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ECONOMIC ANALYSIS OF INTER-MARKET AND SEASONAL PRICE SPREAD OF FRESH TOMATO MARKETING IN ANAMBRA STATE, NIGERIA

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ABSTRACT: *The study examined the economic analysis and seasonal price spread of fresh tomato marketing in Anambra State, Nigeria. Specifically, it described the influence of socioeconomic effect on the net marketing income, examine the inter market seasonal price spread among the intermediaries and constraints to fresh tomato marketing in the study area. Multistage sampling procedure was used to select 180 marketers (45 wholesalers and 135 retailers). Data were collected from primary source using structured questionnaire. Collected data were analyzed by means of descriptive analysis, multiple regression and relative importance index. The result on inter-market and seasonal price spread among intermediaries showed that average of 25kg (medium basket) of fresh tomato mean marketing margins realized by wholesalers (peak demand season) was high in Nkwo Umunze ₦11,000 followed by Eke Awka ₦10,000.00, and other markets. Also, Eke Ekwuluoba ₦6,500.00 had the highest retail mean marketing margin of (₦11,000.00), followed by Eke Awka (N10,500), and other markets. High market fees by government and high cost of transportation were perceived as the most serious constraints of the wholesaler's while perishability, sit at home palaver were perceived as serious on the retailers. Irrelevant and too much government and park charges should be addressed and reduced to barest minimal Fluctuation of prices of fresh tomato should be addressed by establishing a market board that regulate food prices were recommended.*

KEYWORDS: *Seasonal, peak, lean, influence, fresh tomato*

Introduction

Agriculture in Africa has a massive social and economic footprint, more than 60% of the population of sub-Saharan Africa are smallholder farmers and about 23% of Sub- Saharan Gross Domestic Product (GDP) comes from agriculture (Gbughemobi *et al.,* 2023). This sector provides employment opportunities, ensures food security and helps reduce the dependency on food imports thus combating

hunger (Azifuaku *et al.*, 2020; Isibor & Nkamigbo, 2024). Tomato (*Lycopersicon esculenta*) is a major vegetable crop that has achieved tremendous popularity over the century, and aside from being tasty, it promotes healthy nutritional balance as it an excellent source of lycopene (a very powerful antioxidant) that help to fight many forms of cancer development. It is one of the most important crops both in scale of production and level of consumption (Osuafor *et al*., 2025). It has high economic value and high nutritional potentials in our diet (Nkamigbo *et al.,* 2019). Abdurrahman, Abba-Aji, Baraza, Gambo, Mukhtar, Dauda, Salisu and Nura (2022) opined that tomato is the one of the widely grown vegetable in the world. Egypt together with India accounting for more than one fifth of the world total, Turkey and Nigeria are other world producing countries. Asia and Africa account 79% of the global tomato area with about 65% of the world output (FAO, 2008 as cited by Abdurrahman *et al.,* 2022). According to Ojedokun *et al.* (2020) fresh tomato supplies vitamins, minerals and fibres to those who consume it and as well contains antioxidants for cancer prevention especially those of the prostate gland, lungs and stomach. It is widely accepted and commonly used in a variety of dishes as raw, cooked or processed products more than any other vegetable and is also economically important, generating employment both at the urban and rural levels.

Agricultural marketing articulates all processes that takes place from when the farmer plans to meet specified demands and market prospects to when the producers finally get it to the consumers, marketing task involves transferring goods from producers to consumers. It helps in Nigeria economy by providing jobs for millions of people in science, research, engineering, education, advertisement, government agencies, trade organizations and commodity.

Hence, the aim of the study is to examine the economic analysis and seasonal price spread of fresh tomato marketing in Anambra State, Nigeria. Specifically, the study described the influence of socioeconomic effect on the net marketing income, examine the inter market seasonal price spread among the intermediaries and constraints to fresh tomato marketing in the study area.

