Economic Analysis of Tomato Marketing in Ibadan South East Local Government Area of Oyo State

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A R T I C L E I N F O   ABSTRACT

The study was carried out to analyze the costs and returns of tomato marketing in Ibadan South east local government of Oyo state. The targeted population for the study is the tomato marketers markets in Ibadan south east Local Government of Oyo State. Multi stage sampling techniques was used to select 120 respondents for this study. The results shows that majority (91.7%) of the respondents were female, 39.2% of the respondents were between 41-50 years of age, majority (96.7%) of the respondents were married, most (60.8%) of the respondents were Muslims, average (50.0%) of the respondents have above 11 years of education, majority (74.2%) of the respondents have 1-5 household size, 25.0% of the respondents have 6-10 households, almost all (97.5%) of the respondents was traders, 40.0% of the respondents had 11-20 years of experience, majority (94.2%) of the respondents have access to credit, almost all (98.3%) of the respondents have access to market information, almost all (99.2%) of the respondents belongs to association, and 40.0% of the respondents earned ₦20,001 –₦40,000 monthly from tomato marketing. Furthermore majority (70.8%) of the respondents used farm gate–wholesaler-retailer-consumer as marketing channel for their tomato marketing, tomato marketing was profitable with gross margin of ₦507,102. Road access problem high cost of purchasing from farm gate and poor credit access were the major problems faced by tomato marketers. Moreover, socio economic characteristics have significant effect on the profitability of tomato marketing in the study area with the p-value of (0.000). From the findings of this study it is recommended that from the fee paid by the marketers to the marketer association should be make to provide infrastructural facilities especially electricity, which may help to extend the period of marketing of fresh tomatoes and improved method of storage by refrigeration and government should reconstruct or renovate the damaged road as the will prevent the tomatoes from being damaged

Introduction

Tomato (*Solanum lycopersicum)* is one of the most popular and widely grown fruit in the world including Africa (Agrios, 2013). It is native to South America (Osemwegi, 2013), but was introduced into West Africa by Portuguese traders and freed slaves from West Indies (Jones, 2000). It is the second most important vegetable worldwide, in terms of the amount of vitamins and minerals it contributes to the diet (Enrique and Eduardo, 2006). Genetic evidence shows that the progenitors of tomatoes were herbaceous green plants with small green fruit and a centre of diversity in the high lands of Peru (Smith, 2001). Tomato is the edible, often red fruit/berry of the Nightshade (*Solanum lycopersicum*) commonly known as a tomato plant.

Tomatoes are important in the daily meal preparation since it can be eaten raw or cooked. Larger quantities are used to produce soups, juice and sauces, ketchups, purees and paste. The seeds which are extracted from the pulp and its residues contain 24% oil which is used for salad dressing and in the manufacturing of margarine and soap. The residual press cake is used as stock feed as well as fertilizer. In addition, vegetable such as tomato apart from being consumed at home also earns foreign exchange to the producer countries, due to exportation(Enrique and Eduardo, 2006)..

Among different vegetables grown in Nigeria, tomato clearly stands out as the most important both in scale of production and level of consumption (Adejobi *et al.,* 2011). Tomato (*Solanum lycopersicum*) is grown by most dry season market gardeners who regard it as the principal crop. Most other vegetables have restricted demand in Nigeria, demand for tomato is universal. Tomato has the great poverty alleviation capacity. Its production, handling, transportation, distribution and marketing will definitely employ a large number of people. Tomato can be processed and exported to other West African nations or sold within

the country. Haruna I.B., Odeleye, Babalola, and Afolayan (2012) have reported that the concept of marketing subsumes a set of different innovative advertising instruments which aim at having a large effect with a small budget.

Agricultural marketing articulates 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 (Haruna *et al.,*2012). Marketing task involves transferring goods from producers to consumers (Olukosi *et.al,* 2007). It is the marketing function that ensures that consumer acquires the product in the form, places and time desired (Haruna *et al.,* 2012). Marketing functions are specialized activities performed in accomplishing the marketing process. These functions are broadly classified as follows: physical functions, exchange functions, facilitating functions (Haruna *et al.,*2012). The role of marketing in economic development is viewed from the improvement of trade, in raising the level of living of all concerned and of the economic wealth of the community and nation at large.

