

**PROFITABILITY OF PLANTAIN MARKETING IN OVIA NORTH-EAST
LOCAL GOVERNMENT AREA, EDO STATE, NIGERIA**

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BENIN CITY**

JULY, 2021

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF
AGRICULTURAL ECONOMICS AND EXTENSION SERVICES,
FACULTY OF AGRICULTURE, UNIVERSITY OF BENIN IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF
BACHELOR'S DEGREE IN AGRICULTURE (OPTION:
AGRICULTURAL ECONOMICS)**

JULY, 2021

CERTIFICATION

This is to certify that this research work titled “Profitability of Plantain Marketing in Ovia North-East Local Government Area, Edo State, Nigeria” was carried out by Faith Onimi OKEY (Miss), with matriculation number AGR1500045 in partial fulfillment of the award of Degree of Bachelor of Agriculture in Agricultural Economics and Extension Services, Faculty of Agriculture, University of Benin, Benin City, Nigeria.

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Date: _____

Date: _____

DEDICATION

This project is dedicated to God, the creator of the universe and father of our Lord Jesus Christ. I also dedicate this work to those who will like to venture into marketing of any agricultural food produce or commodity.

ACKNOWLEDGEMENT

I humbly wish to acknowledge God for bringing me thus far. My heartfelt acknowledgement goes to my project supervisor, Prof. Christopher O. Emokaro for his dedication and passion towards imparting youths. He is very understanding, accessible, acute and straight forward. I am highly indebted to Prof. E. O. Orhue, Dean of Faculty of Agriculture, University of Benin for his good nature towards the students. Words are inadequate to express my gratitude to my Head of Department, Prof. C. I. Ada-Okungbowa for his relational nature and service to humanity. I am also grateful to my course adviser, Dr. (Mrs).Izekor who is very ethical and courteous, to Dr. O. Ojogho for his dedication to teaching and imparting character and to all my other respected lecturers, I say thank you.

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ABSTRACT

This Study conducted a profitability analysis of plantain marketing in Ovia North-East Local Government Area of Edo State. It was observed that there was no clarity on the measures that plantain marketers in Ovia-North East Local Government Area of Edo State put in place to reduce the effect of the marketing constraints in order to increase their marketing profitability. Hence, the study objectives were to identify the socio-economic characteristics of the respondent; determine the marketing channels; determine the profitability; identify the marketing constraints and identify the ameliorating measures for plantain marketing in the study area.

The primary data used for the study were collected through interview with the aid of a well-structured questionnaire. Eight (8) markets were purposively selected in the study area. Marketers were proportionately sampled from each market giving a total sample size of ninety (90) respondents for the study. Descriptive statistics, cost and return analysis, ordinary least square regression analysis, and Likert scale were used to analyze data collected.

Majority of the marketers interviewed were female (95.6%), married (66.7%), within the age group of 40-49 (30%) with secondary education (38.9%), 6-10 years and 20 years and above (28.9%) marketing experience and household size

of 1-5 (58.9%). The study encountered mainly retailers (48.9%). Marketers had a mean monthly gross income of ₦172.17 per bunch. Their gross ratio, operating ratio, expense structure ratio, return per capital invested and benefit cost ratio were 0.17, 0.82, 0.004, 0.21 and 1.21 respectively. Marketing constraints were high purchase price, seasonality, high transfer cost and poor access to credit facilities. Ameliorating measures used were thrift society and joint vehicle hiring. Quantity sold and transfer cost were the significant determinants of revenue with a coefficient of 1334 and 671.68 respectively. It was concluded that plantain marketing was profitable and that technologies, financial and transport systems dedicated to agricultural products, most especially plantain, will greatly boost profitability.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Plantain (*Musa paradisiacal*) is one of the common horticultural crops cultivated in Nigeria. Its production requires an optimum temperature of 300C; mean monthly rainfall of 100mm, soil pH of 4.5-7.5 and a partly drained sandy-loam soil (Ajiboye and Olaniyan, 2016). It is ranked fourth after rice, wheat, and maize, as the most important food crop in the world (International Institute of Tropical Agriculture, 2014). Plantain is an important staple food crop for both rural and urban areas and occupies a strategic position for rapid food production in Nigeria because it is a primary source of carbohydrates in humid tropical Africa as it contains about 35% carbohydrate, 0.2 to 0.5% fats, 1.2% protein, and 0.8% ash according to IITA (2009) and serves as raw material for beverages, many delicacies, and snacks (Aina, Ajijola, Bappah, Ibrahim and Musa, 2012).

Adakaren, (2011) opined that marketing ensures that goods and services flow from the producers to the consumers in the form, time and place of need. An efficient marketing sector has an important multiplier in the development of an economy. It doesn't just link the sellers and buyers. It also stimulates production

and consumption. It guides the producer towards new production opportunities and encourages innovation and improvement in response to demand and prices.

The roles of markets cannot be over emphasized because production centers are fragmented (mostly in small scale) and is faced by a lot of marketing constraints which determine whether or not production can be expanded. The opportunities for the growth of plantain marketing are conspicuous yet; the marketing constraints (high transportation cost, seasonal price fluctuation, rapid deterioration in quality/ spoilage, inadequate capital, high initial cost of plantain, poor access road and high market charges) have not been attended to over the years. Olaghere, Omotesho, Ademola, Osasona and Akinrinde, (2018). showed that transportation cost significantly affected the marketing margin of marketers. Both the processors and marketers had the challenges of high cost of plantain and lack of a uniform unit of measurements respectively. This indicates that the profitability of plantain marketing would remain constant if the effects of these constraints are not reduced.

