



ANALYSIS OF MARKET STRUCTURE OF GROUNDNUT (*Arachis hypogaea* L.) IN GOMBI LOCAL GOVERNMENT AREA, ADAMAWA STATE, NIGERIA

¹Augustine, B. W., ¹Stephen, J. and ²Cosmas, W.

¹Department of Agricultural Economics and Extension, Modibbo Adama University, Yola, Adamawa State, Nigeria.

²Department of Agricultural Economics and Extension, Federal University of Kashere, Gombe State, Nigeria.

ABSTRACT

The study analyzed the market structure of groundnut in Gombi Local Government Area of Adamawa State, Nigeria. The specific objectives were to describe socio-economic characteristics of the respondents, determine the structure of groundnut market, and assess the efficiency of groundnut market. Purposive and random sampling techniques were employed in selecting 150 groundnut traders from Kasuwan Buhu, Kasuwan Ganji, Kasuwan Tashan Marghi and Kasuwan Butu. Data were analysed using descriptive statistics, Hirschman-Herfindahl index and Shepherd-Futrel index. The findings showed that 98.08% and 78.79% of the wholesalers and retailers were male, with mean age of 35years and 37years for wholesalers and retailers respectively. Similarly, 96.08% and 87.88% of wholesalers and retailers had formal education, with a mean household size of 5 and 6 persons for wholesalers and retailers respectively. Marketing experience of 9.80 years and 9.11 years for wholesalers and retailers was observed with 78.43% and 93.94% of wholesalers and retailers had no access to credit facilities. It was also observed that 84.31% and 91.92% of the wholesalers and retailers belonged to Gombi Local Government grain traders union. Hirschman-Herfindahl Index of 0.02 and 0.01 in wholesalers and retailers were obtained indicating competitive market for both categories. Price discrimination was noted for both market functionaries due to variability of the groundnut products, but fairly stabilizes due to the transparency of the market. Futrel index for marketing efficiency score of 5.50% and 6.73% in wholesalers and retailers respectively were obtained indicating market inefficiency for both functionaries. It was concluded that groundnut trading in the study area was gender biased, competitive, but not efficient. Based on the findings, it was recommended there is need to encourage female participation in order to have a fair gender ratio, and guarantee price should be fixed by the government and marketing agencies so as to curtail incessant seasonal variations in the price of groundnut and its products.

Keywords: Efficiency, Groundnut, Marketing, Retailers, Structure

Corresponding Author: wilfredcbello@gmail.com +2348038554070

INTRODUCTION

Agricultural marketing is the performance of all those physical, legal and economic services, which are necessary to make products from the producers available to the consumers in the form desired by the consumers, at the place desired by the consumer and at the price agreeable to the producers

and consumers for effecting a change of possession (Arene, 2016). Numerous interconnected activities such as planning, production, harvesting, grading, packing, packaging, transport, storage, food processing, advertising, distribution and sales are involved (Wikipedia, 2023). Groundnut marketing in Nigeria is being carried out in an open and unregulated market where the forces of demand and supply determine the equilibrium price (Bello *et al.*, 2019). The most basic form of groundnut traded is groundnut in-shell, which accounts for the majority of transactions both within the producer countries and internationally. Second in terms of volume of trade is shelled groundnut. The leading producing States in Nigeria include Nasarawa, Niger, Kano, Jigawa, Katsina, Benue, Taraba, Gombe, Adamawa and Zamfara States (Federal Ministry of Agriculture FMARD, 2022). The production and marketing of groundnut has provided an employment for over 37.8% of farmers in the major producing states in the country (National Agricultural Extension Research and Liaisons Service NAERLS, 2019).

Liberalization of the groundnut sector came about in 1986, with the sudden abolition of the marketing boards by the Government of Nigeria. Since liberalization, the groundnut marketing structure was dismantled, and the private sector has taken over. Farmers are no longer assured of a ready market, and they must struggle to obtain market information across a promising yet fluid market (Ahmed and Idris, 2021). The structure and performance are some of the suitable characteristics of defining an adequate market situation that optimizes social welfare and maximizes the efficiency of the marketing system. A detailed study of a marketing system for any product will require an elaboration of its structure, conduct and performance. Therefore, this explains the stands of the business, mode of operation, the accepted practices and the business facilitating arrangement involve in marketing of commodity. In the light of this, therefore, it become necessary to study the nature of competition of groundnut marketing in the study area, as there is no documented information on market competitiveness of players to ascertain the adequacy of marketing system.

