



**DETERMINANTS OF MARKET PERFORMANCE AND CONSTRAINTS OF COWPEA
(*Vigna unguiculata* L.) MARKETING AMONG RETAILERS IN YOBE STATE, NIGERIA**

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ABSTRACT

The study analysed determinants of market performance and marketing constraints among cowpea retailers in Yobe state, Nigeria. Primary data were collected from 182 cowpea retailers with the aid of questionnaire, and the data collected were analysed using descriptive statistics and multiple regression model. The result revealed that; (-1502.098) Age at 1% level of significance, (2373.441) educational level at 1% level of significance, (4343.146) marketing experience also at 1% level of significance, moreover, (9.800218) cost of nylon bag at 1% level of significance, (-.0166913) transportation cost at 5% level of significance and (.012345) cost of cowpea purchased also at 5% level of significance were the major determinant of retailer cowpea market performance in the study area. While major retail cowpea marketing constraints identified were; inadequate capital (87.91%) which was rank 1, followed by price fluctuation (81.32%) and rank 2, Lack of Standardization and Grading (80.22%) rank 3, Inadequate Credit facility (79.67%) rank 4, Seasonality of the Product (73.63%) rank 5, fluctuation in supply (67.58%) rank 6 and high transportation cost (53.30%) and was rank 7. The major factors that influence retailers' market performance include; age, educational attainment, marketing experience, cost of nylon bag, and cost of cowpea purchased and transportation cost. While the major marketing constraints were price fluctuation, inadequate credit, lack of standardization and grading, seasonality of the cowpea product among others. Government should collaborate with financial institutions to offer concessional credit facilities to enhance the capital base of respondents. Additionally, it should purchase cowpeas at harvest and release them in the off-season market to stabilize cowpea prices and supply.

Keywords: Constraints, Cowpea, Determinants, Retailers, Yobe

INTRODUCTION

The cowpea crop is a member of the Fabaceae family and subfamily Faboidea, and it was first domesticated in Southern Africa before spreading to East, West, and Asia (Horn *et al.*, 2022). According to Horn *et al.* (2022), cowpea variety originates in the semi-arid parts of West and Central Africa as well as the southern African region, which includes Namibia, Botswana, Zambia, Zimbabwe, Mozambique, and South Africa. Africa, particularly Niger, Nigeria, Burkina Faso, Mali, and Senegal, produced the majority of cowpeas (Nkomo *et al.*, 2021). The crop is of vital importance to the livelihood of several millions of people in West and Central Africa. Rural families that make up the larger part of the population of these regions derive from its production, food, animal feed, alongside cash income (FAO, 2004) However, cowpeas, a high-protein crop, are crucial for West Africa's food security and poverty reduction due to population expansion and the growing need for reasonably priced protein sources (Aliyu *et al.*, 2020). Distributing agricultural products from surplus to deficit areas is the main objective of agricultural marketing (Kaka *et al.*, 2020). The study of all the operations, organizations, and regulations related to farmers' purchases of agricultural inputs and the movement of agricultural products from farms to consumers is known as agricultural marketing (Kumari, 2021). He goes on to say that the agricultural marketing system serves as a bridge connecting the farm and non-farm sectors.

Sarap and Nemade (2021), mentioned that some of the problems with agricultural marketing include too many middlemen, poor weight and scale, illiteracy and disunity, lack of storage and transportation facilities, lack of financial resources, lack of an organized marketing system, lack of standardization, lack of market awareness, distress sale, corrupt policies, lack of market intelligence,



poor product quality, and market news. Gaya *et al.*, (2020) state that a poor road network, high transportation costs, a lack of a clear and dependable market channel, and insufficient financing facilities compound the problem of cowpea marketing in Nigeria. Meanwhile retailers buy cowpea from wholesalers and resale them to consumers in small quantise. They act as producers' direct advocates to consumers. Retailers are the ones closest to consumers in the marketing channel. Given the significance of retailers in the distribution of cowpea products to final consumers, the study's specific objectives were to:

