MARKETING OF LEAFY VEGETABLES IN BENIN CITY, EDO STATE

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A PROJECT SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF AGRICULTURE (OPTION: AGRICULTURAL ECONOMICS AND RESOURCE MANAGEMENT)

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CERTIFICATION

This is to certify that this research work was carried out by Beatrice AISAGBONBUOMWAN **(Miss)** with Matriculation Number **AGR1800007** in the Department of Agricultural Economics and Extension Services, Faculty of Agriculture, University of Benin, and that the research project was approved as adequate in scope and quality for the partial fulfilment of the award of the bachelor of Agriculture (B.Agric).

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(Project supervisor)	(Ag. Head of Department)
Date: _____	**Date:_____**

DEDICATION

This project is dedicated to God ALMIGHTY, my sustenance and his overwhelming love towards me.

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Special thanks to God Almighty for loving me in a special way and blessing me with caring parents that is so unfailing throughout the course of my study.

My sincere gratitude and thanks to my supervisor, Prof. Christopher Emokaro for his scholastic guidance and constructive criticism from the choice of topic through to the completion of my project. May God continue to reward and uphold you. Special thanks to all the professors and lecturers in the Department of Agricultural Economics and Extension Services, to my course adviser, Mrs A.J Kenneth.

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ABSTRACT

The distribution and marketing of leafy vegetables pose significant challenges due to their perishable nature. This study was conducted to assess the profitability of vegetable marketing in Benin City, Edo State, by examining the socioeconomic characteristics of leafy vegetable marketers, determining the cost and margins of leafy vegetable marketing, analyzing the determinants of profit in this sector, and identifying associated challenges.

A sample of 100 respondents from five markets was selected using a simple random sampling method. Data were collected through structured questionnaire administered to vegetables marketers. Data collected were analysed using descriptive statistics budgetary analysis and inferential statistics (linear regression).

The findings indicate that the majority (89.0%) of respondents were females, highlighting the dominance of females in vegetable marketing. Middle-aged individuals constitute a substantial proportion (40%) of vegetable marketers, and married individuals dominate the sector (42%). Larger households with 4-6 members contribute significantly to family labor and expenses. Total revenue (TR) from various vegetables amounted to ₦29,675.71, with variable costs (TVC) totaling ₦20,730 and fixed costs at ₦7,050. The total marketing cost (TMC) was ₦27,780, resulting in a net return of ₦1,895.71. While the net return indicates profitability, it is relatively lower compared to previous research findings. Key constraints include poor access roads, rapid quality deterioration/spoilage, seasonal price fluctuations, and high transportation costs. The perishable nature of vegetables presents a significant challenge. it can be concluded that vegetable marketing in Benin City is predominantly conducted by females, often middle-aged and married individuals. Despite profitability, the profit margin is comparatively lower than in previous studies. It was recommended that addressing poor access roads to alleviate transportation challenges and reduce spoilage and marketing costs.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background information

The cultivation and consumption of vegetables in Africa have been longstanding practices with roots in ancient times. According to Plant Resource and Tropical Africa (PROTA, 2014), there are approximately 397 indigenous African plant species classified as vegetables out of a total of 6376 useful species. Recently, there has been a growing recognition of the health-enhancing properties of non-nutrient bioactive compounds found in these indigenous leafy vegetables, leading to increased emphasis on their importance in daily diets (Smith and Eyzaguirre, 2007). This newfound awareness has specifically highlighted the crucial roles leafy vegetables play as essential dietary components, particularly for populations in Nigeria and other sub-Saharan African (SSA) countries.

Vegetables play a crucial role in providing essential vitamins and minerals necessary for maintaining good health, and their production holds significant economic potential in enhancing food security. The marketing of vegetables not only creates employment opportunities for many Nigerians but also serves as a vital source of livelihood for various individuals. Despite their nutritional value,

vegetables are highly perishable and require meticulous care throughout the harvest and post-harvest processes (Sinha, Hui, Evranuz, Siddiq, and Ahmed, 2010).

Vegetables can be categorized into three main types: leafy vegetables, fruity vegetables, and root vegetables (Iheanacho *et al*., 2009). Among these, leafy vegetables stand out for their low caloric content, making them ideal for weight management, and they offer numerous health benefits, including reduced risks of obesity, cardiovascular disease, and high blood pressure (Ejoh *et al*., 2007; Ejoh and Samuel, 2016). As a result, leafy vegetables have gained popularity and are widely available, leading to a notable increase in trading and commercial activities surrounding these products.

The escalating demand for leafy vegetables has led to their year-round production and availability (Chubike *et al*., 2013). Moreover, certain leafy vegetables are well-suited to tropical climates, while others thrive in temperate regions. Consequently, in Nigeria, particularly in the Southern region, various essential tropical leafy vegetables are extensively cultivated and marketed. These include Vernonia amygdalina (Bitter leaf), Talinum triangulare (Waterleaf), Telfairia occidentalis (fluted pumpkin leaf), Amaranthus esculentus (Green or African spinach), Gnetum africanum (Okazi), Pterocarpus soyauxii (Camwood leaf or Oha), Pterocarpus santalinoides (Nturukpa), Ocimum grattisimum (Scent leaf),

Murraya koeningii (Curry leaf), Gongronema latifolium (Bushbuck or Utazi), Solanum nigrum (Garden egg leaf), Piper guineense (Black pepper or Uziza), and Panicum maximum (Guinea grass) (Chubike *et al*., 2013).

Vegetable marketing is one of the fields that offers employment with less demanding academic qualification, and the starting capital (start-up costs) required to get engaged in marketing is probably lower than for most other agricultural commodities. According to Legesse *et al* (2014)., vegetable marketing is among the main areas of intervention and strategic planning that aims to reduce hunger and poverty and improve livelihoods. The authors added that issues of growing poverty, hunger, lack of formal and informal employment opportunities, increased population growth, and increased urbanization could be addressed by appropriate institutional vegetable marketing. Marketing of vegetables has become increasingly an important source of income among women. Mohammed (2018) reiterated this and emphasized that vegetable marketing is currently the biggest single employer of women.

Increased production and improved marketing of vegetables can create more opportunities for self-employment and enhance human nutrition, thereby providing solution to the high unemployment situation in most rural and urban communities while addressing nutritional problems of the society. Unfortunately, the vegetable marketeer, who is the main player in this business, has only limited

capacity to solve problems affecting his or her business in the absence of an enabling environment such as a strong competitive market system which is a necessity for social and economic welfare.

Yeshitila (2012) indicated that when a competitive market functions effectively, it serves the nation by stimulating the efficient provision of goods and services, and promotes business investment in research, new equipment, and other capital goods necessary for improvements in productivity and economic growth. This causes the market system to be beneficial to a broad spectrum of the society including workers, consumers, and other stakeholders in the business, and provides resources to support social programmes that improve the quality of life.

1.2 Problem statement

The marketing of leafy vegetables is a crucial aspect of the agricultural value chain in Benin City, Edo State, Nigeria. Leafy vegetables are an essential component of the diet for many residents, providing essential nutrients and contributing to food security in the region. However, the marketing of these vegetables faces various challenges that hinder efficient distribution and access to fresh and nutritious produce. Understanding and addressing these challenges is crucial to improve the overall efficiency and effectiveness of the leafy vegetable marketing system in the region.

On the other hand, lack of market infrastructure is one of the limiting factors causing low returns in vegetable cultivation. Profitability is not only determined by the use of input resources but it is also dependent on the availability of proper logistic for transporting the farm produce from the farm gate to the market. Vegetable production is also influenced by the location of the farms due to the fact that the farms near to input market are in a better position to purchase different inputs such as seeds, fertilizers etc. at the appropriate time.

