Economic Analysis of the Structure and Conduct of Yam Marketing in Benue State, Nigeria

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Abstract

The study conducted the economic analysis of yam marketing structure and conduct in Benue State, Nigeria. It considered the market structure and conducts as well as the costs and returns of yam marketing in the study area. Cross-sectional survey design was adopted. Data were collected from 350 market actors using stratified sampling techniques. The methods of data analysis involved Gini Coefficient, Herfindal index and concentration ratio to assess the structure of yam market, Conjoint analysis was used to assess the conduct of the market, while gross margins and net profits were used to analyze the profitability of yam marketers in Benue State. The study found yam marketing in Benue State, Nigeria is not interdependent. This means that yam marketing is integrated in Benue State. Also, there is significant difference between the market margins of wholesalers and retailers in yam marketing in Benue State. The study concluded that since yam marketers are left to strive on their own, they suffer low gross margins and consequently derive negative returns on investment. Based on the findings, the study recommended that Benue State Government, in conjunction with Local Government Councils should establish a fund for yam marketers to enable the access credit facilities for their businesses. This will facilitate more entry into yam marketing in Benue Sate and hence reduce the level market concentration that currently tends toward oligopoly at wholesale level. Also, Benue State Internal Revenue Service should grant tax reliefs to yam marketers in Benue State to enable derive positive returns from their businesses.

Keywords: Economic Analysis, Market Structure, Market Conduct and Yam Marketing

Introduction

Yam is an important food crop especially in the yam zone of West Africa comprising Nigeria, Cameroon, Benin, Togo, Ghana and Cote de 'voire, the zone produces more than 90% of the total World production estimated at 20-30 million metric tons per year. (Adeniji *et al* 2019). Yam is also grown in Latin America and Caribbean Countries like Colombia, Brazil, Haiti, Cuba and Jamaica, Yams are mostly marketed as fresh tubers or processed flour and prepared for consumption (FAO, 2015).

Nigeria is noted to be a leading World producer of yam with over 25 million metric tons per annum out of the total World production of 30 million tons per annum, (FAO, 2015). It is one of the principal tuber crops in the Nigerian economy in terms of cultivation and in the volume and value of marketing (Banire & Amujoyegbe, 2015). Nigeria produces over 70 percent of the crop and the largest yam market in the world is located in Zaki Biam, a small town in Benue State in North Central Nigeria (FAO 2015).

In Benue State, a huge chunk of two million tubers of yam sold weekly are transported through Zaki Biam market in Ukum Local Government Area. Between 120 and 200 trucks loads of yams depart this market on daily basis, the yam comes from various farm lands and smaller markets around Ukum, Logo, Katsina ala and other Local Governments Areas in Benue State. Owing to the yam marketing significance, the Federal government of Nigeria in June 2020 commissioned a storage facility to save as an industrial hub for even the neighboring yam producing states like Nasarawa and Taraba state.

The agencies that participate in yam marketing in Benue State include facilitators, brokers, transporters, wholesalers and retailers who perform different functions as goods and services move from one point to another. Wholesalers and retailers in particular, have improved marketing efficiency tremendously by reducing distribution cost (Coughlan *et al* 2001& Anuebunwa, 2007).

Unfortunately, the yam market does not have a well-organized marketing system in Benue State Nigeria. Moreover, there are no standard and uniform scales for measuring the size of the yam tubers among marketers. Worst still, most government policies and programmes aimed at achieving food security in Nigeria have focused on food production with little regards for food marketing (Asogwa & Okwoche, 2012).

Despite the benefits derived from yam marketing, it is realized that it has earned little attention from government and organizations through scientific research and policy development compared to other food crops. Hence, the yam market in Benue State is organized in such a way that there is no or little control from the government (Asiabaka, 2010). This situation has not only affected the marketing but also the production of yam. This is bound to have negative effect on farmers' income because subsistence food crop production cannot improve rural incomes without market-oriented production systems. It is therefore of paramount importance to determine the appropriate marketing system for agricultural produce among which yam is prominent in Benue State. Hence, it is evident that the entire yam marketing chain offers vast employment opportunities to many people, therefore a well develop marketing system is expected to result in efficient marketing of its products (Banire & Amojuyegbe, 2015).

