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ECONOMIC ANALYSIS OF BEANS PRODUCTION FOR MARKETING PROFITABILITY IN NORTH-WEST NIGERIA

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ABSTRACT

This study evaluated the economic analysis of beans production for marketing profitability in North West Nigeria by examining who profit most among the farmers, wholesalers, and retailers. The paper seeks to find out the marketing margins of farmers, wholesalers, and retailers in North-West Nigeria, as well to ascertain the factors that affect the profitability of beans farm and to identify major constraints to beans marketing in North-West Nigeria. Survey method of statistics was adopted, and a questionnaire was used to sift data from the study population who were farmers, wholesalers, and retailers of beans in the Kano State of Nigeria. Inferential and descriptive statistical tools were used to present the data gotten from a sample population of 450. The study found out that retailer makes the most profit in the selling of beans followed by the farmer and lastly the wholesaler. It is however recommended that marketing margin should be harnessed to promote healthy price advantages to all channel members in the production, marketing and distribution of beans produce. Agricultural extension services should be adequately provided to farmers, wholesalers, and retailers of bean production technologies and market information and they should be encouraged to form bean cooperative societies to take advantage of government policies and programs in North-West Nigeria.

INTRODUCTION

Agriculture has been a mainstay of the human being since time immemorial, and its development is multidirectional having galloping speed and rapid spread concerning time and space, but in contrast, hit the brick wall after the discovery of crude oil in the early 50's. Northern Nigeria is well known for her farming activities like the groundnut pyramid and other related crops for domestic and industrial use. After many years of neglect of the sector and as a result of the fall in the general world crude oil price, it becomes more imperative for the Federal Government of Nigeria to rethink and diversify the economy from being monolithic. Agricultural produce marketing is an essential and crucial part of food production process in a viable farm enterprise. Agricultural produce marketing is the flow of goods and services from the point of initial farm production to the hands of the ultimate consumer. Onyeabor (2009) adds that agricultural produce marketing depicts a process of demands and motivation of sellers to distribute food items unto ultimate consumers at a profit. So it is of critical nature that after the production of the agricultural produce, it is expedient that marketing plays a critical role in taking the agricultural produce to the consumer in need. Ejionueme and Nebo (2014:38) opine that agricultural marketing involves marketing research, product development, pricing, promotion and distribution of products to the end users. Beans production techniques and marketing have become necessary concerns to determine whether the farmer, wholesalers, and retailers will be economically successful or bankrupt in engaging in beans production and marketing in the North-West, Nigeria. Against this backdrop, the researchers decided to embark on this seminar research work.

STATEMENT OF THE PROBLEM

Marketing as a continuation of the production process must find the means of getting the agricultural produce to the end user since it covers the spectrum of pre-production and post-production activities in ensuring exchange between parties involved. Beans have emerged as an important cash crop as well as a staple food in Northern Nigeria and other parts of the country. However, the country's bean productivity per unit area cultivated has been on the decline for the past ten years which has to lead to the importation of the beans by Nigeria from other African countries. Given the importance of this beans production and marketing in the Nigeria economy, it is important



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to examine the trade volumes and demand trends within the North-West state as to ascertain the profitability of the key stakeholders (farmers, Wholesalers, and Retailers).

OBJECTIVE OF THE STUDY

The broad objective of the study is to analyse the beans production for marketing profitability in North-West Nigeria. The specific objectives are to:

- i) To ascertain the marketing margin of beans farming marketing in North-West of Nigeria.
- ii) To examine the effect of profitability on beans farming in North-West, Nigeria.
- iii) To identify major constraints to beans marketing in North-West, Nigeria.

Research Questions

Hence the research questions are:

- i) What are the marketing marginal of beans to farmers, wholesalers and retailers enterprises in North-West, Nigeria?
- ii) Is there any effect on the profitability of beans farming in North-West, Nigeria?
- iii) What are the major constraints to beans marketing in North-West, Nigeria?

Research Hypotheses

The research hypotheses are a tentative statement that aids in answering the research questions.

- i) There is no marketing marginal of beans to farmers, wholesalers and retailers enterprises in North-West, Nigeria?
- ii) There are no significant factors that affect the profitability of beans farm enterprise in North-West, Nigeria?
- iii) There are no major constraints to beans marketing in North-West, Nigeria?

Scope of the Study

The scope of this study covers the beans farmers, wholesalers, and retailers in the North West, Nigeria consisting of Kaduna, Kano, Katsina, Jigawa Sokoto, Kebbi, and Zamfara. The researcher picked Kano state, due to the reason of having the largest grain largest market in West Africa (Dawanau Grain Market) located in Ungogo Local Government of Kano State with 204 Km² land area.

Significance of the Study

- i) **Entrepreneurs:** The significance of this study to an entrepreneur is to expose the growth of trade volume and demand trend in beans farming profitability on how these will impact positively on him and his dependents, the employee of the business, the host community and as well the regional economies of the north-west.
- ii) **Student/Researcher:** this study can also serve as reference materials for the student of the department.
- iii) **Government:** to make policies and create the enabling environment that will encourage her populace to engage in beans farming business.

REVIEW OF RELATED LITERATURE

Conceptual Framework

Conceptualization is the development of a novel typology of the conceptual contributions that can guide academic research through the process of abstract thinking. While it involves the mental representation of an idea in a discuss

Concept of Beans Production

Production is the manufacture or creation of goods and services. These goods and services can be produced in factories or industries, farmyard and stored in warehouses. However, production cannot be said to be complete until the products/ services/ produce get to the final consumer. The products can be obtained through the distribution process, and that complete the production cycle. The distribution activity is also referred to as Physical Distribution Management (PDM), marketing logistics or physical flow. Physical distribution is the collective term for series of inter-related functions (primarily transportation, stockholding, storage, goods handling and order



processing) involved in the physical transfer of finished goods from producer to consumer, directly or through intermediaries. The concept of beans production is simply put as the farming activities involved in planting and harvesting, processing, storage and distribution of the beans produce to the place where they are needed for a value.