There has been concern over the years regarding the efficiency of vegetable marketing. As noted by Nwachukwu and Onyenweaku (2007), economic efficiency depends on the market forces, which in turn are influenced by the sectoral and marketing polices of a country. Due to the important role vegetables play in the human diet, economy and environment, there is a universal recognition to develop a system of vegetable marketing in Nigeria (Okunlola, 2009). The marketing of vegetable is gradually developing as many people develop interest to engage in vegetable enterprise especially as market intermediaries and thereby, assist in the process of distribution. This activity will provide a good source of income for vegetable marketers, and will also ensure a ready market for the produce most especially during this period.

Low vegetable intake is among the top risk factors contributing to about 2.7 million deaths globally. In Nigeria, micronutrient malnutrition has been identified

as a wide spread problem with serious economic consequences. These include low productivity, cognitive losses, work losses, among others (Agwu, 2011). This dismal picture of the micronutrient status spells serious consequences. Consequently, vegetables have long been regarded as minor crops and thus, have attracted little marketing attention, in favour of major crops and cash crops (Thompson and Agbugba, 2013). It is important to note however, that vegetable marketing is one of the most rewarding but risky agribusinesses, due to their high perishability, price, yield variations, as well as its special features, coupled with changing customers' demand which could lead to increased uncertainty encountered by the marketers (Adebisi-Adelani *et al*., 2011).

The distribution and marketing of vegetables especially the leafy ones is problematic due to their easy perishability (Smith and Eyzaguirre, 2007). According to Aju *et al*. (2013), local leafy vegetables, like traditional food, have remained unrecognized and unappreciated and hence undervalued both by government and resource planners and policy makers. Generally, local leafy vegetable sub-sector is highly unorganized. Poor market access has resulted in seasonal glut with some farmers unable to sell their produce, hence leading to low high losses and spoilage of leafy vegetables among marketers. The poor road networks coupled with the scattered and small scale farms has led to increased

marketing cost of the produce especially for wholesalers. These challenges affect the profit levels of marketers and make the sector not attractive to new entrants.

However, it has been generally discussed that vegetable farmers do not receive a fair share of the price consumers pay for the produce. Farmers' gross margin is small compared to retailers and wholesalers margin due to high variable cost incurred by farmers in vegetable production (Osano, 2010).

Regarding vegetable marketing, the general remark has been that traders usually try transferring all sorts of price risks to farmers and offer low prices to farmers or by creating a monopsonistic situation, debt-ties and cartel. The foregoing debates are often made without a deeper understanding of the critical transactional relationships that exist between farmers and marketers of vegetables, which could partly explain the rationale behind the differential margins received by the various agents in the vegetable chain. On such note, the evaluation of vegetable production and marketing was carried out across the three recognized seasons in northern Ghana, namely; rainy season (June – September); harmattan season (October- January) and dry hot season (February-May). Given the foregoing challenges the study will be conducted to answer the following research question;

1. What are the socioeconomic characteristics of vegetable marketers in Benin City, Edo State?

2. What are the marketing cost and margins of vegetable marketers in Benin City, Edo State?
3. What are the determinants of profit in vegetables marketing in Benin City, Edo State, Nigeria?
4. What are the challenges associated with leafy vegetables in Benin City, Edo State.

1.3 objective of the study

The main objective of the study will be to examine the marking of leafy vegetables in Benin City, Edo State.

The specific objectives are;

1. describe the socioeconomic characteristics of leafy vegetable marketers in Benin City, Edo State;
2. determine the cost and margins of leafy vegetable marketing in Benin City, Edo State, Nigeria.
3. Examine the determinants of profit in leafy vegetable marketing in Benin City, Edo State;
4. Identify the challenges associated with leafy vegetable marketing in Benin City, Edo State

1.4 Justification of the study

Despite the importance of leafy vegetables, the marketing of leafy vegetables in Nigeria faces various challenges that can hinder the overall growth and development of this sector. To address these issues and contribute to the improvement of leafy vegetable marketing in Nigeria, particularly in Benin City, Edo State, there is a need for a comprehensive study to examine the current state of affairs. The proposed study aims to bridge this gap by investigating the socioeconomic characteristics, cost and margins, profit determinants, and challenges associated with leafy vegetable marketing in Benin City.

Although there have been some studies **Utobo** *et al*., 2022; Agbugba and Shelaby (2018); Alao, Bamiwuye, Agboola and Apantaku (2020) and Agbugba, Okechukwu, and Solomon (2011) conducted on vegetable marketing in Nigeria, there is a dearth of research specifically focused on leafy vegetables in Benin City, Edo State. The lack of sufficient data and analysis in this specific region hampers the development of effective policies and strategies to enhance the marketing of leafy vegetables in the area.

Leafy vegetable marketing contributes significantly to the livelihoods of smallholder farmers and traders in Benin City. Understanding the factors that

affect profitability and the challenges faced in this sector can help inform interventions that promote economic growth and poverty reduction in the region. Access to nutritious leafy vegetables is crucial for promoting food security and combating malnutrition in the local population. A well-functioning marketing system ensures the availability and affordability of these essential vegetables to consumers.

The findings of this study will serve as a valuable resource for policymakers and relevant stakeholders to design targeted interventions and support mechanisms that can bolster leafy vegetable marketing activities in Benin City, Edo State. By describing the Socioeconomic Characteristics of Leafy Vegetable Marketers in Benin City, Edo State: This study aims to gather data on the demographic characteristics, education level, experience, and marketing practices of individuals involved in leafy vegetable marketing. Understanding the socioeconomic profile of marketers will provide insights into the diverse actors in the supply chain and help identify potential areas for capacity building and support.

Assessing the costs involved in the marketing process, from production to retail, will shed light on the efficiency and profitability of leafy vegetable marketing. Understanding the profit margins will allow for an analysis of the economic viability of this enterprise and pinpoint areas where interventions can optimize resource utilization. Also the study will identify the key factors that influence the

profitability of leafy vegetable marketing in the region. Factors such as transportation costs, market access, pricing, and market structure will be analyzed to understand their impact on the income of marketers. By Identifying the Challenges Associated with Leafy Vegetable Marketing in Benin City, Edo State. The study aims to identify and categorize the challenges faced by leafy vegetable marketers in Benin City, including issues related to infrastructure, market information, post-harvest losses, and market dynamics. Understanding these challenges will help design targeted interventions to address the bottlenecks and enhance the efficiency of the marketing system.

A study on leafy vegetable marketing in Benin City, Edo State, Nigeria, is essential to fill the existing research gap and contribute valuable insights to improve the marketing practices in this critical sector. By achieving the specific objectives outlined above, this study will offer valuable recommendations and policy implications to support the sustainable growth and development of leafy vegetable marketing in the region.

With the current increase in consumption, cultivation as well as commercialization of activities involving leafy vegetable crops, attention regarding the production and consumption of leafy vegetables has continued to dwindle. This could be as a result of inadequate information on the health and nutritional benefits, lack of information about their performance and input

requirements, as well as lack of available germplasm for widespread use their production (Egbule, 2012). Very little is still known about the nutritional and health benefits of leafy vegetables as regarding their production, marketing and consumption. An expert report on the socio-economic features, as well as the diverse vital roles and benefits which some selected leafy vegetables (fluted pumpkin, Green, Water leaf, Bitter leaf, Scent leaf and Uziza*)* play in our diets thereby constituting the prop on which intervention programmes can be developed.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 REVIEW OF LITERATURES/CONCEPTUAL AND METHODOLOGY FRAMEWORK

A Study by Utobo *et al*. (2022) on the Profitability Analysis of Dry Season Fluted Pumpkin Production Among Smallholder Farmers in Okigwe, Southeastern Nigeria which focuses on conducting a profitability analysis of dry season fluted pumpkin production among smallholder farmers in Okigwe, Southeastern Nigeria. The researchers used a survey approach to collect data from smallholder farmers engaged in fluted pumpkin production during the dry season. The study likely involved face-to-face interviews or questionnaires to gather relevant information. Profitability analysis involved examining costs of production, revenues, and overall profitability of the venture.

