International Journal of Agriculture, Environment and Bioresearch

Vol. 10, No. 02; 2025

ISSN: 2456-8643

MARKET STRUCTURE, PROFITABILITY AND DETERMINANTS OF NET MARKETING INCOME OF DRY MAIZE MARKETING IN IMO STATE NIGERIA

Rev. Fr Ozor, M.U Ph.D

https://doi.org/10.35410/IJAEB.2025.5971

ABSTRACT

The study examined the market structure, profitability, determinant of net marketing income and constraints to dry maize marketing in Imo state, Nigeria, Multi-stage sampling method was used to select 100 respondents. Gini coefficient, budgetary technique and multiple regression were used to analyse the data collected. Gini coefficient indices of 0.321 and 0.356 for producers/ suppliers of white and yellow maize 0.285 and 0.273 for wholesalers of white and yellow maize and 0.0.224 and 0.198 for retailers of white and yellow maize reflected evidence of perfect market.Net marketing income, return on investment, net return on investment of N9,498132.75, 1.7 and 0.7 for wholesalers of dry white maize, N8,905,392.4, 1.8 and 0.8 for wholesalers of dry yellow maize; N10,694,204.25, 1.8 and 0.8 for retailers of dry white maize and N11,337,802.75, 1.9 and 0.9 for retailers of dry yellow maize respectively, proved the business profitable. Socio-economic factors of the respondents especially marketing cost and product price statistically and significantly influenced net marketing income. Constraints to dry maize marketing were high cost of transportation, inadequate capital, storage pests and diseases, high market levy, unstable prices, poor storage facilities, too many traders, inadequate market information and poor sales.

Keywords: Dry Maize, Market Structure, Profitability, Determinant.

1. INTRODUCTION

Agriculture is the bedrock of most countries of the world especially developing countries such as Nigeria. It contributes immensely Agriculture to the Nigeria economy in various ways, such as the provision of food for the increasing population; supply of adequate raw materials and labour to the industrial sector; major source of rural employment opportunities: generation of foreign exchange earnings and provision of market for the products of the industrial sector (Food and Agriculture Organization (FAO), 2013) In Nigeria, the agriculture sector contribution about 42% of the gross domestic product (GDP) and provides employment to more than 70% of the people especially those in the rural sector (Central Bank of Nigeria (CBN), 2014). Therefore, growth in the sector where most of the nation's work force is located is a must for poverty reduction and economic growth (Oluwafemi 2009). The sector has been one of the driving force behind the country's economic growth (National Bureau of Statistics (NBS*) 2014)*, and therefore fundamental to cutting hunger and reduction of the burden of food import (Peacock, 2010). One of the agricultural products that has contributed immensely to the country's economic growth is maize.

Maize (*Zea mays*) known in many English-speaking countries as corn, is a grain domesticated by indigenous peoples in Mesomari (Bulgaria) in prehistoric times. It is the most widely grown grain crop in the America with 322 million metric tonnes grown annually in USA alone, (Ozor, Nkamigbo and isiboh, 2019). (Raouf, 2011). It is an annual plant belonging to the grass family (*gramineae)* (Oluwatoyin, 2013). According to Visent and Asher (2015), maize is a cereal crop that is grown throughout the world in a range of agro-ecological environments. It was introduced

Vol. 10, No. 02; 2025

ISSN: 2456-8643

into Africa in the 1500s and has become one of the Africa's dominant food crops. Like in many other regions, it is consumed as a vegetable, although it is a grain crop (Singh, Yadaw and Sharma 2012). In Nigeria, maize is a very important staple food crops. It is predominantly used as a separate food in the diet of urban and rural inhabitants. It also has vast commercial and industrial uses by agro-based industries through its processing and transformation into corn flakes, flour, baby foods, confectionaries, starch and livestock feeds and other products (Oyetoro and Okunade, 2012). Maize is equally useful in alternative medicine, chemicals, bio fuel, and ornamentals. It is a major source of cooking oil (Corn oil) and gluten. Maize starch can be hydrolyzed and enzymatically treated to produce syrups, particularly high fructose corn-syrup, a sweater, and also fermented and distilled to produce grain alcohol for whiskey production and as the starch source for beer. It is equally used for the production of dough ball and fish bait (Folayin, 2023). Maize grains are rich in vitamins A, C and E, carbohydrates, and essential minerals, and contain 9% protein (Mboyal 2011; Gwirtz and Maris, 2013). It is also rich in dietary fibre and calories which are good source of energy (Mboyal ozor , 2024).