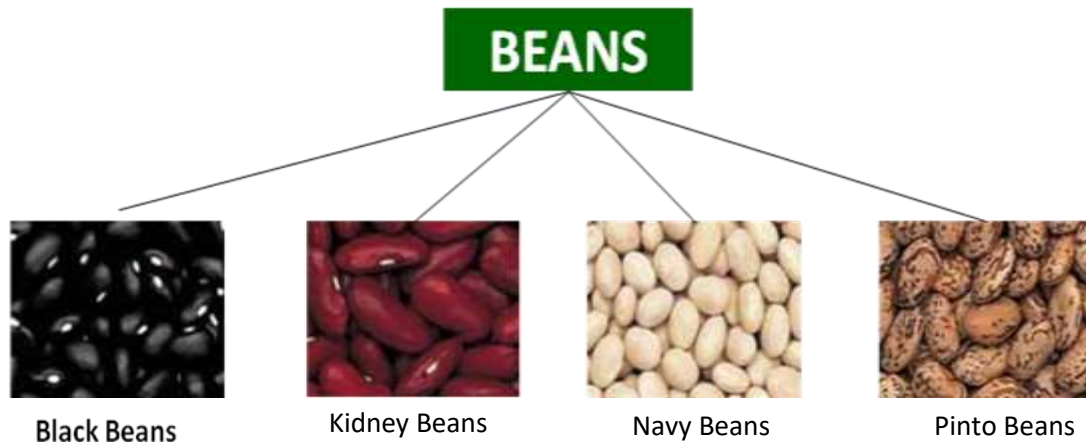


Figure 1: Varieties of Beans Production

Source: *fieldwork*, 2015.

Beans vary in size, but they have a consistent kidney or oval shape, which distinguishes them from other legumes such as peas, which are round, and lentils, which are flat and disk-like.

Concept of Beans Marketing

Beans marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging valuable offerings for customers, clients, partners, and society at large. The activity and processes are supposed to deliver value and in return benefit the company and its stakeholders. This current definition carries an instrumental view of marketing, as did the earlier definitions of marketing, where the exchange between parties was replaced by the transaction (more extensive) (AMA in Mattson, 2008:180).

Beans marketing application is specialised competence (knowledge and skills of Agriculture), through deeds, processes, and performances for the advantage of another entity or the entity itself. (Lusch and Vargo, 2006:283).

Beans' marketing is an organisational function and a set of procedures for creating, communicating and value delivery to customers and for managing customer relationships in ways that benefit the organisation and its stakeholders (Keefe, 2004).

Concept of Farmer

According to online Wikipedia definition, a farmer is a person engaged in agriculture, raising living organisms for food or raw materials. While an online, "your-dictionary", defines a farmer as a person who owns, works on or operates an agricultural enterprise, either commercially or to sustain himself or his families. A farmer is an individual, group of persons or an organisation whose primary job function involves agriculture and livestock.

Concept of Wholesaler

A wholesaler is an intermediary entity in the distribution channel that buys in bulk and sells to resellers rather than to consumers. Wholesalers obtain large quantities of products from producers, store them, and break them down into cases and other smaller units more convenient for retailers to buy, it is a process known as "breaking bulk." Wholesalers get their name from the fact that they resell goods "whole" to other companies without transforming the goods. Wholesalers, you can get the assortment of products you want in the quantities you want. Some wholesalers carry a wide range of different products. Other carry narrow ranges of products

**Concept of Retailer**

Retailers buy products from wholesalers, agents, or distributors and then sell them to consumers. Retailers vary by the types of products they sell, their sizes, the prices they charge, the level of service they provide consumers, and the convenience or speed they offer. You are familiar with many of these types of retailers because you have purchased a product from them.

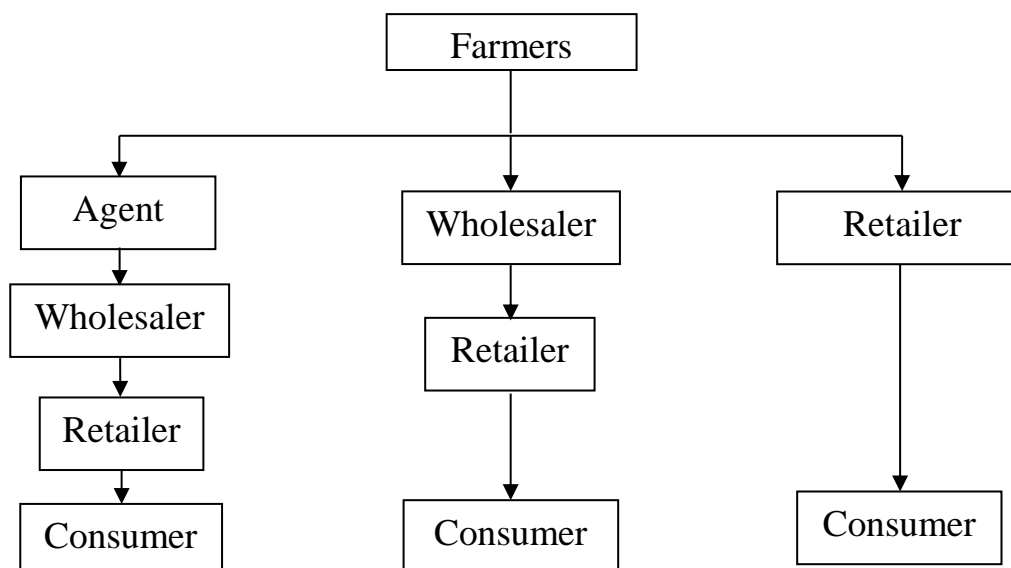
The concept of Farm Channels Use in Dawanau Grain Market

Figure 2: Farm Channels Use in Dawanau Grain Market
Source: fieldwork, 2015.

Farm produce distribution channel the selection and use of the marketing specialists such as middlemen, transportation, storage, packaging and processing agencies to provide target customers within time, form, information, place, and possession utilities.