1.2 Statement of problem

Despite the high marketing potential of plantain due to its great demand and increased production, profit realizable from its marketing has not increased proportionately. This is a problem to increased income of marketers. Little has

been done to address the marketing constraints and there is no clarity as regards the measures marketers in Ovia-North East Local Government Area of Edo State has been able to put in place to reduce the effect of the marketing constraints in order to increase marketers' profitability.

Folayan and Bifarin, (2011) opined that marketing costs and net returns are negatively related and that policies and actions that lower the costs of marketing will lead to better market performance and profitability.

In response to the above facts, this study aims to find answers to the following questions:

1. What are the socio-economic characteristics of plantain marketers in the study area?
2. What is the marketing channel for plantain marketing in the study area?
3. How profitable is plantain marketing in the study area?
4. What are the constraints faced by marketers in the study area?
5. What measures have been put in place to reduce the impact of constraints on marketers' profitability?

1.3 Objectives of the study

The broad objective of the study is to analyze the profitability of plantain marketing in Ovia North-East Local Government Area. The specific objectives are to:

1. Describe the socio-economic characteristics of the respondents.
2. Describe the marketing channel for plantain marketing in the study area.
3. Evaluate the profitability of plantain marketing in the study area.
4. Describe the marketing constraints faced by marketers in the study area.
5. Identify measures put in place by plantain marketers to reduce the impact of marketing constraints on profitability.

1.4 Justification of the study

Previous studies on plantain marketing show the profitability, constraints and suggest solutions. Fewer works recommend solutions that can be implemented by the marketers and much less work have been done to examine the measures put in place by marketers to reduce the impact of marketing constraints on profitability. Hence, the need for this study which examines possible solutions to the reduction of constraints which would manifest in reduced marketing cost and increased profitability.

This study is conducted to fill this gap in Ovia North-East Local Government Area of Edo State. It would bridge the gap in knowledge on plantain marketing and its profitability. Also, the findings from this research would be of great help to other researchers and students carrying out studies on plantain marketing.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

2.1.1 Theory of profit

Marketing profitability refers to the financial factors that affect a company's ability to make money after subtracting overhead costs (Afolabi, 2009). In economic terms, profit is defined as a reward received by an entrepreneur by combining all the factors of production to serve the needs of individuals in the economy.

The rent theory of profit according to J.S. Mill (1998) says "the extra gains which any producer obtains through superior talents for business or superior business arrangements are very much of a kind similar to rent. This implies that profit is a controllable factor to the extent that management can control his revenue through price on one hand and through costs on the other hand. Walker (1887) in his theory of profits states that profit is the rent of superior entrepreneur over marginal of less efficient entrepreneur.

The wage theory of profit was propounded by Taussig (1917) the American economist. In the words of Taussig, "profit is the wage of the entrepreneur which accrues to him on account of his ability". American economist Hawley (1893)

gave the risk theory of profit. According to him profit is the reward for risk-taking in business.

Prof. J.B. Clark propounded the dynamic theory of profit in the year 1900. To him profit is the difference between the price and the cost of production of the commodity. Profit is the result of progressive change in an organized society. Thus, low level of profitability would not be unexpected given the rates at which costs rise. Rise in costs are threats to profits especially where the marginal increase in costs are not easily passed on to the consumer and where cost minimization strategies are not deliberately pursued as a means of reducing total cost, which will in turn improve profitability. The innovation theory propounded by Schumpeter (1942) views profit as the reward for innovations.

2.1.2 Theory of marketing

The word market has been derived from the Latin word 'Mercatus' which means to trade, merchandize or a place where business is transacted. It refers to any arrangement that brings buyers and sellers together, it could be physical contact between buyers and sellers or contact by letter writing, telephone or through other means of communication (Olukosi *et al.*, 2012).

The American Marketing Association (2007) defined marketing as the activity set of institutions and processes for creating, communicating, delivering and

exchanging offerings that have value for customers, clients, partners and the society at large.

The term Agricultural marketing is composed of two words “Agriculture and Marketing”. Agriculture in the broadest sense means activities aimed at the use of natural resource for human welfare i.e. it includes all the primary activities of production but is generally used to mean growing and/or raising crops and livestock. Marketing connotes a series of activities involved in moving the goods from the point of production to the point of consumption. It includes all the activities involved in the creation of time, place, form and possession of utility (Panda S.C., 2011).

Antwi and Seahlodi, (2011) see marketing as the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumer.

2.2.0 CONCEPTUAL FRAMEWORK

2.2.1 Plantain production

West Africa is one of the major plantain-producing regions of the world, accounting for about 32% of worldwide production (Olumba and Onunka, 2020). In Nigeria and other developing countries alike, plantain is considered as staple

food crop for many. Remarkably, Nigeria is adjudged as one of the largest plantain producing nations of the world (Kainga and Seiyabo, 2012).

In Nigeria, there are basically four types of plantain with distributions centered on bunch characteristics. They comprise of French type, false horn type, French horn type, and horn type; the false horn type is the most predominate in Nigeria because of its ability to withstand poor soil condition (Ayanwale, Fatunbi and Ojo 2016).