Marketing stimulates production, enterprise and specialization, hence resulting in an improved productivity of all sectors of the national economy. As the economy of a nation grows, the gap between farmers and consumers widened and the task of marketing becomes more complex (Abbott, 2002)

The unique characteristics of agricultural products including tomatoes pose some problems both to the farmers, marketers and final consumers. Its seasonality, bulkiness and perishability exert pressure on handling, packaging, transportation and sales with an attendant effect on the market price. On the other hand, storage facilities for tomato are lacking. This hinders large purchase by sellers and decreases production by producers. Improper handling of tomatoes after harvest lowers quality and causes losses (Olukosi and Isitor, 2004). Based on the above scenarios, the main objective of this study is to analyze the cost and returns of tomato marketing in Ibadan south east Local Government area of Oyo state and specifically, to:

(i) describe the socio economic characteristics of the respondents in the study area;
(ii) identify the marketing channels used by the respondents in the study area;
(iii) estimate the costs and return of tomato marketing in the study area;
(iv) identify the constraints faced by tomato marketers in the study area

Hypothesis of the study

Ho1: There is no significant effect of the socio economic characteristics of the respondents on profitability of tomato marketing.

Methodology

Study Area

Ibadan southeast is a local government area domiciled in the city of Ibadan, Oyo state which is in the southwest geopolitical zone of Nigeria. The headquarters of the LGA are in the Mapo Hall district of Ibadan city and the LGA shares borders with Ibadan southwest, Ibadan Northeast, and Oluyole LGAs. Several districts constitute Ibadan Southeast LGA and these include Boluwaji, Ring road, Challenge, Odinjo, Felele, Molete, and Owode. Ibadan south east lies within 7.3293° N, 3.9114° EIbadan Southeast LGA hosts the Ibadan Southeast Local Council Development Area. The estimated population of Ibadan Southeast LGA is 201,441 inhabitants with the most populous ethnic group in the area being the Yoruba. The Yoruba and English languages are commonly spoken in the LGA while the religions of Christianity and Islam are widely practiced in the area. Notable landmarks in Ibadan Southeast LGA include the Ibadan Grammar School. Ibadan Southeast LGA occupies a total area of 17 square kilometres and has an average temperature of 28 degrees centigrade. The average humidity level of the area is 61 percent while the total annual precipitation of the LGA is 2100 mm of rainfall. Ibadan Southwest LGA witnesses two distinct seasons which are the dry and the rainy seasons.

Population of the study

The targeted population for the study is the tomato marketers in Ibadan South east Local Government area, Oyo State.

Source of Data Collection

Primary data was obtained through the use of well-structured questionnaire

Sampling Procedure and Sample Size

Multi stage sampling was used for this study. In the first stage out of 9 market in Ibadan south east Local Government namely; Bere, Oje, Oritamerin, Oritaaperin, Ojaoba, Agbeni, Ogunpa, Molete and Bode market, 5 major markets were purposively selected namely; Oritamerin, Oritaaperin, Ojaoba, Agbeni, Ogunpa because of predominance of tomato marketers in the study area. In the second stage twenty four (24) marketers were randomly selected from each markets making a total number of 120 respondents.

Data analysis

Data were analyzed using descriptive statistics, Gross margin and Ordinary Least Square Multiple

Regression. Objective i, ii, and iv were analyzed using descriptive statistics, objective iv was analyzed using gross margin and while the hypothesis was analyzed with Ordinary Least Square Multiple Regression

Model specification

Ordinary Least Square Multiple Regression

Ordinary least square multiple regression was used to analyze socio economic characteristics effect on profitability of tomato marketing

The empirical model for the ordinary least square multiple regression specified as follows:

$C= f(x_1, x_2, x_3, x_4, x_{6,})$
implicit form…………………………(1)

Where $C = B_O+B_1 X_1+B_2 X_2+B_3 X_3+B_4 X_4+B_5 X_5+B_6 X_6+B_7 X_7+B_8 X_8+ \mu$ explicit form ……..(2)

Where

C= profit of tomato marketing (₦)

X_1 = Age of the marketers (in years);

X_2 = Sex (Male=1, Female=2);

X_3= Marital status (Single = 1, Married = 2, Divorced = 3, Widow = 4.)