The marketing system that holds in Nigeria can be divided into two categories namely: for Agricultural and Non-agricultural. Ugwuonah (2004) citing Olayemi (1974) describes the Nigeria food marketing system as complex. Olayemi based his facts on the presence of a large number of suppliers and intermediaries. Many authors have written on the classes of operators, which should form part of the typical main flow in making food available to the consumers. According to Ukwu (1979), the institutions involved should include the farmer himself, the collector or bulker, the wholesaler, the retailer, the broker and the transporter. Anthonio (1968) however develops a flow, which consists of six major classes of operators namely: the farm gate middlemen, the commissioned agent, the cooperative agency, the wholesaler, and retailer. Within the context of the food marketing system, the activities of these middlemen compliment the supplier in making food available to the consumer.

According to Osuji (1986) in Ugwuonah (2004), there are three types of middlemen; the farm gate middlemen, wholesaler, and retailer. The farm gate middlemen are those who confine trading activities to the village and take some occasional outside trips. The wholesalers handle the major role in the processing and storage functions while retailers are concerned with effecting the transfer of final raw materials to the ultimate consumer. According to Osuji, the number of retailers observed in the distributive food chain shows a reflection of the level of economic development. This confirms an earlier study by Batier (1963) where he observes a multiplication of intermediaries as an essential feature and adaption to certain fundamental feature of less developed countries (Ugwuonah, 2004).



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Theoretical Framework

This seminar research work is anchored on collaborative marketing farmer's group theory.

Collaborative Marketing Farmers Group Theory

The collaborative marketing group is a farmer-based theory developed in 1994, by seven sheep producers who met in Minnesota to discuss long-term challenges of the sheep industry in the United States of America. They opine that farmer's cooperation and collective actions in marketing is keyed to the survival and success in our rapidly changing agriculture or food system, acting individually, it may be difficult to maintain the steady flow of high-quality farm produce required to establish a consistent presence in the marketplace, and to take advantage of the size economies in processing, transportation, and advertising. They also state that it is difficult for one person (farmer) to run a farming operation and devote the time required to develop the specialised skills and personal contact needs for a successful agriculture marketing.

They opine that some of the collaborative marketing group are significant investments in processing and distribution facilities, while others rely on the human capital embodied in their member's ideas and the social capital embodied in their collaborative spirit. Regardless of its size, form, or asset base, though, a collaborative marketing group theory focuses on marketing and operated by its members, and exists for their benefit.

Marketing Margin

Marketing margin has remained an important tool in analysing the performance of marketing systems. Marketing costs and profit margins which make up marketing margins can be both indicators of efficiency or inefficiency of marketing systems. Intermediaries play very important roles in the marketing of farm products. Through them, time, place and possession gaps that separate goods from those who want them are overcome (Kotler, 2003). In economic and marketing literature, marketing margin refers to the difference between the price paid by the customers and the price paid to the farmer. Therefore, the criterion to determine the marketing margin is the difference between the prices of customers paying and farmers/producers receiving. (Kazemnezhad and Sadroleshraghi, 2000) Marketing of beans involves several actors among who are farmers, wholesalers, and retailers. Farmers are operators who farm and produce beans from farmyard and resell to wholesalers. Wholesalers are those who purchase beans at bulk prices from farmers. Retailers are those who buy in small quantities either directly at the market from farmers or wholesalers. (Diakit  and Kergna, 2002)

Marketing margin or price spread is a commonly used measure of the performance of a marketing system. (Abbott and Makeham, 1990) It can be a useful descriptive statistics if used to show how the consumers' expenditure is divided among market participants at different levels of the marketing systems. It is defined as the difference between the price the consumer pays and the price that is obtained by producers, or as the price of a collection of marketing services, which is the outcome of the demand for and supply of such services. Marketing margin is an equilibrium entity that is a function of the difference between the equilibrium of retail and farm prices or between export and farm prices (Wohlgenant, 2001). Marketing margins are the result of the demand and supply factors, marketing costs, and the degree of the marketing channel competition. Carambas, (2005) Thus, margins reflect the aggregate processing and retailing firm behaviour which influence the level and variability of farm prices and may influence the farmer's share of the consumer food Naira (Marsh and Gary, 2004). There are trade relationships between traders in production and consumption areas in the Dawanau Grain Market. Though, each farmer in the production area has an agent in each of the markets, a farmer or a trader contacts the market agents to determine the market price and to choose the market with the higher price. There is also communication among the agents in the Dawanau Grain Market, to fetch the highest price of beans in the markets. Sometimes, the brokers who are in contact with the traders in different markets purchase beans from low price markets and sell it in the high price market. Thus, the distribution strategy of beans depends on the market price. The market with the higher price is the first receiver of beans production, and the surplus is directed to other markets, and this phenomenon is observed in all markets in all seasons. This Dawanau Grain Market kept receiving varying quantities of beans from different sources.

**Marketing Profitability**

To build a strong and profitable business, it is necessary to develop a strategy. Essentially, marketing strategy is a plan that allows a business owner to direct activities that are consistent with the goals of the business owner and organisation and spend money wisely to create the greatest amount of return on investment. Some experts argue that if profits do not motivate managers effectively, relative measures, such as market share, should be used. Kotler (1988:333), states that the strategic objective of many firms “is to increase their market shares, thinking that this will lead to greater profitability.” Compared with profit maximising, such competitor-oriented objectives may be more visible because the performance another firm serves as a benchmark.

Marketing Constraint

Backman and Crompton (1989) defined constraints as barriers that inhibit peoples’ activities. Beginning in the 1980’s, some research studies were based on the assumption that a negative relationship existed between constraints and participation. These constraints can be classified into three which is thus:

1. Constraints in beans production
2. Constraints in beans marketing
3. Environmental (External) constraints

Constraints in Beans Production

This could result from the following:

- i. Lack of good seedling
- ii. Lack of technical knowledge
- iii. Lack of timely non-availability of fattier
- iv. Lack of irrigation facilities
- v. Lack of timely availability of credit
- vi. Lack of desirable packing of pesticide and insecticides
- vii. Damage due to unfavourable weather condition
- viii. Damage due to pest and disease.

