



## Structure, conduct and performance of Plantain Marketing in Edo State, Nigeria

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**ABSTRACT:** The study examined the conduct, structure and performance of plantain marketing in Edo State. The objectives of the study were to examine the structure and conduct of plantain marketing system, assess its performance and estimate the cost and returns in plantain marketing. Data for the study were collected using a well-structured questionnaire administered to 240 marketers of plantain selected using a two-stage sampling process involving random and purposive sampling techniques. Data collected were analyzed using descriptive statistics, gross margin analysis, marketing margins, marketing efficiency and the Gini-coefficient. The results indicate that the market was characterized with many buyers and sellers reflecting a pure competitive structure, prices were determined mainly by factors such as purchase price, ability of the buyers to haggle, supply and demand forces and cost of transportation. Market associations existed among the marketers but only 32.42% belonged to such associations. Most of the respondents agreed that they used both open display and persuasive efforts to attract customers. The value of the Gini coefficient (0.677) indicates some level of inequality suggesting the presence of market concentration among the respondents. The results indicated a net profit of N15.70 per kg of raw plantain. The marketing margin of #32.1 and efficiency of 95.79% indicate reasonably good performance. © JASEM

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Plantain (*Musa* spp) is believed to have evolved from intra and inter crosses of two wild diploid species, *Musa acuminata* Colla and *M. balbisiana* Colla (Šafář *et al.*, 1998); the origin and introduction to Africa have generated controversy among researchers and taxonomists. Plantain is reported to have originated from South India, however, a great diversity is said to exist in Central Africa, thus suggesting plantain to be among the oldest cultivated crops in the region (Ogazi, 1996). Because of the large variability of plantain and highland bananas in Africa, it is speculated that they arrived about 1500 to 3000 years ago. Possibly they first arrived in East Africa near Zanzibar (Tanzania) or reached the continent through Madagascar (Raemaekers, 2001).

Plantain occupies a strategic position for rapid food production in Nigeria, among the starchy staple food it is ranked third. The output of plantain in Nigeria has doubled in the last 20 years, despite having a production system concentrated in the hands of small scale farmers (Akinyemi *et al.*, 2008). This increase in output requires adequate marketing because the commodity has a very low shelf life.

In a subsistence economy, agricultural marketing may be of little significance since farmers only produce food for their household to eat leaving very

little or nothing for the market. But as agriculture is moving into commercial production, agricultural marketing becomes very important (Adegeye and Dittoh, 1985).

“Marketing is the performance of all business activities involved in the flow of goods and services from the point of production until they are in the hands of the ultimate consumer” (Panda, 2011). Market conduct refers to the behavior and practice of firms within the industry; it refers to price policies and other policies pursued by the sellers. Firms that are price takers behave differently from firms that are price makers (Ekunwe and Alufohai, 2009). Market conduct is influenced by the market structure.

Market structure refers to certain characteristics of the market which are believed to influence its nature of competition and price formation as stated by Adegeye and Dittoh (1985) citing Giroh *et al.* (2010)

A market is classified on the basis of certain factors such as; number of firms or sellers of a particular product, the firm’s degree of control over price and degree of product differentiation. These factors give us the type of competition that exists among the firms.

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The term competition always indicates the presence of at least two sellers and two buyers of a definite commodity, in this kind of market situation, each seller acts independently of the other sellers and each buyer also acts independently of the other buyers (Reddy *et al.*, 2009). Market performance is an appraisal of the process of marketing and how successfully its aims and objectives are accomplished. Marketing efficiency reveals the degree of market performance, the concept of marketing efficiency is however a complex one. According to Adegeye and Ditto (1985), every one defines marketing efficiency to suit their own conception of the market.

