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LIVELIHOOD DIVERSIFICATION STRATEGIES AND WELFARE OF CASSAVA FARMERS IN OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE

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Abstract
The study assessed livelihood diversification strategies on the welfare of cassava farmers in Ohafia Local Government Area, Abia State. The study population comprised cassava farmers in the Ohafia Local Government Area of Abia State. The data were obtained from primary sources using a structured questionnaire and analyzed with descriptive statistical tools like means, frequencies, and percentages and inferential tools like mean per capita expenditure (MPCE) and multiple regression models. The results showed that the respondents are middle-aged (mean= 53), educated (Mean=10), experienced (mean=18) with access to credit (61%). The most common livelihood strategies of the respondents were cassava production + non-farm activities + off-farm activities (69.17%). The respondents spent an average amount of ₦96,547.22 on welfare-related items, which could be translated to $2.15 daily on food and non-food items. Age (P<0.01), household size (P<0.01), education (p<0.01), credit access (P<0.05), and livelihood diversification strategies (P<0.01) had significant effects on the welfare of the farmers. It is recommended that the government through the Federal Ministry of Agriculture and Rural Development should provide grant and zero-interest credit to farmers to enable them to invest in both farm and non-farm activities to boost their income and welfare.
Keywords: ***Income, expenditure, mean, household, activities, non-farm, off-farm***

Introduction

Cassava is a starchy tuberous root crop and a staple food item for approximately 800 million people globally (Musa *et al.*, 2022). In addition to being a rich source of vitamins, minerals, and other essential nutrients, cassava is produced for industrial purposes, particularly as a raw material for industrial products, including starch, flour, and ethanol (Adetarami *et al.*, 2022). Cassava production is one of the most rewarding livelihood activities for rural farmers in developing countries. In Nigeria, it is an important livelihood activity that has supported rural farmers in terms of income and employment generation and in meeting other welfare needs of cassava farmers (Afodu *et al.*, 2020).

Livelihood could be described as a means of survival for cassava farmers and also the resources needed by cassava farmers to enhance and improve their well-being (Ma and Zhao, 2022). The arrangement of livelihood activities that cassava farmers choose to embark on to attain sustainable livelihoods is inspired by livelihood strategies. These strategies are differentiated based on the situation of the activities into on-farm, non-farm, or off-farm activities (Mackenzie, 2017). On-farm activities involve crop and livestock farming; non-farm activities are those undertaken outside the agriculture sector while off-farm activities cover agricultural activities outside the farmer's farm (Yizengaw, Okoyo & Beyene, 2015). Pull and push factors influenced rural farmers' decision to diversify their sources of income (Asfaw, Palma & Lipper, 2016).

The push factors are the reasons behind rural farmer's desire to accumulate capital. Push factors are determined by circumstances or necessities like poverty, unemployment, unpredictable weather, household size, and fluctuating food prices. On the other hand, the pull factors are the reasons why households desire to accumulate capital, and they include income, education level, and market access among others. These factors enable rural farmers to enhance their capabilities and assets, stabilize income flows, and overcome production and market risks (Dirribsa & Tassew, 2015).

Given the managing and spreading of risks inherent in the cassava production business, most cassava farmers in Abia State and Ohafia L.G.A in particular have diversified their farming activities within and outside the agricultural sector. For example, a good number of cassava farmers in Abia State and Ohafia L.G.A in particular are known to produce cassava with maize, vegetables, pepper, and okro among others while others combine livestock like poultry, pigs, and cattle among others (Jackson *et al.*, 2021). Such combinations do not only reduce production and marketing risk but are also perceived to augment total income levels, ensure food security, and improve welfare (Onya *et al.*, 2021).

Welfare is the level of utility reached by a given cassava farmer, expressed as the function of goods and services that he or she consumes (Mohammad *et al.*, 2017). It represents their overall standard of living, expressed as household expenditure on food, education, and health (Mohammad *et al.*, 2021). Higher welfare could be attained by cassava farmers if they can properly manage and spread their production risk, and have access to productive resources and innovation such as land, labor capital, education, and technology among others, which in turn boost their productivity and efficiency level for higher income (Afolami *et al.*, 2015).