The article presents findings on the profitability of fluted pumpkin production during the dry season among smallholder farmers in Okigwe. The researchers likely evaluated various cost factors, including inputs, labor, and marketing expenses, and compared them with the revenue generated from selling the produce. The study aims to provide insights into the economic viability of fluted pumpkin production in the specified region.

The research employed a survey method to gather data, but specific details about the sample size, sampling technique, and data analysis methods are not mentioned in the abstract. The full article may provide more comprehensive information about the methodology used.

Potential research gaps could include a lack of information on specific agronomic practices, market dynamics, and the potential socio-economic challenges faced by smallholder farmers in the region.

In a different study by Ikechi Kelechi Agbugba and Ayman Shelaby (2018) on Marketing Analysis of Selected Vegetables in Port Harcourt Metropolis Rivers State, Nigeria. The study focuses on a marketing analysis of selected vegetables in Port Harcourt Metropolis, Rivers State, Nigeria. The researchers likely used a combination of qualitative and quantitative methods to gather data. The study may have involved field visits, surveys, interviews, and questionnaires to collect information about vegetable marketing practices in the area. The study presented findings related to the marketing practices of selected vegetables in Port Harcourt Metropolis. The study analyzed aspects such as distribution channels, pricing strategies, market trends, and consumer preferences related to vegetables. The aim is to provide insights that can improve marketing strategies and potentially enhance the vegetable trade in the region. However, potential gaps may include a lack of information on the challenges faced by vegetable traders, the impact of

market competition, and the potential for value addition in the vegetable supply chain. These aspects may be further explored in the complete research article.

Also a study on Assessment of post-harvest losses in marketing of leafy vegetables in Oriade local government area of Ilesa: Implications for food security by Alao *et al*. (2020) which assessed post-harvest losses in the marketing of leafy vegetables in Oriade Local Government Area of Ilesa, Nigeria. The researchers employed a combination of surveys, interviews, and field observations to collect data on post-harvest practices, storage methods, and factors contributing to losses. Major Findings include information related to the extent of post-harvest losses in the marketing of leafy vegetables in the specified area. The study explored reasons for losses, such as inadequate storage facilities, transportation challenges, or lack of proper handling practices. The implications of these losses on food security in the region are also likely discussed.

Furthermore, Agbugba *et al*. (2011)on Challenges and Strategies for improving the Marketing of Indigenous Leaf Vegetables in Nigeria, focused on exploring challenges faced in marketing indigenous leaf vegetables in Nigeria and identifying potential strategies for improvement. The researchers used a combination of literature review, surveys, and interviews with relevant stakeholders to gather data. The article presented findings on the challenges encountered in marketing indigenous leaf vegetables in Nigeria. These challenges

could include issues related to pricing, market access, infrastructure, and consumer perceptions. Additionally, the study likely proposes strategies to overcome these challenges and enhance the marketing of indigenous leaf vegetables. Research gaps include a lack of data on the specific regions or markets where indigenous leaf vegetables are being marketed. Additionally, more insight into the perspectives of different stakeholders, such as farmers, traders, and consumers, may be needed to devise effective marketing strategies. These aspects could be explored further in the complete research article.

Vivian *et al*. (2011). On the topic: Do marketing margins determine local leafy vegetables marketing in the Tamale Metropolis?" African Journal of Business Management. focused on examining whether marketing margins play a role in determining local leafy vegetables marketing. The major marketing channels identified are from farmers to wholesalers through retailers to the final consumers. The sale of leafy vegetables directly from farmers to consumers and food vendors were also recorded. Though the marketing of local leafy vegetables in the study area was inefficient, the benefit-cost ratio showed that, it is profitable. The authors recommend that, farmers and traders should form co-operatives to enable them bargain for prices, obtain loans and purchase storage facilities as groups.

Ikechi and Dorothy (2015). On Economic Study of Tropical Leafy Vegetables in South-East of Nigeria: The Case of Rural Women Farmers which was based on

data collected from 80 traders randomly sampled from three markets in the Tamale Metropolis in Northern Ghana. The research likely involved surveys, interviews, or data collection from traders involved in the local leafy vegetable marketing chain. The study identified the major marketing channels for local leafy vegetables, which were from farmers to wholesalers through retailers to the final consumers. Wholesalers were found to have higher net returns compared to retailers, despite incurring higher marketing costs. The study also indicates that the marketing of local leafy vegetables in the study area was inefficient but profitable. The authors hypothesized that marketing margins might not encourage marketing agents to undertake and facilitate trade in the local leafy vegetable marketing chain. The study aimed to investigate this hypothesis, suggesting a research gap related to the influence of marketing margins on the marketing of local leafy vegetables in the Tamale Metropolis.

A study on Socio-Ecological Factors Affecting Productivity and Profitability of Leafy Vegetables Among Farmers in Anambra State, Nigeria by Onyia *et al*. (2021), employed a quantitative research approach and data collection was done using primary data obtained from 150 respondents through a multistage sampling procedure. Descriptive statistics and Ordinary Least Square (OLS) regression model were used for data analysis. The study focused on leafy vegetable farmers in Anambra State, Nigeria.

Based on the findings of the study, the productivity of leafy vegetable farmers was positively and significantly influenced by factors such as sex (gender), farm size, quantity of fertilizer, and farming experience. On the other hand, profitability was negatively and significantly affected by factors such as quantity of fertilizer, distance from the water body, and land acquisition. The study identified various constraints faced by leafy vegetable farmers in the study area, including high input costs (fertilizers, agrochemicals), expensive labor, inadequate visitation by extension agents, limited access to finance and credit, poor infrastructure (e.g., roads), price instability, transportation issues, pest and disease attacks, lack of market opportunities, storage problems, perishability of products, and inadequate land for production and climate-related hazards (erosion, climate change).

The research utilized a survey-based approach, collecting primary data directly from the farmers. The use of multistage sampling allowed the researchers to select a representative sample from the target population. The OLS regression model helped in examining the relationships between various socio-ecological factors and productivity/profitability. However, the article lacks detailed information about the specific questions asked in the survey and the validity/reliability measures used to ensure the accuracy of responses.

While the study provides valuable insights into the factors affecting leafy vegetable production in Anambra State, there are some limitations and research gaps that should be considered. The study did not explore the role of technological advancements or modern agricultural practices in enhancing productivity and profitability. It would have been beneficial to examine the impact of socio-cultural factors on leafy vegetable farming, as they may influence farmers' decisions and practices. The study's scope was limited to Anambra State, and the findings may not be entirely generalizable to other regions in Nigeria or different countries with diverse agricultural contexts. The absence of qualitative data collection methods, such as interviews or focus groups, may have limited a deeper understanding of farmers' experiences and perceptions. The article does not discuss potential implications for policy and intervention strategies to address the identified constraints and improve leafy vegetable farming practices.

The article's conceptual framework centers on exploring the socio-ecological factors influencing the productivity and profitability of leafy vegetable farming in Anambra State, Nigeria. The framework identifies key variables such as sex, farm size, quantity of fertilizer, farming experience, distance from water bodies, land acquisition, and others, which are hypothesized to impact productivity and profitability outcomes. However, the article does not explicitly present a visual

representation of the conceptual framework, making it challenging to assess the relationships between variables and how they interact.

The study's methodological framework involves quantitative data collection and analysis. The use of the OLS regression model enabled the researchers to examine the relationships between various factors and the dependent variables (productivity and profitability). The multistage sampling procedure allowed for the selection of a diverse sample of leafy vegetable farmers in Anambra State.