International Institute for Tropical Agriculture IITA (2022) opined that about 50 varieties of maize exist and are of different colours, textures, grain shapes and sizes. White, yellow and red are the most common ones. The white and yellow varieties are preferred by most people depending on the region. Recommended varieties of maize to improve yield, for early season planting are; yellow open pollinated varieties. Western yellow1: tzsr-y-I (streak Resistant) dmr-lsry (Downy Mildew & Steak resistant). Yellow hybrids varieties; 8425-8; 8329-15 white, open pollinated varieties; dmr-lsrw (down Mildew & Steak Resistant). dmr-lsrw (Downy Mildew & Steak Resistant).white Hybrids; 8321-18; 9022-19, (stariga Resistant). For late season: - Yellow open pollinated varieties; tzesr-y; dm-esryy (Downy Mildew and Steak Resistant) popiorn; White Pop: Yellow composite (IITA, 2024).

Dry maize marketing involves the movement of the product from the producer to the final consumer. They include assemblage, storage, transportation, grading and financing. They take place in homes, road sides, local/ Dry maize marketing itself, is concerned with all the operation that aid movement of the product periodic market centres . They can be both wholesale and retail types in both rural and urban markets (Nwauwa, 2012). Generally, most of the commercial quantities of dry maize in Nigeria are transported from the supply regions of Northern Nigerian. Prices of dry maize are largely affected by transportation costs. After drying the maize, they are put in bags weighing about 100kg each. Wholesalers buy directly from the suppliers and sell to the retailers and consumers. Quantities sold to the retailers and consumers are most of the times measured in buckets weighing about 8-10kg. Some of the consumers also buy in cigarette cups. Major distribution points for dry maize ranges from producer points, wholesale markets and retail markets.

Market structure can also be defined as the prevailing nature of competition in a market characterized by the number of buyers and sellers, their size distribution, the degree of product differentiation and the ease of entry of new marketing participants. It influences competition, information and pricing system operating in the market (Ugwumba, Okoh and Uzoegbunam, 2011).

This study aimed at addressing the following objectives; identifying the market structure of dry (yellow and white) maize; estimating the profitability of dry maize marketing by the intermediaries ,determining the influence of respondents' socio-economic factors on net

Vol. 10, No. 02; 2025

ISSN: 2456-8643

marketing incomes realized by the intermediaries; and identifying the constraints to dry maize marketing in the area

2.MATERIAS AND METHODS

The study was carried out in Imo state Nigeria. Imo State is one of the 36 states of Nigeria and lies in the South East of Nigeria. Owerri is its capital and largest city. Its other major cities are Orlu and Okigwe. Located in the South-eastern region of Nigeria, it occupies the area between the lower River Niger and the upper and middle Imo River Niger. Imo State is bordered by Abia State on the East, River Niger and Delta state to the west, Anambra state on the North and River state to the south (Adeyemi, 2011).

Imo State covers an area of about 5,530km^2 with a population of 3,934,899 according to the national population census 2006 (NPC, 2006). The state lies within latitude 4^0 45^1N and longitude 6^0 50^1E and 7^0 25^1E with an area of around 5,100km^2.

The study population comprised all dry maize marketers Imo State) of Nigeria. Multistage, purposive and random sampling methods were used. In the first stage five local Government Area; Ehime Mbano, Owerri Municipal, Ezinifite, Orlu and Orlu West were purposely selected. In stage two, one daily market, Orie Agu, Eke Onuma, Nkwo Mbaise, Orie Umunna and Eke Mgbidi were selected while in stage three, five wholesalers and fifteen retailers were selected from each of the market making a total of one hundred (100) respondents for the study. Data were collected from primary source. Primary data were obtained by using pre-tested questionnaire administered to the respondents by personal interview. Data were collected on socio-economic characteristics of the respondents such as age, gender, marital status, household size, educational level, marketing experience etc. Additional data were collected on revenue and costs variables, product price, as well as constraints to dry maize marketing in the area. The following techniques were used to achieve the study objectives. The respondents were asked to rate the problems they face in dry maize marketing from a list of problems complied by the researcher. A 4-point Likert-type scale was used to obtain data on constraints to dry maize in the study area. The responses from the respondents were ranked as follows:

Very serious = 4 Serious = 3 Moderately Serious = 2 Not Serious = 1

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

Market structure, was achieved using Gini Coefficient (G.C). , profitability of dry maize marketing was achieved using budgetary method. The influence of respondent's socio-economic factors on net marketing income was realized using the multiple regression analysis. The Gini coefficient was used to determine the market concentration or nature of competition in the market i.e. market structure. The technique is given as:

$$G = 1 - \sum_{k=0}^{k=n-1} \left(\partial Y_{\mathbf{k-1}} + Y_k\right)\left(\partial X_{k-1} - X_k\right)$$