It is surprising that poverty rates keep soaring in Benue State despite the status of the State as the food Basket of the Nation. Available statistics from the National Bureau of Statistics reveal that over 70% of farmers in Benue State are affected by poverty. The question is: could the lack of proper organization of yam market relate to the inability of yam marketers to live above poverty in Benue State?

The core challenge for the development of yam commercialization is the absence of a complete network of functional value chain, in order to make this chain effective, efficient and functional, the market margins levels, market structure and conduct, losses incurred in the product management and marketing. These require assessment of the structure and conduct of the yam market, and the cost and returns associated with yam marketing in Benue State, Nigeria (Coughian, Morgan, Juselious & Wood, 2001).

This study was therefore, prompted out of the desire to find out the factors that influence the marketing decisions of marketers and effects of yam marketing on marketers income and so as to narrow the information gap on the subject-matter in Benue State. In doing so, it is imperative to analyze the structure and conduct as well as the margins and cost of the various yam market actors in Benue State Nigeria.

Conceptual Framework

The key concepts used in the study are elucidated in this section. These are the concepts of market structure, market conduct and yam marketing specifically the costs and returns and market margins.

Market Structure

Market structure may be defined as the characteristics of the organization of a market which seem to influence strategically the nature of the competition and pricing within the market (Anuebunwa, Lemchi &Njoku, 2006). In the opinion of Pomeory and Trinidad (1995), market structure is the environment in which a firm operates. Market structure consists of characteristics of a market and determines the conducts of that market. It therefore influences the nature of competition as well as the pricing mechanisms within the market and thereby determining the level of market performance (Enete, 1999; Tiku, Olukosi, Omolehin & Oniah, 2012; Gardner & Rausser, 2001). Market structure as defined by Kotler (2011), is thus the physical dimensions involved in market organization, that is, the approximate definitions of industry and markets, the number of firms in the market, distribution of firms by various measures such as size and concentration, the description of products and product differentiation, and entry conditions. Market structure can thus be studied in terms of the degree of sellers and buyer concentration, the degree of product differentiation, the existence of entry and exit barriers, and the control of the distribution (Low & Lamb, 2020).

Yadav (1995) identified perfect competition, monopolistic competition, oligopoly, oligopsony and monopoly as the major market structures, while Arene (2003) and Regina (2011) noted that perfect competition, oligopolistic competition and monopolistic competition were the three basic theoretical market models often used in analyzing market structure. Among the major structural characteristics of a market is the degree of concentration, that is, the number of market participants and their size distribution and the relative ease or difficulty for market participants to secure an entry into the market (Gebre-Meskel, Jayne & Shaffers, 1998).

Market Conduct

Market conducts refer to the actions which firms follow in adopting or adjusting to the market in which they buy and sell (Minot & Goletti, 2011). It comprises various methods employed by groups of firms in determining price and output, sales promotion policies; other tactics that are directed at altering the nature of product sold and various selling strategies that are employed to accomplish specific market objectives (Olukosi *et al.,* 2005). According to Purcell (1973) market conduct refers to the actions or behaviours of firms within the given structure. Hence, market conduct resembles the behavioural patterns of enterprise. Thus, given the structure of the market, market conducts determine the outcome. Market conduct is more or less influenced by market structure. Gebre-Meskel *et al.* (1998) in Thomsen (2021) viewed market conducts as the behaviour of firms or the strategies used by the firms for example, in their pricing, buying, selling and other activities that may require the firms to engage into informal cooperation or collusion. The conduct of the market shows the policy of the firm with respect to pricing, product market, relationship with competitors, advertising and marketing channel (Yesufu & Anyanwale, 2011).