Moomin, Mohammed, and Anang (2020). "Profitability of vegetable marketing in Ghana: The case of urban and semi-urban marketeers in the Upper West Region. The primary objectives were to identify differences in profit margins between urban and semi-urban marketeers and to highlight the constraints they face. The study adopts a mixed-method research design involving a survey, focus group discussions, and personal observations. The research aims to contribute to the understanding of the profitability and challenges of vegetable marketing in the region. The research employs a mixed-method approach, combining quantitative and qualitative data collection techniques. Multi-stage sampling and probability proportional to size sampling techniques were used to select 196 vegetable marketeers, comprising 153 urban and 43 semi-urban marketeers. Gross margin analysis was utilized to estimate costs and returns, while a profit function was employed to estimate net profit. The study's data collection methods included

surveys, focus group discussions, and personal observations, providing a comprehensive view of the subject.

The study reveals that urban marketeers had higher gross margins and net profits per unit order compared to their semi-urban counterparts. This suggests that vegetable marketing in urban areas is more financially lucrative. Both urban and semi-urban marketeers relied on increased sales volumes to enhance profits. However, urban marketeers were more successful in creating higher profits. Sales volume played a crucial role in determining the marketeers' profit margins.

The research identifies several common problems faced by vegetable marketeers, including lack of representation, weak support services, and a lack of appropriate business skills. Noncompliance with market regulations and business fluctuations were also noted as significant challenges in the study area. While this study provides valuable insights into the profitability and challenges of vegetable marketing in the Upper West Region of Ghana, some research gaps could be addressed in future studies:

The study offers a snapshot of the vegetable market situation at a specific point in time. A longitudinal study would provide a better understanding of how profitability and challenges evolve over time. However, to gain a more comprehensive understanding of the factors influencing profitability, a

comparative analysis of different regions or countries with varying market conditions and economic factors could be beneficial. A more in-depth analysis of market dynamics, consumer preferences, and the role of intermediaries in the vegetable supply chain could shed light on the determinants of profitability.

The article presents valuable insights into the profitability of vegetable marketing in Ghana's Upper West Region. Urban marketeers outperformed their semi-urban counterparts in terms of gross margins and net profits. Sales volume played a crucial role in determining profitability, but several challenges were identified, including a lack of representation, weak support services, and compliance issues. Future research could build on these findings to gain a deeper understanding of the vegetable market dynamics and potential strategies for improving marketeers' economic empowerment.

A study on the determinants of Smallholder African Indigenous Leafy Vegetables Farmers' Market Participation Behavior in Nyamira County, Kenya, investigated the factors influencing smallholder farmers' market participation behavior, categorizing them into net buyers, net sellers, and autarchies (self-sufficient producers). The study identified several significant determinants of market participation behavior, including marketing experience, land ownership, households' food self-sufficiency, contractual marketing, access to credit, and extension services. It emphasized the importance of farmers participating in

markets as net sellers to increase their rural incomes and employment opportunities. The research highlighted the necessity of properly targeting and screening farmers to identify their specific challenges and requirements in each market regime. The study recommended equipping extension workers with the ability to address the unique needs of different farmer groups. Group marketing was advocated to enhance farmers' bargaining power during negotiations and reduce transportation costs by transporting produce collectively. Improving the state of roads connecting producers to markets was emphasized to reduce transportation and search costs for markets.

The study adopted a quantitative research approach, utilizing a household survey to collect data from 254 smallholder farmers. The structured questionnaires were designed to capture information on various aspects related to market participation behavior and potential determinants. To analyze the data, an ordered probit model was used to understand the factors influencing smallholders' market participation behavior.

While the article provides valuable insights into the determinants of smallholder farmers' market participation behavior in Nyamira County, Kenya, there are some potential research gaps that future studies could address Long-term analysis: The study only captured data for a specific period (2015). A longitudinal study over

multiple years could provide more comprehensive insights into market participation behavior and its changing dynamics.

The research solely focused on quantitative data through structured questionnaires. Incorporating qualitative methods such as focus groups or interviews could offer deeper insights into the farmers' perceptions, attitudes, and experiences related to market participation. Comparative analysis: Comparing the market participation behavior of smallholder farmers in Nyamira County with those in other regions or countries could help identify region-specific and context-specific factors influencing their participation. While the article focuses on economic aspects, exploring the implications of market participation on sustainable development, environmental impacts, and social welfare could enrich the study.

The article does not extensively discuss policy implications for promoting smallholder farmers' profitable market participation. Future research could delve into policy recommendations and their potential impact on the agricultural sector. Overall, the article makes a valuable contribution to understanding the determinants of market participation behavior among smallholder farmers. By addressing the research gaps mentioned above, future studies can build upon this research and offer more comprehensive insights to inform agricultural policies and sustainable development initiatives.

2.2 Cultural and Nutritional Importance of Leafy Vegetables

In Nigeria, local leafy vegetables play an essential role in both cultivated and wild settings. Varieties like ayoyo, bra, suule, and alefu thrive in the tropical climate and less fertile soils of the region, positioning them as viable commercial crops (Abukutsa-Onyago, 2007). The production of these vegetables significantly contributes to Nigeria's economy, offering a means to combat poverty, hunger, and malnutrition (Mohammed, 2011). Noteworthy is the fact that cultivating local leafy vegetables proves more financially rewarding for farmers and the nation when compared to cultivating exotic vegetables (Ajewole and Folayan, 2008).

In Nigeria, Leafy vegetable hold immense cultural and dietary significance. Traditional meals are considered incomplete without the incorporation of leafy vegetables, emphasizing their role in local cuisine (Badmus and Yekini, 2011). Leafy vegetable have been part of the food systems in Nigeria and other sub-Saharan African countries for generations, serving as complementary components to starchy foods (Lyatuum et al., 2009). Their availability and affordability make them an essential part of the daily diet.

Local leafy vegetables serve as rich sources of vital nutrients and act as a remedy for nutritional deficiencies. They encompass essential vitamins like A, B, and C, indispensable minerals such as iron and calcium, amino acids like lysine, and additional protein and calories (Imungi, 2002). These nutritional components are especially critical for the well-being of children, expectant mothers, and those

facing economic hardships (Habwe et al., 2009). Furthermore, these vegetables are instrumental in managing various health conditions like HIV/AIDS, diabetes, and high blood pressure (Imungi, 2002).

In Nigerian communities, the consumption of vegetable soup, often served during ceremonies and events, is a reflection of social status and cultural heritage. Leafy vegetables play a vital role in local diets, offering a rich source of protein, vitamins, zinc, and iron. Vegetable soups are preferred accompaniments to traditional staples like pounded yam, yam flour, and cassava flour due to their nutritional and medicinal value. An optimal diet recommends a daily vegetable intake of 250-325g per person, contributing to a balanced nutritional profile (Nwachukwu and Onyenweaku, 2007).

Leafy vegetable encompass a wide array of vegetables that flourish in tropical soils, with their natural habitat in sub-Saharan Africa (Agbugba et al., 2011). These vegetables play a crucial role in providing essential nutrients to individuals and communities. They are rich in vitamins, minerals, and phytochemicals, and their consumption is linked to lower risks of type II diabetes and coronary heart disease (World Health Organization, 2005). The inclusion of Leafy vegetable in diets has shown prolonged satiety responses, aiding weight management. The diverse nutritional composition of Leafy vegetable contributes to the overall health and well-being of individuals (Opabode and Adegbooye, 2005).

2.3 Challenges and Limitations to leafy vegetable production

Despite the manifold benefits of local leafy vegetables, challenges exist that impede their consumption and marketability. A notable hurdle is the preference for exotic vegetables among certain individuals, particularly those with higher incomes (Asian Vegetable Research and Development Centre, 2006). Additionally, a lack of familiarity with the taste and preparation of local vegetables, particularly among the youth, contributes to their underutilization (Orech et al., 2005). Factors like urbanization, insufficient scientific information, and misconceptions surrounding these vegetables have also contributed to their diminished popularity (Faber et al., 2010).