Constraints in Bean Marketing

And this could also result from the following

- i. Lack of market information
- ii. Lack of organisation
- iii. Lack of processing storage facility
- iv. Lack of processing plant
- v. Lack of minimum support price
- vi. Lower prices due to seasonable gluts
- vii. High marketing cost
- viii. Delay in payment
- ix. Lack of waving, grading and packaging plant malpractices in weighing
- x. Lack of stay arrangements in the market
- xi. Lack of competition among buyers

External Environmental constraints

The external environment constraints are obviously outside the control of the farmer, wholesaler and retailers in the production and marketing of beans as thus, (Ejionueme and Nwora 2014).

- i. Political environment
- ii. Physical environment
- iii. Economic environment
- iv. Demographic environment
- v. Socio-cultural environment
- vi. Technological environment

**Empirical Review****Marketing Margin**

Nduka and Udah (2015) carried out a study to establish the nature of marketing and determinant of net returns to garri marketers in Ohafia Local Government Area of Abia State, Nigeria. Sixty respondents were selected at random with ten respondents from each of the five purposively selected community markets in the study area. The selected communities were Abiriba, Nkporo, Amangwu and Okamu. The respondents were selected from one major market from each of the community using the questionnaire as the data collection instrument. Data were analysed using descriptive statistics and ordinary least squares regression technique. The study examined the marketing cost and returns of retailed garri; factors influencing the marketers' net returns; the problems associated with garri marketing and the socio-economic characteristics of the respondents. The result of the study showed that the gross margin for marketing of garri was N30, 427.13 with a net return of N28, 856.22 and average sales receipt of N352, 519.86. The average total cost incurred by the marketers was N1, 570.91. 99.14% of the total cost was borne by the purchase of garri, 0.19% by transportation, while the remaining 0.672% was spent on marketing costs such as packaging, depreciation on marketing equipment, marketing charges/levies, and marketing experience among others. The regression result indicated that 93.92% of the variation in net returns of garri marketers was explained by the explanatory variables fitted in the model. The cost of garri purchased, and transport cost is statistically significant at 10%. Other costs (depreciation, packages, renting and marketing charges) experienced in the trade were not statistically significant on the marketers' net return. The high cost of garri purchased, high transportation cost and price fluctuations were identified as the major problems associated with garri trading in the study area. Other constraints include information dissemination, poor marketing facilities, and high marketing charges. Provision of basic infrastructural facilities and formation of a viable cooperative society by the marketers were recommended based on the study.

Ojogho, Erhabor, Emokaro and Ahmadu (2012), examined marketing margin and price transmission for beef in Benin metropolis of Edo state using a set of household heads. They adopted simple random sampling technique of selecting 120 respondents from the sampling frame of the registered butchers in Benin City main abattoir, other slaughtering slabs, and some markets. Data collected were analysed using the cost-return principle, descriptive and inferential statistics. The result of the descriptive statistics showed that 57.5% of the respondents were married, female, small-size family beef marketers who were in the age bracket of 30-49 years, with secondary education, and mainly retailers of 8.7 years marketing experience and an average marketing margin of N150.75. The results of the inferential statistics showed that a unit increase in packaging and handling cost would respectively increase marketing margin by N7.64 and N12.34 while the unit increase in the packaging and transportation cost would decrease marketing margin by N1.00 and N0.32 respectively. The result of the price transmission regression showed that the long-run marketing margin elasticity was 0.976, while the short-run marketing margin elasticity of wholesalers and retailer at the retail price were respectively 0.906 and 0.911. Though beef marketing in Benin is profitable with incomplete price transmission, there is an imperfect transmission of price from the wholesalers to the retailers while the margin between producer and retail prices is divergent in the short-run.

Kainga, (2013), carried out a study to determine the marketing margin and examines the determinants of net return of watermelon marketing in Yenagoa metropolis of Bayelsa State in Niger Delta Area of Nigeria. A two-stage sampling technique was adopted in drawing the sample. Data were analysed using descriptive statistics, marketing margin analysis, and multiple regression models. The results showed that watermelon marketing was female dominated (73.3%) with mean marketing experience of 5 years which can conclude that watermelon marketing in the Niger Delta Area is gaining ground. In age group, the majority (70.0%) were within the age of 21-40 years, while the majority (38.3%) had a household size of 5 – 10, and (61.7%) had secondary education. Marketing of watermelon in the area was profitable with monthly marketing margin and net return of N16, 466.35 and N14, 767.51 respectively. Marketing efficiency and the benefit-cost ratio were 0.588 and 1.53 respectively, meaning that marketing of watermelon was inefficient ($0.588 < 1$). The study further showed that price of watermelon had a positive and significant relationship with net return ($t = 8.682$; $p < 0.05$), suggesting that the higher the price of watermelon, the higher the net returns. Major constraints of watermelon marketing were spoilage of fruits, transport risk, small size watermelon, irregular supply, and inadequate capital. Thus improved storage facilities,



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electricity, good road network linking distributing centres, pooling of accumulated capital is imminent to sustain the availability of watermelon and enhance price stability in the area.

Achike and Anzaku, (2010) carried out a study on the Economic analysis of the marketing margin of benniseed in Nasarawa State, Nigeria is ascertained the performance of the marketing system of benniseed by using marketing margin models, analysis of variance and Duncan multiple range test. Primary data was used for analysis was generated through the random sampling of 90 farmers and 270 regular intermediaries. Their findings show that the mean marketing margin was 18.2%, marketing costs 12.8%, net profit 8.3%, and the farmer share 78.9% of the retail price. ANOVA tools show that marketing margins at the three main market centres were significantly at 0.05 level of probability while the multiple range tests showed that marketing margin was highest in Doma and Nasarawa Central market.