Due to the rich availability of fertile forests and laterite soils favorable for plantain growth, plantain production is concentrated in the southern region of Nigeria. Akwa-Ibom, Anambra, Benue, Cross River, Imo, Kwara, Enugu, Plateau, Kogi, Rivers, Edo, Delta, Lagos, Ogun, Osun, and Oyo (Ekunwe & Ajayi, 2010). Bifarin, Alimi, Baruwa, and Ajewole (2010) supports this by reporting that commercial production of plantain is technically and economically feasible in Ogun, Ondo, Oyo, Edo, Delta, Cross River, Akwa Ibom and Rivers states, while it is feasible only under irrigation in Kwara, Niger, Sokoto, Benue, Plateau, Bauchi, Borno and Gongola states.

2.2.2 Economic importance

Plantain is one of the most important staple food crop for millions of people both in developed and developing countries; this fact is reflected in the gross value of its production. It is therefore found in the diet of many Nigerian families as a

good source of carbohydrate, protein, mineral and vitamins. It can be boiled or fried into Dodo (fried ripe pulp), Chips (fried unripe pulp) or processed into plantain flour, local beer, plantain baby food as well as Dodo Ikire (produced from over-ripped plantain. (Oladejo and Sanusi, 2008)

2.2.3 Plantain marketing

In Nigeria, plantain distribution is complex due to its perishable nature and the numerous value chain actors who are organized in informal networks. Plantain is marketed fresh and this process depends on the variety and season. (Akinyemi, Aiyelaagbe and Akyeampong, 2010). Farmers whose land lies nearer the major roads harvest the crop at the mature green stage and display it at the roadside or transport it to nearby markets, allowing small-scale wholesalers, retailers and consumers to purchase directly. In other cases, trade collectors move around farms, collect the produce from farmers and transport it to the cities where they hand them over to wholesalers, who in turn pass the produce on to retailers or vendors for sale to customers.

The study of Oladejo and Sanusi, (2008) reported that the marketing of plantain tends toward pure competition). Ariyo, Ariyo, Okelola, Omodona, Akesode, and Akanni, (2013) confirms this in their study with a Herfindahl index of 0.03

In Edo state, 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 (Eronmwon, Alufohai and Ada-Okungbowa, 2014). Whereas, in Ghana, Dzomeku, Dankyi and Darkey, (2011) revealed that marketing of plantain is becoming a cartel in the organized markets. The market queens play a significant role at the organized markets. They determine who should sell on which day and if new entrants come in with produce from the farms, they are prevented from selling. The new entrants are compelled to sell the produce to the middlemen as he or she does not belong to the market structure.

2.2.4 Socio-economic characteristics of plantain marketers

Aina, Ajijola, Bappah, Ibrahim and Musa (2012) noted that a greater percentage of rural women were involved in trading of foodstuff in Nigeria. This is in tandem with Oladejo and Sanusi (2008) who reported that most of the people involved in marketing activities were average-aged women who were vibrant and energetic enough to positively carry out marketing. Oladejo *et al.* (2011) implied that marketers' educated states are likely to affect the way farm business will be managed for improved overall production.

2.2.5 Marketing channel

Bothloko and Oladele, (2013) define market channel as the path by which the commodity passes from producer to ultimate consumer or the manner in which the product is moved from one agency to another. Thus, marketing of agricultural products begin on the farm with planning of production to meet specific demand and market prospects. The market responds to the requirements of demand and supply without a regulatory body thus causing complex marketing channels. Dzomeku *et al*, (2011) identified four main channels leading to the consumer: producer to wholesaler to retailer; producer to retailer; wholesaler to agro-industry; and producer to agro-industry.

2.2.6 Plantain market profitability

Plantain marketing is quite profitable with high gross margin and marketing margin which are subject to increase as marketers source produce from remote communities. (Adetunji and Adesiyon, 2008). This statement is supported by the findings of Oladejo *et al*. (2008) and Folayan and Bifarin (2011) that plantain marketing is profitable. Plantain market is a perfect competitive market and the business is easy to start with moderate initial capital since the gross margin was not different from the net returns as the marketers did not incur any tangible fixed cost. (Eronmwon *et al*. 2014)

2.2.7 Plantain marketing constraints

Ariyo *et al*, (2013) opined that marketing was faced with a lot of constraints such as high transportation cost, seasonal price fluctuation, rapid deterioration in quality/ spoilage, inadequate capital, high initial cost of plantain, poor access road and high market charges. Adetunji *et al*, (2008) associated marketing activities with transportation cost, labor cost and trading material cost. Their findings revealed that transportation and labor cost were the major factors affecting returns on plantain.

Ekunwe and Ajayi, (2010) indicated transportation problems, poor storage conditions, the attitude of farmers toward risk and land tenure arrangement as the major constraints faced in plantain production and marketing whereas, according to Jatto, Adeoje, Agbegunrin, Oke, Eniola and Smart (2020) the major constraints encountered by the marketers of plantain were inadequate funds and rapid deterioration in quality. It was therefore recommended that registered plantain marketers should be organized into cooperative society for easy access to loans from credit institutions, and for receiving vital information from government institutions and non-governmental organizations

2.2.8 Ameliorating measures for marketing constraints

Ariyo *et al.*, (2013) noted that plantain marketing in the study area could be more profitable by finding lasting solutions to the various constraints faced by its marketing. Ariyo *et al.*, (2013) suggested that the marketers should come together to form plantain marketers' cooperative groups from which members could obtain loans at very low interest rates to finance and expand their business. He also suggested the development and adoption of better techniques that will simplify processing to reduce the spoilage of overripe plantain and bring about value addition.

