

# Profitability analysis of groundnut (*Arachis hypogaea* L.) marketing in Gombi Local Government Area of Adamawa State, Nigeria

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**ABSTRACT:** The study analysed the profitability of groundnut marketing in the Gombi Local Government Area of Adamawa State, Nigeria. 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, gross margin analysis and multiple regression. The finding shows that 98.08% and 78.79% of the wholesalers and retailers were male, having mean age of 35 years and 37 years, 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. The mean marketing experience of 9.80 years and 9.11 years, with 78.43% and 93.94% of wholesalers and retailers having no access to credit facilities. It was also established that 84.31% and 91.92% of the wholesalers and retailers belonged to the Gombi Local Government traders' union. Groundnut marketing for both categories was profitable, with retailers having the highest gross margin of ₦3,272.94/bag and ₦2,813.50/bag for wholesalers, with return on naira invested (ROI) of 1.07 and 1.06 for retailers and wholesalers, respectively. Access to credit, marketing experience, purchase cost, level of education, access to market information and transport cost happen to be the significant factors influencing the profitability of groundnut marketing in the study area. Based on the findings, it was recommended that there is a need for efficient policy formulation toward price setting by the government and marketing agencies so as to curtail incessant seasonal variation in the price of groundnut and its products. Groundnut marketers should form cooperative groups to have access to loans from banks for a better capital base, which will attract good profits. The government should construct good roads in order to address the high transportation costs.

**Keywords:** Analysis, groundnut, marketing, profitability.

## INTRODUCTION

The success of every agricultural production system, especially for commercial purposes, depends highly on its marketability (Ajegena *et al.*, 2022). Agricultural marketing allows mutually beneficial exchange mechanisms between different market participants to determine the level of consumer demand and product satisfaction. This requires the study of the agricultural market and forecasting its dynamics, the formation of demand for products in this market and the stimulation of their distribution (Alimov *et al.*, 2020). Agricultural marketing is not just important for increasing productivity and consumption, but also for

accelerating economic growth, and as a result, it is the most powerful multiplier of agricultural development. Therefore, agricultural marketing exerts a very important influence on food availability, accessibility, and farmers' welfare (Hassan, 2022).

Groundnut (*Arachis hypogaea* L.) is a key oilseed, food crop, and in fact a cash crop that plays a crucial role in the Nigerian economy. The crop was responsible for about 70% of the country's foreign exchange before independence (Girei *et al.*, 2016). Groundnut seeds (kernels) contain 40-50% fat, 20-50% protein and 10-20% carbohy-

drates. The seeds are the nutritional source of vitamin E, niacin, folacin, calcium, phosphorus, magnesium, zinc, iron, riboflavin, thiamine and potassium. They can be consumed directly in raw form, roasted or boiled kernels or oil extracted from the kernels is used as culinary oil. It is also used as animal feed (oil pressing, seeds, green materials and straw) and industrial raw material (oil cakes, and fertilizer) (Taphee *et al.*, 2015). The produce provided the basis for agro-industrial development and contributed significantly to the commercialisation, monetisation and integration of the natural rural sector. And also, its production, processing and marketing provide employment, income and the much-needed foreign currency with which the country finances its capital development (Ajegen *et al.*, 2022).

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 unshelled, 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 Niger, Kano, Jigawa, Zamfara, Kebbi, Sokoto, Katsina, Kaduna, Adamawa, Yobe, Borno, Taraba, Plateau, Nasarawa, Bauchi, and Gombe States (National Agricultural Extension Research and Liaisons Service, NAERLS, 2019).

Gombi grain markets are popularly known for where the bulk of groundnuts are bought and sold, but in spite of its importance, abundant land and human resources, availability of marketable surpluses has been on the decline over the years, causing regular price fluctuation (Augustine *et al.*, 2024). An effective and efficient marketing system is required in order to ensure fair returns to stakeholders. This may result in welfare risk to stakeholders as price variation is a common phenomenon in the country. Therefore, there is a need to investigate the profit obtainable from the marketing system, as little is known about the profitability of groundnut marketing in the study area.

The broad objective of the study was to examine the profitability of groundnut marketing in Gombi Local Government Area of Adamawa State, Nigeria. While the specific objectives were to:

1. describe the socio-economic characteristics of groundnut marketers;
2. determine the profitability of groundnut marketing; and
3. examine the factors influencing the profitability of ground marketing.

## METHODOLOGY

Gombi Local Government Area is in the North-Eastern part of Adamawa State lying between latitudes 10°25' N and 12°9' of the equator and longitudes 12°40'E and 13°00'E

of the Greenwich meridian, and it has 751 meters above the sea level (Wikipedia, 2024). The Local Government Area 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 2,232.6km<sup>2</sup> (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 are sold. There are hospitals, a tarred road network and electricity in some districts of the 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 a high concentration of groundnut marketers. Secondly, the random selection of 150 respondents was carried out from a sampling frame of 208 groundnut traders using the Yamane (1967) formula to determine sample size.