Several empirical studies have been carried out to solve the problems of risks and uncertainties in crop production in Nigeria. For example, Jackson *et al.*, (2021) studied climate change and adaptation strategies of arable crop farmers in Abia State, Nigeria; Onya *et al.*, (2021) studied the effect of crop diversification on food security status among arable crop farmers in Ikwuano Local Government Area, Abia State, Nigeria; Okoror *et al.*, (2019) studied effects of livelihood diversification on the poverty status of cassava farmers in Edo South, Edo State, Nigeria; Nchor (2022) studied livelihood strategies and their determinants among informal households in Calabar, Nigeria. However, these studies did not look at effect of livelihood strategies on the welfare of cassava farmers. Thus, this study filled the research gap by analyzing the effects of livelihood strategies on the welfare of cassava farmers in Ohiafia Local Government Area, Abia State. Specifically, this study examined the socioeconomic characteristics of the respondents; identified the livelihood strategies of the respondent; derived the welfare status of the respondents in a month and; estimated the factors that affect the welfare status of cassava farmers in the study area.

Methodology

The Study Area

The study was conducted in Ohafia Local Government Area. Ohafia Local Government Area is one of the 17 Local Government Areas in Abia State with 3 communities namely Ohafia, Abiriba, and Mkporo. Geographically, Ohafia lies within latitudes 5.37^{1}N and 7.50^{1}E and longitudes 5.62^{1}N and 7.83^{1}E. The land mass covers an area of about 89 square kilometers with an estimated population of 785, 358 people. The Local Government Area is bounded in the north by Arochukwu L.G. Area; in the east by Afikpo L.G. Area of Ebonyi State and in the West by Bende L.G. Area. of Abia State. The climatic condition of the area is influenced by two major winds which are north-east and south-west trade winds which give rise to dry and rainy seasons respectively. The major crops grown include cassava, yam, maize, fluted pumpkin, water leaf, okro, swamp rice, plantain, cocoyam, oil palm and raffia palm, cowpeas, kola, and mangoes.

Sampling procedure and sample size

The study population comprised cassava farmers in the Ohafia Local Government Area of Abia State. The sample size was 120 respondents, selected using a multistage sampling procedure. In the first stage, three (3) autonomous communities; Amankwu, Isiugwu, and Ndi Okala were purposively selected for the study due to increased cassava production activities. In the second stage, four (4) villages were randomly selected from each of the communities which gave a total of twelve (12) villages for the study. In the final stage, ten (10) cassava farmers were randomly selected from the twelve (12) villages with the head of village leaders and agricultural extension officer, making it one hundred and twenty (120) respondents. The data were obtained from primary source through the use of structured questionnaire.

Analytical Technique

Descriptive and inferential statistics were employed to analyze the data. Descriptive statistics employed include frequency and percentages, while inferential statistics involved MPCE and multiple regression model. Mean per-capita household expenditure (MPCE) and multiple regression model are stated respectively as follows:

$$MPCE = \left(\frac{\text{Total per capita household expenditure}}{\text{Total number of households}}\right) \ldots 1$$

The OLS regression model is specified as follows;

$$Welfare = \beta_0 + \beta_1T_1 + \beta_2T_2 + \beta_3T_3 + \beta_4T_4 + \beta_5T_5 + \beta_6T_6 + \beta_7T_7 + ui \ldots 2$$

Where;

Welfare = (as defined in equation 1)

T_1 = Farming experience (Number of years spent in cassava farming)

T_2= Cooperative membership (Yes=1, otherwise=0)

T_3 = Livelihood strategies (Number)

T_4 = Credit access (Yes=1, otherwise=0)

T_5 = Age (Number of years)

T_6= Household size (Number)

T_7 = Farm size (ha)

β_i = Estimated parameters.