Where:

G = Gini coefficient (number)

X = Marketing agents (number)

Y = Volume of trade (N)

∂X = Cumulated proportion of marketing agents (population variable)

∂Y = Cumulated proportion of sales (volume of trade)

Vol. 10, No. 02; 2025

ISSN: 2456-8643

n = number of observations

k = n-1

The budgetary technique was used to determine the profitability of dry maize marketing. The budgetary technique (Ugwumba *et al*., 2012) is expressed as:

$$NMI = \sum_{i=1}^{n} P_{yi}Y_i - \left(\sum_{k=0}^{n} P_{xij}X_{ij} + \sum_{i-1}^{r} F_{ij} \right)$$

Where:

NMI/Profit = Net Marketing Income /Profit

$\sum$ = Sum

$P_{yj}Y_j$ = Unit price x quantity of j^{th} respondent's sales = total revenue (TR) for j^{th} respondent.

$P_{xij}Y_{ij}$ = Prices x quantities of j^{th} respondent's variable inputs = total variable cost (TVC) for j^{th} respondent.

F_{ij} = Depreciation values of equipment, annual rent for store, interest on loan, e.t.c. for j^{th} respondent = Total fixed cost (TFC) for j^{th} respondent.

TC = Total cast (TVC + TFC. The multiple regression model used to determine the influence of socio-economic factors of the respondent namely age represented by (AGE), gender (GEN), marital status (MAS), household size (HOS), marketing experience (EXP), educational status (EDU), marketing cost (MKC). Product price (PDP) and type of intermediary (TOI) on net marketing income is given as:

NMI = f (AGE, GEN, MAS, HOS, EXP, EDU, MKC, PDP, TOI + e)

Where:

NMI = Net marketing income (₦)
AGE = Marketer's age in years
GEN = Marketer's gender (dummy: male = 1; female = 2)
MAS = Marketers' marital status (dummy: married = 1; otherwise = 2)
HOS = Household size (number of persons in the household)
EXP = Marketers' experience in years
EDU = Marketers' education (years of schooling obtained)
MKC = Marketing cost (₦)
PDP = Product price (₦)
TOI = Type of intermediary (dummy: wholesaler = 1; retailer = 2)
e = Stochastic error term.

Four functional forms of the regression model (linear, exponential, semi-log and double-log) were tried with data on socio-economic factors and net marketing income of the marketers. Output of the form with best result according to econometric *a priori* criteria was adopted as the lead equation. The explicit versions of the functional forms are stated as:

Linear: NMI = $\beta o + \beta_1 AGE + \beta_2 GEN + \beta_3 MAS + \beta_4 HOS + \beta_5 EXP + \beta_6 EDU + \beta_7 MKC + \beta_8 PDP + \beta_9 TOI + e_i$

Exponential: InNMI = $\beta o + \beta_1 AGE + \beta_2 GEN + \beta_3 MAS + \beta_4 HOS + \beta_5 EXP + \beta_6 EDU + \beta_7 MKC + \beta_8 PDP + \beta_9 TOI + e_i$

Semi-log: NMI = $\beta o + \beta_1 InAGE + \beta_2 InGEN + \beta_3 InMAS + \beta_4 InHOS + \beta_5 InEXP + \beta_6 InEDU + \beta_7 InMKC + \beta_8 InPDP + \beta_9 InTOI + e_i$

Double-log: InNmi = $\beta o + \beta_1 InAGE + \beta_2 InGEN + \beta_3 InMAS + \beta_4 InHOS + \beta_5 InEXP + \beta_6 InEDU + \beta_7 InMKC + \beta_8 InPDP + \beta_9 InTOI + e_i$.

Vol. 10, No. 02; 2025

ISSN: 2456-8643

3.RESULTS AND DISCUSSIONS

3.1 Market Structure of Dry Maize.

The result of the analysis of market structure using Gini coefficient is shown in Table 1. It could be observed from the table that the index for producers of white maize was 0.321 while that of yellow maize was 0.356. These results showed that the concentration ratio for producers of the two varieties was low. This implied that no single supplier was able to control a large share of dry maize supplied in the market. This also meant the existence of many dry maize suppliers in the market and none could influence the supply either by increasing or reducing the quantity being supplied thereby influencing price. It can also be observed from the table that the index for supplier of yellow maize is greater than that of white maize, implying a better market structure for white maize producers

Table 1: Estimated Gini Coefficients of Dry Maize Marketing Agents in Imo State.

