



Analysis of Structure and Performance of Cowpea Marketing in Maiduguri Metropolitan Council and Jere L.G.A of Borno State, Nigeria

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ABSTRACT

The study was conducted in Maiduguri Metropolitan Council and Jere Local Government Areas of Borno State to analyze the structure and performance of cowpea markets in the study areas. All data were collected using a structured questionnaire that was administered to a sample of 60 cowpea marketers in the study Local Government Areas. The study revealed that 55% of the respondents in the study area were youths (<20 - 40 years), 75% were male, 61% were married, 66% had household sizes of 6-10 persons, 41.7% had no formal education and about 53% of the respondents had more than 6 years of farming experience. Furthermore, it was revealed that the total variable cost was ₦9, 130. Also the analysis of the result shows that the average Gross Margin for retailers was ₦1, 870. The result of the study also revealed the value of Hirschman-Herfindahl index for wholesalers was 0.57 which indicates that the cowpea market in the study area is oligopolistic. The Hirschman-Herfindahl index for retailers was 0.026 which indicates there is increase in marketing competition among the retailers whereby there is a difficulty for the retailers to exercise market power. Based on the study conducted, it can be recommended that more incentives should be provided by government to encourage more individuals take up the business of cowpea marketing. This will increase the competition in cowpea marketing in Maiduguri Metropolitan Council and Jere Local Government Area of Borno State.

Keywords: *Borno State, Cowpea, Marketing, Performance and Structure.*

INTRODUCTION

Cowpea (*Vigna unguiculata*) is one of the most ancient crops known to man. It is a broadly adapted highly valued crop, cultivated around the world primarily for grain but also as a vegetable (for leafy green, green pods, fresh shelled green peas and shelled dried peas), a cover crop and also used as fodder (Ayodeji *et al.*, 2014). Economically, cowpea has a great value in internal trade in Nigeria because it promotes trade between the producing area and the non-producing area. It also serves as a source of income to middlemen who embark on its transportation from one place to another (Girei *et al.*, 2013). In the year 2012, Nigeria was the largest producer and consumer of cowpea in the world with estimated production and consumption index of over two million metric tons and 2.27 million metric tons respectively (FAO, 2015). Being the major producer in the world, the crop is widely grown in many parts of the savannah region of the country including Borno State, where Maiduguri Metropolitan Council (MMC) and Jere Local Government Area (LGA) are predominant areas of production. Cowpea marketing consist of traders and markets that ensure a movement of grain from markets in rural areas to urban wholesaler markets and finally to consumer

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markets. One of the advantages of cowpea is that its seed can be stored for use throughout the year, while a major disadvantage is that cowpea grain is prone to insect damage.

Domestic production of cowpea in the study area is in the hands of small scale farmers, who obtain low yields usually characterized by lack of improved technologies. The concern of small holder farmers is not only agricultural productivity but also the need for better market access. The studies of Olukosi and Isitor, 1990; Awoyinka *et al* 2009; Enete, 2009; and Lawal 2010 have shown that efficient marketing system stimulates agricultural production. However, marketing of food in Nigeria has been characterized by a lot of problems which have constrained sustainable agricultural development (Obisesan, 2012). For instance, in the study area, cowpea marketing is affected by problems such as inadequate credit to facilitate for effective marketing, undefined market linkage, no specific and consistent market channel, high cost of transportation and poor road network.

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 in marketing encourages the participation of a large number of individuals 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. The efficiency of the marketing of Cowpea, being an important crop in the study area needs to be examined in order to establish its relevance to the economy of the study area. Therefore, the study examined the structure and performance of the cowpea markets in MMC and Jere LGA of Borno state.

