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# GENDER DYNAMICS IN CASSAVA VALUE ADDITION AND EFFECTS ON RURAL ECONOMIC LIVELIHOOD OF RURAL FARMERS' IN IDO LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA

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## Abstract
*The study examined gender dynamics in cassava value addition and its effects on the rural economic livelihood of cassava processors (Makwera) in Ido Local Government Area, Oyo State, Nigeria. A multi-stage sampling technique used to select a sample size of 150 from four rural communities; data were collected using structured questionnaire and analyzed with descriptive statistics, multiple regression, and one-way analysis of variance. The results revealed that majority (15.7%) of the processors were female (68.7%), the average age of processors was 47 years, 69.3% were married, 30.0% were members of cooperative society. Women produced garri (78.7%), fufu (86.0%), and cassava chips(77.3%), while men produced a higher quantity of starch (64.7%) and had access to finance, technology, training, and land ownership. Research and development were the highest among strategies used to promote value addition (mean = 3.51), increased food availability was the highest among perceived livelihood outcomes (mean = 3.39). Regression analysis indicated that sex, marital status, processing experience, and income from processing significantly affected the value addition (R-squared = 0.240), result of the analysis shows that male processors made significantly higher income than the female processors, hence rejecting the null hypothesis, F = 7.571, p = 0.007. Constraints to value addition include market access, inadequate technology, and inadequate finance. The study recommends specific gender-differentiated microfinance programs, gender-sensitive extension services, and better access to cassava processing technology.*

***Keywords****: Gender, Value addition, cassava processing, economic, livelihood*

## 1.0 Introduction

Cassava, (Manihot esculenta), is one of the staple foods and income sources for the smallholders' household farming system in Nigeria, and processing it into garri, fufu, starch, and other products significantly improves their marketability and returns (FAO, 2016). Gender influences the roles men and women play in cassava production and processing and their access to income from processing (Ezeibe et al., 2015), as women and men are not equal. Value addition, which has been identified as an important tool for rural poverty reduction and women's economic empowerment (Adeyemo & Okoruwa, 2018), has also been hampered by the existing gender disparities in access to credit, technology, and training, limiting the potential of women to realize the benefits of value addition (Ogunlela & Mukhtar, 2009).

While women dominate cassava processing enterprise in Oyo State, they are also less privileged in credit, land, and technical support provision, while men seem to be more prominent in the high-value, capital-intensive segment of the cassava chain (Henri-Ukoha &Ikpe, 2017). To

design equitable and effective interventions, it is necessary to understand how the economic livelihood of processors is affected by these gendered patterns.

## 2.0 Objectives of the Study

## 3.0 Methodology

The study was carried out in the Ido Local Government Area of Oyo State, Nigeria, with a land area of approximately 1,016.95 km², where agriculture is the main livelihood of more than 65% of the population involved in the cultivation and processing of cassava. A multi-stage sampling procedure was employed. Respondents were purposively selected in one of the communities, Ido, while four communities (Ido, Omi-Adio, Akufo, and Ilaju) were randomly selected from a sampling frame of 240 processors from the Oyo State Agricultural Development Program. This frame was used to select a total sample size of 150 respondents with gender proportionately represented at a 5% margin of error and selected through systematic random sampling.

Primary data were gathered using a structured questionnaire that focused on the socio-economic characteristics of the respondents, their gender-disaggregated role and access to resources in cassava value addition, perceived impacts on economic livelihood, and challenges. Data were analyzed with descriptive statistics (frequency, percentage, and mean), multiple regression (to determine the factor(s) that affect value addition), and one-way analysis of variance (one-way ANOVA) (to determine whether there are significant differences in income resulting from cassava Value addition based on gender).

## 4.0 Results and Discussion

### 4.1 Socio-Economic Characteristics of the Respondents

Table 1 reveals that majority (68.7%) of the respondents were females, who were involved in cassava value-addition activities in the study area. This indicates the dominance of women in Cassava processing activities in the study area. Women haven been observed to be the major driving force in cassava value addition activity, whereby they create numerous value for cassava in order to enhance its suitability, prolong its shelf life and enhance its market suitability. This result is in agreement with the finding by Ezeibe, et al., (2015). The modal age group was 39.3% (mean age 47 years), and majority (69.3%) of the respondents were married, and depended on family labor. Only 30.0% were members of a cooperative society, providing access to collective resources such as credit and training, whereas 39.3% had no formal education. The small-scale aspect of processing was reflected in the fact that majority (61.4%) processors have 1–10 years of experience, while 74.0% of them make less than ₦100,000 per production cycle (the mean value was nearly ₦79,486).