Marketing Agent	Gini coefficient	Stdev	Minimum	Maximum
Producer/Supplier$_w$	0.321	0.124	0.241	0.331
Wholesaler$_w$	0.285	0.177	0.186	0.297
Retailer$_w$	0.224	0.089	0.114	0.282
Producer/Supplier$_y$	0.356	0.094	0.230	0.380
Wholesaler$_y$	0.273	0.137	0.201	0.294
Retailer$_y$	0.198	0.110	0.120	0.290

Source: Field survey, 2025. Note: stdev = standard deviation. W= white maize. Y=yellow maize

3.1.2 Profitability of Dry Maize Marketing

Enterprise budgeting analysis was deployed to determine the profitability of marketing the dry white and yellow maize grains in Imo state is presented in (Table 2) For the wholesalers, white dry maize grains generated gross margin of ₦9,888,250 and net marketing income of ₦9,498,132.75 while yellow dry maize grains earned the marketers gross margin and net marketing income of ₦9,081,627.5 and ₦8,905,392.4 respectively. Further result of the analysis recorded net return on investment of 0.8 for dry white maize and 0.7 for dry yellow maize. This meant that the two types returned ₦0.8 and N0.7 for every ₦1.00 spent by the marketers during the marketing period. By implication, the two maize types produced positive net returns on investment for the market to make dry maize marketing profitable business in the area.

Further result of the analysis as recorded on the retail side (Table 2) generated gross margin of ₦23,758,400 and net marketing income of ₦23,758,400 for dry white maize grains retailers, while dry yellow maize grains earned the retailers gross margin and net marketing income of ₦11,727,920 and ₦11,337,802.775 respectively. Further result recorded net return on investment of 0.8 for dry white maize grains and 0.9 for dry yellow maize grains, meaning that the dry white maize returned ₦0.8 for every ₦1.00 spent while dry yellow maize grains earned the retailers ₦0.9 for every ₦1.00 spent. By implication, the marketing of dry yellow or white maize grains was profitable. However, dry yellow maize grains returned more net marketing income than dry white maize grains for the retailers. The reason could be that most of the consumers who made purchases directly from the retailers preferred dry yellow maize grains to the white ones. Studies by Nwosu (2003), Onu and Illiyasu (2008) and Obasi *et al* (2012) attested to the good profits earned by dry maize marketers in Imo, Adamawa and Abia State respectively.

Vol. 10, No. 02; 2025

ISSN: 2456-8643

Table 2: Profitability of Dry Maize Marketing in Imo State.

PARAMETERS	Wholesellers		Retailers	
	YM	WM	YM	WM
Total Revenue	19,330,914	22,042,000	23,550,650	23,758,400
Variable costs				
Purchases	9,999,801	11,894,100	11,563,000	12,726,500
Loading	112,450	69,880	69,880	60,880
Off-loading	50,015.5	45,700	45,700	26,885
Association dues	575	2,650	2.650	1,250
Transportation	80,495	97,400	97,400	40,000
Miscellaneous	5,950	44,100	44,100	20,380
Total variable cost (TVC)	10,249,286.5	12,153,750	11,822,730	12,875,895
Gross margin (TR-TVC)	9,081,627.5	9,888,250	11,727,920	10,858,925
Fixed cost (FC)				
Annual shop rent	120,101	337,656	337,650	121,015
Wheel barrow	24,174.1	41,125.25	41,125.25	2,855.75
Interest on Icon	28,205	8,950	8,950	36,550
L.G.A charges	3,755	2,386	2,386	4,300
Total fixed cost (TFC)	176,235.1	390,117.25	390,117.25	164,720.75
Total cost (TFC+TVC)	10,425,521.6	12,543,867.25	12,212,847.25	13,040,615.75
Net marketing income (GM-TFC)	8,905,392.4	9,498,132.75	11,337,802.775	10,694,204.25
Return on Investment TR/TC	1.8	1.7	1.9	1.8
Net Return on Investment TMI/TC	0.8	0.7	0.9	0.8

WM = WHITE MAIZE

YM = YELLOW MAIZE

3.1.3 Influence of respondents' socio-economic factors on net marketing income realized by the marketers of yellow maize in the Imo state.