METHODOLOGY

Study Area

The study was conducted in Maiduguri Metropolitan Council and Jere Local Government Area of Borno State, Nigeria. The study area is located between latitude 11° 04' N and 11°44' N and longitude 13°04' E and 13° 44' E, with a projected population of 1164820 persons in 2019 at 3.4% annual growth rate (National Population Commission, 2006). Within the State, the area shares boundaries with Mafa Local government area to the east and Konduga Local Government to the south. The climate of the area is characterized by dry and rainy seasons. The wet season is usually from May to October, while the rest of the year is dry. Minimum temperatures in the area range from 15-25°C while maximum temperatures range from 37-45°C. The annual rainfall ranges from 500mm to 700mm (National Meteorological Agency, NMA, 2008). The topography is generally plain land and the soil is generally sandy with short grasses and thorny shrubs. The soil is suitable for cultivation with minimum soil erosion control. Agricultural crops such as groundnut, cowpea, millet, sorghum, maize and rice thrive well in the area. Animals such as cattle, sheep, goat and camel are reared in this plain. Majority of the inhabitants are farmers, traders and civil servants. The major ethnic group is Kanuri and Shuwa arab. Others include Hausa, Babur-bura, Fulani and many migrant settlers from within and outside Nigeria (BOSADP, 2008).

Sampling Techniques

The sampling procedure for the study comprise of a two-stage sampling procedure. The first stage was the purposive selection of two popular markets known for the marketing of cowpea across the study area, namely: Baga road market in Maiduguri metropolitan Council and

Muna market in Jere Local Government Area). The second stage was a proportionate selection of respondents from each of the selected markets using the simple random sampling technique. Thirty (30) cowpea marketers were selected from each of two selected markets making a total of sixty (60) respondents.

Source of Data

Both primary and secondary data were used for the purpose of the study. The primary data was obtained through the use of personal interview and structured questionnaire administered to the respondents while secondary data were obtained from relevant publications.

Analytical Techniques

Data were analyzed using both descriptive and inferential statistics. The descriptive statistics involves the use of measures of central tendency such as mean, frequency distribution and ranking tools to analyze and the socioeconomic characteristics of respondent. The Gross and Marketing Margin analysis and Hirschman-Herfindahl index were the inferential tools used for the analysis.

Gross Margin

The Gross Margin analysis was used to analyze the costs and return, which was used as a proxy for profitability. It is mathematical presented as:

$$GM = GR - TVC$$

Where;

GM = Gross margin in Naira/kg of cowpea marketed

GR = Gross Revenue in Naira/kg

TVC = Total Variable Cost in Naira/kg

The market is said to be profitable if the GM is positive.

Marketing Margin Analysis

Market margin analysis was used to measure market performance. It is the difference between the price paid by the customer and that received by the producer. Marketing margin analysis was used to evaluate marketing situation in relation to variation in price. Marketing margin is the difference between the price paid by consumers and that received by the producers. It is expressed as follows:

$$MM = \frac{\text{Consumer price} - \text{supply price}}{\text{Consumer price}} \times 100$$

The market is said to perform well if the MM result is close to or greater than 50%.

Hirschman-Herfindahl Index (HHI)

The Hirschman-Herfindahl (HH) index was used as a measure of market concentration (structure). To obtain the index, the individual market share of each firm in fractional terms is squared. The HH index is given by the sum of these squared terms, thus;

$$HH = \sum S_i^2$$

Where:

S_i is the market share of the i^{th} firm.

$$S_i = \frac{(v_i)^2}{\sum v_i}$$

V_i = Sales of material i

$\sum V_i$ = total sales of all material sampled.

$$\text{Thus, HHI} = \frac{(v_1)^2}{\sum v_i} + \frac{(v_2)^2}{\sum v_i} + \dots + \frac{(v_n)^2}{\sum v_i}$$

The HH index takes into account both the number of firms in an industry and their size differences. The value of the HH index equals one when there is only a single firm in the industry and tends towards one when there are a few firms and / or greater degree of inequality in market shares. As the HH index tends to zero, it signifies increased competition, indicating increasing difficulty for a firm to exercise market power.