Marketing Profitability

Oloko, Anene, Kiara, Kathambi and Mutulu (2014), studied to explore and highlight the marketing strategies that Safaricom Ltd has utilised to spur its remarkable growth regarding the market share as well as its unprecedented strong super profit within the telecommunication industry both in Kenya and the entire East Africa region. The objective of the study was to majorly identify the marketing strategies for Safaricom's growing market share and profitability. The study used a textual approach to collecting and analysing data which was presented in thematic and content analysis from secondary data. The scope of the study was the Safaricom company limited. The study found various marketing mix and techniques were employed that include: auditory marketing, new product creation, animation, pricing, place, content localisation, brand alliances, constant promotions and use of celebrities. The study indicates that these techniques were found to enhance the uptake of Safaricom products hence, resulting in increased revenue leading to profitability.

Chiliya, Herbst, and Robert-Lombard, (2009) studied the impact of marketing strategies on the profitability of small grocery shops in South African townships. The argument is that of a complete "paradigm shift" in the grocery shop business sector is necessary. This will result in interventions which improve the quality of strategic marketing decisions and consequently profitability of the grocery shops. Due to the lack of a model available on how marketing strategy affects the profitability of grocery shops, a comprehensive literature search was done, and norms of marketing strategies were developed and subsequently used to benchmark the practices of grocery shops in Mdantsane, East London. The grocery shop owners or managers were asked their manipulation of the marketing mix variables in their effort to attain profitability. A total of 36 grocery shops were examined within the context of the research framework.

Marketing Constraints

Eze, Onwubuya, and Ezeh (2010) opined that women constitute great apostles in agricultural production, processing, utilisation, and marketing as well as national economic growth. Given the increasing demands for basic crop products such as garri and milled rice in the diets of most households in Enugu south area, Nigeria, the marketing situation seems to be low relative to distribution. In this regard, this study investigated women marketers' perceived constraints on the marketing of milled rice and garri in Enugu south area and highlighted challenges of extension training for women groups in Enugu State, Nigeria. One hundred and sixty randomly selected women marketers in Enugu South area constituted the sample size for the study. The structured interview schedule was employed in data collection. Frequency counts, percentage, and factor analysis technique, were the analytical tools adopted. The findings revealed that majority (63.8%) of the women were within the ages of 31-50 years, while the majority (75.5%) have 6-20 years of marketing experience and 69.4 % of them have equity capital of N5, 001.00-N45, 000.00. The major constraints perceived by the women included inadequate processing skill, product deterioration and lack of storage facilities. The study highlighted challenges for extension training in women groups on improved government budgetary allocation to ADP, organisational overhaul and re-orientation in the ADP and women group mobilisation with a focus on groups for extension training and contact. In conclusion, success in agricultural produce marketing in Enugu South area and associated marketing extension training for women groups in Enugu State, Nigeria depend on the extent constraint issues raised and challenges thereof highlighted can be addressed.



$$\begin{aligned}
 SS &= \frac{1.96^2 (0.9) (1-0.1)}{0.025} \\
 SS &= \frac{3.8416 (0.9) (0.1)}{0.000625} \\
 SS &= 553.19 \\
 \text{New SS} &= \frac{553.19}{1 + \frac{(553.19 - 1)}{2450}} \\
 &= \frac{1 + \frac{552.19}{2450}}{1 + 0.22538367} \\
 &= \frac{1.23}{1.23} \\
 &= \frac{553.19}{1.23} \\
 &= 449.747967 \\
 &= 450
 \end{aligned}$$

PRESENTATION OF DATA ANALYSIS AND DISCUSSION OF FINDINGS

Both descriptive and inferential statistics were used to analyse the data and achieve the three specific objectives of the study.

Objective one (ascertain the marketing margin) was achieved by estimating a marketing margin model thus:

$$Mm = TRP - TMC \quad \text{equation 1}$$

Where

- Mm** = Marketing Margin
- TRP** = Total Retail Price
- TMC** = Total Marketing Cost

Objective two was achieved (analyze the factors that affect the profitability of beans in northern Nigeria, using a simple linear regression. The simple linear regression model function is stated as follow:

$$\text{The implicit function is } \pi = f(X1 + X2 \dots\dots Xn) \quad \text{equation 2}$$

$$\text{The explicit function is } \pi = \beta_0 + \beta_1X1 + \beta_2X2 \dots\dots + \beta_n Xn + \mu_t \quad \text{equation 3}$$

Specifically for the three enterprises the models are specified thus:

Farm Enterprises

$$\pi = \beta_0 + \beta_1L + \beta_2O + \beta_3Lb + \beta_4 F + \beta_5P + \beta_6S + \beta_7T + \mu_t \quad \text{equation 4}$$

Where π Profitability

- L** = Cost of land
- O** = Output for the year in bags
- Lb** = Cost of labour
- F** = Cost of Fertilizer
- P** = Pesticide
- S** = Cost of seedling and
- T** = Transportation

For Wholesale Enterprises

$$\pi = \beta_0 + \beta_1P + \beta_2S + \beta_2I + \beta_4C + \beta_5T + \mu_t \quad \text{equation 5}$$

Where

π Profitability



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- P = Purchase Price
- S = Storage/Warehouse
- I = Insecticide
- C = Commodity Taxation
- T = Transportation

For Retail Enterprises

$$\pi = \beta_0 + \beta_1P + \beta_2W + \beta_3C + \beta_4I + \beta_5T + \mu_t \quad \text{equation 6}$$

Where

- P = Purchase Price
- W = Warehouse
- C = Commodity Taxation
- I = Insecticide
- T = Transportation

Objective 3 (to identify major constraints to beans marketing in North-West, Nigeria) was achieved by using 4-point likert scale represented by:

- Highly Affected (HA) = 4 Point
- Significantly Affected (SA) = 3 Point
- Moderately Affected (MA) = 2Point
- Lowly Affected (LA) = 1Point
- Not affected (NA) = 0Point

If the mean score is 2.5 it simply means the factor is affecting the marketing

Table 1: Socio Economic Characteristics of Respondents

Sex Respondents						
	Farmers		Wholesalers		Retailers	
Sex	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Male	103	69	112	75	103	69
Female	47	31	38	25	47	31
	150	100	150	100	150	100

Source: Field Survey, 2018

From the table 1, it shows that more MALE, than the FEMALE, is involved in production and marketing of beans in Kano State, North-West Nigeria.