The multiple regression analysis was used to determine the effects of respondents' socio-economic factors namely age represented by AGE, gender (GEN), marital status (MAS), household size (HOS), experience (EXP), educational level (EDU), marketing cost (MKC), type of intermediary (TOT), and product price of yellow maize (PPY) on net marketing income . 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 of regression model (Table 2) tried with the data, that of the linear function was best in terms of number of significant variables, values of F-statistic, R2, R2 adjusted and Durbin-Watson statistic and was chosen as the lead equation. The equation is given as: NMIyel = -154558 +3586 AGE – 23419 GEN + 210609 MAS – 47980 HOS + 19787EXP + 15392 EDU + 0.0113 MKC yellow – 6.31 PP yellow + 397509 TOI.

Out of the nine independent variables included in the model, four (marital status, household size, marketing experience and type of intermediary), statistically and significantly influenced net marketing income earned by the respondents. The remaining four (age, gender, educational level and marketing costs) were not significant.

Vol. 10, No. 02; 2025

ISSN: 2456-8643

The coefficient of marital status had positive and statistically significant effect on the net marketing income at 10% probability level. This implies that married individuals are likely to acquire and save more to expand the business. This is at variance with Oluwatoyin (2013) and Ugwumba et al (2016) that marital status had positive but not significance effect on net marketing income.

The coefficient of household size was significant, but had a negative relationship with net marketing income at 10% alpha level. This means that as the size of the family increase more money which would have been invested in the business will be diverted to other things. This is at variance with Afolabi and Ekume (2008), who stated that household size has positive relationship with net marketing income. However, it agrees with the findings of Oluwatoyin (2013) that household size exerted negative effect on income realized from maize sales by the marketers.

The coefficient of marketing experience is positive and statistically significance at 5% level. This implies that respondents who are more experienced in the business are likely to have their net marketing income increased. This conforms to Anzaku et al (2006) who deduced that higher years of experience reduces marketers' inefficiency and thus ensures increased productivity and income

The coefficient of type of intermediary has a positive relationship with net marketing income and was statistically significant at 1% level of probability. This implied that the wholesalers who controlled higher volume trade, combined with better management skills, were likely to realized higher profit than the retailers.

The R2 value of 58% showed that 58% of the variation in net marketing income of the respondent was due to variation in the independent variables, while the remaining 42% was attributed to error. The F-statistic value of 5.52 was statistically significant at 5% levels of probability. This indicated that the socio economic variables together significantly influenced net marketing income and that the regression model was a good fit. The significant value of Durbin-Watson statistic of 1.85 confirmed the absence of autocorrelation among observations of the independent variables.

Table 3: Determinants of net marketing income realized by the marketers of yellow maize in the Imo state.

Predicator	Linear	Exponential	Semi-log	Double-log
Constant	-154558	4.6359	2623949	10.864
	(0.49)	(18.21)	(1.01)	(5.26)
AGE	3586	-0.002579	604935	-0.1309
	(0.57)	(-0.51)	(0.94)	(-0.26)
GEN	-23419	0.13150	12119	0.03761
	(-0.21)	(1.46)	(-0.32)	(1.26)
MAS	210609	0.1650	68451	0.05555
	(1.68)*	(1.63)	(1.59)	(1.62)
HOS	-47980	-0.02909	-491852	-0.2968
	(-1.94)*	(-1.45)	(-1.58)	(-1.20)

Vol. 10, No. 02; 2025

ISSN: 2456-8643

EXP	19787	0.012360	375851	0.2432
	(2.59)**	(2.00**)	(1.61)	(1.31)
EDU	15392	0.01321	65478	0.09739
	(0.95)	(1.01)	(0.71)	(1.33)
MKC	0.01134	0.00000000	165277	0.10934
	(0.17)	(0.03)	(1.32)	(1.09)
PPY	-6.306	-0.00001218	-968108	-1.5135
	(-1.04)	(-2.61**)	(-1.76)*	(-3.47)***
TOI	397509	0.3954	92959	0.09221
	(3.15)***	(3.88)	(1.89)*	(2.35**)
R^2	58.8%	55.9%	54.7%	57.2%
R^2(adj)	56.2%	56.8%	52.7%	55.6%
F-statistic	5.52	4.53	3.35	5.14
D-w.statistic	1.85	1.67	1.66	1.69

Source: Field survey data, 2025. Note: D-w.statistic = Durbin-Watson statistic. *** = p≤ 0.10; ** = P≤0.05; *** = P≤0.01.

3.1.4 Influence of respondents' socio-economic factors on net marketing income realized by the marketers of white maize in Imo state.