**Table 1: Socio-Economic Characteristics of the Respondents (n=150)**

| Variables | Dominant Category (%) | Mean ± SD |
|---|---|---|
| **Sex** | Female – 68.7 | – |
| **Age (years)** | 41–50 – 39.3 | 47.0 ± 8.98 |
| **Marital status** | Married – 69.3 | – |
| **Educational status** | No formal education – 39.3 | – |
| **Household size (persons)** | 3–4 – 54.7 | 2.0 ± 0.6 |
| **Processing experience (years)** | 1–10 – 61.4 | 10.7 ± 8.8 |
| **Cooperative membership** | No – 70.0 | – |
| **Income per production (₦)** | < 100,000 – 74.0 | 79,486 ± 78,789.6 |
| **Monthly expenditure (₦)** | < 100,000 – 82.7 | 51,667 ± 47,963.6 |

Source: Field survey (2025).

### 4.2 Gender Differences in Value-Addition Activities

Men were more dominant in starch extraction (64.7%), which is a technically intensive process, and to a lesser extent in flour processing and animal feed processing, as indicated in Figure 1 and Table 2. Women, however, were more than men in the production of labor-intensive activities of garri production (78.7%), fufu (86.0%), and cassava chips (77.3%), which are essentially traditional women's labor. This is in agreement with (Amadi, 2018), which stated that women dominated most processing operations with youths and men playing complimentary roles especially where heavy strength is needed.

**Table 2: Gender Distribution in Cassava Value-Added Activities (n=150)**

| Value-Addition Activity | Male (%) | Female (%) |
|---|---|---|
| **Starch extraction** | 64.7 | 35.3 |
| **Processing into flour** | 52.0 | 48.0 |
| **Cassava chips** | 22.7 | 77.3 |
| **Garri** | 21.3 | 78.7 |
| **Fufu** | 14.0 | 86.0 |
| **Animal feed** | 52.0 | 48.0 |

Source: Field survey (2025).

### 4.3 Access to Productive Resources by Gender

The result on Table 3 indicates that male respondents had greater access than females respondents to finance (67.3% vs 32.7%), technology (57.3% vs 42.7%), training (62.7% vs 37.3%), and land ownership (69.3% vs 30.7%), This study supports the findings of (Amadi, 2018) and (Enete & Amusa, 2010), which observed that these gaps hinder women's upgrading of processing and transition to more value-added activities.

**Table 3: Access to Productive Resources by Gender (n=150)**

| Resource | Male (%) | Female (%) |
|---|---|---|
| **Finance** | 67.3 | 32.7 |
| **Technology** | 57.3 | 42.7 |
| **Training** | 62.7 | 37.3 |
| **Land ownership** | 69.3 | 30.7 |

*Source: Field survey (2025).*

### 4.4 Strategies for Promoting Value Addition and effects on livelihood

Table 4 shows that, research and development were perceived as most important (mean = 3.51) among value-addition strategies, followed by strengthening value-added processing (mean =3.31) and fair prices/finance access (mean =3.25) and, finally, empowerment of smallholder farmers (mean =2.65), which indicates the existing empowerment strategies are perceived as limited (Table 5). In terms of perceived economic-livelihood impacts of value addition, perceived food availability was ranked first (mean =3.39), followed by poverty alleviation (mean =3.31), industrial development (mean =3.30), and increasing household income (mean =3.14). This suggests that perceived food availability is the most important economic-livelihood benefit, and alleviation of poverty comes in next, while the perceived benefits of industrial development and increasing household income are at the same level. It is also assumed that the perceived benefits of increasing household income are at the lowest level because there are perceived low profit margins for the female value-added processors operating at subsistence levels.

**Table 5: Strategies for Promoting Value Addition and Perceived effects Livelihood on (n=150)**

| Variables | Mean | Rank |
|---|---|---|
| **Strategy: Research and development** | 3.51 | 1st |
| **Strategy: Strengthening value-added processing** | 3.31 | 2nd |
| **Strategy: Ensuring fair prices and access to finance** | 3.25 | 3rd |
| **Strategy: Empowering smallholder farmers** | 2.65 | 4th |
| **Livelihood effect: Increasing food availability** | 3.39 | 1st |
| **Livelihood effect: Poverty alleviation** | 3.31 | 2nd |
| **Livelihood effect: Industrial development** | 3.30 | 3rd |
| **Livelihood effect: Increasing household income** | 3.14 | 4th |

Source: Field survey (2025). *Scale: Strongly Agree = 4 … Strongly Disagree = 0.*

### 4.5 Constraints and Support Needs of Cassava Processors

The most reported constraints among the respondents were limited market access (34.7%), inadequate technology (33.3%), and insufficient finance (32.0%).