In Akinyele Local Government Area of Oyo State, losses of plantain were minimized by processing the over ripe plantain to indigenous snack food called "Dodo Ikire". About 80% of the marketers confirmed this information. (Adetunji *et al.*, 2008).

2.2.9 Empirical studies in plantain marketing in Nigeria

In the marketing analysis of Plantain in Owo and Ose Local Government Area of Ondo State, Nigeria, most of the marketers (70%) were female with mean age of 43years showed that most of the respondents (80.9%) fall between 31 and 50 years of age. The mean age was 43 years implied that most of plantain marketers were in their active age when they have the ability of going about their business with vigor. (Oladejo *et al.*, 2008)

With regard to the level of education attained by the respondents, the result of Oladejo *et al.* (2008) revealed that 29.2% of them had primary education, while 25% of them had secondary education. The finding of Adetunji *et al.*, (2008) revealed that 43% of the respondents were within the age range of 31-40 years and 60% completed their secondary school education. Larger percentage of the plantain marketers were female (88%) and married (64%), it was also discovered that about 45% of the marketers had an average of four people in their household.

Jatto *et al.* (2020) presented most of the respondents (98.3%) as female. The findings of the study revealed that plantain market is a perfect competitive market, there is no restriction into the business, and is profitable with moderate net income and benefit cost ratio of greater than 1 ($BCR > 1$). In Afijio Local Government Area, the selling price of plantains was significant, and positively related to marketing efficiency at 1%. The findings further revealed that plantain marketing was profitable, since the benefit cost ratio (BCR) was greater than one. A BCR of 1.27 meant that every ₦1.00 invested into plantain marketing business yielded ₦0.27k as profit. On the average, the mean total cost business transaction in plantain marketing was ₦ 46,470 per month. The total return and net return were ₦ 59,500 and ₦ 12,530 respectively (Jatto *et al.*, 2020).

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1. Area and scope of study

The study was carried out in Ovia North-East Local Government Area of Edo State, Nigeria. Edo state lies between Longitudes 06 040 E and 06 430E and Latitudes 05 440E and 07 340N. It occupies a land area of about 17802 sq. km which is apportioned into 18 local government areas.

Ovia North East LGA is one of the eighteen local government areas in Edo State, occupying a land area of 2,301 square kilometer with a population of about 153,849. Ovia North-East LGA falls within the southern senatorial zone of Edo State otherwise known as Edo South Senatorial District alongside Oredo, Orhionmwon, Ovia South-West, Egor, Uhumwode and Ikpoba Okha local government areas. Ovia North-East LGA also forms a federal constituency alongside Ovia South-West LGA. The headquarter lies in Okada town consisting of thirteen political ward.

3.2. Sampling procedure and data collection

Eight markets were purposively selected for the study based on high prevalence of plantain marketing activities. They are Ogbojorbo, Okorkor, Osatswinoba, Ovbioge, Oluku, Odhigi, Ekosodin and Eko Ekpetin. A proportionate sampling

method was used to select respondents from each market. Personal interview and observation method was used with the aid of a well-structured questionnaire. Data collection started in the month of April and ended in mid-June. The data collected was used to analyses the results.

3.3. Measurement of Variables

Socio-economic characteristics

1. Gender: male = 1, female = 0
2. Age: Below 20 years coded 1, 20-29 coded 2, 30-39 coded 3, 40-49 coded 4, 50-59 coded 5, 60-69 coded 6
3. Marital status: single coded 1, married coded 2, divorced coded 3, widowed coded 4 and separated 5.
4. Household size: Respondents will be asked to specify the number of people living with them and eating from the same pot.
5. Educational level: 1= none, 2= primary school, 3=secondary school, 4= tertiary.
6. Marketing Experience: 5 years and below coded 1, 5-10 years coded 2, 11-15 years coded 3, 16-20 years coded 4 while 20 years and above coded 5

Marketing Channel

Producer coded 1, Assembler coded 2, Wholesaler coded 3, and Retailer coded 4

Profitability of marketing operations

Plantain bunches were measured in Kilogram.

The small bunch weighed 1.5kg. It was coded as 1

The medium bunch weighed 3.0kg. It was coded as 2

The big bunch weighed 4.0kg. It was coded as 3

Marketing costs as well revenue were measured in Naira

Marketing constraints

Very Great Extent coded 5; Moderate Extent coded 4; Little Extent coded 3; Very Little Extent coded 2; Not Affected coded 1.

Ameliorating measures

Always coded 5; Often coded 4; Sometimes coded 3; Rarely coded 2; Never coded 1.

3.4. Analytical Technique

Data collected was analyzed using descriptive and inferential statistics. The descriptive statistics included frequency counts, percentages and mean scores.

Objective 1: To describe the socio-economic characteristics of marketers in the study area

This was achieved using frequency counts, mean values and percentages.

Objective 2: To identify the various marketing channels used in the marketing of plantain in the study area.

This was achieved using a chart to depict the various channels.

Objective 3: To evaluate the profitability of plantain marketers in the study area.

Profitability of plantain marketing was derived by analyzing the performances of the business with Gross Ratio, Operating Ratio (OP), Expense Structure Ratio (ESR) as well as Benefit Cost Ratio and Return per Capital Invested (RPCI).