Descriptive statistics were used to describe the socio-economic characteristics of the marketers (objective i); Gross margin, which is the difference between the Gross Income (GI) and Total Variable Cost (TVC) incurred during the marketing, was used to analyse the profitability of groundnut marketing (objective ii). The gross margin analysis was considered on the assumption that the fixed cost of groundnut marketing is negligible. The model is explicitly expressed as;

$$GM = GR - TVC$$

Where: GM = Gross Margin (₦/100kg) bag; GR = Gross Revenue (₦/100kg) bag; TVC = Total Variable Cost (₦/100kg) bag

Multiple regression techniques was used to examine the factors influencing profitability of groundnut marketing (objective iii). The model is implicitly specified as;

$$Y = f(X_1, X_2, X_3, X_4, \dots, X_7), e$$

Where: Y= Gross Profit (₦), X<sub>1</sub>= Access to credit (access=1, otherwise=0), X<sub>2</sub>=Marketing experience (number of years of groundnut marketing), X<sub>3</sub>= Purchase cost (₦), X<sub>4</sub>= Transport cost (₦), X<sub>5</sub>= Storage cost (₦), X<sub>6</sub>= Level of education (years spent in school), X<sub>7</sub>= Access to market information (access=1, otherwise=0), e= Error term

Four functional forms of the model were tried (Linear, semi-log, double-log, and exponential forms). The exponential model was selected for retailers and the double log for wholesalers based on the statistical and econometric criteria, which include the number of significant variables, magnitude of the t-ratio, R-squared

**Table 1.** Socio-economic characteristics of groundnut marketers.

Variables	Wholesalers		Retailers	
	Frequency	Percentage	Frequency	Percentage
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	
Education attainment				
No 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-member	8	15.69	8	8.08

Source: Field Survey, 2021.

estimates and the standard error, as well as consistency with *apriori* expectations.

## RESULTS AND DISCUSSION

### Demographic characteristics of groundnut marketers

The result in Table 1 below shows the demographic characteristics of the respondents. From the results, it was

discovered that groundnut marketing in the study area was gender biased with most (98.04% and 78.79%) of male wholesalers and retailers, respectively. This result tallies with the findings of Ajegena *et al.* (2022), who reported low female participation in marketing, which could be due to socio-cultural and religious beliefs in Northern Nigeria, which prohibit women's involvement in outdoor economic activities.

The result of the age distribution shows a mean age of 35 and 37 years for wholesalers and retailers, respectively,

**Table 2.** Gross margin analysis per ₦/100kg bag of groundnut.

Variables	Retailers (₦)	Percentage of TVC	Wholesalers (₦)	Percentage of TVC
Purchase price	46,087.85	98.73	46,618.76	98.38
Loading	47.83	0.10	49.79	0.11
Offloading	49.39	0.11	57.66	0.12
Market fees	24.73	0.05	50.12	0.11
Storage	65.82	0.14	34.96	0.07
Roadblock (charges)	5.42	0.01	0.93	0.00
Packaging	54.63	0.12	50.05	0.11
Handling	59.09	0.13	49.21	0.10
Transportation	284.71	0.61	474.51	1.00
<b>Total variable cost</b>	<b>46,679.47</b>	<b>100</b>	<b>47,385.99</b>	<b>100</b>
Gross Income	49,952.41		50,199.49	
Gross Margin	3,272.94		2,813.50	
ROI	1.07		1.06	

Source: Field survey, 2021.

which implies that groundnut marketers in the study area were within their active age. The outcome of the literacy level of the respondents revealed that 96.08 and 87.88% of wholesalers and retailers, respectively, had acquired one form of formal education or the other, which is an incentive to effective communication and adoption of new technology in marketing their products. 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 implications for the supply of family labour to the marketing of groundnut among the marketers.

The study further shows a mean marketing experience of 9.80 and 9.11 years for wholesalers and retailers, respectively. The expectation is that the marketers will employ this experience in the enterprise to make good profits. This is in consonance with Taphee *et al.* (2015), 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 a few of the marketers had access to credit to expand their business. The privileged ones explain further that they access credit mostly from friends and family members. The result further reveals that 84.31% and 91.92% of the wholesalers and retailers, respectively, interviewed in the study area were members of the Gombi/Hong grain marketers association. This implies that groundnut marketers in the study area are organised and have a platform which they can use to attract marketing support/infrastructure from the government, as well as loans/grants from financial institutions.