X_4= Education (in years)

X_5 =Household size (No. of persons);

X_6 = Secondary occupation (Farming =1, Trading = 2, Civil servant = 3, Others = 4)

X_7 = Marketing Experience (years)

μ = Error term

2.5.2 Gross Margin Analysis:

GM = TR –TVC……………………...(1)

Where GM = Gross Margin

TR = Total Revenue

TMVC = Total Marketing Variable Cost

Results and Discussion

Socio economic characteristics of the respondents

Gender

Results Table 1 shows that majority (91.7%) of the respondents were female while only few (8.3%) of the respondents were male. This is an indication that female were more involved in tomato marketing than their male counterpart in the study area. However, this result corroborates the work of Haruna *et al.* (2012) in Bauchi State, Nigeria which found that majority of the fresh tomato marketers were women.

Age

Results Table 1 revealed that 39.2% of the respondents were between 41-50 years of age, 31.6% of the respondents were between 31-40 years of age, 21.7% of the respondents were between 51-60 years of age, 6.7% of the respondents were between 21-30 years of age, and 0.8% of the respondents were above 61years of age. The mean age is 42 years.. This indicates that the respondents in the study area were youth who may have the ability to carry out difficult task associated with tomato marketing

Marital status

Results Table 1 revealed that majority (96.7%) of the respondents were married, while only few (3.3%) of the respondents were single. This implies that majority of the respondents were married. This implies there are more married folks involved in tomato marketing.

Religion status

Table 1 revealed that most (60.8%) of the respondents were Muslims, while 39.2% of thbe respondents were Christians. This implies that Muslim dominated the study area.

Years of formal education

Table 1 revealed that average (50.0%) of the respondents have above 11 years of education, 32.5% of the respondents have 6-10years of education, while 17.5% of the respondents have 0-5years of education. This implies that average of the respondents were educated. Being educated will help the respondents in adopting marketing techniques which may boost their tomato marketing and will improve their income. This finding substantiated the findings of Haruna *et al.,*(2012) who observed that the level of education attained by the marketers to a large extent determine the strategies, which he/she may use to solve his/her marketing problem and to adopt new innovation without difficulties that will increase his profit as soon as they became available to him/her

House hold size

Table 1 revealed that majority (74.2%) of the respondents have 1-5 household size, 25.0% of the respondents have 6-10 households, while 0.8% of the respondents have above 11 households. The mean household size is 4. This shows that tomato marketers in the study area do not have large household members who may help in marketing tomato and this might result in the usage of hired labium

Secondary occupation

Table 1 revealed that almost all (97.5%) of the respondents was traders, 1.7% of the respondents were farmer, and 0.8% of the respondents were civil servant. This indicate that almost all the respondents had trading as their secondary occupation and this will facilitate another income to improve their tomato marketing business

Marketing experience

Table 1 revealed that 40.0% of the respondents had 11-20 years of experience, 30.9% of the respondents had 21-30 years of experience, 28.3% of the respondents have 1-10 years of experience, while 0.8% of the respondents have above 31 years of experience. This implies that respondents in the study area were experienced in tomato marketing and may likely to combat constraints associated with tomato marketing

Access to credits

Table 1 revealed that majority (94.2%) of the respondents have access to credit, while only few (5.8%) of the respondents have no access to credit. This implies tomato marketers have access to credit and this will help in maximizing the business which may facilitate more profit

Access to information

Table 1 revealed that almost all (98.3%) of the respondents have access to market information, while only few (1.7%) of the respondents have no access to market information. This implies that almost all the respondents in the study area have access to market information.

Association

Table 1 revealed that almost all (99.2%) of the respondents belongs to association, while only few (0.8%) of the respondents were not belongs to association. This implies that almost all the respondents in the study area belongs to associations and this will allow them to have access to marketing information regarding to tomato

Monthly income

Table 1 revealed that 40.0% of the respondents earned ₦20,001 –₦40,000monthly from tomato marketing, 29.8% earned ₦40,001-₦60,000 monthly from tomato marketing, 18.3% earned ₦60,001 –₦80,000 monthly, 5.8% earned ≤30,001- ₦40,000 while 4.2% earned above ₦80,001 from tomato marketing. This implies that majority of the respondents were low income earner.