The expressions for these measures are as follow:

The Gross Ratio (GR): This shows the proportion of the gross income that constitutes the total revenue during the marketing period. It is gross income divided by total revenue.

$$GR = G I \div TR$$

Operating Ratio (OR): The ratio indicates the proportion of the revenue that accounts for the variable cost. It is directly related to the variable input usage. It is given as total operating cost or total variable cost of marketing (TVC) divided by total revenue (TR)

$$OR = TVC \div TR$$

Expense Structure Ratio: This indicates the proportion of the revenue that accrues to the fixed cost. It is given as:

$$ESR = TFC \div TR$$

Return per Capital Invested: This indicates the amount of money returns to the investor for every naira invested on a business. It is given as:

$$RPCI = GI \div TMC$$

Benefit-Cost Ratio (BCR): The ratio shows whether a business is worth investing in or not. That is, if the ratio is greater than 1, it is profitable and otherwise if it is less than unity. This is given as:

$$BC = TR \div TMC$$

3.4.1 Regression Analysis

Regression analysis is a statistical process for estimating the relationship among variables. It includes many techniques for modeling and analyzing several variables, the focus is on the relationship between a dependent variable and one or more independent variables or predictors. More specifically, it helps one to understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are

held fixed. Many techniques for carrying out regression analysis have been developed.

The implicit form for the regression model is $Y = f(X_1, X_2, X_3, X_4, X_5, X_6, U)$

Where; $Y = \text{Revenue}$

$X_1 - X_6 = \text{independent variables}$

$U = \text{Error term}$

Explicitly the functional form is expressed below;

a) Linear function:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + U$$

$b_0 = \text{Constant}$

$b_1 - b_6 = \text{Estimated coefficients}$

$X_1 = \text{Quantity sold}$

$X_2 = \text{Purchase cost}$

$X_3 = \text{Selling price}$

$X_4 = \text{Transfer cost}$

$X_5 = \text{Storage cost}$

$X_6 = \text{Levies}$

OBJECTIVE 4: To identify the various constraints faced by plantain marketers in the study area.

It was analyzed with descriptive statistics such tables, frequency distribution and percentages and a 5 point Likert scale. The grading for the 5 point Likert scale was in this order:

Very Great Extent=5; Moderate Extent=4; Little Extent=3; Very Little Extent=2; Not Affected=1.

The mean score of the respondents based on the five-point scale was:

$$\Sigma x/x \ 5+4+3+2+1=15$$

$$\Sigma x/x = 15/5=3.0$$

Using the interval scale of 0.5, the cut-off point was 3.0 ± 0.5 . Therefore, any mean score between 2.5 and 3.4 was considered little extent, while any mean score between 3.5 and 4.4 was considered as moderate extent. Any mean score of 4.5 or above was considered as very great extent.

Objective 5: To identify measures put in place by plantain marketers to reduce the impact of marketing constraints on profitability.

It was analyzed with descriptive statistics such tables, frequency distribution and percentages and a 5 point Likert scale. The grading was in this order:

Always=5; Often =4; Sometimes =3; Rarely=2; Never=1.

The mean score of the respondents based on the five-point scale was

$$\Sigma x/x = 5+4+3+2+1=15$$

$$\Sigma x/x = 15/5=3.0$$

Using the interval scale of 0.5, the cut-off point was 3.0 ± 0.5 . Therefore, any mean score between 2.5 and 3.4 was considered little extent, while any mean score between 3.5 and 4.4 was considered as moderate extent. Any mean score of 4.5 or above was considered as very great extent.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio-Economic Characteristics of Plantain Marketers

The socio-economic characteristics of the marketers of plantain in Ovia North-East Local Government Area are presented below in the following sections.

4.1.1 Sex Categorization of Plantain Marketers

Result from the study as seen in table 4.1 shows that 86 (95.6%) of the plantain marketers were females this means that plantain marketing was predominantly a female business in the study area. The study agrees with the findings of Jatto *et al.*, (2020) that females were 98.3% of plantain marketers. This could probably be because the marketing of most agricultural products are done by women. Aina, Ajijola, Bappah, Ibrahim and Musa (2012) reiterated that 80% of all trades in food stuff. Nigeria is carried out by women.

4.1.2 Age Distribution of Plantain Marketers

The result presented in Table 4.1 shows that marketers whose age range were 40-49 had the highest percentage (30%) followed by the age range of 50-59 (21.1%) and 30-39 (20%). This implies that a greater proportion of plantain marketers in

the study area were in their active age. This agrees with the findings of Adetunji *et al.* (2008), where 43% of marketers were within the age range of 31-40 years

4.1.3 Marital Status of Plantain Marketers

The result in Table 4.1 indicates that 66.7% of the marketers were married. That means plantain marketing could be a source of generating income for supporting their families.

4.1.4 Level of Education of Marketers

The result in Table 4.1 indicates that 38.9% of the marketers had secondary education, 28.9% had primary education, 21.1% had no formal education and 10% had tertiary education. Educational level could affect marketing profitability

4.1.5 Marketing Experience of Plantain Marketers

It was observed from Table 4.1 that 28.9% of the marketers had marketing experience of between 6-10 years and 20 years and above. Those with 16-20years experience made up 17.8% while 16.7% had experience of 11-15 years and 7.8% had experience of 5 years and below. The number of years of marketing experience could be an indicator of the practical knowledge acquired.

4.1.6 Household Size of Marketers

As shown in Table 4.1, 58.9%, 37.8% and 3.3% of the marketers had household sizes of between 1-5, 6-10 and 11-12 respectively, meaning that there was high dependency rate. This agrees with the report of Ariyo *et al.* (2013) who reported that 76% of the marketers had household sizes of 1-10.