The regression equation is given as: NMIwht = 9.10 - 0.185 AGE + 0.0310 GEN + 0.0059 MAS – 0.307 HOS + 0.239 EXP + 0.0134 EDU + 0.376 MKCwh – 1.45 PPwht – 0.0081 TOI.

The coefficient of marketing experience was positive and statistically significant at 5% level. This implies that the marketers who were more experienced in the business managed their resources better and hence realized more net marketing income. This finding agrees with Anzaki et al. (2006) that year of experience reduces marketers' inefficiency and thus increases productivity and income.

The coefficient of marketing cost was positive and had significant effect on net marketing income at 1% in line with a priori expectation probability level contrary to a priori expectations. This implied higher the marketing cost, higher the expected net marketing income. That is, the marketers who invested more money in the business earned higher profit. This result is in agreement with Onyenweaku (2010) who reported a positive and significant relationship between marketing cost and marketing margin.

The coefficient of product price was significant but had negative relationship with net marketing income at 5% level. This implied that as price of the product increased, many buyers were unwilling to buy instead the marketers diverted to cheaper alternatives to the detriment of net marketing income from dry maize. This corroborates Ugwumba (2009) who reported a negative and significant relationship between price of fresh maize and net marketing income.

The R2 value of 57% showed that 57% of variation in net marketing income of the respondents was due to variations in the independent variables while the remaining 43% was attributed to error. The F-statistic value of 3.59 was statistically significant at 5% level of probability. This indicated that the socio-economic variables together influenced the net marketing income and

Vol. 10, No. 02; 2025

ISSN: 2456-8643

that the regression was a good fit for the data. The value of Durbin Watson statistic of 1.70 confirmed the absence of auto- correlation among observations of the independent variables.

Table 4: Determinants of net marketing income realized by marketers

White maize in Imo state.

Predicator	Linear	Exponential	Semi-log	Double-log
Constant	1164654	5.1737	12041340	9.100
	(0.77)	(12.86)	(1.03)	(3.01)
AGE	23342	-0.000003	2101147	-0.1848
	(1.16)	(-0.00)	(1.03)	(-0.35)
GEN	-444290	0.09294	-162141	0.03095
	(-1.23)	(0.97)	(-1.84)*	(0.99)
MAS	149143	0.0219	51494	0.00588
	(0.37)	(0.20)	(0.37)	(0.16)
HOS	-91314	-0.02951	-1198424	-0.3074
	(-1.17)	(-1.38)	(-1.19)	(-1.18)
EXP	36379	0.007968	960807	0.2392
	(1.77)*	(1.21)	(1.27)	(1.72)*
EDU	-40716	0.00371	51671	0.01343
	(-0.78)	(0.27)	(0.17)	(0.17)
MKCWht	-0.00078	0.00000004	123073	0.3759
	(-0.01)	(1.78)*	(0.30)	(3.57)***
PPWht	-92.85	-0.00003806	-3781642	-1.4528
	(1.05)	(-1.62)	(1.71)*	(-2.09)**
TOI	600412	0.1998	172916	-0.00807
	(1.79)*	(1.87)*	(1.06)	(-0.19)
R^2	54.9%	55.3%	53.9%	57.8%
R^2(adj)	53.0%	53.7%	52.0	59.4%
F-statistic	2.78	2.45	2.50	3.59
D-w.statistic	1.77	1.64	1.73	1.70

Source: survey data, 2025. Note: D-w.statistic = Durbin-Watson statistic. *** = p≤ 0.10, ** = P≤0.05.

4.CONTRAINTS TO DRY MAIZE MARKETING

Table 5 presents constraints to wholesale dry maize marketing. It could be seen from the table that high cost of transportation ranked first to become the most serious problem encountered by the wholesalers (M=2.86) of dry maize in the area. This is in line with the findings of Obasi et al. (2012) that transportation is the most critical factor affecting marketers and their performance in many developing countries. This is basically attributed to bad road network which characterizes the area. The transportation problem was closely followed by inadequate capital (M= 2.63), storage pests and diseases (M= 2.60), high market levy (M= 2.55), poor and unstable prices, poor storage facilities and too many other trades (M= 2.50 in each case), inadequate market information (M= 2.36) and the least poor sales (M= 2.30).