Costs and Returns of Yam Marketing

Marketing costs, according to Crawford (1997), are the actual expenditures incurred in the performance of the marketing functions as a commodity moves from the farm to the final consumers. He further emphasized that by performing certain functions and services, various marketing organizations and agencies make it possible for agricultural produce to move to the consumers. However, these functions incur cost of often considerable magnitude (Ike & Inom, 2006). These costs are mainly incurred by the marketing intermediaries and they include but not limited to the cost of transportation, offloading and loading cost, marketing charges and cost of assembling. Others include processing, distribution and packaging costs; sales promotion and advertisement cost; and other miscellaneous charges such as taxes, levies and excise duties.

Marketing Margin

According to Onyemauma (2010), Margins represent the price charged for one or a collection of marketing services. For example, the difference between producer and consumer prices is the amount charged for all the marketing services rendered between production and consumption, including buying, bulking, transports, storage, processing, among others. In this context, the market margins are the difference between prices at two market levels (Philip, Rhodes & Lawson, 2013).

Marketing margin for a particular commodity is the difference between what the consumer pays for the final product and the amount the producer receives (Arene, 2003). At each intermediary level, it is the difference between price received on re-sale and the purchase price (Mejeha, Nwosu & Efenkwe, 2000; Gabre-Madhin, 2001). Marketing margin reflects the costs and profit of middlemen (Minot & Goletti, 2001). The costs are incurred mainly in adding utilities of time, form, place and possession. Costs, according to Achike and Anzaku (2010), include payment for all initial assemblage, storage, processing, transporting, warehousing and retailing charges. The profit range accruable to the market participants gives an indication of market performance (Achoga & Nwagbo, 2004). Margins can be calculated all along the market chain and each margin reflects the value added at that level of the market chain, Famine Early Warning System Network (FEWS NET, 2019).

Theoretical Framework

The study is anchored on Agricultural Marketing System Efficiency theory and Market Structure – Conduct Performance theory. Agricultural marketing system efficiency theory was propounded by Crawford in 1997. The theory states that, the performance of certain functions and services by various marketing organizations and agencies always ensure that commodities and products move from producers to consumers. However, these functions attract costs, often at a considerable magnitude, affecting both marketing and marketing efficiency. Crawford noted that an efficient marketing system is one capable of moving goods from the producer to the customer at the lowest cost consistent with the provision of the services that customers demand.

The tenets of the theory are as follows: once the costs involved in marketing have been identified, then means can be devised to make the system more efficient; increases in efficiency can be achieved in a variety of ways: by increasing the volume of business using improved handling methods; investing in modern technology; locating the business in the most appropriate place;

implementing better layouts and working practices in production; improving managerial planning and control and/or by making changes in marketing arrangements through horizontal or vertical integration (Agbo & Usoro, 2014; Barlagne, Gabre-Madlin & Crowther, 2015).

The theory is relevant to the present study because of its emphasis on marketing efficiency which is consistent with the aim of the study. As applied to the present study, what yam marketers need to maximize profit is their ability to move their yams from the point of production to the customer at the lowest cost consistent with the provision of the services that customers demand.

Market Structure-Conduct-Performance Theory

Structure-conduct-performance approach was developed in the United States by Pomeory and Trinidad in1995 as a tool to analyze the market organization of the industrial sector and then it was applied to assess the agricultural marketing system. Hence, this approach is applicable to analyze the performance of yam marketing channel.

The theory states that a causal flow exists between market structure, conduct and performance. Thus, a study of competition in an enterprise usually rests upon an analysis of market structure, conduct, and performance. How a firm's policies, especially price policies are determined, is the measure of market conduct, while market performance describes the end results of market processes.

In its applicability to the present study, the structure - conduct - performance approach reflects a framework to analyze and evaluate how efficiently the yam marketing channels are operating in the study area. Furthermore, the structure-conduct- performance of the yam market implies those characteristics of the market which seem to affect the market conduct or behaviour, and consequently influencing the performance of the yam market. These characteristics include the number of sellers and buyers, nature of the product, ease of entry, nature and size of the purchases of the tuber product and its ability to influence demand.