- i. determine factors that influence market performance of the respondents;
- ii. identify constraints to retails cowpea marketing in the study area

METHODLOGY

Study Area

Yobe State is situated between Latitudes 10° and 14° North and Longitudes 11° 30° to 14°45° East in Nigeria's north eastern geopolitical zone (Tee, 2014). Weather conditions of the state are hot and dry for most of the year with temperatures ranging from 30°C – 42°C, annual rainfall usually last for about three (3) month, with 400mm -500mm of rainfall in the Northern part of the state and 600mm – 1000mm in the southern part of the state (Jonah *et al.*, 2020). The state has a total land of area of 45,502 km² (Jonah, *et al.*, 2020). However, according to (NBS, 2023) the state has a projected population of 3,728,525 as at 2023.

Sampling Techniques and Sample Size

Two stage sampling procedure were employed for this study. At the first stage three major Regional markets in the study area were purposively selected due to the high number of cowpea marketers' participation. The three major regional markets selected were Potiskum, Gashu'a, and Nguru. At second the stage involved random selection of 193 cowpea retailers from each selected market that served as the sample size.

The sample size for the study was determined using Yamane sample size determination formula, as used by Adam (2020),

$$\text{Yamane's formula is given by; } n = \frac{N}{1+N(e)^2} \text{ ————— (1)}$$

Where;

n = sample size

N = sampling frame

e = level of precision

$$n = \frac{3487}{1+3487(0.07)^2} = \frac{3487}{18.08} = 193$$

The proportionate sample size approach is given by;

$$NI = \frac{n}{N} \times Ni \text{ ————— (2)}$$

Where;

NI = Sample size in each market,

n = sample size,

N = Sampling frame

Table 1: Sample Distribution

Regional Market	Sampling frame	Sample size
Potiskum	2153	119
Gashu'a	908	50
Nguru	426	193
Total	3487	193

Source: (Pre visit Survey, 2023)

However, after administering the questionnaires to the respondents, 182 questionnaires were retrieved for the study.



Methods of Data Analysis

Descriptive statistics and inferential statistics (multiple regression analysis) were used for the analysis. Descriptive statistics was used to achieve objective ii and objective i was achieved using multiple regression models which were to determine factors that influence market performance in the study area.

Multiple Regression Model

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu_i \quad (3)$$

Where;

Y = Gross margin (Naira) per Retailer

X₁ = Marketing experience (Years)

X₂ = Age of the retailer (Years)

X₃ = Transportation cost (naira) per 90 kg bag

X₄ = level of education (Years spent in School)

X₅ = Family size (Number of people)

X₆ = Cost of cowpea product (90 kg bag) traded per Month

X₇ = Commissions (Naira) per 90 Kg bag

X₈ = Cost of Nylon Bag (Naira) per bundle

U_i = error term

B_i = coefficient of the independent variables to be estimated.

i = 1, 2, 38 Number of independent variables.

Four functional forms (Linear, exponential, semi-log and double log) were tried and the best functional form among them was selected based on; economic, statistical and econometric criteria.

RESULTS AND DISCUSSION

Factors that Determined Market Performance of the Respondents

Multiple regression analysis of relationship between gross margin and socio-economic characteristics and cost variables of cowpea retailers in the study area was presented in Table 2; After testing four functional forms, the best fit equation was selected based on its compliance with the A priori expectation, sign, significance, coefficient magnitude and standard error magnitude of the multiples determination. The linear function was selected for analysis because it was the lead equation from the regression analysis. The model's R² value was 0.6789, meaning that 32% of the variation in gross margin can be explained by independent variables that were not included in the model and 68% by the independent variables that were included. The model was sufficient for use in additional analysis, as indicated by the estimated F statistic (77.35) being significant at 1%.