Technology (42.0%) and financial (32.7%) supports were the most sought-after, and market access itself was the least sought-after support among the respondent (7.4%), because technology and capital are the most important factors to access larger markets. This support the finding of Adeniyi et al. (2023), that improved technology users had a very high livelihood status, while conventional technology users had a low livelihood status which indicated that the use of improved technology enhanced women's contribution to family welfare and improved their livelihood.

**Table 5: Constraints and Support Needed by Cassava Processors (n=150)**

| Variables | Reported as a Challenge (%) | Requested as Support Needed (%) |
|---|---|---|
| **Finance** | 32.0 | 32.7 |
| **Technology** | 33.3 | 42.0 |
| **Market access** | 34.7 | 7.4 |
| **Training** | – | 18.0 |

Source: Field survey (2025). *Also, 62.0% of processors reported an increase in income following value addition, 28.0% reported no change, and 10.0% reported a decrease.*

### 4.6 Factors Influencing Value Addition

Table 6 shows that sex has a significant effect on value addition ($\beta = 0.173$, $p = 0.001$), while marital status, processing experience, and income from cassava processing are significant factors in influencing value addition ($\beta = -0.057$, $p = 0.047$) and ($\beta = -0.072$, $p = 0.025$), respectively. Age, years of education, extension contact, cooperative membership, and education level do not significantly influence value addition among the processors. The determination capacity of the model on value addition was 24.0% ($R^2 = 0.240$; adjusted $R^2 = 0.192$), showing sex-based access to resources is the decisive constraint for value addition in the study area other than education (Ogunlela & Mukhtar, 2009).

**Table 6: Multiple Regression Results on Factors Influencing Value Addition (n=150)**

| Predictor | B | Std. Error | Beta | t | Sig. |
|---|---|---|---|---|---|
| **(Constant)** | 0.565 | 0.316 | – | 1.786 | 0.076 |
| **Sex** | 0.173 | 0.053 | 0.255 | 3.247 | 0.001*** |
| **Marital status** | -0.057 | 0.028 | -0.159 | -2.000 | 0.047** |
| **Cassava processing experience (years)** | -0.072 | 0.032 | -0.228 | -2.273 | 0.025** |
| **Income from cassava processing (₦)** | $1.269\times10^{-6}$ | 0.000 | 0.317 | 3.918 | 0.001*** |
| **Age, education, extension contact, cooperative membership (n.s.)** | – | – | – | – | > 0.05 |

Source: Field survey (2025). ***, *** significant at 5% and 1%, respectively. R = 0.490; $R^2$ = 0.240; Adjusted $R^2$ = 0.192.*

### 4.7 Hypothesis Test: Income by Sex

The one-way ANOVA test for the difference in monthly income by sex of the processors revealed that the monthly income differed significantly between male and female processors (F = 7.571, p = 0.007) (Table 7), so the null hypothesis was rejected. Male processors made much higher incomes than female processors, which is in line with Yisa et al. (2020) and Oseni et al. (2015), who showed that male farmers make more income than female farmers in Nigeria due to the advantage of men over access to capital, land, and technology in farming.

**Table 7: One-Way ANOVA of Monthly Income by Sex**

| Source | Sum of Squares (₦) | df | F | Sig. |
|---|---|---|---|---|
| **Between groups** | 45,142,946,933.83 | 1 | 7.571 | 0.007 |
| **Within groups** | 882,520,226,399.51 | 148 | | |
| **Total** | 927,663,173,333.33 | 149 | | |

Source: Field survey, 2025.

## 5.0 Conclusion and Recommendations

### 5.1 Conclusion

The study concluded that gender of cassava processors influences the form of value-added activities they are involved in and the economic benefit they accrue from them in the Ido Local Government Area. Women process the majority of garri, fufu, and cassava chips, while men process more capital-intensive activities, like starch extraction, and they also report greater access to finance, technology, training, and land. Value addition was influenced by sex, marital status, processing experience, and income from processing, with male processors making much more than female processors. Value added has added positively to the livelihoods, especially with food availability, but women's access to productive resources is still constrained by the gender gap in accessing higher-value segments of the cassava value chain.

### 5.2 Recommendation

The following recommendations were made:

i. Government should put in place available, policies that will enhance sustainable value addition activities among the processors; access to grants to enhance production should also be encouraged.

ii. Government should subsidized processing equipments for processors for sustainable value addition activity.

iii. Specific microfinance and credit-guarantee programs for women processors, gender-focused extension and training activity, and access to processing technology and land for cassava value-addition to rural livelihoods; should be encouraged.

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