Review of Empirical Literature

The empirical literature is reviewed on the structure and conduct as well as costs and returns associated with Yam Marketing. Kamo (2010) examined the structure, pattern and problems of yam production and marketing in Benue State Nigeria. The study sample was 600 yam famers; 200 randomly selected in each of the three Senatorial Districts of Benue State. Questionnaire was the main method of data collection used in the study. The study made used of mean, standard deviation, paired sample t-test and analysis of variance (ANOVA) for data analyses. The study found no significant difference in farmers' profit based on price variation and location. The study recommended that Benue State Government should use fiscal policy instruments to regulate the pricing of yam in the State. Also, yam processing firms should be established in the catchment areas to create value for yam production and marketing in Benue State.

Temitope (2011) conducted a study on the conducts and strategies of marketing among Nigerian yam farmers: the case of Agbor, Delta State. The questionnaire was used to collect data from 100 respondents. Data were analyzed using descriptive statistics while Chi-Square was used to test hypothesis. Results revealed that majority (58%) of yam farmers used the high margin strategy to cope with price changes; 34% of them used sales promotion, 47% adopted the product-hoarding strategy. On the basis of these findings, the study recommended that yam farmers in Delta State should form cooperative societies to pools resources where they can get funds to make othe marketing decisions while they create artificial scarcity by hoarding their products whenever there is market uncertainty.

Ibrahim (2011) analyzed cost and returns of yam/maize production in Bosso LGA of Niger State. The cross-sectional sampling technique was adopted for the study. Non-probability sampling was used to select 150 respondents. Primary data were sourced using questionnaire. Regression was used for data analysis. The study found that yam production has significant impact on respondents' income, education and health. Also, maize production has significant impact on respondents' income, education and health. However, the regression coefficient indicated that maize production had higher returns than maize production in the study area. The study recommendations were that farmers' education of global best practices in yam/maize production should be made a top priority. The study also, recommended financial support to yam/maize farmers in Bosso LGA of Niger State to enable them achieve higher returns on their farming businesses.

Tuffour and Dokuruga (2015) reported in a study of yam marketing in Ghana that the enterprise was profitable. The study showed profit margins of 79.93% and 89.3% for wholesalers and retailers respectively. In a similar study in Anambra State, Nigeria, Ugwumba and Isibor (2014) reported that wholesaler and retailers spent 87.88% and 94.90% of their total cost of marketing on purchasing of yam tubers. The study further showed that the enterprise was profitable with net marketing income of ₦43,320,000 and ₦3,057, 700 for the wholesalers and retailers respectively.

Ashiko (2014) conducted a study on analysis of inter-state marketing of sweet orange from Benue to Kano States. The study used both time series and cross-section data. The study sample was 104 wholesalers and 45 retailers. Profitability indices and Hedonic regression were among the techniques of data analyses employed. The study found among others, that an average monthly return to the wholesalers of orange was N10, 891. 70 per bag. The transportation cost constituted the largest and the most significant portion (42.44%) of the total expenses while the purchase value was second with 26.12%. other expenses summed to N3059.97. monthly gross margin was N7,828.73 per bag while the return per naira was N3.56.

Methodology

The study adopted the descriptive cross-sectional design involving primary data collected through field work. The population of this study comprised 14,760 yam marketers selected from membership of National Association of yam Farmers, Processors and Marketers from the Local Government Areas in Benue State (Benue State Ministry of trade and Investment, 2021). A breakdown of the study population is as follows Ukum, (4,211) Logo (3,362), Katsina-Ala (2,917), Gboko (1,585), Buruku (1,063), Tarka (880), Apa (742), Agatu (954) and Oju (610) Local Government Areas of Benue State. The population is divided into two groups, the wholesaler marketers and retailer marketers in the study area as follows: Ukum, (1,118 wholesalers; 3,093 retailers) Logo (896 wholesalers; 2, 466 retailers), Katsina-Ala (714 wholesalers; 2,203 retailers), Gboko (596 wholesalers; 989 retailers), Buruku (488 wholesalers; 575 retailers), Tarka (351 wholesalers; 529 retailers), Apa (287 wholesalers; 455 retailers), Agatu (291 wholesalers; 663 retailers) and Oju (72 wholesalers; 591 retailers) (Benue State Ministry of trade and Investment, 2021).

