

# Socioeconomic determinants of garri processing and marketing in Benue State, Nigeria

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**ABSTRACT:** This study evaluates the socioeconomic and institutional determinants governing garri processing and marketing channels in Benue State, specifically analysing participants' socio-economic profiles, modelling the shifters of economic returns, and ranking structural market frictions. A multi-stage sampling technique was used to select 549 respondents (318 garri processors and 231 garri marketers) across the Otukpo, Ohimini, and Okpokwu local government areas. Primary data collected via structured surveys was analysed using descriptive statistics and Ordinary Least Squares (OLS) multiple regression analysis. Findings from the socioeconomic profiling revealed a prime-aged workforce (34.89% within the 36-45 years bracket) that is female-dominated (58.83%), married (52.38%), and moderately literate (48.63% secondary education), operating with a mean household size of 5.3 persons and 8.6 years of enterprise experience. Crucially, institutional support was low, as only 38.25% belonged to cooperatives and a mere 7.47% accessed credit. The multiple regression analysis indicated that  $R^2 = 0.612$ , confirming that processing method, experience, education, household size, cooperative membership and credit access were found to be statistically significant drivers ( $P > 0.05$ ) influencing net returns. Conversely, marital status, age, and sex were not statistically significant ( $P > 0.05$ ). The major institutional constraints identified included high transportation costs, poor access to formal finance and inadequate processing infrastructure. Despite its strong earning potential, the regional garri enterprise operates far below its capacity due to capital starvation and logistical bottlenecks. Optimising this agri-food value chain requires targeted public policy interventions to deploy localised microfinance facilities, aggressively organise independent operators into functional cooperatives, and upgrade rural feeder roads.

**Keywords:** Determinants, processing and marketing, socioeconomic.

## INTRODUCTION

Agriculture acts as a vital economic anchor, engaging 35-40% of Nigeria's total workforce and providing primary livelihoods for more than 70% of rural households (NBS, 2024). This performance makes the sector central to non-oil GDP and rural poverty reduction strategies. Sub-Saharan Africa drives global cassava production, accounting for a commanding 65% of the world's total supply. At the national level, Nigeria is the global production leader, holding 21% of the international market share and 31% of total African output (FAO, 2024). Under the National Agricultural Technology and Innovation Policy (NATIP), cassava was prioritised as a core strategic crop. The policy focused on transitioning root-crop production

away from survivalist farming toward high-value, private-sector-driven processing systems. Benue State serves as the core centre of the domestic supply chain. Generating over 9 million metric tonnes of fresh root annually, which accounts for 15% of the total national volume, the state represents the most vital root-crop supply corridor in Nigeria's national volume (NAERLS, 2024).

According to data synthesised by Apeh *et al.* (2023), Cassava maintains the number one root crop and is one of the most consumed in Nigeria, but the value is mostly in the processed derivatives like garri, fufu, flour, akpu, and starch, which have a longer shelf life. The macro-level impact of root and tuber crops within Nigeria's domestic

economy cannot be overstated. Empirical records indicate that agriculture contributes approximately 22-25% of Nigeria's Gross Domestic Product, with Crop Production accounting for 84-85% of agricultural GDP. Within this, cassava alone accounts for about 45% of Nigeria's agricultural GDP, serving predominantly as an indispensable baseline for rural household food security and direct localised consumption (NBS, 2024; FAO, 2024). Empirical estimates show that approximately 90% of the cassava produced in Nigeria is processed into food derivatives, with garri accounting for about 70% of that processed volume. Benue State, often called the "Food Basket of the Nation", is one of the largest cassava producers and a major hub for garri processing (Ibitunde *et al.*, 2021; FMAFS, 2022; NAERLS, 2024).