Table 2: Age Respondents

Age Respondents						
	Farmers		Wholesalers		Retailers	
Age	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than 18 Years	8	5	16	11	8	5
18 -35 Years	48	32	95	63	48	32
36 – 50 Years	76	51	32	21	76	51
above 50 Years	18	12	7	5	18	12
	150	100	150	100	150	100

Source: Field Survey, 2018



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From the Table 2, rating the age by assigning positions,

Option	Farmer	Wholesaler	Retailer	Total	Positions
Less < 18yrs	8		16	8	32
18 – 35yrs	48		95	48	191
36 – 50yrs	76		32	76	184
Above > 50yrs	18		7	18	43

The most effective and efficient age bracket by position ranking is (18 – 35yrs and 36 – 50yrs) and the effective age bracket (Above > 50yrs) and less active (Less < 18yrs) into production and marketing of beans in Kano State, North-West Nigeria.

Table 3: Monthly Income Respondents

Monthly Income Respondents						
Monthly Income	Farmers		Wholesalers		Retailers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than 10,000	4	3	0	0	4	3
11,000 -20,000	15	10	3	2	15	10
21,000-30,000	28	19	5	3	28	19
31,000-40,000	38	25	9	6	38	25
41,0000-50,000	42	28	21	14	42	28
above 50,000	23	15	112	75	23	15
Total	150	100	150	100	150	100

Source: Field Survey, 2018

From the Table 3, rating the monthly income by assigning positions,

Option	Farmer	Wholesaler	Retailer	Total	Positions
Less < N10, 000	4		0	4	8
N11, 000 – N20, 000	15		3	15	33
N21, 000 – N30, 000	28		5	28	61
N31, 000 – N40, 000	38		9	38	85
N41, 000 – N50, 000	42		21	42	105
Above > N50, 000	23		112	23	156

Its shows that the monthly income for the farmers, wholesalers and retailers (Above > N50, 000) earn more income that the rest set of income groups investment into production and marketing of beans in Kano State, North-West Nigeria.

Table 4: Marital Status Respondents

Marital Status Respondents						
Marital Status	Farmers		Wholesalers		Retailers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Single	9	6	21	14	9	6
Married	105	70	87	58	105	70
Divorced	11	7	18	12	11	7
Widowed	15	10	9	6	15	10
Separated	10	7	15	10	10	7



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Total	150	100	150	100	150	100
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Source: Field Survey, 2018

From the Table 4, rating the marital status by assigning positions,

Farmer	Wholesaler	Retailer	Total	Positions
Single		9	21	9 39 3rd
Married		105	87	105 297 1st
Divorced		11	18	11 40 2nd
Widowed		15	9	15 39 3rd
Separated		10	15	10 35 4th

Its shows that the marital status for the farmers, wholesalers and retailers (Married), followed the (Divorced), the (Single and Widowed) and (Separated) are into production and marketing of beans in Kano State, North-West Nigeria.

Table 5: Educational Qualification

Educational Qualification						
	Farmers		Wholesalers		Retailers	
Educational Qualification	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
None	58	39	29	19	32	21
Primary	64	43	83	55	61	41
Secondary	24	16	31	21	52	35
Tertiary	4	3	7	5	5	3
Total	150	100	150	100	150	100

Source: Field Survey, 2018

From the Table 5, rating the educational Qualification by assigning positions,

Option	Farmer	Wholesaler	Retailer	Total	Positions
None	58		29	32	119 2nd
Primary	64		83	61	208 1st
Secondary	24		31	52	107 3rd
Tertiary	4		7	5	16 4th

Its shows that the educational qualification for the farmers, wholesalers and retailers (Primary), followed the (None), the (Secondary) and (Tertiary) are into production and marketing of beans in Kano State, North-West Nigeria.

Table 6: Household size

Household size						
	Farmers		Wholesalers		Retailers	
Household size	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1- 2	21	14	65	43	51	34
2-3	72	48	52	35	72	48
3-5	45	30	26	17	22	15
Above 5	12	8	7	5	5	3
	150	100	150	100	150	100

Source: Field Survey, 2018



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From the Table 3, rating the household size by assigning positions,

Option	Farmer	Wholesaler	Retailer	Total	Positions	
1 - 2	21		65	51	137	2nd
2 - 3	72		52	72	196	1st
3 - 5	45		26	22	93	3rd
Above 5	12	7		5	24	4th

Its shows that the household size for the farmers, wholesalers and retailers (2 - 3), followed the (1 - 2), the (3 - 4) and (Above 5) are into production and marketing of beans in Kano State, North-West Nigeria.

Objective 1

- i) Ascertain the marketing margin beans farming enterprise in North-West Nigeria.

$$Mm = TRP - TMC$$

where

Mm= Marketing Margin

TRP = Total Retail Price

TMC = Total Marketing Cost

Mean quantity of beans produced in the study area is 35 bags per farmer

Mean cost of Beans sold is N11, 000

For the Farmers	The mean production of beans	Mean Unit Cost
	35 Bags	N11,000
Total Mean revenue of Farmers	385,000	TFR = 385,000
Seedling	22,300.00	
Ploughing /harrowing	42,000.00	
Weeding/Herbicide	38,000.00	
Fertilizer	55,000.00	
Harvesting	10,000.00	
Empty bags	8,750.00	
Transportation	7,000.00	
	183,050	
		TFC 183,050

$$\text{Marketing Margin for Farmers} = \text{TFR} - \text{TFC}$$

Where

TFR = Total Farmers Revenue

TFC = Total Farmers Cost

385,000 - 183,050

Mm for farmers 201,950

For the Wholesalers	The mean Sale of beans	Mean Unit Cost
	35 Bags	N18,000
Total Mean revenue of Wholesalers	630,000	TWR = 630,000
Purchase Price	385,000.00	
Storage/Warehouse	17,500.00	



