AGRICULTURAL STUDIES

DIFFERENTIALS IN PROFITABILITY AND EFFICIENCY OF COWPEA MARKETING IN RURAL, SEMI- URBAN AND URBAN MARKETS IN NASARAWA STATE, NIGERIA

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ABSTRACT

This study analyzed differentials in profitability and efficiency of cowpea marketing in rural semi-urban and urban markets in Nasarawa State, Nigeria. Multistage sampling technique was employed for this study. Data was collected from 150 sampled cowpea marketers through the use of well-structured questionnaires. The following statistical and econometric tools was used to achieve the stated objectives of the study, Descriptive statistics, Budgetary technique, Multinomial logit regression model and Likert scale. The results of the socioeconomic characteristics of the samples cowpea marketers show that the mean age of the sampled cowpea marketers operating in rural, semi-urban and urban markets were 35 years, 33 years and 35 years respectively. The gross margin obtained by rural marketers was N680,744.91, while the gross margin obtained by the semi-urban and urban marketers was N209,539.45 and N2,498,189.69 respectively. The marketing efficiency level achieved by the marketers were 38%, 16% and 35% and were all less than 1. The mean price of the cowpea in Naira/50kg at the various market under study were rural market price N20,909.64, semi-urban market price was N21,439.65 and urban market price was found to be N22,954.96 on average basis. The results further show that the following factors influencing the choice of rural semi-urban and urban market were age of the marketers (P<0.01). Household size (P<0.01), Education level of the marketers (P<0.01), marketing experience (P< 0.05) market price of cowpea (P<0.01) and cost of transportation (P<0.01). The constraints faced by cowpea marketers include rodents, inadequate security, market leadership, customers, weevil, lack of fund, bad roads, lack of electricity, rainfall, and high price of the commodity. Therefore, the study recommends that extension services should be made available, storage facilities should be provided in the markets at all levels credit facilities should be provided to the marketers to increase their capacity either through government or nongovernmental organizations or microfinance banks or institutions, good roads and other infrastructural facilities should be made available specially to link the rural markets in the rural areas, security personnel should be provided to secure the markets at all levels.

INTRODUCTION

Cowpea (*Vigna unguiculata*) also known as beans in Nigeria is included among one of the most ancient crops that has been in existence that is well known to man. It is classified as an important source of protein derived from plant in the developing world and most especially in West African Countries; it is also the among most important crop that is economically and nutritionally indigenous African legume crops, especially in West and Central African regions (Kaka et al., 2020). Sustainability of agricultural production all over the World is hinged on active pricing system driven by market forces. In the recent years in the past, the marketing trend for agricultural products and commodity in Nigeria has revealed the pattern of long-term price fall of cowpea and short-term price instability. Nigeria is the major world's leading cowpea (*Vigna*

Unguiculata) producing country, with the production capacity of over 2.91 million tons of dry grains (Food and Agriculture Organization of the United Nations Rome (2014); Coker et al., 2018). Some Countries in Africa such as Niger Republic produces (1.57 million tons) Ghana, Burkina Faso, Senegal and Cameroon are also significant producers of cowpea. Outside Africa, the major cowpea production areas are in Asia, North and South America. Nigeria's production of cowpea is about 58 percent of the global supply, making the country the largest producer of cowpea all over the world. Nigeria is also the largest consumer of the cowpea crop. Cowpea is one of the most important foods consumed across all the geo-political zones in the country. According to NAERLS (2020), the national demand for cowpea in Nigeria is about 5.6 million tons. Out of this figure, the domestic supply by the country farmers is 4.1 million tons, while the deficit balance of 1.5 million tons is imported into the country. Nigeria can earn almost about $638 million annually on cowpea export to Europe but the European Union has extended the ban on export of beans from Nigeria to Europe till 2022 as a result of the pesticides content and failure to implement food safety plan. The main market channels of distribution of cowpea are through the local market, within the farming community, and bulk merchants, outside the farming community. According to Mohammed and Mohammed (2014), cowpea grain has a protein content of about 23% making it a good source of plant protein. They further asserted that it is has an ability to cover a protein gap created by inadequacy of animal protein in the diet of common people living in Nigeria. Cowpea is gradually attaining its economic importance in Nigeria particularly in the southern and eastern States of Nigeria. The appreciating economic importance may be due to its ability to generate revenue to farmers and marketers across the value chain and also food value which made it a good supplement/complimentary source of animal protein.