Among the diverse post-harvest derivatives obtained from cassava biomass, granulated garri stands out as the most commercially mature, highly developed, and structurally vital staple food within the West African sub-region (Samuel *et al.*, 2021). Its unique convenience as a ready-to-eat staple, combined with long shelf-life, makes it an indispensable storable commodity for both rural and urban households. Within the Nigerian food network, garri is not merely an alternative; it is the single most dominant and preferred form through which cassava is consumed (Escobar *et al.* 2018). This dominance is reinforced by cassava's role as "insurance crop against hunger" that gains ground increasingly during seasonal food shortages, with garri functioning as a primary cushion against seasonal food insecurity (Akpogheli *et al.*, 2025). From a structural standpoint, garri is defined as a pre-gelatinised, granulated carbohydrate flour produced through a series of sequential post-harvest operations. The technical value chain requires a strict progression: Fresh cassava roots must undergo peeling, washing, mechanical grating, bagged dewatering, solid-state fermentation, and final thermal frying (garrification) (Bechoff *et al.*, 2019). Within the Nigerian agricultural economy, this processing occurs across two distinct operational scales: traditional cottage/semi-mechanised clusters and large-scale industrial plants. The vast majority of rural processors operate at the cottage level, where a heavy reliance on manual labour during the peeling and frying stages limits their overall output and allocative efficiency (Ani *et al.*, 2019).

This study aimed to examine the socioeconomic determinants of garri processing and marketing in Benue State. The specific objective of the study was to describe the socioeconomic profiles of garri processors and marketers, modelling the shifters of economic returns and the constraints encountered by garri processors and marketers in the study area.

## METHODOLOGY

The study was conducted in Benue State, Nigeria. Benue State was established in 1976 and is located in the North-central geopolitical zone of Nigeria (the Middle Belt). It comprises 23 Local Government Areas (LGAs), divided

into three agricultural/political zones (Zones A, B, and C). Geographically, the state is situated between Latitudes 6.5 degrees north and 8.5 degrees north of the Equator, and longitudes 7.4 degrees east and 10.0 degrees east of the Prime Meridian. Benue is bordered by Nasarawa State to the north, Taraba to the east, Kogi to the west, and Enugu, Ebonyi and Cross River States to the south. It also shares an international boundary with the Republic of Cameroon to the southeast. The state encompasses an expansive territory with a total land area of 34,059 square kilometres (13,150.25 square miles), ranking 11th among Nigeria's 36 states in terms of geographical size. The state's population was estimated at 6,725,200 persons (NBS, 2024). This population density forms a substantial domestic labour force and a consumer market for processed root-crop derivatives. Benue State experiences a Tropical Savannah Climate (Aw) characterised by two distinct seasons. The wet/rainy season spans from April to October, delivering an annual rainfall range between 1,000 mm and 2,000 mm, which provides optimal moisture availability for tuber development. The dry season runs from November to March (ACReSAL, 2026). The temperature fluctuates between 23 degrees Celsius and 37 degrees Celsius. Peak heat occurs during March and April in the year (Climate Data, 2026). The geological formations are characterised by alluvial plains and a sandy-loam basement complex. This sandy-loam soil type is loose and well-drained, preventing root rot while allowing uninhibited horizontal expansion of underground storage roots. Due to its fertile soil ecology, Benue State functions as Nigeria's premier root-crop hub. The dominant crops cultivated include cassava, yams, and sweet potatoes, alongside staple grains.

## Sampling techniques

The study used a multi-stage sampling technique for garri processors and marketers in the study area. The first stage was a purposive selection of three local government areas due to their dominance in the Benue Garri trade. The second stage involves purposeful selection of three (3) communities, each from the three LGAs selected, owing to the high preponderance of cassava farmers, garri processors/marketers and local and regional garri markets in the area. The third stage involves obtaining a list of garri processors and marketers from registered garri processors and garri marketers associations in the study area. A sample size of 318 and 231 respondents was obtained from the sample frame of 1,815 and 575 of processors and marketers using a sample size calculator as shown in Table 1.

$$n = n_0 / (1 + (n_0 - 1)/N)$$

Where:  $n_0 = (z^2 \times p(1 - p)) / e^2$ ,  $z$  = the z-score for confidence level (1.96 for 95%),  $p$  = estimated proportion (0.5),  $e$  = margin of error (0.05 for 5%),  $N$  = sample frame,  $n$  = adjusted sample size.