The broad objective of the study was to analyze the market structure of Groundnuts in Gombi Local Government Area, Adamawa State, Nigeria. While the specific objectives were to;

- i. describe the socio-economic activities of groundnut marketers;
- ii. determine the structure of groundnut marketing; and
- iii. determine the marketing efficiency of groundnut market.

METHODOLOGY

Gombi Local Government Area is in the North-Eastern part of Adamawa State lying between Latitude $10^{\circ}25'$ N and $12^{\circ}09'$ of the equator and Longitude $12^{\circ}40'$ E and $13^{\circ}00'$ E of the Greenwich meridian and, 751 meters' elevation above the sea level (Wikipedia, 2023). The Local Government shares common boundaries with Hong Local Government Area to the east, Song Local Government Area to the south, Shani and Hawul Local Government Areas of Borno State to the north, having a total landmass of $2,232.6\text{km}^2$ (Adebayo *et al.*, 2020), with a projected population from (National Population Commission, NPC, 2006) of about 217,986 as of 30th September, 2023 (Media Nigeria, 2023). The area has an agro based economy with numerous agricultural potentials, having markets in various locations where agricultural commodities such as groundnut, maize, rice, cowpea, vegetables and fruits were sold. There are hospitals, tarred road network and electricity in some districts of Gombi Local Government Area.

Purposive and random sampling techniques were used for the study. Four major markets namely *Kasuwan Buhu*, *Kasuwan Ganji*, *Kasuwan Tashan Marghi*, and *Kasuwan Butu* were purposively selected on the basis of high concentration of Groundnut marketers. Secondly, random selection of 150 respondents was carried out from a sample frame of 208 groundnut traders using Yamane (1967) formula to determine sample size.

Descriptive statistics was used to describe the socio-economic characteristics of groundnut marketers (objective i). The structure of groundnut market was analyzed using Hirschman-Herfindahl index (HHI) to determine the degree of market concentration (objective ii). The HHI is given by the sum of these squared terms, thus

$$HHI = \sum S_i^2 \quad \dots \quad \text{----- Equation 1}$$

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

$$S_i = \left[\frac{V_i}{\sum v_i} \right]^2 \quad \text{----- Equation 2}$$

V_i = Revenue from groundnut by i^{th} respondents (₦)

$\sum v_i$ = Total sales value of groundnut by all sampled respondents (₦)

$$\text{Thus HHI} = \left[\frac{V_1}{\sum v_i} \right]^2 + \left[\frac{V_2}{\sum v_i} \right]^2 + \dots + \left[\frac{V_n}{\sum v_i} \right]^2 \quad \text{----- Equation 3}$$

\sum = summation sign.

The value of HHI ranges from 0-1, the closet the value to 1 indicates decrease in competition whereas the closer the value to 0 signifies monopolistic competition. Descriptive research studies was used to obtain information concerning the current status of phenomenon, as such indicators of market structure (product differentiation, market transparency, barrier to entry and exit) were reported descriptively, as used by Ajegena *et al.* (2022).

Cost and return analysis which is an important part of market efficiency tool was explicitly expressed as;

$$TR = P \times Q \quad \text{----- Equation 4}$$

$$TMC = TVC + TF \quad \text{----- Equation 5}$$

Where

P = Price and Q = Total output (kg)

TR = Total revenue (₦/100kg)

TMC = Total marketing cost (₦/100kg)

TVC = Total variable cost (₦/100kg)

TFC = Total fixed cost (₦/100kg)

Marketing efficiency is the ratio of total value of goods marketed to the total marketing costs (Shepherd, 1993). Marketing efficiency (objective iii) was estimated using Shepherd-Futrel model as used by Abdulazeez *et al.* (2018). It was expressed as;

$$\text{Marketing Efficiency} = \left(\frac{\text{Total Revenue}}{\text{Total Cost}} - 1 \right) \times 100 \quad \text{----- Equation 6}$$

The lower the ratio of marketing efficiency, the better the market condition (Tracy, 2017), 50% is generally regarded as the maximum optimal ratio.

