



**EFFECT OF VALUE ADDITION ON CASSAVAS FARMERS' INCOME IN IKENNE LOCAL GOVERNMENT AREA, OGUN STATE, NIGERIA**

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**ABSTRACT**

This study examined the effect of value addition on cassava farmers' income in Ikenne Local Government Area of Ogun State, Nigeria. The study specifically assessed the socio-economic characteristics of cassava farmers, identified the various forms of value addition practiced, determined the effect of value addition on farmers' income, and examined the constraints affecting value addition in the study area. Primary data were collected from 81 cassava farmers using a structured questionnaire through a multistage sampling technique. Descriptive statistics and multiple regression analysis were employed to achieve the study objectives. The results revealed that majority (85.2%) of the farmers engaged in value addition, with garri being the most common product. The regression analysis showed that value addition has a mixed but generally positive effect on farmers' income, with products such as tapioca and flour significantly increasing income, while others like chips showed negative effects. Socio-economic factors such as age, education, and farm size were found to positively influence income, whereas cooperative membership showed a negative relationship. The study further identified key constraints to value addition, including high production cost (56%), lack of processing equipment (53%), inadequate credit access (17%), and poor infrastructure (16%). These challenges limit farmers' ability to fully exploit the benefits of value addition. The study concludes that value addition has the potential to significantly improve cassava farmers' income if properly supported. It recommends improved access to affordable processing technologies, better credit facilities, strengthening of rural infrastructure, and enhanced extension services to promote efficient value addition practices.

**Keywords:** Value, Addition, Cassava, Farmers, Income, Livelihoods

**INTRODUCTION**

Cassava (*Manihot* spp) is one of the most important root and tuber crops grown in Nigeria and in most other countries of the lowland and humid tropics. It is a preferred staple food highly cherished by many people in Nigeria because of its desirable attributes. It can be planted at any time of the year, provided there is sufficient moisture for stem cuttings to take root, (FAO, 2004). Nigeria is the largest cassava-producing country in the world, with an estimated annual output of about 60 million metric tonnes (CBN, 2025). Among the starchy staples, cassava provides carbohydrate yields that are about 40% higher than rice and 25% more than maize. It is also the cheapest source of calories for both human nutrition and animal feed (FAO, 2024). According to Adaigho, (2025), value addition is defined as the full range of activities required to bring a product or service from conception through intermediary phases of production involving a combination of physical transformation and producer services to delivery to final consumers and eventual disposal after use.

Most cassava farmers sell their produce in raw form, which attracts lower market prices compared to processed derivatives such as gari, fufu, starch, and high-quality cassava flour (Oyeyinka & Bolarinwa, 2019). Ogun State, located in the South-Western region of Nigeria, is well known for cassava production due to its fertile soil and favorable rainfall pattern throughout the year. The inhabitants, particularly the rural dwellers, depend largely on farming activities such as cassava cultivation as a means of livelihood and income generation. This has necessitated the need to explore the various forms of value addition to cassava and their effects on the income generation of farming households in Ikenne Local Government Area of Ogun State. The Nigerian agricultural sector, despite its importance, has continued to experience low productivity, resulting in low farm incomes and



persistent rural poverty. It is therefore pertinent to examine how value addition affects the income of cassava farmers in Ikenne Local Government Area, Ogun State. This study seeks to assess the extent of value addition practices among cassava farmers, identify factors influencing their participation, and determine the income differentials between processors and non-processors. Specifically, the study examined the effect of value addition on the income levels of cassava farmers

## **METHODOLOGY**

### **The Area of Study**

The study was conducted in Ikenne Local Government Area (LGA) of Ogun state, located in the southwestern part of Nigeria. It lies between Latitude of 6°52' N and Longitude 3°43' E. Ikenne LGA is a region known for cassava production because of its fertile soil, annual rainfall, high cassava cultivation rate and presence of local processing activities such as gari, fufu, and cassava flour production.

### **Sampling Procedure**

A multistage sampling procedure was employed to collect data for the study. The first stage: Ikenne Local government was purposively selected based on the concentration of cassava production and value added activities by the cassava farmers. The second stage: This stage involved purposive selection of three villages in Ikenne LGA. The third stage: At this stage, 100 cassava farmers were randomly selected

### **Data Collection**

Primary data was collected with the use of a structured questionnaire. For the purpose of this study, primary data was collected from cassava farmers. The information include; socio-economic and demographic characteristics, value addition activities undertaken, income from raw cassava sales and processed cassava products and constraints affecting value addition activities in the last one-month prior to survey in the study area.