A sample of 389 yam marketers was selected from the study population using Taro Yamane Formula (Kwahar & Onov, 2017) as follows:

$n = \frac{N}{1+N(e)^2}$; $where: n =$ The required sample size; $1 = constant$; $N =$ The population size $e =$ The level of significance which indicates the confidence the researcher has on the sample that the

sample elements drawn from a normal population have all the characteristics of the population and therefore, a reflection of that population (e=5% or 0.05).

Therefore, the sample size is computed thus:

$n = \frac{14,760}{1+14,760(0.05)^2} = \frac{14,760}{1+14,760(0.0025)} = \frac{14,760}{1+36.9} = \frac{14,760}{37.9}$ =389.

The sample size 389 yam marketers in Benue State shall therefore, be selected for the study. Multi-stage sampling technique was employed in selection of respondents for this study. The first stage is the purposive selection of nine local government areas in Benue state (Ukum, Logo, Katsina-Ala, Gboko, Buruku, Tarka, Apa, Agatu and Oju) were purposively selected based on the prior knowledge that the local governments are yam producing areas, and they were actively involved in yam marketing (Verter & Becvarova, 2014).

In the second stage, two markets were selected in each of the nine local governments areas, making a total of eighteen (18) markets, (Zaki-biam & Kyado in Uknum LGA; Ugba & Anyiin in Logo LGA; Tordonga & Abaji in Katsina-Ala LGA; Akpagher & Tsekucha in Gboko LGA; Tyowanye & Buruku in Buruku LGA; Wannune &Tarhembe in Tarka LGA; Aila-Agatu & Ogbagaji- Agatu in Agatu LGA; Ugbokpo & Ikobi in Apa LGA; and Ihigile & Ihio in Oju LGA).

In the third stage, the marketers were randomly stratified into wholesalers and retailer marketers and proportionately selected according to the population of each market. Subsequently, from each of the selected yam markets, a sampling frame of 50% of respondents were obtained from each of the yam market Association registers through simple random sampling.

The sample was allocated to the selected Local Government Areas (LGAs) using Bouley's formula (Kwahar & Onov, 2017). The formula is specified as follows:

$nh = \frac{nNh}{N}$; where: $nh =$ number of units allocated to each strata;

$n =$ total sample size; $Nh =$ the number of participants in each strata; and $N =$ the population size

Method of data Collection

The questionnaire was the main source of primary data used for the study. he relevant secondary data needed to support the primary data were obtained from text books, bulletins, internets and studies done on marketing of other crops. The questionnaires were administered through the aid of trained research assistants.

Table I: Measurements of Study Variables

Variable	Proxy	Measurement	Author(s)
Conduct and Structure of yam market	CSYM = The rate of demand and ability of marketers to fix prices and make profit without external price control	$\frac{\%\text{ change in price}}{\%\text{ change in quantity}}$	VanHoose (2007).
Cost and returns of yam marketing	CRYM = The difference in the cost of buying a tuber of yam and the rate of returns per tuber of yam in a season	$\frac{\text{Gross margin}}{\text{Total Variable Cost}}$	Mirzaei, Liu & Moore (2011).

Source: *Author's Compilation based on available literature, 2021.*

Data Analysis Techniques

The data collected were subjected to inferential statistical analysis in order to achieve the stated objectives of the study. Gini Coefficient, Herfindal-Hirschman Index and Concentration Ratio and Conjoint Regression were be used to analyze objective one, while the index of profitability analysis was used to analyze objective two. Also, while hypothesis one (Ho_1) was tested the Gini Coefficient, hypothesis two (Ho_2) was tested using paired samples t-test.