Table 1: Top Ten World Producers of Fresh Tomatoes and Tonnes of Production

S/N	Country/Region	Area(ha)	Production/(tonnes)	Productivity (t/ha)	% of world production
1	China	1111480	64865807	58.35	34.72
2	India	812000	20573000	25.33	11.01
3	Turkey	181879	13204015	72.59	7.06
4	USA	110439	12227402	110.71	6.54
5	Egypt	170862	6731220	39.39	3.60
6	Italy	99780	6247910	62.61	3.34
7	Iran	129058	5787094	44.84	3.09
8	Spain	55470	4312900	77.75	2.30
9	Mexico	84926	4137342	48.71	2.21
10	Brazil	51960	3753595	72.24	2.00

Source: FAOSTAT, 2022.

Table 2: World Region Production

Region	Area (ha)	Production (tonnes)	Productivity (t/ha)	% of world production
Asia	2683606	116993632	43.59	62.62
America	361386	24445972	67.64	13.08
Europe	424449	22810698	53.74	12.20
Africa	1577885	22228893	14.08	11.89
Oceania	4657	342021	73.44	0.18
World total		186821216	36.97	100

Source, FAOSTAT, 2022.

Materials and Methods

The study was carried out in Anambra State, Nigeria. Several raw materials and agro-products are produced in various parts of the State. Some of the crops grown in the State include Oil palm, maize, rice, groundnut, cassava, cucumber, tomato, watermelon, greenbean, soyabean, livestock such as goats, sheep, poultry and cattle are also raised. Anambra State is an agrarian State. The state occupies a landmass area of 4,844 km^2, with coordinates between Latitude 60 20'N and Longitude 70 00'E (Emembolu *et al.*, 2024). The population of the State is 4, 182,232 with 863 SqKm density (NPC, 2006). The state has several daily markets both in the rural and urban areas where agricultural goods are sold especially fresh tomato known as *Ogbo-tomato* market. Fresh tomato is a thriving business in the State due to its nutritional and medicinal value

The study population was made up of all fresh tomato marketers in the State. Multi-stage sampling techniques were used to select the respondents. The respondents were selected based on the size of the markets; details of the process were given as: Stage i: Three agricultural zones were randomly selected from the four agricultural zones of the State; Stage ii: Three LGAs were randomly selected from each of the three selected agricultural zones making it a total of 9 LGAs; Stage iii: This involved purposive selection of one daily market; The purposive selection was based on the large number of consumers from each of the selected LGAs. A total of nine markets were selected for the study; Stage iv: Twenty (20) fresh tomato marketers (five wholesalers and fifteen retailers), were selected from each of the selected nine markets, making it a total of 180 respondents for the study.

Table 3: Sampling of markets and respondents

Agricultural zone	LGAs selected	Markets selected	Intermediaries selected
Awka	Awka South	Eke-Awka	5 Wholesalers 15 Retailers
	Njikoka	Oye-agu Abagana	5 Wholesalers 15 Retailers
	Dunukofia	Afor-igwe Umudioka	5 Wholesalers 15 Retailers
Onitsha	Onitsha North	Tomato market	5 Wholesalers 15 Retailers
	Onitsha South	Power-Mike	5 Wholesalers 15 Retailers
	Ogbaru	Coke- Market	5 Wholesalers 15 Retailers
Aguata	Aguata	Eke-Ekwulobia	5 Wholesalers 15 Retailers
	Nnewi North	Nkwo Nnewi	5 Wholesalers 15 Retailers
	Orumba South	Nkwo Umunze	5 Wholesalers 15 Retailers

Source: Field Survey, 2025.

Measurement of Variables

The variables that were used in this study were measured as follows:

- *Gender*: measured as dummy. (dummy: male =1, female=2).
- *Age*: measured in years.
- *Marital status*: dummy variables was used to indicate their marital status (dummy: married=1, single=2, divorced/widow=3).
- *Household size*: this is the total number of people living together in a family and feeding from the same pot.
- *Educational status*: measured as the years spent in school.
- *Marketing experience*: this measures the number of years each respondent has been in the business.
- *Marketing cost*: measured as the Naira value of the total cost of all the items (inputs) in the business.