### **Analytical Tool**

Descriptive and inferential statistics were used to analyze the data for this study. The effect of value addition among the cassava's farmers was captured with the use of multiple regression. The model is specified as follows;

$$Y_i = \alpha_0 + \sum \alpha_j x_j + \epsilon_j \quad \dots 1$$

$$Y_i = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \alpha_7 X_7 + \alpha_8 X_8 + \alpha_9 X_9 + \alpha_{10} X_{10} + \alpha_{11} X_{11} + \alpha_{12} X_{12} + \epsilon_i$$

Where:

$Y_i$  = Cassava Farmer's income

$X_1$  = Age of the cassava Farmers [in years],

$X_2$  = Sex [Male = 1, Female = 0],

$X_3$  = Marital status [Married = 1, single = 0],

$X_4$  = Educational Status [in years],

$X_5$  = Household Size [Number],

$X_6$  = farm size [hectare],

$X_7$  = farming experience [in years],

$X_8$  = Cooperative Membership [yes = 1, no = 0],

$X_9$  = Access to credit [Access to credit = 1, no access to credit = 0],

$X_{10}$  = processing of cassava products,

$X_{11}$  = Garri, (Yes = 1, No = 0)

$X_{12}$  = Fufu, (Yes = 1, No = 0)

$X_{13}$  = Flour, (Yes = 1, No = 0)

$X_{14}$  = Tapioca, (Yes = 1, No = 0)

$X_{15}$  = Starch, (Yes = 1, No = 0)

$X_{16}$  = Chips, (Yes = 1, No = 0)

$\epsilon_i$  = Random term



## RESULT AND DISCUSSION

### Socio-economic Characteristics

Table 1 shows that cassava farming in the study area is dominated by respondents in their economically active years. The largest age group was 26–30 years with 25.9%, followed by 21–25 years with 16.0%, while respondents aged 31–35 years and 41–45 years each accounted for 13.6%. Only a small proportion fell within the older age brackets of 56–60 years (1.2%) and 61–65 years (3.7%). This pattern suggests that cassava production and related value-chain activities in the area are driven largely by relatively young and active farmers who are likely to have the physical capacity and flexibility needed for farm and processing work. This agrees with recent studies showing that age remains an important factor in cassava enterprise performance and value-addition decisions, with active-age farmers more likely to participate in commercially oriented production and processing activities (Iheyi *et al.*, 2025; Bosompem *et al.*, 2024).

**Table 1a:** Socio-economic Characteristics of Cassava Farmers

| Variable       | Category  | Frequency | Percentage |
|----------------|-----------|-----------|------------|
| Age            | 15-20     | 3         | 3.6        |
|                | 21-25     | 13        | 16.0       |
|                | 26-30     | 21        | 25.9       |
|                | 31-35     | 11        | 13.6       |
|                | 36-40     | 10        | 12.3       |
|                | 41-45     | 11        | 13.6       |
|                | 46-50     | 4         | 4.9        |
|                | 51-55     | 4         | 4.9        |
|                | 56-60     | 1         | 1.2        |
|                | 61-65     | 3         | 3.7        |
| Sex            | Male      | 63        | 77.8       |
|                | Female    | 18        | 22.2       |
| Marital status | Single    | 12        | 14.8       |
|                | Married   | 66        | 81.5       |
|                | Divorced  | 2         | 2.5        |
|                | Widowed   | 1         | 1.2        |
| Education      | None      | 3         | 3.7        |
|                | Primary   | 23        | 28.4       |
|                | Secondary | 46        | 56.8       |
|                | Tertiary  | 9         | 11.1       |



**Table 1b:** Socio-economic Characteristics of Cassava Farmers

| Variable               | Category           | Frequency | Percent |
|------------------------|--------------------|-----------|---------|
| Household size         | 1-5                | 47        | 58.1    |
|                        | 6 and above        | 34        | 41.8    |
| Experience             | 1-5 years          | 26        | 32.0    |
|                        | 6-10 years         | 30        | 37.0    |
|                        | 11 years and above | 25        | 30.7    |
| MEAN=10.53 STD=7.68    |                    |           |         |
| Farm Size              |                    |           |         |
| Cooperative membership | Yes                | 34        | 42.0    |
|                        | No                 | 47        | 58.0    |
| MEAN =1.58 STD=0.50    |                    |           |         |
| Access to credit       | Yes                | 53        | 65.4    |
|                        | No                 | 28        | 34.6    |
| Bank                   | Yes                | 13        | 16.0    |
|                        | No                 | 68        | 84.0    |
| MEAN=1.84 STD=0.37     |                    |           |         |
| Cooperative            | Yes                | 22        | 27.2    |
|                        | No                 | 59        | 72.8    |
| MEAN=1.73 STD=0.45     |                    |           |         |
| Money Lenders          | Yes                | 43        | 53.1    |
|                        | No                 | 38        | 46.9    |
| Government             | Yes                | 2         | 2.5     |
|                        | No                 | 79        | 97.5    |
| MEAN=1.98 STD=0.16     |                    |           |         |
| Friends/relatives      | Yes                | 26        | 32.1    |
|                        | No                 | 55        | 67.9    |