The production of vegetables accounts for about 4.6% of Nigeria's total staple food output, indicating its significant contribution to the nation's food supply (Central Bank of Nigeria, 2004). However, challenges persist in sustaining production levels. The current manual irrigation methods employed during dry seasons result in high labor costs and excessive water consumption, potentially pushing farmers to explore less sustainable livelihood options. Factors like dwindling production, low crop yields, and resource constraints undermine the growth of vegetable production (Udoh and Akpan, 2007).

Despite their nutritional value, Leafy vegetable face production and consumption challenges. Urbanization and changing lifestyles have led to decreased self-sufficiency in vegetable production. The lack of access to land and resources, inadequate extension services, and limited awareness of the medicinal properties of Leafy vegetable contribute to reduced cultivation (Muhammad and Shinkafi, 2014). Moreover, in many developing countries, including Nigeria, vegetable consumption falls below recommended levels, highlighting the need for increased awareness and promotion of Leafy vegetable (Ejoh et al., 2005).

2.4 Marketing and Economic Viability of leafy vegetables

The marketing of local leafy vegetables poses a complex puzzle due to their perishable nature and inadequate distribution networks (Smith and Eyzaguirre, 2007). Despite their potential economic significance, these vegetables have not received due recognition or valuation from governmental authorities and resource planners (Aju et al., 2013). Obstacles in marketing channels, efficiency, and profit margins lead to seasonal surpluses, spoilage, and substantial losses for both farmers and marketers (Aju et al., 2013). Inadequate road networks and fragmented small-scale farms further inflate marketing expenses, creating an uninviting landscape for potential new entrants.

2.5 Potential of leafy vegetables for Poverty Alleviation and Nutritional Security

Vegetables have the potential to combat poverty and enhance nutritional security due to their affordability, accessibility, minimal input requirements, and rich nutritional content. They are laden with vitamins, minerals, antioxidants, and phytochemicals, making them a critical component of a balanced diet (Eusebio, 2009). Insufficient vegetable intake can lead to deficiencies in vital nutrients like vitamin A and iron, resulting in conditions such as scurvy and malnutrition.

Leafy vegetables have the potential to play a crucial role in addressing nutritional deficiencies and promoting health. They are easily accessible, affordable, and require minimal production inputs (Nwauwa and Omonona, 2010). Certain Leafy vegetable, such as Amaranthus cruentus and Vernonia amygdalina, are rich sources of essential nutrients like β-carotene, vitamin C, proteins, iron, and folic acid (Abosi and Rasoreta, 2003). Their health-promoting properties make them potential candidates for fortifying common foods and addressing health challenges.

2.6 Addressing Challenges through Increased Agricultural Productivity

Improving agricultural productivity offers a promising solution to challenges in vegetable production. Efficient resource utilization, capacity building, and accessible extension services are essential components of strategies to enhance productivity and attain food security. Fruits and vegetable handling and transportation systems in Nigeria require improvements to ensure the delivery of

quality produce and to reduce losses due to perishability (Udoh and Oluwatoyin, 2006).

Vegetable farming in Nigeria faces obstacles such as the use of crude implements, lack of inputs, illiteracy, expensive technologies, and inadequate credit availability (Mofeke, Ahmada, and Mudiane, 2003). Additional challenges include low produce prices, high input costs, land scarcity, limited extension advice, water shortages, reliance on rainfed production, and pest and disease issues. Addressing these challenges necessitates holistic solutions, including increased access to credit, improved extension services, better technology dissemination, and enhanced irrigation practices.

2.7 Market Dynamics of Vegetables

Fruits and vegetables contain a large and active sub-sector of the world's agriculture (Briones, 2009). In Philippine, it accounts for 31% of agricultural output (by value). In the past three decades, it has been rising at a pace of 2.8% per year, compared to only 1.8% for agriculture as a whole. On the other hand, Ali (2006) narrated that in Asia, vegetable production grew at a yearly average pace of 3.4% in the 1980s and early 1990s, from 144 million tons in 1980 to 218 million tons in 1993.

Fruits and vegetables represent a significant circle of "high-value" activities, some of which are produced within organized supply chains (Briones, 2009).

Briones (2009) pointed out the important role of fruits and vegetables in agricultural diversification and rural growth. According to Dyer *et al*. (2006) agricultural diversification could be pro poor as it may raise incomes of smallholder farmers. This diversification has significant impact on the dynamics of fruits and vegetables production systems and food supply chains. As the economy develops, fruits and vegetable become increasingly important both as a share in agricultural output and in the food basket. Some of the indicators for this dynamics of changes were addressed by Ali (2006) on the food demand side, whereby emphasis is now shifting from basic nutrients (calories and protein) to balanced diets (calories, protein, and micronutrients). Nevertheless, global retail chains do not invest uniform in all countries and some, especially poor countries; have been left in arrears in the retail revolution (Dolan and Humphrey, 2000). The imports of these changes are that formal markets are replacing informal farmers' produce markets for fruits and vegetable (Briones, 2009).

In addition, Louw *et al*. (2009) insisted that fresh fruits and vegetable markets are restructuring and this is characterized by an increased consolidation and concentration of the industry which lead to a substantial growth of big retailers in the agriculture supply chain in the Southern African Development Community (SADC) region. The restructuring process is likely to turn out farmers from food

markets in two ways; firstly, through the translation of traditional markets by formal food chains that will leave smallholder farmers with no alternative markets. Secondly, the restructuring process will exclude farmers through the initiation of private standards which make it difficult for smallholder farmers to achieve compliance. In the illumination of these threats the restructuring process favors large agribusiness to smallholder farming. In addition, less developed rural economies and smallholder farmers find it difficult to participate in commercial formal markets due to factors such as shortage of nearby markets to absorb their produce, low produce prices, a lot of middlemen, unavailability of marketing institutions to facilitate contract enforcement and coordination among farmers (Emana and Gebremedhin, 2007).

According to Putter *et al*. (2007) other dynamics of the fresh fruit and veggie sub-sector are spot markets whereby it is calculated that 80% of the produced vegetables is sold by the farmers at farm gate to commissioners. Moreover, growing tourism creates a growing demand for high value and high quality vegetables. Ashimogo and Greenhalgh (2007) asserted that fruits and vegetable market are determined by factors like change in market demand, technology, barriers to entry, input supply, profitability of different niches, risks and policy environment.

Furthermore, seasonality in production affects vegetable production not only from year to year, but also from season to season as explained previously. This leads to fluctuating supply of vegetables on the market. However, overproduction as a result of rain fed farming also has problems during the sale of the vegetables such that a great deal of produce rots away due to the perishable nature of the vegetables (Edmond *et al*., 2008). Moreover, farmers' ability to take part in marketing actions is greatly affected by so many factors.

Makhura (2001) noted that physical facilities, proximity to market, shortage of resources such as transport as well as shallow market information are the primary limitations to farmers' market activities.so the inability of farmers to bargain for prices together with limited credit relationships with the buyers lead to farmers being exploited. In most of the cases, marketing cost, marketing margin, transport cost, labour charges are adversely affect marketing efficiency. Nevertheless, open market price, volume of the produce handled and net price received increase marketing efficiency (Dastagiri *et al*., 2013). In addition, small holder farmers face a lot of challenges in the marketing of vegetables. Some of these challenges include: lack of access to credit; lack of access to storage facilities; lack of market information; lack of finance for farming; poorly developed village markets; poor producer prices; high perishability of produce; low patronage; inadequate access

roads; and small size of transport as well as high transportation costs (Matsane and Oyekale, 2014).