Data were analyzed using descriptive analysis such as tables, mean, frequency, multiple regression and the relative importance index. The multiple regression model was used to determine the influence of socioeconomic factors of the respondents namely age (AGE), gender (GEN), marital status (MAS), household size (HOS), marketing experience (EXP), educational status (EDU), marketing cost (MKC), product price (PDP) on the net marketing income was given as:

NMI= F (AGE, GEN, MRS, HOS, EXP, EDU, MKS, SOF, TOU, MOD, PDP +e)

Where:

- NMI= Net returns (N)
- AGE=marketers age in years
- GEN= Marketers gender (dummy: male=1, female=2)
- MRS= Marketers marital status (dummy: married=1, single=2, divorced/widow=3)

- HOS= Household size (number of persons in the household)
- EXP=Marketers experience in years
- EDU=Marketers education (years of schooling obtained)
- MKC= Marketing cost (N)
- SOF= Source of finance
- TOU= Trade union
- MOD= Mode of delivery
- PDP= Product price (N)
- E= Stochastic error term

Four functional forms of the regression models (linear, exponential, semi-log and double log) were used and the model that best fit was adopted as the lead model.

NMI= Net marketing income

The explicit versions of the functional forms are stated as:

Linear form:

$$NMI = \beta_0 + \beta_1 AGE_1 + \beta_2 GEN_2 + \beta_3 MRS_3 + \beta_4 EDU_4 + \beta_5 SOF_5 + \beta_6 HOS_6 + \beta_7 TOU_7 + \beta_8 BOP_8 + \beta_9 EXP_9 + \beta_{10} MOD_{10} + \beta_{11} MKC_{11} + e_1$$

Semi Log form

$$NMISN = \beta_0 + \beta_1 logAGE_1 + \beta_2 logGEN_2 + \beta_3 logMAS_3 + \beta_4 EDU_4 + \beta_5 SOF_5 + \beta_6 HOS_6 + \beta_7 TOU_7 + \beta_8 BOP_8 + \beta_9 EXP_9 + \beta_{10} MOD_{10} + \beta_{11} MKC_{11} + e_1$$

Double Log form:

$$LogNMISN = \beta_0 + \beta_1 log\ AGE_1 + \beta_2 logGEN_2 + \beta_3 logMAS_3 + \beta_4 logEDU_4 + \beta_5 logSOF_5 + \beta_6 logHOS_6 + \beta_7 logTOU_7 + \beta_8 logBOP_8 + \beta_9 logEXP_9 + \beta_{10} logMOD_{10} + \beta_{11} logMKC_{11} + e_1$$

Exponential form:

$$Log\ NMISN = \beta_0 + \beta_1 AGE_1 + \beta_2 GEN_2 + \beta_3 MRS_3 + \beta_4 EDU_4 + \beta_5 SOF_5 + \beta_6 HOS_6 + \beta_7 TOU_7 + \beta_8 BOP_8 + \beta_9 EXP_9 + \beta_{10} MOD_{10} + \beta_{11} MKC_{11} + e_1$$

On constraints to fresh tomato marketing, the respondents were asked to rate the problems they encounter in fresh tomato marketing from a list of problems complied by the researcher. The relative importance index was used to determine the degree of importance of the problem as follows: very important =4, important =3, moderately important =2, not important = 1.

Cut-off-point = $\frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$

The responses on constraints to fresh tomato marketing was disaggregated as follows: RII = $\frac{\Sigma W}{A*N}$
Where:

- RII = Relative importance index
- W = Weighting given to each factor by the marketers (ranging from 1-4)
- A = Is the highest weight
- N = Is the total number of marketers.

To make inferential statement, the mean score was compared with the critical mean, 2.5. If the calculated mean of a problem is greater than the standard critical value, then the problem is regarded as very serious, otherwise the problem is not serious.

Results and Discussion

Influence of socioeconomic characteristics on net marketing income of fresh tomato marketing among the intermediaries (wholesalers).