Vol. 10, No. 02; 2025

ISSN: 2456-8643

Table 5: Problems of dry maize grain marketing by (Wholesalers) in the area

Parameter	Mean score	Rank
General marketing problems		
High cost of transport	2.86	1st
Inadequate capital	2.63	2nd
Storage/pest/diseases	2.60	3rd
High market levy	2.55	4th
Poor and unstable prices	2.50	5th
Poor storage	2.50	5th
Too many other traders	2.50	5th
Inadequate market information	2.36	6th
Poor sales	2.30	7th

Table 6 shows result of analysis of problems of dry maize marketing by the retailers. Poor and unstable prices and high market levy were the most serious marketing problems of the retailers with mean score of 2.71 each. The second in rank was storage pests and diseases (M= 2.61), then too many other traders (M=2.55), inadequate capital (M=2.47,), high cost of transportation and poor storage facilities (M=2.40 in each case), inadequate market information (M= 2.36), and poor sales as the weakest problem (M=2.30). Ayoola and Azever (2010), Kwadzo and Scrofenyoh (2012), and Babatunde and Oyotoye (2006) identified transportation problems, inadequate capital, and poor storage facilities as serious constraints to maize marketing in the different study areas.

Table 6. Problems of dry maize grain marketing by retailers in the area

	Parameter	Mean score	Rank
A	**General marketing problems**		
	Poor and unstable prices	2.71	1st
	High market levy	2.71	1st
	Storage/pest/diseases	2.61	2nd
	Too many other traders	2.55	3rd
	Inadequate capital	2.47	4th
	Poor storage	2.40	4th
	High cost of transport	2.40	5th
	Inadequate market information	2.36	6th
	Poor sales	2.30	7th

5. SUMMARY

The study on the market structure, profitability and determinant of net marketing income was very interesting. The business was profitable haven returned 0.7 and. 0.8 on investment. The business was also interesting due to the structure of the market where both the wholesalers and retailers recorded a perfect competition. Finding solutions to the constraints identified; maize poor capital, poor storage facilities, high cost of transportation, inadequate market information

Vol. 10, No. 02; 2025

ISSN: 2456-8643

and lastly, poor sales will go a long way in enhancing a better marketing of dry maize in the study area.

5.1 Conclusion

Dry maize grains marketing proved a profitable enterprise at both the wholesale and retail levels in Imo state Nigeria. The marketers were efficient in the business, though inefficiency gaps existed among the actors due to marketing constraints. Addressing the constraints identified by this study, especially the serious ones such as high cost transportation, inadequate capital, poor and unstable prices, and poor storage facilities through sound policy measures would improve marketing efficiency, profitability and overall welfare of the marketers.

5.3 Recommendations

Based on the findings, the following recommendations were made;

i. Government should provide necessary transportation facilities such as good network of roads and mass transit vehicles so as to ameliorate the transportation problems of the marketers, improve marketing efficiency and net marketing income realized by the marketers.

ii. Government and other concerned agencies, should corporate in building marketing infrastructures, especially new model markets, stores, conveniences, borehole and refuse dumps in order to ensure good health of the marketers, reduce marketing cost and improve enterprise profitability.

iii. Government and financial institutions, especially the Agricultural Credit Schemes of the Central bank, should be strengthened to provide soft loans to dry maize marketers at a very low interest rate to make more fund available for the marketers to increase turnover, hence income.

iv. The dry maize grains marketers should form cooperative societies, which have proven to be the best way of obtaining subsidies, credit facilities and group contributory efforts.

REFERENCES

Adeleye, A.S. (2011). Marketing principles and practice (revised edition). Lagos, Nigeria.

Adeyemi, A. (2011). Imo State – "Eastern Heartland" Retrieved from http://www.cometonigeris.com/search-by-region/south-east/imo-state

Afolabi, J. A. (2007). Evaluation of poultry egg marketing in South-western Nigeria. International Journal of poultry science, 6(3) 362-366.

Afolabi, J. A. (2007). Evaluation of poultry egg marketing in South-western Nigeria. International Journal of poultry science, 6(3) 362-366.

Agbonifoh, A. B. (2007). Marketing in Nigeria concepts, principles & Decisions Rexchartes & Patrick, Ltd, Abuja, Nigeria. P.22.

Agbonifoh, B.A., Ogwo, O.E., Nnolim, D.A., & Nkamnebe, A.D. (2007) Marketing in Nigeria concepts principles and decisions (2nd ed). Aba Nigeria: Afritowers Ltd. 593-613.

Anzaku, H., Abimiku, O.E., Azagaka, E.O., & Yohana, J.K. (2006). Socio-economic analysis of small scale oil palm fruit processors in Nasarawa State. Proceeding of 40th Annual Conference of ASN, Abia.141.