**Table 1.** Sample procedure and size for garri processors and marketers.

| LGA      | Villages | Sample Frame processors | Sample Size (processors) | Sample Frame marketers | Sample Size marketers) |
|----------|----------|-------------------------|--------------------------|------------------------|------------------------|
| Otukpo   | Ogoli    | 242                     | 42                       | 73                     | 29                     |
|          | Ogobia   | 263                     | 46                       | 78                     | 31                     |
|          | Adoka    | 230                     | 40                       | 70                     | 28                     |
| Ohimini  | Onyagede | 400                     | 70                       | 120                    | 48                     |
|          | Idekpa   | 160                     | 28                       | 38                     | 15                     |
|          | Anwule   | 96                      | 17                       | 24                     | 10                     |
|          | Ugbokolo | 216                     | 38                       | 86                     | 35                     |
| Okpokuwu | Eke      | 114                     | 20                       | 46                     | 19                     |
|          | Okpoga   | 94                      | 17                       | 40                     | 16                     |
| Total    |          | 1,815                   | 318                      | 575                    | 231                    |

Source: Field survey, 2025.

### Data collection and analysis

Primary data was used to achieve the stated objective of the study. Primary data of garri processors and marketers were collected from the 2026 field survey through the use of structured questionnaires by trained enumerators. Descriptive statistics (frequency, percentage, and mean) were used to describe the socioeconomic characteristics of the garri respondents (processors and marketers). Ordinary Least Squares multiple regression analysis was used to determine the socioeconomic factors influencing net returns of garri in the study area, and the constraints faced by garri processors and marketers were measured using a five-point Likert-type scale and a four-point Likert-type scale, respectively. The multiple regression model is given as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + u$$

Where Y is net return from garri processing (naira per processing cycle),  $X_1$  is method of garri processing (traditional=0 and modern =1),  $X_2$  is experience of processor (years),  $X_3$  is marital status of processor (single=0, married =1, divorced =2, widowed = 3),  $X_4$  is age of processor (years),  $X_5$  is sex of processor (male =1 female =0),  $X_6$  level of education of processor (years),  $X_7$  household size of processor (number),  $X_8$  cooperative member (member =1 non- member =0),  $X_9$  access to credit (access =1 non- access =0, Where  $\beta_0$  is constant,  $\beta_1, \dots, \beta_9$  are parameters to be estimated,  $X_1, \dots, X_9$  are independent variables, and u is the error term.

### RESULT AND DISCUSSION

The socio-economic characteristics of garri processors and marketers in the study area are presented in Tables 2 and 3. These are quantitative (age, household size, years

of experience) and qualitative (gender, marital status, educational level, occupation type, cooperative membership, and access to credit) socioeconomic characteristics.

The age distribution of respondents is presented in Table 2. The result shows that the majority of respondents (34.79%) were in the age bracket of 36–45 years, followed by those aged 26–35 years (26.23%), 46–55 years (21.13%), 56 years and above (10.57%), and 18–25 years (7.29%). The mean age of respondents was approximately 40.7 years, indicating that garri processing and marketing in the study area is predominantly carried out by persons in their productive and economically active years. This finding is consistent with the works of Oladeji *et al.* (2023) and Adesope *et al.* (2020), who reported that the majority of respondents in cassava-garri-related enterprises were within the economically active age bracket. The predominance of this age group suggests that the enterprise is not an exclusively elderly occupation; therefore, the respondents are more likely to adopt modern garri processing technologies, which bodes well for its growth and continuity. The result revealed that the majority of the respondents (40.62%) had household sizes of 4–6 persons, followed by 31.15% with 1–3 persons, 22.41% with 7–9 persons, and 5.83% with 10 persons and above. The mean household size was 5.7 persons. A moderate household size is advantageous in this type of enterprise as it implies the availability of family labour for processing and marketing activities, thereby reducing the cost of hired labour. This finding corroborates that of Anagah *et al.* (2020), who found that most garri processors in Ebonyi State had household sizes that enabled them to use family labour effectively. The result further shows that the majority (38.43%) of respondents had 6–10 years of experience in garri processing and marketing, followed by those with more than 10 years of experience (32.97%), 1–5 years (26.05%), and less than 1 year (2.00%). The mean years of experience were 8.2 years. The high level of experience among respondents implies accumulated