Table 4 showed the output of the four functional forms of the regression model for predictors of the wholesalers of fresh tomato marketing. The result indicated that output of the linear form gave the best result in terms of number of significant predictors as well as the values of F-statistic, R^2 and R^2 adjusted and was chosen as the lead equation. The coefficient of multiple determination (R^2) 70.3% meant that 70% of the variation in the profit of the wholesalers was explained by the variations in the independent variables while the remaining 30% was due to error. The F-statistic value of 39.5 was significant and confirms to overall significance of the regression analysis. The regression equation is given as

NMI= 3.2342- 0.245AGE- 764.6GEN+217.8 MRS+0.01008HOS+ 0.00052EXP -0.0314EDU +0.01583MKS +0.0902SOF+ 0.017118TOU+ 0.23423MOD+ 0.0248PDP

Out of eleven independent variables included in the model, age, gender, education and source of finance statistically and significantly influenced net marketing income earned by the respondents. The remaining seven (marital status, household size, experience, trade union, product price, marketing cost and mode of delivery) were not significant. The coefficient of age was significant but had a negative relationship with the net marketing income at 1%. This is contrary to a prior expectations and implied that tomato marketers who has been in the enterprise who had also acquired skill and capital tends to lose out of the venture as a result of old age.

The coefficient of education was positively related to the net marketing income and had a significant effect at a 10% level of probability. This suggests that individuals with higher level of education tends to have a greater potential to increase their income due to their knowledge, awareness and adaptability to changes in the marketing system. This is in agreement with Isibor and Nkamigbo (2023) who stated that education is a better tool to increase sales in turmeric marketing in their study area. Similarly, the coefficient of source of finance had a positive and statistically significant effect on the net marketing income at 5% level of probability. This implies that marketers who have better access to fund for starting their tomato marketing business usually perform better in the enterprise than those who started with borrowed funds, all things being equal. Also the coefficient of gender was significant but had a negative relationship to the net marketing income at 5% level of probability. This implies that gender plays a major role in tomato marketing as the enterprise is gender dominance of female both at wholesale and retail levels of marketing.

Table 4: Influence of socioeconomic characteristics on net marketing income of fresh tomato marketing among the intermediaries (wholesalers).

Predicator	Exponential	Linear	Semi-log	Double-log
Constants	4.45372(86.57)	3.2342(10.55)	-1200.820 (-3.83)	3.796 (18.34)
AGE	0.0007169(0.75)	-0.2450(12.44)***	117.639 (5.65)***	0.108 (7.15)***
GEN	-0.004701(-0.65)**	-764.6(1.20)**	3.256 (-0.20)	-0.004 (-0.24)
MRS	0.00208(0.18)	217.8(0.16)	3.288 (0.38)	0.002 (0.31)
HOS	0.003043(0.76)*	0.01008(0.10)	-60.745 (-6.25)***	-0.038 (-6.84)***
EXP	-0.000172(-0.06)	0.00052(12.71)**	82.751 (10.17)***	0.072 (11.88)***
EDU	0.002280(1.89)	-0.03144(0.32)*	-5.000 (-0.40)	-0.005 (-0.82)
MKS	0.00000052(18.88)***	0.01583(1.09)	134.560(6.68)***	0.136(5.70)***
SOF	0.412(0.732)	0.09022(2.3471)**	0.000 (0.56)	0.000 (-0.24)
TOU	0.031 (0.297)	0.017118(2.22)	-0.045 (-6.46)	0.000 (0.56)
MOD	.0.119(-2.332)	023423(12.87)	-0.001 (-0.29)	0.8396(1.48)
PDP	0.619(1.431)	0.024855(1.34)	0.026 (6.76)***	0.34001(9.05)
R2	65.2	70.3	45.7	59.9
R2adjusted	60.1	64.5	41.3	54.3
F-statistic	29.1	39.	23.6	30.4
D-W Statistic	1.82	1.79	1.60	1.50

Key Note: * significant at P<0.10, ** = significant at P<0.05, * significant at P<0.01. Figures in ( ) are T- ratios. Sources; Field survey, 2025.**

Influence of socioeconomic characteristics on net marketing income of fresh tomato marketing among the intermediaries (retailers).

The multiple regression analysis was used to determine the effects of respondents' socioeconomic characteristics such as age (AGE), gender (GEN), marital status (MRS), household size (HOS), marketing experience (EXP) education (EDU), marketing cost (MKS), sources of finance (SOF), trade union (TOU), mode of delivery (MOD), and product price (PDP) on the net marketing income as shown in Table 5. The data were fitted to four functional forms (linear, exponential, semi-log and double-log) of the regression model and ran using MINITAB statistical package. Among outputs of the four functional forms tried with the data, that of the exponential form was best in terms of number of significant variables, values of F-statistic, R^2, R^2 adjusted and Durbin-Watson statistic and was chosen as the lead equation.