Marketing can be defined as the topmost performance of all line of activities involved business which lead to the easy flow of goods and services from the point of initial agricultural production passes through different channels until they are in the hands or custody of the ultimate final consumers (Ali et al., 2019). Agriculture in all its embodiment has evolved into marketing and has already tuned and become a vast and complex system which has now reaches far beyond the ordinary farm operation but includes all those who are involved in the activities of bringing food and fiber to bosom of the consumers (Kaka et al., 2020). Agricultural marketing involves the performance of all business activities that comprises of direct flow of agricultural commodity, goods and services to potential consumers in order to accomplish the purpose of producer's objectives. Thus, marketing leads to the creation of the goods form, the place of sale, time of sale or purchase and possession utilities. Marketing has to do with the process of building lasting relationships between producers, retailers, wholesalers and consumers through decision of planning, executing and controlling the conception of the plan including; pricing, promotion and distribution of ideas, goods and services to create mutual exchange that satisfy individual and organizational needs and objectives (Ali et al., 2019; Premjit, 2013). Agricultural marketing is being started and initiated right from the supplies of farm inputs up to the time when a product reaches the ultimate consumer (Katanga et al., 2016). In performing the roles of marketing, products pass through various marketing agents or intermediaries called market channels 9 (Kaka et al., 2020). These market intermediaries are the wholesalers and retailers and both play an important role in the marketing system (Girei et al., 2013). Variability in products prices in different markets in the same county could be unfavorable to the marketing system and the economy as a whole. This could cause allocation of resource inefficiency among sellers as well as consumers depending on the sources and causes of the variability in commodity prices. It might also upsurge poverty level between low income earners in the humanity (Polaski, 2013; Akpan et al., 2014). Price of cowpea grains is highly unstable between seasons and consumers pay different amounts of money for the same product in different markets locations separated by just a few kilometers of distance (Kaka et al., 2020). According to Kaka et al. (2020) the sustainability of agricultural marketing and flow of commodities is highly hinged on active pricing system. Just in the recent years past, the market for agricultural products in Nigeria has revealed a pattern of long-term price fall and short-term price instability in the commodity market. Economically, cowpea has a great value in the internal trade within the country because it promotes trading between the producing areas and the non-producing areas. It also serves as a source of providing income for those that involved in the marketing process such as middlemen who embark on transporting cowpea from one location to another. The returns earned from cowpea marketing like any other type of business or firm ensure sustainability of the system through the enhanced revenue generated by both marketers and producers. However, the challenge that marketers face is to satisfy consumer's wants at a reasonable profit level and in a socially acceptable manner. Cowpea marketing in Karu LGA is currently getting prominent attention at both local and national levels following the creation of a hub market for the selling of grains majorly cowpea in Auta-balefi market of the LGA in November, 2016 by Cowpea (beans) Dealers Association dominated by displaced person from Gwoza Local Government Borono State Nigeria. As a result of the establishment of the Cowpea hub market otherwise non as'' bags market'' in the area, the production, demand and subsequent marketing of cowpea at different market levels is growing from strength to strength. The marketing activities has increased tremendously in the area as so much demand on grains, like beans are brought by traders and taken to places like Lagos and Ibadan with many middlemen playing their intermediary roles between the farmers and the buyers. To meet up with the rising demand, the quantities of cowpea produced in the catchment areas have also increased. The need to examine the market price trends, the profit margins accruable from marketing of cowpea at different market levels in the area to the market operators, the possible effects of the socioeconomic characteristics on the marketing of cowpea and the associated marketing problems become not only necessary but imperative in the area. Marketing system studies such as the structure and performance approach to marketing studies is one of the most important approaches to the analysis of markets.

Efficiency attainment in marketing of agricultural commodities encourages the participation of a large number of people operating at various types of markets and exchange points where the marketing services of assembling, storage, processing, transportation and break-of bulk are performed. The effects of an efficient market can go a long way in influencing positively the supply response of agricultural products (Gaya et al., 2020). The different categories of market players such as middlemen, whole sellers and retailers operating at different market levels have contributed immensely in

making farm produce readily available to the consumers at different market locations nationwide; however, there is generally limited information on the profit margin accruing to each market player in the marketing of cowpea. Producers habitually assent to lower prices as they are unaware of the market prices or since they lack the time, money or resources to transport cowpea grains to the market in urban areas for better profits (Abah & Tor, 2012). Features influencing price setting of cowpea in various markets outlets are: cowpea grain quality, the selling price, transportation fare, storage facilities, market tolls, commissions and levies (Kaka et al., 2020). In the recent past, the market for agricultural produce in Nigeria has revealed a pattern of long-term price fall and short-term price instability (IMF, 2010). The instability in price of agricultural produces in Nigeria has been credited to several factors including variances in the bargaining power among consumers, recurring earnings fluctuation amid sellers and consumers, seasonality of production, natural shocks such as a result of climate change such as flood, high temperature, torrential rainfall, inadequate rainfall, pests and diseases, and inappropriate response by farmers to price signals (Kaka et al., 2020).There are numerous categories of market players such as retailers, middlemen and whole sellers involved in the marketing of agricultural commodities such as cowpea, in different market levels across the nation and their quantum (capital base) are observed to be low. Despite the important roles of such categories of market players that are bringing the needed commodities to the consumers at the designated market locations, there is generally limited information on their respective profitability levels from marketing the various commodities including cowpea.

Food consumption expenditures accounts for higher proportion of the total households' expenditures in Nigeria and the food demand has been growing at the rate of 3.5% per annum with food production growing at a rate of 2% per annum in recent years, while, the annual growth rate of population is as high as 2.9 percent, thereby, creating a serious food deficit in the country. The ability of Nigeria agricultural production to perform its role in development has been on a decline for decades thus creating wider gap between the demand for and supply of food (Alabi et al., 2012). Agricultural commodity marketers are usually faced with problem of inadequate finance arising from the difficulties in accessing funds for their marketing operations and inadequate infrastructure. The problem necessitating this study in the chosen study area is an attempt to ascertain the profit margins (returns) accruable to the different categories of market players (retailers, middlemen and whole sellers) involved in the marketing of cowpea at different market levels (rural, semi- urban and urban markets). Several studies have been conducted by several authors on marketing (Gaya et al., 2020; Kaka et al., 2020; Ali et al., 2019; Katanga et al., 2016). There is a gap in the existing literature regarding the differentials in profitability and the efficiency of cowpea marketing in different markets in the study area that need to be investigated, to fill this gap an attempt was made to carry out this study, Hence, this research work was Conducted to examined the differentials in profitability and efficiency of the resources being used in the marketing of cowpea at different market levels among the different market operators in Karu local government area of Nasarawa State.