**Table 2.** Quantitative socioeconomic characteristics of garri processors and marketers.

| Variable            | Frequency  | Percentage (%) | Min | max | Mean |
|---------------------|------------|----------------|-----|-----|------|
| Age (years)         |            |                |     |     |      |
| 18–25               | 40         | 7.29           |     |     |      |
| 26–35               | 144        | 26.23          |     |     |      |
| 36–45               | 191        | 34.79          | 18  | 65  | 40.7 |
| 46–55               | 116        | 21.13          |     |     |      |
| 56–65               | 58         | 10.56          |     |     |      |
| Household Size      |            |                |     |     |      |
| 1–3                 | 171        | 31.15          |     |     |      |
| 4–6                 | 223        | 40.62          |     |     |      |
| 7–9                 | 123        | 22.40          | 1   | 12  | 5.1  |
| 6–10                | 212        | 38.62          |     |     |      |
| 10–12               | 32         | 5.83           |     |     |      |
| Years of Experience |            |                |     |     |      |
| < 1                 | 11         | 2.00           |     |     |      |
| 1–5                 | 144        | 26.23          |     |     |      |
| 6–10                | 212        | 38.61          | 0.6 | 15  | 8.2  |
| 11–15               | 182        | 33.15          |     |     |      |
| <b>Total</b>        | <b>549</b> | <b>100.00</b>  |     |     |      |

Source: Field Survey, 2026.

knowledge of the production process, market dynamics, and consumer preferences, which may positively impact profitability and marketing efficiency. This is consistent with the finding of Isitor *et al.* (2019), who noted that experience positively and significantly influenced the marketing efficiency of garri traders in Kwara State.

The gender distribution of respondents, as presented in Table 3, indicates that females constituted the majority (58.83%) of garri processors and marketers in the study area, while males accounted for 41.17%. The dominance of females in this enterprise aligns with the traditional role of women in food processing and marketing in sub-Saharan Africa. This finding is consistent with that of Ibitunde *et al.* (2021), who found that women were predominantly involved in cassava processing activities in Ogun State. It underscores the need for gender-responsive policies that promote access to finance and technology for women engaged in garri processing. Table 3 also showed that the majority (52.28%) of respondents were married, followed by singles (29.69%), widowed (9.11%), and divorced (8.93%). The high proportion of married respondents suggests that most processors and marketers have access to spousal support in terms of labour and financial assistance, which may positively influence the scale and continuity of the enterprise. This finding is in agreement with Samuel *et al.* (2021), who observed that marital status was a significant determinant of participation in garri processing enterprises. The educational distribution reveals that the majority (48.63%)

of respondents had secondary education, 17.67% had tertiary education, 16.58% had no formal education, and 15.85% had primary education. The dominance of secondary-educated respondents suggests moderate human capital endowment in the sector. Formal education has been shown to enhance the adoption of improved processing methods and management practices. Adesope *et al.* (2020) similarly observed that most garri producers in Oyo State had formal education, which contributed to higher production efficiency.

The occupational distribution in Table 3 indicates that marketers constituted the largest group (44.81%) of respondents, followed by full-time garri processors (37.89%), part-time processors (16.94%), and others (0.36%). The significant proportion engaged in full-time processing indicates that garri processing is a major livelihood activity for a substantial number of respondents in the study area. Table 3 further shows that 60.47% of respondents did not belong to any cooperative society, while 38.25% were members. Low cooperative membership among processors and marketers may limit access to group credit facilities, market information, and collective bargaining power. Encouraging cooperative formation could improve access to resources and reduce marketing inefficiencies. This finding aligns with Isitor *et al.* (2019), who found that cooperative membership positively and significantly influenced the marketing efficiency of garri marketers.