Results And Discussion

Structure and Conduct of the Yam Market in Benue State

Table 2 presents data on the distribution of yam market actors by volume so as to determine the structure of yam market in Benue State.

Table 3: Distribution of Yam Market Actors by Volume Traded

	Statistic		
	Gini Coefficient	Herfindal Index	Concentration Coefficient
Wholesale	0.353	34.0001	0.4501
Retail	0.271	14.0016	0.2886

Source: *Field Survey, 2023*

The results of Table 2 show, that the values of Gini Coefficient were 0353 and 0.271 for wholesalers and retailers, respectively. This indicates the existence of low level of inequality among yam wholesalers and yam retailers in Benue State. However, there was more equitability in undertaking yam retail business in the study area than undertaking wholesale business. The Herfindal Index values of 34.0001 and 14.0016 suggest that yam marketing is highly competitive in Benue State, especially among retailers. According to Ngigi (2008), an Herfindal index of less than 1,500 is considered competitive, an Herfindal index of 1,500 to 2500 is moderately concentrated and an Herfindal index of 12500 or above is highly concentrated. The concentration Coefficients of 0.4501 and 0.2886 confirms the Benue State yam market as competitive, although wholesale marketing could be described as a weak oligopoly based on the recommendation of Ashiko (2014).

Having determined the structure of yam market in Benue State, it is expedient to also determine the yam market conduct in the study area. Table 3 was therefore, used to determine the conduct of yam market in Benue State.

Table 3: Estimated Results of Conjoint Analysis

Groups	Levels	1	2	3	4	5	6	7	8	Mean	S.E	N
1	**1. G1/PI/QI**	-								178.01	6.694	37
	2.G1/P/IAQ	99.3*	-							78.63	6.851	37
	3. G1/PI/QD	90.0*	9.36	-						87.99	6.622	37
	4. G1/CP/QI	37.8*	61.52*	52.16*	-					140.15	4.033	37
	5. G1/CP/AQ	64.5*	34.87*	25.51*	26.65*	-				113.5	4.007	37
	6. G1/CP/QD	68.1*	31.27*	21.91*	30.25*	3.60	-			109.9	4.600	37
	7. G1/PD/QI	18.4*	80.97*	71.61*	19.45*	46.10*	49.70*	-		159.6	5.424	37
	8. G1/PD/AQ	49.2*	50.17*	40.81*	11.35	15.30	18.90*	30.80*	-	128.8	5.475	37
	9. G1/PD/QD	70.7*	28.67*	19.31*	32.85*	6.20	2.60	52.30*	21.5*	107.3	5.486	37
2	**1. G2/PI/QI**	-								156.8	6.694	37
	2. G2/PI/AQ	87.80*	-							68.91	6.851	37
	3. G2/PI/QD	112.61*	24.74*	-						44.19	6.622	37
	4. G2/CP/QI	5.11	93.00*	117.72*	-					161.91	4.033	37
	5. G2/CP/AQ	18.10*	69.79*	94.51*	23.210*	-				138.7	4.007	37
	6. G2/CP/QD	101.34*	13.45	11.27	106.45*	83.24*	-			55.46	4.600	37
	7 G2/PD/QI	21.00*	108.9*	133.61*	15.89*	39.10*	122.34*	-		177.8	5.424	37
	8. G2/PD/AQ	20.50*	108.4*	133.11*	15.39	38.60*	121.84*	0.50	-	177.3	5.475	37
	9. G2/PD/QD	65.99*	21.90*	46.62*	71.10*	47.89*	35.35*	86.99*	108.66*	68.64	5.486	37
3	**1. G3/PI/QI**	-								90.81	3.970	37
	2. G3/PI/AQ	62.44*	-							28.37	3.942	37
	3. G3PI/QD	63.75*	1.13	-						27.06	3.861	37
	4. G3/CP/QI	7.65	54.79*	56.10*	-					83.16	3.847	37