**Source:** Field survey 2026

**Note:** number of Cassava Farmers in Ikenne LGA (n = 81)

### **Cassava Value Addition Practices**

The result shows that cassava value addition is already a widely practiced activity among the respondents, as 85.2% reported that they engage in cassava value-addition activities, while only 14.8% do not. This indicates that processing is not peripheral but central to the livelihood strategy of most cassava farmers in the study area. This pattern agrees with recent evidence that smallholder cassava



farmers increasingly participate in processing and related value-addition activities in order to improve returns and strengthen their position in the value chain (Bosompem *et al.*, 2024).

**Table 2:** Cassava Value-Addition Practices

| Variable                                            | Category   | Frequency | Percent |
|-----------------------------------------------------|------------|-----------|---------|
| Do you engage in cassava value-addition activities? | Yes        | 69        | 85.2    |
|                                                     | No         | 12        | 14.8    |
| Garri                                               | Yes        | 69        | 85.2    |
|                                                     | No         | 12        | 14.8    |
| FUFU                                                | Yes        | 37        | 45.7    |
|                                                     | No         | 44        | 54.3    |
| Flour                                               | Yes        | 5         | 6.2     |
|                                                     | No         | 76        | 93.8    |
| Tapioca                                             | Yes        | 5         | 6.2     |
|                                                     | No         | 76        | 93.8    |
| Starch                                              | Yes        | 5         | 6.2     |
|                                                     | No         | 76        | 93.8    |
| Chips                                               | Yes        | 6         | 7.4     |
|                                                     | No         | 75        | 92.6    |
| Others                                              | Yes        | 4         | 4.9     |
|                                                     | No         | 77        | 95.1    |
| High income                                         | Yes        | 52        | 64.2    |
|                                                     | No         | 29        | 35.8    |
| Market demand                                       | Yes        | 32        | 39.5    |
|                                                     | No         | 49        | 60.5    |
| Reduce losses                                       | Yes        | 13        | 16.0    |
|                                                     | No         | 68        | 84.0    |
| Equipment available                                 | Yes        | 2         | 2.5     |
|                                                     | No         | 79        | 97.5    |
| Other                                               | Yes        | 3         | 3.7     |
|                                                     | No         | 78        | 96.3    |
| Manual                                              | Yes        | 30        | 37.0    |
|                                                     | No         | 51        | 63.0    |
| Semi-mechanized                                     | Yes        | 52        | 64.2    |
|                                                     | No         | 29        | 35.8    |
| Mechanized                                          | Yes        | 3         | 3.7     |
|                                                     | No         | 78        | 96.3    |
| Do you own the equipment?                           | Yes        | 39        | 48.1    |
|                                                     | No         | 42        | 51.9    |
| Rent                                                | Yes        | 54        | 66.7    |
|                                                     | No         | 27        | 33.3    |
| Borrow                                              | Yes        | 30        | 37.0    |
|                                                     | No         | 51        | 63.0    |
| Shared facility                                     | Yes        | 18        | 22.2    |
|                                                     | No         | 63        | 77.8    |
| Quantity of cassava processed monthly               | <1 tonne   | 23        | 28.4    |
|                                                     | 1–3 tonnes | 57        | 70.4    |
|                                                     | >6 tonnes  | 1         | 1.2     |
| Duration of processing                              | <1 day     | 3         | 3.7     |
|                                                     | 1–2 days   | 22        | 27.2    |
|                                                     | 3–5 days   | 44        | 54.3    |
|                                                     | >5 days    | 12        | 14.8    |

**Source:** Field survey 2026



### Effect of Value Addition on the Income Levels of Cassava Farmers

The regression result shows that the model has a fairly good explanatory power. The  $R^2$  value of 0.535 indicates that about 53.5% of the variation in cassava farmers' income is explained by the independent variables included in the model, while the adjusted  $R^2$  of 0.428 shows that the model still explains 42.8% of the variation after adjusting for the number of predictors. The F-value of 4.985 suggests that the explanatory variables, taken together, are relevant in explaining income differences among cassava farmers. This level of explanatory power is acceptable in farm-income studies because farmers' incomes are also affected by weather, prices, infrastructure, and household conditions that are not always fully captured in a single model (Ogunleye *et al.*, 2025).