RESULT AND DISCUSSIONS**Table 1:** Distribution of Respondents According to Socioeconomic Characteristics

Socioeconomic	Frequency n=60	Percentage
Age		
<20	3	5.0
20-30	9	15.0
31-40	21	35.0
>50	10	16.7
Sex		
Male	45	75.0
Female	15	25.0
Marital status		
Married	37	61.7
Single	10	16.7
Divorce	6	10.0
Widow	7	11.7
Household		
1-5	12	20.0
6-10	40	66.7
11 and above	8	13.3
Education qualification		
No-formal	25	41.7
Primary	21	35.0
Secondary	10	16.7
Tertiary	4	6.7
Primary occupation		
Farming	14	23.3
Marketing of cowpea	41	68.3
Civil servant	5	8.3
Years of business experience		
Just started	4	6.7
1-5	24	40.0
6 and above	32	53.3
Annual Income		
Less than 50,000	7	11.7
51,000-250000	21	35.0
251,000-350,000	19	31.7
351,00 and above	13	21.7
Access to credit		
Yes	15	25.0
No	45	75.0
Membership of association		
Yes	51	85.0
No	9	15.0

Source: Field survey, 2019.

The results in the Table 1 showed that 55% of the respondents fall between the age ranges of <20-40 years. This implies that the majority of the marketers in the study area are young and hence tend to be highly active.

The result also showed that the majority (75%) of the respondents in the study area are male, while 25% were female. This may be due to religious and cultural practice of the people that does not encourage the female to work outside their homes. This result is in agreement with Mubi *et al* 2015) who reported that less participation of female in sesame marketing is attributed to the fact that the northern Muslims, which formed the largest population of the marketers, do not allow their wives to do such businesses.

The analysis of the result revealed that a high proportion of the respondents were married (61%). This indicated that married men are largely involved in marketing of cowpea for the welfare of family and day to day activities. The result of the household size shows that 66% of the respondents had household size of 6-10 persons. The implication of this is that most households had large family sizes which assures the marketers of extra helping hands in their ventures.

The table also revealed that about 41.7% of the respondents had no -formal education. The remaining 59.3% had various level of formal education. Since more than half of the respondents are educated, they can adapt to new innovations and take agri- business decisions that will enhance market performance. Table 1 shows that 53.3% of the respondents have been in marketing system for six years and above. Long term experience in marketing have influence in decision making as well as market performance, beside the technique and strategies of marketing takes time to adopt.

Costs and Return

Table 2: Distribution of respondents based on costs and return associated with cowpea marketing

	Amount (₦100kg bag)	
	Retailer	Wholesaler
Gross Revenue (GR) ₦	11,000 .00	10, 629.80
Variable cost		
Cowpea (purchases) ₦	8, 500.00	8, 000.00
Transportation ₦	350.00	400.00
Sales tax ₦	50.00	50.00
Loading/offloading N	200.00	100.00
Commission agent ₦	30.00	50
Total variable cost ₦	9,130.00	8,600.00
GM (GR-TVC)	1,870.00	2,029.80

Source: Field survey, 2019.

From the analysis on Table 2, it was revealed that the gross margin for retailers was N1, 870.00/100Kg bag. On the other hand, the gross margin for wholesalers was N2, 029.80/100Kg bag of cowpea. This finding imply that the retailers and wholesalers were able to cover their total variable cost of marketing and earn some level of returns, with the wholesalers earning more per bag than the retailers.

Structure of Cowpea Marketing

Table 3: Structure of cowpea markets in M.M.C. and Jere L G A

Type of trader	Hirschman-Herfindahl index (HHI)	Market structure
Retailer	0.026	Competitive
Wholesaler	0.570	Oligopolistic

Source: Field survey, 2019.

The result of HHI in Table 3 shows that the value of HH index for retailers is 0.026 which indicates there is a high level of market competition among the retailers, therefore, making it difficult for the retailers to exercise market power.

The table also revealed that the value of HH index for wholesalers is 0.57 which indicates that the market is oligopolistic in nature. This means that there is less level of competition among this group of marketers. Furthermore, the result showed that the cowpea market was shared by a small number of wholesalers whereby there is a greater degree of inequality in market shares among individual traders.