u_i = Error term

Results and Discussion

Socioeconomic characteristics of the respondents

Most of the respondents (37.50%), belonged to the 50–59 age group. The average age of the respondents was about 53 years. This has shown that the respondents are still in their active stage of life, indicating that the majority of the farmers in the study area are middle-aged farmers who are producing cassava. This finding is in tandem with Amurtiya, Abdu, Adewuyi & Monisola (2021) who reported that cassava farmers in Adamawa State, are middle-aged. Majority (61.67%) of the respondents were female while 38.33% were male. This implies that cassava production in the study area is dominated by females. The dominance of male respondents among farmers may be due to men's easier access to agricultural land than women. These results are in line with the work of Afolami, Obayelu & Vaughan (2015) who reported the preponderance of male farmers in cassava production in South West, Nigeria. The majority of respondents (72.50%) were married, while only about 27.50% were single. The preponderance of married people involved in cassava production is probably to enhance their household welfare. The results of Onya, Ebe & Obike (2020), who reported that men dominated the cassava industry in Nigeria's Abia State, are consistent with this finding.

Table 1: Socio-economic characteristics of the respondents (n=120)

Variables	Frequency	Percentage
Age (years)		
20-29	4	3.33
30-39	13	10.83
40-49	17	14.17
50-59	45	37.50
60-69	25	20.83
70-79	14	11.67
80-89	2	1.67
Mean	**53**	
Sex		
Male	74	61.67
Female	46	38.33

Source: Field survey, 2024

The majority of respondents (40.83%) had secondary education as their highest level of education, while the least number (9.17%) had no formal education. The mean number of years spent in school was approximately 10. This suggests that the vast majority of respondents are intelligent and capable of making informed decisions on the use of scarce resources prudently and efficiently for higher productivity and welfare. The majority of respondents (55.83%) lived in households with 1 - 5 people. The average household size

in the study area for cassava farmers was 5 people. A family size of 5 persons is fairly large and a fairly small household size may have positive implications for productivity and welfare since it has been found that most farmers depend on their family members to provide labor on the farm. Most of the respondents (38.33%) had experience in cassava production ranging from 20-29 years, while 25.00% had experience ranging from 1-9 years. The result has also shown that the respondents had been actively in cassava farming for about 18 years on average, implying that the respondents have been actively producing cassava for more than 10 years and can therefore be considered to have a wealth of experience. This finding is in tandem with Fasakin &Popoola (2019) that cassava farmers in Osun State, Nigeria are experienced. The majority (56.67%) of the respondents had a farm size ranging from 0.1-0.9 hectares while the least proportion (4.17%) had a farm size of 2.0-2.9 hectares. The mean farm size of the cooperative farmers in the study area was 1.04 hectares, suggesting the respondents are marginal farmers. The outcome corroborated Okoruwa's (2020) conclusions that cassava farmers with yields between 0.1 and 0.9 are marginal farmers The majority of respondents (75.83%) do not belong to cooperative societies. This is probably because they lack access to, or ignorance of cooperative societies can be used to explain why the vast majority of respondents in the study area are not members.

Table 1b: Socio-economic characteristics of the respondents (n=120)

Variables	Frequency	Percentage
Education		
No formal Education	11	9.17
Primary	43	35.83
Secondary	49	40.83
Tertiary	17	14.17
Mean	**9.6**	
Household size		
1-5	67	55.83
6-10	53	41.17
Mean	**5.3**	
Farming Experience		
1-9	30	25.00
10-19	44	36.67
20 and above	46	38.33
Mean	**18.3**	
Farm size		
0.1-0.9	63	52.50
1.0-1.9	52	43.33
2.0-2.9	5	4.17
Mean	**1.04**	
Cooperative membership		
Yes	29	24.17
No	91	75.83