The challenges faced by farmers in the marketing of vegetables are rated by Kumar (2012), as high level problems, moderate level problems and low level problems. High level problems include; damage cost; intermediaries' exploitative practices; perishability of product; transportation cost and high storage cost; freight charges; lack of proper grading;

high carriage and other handling charges; exploitation of growers by market force; lack of proper quality control; long distance of market access; seasonalization of production; long marketing channel; delay payment; lack of cold storage place; advance sales agreement; inadequate post-harvest care; and monopoly of middleman.

Bulkiness of products and low exports are rated as moderate level problems while irregular supply, primitive method of trading and price fixation, packing and loading problems, quality variation in yield, and packing of products are rated as low level problems. Njaya (2014) asserted that poor infrastructure for storage, transportation cost and inefficient fruits and vegetable marketing system contribute to losses to farmers. Also, smallholder farmers focus on production activities and present relatively little interest in vegetable marketing activities which has contributed to the low net margin of farmers.

2.8 Marketing of Vegetables, Market Operations and Marketing Margins

2.8.1 Market and Marketing

The term market has got a variety of meanings. The following are some of the definitions, according to Weldeslassie (2007), a place where buying and selling take place; an arena in which a good is sold; a group of people carrying on buying or selling; or the commodity traded, such as the corn market, or time market. Kohl and Uhl (1985), put their definition of market in reference to giving answers to questions of what to make, how much to raise, how to grow, and how to distribute. Additionally, Saccomandi (1998) defined market as the exchange, circulation and distribution of commodities between people and spaces. By agricultural market, Saccomandi (1998) referred to the economic place in which agricultural producers sell the products obtained in their firms with the degree of form, space, and time related function required by the buyers.

This study adopts the definition of Weldeslassie (2007) since the commodities can be traded in various places by different chain actors along the markets, as in the farm field, garden, local market as well as in the central market provided buying and selling can take place.

Marketing of agricultural products consists mainly of moving products from production sites to points of final use. In this regard, the market performs exchange functions as well as physical and facilitating functions. The exchange

function involves buying, selling and pricing. Transportation, product transformation and storage are physical functions, while financing, risk bearing and marketing information are facilitating marketing (Branson and Norvell, 1983). Selling in its simplest shape is delineated as the process of satisfying human needs by bringing products to people in the proper form, time and place (Branson and Norvell, 1983). Antwi and Seahlodi (2011) also defined marketing as a business activity associated with the stream of commodities and services from producers to consumers. Bothloko and Oladele (2013) also observed that marketing of agricultural products begins on the farm with planning of production to meet specific need and market expectations. Similarly, Mendoza, (1995) observed that marketing delivers an essential productive value, in that it adds time, kind, place and possession utilities to products and commodities. Through the technical functions of storage, processing and transportation, and through exchange, marketing increases consumer satisfaction from any given quantity of output. Furthermore, Kotler and Armstrong (2006) defined marketing as the task of creating, raising, and delivering goods and services to consumers and commercial enterprises. Lastly, Gill (2006) stated that marketing is a societal process which discerns consumers' wants, focusing on a product or services offered.

However, marketing of fruits and vegetables is quite complicated and risky due to their perishable nature, seasonal production and bulkiness of these crops.

Likewise, the range of prices from producers to final consumers, which is an effect of demand and supply of transactions between various intermediaries at different stages in the marketing system, is also unique for fruits and vegetables. Moreover, the marketing arrangements at different stages as well play an important role in price levels at several points from farm gate to the ultimate user. These characteristics form the marketing system of fruits and vegetables to differ from other agricultural goods, especially in providing timely, form and space utilities. While the market base is better trained for food grains, fruits and vegetable markets are not that well developed and markets are congested and unhygienic (Sharan, 1998).

2.8.2 Marketing Margins

According to Scarborough and Kydd (1992), marketing margin is most commonly used to refer to the difference between producer and consumer prices of an equivalent quantity and quality of a commodity. However, it may also describe price differences between other points in the marketing chain, for example, between producer and wholesale, wholesale and retail prices. The size of marketing margins is largely dependent upon a combination of the quality and quantity of marketing services, and the efficiency with which they are undertaken and priced. The quality and quantity of marketing services depend on provision and requirement of marketing services and/or the level of competition in the

market situation. The monetary values of service provision depend on both exogenous and endogenous factors and the efficiency is determined by the extent of competition between marketing enterprises at each level. Large gross margins may not convey high earnings; this is because the size of marketing margins largely depends upon a combination of the quality and quantity of marketing services, and the efficiency with which they are undertaken and priced. Thus, in using market margin analyses to evaluate the economic functioning of markets, it is invariably preferable to deconstruct them into their monetary value and return elements (Scarborough and Kydd, 1992). Still, the challenges of data available on costs usually create a problem.

Mendoza (1995) warns that precise marketing costs are oftentimes hard to determine in many agricultural marketing chains. The grounds are that these monetary values are often both cash costs and imputed costs, the gross and not the net marketing margin is advised to be counted. According to Mendoza (1995), "marketing margins" should be interpreted as the gross marketing margins. He advises marketing researchers to emphasize gross marketing margins in reporting their findings.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Area and scope of the study

This study was carried out in Benin City, the capital of Edo State, Nigeria. Benin City is made up of four Local Government Areas (LGAs) viz., Egor, Ikpoba-Okha, Oredo and Ovia North-East LGAs. The State lies within the geographical co-ordinates of longitude 05^0 04 East and 06^0 43 East and Latitude 05^0 44` North and $07^0$ 34` North of the Greenwich. It is bounded in the North by Kogi State, in the South by Delta State, in the West by Ondo State and in the East by Kogi and Anambra States (Ojogho *et al*., 2013). The study will focus on the profitability of the following leafy vegetables such as (fluted pumpkin, Green, Water leaf, Bitter leaf, Scent leaf and Uziza.

3.2 Sampling procedure

The simple random sampling method was used in selecting 100 respondents from five markets. The selected markets are; Ikpoba (25), New Benin market (25), Oba market (25), Santana market (25) and Uselu market (25). Giving a sample size of 125 marketers.

3.3 Data collection

Data for the study were collected from both primary and secondary sources. Primary data were collected through structured questionnaire and interview schedule conducted among respondents considering their level of education. Secondary data were collected from electronic media and prints such as online journals, periodicals, text book and other relevant materials related to the subject matter.

3.4 Measurement of variable

Dependent and independent variables for the study were measured using tools such as questionnaires and survey.

Independent Variable

Objective one: socioeconomic characteristics

Variables	Description
Age	Age of respondents measured in years.
Sex	Gender orientation of respondents measured as either male or female
Marital status	Marriage status of respondents measured as Single = 1, Married = 2, Widow = 3, Widower = 4
Educational qualification	Measured as No formal education = 1,

	Primary education = 2, Secondary education = 3, Tertiary education =4

Objective two: was measured by evaluating the quantity and cost of various vegetables from farm gate to market. This was achieved by estimating quantity bought, at what cost and quantity they finally sold less quantity consumed this was followed by budgetary variables such as, selling price measured in Naira, purchasing price (Naira), fixed cost (Naira), quantity purchased (bundles) and quantity sold (bundles) and quantity is measured with kilogram.

Objective four: was measured using a five point likert scale coded as Strongly agree = 5, Agree = 4, Neither agree or disagree = 3, Disagree = 2 and Strongly disagree = 1. This was used to obtain a weighted mean 5 + 4 + 3 + 2 + 1/5 = 3.0 and variables whose means are greater than or equal to 3.0 were considered as serious constraints affecting plantain marketing.

3.5 Analytical technique

Objective 1, was analysed using descriptive statistic tool such as percentage, frequency, mean and standard deviation.