NMI =24545-15.301AGE+ 20.190GEN+ 2.004MRS+0.135HOS+ 0.016EXP- 1.876EDU + 0.087MKC +84.080 SOF- 224.620TOU+ 21.160MOD+ 0.048PDP

Out of eleven independent variables included in the model, age, household size, experience, marketing cost and source of finance statistically and significantly influenced net marketing income earned by the respondents. The remaining six (gender, education, trade union, marital status, product price and mode of delivery) were not significant.

The coefficient of age was significant but had a negative relationship with the net marketing income at 1%. This is contrary to aprior expectations and implied that tomato marketers who has been in the enterprise who had also acquired skill and capital tends to lose out of the venture as a result of old age. The coefficient of household size had positive and statistically significant effect on the bet marketing income at 5% probability level. This implies that as the household size increases there are more hands to help in selling of fresh tomato which invariably increases their income and sales volume. This is in line with a prior expectation. The coefficient of marketing experience had positive and statistically significant influence on the net marketing income at 1% level of probability. The implication of this is that marketers who had being in the enterprise over time had gain enough experience and expertise in dealing with the perishability nature of the fruits, marketing ethics and other to improve their sales margin and maximization profit. The coefficient of marketing cost was positive and had a significant effect on the net marketing income at 5% level of probability to a prior expectation. This implies a positive relationship between marketing cost and net marketing income. Similarly, the coefficient of

source of finance had a positive and statistically significant effect on the net marketing income at 1% level of probability. The implication of this is that those marketers that started the enterprise with their money tends to move faster than those who borrow to start as they keep on servicing the debt. Also those that had enough fund to invest in the enterprise tends to purchase more for sales which increases their volume of sales and profit, all things being equal.

Table 5: Influence of socioeconomic characteristics on net marketing income of fresh tomato marketing among the intermediaries (retailers).

Predicator	Linear	Exponential	Semi-log	Double-log
Constants	2.220(14.193)	24545(10.55)	6.345(2.60)	3.796 (18.34)
AGE	0.987(0.012)	-15.301(12.44)***	0.108(1.220)	0.108(7.15)***
GEN	6.354(23.341)	20.190(1.20)	0.066(0.754) **	-0.004 (-0.24)
MRS	0.00208(0.18)***	2.004(0.16)	0.019 (0.392)	0.002 (0.31)
HOS	0.003043(0.76)	0.135(0.10)**	5.339 (1.241)***	-0.038(6.84)*
EXP	-0.000172(-0.06)*	0.016(12.71)***	0.0016 (1.276)	0.072 (11.88)***
EDU	0.002280(1.89)	--1.876(0.32)	0.718 (1.625)	-0.005 (-0.82)
MKS	0.00000052(18.88)	0.087(1.09)***	103.132 (0.620)	0.136 (5.70)***
SOF	0.412(0.732)**	84.080(2.3471)*	.442(0.680)	0.000 (0.24)
TOU	0.031 (0.297)	-224.620(2.22)	0.076(0.313)**	0.000 (0.56)
MOD	.0.119(-2.332)	21.160(12.87)	0.135(0.266)	0.8396(1.48)
PDP	0.619(1.431)	0.048(1.34)	0.721(0.025)	0.34001(9.05)
R2	77.3	79.1	70.0	66.5
R2adjusted	70.0	72.4	67.8	60.9
F-statistic	41.0	41.65	34.1	30.1
D-W Statistic	1.90	2.0	2.3	1.70

Key Note: * significant at P<0.10, ** = significant at P<0.05, * significant at P<0.01. Figures in ( ) are T- ratios. Source: Field survey, 2025.**