RESULTS AND DISCUSSION

Socio-economic Characteristics of Fresh Groundnut Marketers

Result on socio-economic characteristics of respondents is presented in Table 1. It shows that groundnut marketing in the study area was gender biased having majority (98.04% and 78.79%) of male wholesalers and retailers respectively. This result tallies with the finding of Tahir *et al.* 2021 which states that majority of the male. This could be as a result of stressful nature of the business which requires active and energetic personnel in running the business. The result of age distribution shows a mean age of 35 years and 37 years for wholesalers and retailers respectively. This implies that groundnut marketing in the study area is not aged sensitive but for both young and aged traders. Though wholesaling requires large capital which can only be accumulated through years of participation if no access to credit or other means of support.

The outcome of literacy level of the respondents revealed that 96.08% and 87.88% of wholesalers and retailers respectively, had formal education. The study indicated a mean household size of 5 and 6 persons for wholesalers and retailers respectively. This is an indication that marketers in the study area had small household sizes and this could have negative implication on supply of family labour. The study further shows a mean marketing experience of 9.80years and 9.11years of wholesalers and retailers respectively. This implies that majority of the marketers were expertise in the enterprise which might have enhanced their trading efficiency. This is in conformity with Erie *et al.* (2019) who opined that experience in marketing is expected to enhance the efficiency with which the trading activities are performed.

It was also indicated in Table 1 that 78.43% and 93.94% of wholesalers and retailers respectively had no access to credit facilities. This shows that only few of the marketers had access to credit to expand their business. The Table further reveals that 84.31% and 91.92% of the wholesalers and retailers respectively, interviewed in the study area were members of Gombi/Hong grain marketers association. This shows an element of competitive market situation.

Table 1: Socio-economic Characteristics of Groundnut Marketers

Variables	Wholesalers		Retailers	
	Frequency	Percentages	Frequency	Percentages
Gender				
Male	50	98.04	78	78.79
Female	1	1.96	21	21.21
Age				
20-30	17	33.33	24	24.24
31-40	22	43.14	45	45.46
41-50	12	23.53	30	30.30
Mean	35		37	
Educational Attainment				
Non formal education	2	3.92	12	12.12
Primary education	6	11.77	18	18.18
Secondary education	16	31.37	53	53.54
Tertiary education	27	52.94	16	16.16
Major Occupation				
Civil servant	14	27.45	7	7.07
Trader	37	72.55	92	92.93
Household Size				
1-4	32	62.75	48	48.49
5-8	14	27.45	25	25.25
9-12	4	7.84	10	10.10
13-16	-	-	14	14.14
>16	1	1.96	-	-
Mean	5		6	
Marketing Experience				
1-5	6	11.76	47	47.48
6-10	32	62.75	21	21.21
11-15	9	17.65	18	18.18
16-20	3	5.88	12	12.12
Mean		9.80		9.11
Access to credit				
Had access	11	21.57	6	6.06
No access	40	78.43	93	93.94
Membership of Association				
Membership	43	84.31	91	91.92
Non-membership	8	15.69	8	8.08

Source: Field Survey, 2021

Market Structure

Result on market structure of groundnut is presented in Table 2 and 3. These are presented as follows:

Concentration of the market power

The market concentration ratio from Herfindahl-Hirschman Index (HHI) in Table 2 was 0.017588 (175.88) for retailers and 0.022218 (222.18) for wholesalers. This shows that groundnut marketing in the study area is competitive, however, retailing is more competitive than wholesaling, and thus the market has large numbers of sellers who compete in order to meet the demand of consumers. This is similar to the findings of Ajegena *et al.* (2022) who reported a competitive market situation in marketing efficiency of groundnut in Nasarawa State, Nigeria.

Table 2: Market Concentration using Herfindahl-Hirschman Index

Marketers	HHI	HHI Concentration Level (Remark)
Wholesalers	0.022	Monopolistic competition
Retailers	0.018	Monopolistic competition

Source: Field Survey, 2021

Product differentiation

The finding as indicated on Table 3 shows that groundnut is been differentiated or graded on the basis of size, variety and quality. Majority of the respondents, 56.98% and 53.54% of the wholesalers and retailers respectively, indicated that they differentiated their groundnut on the basis of variety. This implies that groundnut is mostly differentiated on the bases of variety in the study area. Groundnut market in the study area was imperfect due to difference in prices charged as a result of variability of the groundnut products. Though, marketers had ranges of price for every variety, as such there was no tendency of exploitation. The market is said to be competitive, which was due to the availability of market information. This finding is in line with that of Bako *et al.* (2021) who reported differences in selling prices leading to competitive market condition in structure and performance of groundnut marketing in Niger State, Nigeria.