Table 4.1: Socioeconomic characteristics of plantain marketers

Characteristics	Frequency(N=90)	Percentage
Sex		
Male	4	4.4
Female	86	95.6
Age		
Below 20	4	4.4
20-29	12	13.3
30-39	18	20.0
40-49	27	30.0
50-59	19	21.1
60 and above	10	11.1
Marital status		
Single	14	15.6
Married	60	66.7
Divorced	2	2.2
Widowed	10	11.1
Separated	4	4.4
Educational level		
None	19	21.1
Primary	26	28.9
Secondary	35	38.9
Tertiary	10	11.1
Marketing Experience		
5 years and below	7	7.8
6-10 years	26	28.9
11-15 years	15	16.7
16-20 years	16	17.8
20 years and above	26	28.9
Household size		
1-5	53	58.9
6-10	34	37.8
11-15	3	3.3

Source: Field Survey, 2021

4.2 The Marketing Channels for Plantain in the Study Area

The distribution of the marketing channels for plantain in the study area is shown in Table 4.2 The result shows that the main marketing channels in the study area were made up of (41.1%) wholesalers and (48.9%) retailers.

This confirms the case of Akinyemi et al. (2010) reported in their study that marketing channel of plantain was made up of farmers who display their products at the roadside or move them to nearby markets where wholesalers, retailers and consumers can purchase directly. They stated that trade collectors move around farms, collect the produce from farmers and transport it to the cities where they sell to wholesalers which in turn pass it to retailers for sales to consumers.

Table 4.2: Distribution of Marketing Channels for Plantain in Ovia North-East Local Government Area

Market Role	Frequency (N=90)	Percentage
Producer	3	3.3
Assembler	6	6.7
Wholesaler	37	41.1
Retailer	44	48.9

Source: Field Survey, 2021

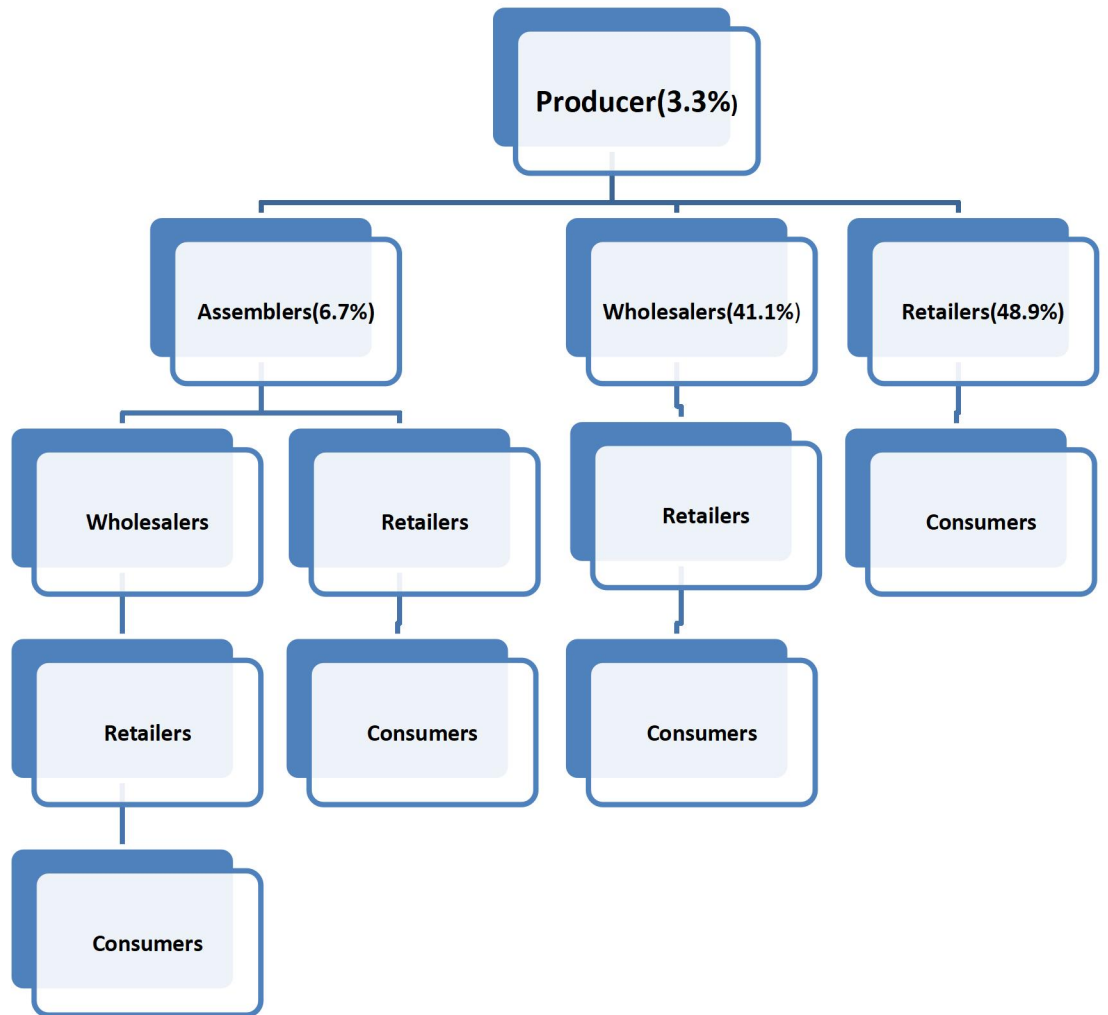


Fig 4.1: Plantain marketing channels in Ovia North-East Local Government Area.