### Profitability analysis

The gross margin analysis for groundnut marketers is

shown in Table 2, which shows that the groundnut purchase price was the dominant cost associated with groundnut marketing for both retailing and wholesaling in the study area. It accounts for 98.73% of the total cost in retailers and 98.38% of the total cost in wholesalers. Groundnut marketing for both categories of marketers is profitable in the area. Retailing has the highest margin of ₦3,272.94/100kg bag in a month, while wholesaling has a gross margin of ₦2,813.50/100kg bag in a month, with return on naira invested (ROI) of 1.07 and 1.06, respectively. The highest margin in retailing could be as a result of selling in bits and also takes a longer time, while wholesalers usually sell in bulk for lower turnover, attracting a lower margin than retail. This agrees with the findings of Umar *et al.* (2018), who found the gross margin of ₦2,790.00 and ROI of 1.05 in the marketing of groundnut in the Damboa Local Government Area of Borno State, indicating that the enterprise is profitable. This also confirm the findings of Bello *et al.* (2019), who reported purchase price as the major cost in marketing of groundnut in Katagum Local Government Area of Bauchi State.

### Factors influencing the profitability of groundnut marketers

The result of the multiple regression analysis in Tables 3 and 4 shows the factors influencing the Gross Margin (profit) of groundnut marketers in the study area. Table 3 reveals that 76.99% variations in the gross margin (profit) among retailers were explained by the variables included in the model. The F-statistic is significant at a 1% probability level, indicating the correct specification of the overall model. Five (5) out of the seven (7) variables included in the model were significant: access to credit, marketing experience, purchase cost, level of education and access to market information, which are revealed to

**Table 3.** Factors Influencing the Gross Margin of retailers in the study area.

Variables	Coefficient	Standard error	t-value
Access to credit (X <sub>1</sub> )	2.7230***	0.4101	6.64
Experience (X <sub>2</sub> )	0.2767***	0.0349	7.91
Purchase cost (X <sub>3</sub> )	0.00003*	0.00002	1.99
Transport cost (X <sub>4</sub> )	-0.0001	0.0002	-0.59
Storage cost (5)	0.0001	0.0001	0.98
Level of education (X <sub>6</sub> )	0.1267***	0.3447	3.67
Access to information (X <sub>7</sub> )	0.8851**	0.3272	2.71
Constant	-6.4213***	0.9567	-6.71
F (7, 91) = 43.49***,			
R-squared = 0.7699			
Adj R-squared = 0.7522			

Source: Output from STATA 14, 2021, \*, \*\*, \*\*\* = Significant at 10%, 5% and 1% respectively.

**Table 4.** Factors influencing the gross margin of wholesalers in the study area.

Variables	Coefficient	Standard error	t-value
Access to credit (X <sub>1</sub> )	0.005**	0.002	2.05
Experience (X <sub>2</sub> )	0.052**	0.023	2.23
Purchase cost (X <sub>3</sub> )	0.084	0.052	1.61
Transport cost (X <sub>4</sub> )	-0.237***	0.044	-5.32
Storage cost (X <sub>5</sub> )	0.193	0.158	1.22
Level of education (X <sub>6</sub> )	0.008**	0.003	2.77
Constant	3.298***	0.573	5.76
F (6, 44) = 45.01***			
R-squared = 0.8599			
Adj R-squared = 0.8408			

Source: Output from STATA 14, 2021, \*\*\*, \*\* = Significant at 1% and 5% probability levels.

be the major factors influencing profitability among groundnut marketers (retailers) in the study area. All the significant variables carried a positive sign and were significant at 1%, 1%, 10%, 1% and 5% level, respectively. This implies that there is a positive relationship between access to credit, marketing experience, purchase cost, level of education and access to market information with profit obtainable at corresponding percentages in marketing of groundnut among retailers in the study area, which is in consonance with the findings of Girei *et al.* (2016) who reported a positive relationship between groundnut retailers and access to credit and marketing experience.

The factors influencing gross margin (profit) of wholesalers in Table 4 also show that 85.99% variation in the profit of wholesalers was explained by the variables included in the model. The F-statistic is significant at a 1% probability level. Four (4) out of the six (6) variables included in the model were significant; access to credit, marketing experience, and level of education carried a positive sign and were significant at a 5% level each, implying a direct relationship with profit obtainable in

marketing of groundnut. While transport cost carried a negative sign and was significant at 5%, indicating an inverse relationship with the profit obtainable in marketing of groundnut in the study area. This finding is in consonance with that of Umar *et al.* (2018), who reported that most factors influencing profitability in the marketing of groundnut in the Damboa Local Government Area of Borno State are socio-economic characteristics of the marketer.

## Conclusion and Recommendation

The study concludes that marketing of groundnut is profitable in the Gombi Local Government Area of Adamawa State. The marketers were within their active age, having one form of formal education or the other. Access to credit, marketing experience, purchase cost, level of education, access to market information and transport cost happen to be the factors influencing the profitability of groundnut marketing in the study area. The study, therefore, recommends the need for efficient policy

formulation towards price setting by the government and marketing agencies so as to curtail incessant seasonal variations in the price of groundnut and its products. Groundnut marketers in the study area should form cooperative group(s) to have access to loans from banks (s) for the better capital base, which will attract good profit. The government should construct good roads in order to reduce transportation cost.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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