The table showed that age was significant at the 1% level with a negative sign of the coefficient (r = -1502.098), indicating that a retailer's gross margin would drop by ₦1,502.10 for every year of age increase. This indicates that a retailer's market performance declines with age because they are unable to engage in certain marketing activities, this in line with Sodeeq *et al.* (2021) who study Profitability of Tomato Marketing and Determinants in Akinyele Local Government Area of Oyo State Nigeria, the targeted population for this study was tomato retail marketers in major markets in Akinyele Local Government Area of Oyo State. A Cross sectional data collected with the use of well-structured interview guide from 112 marketers selected through multistage sampling techniques were analysed using descriptive statistics, gross margin analysis and ordinary least square regression model and found that coefficient of age was significantly negative at 1% indicating that marketers' profit decreases as the age increases. The retailer's level of education was also significant at the 1% level and had a positive sign in the coefficient (r = 2373.441), this means that retailers gross margin would increase by ₦2,373.44 for every level of education they attained. Knowledge aids in the marketers' ability to make sensible decisions about their cowpea marketing activities, Sodeeq *et al.* (2021) found that Coefficient of education was found positive and significant at 5% and explained that additional year of formal education received by a tomato marketer increases their profit. Marketing experience was significant at 1% with positive sign of the coefficient (r= 4343.146); this indicated that



retailer's gross margin would increase by ₦4,343.15 for every year that their marketing experience increased; increase in marketing experience would boost a cowpea marketer's professionalism and level of expertise in trade activities. Similarly, Isa *et al.* (2021) examined factors affecting marketing margin and efficiency of yam in Northern Tararba state, primary data were collected using structured questionnaire administered to randomly select 139 cowpea marketers. Descriptive statistics, marketing margin analysis, and regression model were used to analyse the data collected and reported that marketing experience was significance and a major determinants of cowpea marketing margin and efficiency.

The table also reveals that the cost of cowpea purchased was significant at the 5% level and had a positive coefficient sign ($r = .012345$), indicating that the gross margin will rise by ₦0.01 as the cost of the purchases rises by ₦1 in response to an increase in the quantity of cowpea purchased. A rise in the quantity of cowpea purchased would boost the market share of the marketer within the sector. Likewise, Ibrahim *et al.* (2020) Study Socio-Economic Factors Influencing Marketing Efficiency of Fresh Tomato Marketers in Yankaba Market of Nassarawa Local Government Area, Kano State, Nigeria. Multi-stage sampling procedure was employed where by eighty-seven (87) tomato marketers were selected. Data were collected using structured questionnaire with help of well-trained enumerators and the result was analysed using descriptive statistics and multiple regressions analysis and found that The coefficient of quantity of tomato basket sold was positive and significant at 1% level indicating that a unit increase in the quantity of tomato basket will influence and increase the level of marketing efficiency.

Transportation cost was negative ($r = -.0166913$) and significant at 5% meaning as the transportation cost increases by ₦1 the gross margin decreases by ₦0 .01, this is similar to finding of Sanusi and Dada (2016) study profitability analysis of marketing tomato in Odeda local government area of Ogun state, Nigeria with a sample of 80 respondents from Olodo and Kila market selected using multistage sampling technique and analysed the factors influencing the market performance of the respondents using OLS Regression model and found out that; the marketing margin in the Olodo market was negatively impacted by transportation costs ($p 0.05$), which means that for every unit rise in transportation costs, the marketing margin falls by 0.83 units. Similarly, commission was also significant at 5% with a negative sign of the coefficient ($r = -4.646789$), indicating that the retailer's gross margin decreases by ₦4.65 for every ₦1 increase in commission. This implied that a rise in commission corresponded to an increase in the retailer's additional marketing expenses. Cost of nylon bag was also significant at 1% with positive coefficient sign ($r = 9.800218$) ; this implies that as the cost of buying nylon bag increases by ₦1 as a result of increase in sale, gross margin would increase by ₦9.80. This means that the higher the cost of nylon bags the larger will the quantity of it, which would be compensated by increase in sale that will result to increase in gross margin of the retailer in the cowpea trading, Ibrahim *et al.* (2020) reported that a unit increase in the quantity of tomato basket sold will influence and increase the level of marketing performance.