The broad objective of this study is to analyze the differentials in profitability and efficiency of cowpea marketing in rural, semi-urban and urban area in Nasarawa State Nigeria. The Specific Objectives were:

- To determine the socio-economic characteristics of the different categories of cowpea marketers operating different market levels,
- To estimate the profitability margin acquiring to different categories of market players in the marketing of cowpea at different market levels,
- To determine marketing efficiency in urban, semi and rural cowpea markets in the study area,
- To determine the marketing channels of distribution of cowpea in the study area
- Determine the factors influencing the choice of cowpea marketing outlets
- Determine the constraints of cowpea marketing in the study are

MATERIALS AND METHODS

Study Area

This study was conducted in Nassarawa State, Nigeria. Nasarawa State is bounded in the North by Kaduna State, in the West by the Abuja Federal Capital Territory, in the South by Kogi and Benue States and in the East by Taraba and Plateau States. The State lies between Latitudes7° 45' and 9° 25' North of the equator and between Longitudes7° and 9° 37' East of the Greenwich meridian. The average annual temperature is 28.4 °C and about 839 mm of precipitation falls annually. The temperatures are highest on average in April, at around 32.9 °C and lowest average temperature of 25.1 °C in January. The state has a total land area of 27,137.8 Square Kilometer and a population of about 1,826,883 people (NPC, 2006). Nasarawa State is divided into 13 Local Government Areas. The soil texture is predominantly sandy-loam. The major crops grown in large quantities are: cassava, yam, sesame, rice, maize, millet, groundnut, and cowpea, while tree crops include: mango, cashew, citrus and guava.

Method of Data Collection

The methodology used in collecting data for this study was through the use of well-structured questionnaires including primary and secondary sources. The primary sources include the use of well-structured questionnaires for collecting detailed information from randomly selected categories of market players at different market levels. Oral interviews and discussions using both online and offline were also used to collect information from those market players who cannot read and write.

Sampling Techniques and Sample Size

This study employ multi-stage sampling technique to arrive at the sample size; first stage adapts purposive selection of

Nasarawa State, Nigeria. This is because the State is becoming known for cowpea production and marketing. The second stage Karu Local Government Area was also purposively selected in the third stage random sampling procedure was used to select six (6) markets using ballot-box raffle draw method in the fourth stage simple random sampling was used to select target respondents (cowpea marketers). A total sample size of 150 categories of market players operating at different levels were randomly selected and administered with questionnaires and interviewed with 25 respondents or operators targeted in each of the six randomly selected markets consisting of 2 rural, 2 semi- urban and 2 urban markets. Eleven (11) questionnaires were not retrieved from the respondents.

Method of Data Analysis
Data will be analyzed using various statistical tools such as
- Descriptive Statistics
- Marketing efficiency
- Budgetary Technique
- Financial analysis
- Multinomial Logit Regression Model

Descriptive Statistics
This tool was used to examine the socio-economic characteristics of the marketers in the study area. These include their gender, marital status, household size, age, level of education etc. Statistical package for social science (SPSS 20) and STATA Version 14 were used for analyzing the collected data. Descriptive statistics involve the use of mean, mode, range, frequency distribution tables, minimum, maximum values, standard deviations and percentages etc.

Marketing Efficiency
Marketing efficiency (ME) reflects the benefit accruing to the marketers in comparison to the price that consumers are satisfied to pay as delivered by the marketing system. The marketing efficiency ratio is expressed in percentage as used by Alabi et al. (2020) and it is stated thus:

$$M.E = \frac{Net\ Marketing\ Margin}{Total\ Marketing\ Cost} X\ 100$$

Where,
If M.E =1, marketing is efficient
If M.E is < 1 marketing is inefficient
If M.E is >1 marketing is highly efficient

Budgetary Technique
Gross Margin Analysis
Gross Margin Analysis is a tool used in farm budgeting by definition is the difference between the gross farm income and total variable cost (Olukosi & Erhabor, 2005). Normally, gross margin analysis is used to test the effects of changes that do not alter the fixed cost of production, especially the cost of land and other durable factors. It is used to determine the potential profitability and effect on farmer's farm income.
Gross Margin Model is expressed as follows:

$$GM = TR - TVC \dots\dots\dots\dots\dots (1)$$

Where,
GM = Gross Margin (₦),
TR = Total Revenue Obtained (₦),
TVC = Total Variable Cost (₦), and
TR = P.Q (₦).
Where: -P = Price of cowpea Produced in Naira per Kilogram,
Q = Output of cowpea Produced in Kilogram

Financial Analysis
The following financial ratios was used in this study in order to determine the profitability of cowpea marketing. This will be used to achieve part of specific objective three (iii)

$$Gross\ Margin\ Ratio = \frac{Gross\ amargin}{Total\ Revenue}$$

Operating ratio and rate of return per naira invested in cowpea marketing. The operating ratio (OR) is stated thus:

$$OR = \frac{TVC}{GI} \dots\dots. (3)$$

Where, OR= Operating Ratio (Units);

TVC= Total Variable Cost (Naira);
GI= Gross Income (Naira).

The rate of return invested per naira is stated thus;

$$RORI = \frac{NI}{TC} \ldots \ldots \ldots (4)$$

Where,
RORI= Rate of Return per Naira Invested (Units);
NI= Net income from Maize Production (Naira);
TC= Total Cost (Naira). (Fixed cost is negligible on a short run).
This was used to achieve part of specific objective three (iii)

Multinomial Logit Model Analysis
Multinomial Logit model was used to analyze the factors that influence the choice of urban, Semi and rural markets.

$$\Pr(y = 1) = \frac{e^{x\beta(1)}}{e^{x\beta(1)} + e^{x\beta(2)} + e^{x\beta(3)}} \ldots \ldots \ldots \ldots \ldots \ldots \ldots (5)$$

$$P_{ij} = \frac{e^{x_i'\beta_j}}{\sum_{l=1}^{m} e^{x_i'\beta_l}} = j = 1, \ldots, m \ldots \ldots \ldots \ldots \ldots \ldots (6)$$