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Loading/offloading	3,500.00	
Insecticide	5,000.00	
Commodity Taxation	15,000.00	
Transportation	<u>15,000.00</u>	
	441,000.00	
		TWC 441,000

Marketing Margin for Wholesalers = **TWR – TWC**

Where

TWR = Total Wholesalers Revenue

TWC = Total Wholesalers Cost

630,000- 441,000

Mm for Wholesalers 189,000

For the Retailers	The mean Sale of beans	Mean Unit Cost
	35 Bags	N22,000
Total Mean revenue of Retailers	840,000	TRR = 840,000
Purchase Price	630,000.00	
Warehouse	8,750.00	
Loading/offloading	1,750.00	
Insecticide	2,500.00	
Commodity Taxation	5,000.00	
	648,000.00	
		TRR 648,000

Marketing Margin for Retailers = **TRR – TRC**

Where

TRR = Total Retailer Revenue

TRC = Total Retailer Cost

840,000- 648,000

Mm for Retailers 210,000

Each Marketing Margin calculated above shows that the Retailers have the Highest Marketing margin of N210,000, followed by the farmers 201,950 and Wholesalers 189,000.

Objective 2

ii) To examine the effect of profitability of beans farming enterprise in North-West Nigeria.

This is achieved by estimating a profit function model the enterprises thus:

For Farm Enterprises the implicit model is $\pi = f(L + O + Lb + F + P + S + T)$

Explicitly it is stated thus $\pi = \beta_0 + \beta_1L + \beta_2O + \beta_3Lb + \beta_4 F + \beta_5P + \beta_6S + \beta_7T + \mu_t$

Where π Profitability

- L = is cost of land
- O = is output for the year in bags
- Lb = is cost of labour
- F = is cost of Fertilizer
- P = is Pesticide
- S = is cost of seedling and
- T = is transportation

For Wholesale Enterprises the implicit model is $\pi = f(P + S + I + C + T)$



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Explicitly it is stated thus $\pi = \beta_0 + \beta_1P + \beta_2S + \beta_2I + \beta_4C + \beta_5T + \mu_t$

Where:

- P = Purchase Price
- S = Storage/Warehouse
- I = Insecticide
- C = Commodity Taxation
- T = Transportation

For Retail Enterprises the implicit model is $\pi = f(P + W + C + T)$

Explicitly it is stated thus $\pi = \beta_0 + \beta_1P + \beta_2W + \beta_3C + \beta_4I + \beta_5T + \mu_t$

Where:

- P = Purchase Price
- W = Warehouse
- C = Commodity Taxation
- I = Insecticide
- T = Transportation

Functional form	Enterprises	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	R ²
Linear Form	Farm	5174	-2.407	5.589	-2.055	3.458	-0.1051	1.432	-0.665	79
			0.1478*	0.0638*	0.913	0.326***	0.133	.654	-.226	
Semi Log Form	Farm	-1605	-455.8	6.447	-1.003	1.594*	1.132	-1.784	-4.754	73
			1417 **		.562	4.049	-0.37**	-.065 **	0.654*	
Double Log Form	Farm	.14993	-3.305**	3.874	-1.045	2.754	.865	-342	8.543	73
			-1.719**	0.192*	-.093**	.987***	.0653**	3.65*	-2.452 ***	
Linear Form	Wholesale	-9.360	-3.45	4.224	1.243	-4.415	5.861	-	-	82
			2.683*	0.173	0.423	0.246*	-0.439*	-	-	
Semi Log Form	Wholesale	3050	4.289	11.389	-1883	-2.654	-3.876	-	-	77
			0.596 **	.442	-0.653 **	0.448	0.321*	-	-	
Double Log Form	Wholesale	1.714	-4.605	5.741	.045	-0.055	.7067	-	-	65
			-1.236 *	0.292	.013***	-.396*	.2529*	-	-	
Linear Form	Retail	2378.38	-2.5533	0.1207	-0.7006	-2.580	-1.324	-	-	74
			0.4663*	.2759	-40799**	.0654*	0.5521***	-	-	
Semi Log Form	Retail	-8207	10740	12.983	1.324	1.643	-3.658	-	-	87
			3.123*	0.4074	0.6065	-.3260**	0.332	-	-	
Double Log Form	Retail	3.1976	1.1639	0.0109	-0.1752	0.687	0.4342	-	-	68
			-0.397 *	0.1064	-.5550**	1.6330	0.8944***	-	-	

* Significant at 1% level of significance.
 ** Significance at 5% level of significance
 *** Significant at 10% level of significance



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The estimates of the factors that affect the profitability of beans farm enterprise as shown in the above table ($\beta_1=1417 **$, $\beta_5=-037**$, $\beta_6=-.065 **$ and $\beta_7=0.654*$). By some variables implicated to have significantly determined the profitability of beans farm enterprises in North-West Nigeria, the semilinear functional form gave the best fit to the data. The semilinear function for the farm enterprises was therefore used for further explanations. The function showed that cost of land, labour, fertilisers and as well warehouse and transportation are significantly determined. Hence it affects majorly on the profitability of beans farm enterprises in Northwestern Nigeria. The farm input factors (excluding the cost of Seedling due to a subsidy by the Government) has significant and positive, meaning that the more cost of other farm cost incurs, the more the effect on the profitability.

While that of the wholesalers, the estimates of the factors that affect the profitability of the bean wholesalers shown in the above table ($\beta_1=0.596 **$, $\beta_3=-0.653 **$ and $\beta_5=0.321*$). By some variables implicated to have significantly determined the profitability of beans wholesaler’s enterprises in northwestern Nigeria, the semilinear functional form gave the best fit to the data. The semilinear function for the wholesaler’s enterprises was therefore used for further explanations. The function showed that purchase price, cost of commodity taxation and transportation are significantly determined. Hence it affects majorly on the profitability of beans wholesalers enterprises in North-West Nigeria. The wholesaler's input factors (excluding insecticide and warehouse due to government subsidy) has significant and positive, meaning that other distribution costs incur, the more the effect on the profitability.