**Table 1: Socio economic characteristics of the respondents**

Variables	Frequency	Percentage	Mean
Sex			
Male	10	8.3	
Female	110	91.7	
Age			
21-30	8	6.7	
31-40	38	31.6	
41-50	47	39.2	42
51-60	26	21.7	
61 and above	1	0.8	

Variables	Frequency	Percentage	Mean
Marital status			
Single	4	3.3	
Married	116	96.7	
Religion			
Islam	73	60.8	
Christianity	47	39.2	
Years of formal education			
0-5	21	17.5	
6-10	39	32.5	
11 and above	60	50.0	
Educational status			
No formal education	5	4.2	
Quranic education	1	0.8	
Primary	41	34.2	
Secondary	73	60.8	
Household size			
1-5	89	74.2	4
6-10	30	25.0	
11 and above	1	0.8	
Secondary occupation			
Farming	2	1.7	
Trading	117	97.5	
Civil servant	1	0.8	
Marketing experience			
1-10	34	28.3	
11-20	48	40.0	12
21-30	37	30.9	
31 and above	1	0.8	
Access to credit			
Yes	7	5.8	
No	113	94.2	
Access to market information			
Yes	2	1.7	
No	118	98.3	
Do you belong to any association			
Yes	1	0.8	
No	119	99.2	
Monthly income			
≤ 20,000	7	5.8	
20,001-40,000	47	40.0	
40,001-60,000	39	29.8	
60,001-80,000	22	18.3	
80000 and above	5	4.2	

Source: Field survey, 2022

Tomato marketing channel

The result in table 2 revealed the tomato marketing channel used by the respondents. The table shows that (70.8%) of the respondents used farm gate–wholesaler-retailer-consumer, above average (59.2%) used farm gate-wholesaler-consumer, average (50.8%) used farm gate-retailer-consumer while (18.3%) used farm gate -consumer. The mostly used marketing channel in the study area is farm gate–wholesaler-retailer-consumer. This result corroborates the work of Haruna *et al.* (2012) that the channel mostly used by the respondents in marketing their product was farm gate–wholesaler-retailer-consumer
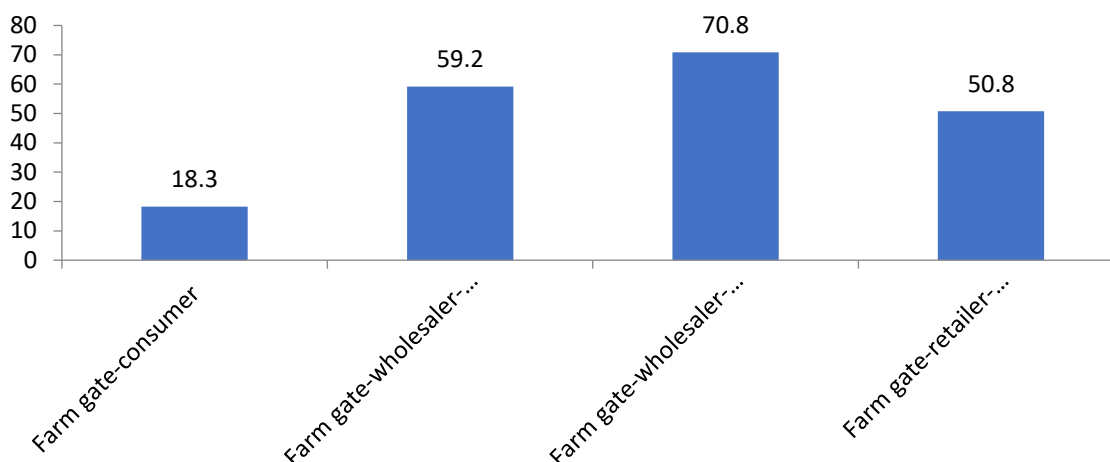
Figure 1:   **Tomato marketing channel**

Costs and return of tomato marketing

Table 4 shows the total variable marketing cost incurred and total returns of the respondents in the marketing of tomato. The table indicates that ₦203, 522 was total marketing variable cost of tomato while ₦710,624 was obtained as revenue (which was quantity of tomato sold multiplied by price per bowl/basket). The profit made by the respondent was ₦507, 102

GM = TR – TMVC

TR = ₦710, 624

GM = ₦710, 624– ₦203,522

=₦507, 102

Since gross margin (₦507, 102) is positive, therefore tomato marketing in the study area is profitable.