Objective 2 was analyse using budgetary and analysis such as; marketing margin, cost and returns analysis, profitability analysis. Presented mathematically below:

Costs and Return Analysis in Naira

Total Marketing Cost (TMC) = Total Variable Cost (TVC) + Total Fixed Cost (TFC)

Total Revenue (TR) or Gross income (GI)= Price per bundle (Pb) * Quantity of sold (bundles)

Net return or income =Total Revenue (TR) - Total Cost (TC).....(2)

Marketing Profitability

This objective was analyzed using budgetary analysis, such as gross margin and net profit.

Gross Margin = Total Revenue (TR) - Total Variable Cost (TVC) .....(3)

Where;

Total Revenue (TR) = Price per unit x Quantity of vegetables sold = P.Q

Total Variable Cost (TVC) = Total Cost (TC) - Total Fixed Cost (TFC)

Net Profit = Gross Margin - Total Fixed Cost .....(4)

TFC - Total Fixed Cost (Depreciation on fixed assets such as table, chair, wheel barrows, knife, umbrella, umbrella stand, apron etc.)

Total Fixed Cost (Depreciation on fixed assets) was calculated using the straight line method. This is given as:

Depreciation = $\frac{\text{Cost of assets}}{\text{Useful life}}$ where salvage value is 0 - - (5)

TVC - Total Variable Cost (cost incurred during marketing functions such as storage, transportation, packaging, loading and offloading, grading, ticket and other marketing charges) (Omobepade, Adebayo, Amos and Adedokun4, 2015)

Marketing Margin MM

$$MM = SP - PP \quad (6)$$

Where

MM - Marketing Margin in Naira

SP - Selling Price in Naira

PP - Purchase Price in Naira (Omobepade *et al.*, 2015)

Objective 3: determinants of profitability was analysed using linear regression analysis given as;

The empirical model for analyzing the determinants of the profit of vegetables marketers

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 \quad (8)$$

Where:

Y = profit from vegetable marketing

X_1 Age of respondent in y e a r s

X_2 Marital status dummy 1 if respondent is a male; 0 if otherwise

X_3 Education level

X_4 Household size

X_5 Cost of market charges

X_6 Cost of transport

Objective 4 challenges in vegetable marketing was five point likert scale rating presented in means and standard deviation

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socioeconomic characteristics of vegetable farmers

Sex

From the results, Table 4.1 indicated that majority (89.0%) of the respondents were females, while the minority (11%) of the respondents were males. This suggests why women are more in vegetable marketing than the males. More so, this finding also agrees with Agbugba and shelaby (2018) and implies that vegetable marketing can be done by both males and females, but are female dominated.

Age

Age of the respondents is an important factor in agriculture because it determines ones experience in the vegetable marketing business. As shown in Table 4.1, the study indicates that the age distribution of the sample was skewed towards the upper age group of 28 and 37 implying that there is a relatively high proportion (40%) of middle-aged respondents in the marketing of the selected vegetables. From the order of higher frequency, the results further show that the age ranges from 48 and 58 had the percentages (31.0%) followed by 38 and 47 with (29.0%).

This finding agrees with Ogunbameru (2001) that the age structure of most practitioners of vegetable marketing are active and middle-aged dominated.

Marital status

As shown in Table 4.1, majority of the respondents are married (42%), followed by the widow (32%). The rest of the marketers included the single (26%). This therefore, agrees with Adugna (2009), the study of that the vegetable marketing enterprise is dominated by the married. It is normally believed that married households tend to be more stable in the marketing business of vegetables than the single individuals. However, as indicated in

Household size

Table 4.1 revealed that household size of 4-6 had the highest percentage (59%), followed by household size of 2-3 (41%). This finding agrees with Agbugba and shelaby (2018) which implies that most of the marketers had more people in their household indicating that larger households contributed more to family labour and equally entails greater mouth to feed. This finding agrees with Agbugba and shelaby (2018).

Table 1: Socioeconomic characteristics of vegetable farmers

Age	Frq	%	Mean	Standard Deviation
28-37	40	40.0		
38-47	29	29.0	41.47	8.28
48-58	31	31.0		
Sex				
Male	11	11.0		
Female	89	89.0		
Marital Status				
Single	26	26.0		
Married	42	42.0		
Widow	32	32.0		
Household size				
2-3	41	41.0		
4-6	59	59.0	4.02	1.44
Major occupation				
Trading	15	15		
Farming	12	12		
Vegetable marketing	63	63		
Activities before sales *				
Sorting	80	34.04		
Cutting	75	31.91		
Packaging	80	34.04		

Multiple response * Source: Field survey, 2023

4.2 Cost and margins of leafy vegetable marketing

Results in Table 4.2 shows the cost and marketing margin of leafy vegetable marketing. Waterleaf: 48 units(bundles) at a unit cost of ₦100/bundle, totaling ₦4833.33 in revenue. Fluted pumpkin: 58 units at a unit cost of ₦100, totaling ₦5785.71 in revenue. Green or spinach: 47 units at a unit cost of ₦100, totaling 4666.67 in revenue. Scent leaf: 49 units at a unit cost of ₦100, totaling 4₦850.00 in revenue. Bitter leaf: 45 units at a unit cost of 100, totaling ₦4540.00 in revenue. Uziza: 50 units at a unit cost of 100, totaling ₦5000.00 in revenue. With a total revenue (TR) is ₦29675.71.

The Variable Costs includes various costs like transportation, labor, market charges, and packaging costs with a total variable cost (TVC) is ₦20,730. While Fixed costs include items like wheelbarrows, umbrellas, aprons, knives, tables, trays, and buckets. The total fixed cost is 7050. Total Marketing Cost (TMC)was estimated at ₦27,780 per market day. The Net Return on vegetable marketing per market day was estimated at ₦1895.71. The positive net return implies that vegetable marketing in the study area is profitable. However the profit margin is low compared to findings of Adewale, Awotide (2020) who report a net return of ₦35,807.83 among vegetables farmers.

Table 4.2 Cost and return of vegetable marketing

	Quantity	Unit cost Amount	Amount /market day	% TC
Revenue				
Waterleaf	48	100	4833.33	
Fluted Pumpkin	58	100	5785.71	
Green or spinach	47	100	4666.67	
Scent leaf	49	100	4850.00	
Bitter leaf	45	100	4540.00	
Uziza	50	100	5000.00	
Total Revenue TR			**29675.71**	
Variable cost				
Transportation	2	375	750.00	2.7
Paid labour	2	105	210.00	0.8
Family labour	3	500	1500.00	5.4
Market charges	1	450	450.00	1.6
Packaging cost	3	237.5	712.50	2.6
loading cost	3	160	480.00	1.7
Waterleaf	52	70	3640.00	13.1
Fluted pumkin	56	50	2800.00	10.1
Green or spinach	47	50	2333.33	8.4
Scent leaf	53	50	2666.67	9.6
Bitter leaf	54	50	2687.50	9.7
Uziza	50	50	2500.00	9.0
Total Variable cost TVC			**20730**	
Fixed Cost (depreciated)				
wheel barrow	1	200	200	0.7
Umbrella	1	1000	1000	3.6
Apron	1	500	500	1.8
Knife	3	50	150	0.5
Table	2	2000	4000	14.4
Tray	1	1000	1000	3.6
Bucket	1	200	200	0.7
Total Fixed Cost			7050	
Total Marketin Cost TMC =(TVC+TFC)			**27780**	
Net Return (TR-TMC)			**1895.71**	

Source: Field Survey, 2023

4.3 Constraints in vegetable marketing

Table 4.2 below show the constraints encountered by vegetables marketers in the study area. Poor access road (mean = 4.625) ranked first, Rapid deterioration in quality/spoilage (mean = 4.375) ranked second. Poor storage facilities compel most of the traders to buy small quantities that can be sold within a day or few days. Since vegetables are highly perishable, this leads to untimely spoiling (wilting) especially at the retailer end. This result is in line with Chagomoka *et al.* (2013) who reported that high perishability of indigenous vegetables is a principal challenge in the marketing and distribution of the produce. Also, respondents perceived seasonal price fluctuation (mean = 4.125) and high transportation cost (mean = 4.125) The findings agree with those of Lenné and Ward (2010) and Lyatuu *et al*. (2009) who identified a number of bottlenecks that impede the growth of the traditional vegetable sector in Eastern and Southern Africa. It is also in line with Onyemauwa (2010) who found limited supply, paucity of capital and spoilage as major problems.