In the multinomial logistic regression model, a set of coefficients, 'y'is estimated, corresponding to each result of the following probabilities for each case of the value of the dependent variable markets

$$\Pr(y = 2) = \frac{e^{x\beta(2)}}{e^{x\beta(1)} + e^{x\beta(2)} + e^{x\beta(3)}} \ldots \ldots \ldots \ldots \ldots \ldots . (7)$$
$$\Pr(y = 3) = \frac{e^{x\beta(3)}}{e^{x\beta(1)} + e^{x\beta(2)} + e^{x\beta(3)}} \ldots \ldots \ldots \ldots \ldots \ldots . (8)$$

$$LnY_i = \beta_0 + \sum_{i=1}^{10} \beta_i \, LnX_i + \cdots \beta_n LnX_n + U_i \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots . (9)$$

The explicit function is stated thus:
$$LnY_i = \beta_0 + \beta_1 LnX_1 + \beta_2 LnX_2 + \beta_3 LnX_3 + \beta_4 lnX_4 + \beta_5 LnX_5 + \beta_6 lnX_6 + \beta_7 LnX_7 + \beta_8 lnX_8 + \beta_9 LnX_9 + \beta_{10} lnX_{10} + U_i \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (10)$$

Where,
LnY_i = Markets (1, urban; 2, semi; 3, rural),
X_1 = Sex of Head of Household (1, Male; 0, Otherwise),
X_2 = Age (Years)
X_2 = Marital Status of the Household Head (1, Married; 0, Otherwise),
X_4 = Households Size (Total Number of Persons),
X_5 = Level of Education (0, Non-Formal; 1, Primary; 2, Secondary; 3, Tertiary),
X_6 = Marketing Experience (Years)
X_7 = Market Price of Cowpea (Naira)
X_8 = Distance to Market (Kilometers)
X_9 = Incurable Costs (Naira)
X_{10} = Cost of Transportation (Naira)
U_i = Error Term
β_0 = Constant Term
$\beta_1 - \beta_{10}$ = Parameters to be Estimated

RESULTS AND DISCUSSIONS
Socio-Economic Characteristics of the Different Categories of Cowpea Marketers Operating at Different Market Levels
Table 1 presents the results of the analysis of the socioeconomic characteristics of the different categories of cowpea marketers operating at different market levels in the study area. The results show that 12.9% of the sampled respondents from the rural market were male while 10.1% were female. Majority 57.6% of the sampled cowpea marketers from semi-

urban market were male while 2.1% were female 18% and 8.6% of the sampled cowpea marketers in urban market were male and female respectively. The mean age of the sampled cowpea marketers operating in rural, semi-urban and urban markets were 35 years, 33 years and 35 years respectively. The implication of this result is that the sampled marketers were young marketers that are still in their productive age, this could make them to be able to travel to rural areas and source for cowpea commodity where the price may be lower than that of the semi-urban and urban markets for more profit. This result is in agreement with Katanga et al. (2016) who posited that market participation reduces as the age of farmer's increases because the older farmers are known to be risk averse. Table 1 also show that 19.4%, 45.3% and 23.7% of the marketers from all market level were married while 3.6%, 14.4% and 2.9% of the cowpea marketers were single from rural, semi-urban and urban markets respectively. About 20.9%, 57.6% and 17.3% of the samples marketers from all markets had 1-15 members per household respectively. The average persons per households in rural area was 3 while that of semi-urban area was 3 persons per households and the average persons per household in the urban area was 6 persons per household. The results also show that 18%, 3.6% and 5.8% of the sampled marketers in rural, semi-urban and urban markets had no formal education respectively while 1.4% and 10.8% of the marketers from rural and urban market had primary education. The study further revealed that 3.6%, 5.8% and 4.3% of the cowpea marketers from market categories obtained secondary education respectively. About 51.1% of the sampled cowpea marketers from the semi-urban market obtained tertiary education level while 5.8% of the urban marketers obtained tertiary education, education level of a marketer enables them to access market information easily about the price and which market outlet offers a better price for their commodity for profit making this is in consonance with Alabi et al. (2020) who reported that educated marketers makes more profit than the uneducated farmers and they further stated that illiteracy is one of the factors working against agricultural development in Nigeria. About 2.9% and 13.7% of the sampled marketers from rural, semi-urban and urban markets had business as their major occupation while 6%, 5% and 8.5% of the marketers in the markets outlets had farming as their major occupation and 13.7% and 4.3% had other business as their major occupation in the study area respectively. More so 2.3%, 57.6% and 25.2% of the cowpea marketers from rural, semi-urban and urban had business as their secondary occupation. The average years of marketing experience of the sampled marketers from different markets were rural marketers 6 years, semi-urban market 6.6 years and urban marketers was 7.6 years marketing experience. The study also shows that 20.9% of the marketers from the rural market had 1-10 years marketing experience while 59.7% sampled marketers from semi-urban and 21.8% marketers from rural market had 1-10 years of marketing experience. This result is in line with Gaya et al. (2020) who reported that long term experience in the marketing business have influence on decision making by the marketers as well as market efficiency level and performance, beside the technique and strategies of marketing takes time to adopt. The mean price of the cowpea commodity at the various outlets market under study was rural market price ₦209,09.64, semi-urban market price was ₦21,439.65 and urban market price was found to be ₦22,954.96 on average basis. This implies that the market price of cowpea in the study areas has no much significant variance according to the evidence from the results of the study. This is result is consistent with (Ddungu et al., 2015) who asserted that there is an indication of seasonal variations. As expected, cowpea grains are cheaper during the harvest period and immediately afterwards. There was a clear difference between the prices in different markets. Generally, crop prices set their seasonal low at harvest followed by a post-harvest rally. These finding is also line with Kaka et al. (2020) who asserted that the price of cowpea is lower in the markets that are closer to the production area of the crop.