Previous studies on plantain show that the business of plantain marketing is profitable Folayan and Bifarin, (2011). Oladejo and Sanusi, (2008) reported that the marketing of plantain tends toward pure competition in their study; Marketing Analysis of Plantain in Owo and Ose Local Government Areas of Ondo State, Nigeria. However their study did not take into consideration market conduct and performance of plantain. Moreover the study was conducted in Ondo State. This study was conducted to fill this gap in Edo State among other objectives. The specific objectives were to examine the market structure, conduct and performance of plantain marketing and to estimate the costs and returns from plantain marketing,

## METHODOLOGY

The study was conducted in Edo State, Nigeria. It covered the three agro-ecological zones of the State, Edo North, South and Central. A two-stage sampling procedure involving purposive and random sampling techniques was used in selecting 240 respondents. The first stage involved the purposive selection of four major markets from each zone. The selection was based on the level of plantain marketing activities in the area. The selected markets were Udo, Iguobazuwa, New Benin and Oba Markets from Edo South, while selected markets from Edo Central were Ekpoma, Irrue, Uromi and Igueben Markets. Uchi, Jettu, Okpilla and Sabo Markets were selected from Edo North. The second stage was the random selection of 20 marketers of plantain from each of the selected markets after a pre-survey to obtain list of plantain marketers in each markets to serve as the sampling frame. Data collected were analyzed using descriptive statistics, gross margin analysis, marketing margin, marketing efficiency analysis and the Gini-coefficient.

*Profitability Analysis: Gross Margin = Total Revenue – Total Variable Cost* (1) Where Total

Revenue = Price per bunch x number of bunches sold and Total Variable Cost = Total Cost – Total Fixed Cost Net Return = Gross Margin – Total Fixed Cost (2) Market conduct was estimated with descriptive statistics, while market structure was estimated using descriptive statistics and Gini- Coefficient Gini coefficient is given as;  $G. C. = 1 - \sum ZQ$  (3) Where Z = Proportion of Sellers. Q = Cumulative Proportion of total sales (Ekunwe and Alufohai, 2009)  $G. C. =$  Gini Coefficient. The value of the Gini coefficient lies between 0 and 1; where zero implies a perfect market with perfect equality and 1 implies a perfect inequality in the distribution of income, signifying an imperfect market. Marketing Efficiency, Gross Margin and Marketing Margin were used to assess market performance. Marketing efficiency =  $\frac{\text{Net Profit}}{\text{Total Marketing Cost}} \times 100$  (4) Total Marketing Cost = Selling price - Purchase Price (5) Where MM = Marketing Margin (Adegeye and Ditto, 1985).

## RESULTS AND DISCUSSION

*Market Structure for Plantain in the Study Area:* Results indicate that there were many sellers and buyers who had free entry and exit in and out of the plantain marketing business which indicates a tilt towards pure competitive market structure, confirming Oladejo and Sanusi (2008). The value of the Gini- Coefficient (0.677), as presented in Table 1 implies a high level of inequality in the sales revenue of respondents indicating a good degree of market concentration. The inequality in the market could also be as a result of variation in the investment level of the respondents. Plantain market associations existed in the study area but did not enforce restrictive rules to exclude anybody from selling in the market.

*Market Conduct for Plantain in the Study Area:* The results in Table 2 show that about 88.3% of the marketers determined their prices mainly by purchase price, while 52.90% agreed that the ability of the buyers to haggle was also a determinant, 46.3% of the marketers also stated that prices were determined by the quantity supplied, while only 23.3% claimed that prices were determined by the quantity purchased by buyers. This indicates that supply and demand forces were also determinants of prices. The results also indicate that transportation was a determinant in fixing prices as indicated by 30.4% of the respondents. These results imply that price may vary from marketer to marketer since the ability of a buyer to haggle was a determinant of price in the market. However, though the respondents claimed that prices were determined by the factors stated

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above, the results in Table 3 show that middlemen's mark-up accounted for a greater proportion of the marketing margin indicating that the marketers'

conscious inclusion of high profit was a major determinant, which is an indication of profiteering.