Arene, C.J. (2003). An introduction to Agricultural marketing Analysis and Policy. Enugu Nigeria: Fulladu Publishing Company

Vol. 10, No. 02; 2025

ISSN: 2456-8643

Ayoola, J. B., & Azever, J.I.,(2010). Factors affecting the efficiency of maize marketing in Vandeika Local Government Area of Benue State, Nigeria. International Journal of Tropical Agriculture and Food Systems 4(2), 29-32.

Babatunde, R. O., & Oyatoye, E. (2013). Land: Agriculture and food security in Nigeria. 3rd lecture.

Faculty of Agriculture, University of Ilorin.

Central Bank of Nigeria, (CBN).(2014). Statistics bulletin financial statistics. second quarter. Abuja Nigeria. Retrieved from http//www.cenbank.org/documents/statbulletin.asp.

Duc Hai, L.T. (2003). The organization of the liberalized rice market in vietnam PhD dissertation, University of Groingen, Netherlands

Ebe, F.E. (2007). Economic study of fuel wood marketing and consumption in Enugu State, Nigeria. Ph.D. Dissertation. University of Nigeria Nsukka, Nigeria.

Folayin, J. A. (2013). Determinant of post harvest losses of maize in Akure North Local Food and Agricultural Organization, FAO. (2013). The major significance of minor forest products: the local use and value of non-timer forest product to local people Government Area Ondo State Nigeria. Journal sustainable society 3(2), 12-19.

International Institute for Tropical Agriculture, IITA. (2018) /.org/www.iita.org/maize (May 5,2015).

Mboyal, R. Ozor M. (2011). The dietary importance of maize in Katumba ward, Rungiwe district, Tanzania and its contribution to household food security. African journal of AgricultuaResearch vol 6(11), 2617-2626.

National population Commission, (NPC). (2006). National population commission Publication

Nkamigbo, D.C and Isibor, A.C. (2019). Inter-Market Price Spread and Determinants of Net Farm Income in Watermelon marketing in Anambra State, Nigeria. International Journal of Agricultural Policy and Research, 7(4), 100-107.

Nwauwa, I.O.F. (2012) Palm oil marketing and distribution in Imo State, Nigeria. An application of linear programming model E3 journal of Agricultural Research and Development 2(1), 037-043.

Nwosu, C. S. (2003). Economics of wholesaler marketing of maize grains in Owerri Municipal Council of Imo State, Journal of Agriculture and Food Science. 1(2): 149-156.

Obasi, L. O., Mejeha, R. O., & Okocha M. (2012). Dried maize marketing in Aba South Local Government of Abia State, Nigeria. Implication for employment International conference on trade. Touraine and management, Bangkok (Thailand).

Ofoedu, S. I. (2014). Marketing of African bread fruits (Treculla, African) in Anambra State Nigeria. M.Sc dissertation, Anambra State University, Igbariam, Nigeria.

Oluwatoyin, C.M. (2013) A Gender analysis of maize marketing by farmers in Oyo state, European scientific Journal 9 (2), 18-30.

Oluwatoyin, C.M. (2013) A Gender analysis of maize marketing by farmers in Oyo state, European scientific journal 9 (2), 18-30.

Oyetoro, J., & Okunade, E. (2012). The role of women in maize production in Ejigbo Local Government Area of Osun State, Nigeria. Advance I Agriculture, Science and Engineering Research, North America.

Peacock, C. (2010). African commission report. African farming. Retrieved from http/www.farmafrica.org.uk.32.

Vol. 10, No. 02; 2025

ISSN: 2456-8643

Serofenyoh, F. (2015). Maize market integration: A case study of maize marketing in Ghana. International Journal of Technology and Management Research 4:1-11.

Ugwumba, C.O.A. (2009). Analysis of fresh maize marketing in Anambra State, Nigeria. Journal of research in National Development, 1(2), 153-157.

Ugwumba, C.O.A. (2016). Technical efficiency and profitability of cat fish production in Anambra State, Nigeria. Ph.D dissertation, Delta State University, Abraka.

Ugwumba, C.O.A., Okoh, R.N., & Uzoegbunam, C.O. (2011). Market Structure of Live-Catfish in Anambra State, Nigeria, Journal of Agriculture and Social Sciences. Friends Science Publishers. (7), 25-29.

Ugwumba, C.O.A., Omojola, J.T., & Orji, E.C. (2012). Agribusiness of watermelon (Citrillus lanatus) marketing in Port Harcourt metropolis of Rivers State, Nigeria. International Journal of Applied Research and Technology, 1(8), 3-11.