Table 3: **Costs and return of tomato marketing**

Variable	Average cost, bowl/ basket	Percentage
Cost of tomato bought for sale	176,617	
Market Dues/levy cost	3,231	
Government due/levy	2,456	
Storage cost	3,103	
Cost of market labour	7,545	
Cost of transportation	3,216	
Cost of loading	3,201	
Cost of unloading	4,153	
Total variable cost	**203,522**	
How do you sell your tomato		
Basket	30	25.0
Bowl	90	75.0
What quantity do you sell per week	212	
How much do you sell per Basket	3,352	
Total revenue (TR)	**710,624**	
Gross margin (GM)	**710,624 - 203,522**	
	507,102	

Source: Field survey, 2022

Constraints faced by tomato marketing

Table 4 revealed the constraints faced by tomato marketers. The result shows that perishability (mean=2.63) has the highest mean and was therefore ranked first, closely followed by road access problem (mean=2.57) and was ranked second, high cost of purchasing from farm gate (mean=2.53) was ranked third, poor credit access (mean=2.47) was ranked forth, while inadequate capital(mean=2.30), poor marketing information (mean=2.21), and high market levy (mean=1.59) was ranked seventh, eigth, and nineth respectively. This implies that perishability, road access problem, high cost of purchasing from farm gate and poor credit access are major problems faced by tomato marketers and these problem may hindered the marketers in maximizing their tomato business and this may affect their income.

Table 4: Constraints faced by tomato marketing

Constraints	Very severe	Severe	Not severe	Mean	Rank
High cost of purchasing from farm gate	77(64.2)	30(25.0)	13(10.8)	2.53	3
Poor Credit Access	59(49.2)	58(48.3)	3(2.5)	2.47	4
Inadequate capital	44(36.7)	68(56.7)	8(6.7)	2.30	7
Price fluctuation	50(41.7)	68(56.7)	2(1.7)	2.40	6
Storage problem	59(49.2)	56(46.7)	5(4.2)	2.45	5
Poor marketing information	49(40.8)	66(55.0)	5(4.2)	2.21	8
Perishability	76(63.3)	43(35.8)	1(0.8)	2.63	1
Road access problem	71(59.2)	46(38.3)	3(2.5)	2.57	2
High market levy	25(20.8)	21(17.5)	74(61.7)	1.59	9

Source: Field survey, 2022   All figures in parenthesis are in percentage

Regression analysis showing the effect of socio economic characteristics on profitability of tomato marketing

This section determines the effect of socio economic characteristics on profitability of tomato marketing in the study area. This was achieved by using multiple regression analysis and the hypothesis tested at 5% significant level. The results are presented in table .5.

Sex: Table 5 shows that sex of the respondents had negative coefficient implying that there is an inverse effect on the on profitability of tomato marketing and show no significant difference (p=0.876) on the profitability of tomato marketing

Age: Table 5 shows that age of the respondents had negative coefficient implying that there is an inverse effect on the on profitability of tomato marketing and show no significant difference (p=0.791) on the profitability of tomato marketing

Marital status: Results in Table 5 shows that marital status of the respondents had negative coefficient implying that there is an inverse effect on the on profitability of tomato marketing and show significant difference (p=0.001) on the profitability of tomato marketing

Religion: Results in Table 5 revealed that religion of the respondents had positive coefficient implying that there is a direct effect of religion on the on profitability of tomato marketing and show significant difference (p=0.001) on the profitability of tomato marketing

Years of formal education: Table 4.7 shows that years of formal education also had negative coefficient implying that there is an inverse effect on the on profitability of tomato marketing and show no significant difference (p=0.109) on the profitability of tomato marketing