5. G3/CP/AQ	50.92*	11.52	12.83	43.27*	-				39.89	3.873	37
6. G3/CP/QD	62.35*	0.09	1.40	54.70*	11.43	-			28.46	3.933	37
7. G3/PD/QI	3.42	65.86*	67.17*	11.07	54.34*	65.77*	-		94.23	3.921	37
8. G3/PD/AQ	43.1*	105.54*	106.85*	50.75*	94.02*	105.45*	39.68*	-	133.91	3.914	37
9. G3/PD/QD	53.34*	9.1	10.41	45.69*	2.42	9.01	56.76*	96.44*	37.47	3.887	37

P<0.05

The estimated conjoint results of the least significant difference (LSD) multiple comparison test were graduated as follows; yam grade level 1 (G1), yam grade level 2 (G2), yam grade level 3 (G3), price increase (PI), constant price (CP), price decrease (PD), quality increase (QI), average quality (AQ) and quality decrease (QD). Table 3 shows that when the cost of purchase is high, yam marketers in Benue State react positively when the yam is of grade one yam and least of average quality (mean= 178.01), however, if the yam is of either grade two or three, the quality must be high (mean=156.80 & mean=90.81, respectively).

When the market price is low, producers supply low quantity of grade one yam that has high quality (mean =156.9). They can also afford to supply comparatively higher quantity of grade two yams with high quality (mean =177.8). At constant prices of yam, the best quantity available in the market was grade two of high quality. These mean that price is a functional determinant of market conduct in Benue State

Costs and Returns associated with Yam Marketing in Benue State

The costs and returns associated with yam marketing in Benue State are captured in this section. These include the expenses incurred by yam wholesalers as well as the average costs, returns and profitability of wholesalers and retailers of Grades 1, 2 and 3 yams in the study area.

Table 4: Expenses incurred by Yam Wholesalers in Benue State

S/N	Description	Cost (N)
1.	Departmental Receipt	
	a. 4 wheels vehicle (J5)	2000
	b. 6 wheels vehicle (911)	2500
	c. 10 – 12 wheels vehicle	3000
	d. 16 – 22 wheels vehicle	4,500
2.	Charter Receipt	
	a. Each vehicle	1000
3.	National Union Receipt	
	a. Each vehicle	1000
4.	Development levy receipt	
	a. Each vehicle	1000
5.	Check Point Expenses	
	a. Drivers pass	1000
	b. Produce/Police Checkpoint	
	c. Loading/100	2000
	d. LGA Levy	1000
	e. Association Levy	5000
	f. Offloading/100	200
		1000
6.	Agents Commission	100

Source: *Field Survey, 2023*

Results of Table 4 show the expenses incurred by wholesalers in Benue State. The table revealed that the expenses cut across departmental receipts, charter receipts, national union receipts, development levy, check-point expenses and agent's commission.

Table 5: Average Costs, Returns and Profitability of Wholesalers of Yams in Benue State

Cost/Return	N/100 Tubers	% of Total Cost/Return
Return	**150, 000**	**100**
Cost Items		
Purchase Value	80, 000	91.5%
Labour Cost	500	1.56%
Transportation	20, 000	6.25%
Levies Charter Receipt		
National Union Receipt	200	0.63%
Development Levy		
Check Point Expenses (Police and Produce)	100	0.31%
Commissioned Agents	200	0.63%
Total Variable Cost	**108, 000**	**100**
Gross Margin	**49, 200**	

Marginal Return per Naira invested: 0.46

Source: *Field Survey, 2023.*

As shown in Table 5, the monthly average return of wholesalers of Grade 1 yams was N85,000 which yielded gross margin of N52, 200. The return per naira spent in the wholesale trade was N1.59. This means that for every N1.00 spent by the wholesalers of Grade 1 yams, a profit of 59 kobo was made.