Table 2: Factors that Determined Market Performance of the Respondents'

Variable	Coefficients	Standard Error	t – Value
Age	-1502.098	607.0178	-2.47***
Level of Education	2373.441	843.3489	2.81***
Household Size	-838.7632	1488.193	-0.56
Marketing Experience	4343.146	963.216	4.51***
Cost of Cowpea Purchased	.012345	.0055647	2.22**
Transportation Cost	-.0166913	.0055863	-2.99**
Commission	-4.646789	2.025059	-2.29**
Cost of Nylon Bag	9.800218	2.580939	3.80***
Constant	50430.81	26690.88	1.89*
F-value = 77.35***			
R-squared = 0.6789			

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Field Survey, 2024



Constraints of Retail Cowpea Marketing

Constraints of cowpea in the study area were presented in Table 3; the table revealed that inadequate capital was major constraints of cowpea marketing in the study area which was rank 1st and cited by 87.91% of the respondents, followed by price fluctuation which was cited 81.32% of the respondents and rank 2nd. Lack of standardization and grading rank 3rd and reported by 80.22% of the respondents, 79.67% of the respondents revealed inadequate credit facility as a constraints to cowpea marketing and rank 4th. seasonality of the product rank 5th and reported by 73.63% of the respondents. Moreover, fluctuation in supply was rank 6th and revealed by 67.58% of the respondents, high cost of transportation was rank 7th as reported by 53.30 of the cowpea retailers, 49.45% reported inadequate storage facility as constraints to cowpea marketing and rank 8th among the constraints. Poor road network reported by 49.45% of the respondents and rank 9th, in addition inadequate market information was reported by 18.13% of respondents and rank 10th, lastly insect pest was rank 11th and reported by 3.85% of the respondents. Similarly Kyari *et al.*, (2023) who studied Structure and Performance of Cowpea Marketing in Biu Local Government Area of Borno State, Nigeria and reported that major problems associated with cowpea marketing in the study area are insecurity (94%), inadequate storage facilities (93%), insect pest infestation (91%) and high cost of transportation (78%). Kaka *et al.* (2020) also analysed cowpea (*Vigna unguiculata*) marketing and price trends in selected markets of Argungu Local Government Area, Kebbi State, Nigeria, and reported that the constraints identified in the study area were lack of access to credit (25.69%), insufficient market information (24.59%), and insufficient market infrastructure.

Table 3: Constraints of Cowpea Marketing

Constraint	Frequency	Percentage	Rank
Inadequate Storage Facility	90	49.45	8
Poor Road network	68	37.36	9
Inadequate Capital	160	87.91	1
Inadequate Market Information	33	18.13	10
Price Fluctuation	148	81.32	2
Seasonality of the Product	134	73.63	5
Fluctuation in Supply	123	67.58	6
Inadequate Credit facility	145	79.67	4
Lack of Standardization and Grading	146	80.22	3
High Cost of Transportation	97	53.30	7
Insect Pest	7	3.85	11
Total	1151*	632.42*	

*Multiple Responses Exist

Source: Field Survey, 2024

CONCLUSION AND RECOMMENDATIONS

The factors that influence the retailers' market performance were Age, educational attainment, marketing experience, cost of the product, and cost of nylon bag among others. While their major marketing constraints identified include; insufficient capital, price fluctuation, inadequate credit facilities, lack of standardization and grading,

- To address the issue of lack of access to credit facilities, the government should collaborate with financial institutions to offer cowpea retailers in the study area credit facilities at concessional interest rate to increase their capital base.
- The cowpea marketers should put in place uniform standard measures and grading procedures to address the issue of lack of standardization and grading in the cowpea market.
- To reduce fluctuation in supply due to seasonality of the cowpea product, government should buy the cowpea product during harvest period and realised it to the market during off-season period.