**Table 1:** Estimate of Gini-Coefficient for Plantain Marketers in the Study Area

Range of Income	Frequency of Sellers	Proportion of sellers (Z)	Cumulative proportion of sellers	Total sales (₦)	Proportion of total sales	Cumulative proportion of total sales (Q)	ZQ
50,000 & below	26.00	0.108	0.108	33,108.46	0.03	0.03	0.003
50,001 – 100,000	58.00	0.242	0.350	72,475.17	0.055	0.085	0.021
100,001 – 150,000	45.00	0.188	0.538	124,092.53	0.094	0.179	0.034
150,001 – 200,000	41.00	0.171	0.709	168,872.20	0.128	0.307	0.052
200,001 – 250,000	32.00	0.133	0.842	222,352.50	0.168	0.475	0.063
250,001 – 300,000	6.00	0.025	0.867	266,200.00	0.201	0.676	0.017
>300,000	32.00	0.133	1.000	436,267.50	0.330	1.000	0.133
<b>Total</b>	<b>240.00</b>	<b>1.00</b>	<b>-</b>	<b>1,323,368.36</b>	<b>1.000</b>	<b>-</b>	<b>0.323</b>

Mean value of total sales = ₦5,514.035, Gini- coefficient =  $1 - \sum ZQ = 1 - 0.323 = 0.677$

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that prices were determined by the factors stated above, the results in Table 3 show that middlemen's mark-up accounted for a greater proportion of the marketing margin indicating that the marketers' conscious inclusion of high profit was a major determinant, which is an indication of profiteering.

Market associations existed among the marketers but only 32.42% indicated membership of such associations; however they did not exclude anybody from selling in the market. Most of the respondents agreed that they used both open display and persuasive efforts to attract customers. No specific sharp practice was identified though some practiced forced ripening.

**Table 2:** Market Conduct Assessment

Price Determination	Marketers	
	Freq	%
Purchase price	212	88.3
Consumer bargaining power	127	52.9
Quantity supplied	111	46.3
Transportation cost	73	30.4
Quantity purchased by buyer	56	23.3
<b>Market Association:</b>		
Existence of plantain marketers association	240	100.0
Membership of plantain marketers association	107	44.6
<b>Advert Strategy:</b>		
Open display	210	87.5
Persuasive efforts	214	89.2

*Market Performance in Plantain Marketing* Estimation of the marketing margin presented in Table 3 indicates that marketing margin per kg of plantain was N32.10 and the marketing efficiency was estimated to be 95.79%. The high value might be attributed to the high mark-up for the middlemen. Nevertheless the results indicate good market performance.

*Costs and Returns to Plantain Marketing:* The results show that purchase cost per kg of raw plantain was N144.63, which accounted for 89.82% of the total variable cost. Transportation cost accounted for 5.24% of the total variable cost and the total revenue per kg of plantain was N176.72 with a gross margin of N15.70. The gross margin was not different from the net returns as the marketers did not incur any

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tangible fixed cost. The results show that marketing of plantain was a profitable venture which supports the findings of Oladejo and Sanusi (2008) and

**Table 3** Identified Components of the Marketing Margin per kg of raw plantain

Component	Marketers	
	Mean	Percentage
Transportation	8.44	26.29
Storage	4.24	13.21
Packaging	2.69	8.38
Market charges	1.02	3.18
Middlemen's mark-up	15.71	48.94
Total margin	32.10	100

*Conclusion and Recommendations:* The study established that plantain marketing in Edo State is profitable. The market structure of plantain was found to tilt towards pure competition. The Gini-Coefficient analysis indicated high concentration in the hands of few marketers though efficiency was high indicating good performance with a fair conduct with the absence of sharp practices. Middlemen's mark-ups were however relatively high. It is therefore recommended that middlemen should reduce their mark-ups in order not to give deceptive marketing efficiency, moreover marketers are advised to increase their investment for a better volume of trade to reduce the identified inequality and hence the concentration in a few hands. Being a profitable venture, more people are advised to invest in plantain marketing as a source of livelihood.

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Folayan and Bifarin (2011) that plantain marketing is profitable

**Table 4:** Profitability Analysis (per kg plantain

	Mean
Market charges	1.02
Transportation	8.44
Storage	4.24
Packaging	2.6
<b>Total marketing cost</b>	<b>16.39</b>
Purchased price (off season)	144.63
<b>Total variable cost</b>	<b>161.02</b>
Fixed Cost	Negligible
<b>Total cost</b>	<b>161.02</b>
Revenue	176.72
<b>Gross margin</b>	<b>15.70</b>
<b>Net Revenue</b>	<b>15.70</b>
<b>Marketing Efficiency</b>	<b>95.79</b>

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