Inter market and seasonal price spread among the intermediaries

The peak demand season for fresh tomato is from November to March while the lean demand season is from May to September. During the peak period, the produce floods the market with various varieties at affordable prices only for the price to drop at the expiration peak season and rises at the lean season. Table 6.1 and 6.2 showed the peak season of wholesale and retail marketing margins of fresh tomato in the selected daily markets in Anambra State. It was discovered that an average of 25kg (medium basket) of fresh tomato mean marketing margins realized by wholesalers was high in Nkwo Umunze N11,000 followed by Eke Awka N10,000.00, Oye Abagana N9,500.00, Afor-igwe Umudioka N9,000.00, Nkwo Nnewi N8,000.00 and Coke market N8,000.00, Power mike N7,000.00 and Eke

Ekwuluoba N6,500.00. Some markets realized high marketing margin as a result of presence of government seat of power, presences of higher institutions and also the high price differential of the marketing margins occurred as a result of different cost incurred by the traders at the different markets. On the other hand, the highest retail mean marketing margin of (₦11,000.00) was recorded at Eke Ekwuluobia followed by Eke Awka (₦10,500), Oye-agu Abagana (₦10,000.00), Nkwo Umunze (₦9,800), Nkwo Nnewi (₦9,600), Afor-igwe Umudioka (₦9,300.00), Coke market (₦8,800.00) Ahia tomato (₦8,100.00) and power mike (₦8,000.00).

Lean season marketing margin realized by the wholesaler and retailers operating in daily selected markets are shown in Table 7.1 and Table 7.2 respectively. The mean marketing margins for wholesalers were at optimum in Afor-igwe Umudioka (₦8,000.), Nkwo Umunze (₦7,700.00) Nkwo Nnewi (₦7,000.00) and Eke Awka (₦7,000.00), Ahia Coke (₦6,800.00) and Eke Ekwuluobia (₦6,800.00), Ahia Tomato (₦6,500.00), and Power mike (₦6,300.00). highest retail mean marketing margin of Nkwo Umunze (₦6,900.00) and Eke Ekwuluobia (₦ 6,800.00) while the least was recorded at Ahia Tomato and Power Mike (₦5,000.00) respectively. From the study the prices within the market were almost uniform. This may be as a result that the marketers were constantly aware of the prevailing prices of fresh tomato across the markets in the State.

Table 6.1 Peak season, wholesale marketing of fresh tomato (Medium basket)

AZ	LGA	MARKET	MPP	MSP	MMM
Awka	Awka South	Eke-Awka	25,000.00	35,000.00	10,000.00
	Njikoka	Oye-agu Abagana	25,000.00	35,500.00	9,500.00
	Dunukofia	Afor-igwe Umudioka	25,000.00	36,000.00	9,000.00
Onitsha	Onitsha North	Ahia Tomato	25,000.00	30,000.00	5,000.00
	Onitsha South	Power-Mike	25,000.00	32,000.00	7,000.00
	Ogbaru	Coke- Market	25,000.00	33,000.00	8,000.00
Aguata	Aguata	Eke-Ekwulobia	25,000.00	31,500.00	6,500.00
	Nnewi North	Nkwo Nnewi	25,000.00	33,000.00	8,000.00
	Orumba South	Nkwo Umunze	25,000.00	36,000.00	11,000.00

Key Note: AZ-Agricultural zone, MPP-mean purchasing price, MSP-mean selling price, MPP-mean marketing margin. Source: Field survey, 2025.

Table 6. 2 Peak season, retail marketing of fresh tomato

AZ	LGA	MARKET	MPP	MSP	MMM
Awka	Awka South	Eke-Awka	35,000.00	45,500.00	10,500.00
	Njikoka	Oye-agu Abagana	35,500.00	45,500.00	10,000.00
	Dunukofia	Afor-igwe Umudioka	36,000.00	45,300.00	9,300.00
Onitsha	Onitsha North	Ahia Tomato (Tomato market)	30,000.00	38,100.00	8,100.00
	Onitsha South	Power-Mike	32,000.00	40,000.00	8,000.00
	Ogbaru	Coke-Market	33,000.00	41,800.00	8,800.00
Aguata	Aguata	Eke-Ekwulobia	31,500.00	7,000.00	10,900.00
	Nnewi North	Nkwo Nnewi	33,000.00	7,000.00	9,600.00
	Orumba South	Nkwo Umunze	36,000.00	7,000.00	9,800.00

Key Note: AZ-Agricultural zone, MPP-mean purchasing price, MSP-mean selling price, MPP-mean marketing margin. Source, field survey, 2025.