Table 4.3 Constraints

	Mean	Std. Dev.	Rank
Poor access road	4.625*	0.52	1st
Rapid deterioration in quality/spoilage	4.375*	1.19	2nd
Seasonal price fluctuation	4.125*	0.99	3rd
High transportation	4.125*	0.35	4th
High initial purchasing price	3.25*	1.39	5th
High market charges	2.25	1.16	6th
Inadequate capital	1.5	1.07	7th

Source: Field survey, 2023

4.4 Determinants of marketing margin of vegetables

From the regression results, Table 5 presents that at R^2 (47%) and adjusted R^2 (32%), the socioeconomic variables and their level of significance on the margins of marketers. The results further showed that respondents' age, marital status, formal education and selected vegetable types are positively related to the margins of the selected vegetables retailers. This therefore, implied that improving the quality, welfare or well-being of the significant variables will in turn, positively influence the marketers margin. Slamet, Ichikawa and Nakayasu (2017) made a similar observation. On the other hand, variables such as sex, religion, household size, primary occupation and membership of association were not negatively related to marketers' margins

Table 4.4: Regression results for the socio-economic determinants of marketing margin

Variables	Unstandardized Coefficient		Standardized Coefficient	t	Significance
	B	SE	Beta		
Constant	3078.8	1044.6	-	2.95	0.006
Sex	(62.9)	267.3	(0.03)	(0.24)	0.819
Age	(53.6)	19.8	0.02	0.16	0.011*
Marital status	894.4	346.1	0.68	2.58	0.0014*
Household size	(142.4)	55.9	(0.42)	(2.55)	0.15
Formal education	15.2	36	0.06	0.42	0.015*
Major occupation	(263.2)	270.2	(0.15)	(0.97)	0.337
Cost of marketing	635.7	235.5	0.67	2.70	0.011*
Cost of transport	121.5	319.5	0.06	0.38	0.706

*Coefficients significant at 5%; R^2 = 47%; Adj. R^2 = 32%

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.2 summary

The distribution and marketing of vegetables especially the leafy ones is problematic due to their easy perishability. Poor market access has resulted in seasonal glut with some farmers unable to sell their produce, hence leading to low high losses and spoilage of leafy vegetables among marketers. Hence this study was conducted to assess the profitability of vegetable marketing in Benin city, Edo State. This was achieve by addressing the following objectives; describe the socioeconomic characteristics of leafy vegetable marketers in Benin City, Edo State; determine the cost and margins of leafy vegetable examine the determinants of profit in leafy vegetable marketing and identify the challenges associated with leafy vegetable marketing in Benin City, Edo State. Simple random sampling method will be used in selecting 100 respondents from five markets.

Results showed that majority (89.0%) of respondents were females, indicating that vegetable marketing is female-dominated. The study revealed that there is a relatively high proportion (40%) of middle-aged respondents in vegetable marketing. Married individuals dominate the vegetable marketing enterprise (42%). Larger households (4-6 members) contribute more to family labor and expenses. Total revenue (TR) from various vegetables was ₦29675.71. Variable

costs (TVC) amounted to ₦20,730, while fixed costs were ₦7,050. Total Marketing Cost (TMC) was ₦27,780, resulting in a net return of ₦1895.71. The positive net return suggests profitability, but it's lower compared to some findings in the literature. The major constraints include poor access roads, rapid deterioration in quality/spoilage, seasonal price fluctuation, and high transportation costs. High perishability of vegetables poses a significant challenge in marketing and distribution. Socioeconomic variables such as age, marital status, formal education, and selected vegetable types are positively related to marketers' margins. Improving the quality and well-being of these variables can positively influence marketers' margins. Variables like sex, religion, household size, primary occupation, and association membership showed no negative relation to marketers' margins.

5.2 Conclusion

Based on the results of the study it was concluded that

Vegetable marketing is predominantly carried out by females, with a significant presence of middle-aged individuals and married households are more involved in this enterprise, possibly due to their perceived stability.

Despite the challenges posed by factors such as poor access roads, spoilage, and high transportation costs, the study demonstrates the profitability of vegetable

marketing. However, the profit margin is comparatively lower than reported in some prior research.

Specific socioeconomic factors positively influence marketing margins, implying that efforts to enhance the quality and well-being of marketers can lead to better profitability.

5.3 Recommendations

Based on the results of the study the following recommendations were made;

1. addressing poor access roads can significantly alleviate transportation challenges, reducing spoilage and costs.
2. Investment in proper storage facilities can help marketers buy and sell larger quantities, mitigating spoilage risks.
3. Providing education and training opportunities for marketers, particularly in areas related to marketing techniques and quality preservation, can enhance their profitability.
4. Given the prevalence of middle-aged individuals in this industry, tailored support programs and financial assistance will be beneficial.

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RESEARCH QUESTIONNAIRE
DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES
FACULTY OF AGRICULTURE
UNIVERSITY OF BENIN, BENIN CITY, EDO STATE NIGERIA

Dear Sir/Madam

I am a final year student of the above named Department. The purpose of this study is to assess the **LEAFY VEGETABLE MARKETING IN BENIN CITY, EDO STATE**

Your response will be used purely for research purpose and will be treated as confidential.

Thanks for your anticipated cooperation.

Yours faithfully,
Beatrice AISAGBONBUOMWAN

SECTION A: SOCIOECONOMIC CHARACTERISTICS

1. Age_____ years
2. Sex: (a) Male [ ] (b) Female [ ]
3. Marital status: (a) Single [ ] (b) Married [ ] (c) Widow [ ] (d) Widower [ ]
4. Household size _____
5. Educational qualification (a) No formal education [ ] (b) Primary education [ ] (c) Secondary education [ ] (d) Tertiary education [ ]
6. What is your major occupation? _____
7. How long have you been marketing plantain _____ years
8. Are you a member of marketers association (a) Yes [ ] (b) No [ ]
   If yes, state the organization_____

9. Do you do any of the following activities before you sell your produce (a) Sorting/Grading [ ] Processing i.e. cutting [ ] Packaging [ ] Others [ ] specify …….
10. Do you have access to credit? (a) Yes [ ] (b) No [ ]
11. If yes to question 10, what is the source of the credit ……

COST OF MARKETING

Give an estimate of cost incurred during marketing of vegetables

Item/Activities	**Quantity**	**Unit cost (Naira)**	**Amount**	**Year purchase**
Variable cost				
Transportation				
Paid Labour				
Family labour				
Market charges				
Packaging cost				
Loading cost				
Fixed cost				
Wheel barrow				
Umbrella				
Apron				
Knife				
Table				
Others specify				

REVENUE

Estimate the cost of purchase of vegetables per market day

Vegetables	**Quantity purchased**	**Cost/bundle**	**Amount**
Waterleaf			
fluted pumpkin leaf			
Green or African spinach			
Scent leaf			
Bitter leaf			
Uziza			

Sales

Vegetables	**Quantity sold**	**Cost/bundle**	**Amount**
Waterleaf			
fluted pumpkin leaf			
Green or African spinach			
Scent leaf			
Bitter leaf			
Uziza			
Others specify			

CONSTRAINTS

Constraints	Very serious	Serious	Undecided	Not serious	Not a problem
Seasonal price fluctuation					
Inadequate capital					
High transportation cost					
Rapid deterioration in quality/spoilage					
High initial purchasing price					

Poor access road					
High market charges					
Others specify					