Table 1. Socioeconomic Characteristics of the Different Categories of Cowpea Marketers Operating at Different Market Levels, in the Study Area

Variables	Rural Market			Semi-Urban Market			Urban Market		
	Freq	%	Mean	Freq	%	Mean	Freq	%	Mean
Sex									
Male	18	12.9		80	57.6		25	18.0	
Female	14	10.1		3	2.2		12	8.6	
Age			35.59			32.61			35.21
20									
21-30	7	5.0		55	39.6		8	5.8	
31-40	14	10.1		17	12.2		19	13.7	
41-50	11	7.9		5	3.6		6	4.3	
51 and above				6	4.3		4	2.9	
Marital Status									
Married	27	19.4		63	45.3		33	23.7	
Single	5	3.6		20	14.4		4	2.9	
Divorced									
Widow/Widower									
Household Size			3.34			2.72			5.45
1-5	29	20.9		80	57.6		24	17.3	
6-10	3	2.2		3	2.2		11	7.9	
11-15	-	-		-	-	-	2	1.4	
Educational Level									
No Formal Education	25	18.0		5	3.6		8	5.8	
Primary Education	2	1.4		-	-		15	10.8	
Secondary Education	5	3.6		8	5.8		6	4.3	
Tertiary Education	-	-		71	51.1	-	8	5.8	
Major Occupation									
Business	4	2.9		4	2.9		19	13.7	

Farming	9	6.5	9	6.5		12	8.6	
Others	19	13.7	19	13.7		6	4.3	
Occupation								
Business	32	23.0	80	57.6		35	25.2	
Others			3	2.2		2	1.4	
Marketing Experience		**5.46**		**6.62**			**7.6**	
1-10	29	20.9	83	59.7		25	18.0	
11-20	3	2.2				10	7.2	
21-30	-	-	-	-	-	2	1.4	
Price Trends								
Rural Market Price		**20,909.64**						
Semi-Urban Price				**21,439.65**				
Urban Market Price							**22,954.96**	
Total	**139**					**100**		

Source: Field Survey (2021)

Cost and Benefits of Cowpea Marketing in the Study Areas

Table 2 presents the results of the analysis of cost and benefits of cowpea marketing in rural, semi-urban and urban markets, the study shows that the average cost of purchasing cowpea by marketers in the rural market was ₦1487931,0345 representing 86.7% proportion of the total cost of investment in cowpea marketing by rural marketers, the total variables cost expended by the rural marketers was ₦228,910.27 representing 13.3% of the total cost of marketing in the rural markets, the total cost involved in cowpea marketing in the rural market was ₦171,6841.30 while the total revenue realized by the rural marketers on average was ₦2,397,586.23 with the gross margin of ₦680,744.91 and gross margin ratio 0.28, operating ratio 0.34 and rate of return on investment 0.39, the value of rate of return on investment 0.39 indicates that every 1 naira invested yields 39 kobo as an interest which covers taxes, commissions and profits, this implies that cowpea marketing is profitable in the rural markets, this result is in line with Gaya et al. (2020) who discovered that the retailers and wholesalers were able to cover their total variable cost of marketing and earn some level of returns that makes them earn profit from cowpea marketing. The study further show that the average cost of purchasing cowpea by cowpea marketers in semi-urban and urban markets was ₦1,262,308.642 and ₦6,987,027.03 respectively. The total cost of cowpea marketing in semi-urban and urban areas which comprises of cowpea purchases, cost of transportation, incurable costs, commissions and cost of storage was ₦1,310,213.64 and ₦7,220,143.64 respectively and the total revenue realized in the semi-urban and urban markets was ₦1,519,753.09 and ₦9,718,333.33 accordingly. The gross margin obtained by the semi-urban and urban marketers was ₦209,539.45 and ₦2,498,189.69 respectively with gross margin ratio of (0.13, 0.23), operating ratio (0.22, 0.09) and rate of return (0.16, 0.35) respectively this results implies that cowpea marketing is profitable in the semi-urban and urban markets. Comparatively urban marketers are more profitable than those operating in semi-urban and rural markets this could be because rural marketers don't have access to price information due to the unavailability of the means of communication easily through social media, internet, and mobile phones or unwillingness to take risks to take their crop to the urban markets. This is consistent with (Alabi et al., 2020; Gaya et al., 2020).

The formula for calculating marketing efficiency is stated thus.

$$M.E = \frac{Net\ Marketing\ Margin}{Total\ Marketing\ Cost} X100$$

The calculated value of marketing efficiency of the rural, semi-urban and urban market was 0.39, 0.16 and 0.35 respectively. % M.E = 0.39X100 = 39%, 0.16X100 =16%, and 0.35 X100 =35%

A marketing efficiency of 38%, 16% and 35% are all less than 1, therefore, the cowpea marketing is not efficient in rural, semi-urban and urban market respectively. This is in line with (Onyemauwa, 2010).