Table 7.1: Lean season, wholesale marketing of fresh tomato (medium basket)

AZ	LGA	MARKET	MPP	MSP	MMM
Awka	Awka South	Eke-Awka	64,300.00	71,300.00	7,000.00
	Njikoka	Oye-agu Abagana	63,800.00	71,300.00	7,500.00
	Dunukofia	Afor-igwe Umudioka	63,300.00	71,300.00	8,000.00
Onitsha	Onitsha North	Ahia Tomato	63,500.00	70,000.00	6,500.00
	Onitsha South	Power-Mike	64,200.00	70.500.00	6,300.00
	Ogbaru	Coke-Market	63,200.00	70,000.00	6,800.00
Aguata	Aguata	Eke-Ekwulobia	64,450.00	71,250.00	6,800.00
	Nnewi North	Nkwo Nnewi	64,000.00	71,000.00	7,000.00
	Orumba South	Nkwo Umunze	63,550.00	71,250.00	7,700.00

Key Note: AZ-Agricultural zone, MPP-mean purchasing price, MSP-mean selling price, MPP-mean marketing margin. Source: Field survey, 2025.

Table 7.2: Lean season, retail marketing of fresh tomato

AZ	LGA	MARKET	MPP	MSP	MMM
Awka	Awka South	Eke-Awka	71,300.00	77,300.00	6,000.00
	Njikoka	Oye-agu Abagana	71,300.00	77.400.00	6,100.00
	Dunukofia	Afor-igwe Umudioka	71,300.00	77,800.00	6,500.00
Onitsha	Onitsha North	Ahia Tomato	70,000.00	75,500.00	5,000.00
	Onitsha South	Power-Mike	70,500.00	75,500.00	5,000.00
	Ogbaru	Coke-Market	70,000.00	75,000.00	5,000.00
Aguata	Aguata	Eke-Ekwulobia	71,250.00	75,050.00	6,800.00
	Nnewi North	Nkwo Nnewi	71,000.00	77,000.00	6,000.00
	Orumba South	Nkwo Umunze	71,250.00	78,150.00	6,900.00

Key Note: AZ-Agricultural zone, MPP-mean purchasing price, MSP-mean selling price, MPP-mean marketing margin. Source: Field survey, 2025.

Constraints to Fresh tomato marketing

The constraints militating against fresh tomato marketing in the study area were shown in Table 8 for both the wholesale and retailers respectively. From the Table both the wholesalers and retailers had similar constraints but some were more pronounced in the wholesale than retail marketing and vice versa. For the wholesalers, the problem of perishability nature (M=3.50) of the product was perceived as the most serious constraints of fresh tomato marketing in the study area. The product doesn't last for a long time after harvesting without storage and in the course of transportation if there is delay on the road the produce begins to rot which reduces the value and invariably affects the selling price. Another constraint of great importance is high market fees (M=3.30) collection by government agencies and market union. This has adversely affected the profit margin of the produce as most of them complain that the tax is becoming unbearable from day to day. Transportation of fresh tomato (M=3.15) fruits from the point of production to the market constitutes among the highest marketing cost incurred by the marketers and sometimes the produce do damage on the cost of transportation thus increasing the marketing cost of the marketers. Sit at home palaver (M=3.05) is a very great sabotage of the economy which hinders free flow of marketing on the said days although government is doing everything to stop it but no minimal effect has been recorded. Other constrains that affect fresh tomato

marketing at the wholesale level but not of great importance were poor storage facilities (M=3.01), breakage on transit (M=2.49), irregularity of supply (M=2.40) and high cost of product (M=2.35).

