, $P<0.05$, $P<0.01$ and $P<0.1\%$, respectively. The findings of this study have revealed that there is need to address the issue of the determinants of retail tomato marketing among marketers for sustainable livelihood. Based on this, the study recommend that policy issue aim at encouraging tomato retail marketing will focus on provision of good transportation and storage facilities.

Conflict of Interest

The author(s) have not declared any conflict of interest.

REFERENCES

Abbot JC (1987). Agricultural Marketing Enterprises in Developing World. Cambridge, U.K Cambridge University Press, P. 1440.

Adejobi AO (2005). Cowpea Marketing in Maiduguri, Borno State. Investigation on building a food Marketing Policy Evidence Base in Nigeria. http://www.dur.ac.uk/nigerian.marketing/

Adejobi AO, Babatunde RO, Idowu EO (2011). weight and measurement issues in retail marketing of fresh tomatoes: evidence from Osun State, Nigeria. Asian Research Publishing Network (arpn). J. Agric. Biol. Sci. 6(4).

Adepetu AA (2005). Producer-Trader Interaction in Vegetable Marketing in Jos: The Case of Farin-Gada Tomato Market. Unpublished Mimeo.

Adegbola JA, Awagu F, Adu EA, Anugwom UD, Ishola DT, and Bodunde AA (2012). Investment opportunities in tomato processing in kano, Northern Nigeria. Global Adv. Res. Journal of Agricultural Science 1(10):288-297.

Dittoh JS (1994). Market Integration: the case of dry season vegetables in Nigeria. In S. A, Breth (Ed0) African Rural Development 2. Winrock International Institute for Agricultural Development U.S.A. food Marketing Policy Evidence Base in Nigeria. pp. 89-101.

Haruna U, Sani MH, Danwanka HA, Adejo E (2012). Economic Analysis of Fresh Tomato Marketers in Bauchi Metropolis of Bauchi State, Nigeria. Nig. J. Agric. Food Environ. 8(3):1-8.

Olukosi JO, Isitor SU (2004). Introduction to Agricultural Marketing and Prices: Principles and Applications. Abuja, FCT.

Purseglove JW (1992). Tropical Crops: Monocotyledons. Longman Scientific and Technical, New. York. pp. 300-305.

Villareal RL (1980). Tomato in the tropics United States of America. Colorado West view Press.