4.3 Profitability of Marketing Operations in the study area

It is shown in table 4.3 that from the purchase of 57.46 small bunches (1.5 kg), 47.46 medium bunches (3.0kg) and 53.4 big bunches (4kg), the mean monthly marketing cost of ₦815.12 was invested. The cost incurred in the study includes purchase cost, transfer cost, storage cost and levies. The mean monthly revenue per bunch was ₦987.30. With the mean monthly gross income of **₦172.17** per bunch, plantain marketing was found profitable.

The Gross ratio was 0.17. This figure implies that 17% of the revenue accrues as profit to the marketer. Operating ratio and Expense structure ratio were 0.82 and 0.004 respectively. Whereas the variable cost accounts for a larger proportion (82%) of the revenue, the fixed cost proportion (0.04%) is very low. This is in tandem with Eronmwon *et al.* (2014) that marketers do not incur any tangible fixed cost. The return per capita invested and Benefit cost ratio were 0.21 and 1.21 respectively, implying that ₦0. 21k was gained for every ₦1 invested. The implication of this is that plantain marketing is favorable with a Benefit cost ratio greater than one. This result is in line with the Benefit cost ratio of 1.27 in Afijio Local Government Area of Oyo State, Nigeria. (Jatto et al., 2020)

Table 4.3: Profitability of Marketing Operations in the study area

Bunch size (kg)	Quantity (bunches)	Unit price (₦)	Mean value (₦)	Monthly value (₦)	Monthly value per bunch(₦)
Returns					
Small (1.5)	57.46	506.25	29089.13	203623.91	
Medium (3.0)	47.46	739.5	35096.67	245676.69	
Big (4.0)	53.40	1724.25	92074.95	644,524.65	86.17
Mean	12.31		1736.23	12153.61	987.30
Costs					
Small (1.5)	57.46	355.8	20442.50	143097.5	
Medium (3.0)	47.46	739.5	35096.67	245676.69	
Big (4.0)	53.40	1289.9	68880.66	482, 164.62	
Mean	12.31		1382.44	9677.08	786.12
Transfer cost			44.92	314.47	25.55
Total Variable Cost (TVC)			1427.36	9991.52	811.66
Storage cost			4.81	33.67	2.74
Levies			1.28	8.96	0.73
Total Fixed Cost(TFC)			6.09	42.63	3.46
Total Marketing Cost (TMC)			1433.45	10034.15	815.12
Gross Income (GI)			302.78	2119.46	172.17
Profitability Ratios					
Gross Ratio (GI/TR)					0.17
Operating Ratio (TVC/TR)					0.82
Expense Structure Ratio (TFC/TR)					0.004
Return per Capital Invested (GI/TMC)					0.21
Benefit Cost Ratio (TR/TMC)					1.21

Source: Field Survey, 2021

The regression result as displayed in table 4.4 showed that quantity sold ($p < 0.1$) and transfer cost ($p < 0.05$) positively influenced the revenue. This implies that as quantity sold and transfer cost increased, revenue increased. Purchase cost, selling price, storage cost and levies had insignificant effect on the revenue. The coefficient of multiple determinations (R^2) is 90.3%, which indicates that 90.3% variation in revenue is caused by the independent variables while the remaining 9.7% is due to the error term.

Table 4.4: The Regression result of the determinants of revenue

Variables	Coefficients	Standard Error	t Stat	P-value
Intercept	-88782.74	12975.42	-6.84	0.00
Quantity sold	1334.00	49.97	26.70	0.00***
Purchase cost	28.54	21.98	1.30	0.20
Selling price	18.73	18.74	1.00	0.32
Transfer cost	671.68	302.16	2.22	0.03**
Storage cost	362.24	477.29	0.76	0.45
Levies	-86.15	2090.12	-0.04	0.97

R Squared =0.903

Adjusted R Squared =0.897

F Statistic =129.49

*** =Variable significant at 1%

** = Variable significant at 5%

Source: Field Survey, 2021

4.4 Constraints Faced by Plantain Marketers in the Study Area

The distribution of marketers' responses to the constraints faced in plantain marketing is represented in table 4.5. With means ≥ 3 , high initial purchase price was the first major constraint followed by seasonality, high transfer cost and poor access to credit facilities. Perishability and multiple market charges with means less than 3 were not considered as major constraints in the study area.

Table 4.5: Marketing constraints

Marketing constraints	Mean	Std. Deviation	Rank
High initial purchase price	4.1222	1.41284	1 st
Seasonality	4.0667	1.52728	2 nd
High transportation cost	3.9333	1.30513	3 rd
Poor access to credit facilities	3.6000	1.43629	4 th
Perishability	2.3333	1.23616	5 th
Multiple market charges	2.0556	1.45618	6 th

Source: Field survey 2021 Means ≥ 3.0 Very great extent

4.5 Ameliorating measures

As indicated in table 4.6, thrift society was the most used ameliorating measure followed by joint vehicle hiring. While, individual bulk purchase and seasonal marketing, the use of chemicals for preservation or ripening and membership of cooperative society with means less than 3 were not considered as ameliorating measures in the study area. It was observed that preservation/ ripening methods were not needed since plantain was in short supply and the weather condition at the time of study did not induce ripening. Contrary to the recommendation of Ariyo *et al.* (2013), the plantain marketers did not see cooperative society as a solution to marketing problems. From interviews taken, it was observed that plantain marketers in Ovia North-East Local Government Area detest the idea of cooperative society. This may be due to the expected rise in fees to be paid, commitments to be made and restriction on free trade.