Educational status: Results in Table 5 revealed that religion of the respondents had positive coefficient implying that there is a direct effect of educational status on the on profitability of tomato marketing and show no significant difference (p=0.1801) on the profitability of tomato marketing

Household size: Table 4.7 shows that household size of the respondents had negative coefficient implying that there is an inverse effect of household size on the on profitability of tomato marketing and show no significant difference (p=0.420) on the profitability of tomato marketing

Secondary occupation: Results in Table 5 shows that secondary occupation of the respondents had positive coefficient implying that there is a direct effect of secondary occupation on the profitability of tomato marketing and show no significant difference (p=0.202) on the profitability of tomato marketing

Marketing experience: Results in Table 5 shows that marketing of the respondents had positive coefficient

implying that there is a direct effect of marketing experience on the profitability of tomato marketing and show no significant difference (p=0.053) on the profitability of tomato marketing

Access to credit: Results in Table 5 shows that marketing of the respondents had positive coefficient implying that there is a direct effect of access to credit on the profitability of tomato marketing and show no significant difference (p=0.070) on the profitability of tomato marketing

Access to market information: Results in Table 5 shows that respondents access to market information also had negative coefficient implying that there is an inverse effect on the on profitability of tomato marketing and show no significant difference (p=0.115) on the profitability of tomato marketing

Association: Results in Table 5 shows that respondents association had positive coefficient

implying that there is a direct effect of association on the profitability of tomato marketing and show no significant difference (p=0.070) on the profitability of tomato marketing

income: Results in Table 5 shows that respondents income had negative coefficient implying that there is an inverse effect of income on the profitability of tomato marketing and show significant difference (p=0.000) on the profitability of tomato marketing

The adjusted R^2 was 0.333 indicating that 33.3% of the profitability of tomato marketing was explained by the influence of socio economic characteristics in the regression model. Since the p-value (0.000)<0.05. Therefore, the null hypothesis was accepted meaning that socio economic characteristics have significant effect on the profitability of tomato marketing in the study area

Table 5: regression analysis showing the effect of socio economic characteristics on profitability of tomato marketing

Variable	B	Std. Error	T	Significant
Constant	175400.167	78646.124	2.230	0.028
Gender	-1855.417	11826.336	-.0157	0.876NS
Age	-171.007	645.148	-0.265	0.791NS
Marital status	-51205.132	15492.117	-3.305	0.001*
Religion	62.753	5784.630	0.011	0.991NS
Years of formal education	-1454.831	900.044	-1.616	0.109NS
Educational status	5169.884	3834.511	1.348	0.180NS
Household	-2166.222	2674.201	-0.810	0.420NS
Secondary occupation	4405.130	3431.053	1.284	0.202NS
Marketing experience	1079.146	551.155	1.958	0.053NS
Access to credit	21460.436	11709.861	1.833	0.070NS
Access to market information	-36805.899	23172.879	-1.588	0.115NS
Do you belong to any association	6622.260	28588.590	0.232	0.817NS
Monthly income	-0.795	0.169	-4.711	0.000*
Adjusted R^2	0.333			
F-value	5.249			
P-value	0.000			

Source: Field survey, 2022   * = Significant NS= Not significant

Conclusion

From the findings of this study it is concluded that tomato marketers were dominated by females, with an average age of 42 years. The respondents were married with the mean household size of 4members and had an average experience of 12years. The mostly used marketing channel in the study area is farm gate–wholesaler-retailer-consumer. The costs and returns analysis indicated that tomato marketing was profitable in the study area with a monthly gross margin of ₦507,102. From the regression result it is

concluded that socio economic characteristics have significant effect on the profitability of tomato marketing in the study area with the p-value of

Recommendations

1. From the fee paid by the marketers to the marketer association should be make to provide infrastructural facilities especially electricity, which may help to extend the period of marketing of fresh tomatoes and improved method of storage by refrigeration

2. Government should reconstruct or renovate the damaged road as the will prevent the tomatoes from being damaged

3. Policies and strategies that lower the costs of marketing should be vigorously pursued to enhance better market performance and profitability

4. Marketers should strengthen themselves by forming cooperative groups to enjoy the benefit of economies of scale and improve their access to credit.

5. Markers should also be encouraged to acquire formal education as this will contribute to efficient marketing.

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