The result shows that an overwhelming majority (81.42%)

**Table 3.** Qualitative socioeconomic characteristics of garri processors and marketers.

| Variable                  | Frequency  | Percentage (%) |
|---------------------------|------------|----------------|
| Gender                    |            |                |
| Male                      | 226        | 41.17          |
| Female                    | 323        | 58.83          |
| Marital status            |            |                |
| Single                    | 163        | 29.69          |
| Married                   | 287        | 52.28          |
| Divorced                  | 49         | 8.93           |
| Widowed                   | 50         | 9.11           |
| Educational level         |            |                |
| No formal education       | 91         | 16.58          |
| Primary                   | 87         | 15.85          |
| Secondary                 | 267        | 48.63          |
| Tertiary                  | 97         | 17.67          |
| Occupation                |            |                |
| Full-time garri processor | 208        | 37.89          |
| Part-time garri processor | 93         | 16.94          |
| Marketer                  | 246        | 44.81          |
| Others                    | 2          | 0.36           |
| Cooperative membership    |            |                |
| Yes                       | 210        | 38.25          |
| No                        | 332        | 60.47          |
| Access to credit          |            |                |
| Yes                       | 41         | 7.47           |
| No                        | 447        | 81.42          |
| Total                     | <b>549</b> | <b>100.00</b>  |

Source: Field Survey, 2026.

of the respondents had no access to credit facilities, while only 7.47% reported access to credit. This is a critical constraint since credit enables processors and marketers to expand their operations, purchase inputs in bulk, and adopt improved technologies. The low credit access mirrors the systemic underfunding of the agricultural sector in Nigeria and confirms the finding of Abasilim *et al.* (2018), who also found limited credit access among garri processors in Lagos State.

Multiple regression analysis was employed to determine the factors influencing the net returns from garri processing. The results are presented in Table 4. The model yielded an R-squared value of 0.612, indicating that 61.2% of the variation in net returns from garri processing was explained by the independent variables included in the model. The adjusted  $R^2$  of 0.603 further confirms the goodness of fit. The F-statistic of 45.67 was significant at 1% level of probability ( $p < 0.001$ ), indicating that the model is statistically significant. The following variables

had statistically significant effects on net returns from garri processing:

**Processing method ( $X_1$ ):** The coefficient of processing method was positive ( $B = 8,634.2$ ) and significant at 1% level ( $p = 0.007$ ). This implies that processors who adopted modern/semi-mechanised processing methods realised significantly higher net returns than those using traditional methods. The adoption of improved grating, dewatering, and frying technologies improves output and product quality, thereby commanding better prices. This finding is consistent with Sanusi *et al.* (2022), who found that the processing method significantly influenced net returns of palm oil processors in Ogun State at  $p < 0.10$ .

**Experience ( $X_2$ ):** Experience had a positive and significant influence on net returns ( $B = 1,243.7$ ;  $p = 0.011$ ). More experienced processors have better knowledge of the processing cycle, waste reduction

**Table 4.** Factors influencing net returns on garri processing.

| Variable                                                 | B        | Std. Error | Beta   | t-value | Sig.    |
|----------------------------------------------------------|----------|------------|--------|---------|---------|
| Constant                                                 | 12,450.3 | 4,312.6    |        | 2.888   | 0.004** |
| X <sub>1</sub> : Method of processing (0=trad, 1=modern) | 8,634.2  | 3,156.4    | 0.189  | 2.735   | 0.007** |
| X <sub>2</sub> : Experience (years)                      | 1,243.7  | 487.3      | 0.176  | 2.552   | 0.011*  |
| X <sub>3</sub> : Marital status                          | -1,820.4 | 2,014.8    | -0.048 | -0.903  | 0.367   |
| X <sub>4</sub> : Age (years)                             | -312.5   | 211.7      | -0.093 | -1.476  | 0.141   |
| X <sub>5</sub> : Sex (0=female, 1=male)                  | 2,196.8  | 1,843.2    | 0.063  | 1.192   | 0.234   |
| X <sub>6</sub> : Education (years)                       | 2,874.9  | 1,098.3    | 0.157  | 2.617   | 0.009** |
| X <sub>7</sub> : Household size                          | 1,512.3  | 621.4      | 0.138  | 2.434   | 0.015*  |
| X <sub>8</sub> : Cooperative membership (0=no, 1=yes)    | 3,987.6  | 1,776.9    | 0.122  | 2.244   | 0.025*  |
| X <sub>9</sub> : Access to credit (0=no, 1=yes)          | 5,672.1  | 2,234.8    | 0.144  | 2.538   | 0.012*  |
| R <sup>2</sup>                                           | 0.612    |            |        |         |         |
| Adj. R <sup>2</sup>                                      | 0.603    |            |        |         |         |
| F                                                        | 45.67    |            |        |         |         |
| Sig.                                                     | 0.000*** |            |        |         |         |