REFERENCES

- Adam, A.M. (2020) Sample Size Determination in Survey Research, *Journal of Scientific Research and Reports*, **26**(5): 90-97.
- Aliyu, A., Gamaniyama, D. J., Shelleng, B.A., and Haddabi, A.S (2020). Technical Efficiency of Cowpea Marketing in Mubi North, *International Journal of Engineering, Technologies and Management Research*, **7**: 1 - 22.
- FAO (2004) Cowpea: Post-Harvest Operations, Food and Agriculture Organization of the United Nations (FAO) Rome, Italy, Author: Carlos Gómez Edited by AGST/FAO: Danilo Mejía, PhD, FAO (Technical):1-71.
- Gaya, H.I.M., Tahir, A.D., Danladi, H. and Tanimu, B.(2020) Analysis of Structure and Performance of Cowpea Marketing in Maiduguri Metropolitan Council and Jere L.G.A of Borno State, Nigeria, *Journal of Agricultural Economics, Environment and Social Sciences* **6** :81 – 88.
- Horn, L.N., Nghituwamhata S.N. and Isabella, U. (2022) Cowpea Production Challenges and Contribution to Livelihood in Sub-Saharan Region, *Agricultural Sciences*, **13**: 25-32.
- Ibrahim, U. S., Tahir, A. D., Abdullahi, B. D. and Abdu, A. (2020) Socio-Economic Factors Influencing Marketing Efficiency of Fresh Tomato Marketers in Yankaba Market of Nassarawa Local Government Area, Kano State, Nigeria, *Journal of Agricultural Economics, Environment and Social Sciences*, **6**(2):71 – 80.
- Jonah, S.E., Baba, G. S., and Umar, A.S.S. (2020) Analysis of Profitability of Sesame Production in Yobe state, Nigeria, *American Journal of Economics*, **4** (2):46 – 69.
- Kaka,Y., Sahibi, H., Auwal, G.A., and Umar, H.S. (2020) Analysis of Cowpea (*Vigna unguiculata*) Marketing and Price Trends in Selected Markets of Argungu Local Government Area, Kebbi State, Nigeria, *Equity Journal of Science and Technology*, **7**:125 – 130.
- Kumari, V (2021) Role of Agricultural Marketing in Economics, *Just Agriculture Multidisciplinary e-Newsletter*, **1**: 1-4.
- Kyari, M.B., Sulumbe, I.M., Kamai, N. and Bukar, U. (2023) Structure and Performance of Cowpea Marketing in Biu Local Government Area of Borno State, Nigeria, *Journal of Agricultural Economics, Environment and Social Science* **9**(1): 277-288.
- NBS, (2023), National Bureau of Statistics, 2023 Demographic Statistics Bulletin, :1-51.
- Nkomo, G.V., Sedibe, M. M. and Mofokeng, M. A. (2021) Production Constraints and Improvement Strategies of Cowpea (*Vigna unguiculata* L. Walp.) Genotypes for Drought Tolerance, *International Journal of Agronomy*, **2021** | Article ID 5536417 | <https://doi.org/10.1155/2021/5536417>
- Sanusi, M and Dada, O.D (2016) Profitability analysis of marketing tomato in Odeda local government area of Ogun state, Nigeria, *Ife Journal of Agriculture*, Volume **28**(2):1-11
- Sarap, S.M and Nemade, D. K (2021) Agricultural Marketing - Issues and Solutions *Just Agriculture Multidisciplinary e-News Letter*, **2** (4): 1-4.
- Sodeeq, A.E; Ibrahim, A.G.; Hamzat, O.A.; Oguntade, M.I.; Taiwo, O.D; Adesanlu, A.A. (2021) Profitability of Tomato Marketing and Determinants in Akinyele Local Government Area, Oyo State Nigeria, *Greener Journal of Agricultural Science*, **11**(1): 41-47.
- Tee, N. T., Orsar, T. and Buhg, J. O. (2014) Prioritization and Cost and Returns Analysis of Selected Non Timber Forest Product in Yobe, Nigeria, *Journal of Development and Agricultural Economics*. **6**(12): 481-489.