Market transparency

Information is highly needed by marketers for decision making. Sales and cost information are important in evaluating performance and providing useful facts for future planning. The sources of market information of the respondents from Table 3, revealed that 60.78% of the wholesalers source their market information from media (radio, television, social media group e.t.c), while 62.63% of retailers source their information from association/union. This shows that groundnut market in the study area was transparent. This is in line with the findings of Ahmed and Idris (2021) who reported availability of market information among groundnut marketers in Song Local Government Area of Adamawa State.

Conditions of entry and exit

Registration of membership of the Local Government grain trader's union is required for operation within the market place especially for the wholesalers which stands as operational license. It was established on Table 3, that majority (74.51%) and few (25.27%) of the wholesalers and retailers respectively were members of grain trader union. This shows how important marketing union is in performing marketing activities such as quality control, standardization, storage and transportation of goods. This confirmed the findings of Dauna *et al.* (2018) who reported that majority (65.17%) of grain marketers in Adamawa State are members of traders' union in their respective Local Government Area.

Capital is one of the major embedment in business. It was revealed that 78.43% and 93.94% of the wholesalers and retailers respectively, reported inadequate capital as a barrier to start up or improve their scale of business. This finding is in line with that of Oladejo (2015) who found out, lack of capital and access to credit to be the major barriers to fresh tomato marketing in Osun State, Nigeria. Lastly, it was observed that there is no barrier for exiting the market. This implies that groundnut traders can leave the market at any time they wish to. These finding was in consonance with Ajegena *et al.* (2022) who found that there is no restriction in exiting from market among fresh tomato marketers in Yola North Local Government Area of Adamawa State of Nigeria.

Table 3: Indicators of Market Structure

Variables	Wholesalers		Retailers	
	Frequency	Percentage	Frequency	Percentage
Product Differentiation				
Size	4	7.84	15	15.15
Variety	26	56.98	53	53.54
Quality	21	41.18	31	13.31
Source of information				
Association	12	23.53	62	62.63
Consumers	6	11.77	11	11.11
Media	31	60.78	5	5.05
Middlemen	2	3.92	21	21.21
Entry and exit condition				
Union registration	38*	74.51	23*	25.27
Capital	40*	78.43	93*	93.94

*Multiple responses

Source: Field Survey, 2021

Marketing Efficiency

Marketing efficiency of the respondents is reported in Table 4. The result revealed a marketing efficiency score of 5.50% and 6.73% for wholesalers and retailers respectively. This shows that wholesalers had an efficiency score of 5.50% meaning that it will cost them ₦0.055 to generate ₦1.00 as revenue. Consequently, retailers had an efficiency score of 6.73% meaning that it will cost them ₦0.0673 to generate ₦1.00 revenue. These imply that groundnut marketing is inefficient in the study area with efficiency score of less than 50%. Relatively, wholesalers are more efficient than the retailers. This finding agrees with that of Ahmed and Idris (2021) who reported inefficient marketing condition among groundnut marketers in Song Local Government Area of Adamawa State.

Table 4: Marketing Efficiency per ₦/100kg Bag of groundnut

Variables	Wholesalers (₦)	Retailers (₦)
Total fixed cost	195.25	125.05
Total variable cost	47,385.99	46,679.47
Total marketing cost	47,581.24	46,804.52
Total revenue	50,199.49	49,952.41
Marketing efficiency	5.50%	6.73%

Source: Field Survey, 2021

CONCLUSION AND RECOMMENDATIONS

The study concluded that groundnut marketing enterprise in the study area was dominated by young men having formal educational background, with no access to credit facilities. Both categories of the marketers are competitive in nature, but the marketing system is inefficient.

The study therefore, recommends the need to encourage female participation in order to have a fair gender ratio. Guarantee price range should be fixed by the government and marketing agencies so as to curtail incessant seasonal variations in the price of groundnut and its products.

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