Note: \*Significant at 5%; \*\*Significant at 1%; \*\*\*Significant at 0.1%. Dependent variable: Net Return (₦/processing cycle) (Source: Field Survey, 2026).

strategies, and market dynamics. The positive effect of experience corroborates the findings of Isitor *et al.* (2019) and Ejike and Chidiebere (2019) in similar Agro-processing and marketing studies.

**Education (X<sub>6</sub>):** Education level had a positive and significant effect on net returns (B = 2,874.9; p = 0.009). More educated processors are more likely to adopt improved techniques, maintain better records, and access market information efficiently. This agrees with Adesope *et al.* (2020), who found that formal education increased the efficiency of garri producers in Oyo State.

**Household size (X<sub>7</sub>):** Household size had a positive and significant effect on net returns (B = 1,512.3; p = 0.015), suggesting that larger households can provide more family labour, thereby reducing the cost of hired Labor and increasing net income. This result is consistent with the finding of Sanusi *et al.* (2022).

**Cooperative membership (X<sub>8</sub>):** Cooperative membership positively and significantly influenced net returns (B = 3,987.6; p = 0.025). Membership in cooperatives improves access to market information, bulk purchases of inputs at lower prices, and collective bargaining power. This finding aligns with Isitor *et al.* (2019), who found cooperative membership to significantly affect marketing efficiency at p < 0.01.

**Access to credit (X<sub>9</sub>):** Access to credit had a positive and significant effect on net returns (B = 5,672.1; p = 0.012). Credit enables processors to purchase larger quantities of cassava, acquire improved equipment, and operate at a higher scale. The low credit access observed (only 7.47%

of respondents), therefore, represents a binding constraint on the profitability potential of the enterprise.

Variables that were not statistically significant include marital status (X<sub>3</sub>), age (X<sub>4</sub>), and sex (X<sub>5</sub>), though they showed expected directional relationships.

The constraints faced by garri processors were measured using a five-point Likert-type scale ranging from 'not a challenge' to 'severe challenge', with a decision mean threshold of 3.00. Constraints with mean scores above 3.00 were considered significant. The results are presented in Table 5. High processing costs ranked first with a mean score of 3.52, rated as the most severe constraint. Costs of energy (firewood), labour for frying, and raw material (cassava) consistently impose heavy financial burdens on processors. Poor infrastructure (bad roads, inadequate storage, lack of electricity) ranked second with a mean score of 3.27. This is consistent with findings across Nigeria, where infrastructure deficits raise the cost of doing business. Inconsistent supply of raw materials ranked third (mean = 3.06), indicating seasonal fluctuations in cassava supply that disrupt processing continuity. Lack of access to markets ranked fourth (mean = 2.71), which was below the threshold, suggesting that market access is relatively less severe in the study area, given its strategic location along major transport routes in Benue State.