For the retailers, the most serious perceived constraint was perishability of the product (M=3.50). This particular constraint affects the retailers most as they are the one that deals with the end users mostly. If the produce remains for day without been sold, it starts deteriorating thus affecting the marketing cost and profit margin. Sit at home (M=3.05) has become a major economic set back to most of the perishable goods in the study area. This has affected the retailers so much that some of them do come out in the evening to a market called *Uwa Mgbede* (evening market) to make sure that their products are sold in order to minimize losses and maximize profit. High market fees (M=3.30) collection by agents of government is becoming a threat to marketers most especially the retailers. In order to avert this some of them have damage their tomato in the bid to run away thus affecting their profit margin. Poor storage facilities (M=3.05) is becoming worrisome to both farmers and marketers of perishable product as no well-known preservation tool is available to preserve their produce. Marketers sometimes sell below cost price when they notice that the fruit may rot if not sold immediately thus reducing the profit. Other constraints to fresh tomato marketing in the study area were high cost of product (M=2.45), irregularity in supply (M=2.30), high cost of transportation (M=2.25) and breakage on transit (M=2.20).

Table 8 Constraints to fresh tomato marketing

Constraints	**Wholesalers mean score**	**Rank**	**Retailers mean score**	**Rank**
Sit-at-home palaver	4th	3.05	2nd	3.02
Poor storage facilities	5th	3.01	4th	2.50
Perishability nature	1st	3.50	1st	3.10
High market fees by government	2nd	3.30	3rd	2.80
High cost of transportation	3rd	3.15	7th	2.25
Irregularity in supply (seasonality)	7th	2.40	6th	2.30
High cost of product	8th	2.35	5th	2.45
breakage on transit	6th	2.49	8th	2.20

Source: Field survey, 2025.

Conclusion and Recommendation

The study examined the seasonal price spread and marketing of fresh tomato marketing in Anambra State, Nigeria. The study specifically described influence of respondents' socioeconomic characteristics on net marketing returns, inter market and seasonal price spread and constraints to fresh tomato marketing in the study area. A multistage sampling procedure involving purposive sampling methods were used to select 3 Agricultural zones, 9 LGAs, 9 daily markets and 180 marketers (45 wholesalers and 135 retailers) for the study. Primary data were collected by means of structured questionable administered to the respondents through enumerators. Data were analyzed using descriptive statistics, multiple regression and relative importance index. The result of multiple regression analyses on influence of socioeconomic characteristics showed that under wholesalers, age, gender, education, and source of finance statistically and significantly affected the net marketing income while the remaining marital status, household size, experience, trade union, product price, marketing cost and mode of delivery were not significant. Under retailers age, household size, experience, marketing cost and source of finance statistically and significantly affected the net marketing income while the remaining gender, education, trade union, marital status, product price and mode of delivery were not significant. Result on inter market and seasonal price spread among intermediaries showed that average of 25kg (medium basket) of fresh tomato mean marketing margins realized by wholesalers (peak demand season) was high in Nkwo Umunze ₦11,000 followed by Eke Awka ₦10,000.00, Oye Abagana ₦9,500.00, Afor-igwe Umudioka ₦9,000.00, Nkwo Nnewi ₦8,000.00 and Coke market ₦8,000.00, Power mike ₦7,000.00 and Eke Ekwuluoba ₦6,500.00 also the highest retail mean marketing margin of (₦11,000.00) was recorded at Eke Ekwuluobia followed by Eke Awka (₦10,500), Oye-agu Abagana (N10,000.00), Nkwo Umunze (₦,800), Nkwo Nnewi (₦9,600), Afor-igwe Umudioka (₦9,300.00), Coke market (₦8,800.00) Ahia tomato (₦8,100.00) and power mike (₦8,000.00). Findings on the constraints associated with fresh tomato marketing showed that perishability, high market fees by government and high cost of transportation were perceived as the most serious constraints of the wholesaler's while perishability, sit at home palaver were perceived as serious on the retailers. Fresh tomato marketing in Anambra, Nigeria showed that prices within the market were almost uniform. This may be as a result that the marketers were constantly aware of the prevailing prices of fresh tomato across the markets in the State.

Based on the findings of this study, the following recommendations were made:

1. Irrelevant and too much government and park charges should be addressed and reduced to barest minimal.
2. Fluctuation of prices of fresh tomato should be addressed by establishing a market board that regulate food prices.

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