Table 2. Average Costs Involved and Benefits of Marketing Cowpea at Different Market Levels in the Study Area

Cost Items	**Rural Market**			**Semi-Urban Market**			**Urban Market**	
	Average Value (₦)		**(%)**	**Average Value (₦)**		**(%)**	**Average Value (₦)**	**(%)**
Cowpea Purchase	1,487,931.03		**86.7**	1,262,308.64		**96.3**	6987027.0270	**96.8**
Variable Cost								
Transportation	76,437.50		**4.5**	9,986.75		**0.7**	43,951.35	0.6
Incurable Costs	26,218.75		**1.5**	9801.20		**0.7**	37,661.62	0.5
Commissions	42,142.86		**2.5**	14,472.46		**1.1**	67,140.00	0.9
Storage	82,111.11		**4.8**	13,644.58		**1.0**	84,363.64	1.1
Total Variable Cost	**228,910.27**		**13.3**	**47,904.994**		**3.7**	**233,116.61**	**3.2**
Total Cost	**1,716,841.30**			**1,310,213.64**			**7,220,143.64**	
Total Revenue	2,397,586.21			1,519,753.09			9,718,333.33	
Gross Margin	**680,744.91**			**209,539.45**			**2,498,189.70**	
Gross Margin Ratio	**0.28**			**0.13**			**0.23**	
Operating Ratio	**0.34**			**0.22**			**0.09**	
Rate on Return	**0.39**			**0.16**			**0.35**	
Marketing Efficiency	**0.39**			**0.16**			**0.356**	

Source: Field Survey (2021)

Sources of Transportation of Cowpea Produce to the Market by the Marketers in the study area

Table 3 presents the available sources of transportation used by cowpea marketers in the study area, the results show that majority 86.3% of the sampled marketers involving rural, semi-urban and urban marketers transported cowpea from one location to another while 10.8% of all the marketers do not transport cowpea, they probably sold their cowpea at farm gate market or sold to representative agents. The study revealed that 25.2% of the marketers transport their cowpea to the market using motorcycle while 67.6% used Lorries (Tucks) for transporting their product 3.6% of the sampled marketers used other means of transportation for transporting their products. Also majority 74.1% of the sampled rural, semi-urban and urban marketers used the seasonal road link while 22% used dry season roads and 3.6% used no motor able roads in the study area. The average distance covered by the rural marketers to reach the market was 63.84km while semi-urban marketers covered 9.12km to reach the market and urban marketers covered 21.1km to reach the market. The average cost of transportation paid by the rural marketers was ₦76,437.5 naira while semi-urban marketers paid an average amount of transportation of ₦9986.74 naira and the urban marketers paid an average amount of ₦43,951.35 naira to the markets. presents the distribution of cowpea marketers according to the marketing channels and distribution in the study areas. The results show that 25.2% of the sampled marketers from rural, semi-urban and urban markets belongs to category of wholesalers. 64% were retailers while 10.8% of the marketers were assemblers.

Table 3. Distribution of Sampled Marketers According to the Sources of Transportation of Cowpea in the Study Area

Variables	Rural			Semi-Urban			Urban		
	Freq	%	Mean	Freq	%	Mean	Freq	%	Mean
Transport to Market									
Yes	120	86.3		120	86.3		120	86.3	
No	15	10.8		15	10.8		15	10.8	
Type of Transport Use									
Motor cycle	35	25.2		35	25.2		35	25.2	
Lorries (Trucks	94	67.6		94	67.6		94	67.6	
Others	5	3.6		5	3.6		5	3.6	
Type of Road Link									
All Seasonal Road	103	74.1		103	74.1		103	74.1	
Dry Season Road	31	22.3		31	22.3		31	22.3	
No Motor able Road	5	3.6		5	3.6		5	3.6	
Others									
Distance to Market			63.84			9.12			21.11
Cost of Transportation			76,437.50			9,986.74			43951.35
Category of Market Operators									
Wholesalers	35	25.2		35	25.2		35	25.2	
Retailers	89	64.0		89	64.0		89	64.0	
Assemblers	15	10.8		15	10.8		15	10.8	

Source: Field Survey (2021)

The Channels of Cowpea Marketing and Distribution in the Study Area

Table 4 presents the distribution of cowpea marketers according to the marketing channels and distribution in the study areas. The results show that 25.2% of the sampled marketers from rural, semi-urban and urban markets belongs to category of wholesalers. 64% were retailers while 10.8% of the marketers were assemblers. The level of entry to the market by marketers show that 5% of the sampled marketers were retailers in rural market while 55.4% and 26.6% of the rural and urban marketers entered as retailers into the market 1.4%, 4.3% and 3.6% were wholesalers at all market levels respectively and 3.6% entered as a commission agent. The study further show that the current status of the marketers in all the markets revealed that 8.6%, 44.6% and 15.1% were retailers while 3.6% were wholesalers in the rural market markets 15.1% and 10.1% were wholesalers in the semi-urban and urban market respectively. About 10.1% of the sampled marketers were operating in rural markets 33.1%were operating in semi-urban market and 56.8% marketers operates in the urban markets. More so 18.7% of the rural and urban marketers are operating as wholesale marketers while 18%, 67.6% were operating as assemblers 13.7% operates as retailers in all the types of market. Table 7 show that 12.2% purchased their cowpea at harvest in the rural market while 39.6% and 21.6% of the semi-urban and urban marketers purchases their cowpea at harvest. The study also revealed that 7.2%, 18% and 4.3% of the sampled marketers in rural, semi-urban and urban markets purchased their cowpea after harvest respectively. About 21.6%, 59.7% and 23.2% of the sampled marketers in all markets purchased their cowpea from farmers while 1.4% and 2.9% of the marketers purchase their cowpea from commission agents respectively. 10.4%, 44.6% and 12.2% of the sampled marketers in rural, semi-urban and urban areas used mudu as the type of measurement while 1.4%, 12.2% used 50kg bags and 2.2%, 1.4% and 4.3% used 80kg as the type of measurement respectively in the study areas. 10.8%, 11.5 sold their cowpea directly to retailers while 6.5%, 46.2% and 5.85% of the marketers in rural, semi-urban and urban market sold their cowpea to wholesalers 3.6% sold to commission agent's consumers respectively.