The coefficient for flour is positive ( $\beta = 1.096$ ;  $t = 1.897$ ), suggesting that flour processing tends to raise income more strongly than garri and fufu, although the result is only borderline in statistical terms. Economically, this still suggests that farmers who process cassava into flour may benefit from better value capture because flour serves broader household and commercial uses. More importantly, tapioca has a large positive coefficient ( $\beta = 3.052$ ;  $t = 2.979$ ), indicating that participation in tapioca processing is associated with a likely significant increase in farmers' income. This suggests that not all value-added products contribute equally to income; some products appear more rewarding than others. Adejumo *et al.* (2025) similarly report that profitability differs across cassava processing technologies and product forms, with better-organized and more efficient processing systems generating higher returns.

**Table 3:** Effect of Value Addition on Cassava Farmers Income

| Variable                 | coefficient | Std.error | t      |
|--------------------------|-------------|-----------|--------|
| (constant)               | .464        | 1.871     | .248   |
| AGE                      | .046        | .015      | 3.017  |
| SEX                      | .466*       | .286      | 1.628  |
| MS                       | -.149       | .306      | -.486  |
| EDU                      | .520***     | .194      | 2.682  |
| HHS                      | -.079       | .057      | -1.380 |
| EXP                      | 9.957E-5    | .018      | .005   |
| FS                       | .157**      | .066      | 2.372  |
| COOP                     | -1.179***   | .280      | -4.212 |
| ACCESSTOCRE              | .461        | .339      | 1.360  |
| Garri,                   | .242        | .389      | .622   |
| FUFU                     | .299        | .227      | 1.318  |
| FLOUR                    | 1.096*      | .578      | 1.897  |
| TAPIOCA                  | 3.052***    | 1.024     | 2.979  |
| STARCH                   | -.578       | .460      | -1.258 |
| CHIPS                    | -2.386**    | .934      | -2.553 |
| R Square = .535          |             |           |        |
| Adjusted R Square = .428 |             |           |        |
| F = 4.985                |             |           |        |

**Source:** Field Survey (2026). \*\*\* significant at 1%, \*\*significant at 5%, \*significant at 10%.

### Constraints to Cassava Farming

Table 4 below shows that all 81 responses were valid, with no missing cases, indicating that the analysis was based on a complete set of questionnaires. Overall, the pattern suggests that cassava farmers in the study area face more structural and economic constraints than purely technical limitations.



**Table 4:** Challenges Faced by Cassava Farmers (N = 81)

| Variable          | Category | Frequency | Percentage |
|-------------------|----------|-----------|------------|
| Lack of Equipment | Yes      | 43        | 53.1       |
|                   | No       | 38        | 46.9       |
| High Cost         | Yes      | 45        | 55.6       |
|                   | No       | 36        | 44.4       |
| Inadequate Credit | Yes      | 17        | 21.0       |
|                   | No       | 64        | 79.0       |
| Skill Shortage    | Yes      | 4         | 4.9        |
|                   | No       | 77        | 95.1       |
| Low Prices        | Yes      | 21        | 25.9       |
|                   | No       | 60        | 74.1       |
| Poor Power Supply | Yes      | 16        | 19.8       |
|                   | No       | 65        | 80.2       |
| High Labour Cost  | Yes      | 17        | 21.0       |
|                   | No       | 64        | 79.0       |
| Transport Issues  | Yes      | 20        | 24.7       |
|                   | No       | 61        | 75.3       |

**Source:** Field survey 2026

## CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it can be concluded that value addition has an important effect on cassava farmers' income in Ikenne Local Government Area, Ogun State. The study also concludes that socio-economic characteristics such as age, education, and farm size significantly shape farmers' income outcomes. This means that beyond value addition itself, farmers' personal and farm-level characteristics influence how much benefit they derive from cassava production and processing.

Furthermore, the study concludes that the major barriers to higher income among cassava farmers are not simply lack of willingness to process cassava, but rather the broader economic and infrastructural environment in which they operate. High processing cost, inadequate equipment, low market prices, transport difficulties, inadequate credit, and weak infrastructure continue to limit the income gains that farmers can obtain from value addition. Therefore, improving cassava farmers' income in the study area requires more than encouraging farmers to process cassava; it also requires strengthening access to finance, affordable equipment, reliable infrastructure, and profitable markets. Based on the findings and conclusion of the study, the following recommendations are made:

1. Government and development agencies should improve farmers' access to processing equipment. This will reduce farmers' dependence on rented or borrowed equipment and improve processing efficiency.
2. Affordable credit facilities should be provided to cassava farmers and processors. Access to credit should be expanded through agricultural banks, cooperative societies, microfinance institutions, and government intervention programmes.
3. Agricultural extension agents should provide regular training on improved cassava processing techniques, product diversification, packaging, preservation, and small-scale agribusiness management.



4. Policies should promote the most profitable cassava value-added products.
5. Rural infrastructure should be improved. Government should invest in rural feeder roads, electricity supply, and storage facilities to reduce transportation cost, improve market access, and lower post-harvest losses. Improved infrastructure will support both cassava production and processing activities.

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