Table 6: Average Costs, Returns and Profitability of Retailers of Yams in Benue State

Cost/Return	N/100 Tubers	% of Total Cost/Return
Return	**50, 000**	**100**
Cost Items		
Purchase Value	30, 000	99.9%
Transportation	2000	0.10%
Total Variable Cost	**32, 000**	**100**
Gross Margin	**18, 000**	

Marginal Return per Naira invested: 0.56

Source: *Field Survey, 2023.*

Results of Table 6 show that the average monthly return of retailers of Grade 2 yams was N80, 000 which yielded gross margin of N14, 950. The return per naira spent in the retail trade was N0.23. This means that the retailers of Grade 2 yams return on investment was negative.

Test of Hypotheses

The research hypotheses earlier stated in Chapter One are hereby, tested at 0.05 level.

Ho_1: Yam marketing in Benue State, Nigeria is not interdependent

Table 7: Test of Hypothesis using Pearson Correlation

Correlations			
		Wholesalers	Retailers
Wholesalers	Pearson Correlation	1	.713
	Sig. (2-tailed)		.001
	N	115	115
Retailers	Pearson Correlation	-713	1
	Sig. (2-tailed)	.001	
	N	115	219

Source: *Field Survey, 2023*

Result presented in Table 7 shows that the Correlation between wholesalers and retailers is high and significant. Thus, the hypothesis which stated that yam marketing in Benue State, Nigeria is not interdependent is rejected. The study concluded that yam marketing in Benue State, Nigeria is interdependent and hence, integrated.

Ho_2: There is no significant difference between the market margins of wholesalers and retailers in yam marketing in Benue State, Nigeria.

Table 8: Test of Hypothesis one using Paired Samples Test-Test

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)
Pair 1	wholesalers – retailers	12375.65217	23914.40361	2230.02964	7957.98064	16793.32371	5.550	114	.000

Source: Extracts of SPSS, IBM.V21 Results.

Table 8 shows that t-test statistic value of 5.550 was significant at 0.05% (p, 0.000 <0.05). The null hypothesis which stated that there is no significant difference between the market margins of

wholesalers and retailers in yam marketing in Benue State, Nigeria is therefore, rejected and the alternative adopted that there is significant difference between the market margins of wholesalers and retailers in yam marketing in Benue State, Nigeria.

Discussion of Findings

The study found that yam marketing in Benue State, Nigeria is not interdependent. This means that yam marketing is integrated in Benue State. This finding is at variance with that of Kamo (2000) who examined the structure, pattern and problems of yam production and marketing in Benue State Nigeria and found no significant difference in farmers' profit based on price variation and location. The larger study sample used in the present study could be responsible for the differences in the former and the present study findings.

The study also found the existence of is significant difference between the market margins of wholesalers and retailers in yam marketing in Benue State. This finding agrees with that of Ugwumba and Isibor (2014) who reported that wholesalers and retailers spent 87.88% and 94.90% of their total cost of marketing on purchasing of yam tubers, with return of ₦43,320,000 and ₦3,057, 700, respectively. Thus, the general position about the empirical findings that yam retail business is more profitable than yam wholesale business is not in doubt.

Conclusion

The impetus to this study was to carry out the economic analysis of the structure and conduct marketing of yam in Benue State, Nigeria. This was because of the pervasive poverty affecting yam participants in the area despite occupying the envious position of the highest producer of yam in the world and the paradoxical neglect of the industry by the government. The study concluded that since yam marketers are left to strive on their own, they suffer low gross margins and consequently derive negative returns on investment.

Recommendations

The study recommended as follows

i. Benue State Government, in conjunction with Local Government Councils should establish a fund for yam marketers to enable the access credit facilities for their businesses. This will facilitate more entry into yam marketing in Benue Sate and hence reduce the level market concentration that currently tends toward oligopoly at wholesale level.
ii. Benue State Internal Revenue Service should grant tax reliefs to yam marketers in Benue State to enable derive positive returns from their businesses.

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