Table 4. Distribution of Cowpea Marketers According to the Marketing Channels and Distribution in the Study areas

Variables	Rural		Semi-Urban		Urban	
	Frequency	%	Frequency	%	Frequency	%
Category of Market Operator						
Wholesaler	35	25.2	35	25.2	35	25.2
Retailer	89	64.0	89	64.0	89	64.0
Assembler	15	10.8	15	10.8	15	10.8
Level of Entry						
Retailer	7	5.0	77	55.4	38	26.6
Wholesaler	2	1.4	6	4.3	12	8.6
Assembler	18	12.9			4	2.9
Commission Agent	5	3.6				
Type of Measurement						
Mudu	27	19.4	62	44.6	17	12.2
Bags 50kg	2	1.4	17	12.2	2	1.4
80kg	3	2.2	2	1.4	6	4.3
100kg	-	-	-	-	12	8.6
Others			2	1.4		
Type of Market						
Rural	14	10.1	-	-	-	-
Semi-Urban	-	-	46	33.1	-	-
Urban					79	56.8
Level of Operation						
Whole sale	26	18.7	26	18.7	26	18.7
assembler	94	67.6	94	67.6	94	67.6
Retailer	19	13.7	19	13.7	19	13.7
Period of Purchase						
At harvest	17	12.2	55	39.6	30	21.6
After harvest	10	7.2	25	18.0	6	4.3
Others	5	3.6	3	2.2	4	2.9

Factors Influencing the Choice of the type of Market Rural, Semi-Urban and Urban Markets
Table 5 presents the results of the maximum likelihood estimates of the multinomial logit regression model for the factors influencing the choice of the type of market by the marketers in the study areas. The results show that age of the marketers influences the cowpea marketers to sale at semi-urban and urban market negatively and was statistically significant at (P<0.01). The marginal effect of the age of marketers 1.79 and 1.67 implies that a unit change in the age of marketer by 1 year will result in the decrease in the probability or likelihood of the marketers to sale at semi-urban and urban market by 1.79% and 1.67% respectively. This could be as a result of old age or because the variation in price in rural market, semi-urban and urban market is not much to cover the cost of transporting the cowpea to these markets therefore the marketer will prefer to sell his product at the nearby market.

Household size influences the choice of semi- urban and urban market positively and was statistically significant at (P<0.01). The marginal effect of household size 2.90 and 1.19 implies that a unit change in the household size by I person will result in the increase in the probability of the cowpea marketers to sale at semi-urban and urban market by 2.9 % and 1.19% respectively. Education level of the marketers influences the choice of semi –urban and urban market negatively and was statistically significant at (P<0.01). The marginal effect of the education level -8.24 an d -6.96 implies that a unit increase in the level of education of the marketers will results in the decrease in the probability of the cowpea marketers to choose semi-urban and urban markets by 8.24% and 6.96% accordingly. Educated marketers may first find out about the price of the commodity in each market before going to the market this could be that the price of the cowpea in the semi-urban and urban market would not be able to cover the costs of purchase and the required profit. This is in line with (Ali et al., 2019) who reported that marketers or farmers who had a higher level of education could have better skills in marketing, especially the formal marketing systems in urban areas. Therefore, an increase in the level of education, exposes a farmer to be profit oriented and struggle to lower the transactional costs of marketing. Marketing experience was also negative and was statistically significant at (P< 0.05). The marginal effect of marketing experience -2.28 and -2.05 signifies that a unit increase in the marketing experience will result in the decrease in the probability of the marketers to sale at semi-urban and urban market respectively by 2.28% and 2.05% probability levels. Market price influence the cowpea marketers to sale at semi-urban and urban markets positively and was statistically significant at (P<0.01). The marginal effect 7.39 and 5.24 of the market price implies that a unit increase in the price of cowpea in these markets will result in the increase in the probability or likelihood of the marketers to sale their cowpea at semi-urban and urban market price by 7.39% and 5.24% respectively. Price is a determining factor for profit making in marketing when the price is favorable marketers may decide to carry their products to the market. This is in line with the findings of Ddungu et al. (2015) who posited that prices of the agricultural commodities found in different markets locations are majorly influenced by the nature of its seasonality in production, fluctuations in the production output and the general economic environment within a country. This king of price variability becomes a common phenomenon in agricultural outputs due to stochastic nature of the products.

Cost of transportation influences the marketers to sale at semi-urban and urban markets positively and was statistically significant at (P<0.01). The marginal effect of the cost of transportation 3.04 and 2.70 implying that a unit change in the cost of transportation will results in the increase in the probability of the marketers to sale at semi-urban and urban market. This is contrary to the apriori expectation but this could be as a result of the better price offered by the markets

that could cover all the expenses involved. If the semi-urban and urban market offers better price, marketers will not hesitate to carry their goods to the market because of the increase in transportation fair. The diagnostic statistics revealed that the LR Chi square value was 135.21, the log likelihood value was -60.035 and statistically significant at $P<0.01$ with Pseudo R^2 value of 0.529. This shows that the model was strong and correctly specified.

Table 5. Maximum Likelihood Estimates of the Multinomial Logit Model for Factors Influencing the Choice of Rural, Semi-Urban and Urban Market

Variable	Semi- Urban Market			Urban Market		
	Coefficient	Standard Error	Marginal Effect	Coefficients	Standard Err0r	Marginal Effect
Sex	-0.412	1.052	0.000	0.412	1.052	0.000
Age	0.115*	0.044	-1.79e	-0.115*	0.044	-1.67e
Marital Status	0.775	0.734	-0.000	-0.775	0.734	-0.000
Household Size	-0.676*	0.257	2.90e	0.675*	0.257	2.19e
Education Level	1.214*	0.429	-8.24e	-1.213*	0.429	-6.96e
Market Experience	0.212**	0.116	-2.28e	-0.212**	0.117	-2.05e
Market Price	-0.000*	0.001	7.39e	0.000*	0.000	5.24e
Distance to Market	0.005	0.011	1.38e	-0.005#	0.010	1.93e
Cost of Transportation	-0.003*	0.002	3.04e	0.003*	0.001	2.70e
Incurable Cost	-0.001#	0.000	5.94e	0.000	0.000#	5.50e
Constant	-1.329	2.737		1.329762	2.737	
LR chi2(20)	135.21					
Prob> chi2	0.0000					
Log likelihood	-60.035					
Pseudo R2	0.529					