Table 4.6: Ameliorating measures

Ameliorating measures	Mean	Std. Deviation	Rank
Thrift society	3.5556	1.64973	1 st
Joint vehicle hiring	3.1667	1.73691	2 nd
Individual bulk purchase	2.6667	1.49155	3 rd
Seasonal marketing	1.5333	0.92651	4 th
Use of chemicals for preservation or ripening	1.5222	0.78221	5 th
Membership of cooperative society	1.1444	0.72764	6 th

Source: Field survey 2021 Means ≥ 3.0 very serious

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The study dealt with the profitability of plantain marketing in Ovia North-East Local Government Area of Edo State. The study was conducted to identify the socio-economic characteristics of the plantain marketers, determine the marketing channel of pineapple, determine the profitability of plantain marketing, identify the marketing constraints in plantain marketing and identify the ameliorating measures used by marketers in the study area. Eight (8) markets were purposively selected in the Local Government Area and marketers were proportionately sampled from each market giving a total sample size of ninety (90) respondents for the study. Descriptive and statistics techniques such as frequency distribution and percentages, ordinary least square linear regression and Likert scale were used to analyzed data collected.

Majority of the marketers interviewed were female (95.6%), married (66.7%), respondents within the age group of 40-49 (30%) had secondary education (38.9%) with 6-10years and 20 years and above(28.9%) marketing experience and household size of 1-5 (58.9%). The study encountered mainly retailers (48.9%).

Marketers had a mean monthly gross income of ₦172.17 per bunch, plantain marketing was found profitable. Their gross ratio, operating ratio, expense structure ratio, return per capital invested and benefit cost ratio were 0.17, 0.82, 0.004, 0.21 and 1.21. It was observed that marketers were faced with the problems of high purchase price, seasonality, high transfer cost and poor access to credit facilities with mean values above 3. Ameliorating measures used were thrift society and joint vehicle hiring with mean values above 3. Quantity sold and transfer cost were the major determinants of revenue with a coefficient of 1334 and 671.68 respectively.

5.2 CONCLUSION

Based on the profitability ratios from the study, it can be concluded that plantain marketing is a profitable business in Ovia North-East Local Government Area of Edo State. Its profitability can be increased by encouraging the use of more efficient production technologies, facilitating transport systems for agricultural produce and maintaining structured financial systems which encourage savings and loan taking.

5.3 RECOMMENDATIONS

1. Marketers should be enlightened on the management and importance of cooperative society by extension organization. This would change marketers' orientation towards the idea of cooperative society such that the constraint of high transfer cost and poor access to credit facility can be greatly reduced by the marketers' joint effort.
2. More research on plantain production should be done to develop improved technologies that will ensure all year round supply of plantain. This would reduce the constraint of seasonality which results in high purchase price.
3. Transport systems and facilities which are dedicated to the distribution of agricultural products should be established by the government, community based organizations and international organizations.

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APPENDIX

QUESTIONNAIRE

PROFITABILITY OF PLANTAIN MARKETING IN OVIA NORTH-EAST LOCAL GOVERNMENT AREA, EDO STATE

DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES FACULTY OF AGRICULTURE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE.

Dear Sir/Madam,

I am a final year student of the above named department and institution. I am working on the project titled “**PROFITABILITY OF PLANTAIN MARKETING IN OVIA NORTH-EAST LOCAL GOVERNMENT AREA OF EDO STATE.**” To this end, your help is kindly needed in providing this required information for academic purpose and they will be treated with utmost confidentiality. Thank you.

Yours faithfully,
Faith Onimi OKEY

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

1. Age: Below 20 20-29 30-39 40-49 50-59 60 & above
2. Gender ; Female Male
3. Marital Status: Single Married Divorced Widowed
 Separated
4. Household size: _____
5. Educational level: None Primary Secondary Tertiary
6. Marketing experience: Less than 5 5-10 10-15 15-20 20 & above

SECTION B: MARKETING CHANNEL

1. Who do you buy plantain from? Farm gate Wholesalers Personal farm Others
2. Who do you sell to? Middle men Wholesalers Retailers
 Consumers

SECTION C: PROFITABILITY OF MARKETING OPERATIONS

1. What is your cost price per bunch in Naira? Please specify _____
2. What is your selling price per bunch in Naira? Please specify _____
3. How often do you purchase plantain? () Less than a week () 1 week () 2 weeks () Monthly

S/N	MARKETING COST	AMOUNT(N)
1	Transfer cost	
2	Market space	
3	Local government levy	
4	Initial cost	
	Total Marketing Cost	

SECTION D: MARKETING CONSTRAINTS

S/N	Marketing Constraints	Very Great Extent	Moderate Extent	Little Extent	Very Little Extent	Not Affected
1	High transportation cost					
2	Poor access to credit facilities					
3	Perishability					
4	High initial purchasing price					
5	Multiple market charges					
6	Seasonality					
7	Others (Please specify) _____					

SECTION E: MEASURES TO AMELIORATE MARKETING CONSTRAINTS

Are there any measures you use to reduce the effect of marketing constraints?

Yes No

If yes, how often do you use these measures

S/N	Ameliorating Measures	Always	Often	Sometimes	Rarely	Never
1	Joint vehicle hiring					
2	Thrift society					
3	Individual bulk purchase					
4	Membership of cooperative society					
5	Seasonal marketing					
6	Use of chemicals for preservation or ripening					