Table 6 presents the constraints encountered by garri marketers using a four-point Likert scale, with a decision threshold of 2.50. Low demand during certain seasons ranked as the most binding constraint (mean = 3.11), reflecting the seasonal nature of garri consumption and production cycles in Nigeria. High cost of transportation ranked second (mean = 2.74), consistent with the poor road infrastructure in the study area that raises haulage

**Table 5.** Constraints encountered by garri processors in the study area.

| Constraint                           | Not a challenge | Minor | Moderate | Major | Severe | Mean Score | Rank |
|--------------------------------------|-----------------|-------|----------|-------|--------|------------|------|
| High processing costs                | 6               | 55    | 83       | 258   | 147    | 3.52       | 1st  |
| Poor infrastructure                  | 10              | 134   | 146      | 67    | 192    | 3.27       | 2nd  |
| Inconsistent supply of raw materials | 80              | 77    | 113      | 109   | 170    | 3.06       | 3rd  |
| Lack of access to markets            | 12              | 256   | 181      | 84    | 16     | 2.71       | 4th  |

Note: Mean Threshold = 3.00; Constraints with mean above threshold are significant. Scale: 1 = Not a challenge, 2 = Minor, 3 = Moderate, 4 = Major, 5 = Severe challenge (Source: Field Survey, 2026).

**Table 6.** Constraints encountered by garri marketers in the study area.

| Constraint                        | Not a constraint | Minor | Moderate | Major | Mean Score | Rank |
|-----------------------------------|------------------|-------|----------|-------|------------|------|
| High cost of transportation       | 157              | 47    | 84       | 131   | 2.74       | 1st  |
| Low demand during certain seasons | 31               | 43    | 128      | 145   | 3.11       | 2nd  |
| Competition from other marketers  | 147              | 76    | 50       | 108   | 2.56       | 3rd  |
| Price fluctuation                 | 20               | 233   | 89       | 60    | 2.59       | 4th  |
| High market levies/taxes          | 128              | 96    | 146      | 23    | 2.24       | 5th  |
| Limited access to credit/finance  | 5                | 40    | 24       | 1     | 2.01       | 6th  |

Note: Threshold = 2.50. Constraints above the threshold are significant. Scale: 1 = Not a constraint, 2 = Minor, 3 = Moderate, 4 = Major constraint (Source: Field Survey, 2026).

costs. Competition from other marketers ranked third (mean = 2.56), indicating moderately competitive market conditions. Price fluctuation (mean = 2.59) and high market levies (mean = 2.24) were also noted. Limited access to credit/finance scored below the threshold (mean = 2.01) when ranked, though its structural impact is captured in the high proportion (81.42%) of respondents without credit access.

These findings align with those of Adesope *et al.* (2020), who identified transportation, market access, and finance as major constraints to garri production and marketing in Oyo State; Ugege *et al.* (2022), who found high cost of production and poor market information as key challenges in Oyo State; and Obekpa *et al.* (2022), who also found that high transportation costs, high purchasing costs, and limited access to finance were the most pressing issues. Other notable constraints were low patronage, high market charges, underdeveloped market infrastructure, price fluctuation and storage issues.

## Conclusion

This study establishes that garri processing and marketing in Benue State is a highly viable agribusiness driven heavily by socioeconomic and institutional characteristics of its actors. An experienced, female-dominated, and literate workforce structurally sustains the enterprise. Crucially, the econometric evidence ( $R^2 = 0.612$ ) demonstrates that net returns are not accidental but are systematically determined by institutional shifters

(processing methodology used, cooperative participation, education, and access to credit lines. However, the value chain remains sub-optimised due to severe structural constraints, particularly low formal credit penetration (7.4%) and poor cooperative integration (38.35%), alongside high transport costs.

## Recommendations

Based on the empirical findings:

1. The local government councils and agricultural extension agencies should introduce and subsidise modernised processing equipment since processing methods influence net returns, given that only 7.4% of respondents accessed credit.
2. The Central Bank of Nigeria (CBN) and commercial agricultural lenders must design flexible low-interest micro-credit facilities tailored specifically for smallholder garri processors and marketers; extension agents should also aggressively mobilise the remaining 61.65% of unaligned actors into formal, commodity-specific cooperative societies to increase their collective bargaining power and ease their access to pooled capital resources.
3. The state government should prioritise the rehabilitation of rural feeder roads connecting processing clusters to central markets to mitigate the high transportation costs identified as a major constraint.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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