* Significant at P<0.01 ** Significant at P<0.05 *** Significant at P<0.1

Source: Field Survey (2021)

Constraints Being Encountered in the Marketing of Cowpea in the Study area

Table 6 presents the results of the analysis of the constraints encountered in the course of marketing cowpea by the operators in the study area. The results show that majority 51.8% of the cowpea marketers opined that damages to cowpea caused by rodents was severe while 23% and 21.2% said the damage caused by rodents was moderately severe and least severe respectively. The mea value of 2.66 from a 5 point Likert scale with standard deviation of 0.888 was statistically significant. Also 20.1% and 41.0% of the sampled cowpea marketers agree that inadequate security was the most severe and more severe constraints faced by marketers in the study area with mean value of 3.58 on a 5 point Likert scale of measurement and was statistically highly significant. Tabl4 also depicts that 66.9%, of the sampled cowpea marketers were facing a most severe challenge of lack of fund to carry out their marketing activities, funds is the most important and necessary ingredient for conducting any business the mean value of lack of fund on a five point Likert scale of measurement was 4.19 with standard deviation of 1.02 and was highly and statistically significant constraint encountered by the market operators in the study area, this is consistent with Katanga et al. (2016) who opine that capital increases the performance of marketers . The results also revealed majority 69.8% of the respondents expressed their concern that bad roads are the most severe constraints hindering the success of marketing operation in the study area, the mean value of bad roads on five 5 point Likert scale was 4.38 with standard deviation of 1.03 this implies that bad roads are the most highly significant constraint encountered by the market operators in the study area. 17.3% and 66.2% of the sampled cowpea marketers opined that electricity supply was more severe and severe constraints encountered by the marketers respectively and was statistically significant with mean value of 3.5 on five 5 point Likert scale and a standard deviation of 0.73. More so the study also observed that 24.5% and 55.5% of the sampled cowpea marketers identified rainfall as the most severe and severe constraint in cowpea marketing respectively, the mean value of rainfall on the scale of measurement was 3.06 with the standard deviation of 1.02 and was statistically significant. The other significant constraint encountered by the cowpea markers was high price of the commodity, 23.7% and 45.3% of the sampled cowpea marketers opined that high price of the cowpea was another major constraint encountered in the course of marketing cowpea in the study area with mean value of 3.52 and standard deviation of 1.02 and was statistically significant. High price could reduce the profit level that could be gain by marketers when all incurred costs are added together. This finding is consistent with the findings of Kaka et al. (2020) and Ali et al. (2019).

Table 6. Results of the Analysis of Constraints Encountered by the Cowpea Marketers in the Study area

Constraints	Most Severe		More Severe		Severe		Moderately Severe		Least Severe		Mean	Std Dev
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Loss	4	2.9			9	6.5	56	40.3	70	50.4	1.647	0.842
Rodents	2	1.4	16	11.5	72	51.8	32	23.0	17	21.2	2.669*	0.888
Inadequate Security	28	20.1	57	41.0	28	20.1	20	14.4	6	4.3	3.583	1.096
Market leadership	11	7.9	26	18.7	36	25.9	11	7.9	55	39.6	2.475	1.379
Customers			35		24	17.3	49	35.3	27	19.4	2.568	1.149
Weevil	10	7.2	5	3.6	49	35.3	56	40.3	19	13.7	2.504	1.017
Lack of fund	93	66.9	11	7.9	11	7.9	17	12.2	7	5.0	4.194	1.017

Too much Charges	4	2.9	4	2.9	28	20.1	71	51.1	32	23.0	2.115	0.893
Poor Storage Facilities			17	12.2	9	6.5	58	41.7	55	39.6	1.914	0.974
Bad roads	97	69.8	12	8.6	16	11.5	14	10.1			4.381	1.038
Lack of electricity	4	2.9	24	17.3	92	66.2	14	10.1	5	3.6	3.511	0.7300
Rainfall	34	24.5	18	12.9	77	55.4	5	3.6	5	3.6	3.0576	1.017
High price	33	23.7	25	18.0	63	45.3	17	12.2	1	.7	3.5180	1.009

Source: Field Survey (2021)

CONCLUSIONS

Based on the findings from this research the study therefore concludes that most of the marketers operating in all markets were young marketers, cowpea marketing in the study area is profitable but the marketers were not efficient in allocating their resources for achieving optimum profit, comparatively cowpea marketing is more profitable at rural market than semi-urban and urban market, the factors influencing the choice of market type either rural market, semi-urban market or urban market includes age, household size, education marketing experience, market price, and cost of transportation to the market. The following constraints were encountered by the cowpea marketers in the study area, rodents, inadequate security, market leadership, customers, and bad roads, lack of electricity, rainfall, and high cost of cowpea.

Based on the results of the findings emanating from this study the following recommendations are made

- Extension agents should be made available to train and in lighten the cowpea marketers about the cowpea marketing in order to make gain and more profit from their enterprises,
- Storage facilities should be provided in the markets at all levels so that marketers would store their products safely in order to sell it with a good price in the future,
- Credit facilities should be provided to the marketers to increase their capacity either through government or nongovernmental organizations or microfinance banks or institutions,
- Good roads and other infrastructural facilities should be made available specially to link the rural markets in the rural areas and easy transportation to the city,
- Security personnel should be provided to secure the markets at all levels.

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