While that of the retail, the estimates of the factors that affect the profitability of the bean wholesalers shown in the above table ($\beta_1=3.123*$ and $\beta_4=-.3260**$). By some variables implicated to have significantly determined the profitability of beans Retailers enterprises in North-West Nigeria, the semilinear functional form gave the best fit to the data. The semilinear function for the Retailers enterprises was therefore used for further explanations. The function showed that purchase price and cost of commodity taxation are significantly determined. Hence it affects majorly on the profitability of beans Retailers enterprises in Northwestern Nigeria. The Retailers input factors (excluding insecticide and warehouse) has significant and positive, meaning that the more cost of other distribution cost incurs, the more the effect on the profitability.

Objective 3

iii) Identify major constraints to beans farming enterprise in North-West Nigeria.

This was achieved using 4-point likert scale represented by:

- Highly Affected (HA) = 4 Point
- Significantly Affected (SA) = 3 Point
- Moderately Affected (MA) = 2Point
- Lowly Affected (LA) = 1Point
- Not affected (NA) = 0Point

If the mean score is 2.5, it simply means that the factor is affecting marketing

	\bar{X}	SD	Decision
Land ownership system affects bean farming and marketing	3.12	0.62	Accepted
High transportation cost	3.6	0.46	Accepted
Low level of Education	2.8	0.82	Accepted
Small scale of operation	2.1	0.65	Rejected
Poor storage facilities	2.7	1.61	Accepted
Insecurity of lives and properties	3.5	1.3	Accepted
Lack of access to formal credit	3.1	0.62	Accepted
Gender Discrimination	1.6	1.46	Rejected
Ineffective dissemination of information	3.2	0.67	Accepted
Lack of standardisation of measure and Quality	1.8	1.1	Rejected
Multiple taxes/levies	3.5	0.54	Accepted
Dishonesty activities of middlemen and farmers	2.3	1.35	Rejected
Language barrier	2.2	0.5	Rejected



DISCUSSION OF FINDINGS

From the above interpretation of the result of findings of the analysis carried out, the following findings ensued as thus:

- [1] Objective one which ascertains the marketing marginal of farmers, wholesalers and retailers in the North-West Nigeria, was simply achieved by the use of Marketing marginal, estimating the model of the various inputs made by the farmers, wholesalers and retailers and the result from the above estimation model of each (Mm for farmers 201,950, Mm for Wholesalers 189,000 and Mm for Retailers 210,000). It shows that the retailers marketing margin are higher, followed by that of the Farmers and the Wholesalers).
- [2] Objective Two was to analyse the factors that affect the profitability of beans
 - The variables of with the semilinear functional form gave the best fit to the data ($\beta_1=1417^{**}$, $\beta_5=-037^{**}$, $\beta_6=-.065^{**}$ and $\beta_7=0.654^*$) and the function showed that cost of land, labour, fertilisers and as well warehouse and transportation are significantly determined. Hence it affects majorly on the profitability of beans farm enterprises in North-West Nigeria. The farm input factors (excluding the cost of Seedling due to a subsidy by the Government) has significant and positive, meaning that the more cost of other farm cost incurs, the more the effect on the profitability.
 - The variables of the semilinear functional form gave the best fit of the data ($\beta_1=0.596^{**}$, $\beta_3=-0.653^{**}$ and $\beta_5=0.321^*$). The function showed that purchase price, cost of commodity taxation and transportation are significantly determined. Hence it affects majorly on the profitability of beans wholesalers enterprises in North-West Nigeria. The wholesaler's input factors (excluding insecticide and warehouse due to government subsidy) has significant and positive, meaning that other distribution costs incur, the more the effect on the profitability.
 - The variables of the semilinear functional form gave the best fit of the data ($\beta_1=3.123^*$ and $\beta_4=-.3260^{**}$). The function showed that purchase price and cost of commodity taxation are significantly determined. Hence it affects majorly on the profitability of beans retailers enterprises in North-West Nigeria. The retailer's input factors (excluding insecticide and warehouse) has significant and positive, meaning that the more cost of other distribution cost incurs, the more the effect on the profitability.
- [1] Lastly, the objective three as to identify major constraints to beans production and marketing in northern, western states, Nigeria, in which the weighted average mean with the decision rule (Accept when the calculated is above 2.5 and otherwise reject below 2.5). All other constraints are accepted to constrained beans production and marketing in North Western Nigeria, except small-scale operations, gender discrimination, lack of standardisation of measures quality, dishonest activities of the middlemen and farmer and language barriers.

CONCLUSION

By this research finding, the study concludes with the following;

This study revealed that farmers and other traders (middlemen such as wholesalers and retailers) do not always make such large profits as it seemly seems to be for the normal bean consumers. The low-profit levels for beans farmers could be due to seasonal fluctuations and inputs constraints. The analysis of the results has also shown that total marketing margin of beans in the area of study is affected by many factors such as the marketing cost, producer prices and the quality and quantity of the produce (beans). Better monitoring of prices will give more precise information about the performance of the marketing system (transportation, promoting grouped marketing, and market information) and will improve its effectiveness. However, the improvement of systems of conservation and transformation will stagger the periods of high consumption and increase market potential.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

- 1) In the context of bean production, the maximum possible yield per hectare is yet to be achieved to feed geometric progression of the Nigeria population. Therefore, there is the need for the Federal and State Ministry of Agriculture to sensitise farmers on the importance of adopting soil enhancing technologies



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to enhance retention of soil fertility input application and also concerning improved seed varieties that have disease resistant and high productivity traits.

- 2) Agricultural extension services should be provided adequately to farmers of bean production technologies and market information in North-West Nigeria.
- 3) Adequate attention should be given to beans farmers sex, age, income, marital status etc. as these will provide significant facilitators of adoption of production and marketing of beans
- 4) Input support services in the form of land ownership credit facilities, and fertiliser etc. should be provided for enhancing adoption of bean production technologies and market information.

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