Performance of Cowpea Marketing

Table 4: Distribution of respondents according to performance of retailers and whole sellers in cowpea marketing

Marketer	Marketing margin
Retailers	22.7
Wholesaler	24.7

Source: Field survey, 2019.

The result on Table 4 revealed that the marketing margin of retailers and wholesalers were 22.7% and 24.7%, respectively. This implies that there is a wide price variation along the marketing of cowpea for cowpea wholesalers than retailers. The result also revealed that wholesalers had larger share of the overall marketing margin which implies that the market performance of cowpea has a high degree of business profitability and stability among the wholesalers within the study area than among retailers. The margin of below 50% indicates a fair return on investment in providing marketing service. It could be concluded that the marketers get a fair share of the returns realized in the marketing of cowpea in the study area.

CONCLUSION AND RECOMMENDATIONS

The study concludes that majority of the respondents were male and married, most of the respondents had no formal education and majority of them had been in the marketing system

for long. Both retailers and wholesalers were able to cover the total variable cost of marketing and earn some level of return, with wholesalers earning more than the retailers. Cowpea market was shared by a small number of wholesalers whereby, there is a greater degree of inequality in market share among individual traders. It is recommended that government should provide credit to farmers to boost the marketing of cowpea in the study area. More incentives should be provided by government to encourage more individuals take up the business of cowpea marketing. This will increase the competition in cowpea marketing in Maiduguri metropolitan council and Jere Local area of Borno State.

REFERENCES

- Awoyinka, Y.A. (2009): Cassava Marketing: Option for Sustainable Agricultural Development in Nigeria. *Ozean Journal of Applied Science* 2(2): 175-183.
- Ayodeji, A. C., Benjamin, O., Emmanuel, O. A. and Daniel, M. (2014). Cowpea Marketing in Mashegu Local Government Area of Niger State. Implications for Sustainable Production and Inclusive Growth in Nigeria. *Journal of Sustainable Development in Africa*. 16(5): 1-30.
- Borno State Agricultural Development Programme (BOSADP 2003). Annual Report, Borno State Nigeria.
- Enete, A. A. Middlemen and small holders Farmers in Cassava marketing in Africa. *Tropicultura* Vol.27 no.1, pp.40-44, 2009.
- FAO (Food and Agriculture Organization). (2015). Food and Agriculture Organisation of the United Nations Statistics. <http://apps.fao.org/page/collections?subset=agriculture>.
- Girei, A. A., Dire, B., Salihu, M. and Iliya, M. M. (2013). Assessment of Problems Affecting the Structure, and Performance of Cowpea Marketing in Yola North and Yola South Local Government Areas of Adamawa State, Nigeria. *British Journal of Marketing Studies*. 1(4): 41- 50.
- Lawan, B.V., Jonathan, R., Taru,H. (2010): Structural Analysis of Paddy markets in Southern parts of Taraba State, Nigeria. *Journal of Agriculture and Social Science*, 10:110-12.
- Mubi, A. A., Salihu. M. and Salamatu, U. (2015). Determination of Structure and Performance of Cowpea Marketing in Yola North and South Local Government Areas of Adamawa State, Nigeria. *American Research Journal of Agriculture*, 1(2): 1-5.
- National Population Commission (NPC) (2006): National Population Commission; provisional census figures; Abuja, Nigeria.
- NIMET (2008). Nigeria Climate Review Bulletin 2007. Nigeria Metrological Agency. NIMET_ No 001.
- Obisesan, A.A. (2012). Bulletin of Environment, Pharmacology and Life Sciences Online ISSN 227-71808 Bull. Environ. Pharmacol. *Life Sci.*; Volume 1 July 2012: 29-34.
- Olukosi, J.O. and Isitor, S. V. Introduction to Agricultural Market and Price; Principles and Applications. *Agitab Publishers, Zaria*, Pp 34, 1990.