Source: Field survey, 2024

The livelihood strategies of the respondents

Entries from Table 2 showed that the most common livelihood strategies of the respondents were cassava production + non-farm activities + off-farm activities (69.17%). This is probably due to the desire of the farmers to combat poverty, unemployment, unpredictable weather, fluctuating food prices, and to ensure steady income and higher welfare. More so, the preponderance of farmers practicing strategies like cassava production + non-farm activities + off-farm activities could be attributed to their quest to spread production risk and marketing risk, ensure resource use efficiency and yield stability, and overcome business and income

shocks. It also demonstrates how important agriculture and non-agricultural activities are to the farmers' welfare in the study area. This report supports Afodu, Afolami & Balogun's (2020) finding that cassava farmers in Ogun State, Nigeria, diversified their sources of income for reasons of welfare and food security.

Table 2: The livelihood strategies of the respondents (n=120)

Variables	Frequency	Percentage	Rank
Cassava production + non-farm activities (trading, artisan, civil service, transportation	27	22.50	2nd
Cassava production + off-farm activities (Processing, packaging, storage, distribution)	10	8.33	3rd
Cassava production + non-farm activities + off-farm activities	83	69.17	1st

Source: Field survey, 2024

The welfare status of the respondents

Table 3 showed that most respondents (46.67%) spent between ₦50,000 – 100,000 on welfare items in a month. The respondents spent an average amount of ₦96,547.22 on welfare-related items, which could be translated to $2.15 daily on food and non-food items in a month. This points to the fact that the respondents earned income from their livelihood activities, and have the capacity and resources to meet their welfare needs. This finding contradicts with Obasi, Simonyan, Echebiri, Okpara, Ugboaja, Njoku, Onwumere, Chinatu, Okereke, Nkwoala & Nosike (2020) who reported that farmers in South East, Nigeria spent an average of N91,226 on welfare items quarterly.

Table 3: The welfare status of the respondents in a month (n=120)

Monthly expenditure (₦)	Frequency	Percentage
1-49,000	22	18.33
50,000-100,000	56	46.67
101,000-149,000	20	16.67
150,000-199,000	16	13.33
200,000-249,000	3	2.50
250,000-299,000	3	2.50
Mean	**96,547.22**	

Source: Field survey, 2024, exchange rate: 1$=₦1500.00

The factors that affect the welfare status of cassava farmers in the study area

The double log functional form was chosen as the lead equation. This was based on statistical and econometric reasons which include the magnitude of the coefficient of multiple determination, the number of significant variables, as well as the significance of F-ratio. The coefficient of multiple determination (R^2) was 0.615 which implies that 61.50% of the variations in the welfare of the respondents were explained by the independent variables included in the model (age, experience, household size, education, farm size, credit, livelihood activities and cooperative membership) while 61.5% unexplained was due to error factor. The F-ratio of 22.14 was statistically significant at a 1% significant level indicating that the variables included in the estimated regression model were correct and have a line of best fit.

The coefficient of age was negatively signed at 1% level of significance, implying that an increase in age leads to a corresponding decrease in their welfare. Age relates to physical activities and given that most livelihood activities are strenuous, aged farmers are less likely to diversify their livelihood activities, which could reduce their income and household welfare. This finding is in tandem with Obasi *et al.,* (2020) who reported that age had a negative relationship with the welfare of farmers in South East, Nigeria.

The coefficient of household size was negative and significant at 1% level. This implies that welfare will decrease when household size increases. This report is true for households with large dependent family members or unproductive family labor, which discourages livelihood

diversification and reduces farmers' productivity, income, and welfare.

The coefficient of education had a positive relationship with the welfare of the respondents at 1%, implying that educated farmers are likely to have better welfare status than those who are illiterate. This is because education guides efficient farm decision-making, efficient combination of resources, and innovation adoption that will increase the income and welfare of farmers.

The coefficient of credit access had a positive relationship with the welfare status of the farmers at 5%. This implies that as the farmers have access to credit, the probability of enhancing their welfare status increases. This is not surprising, because establishing and owning more business will require a huge amount of capital. Thus, as people gain increasing access to credit, production information, and other production resources, other things being equal, their productivity is bound to be higher as well as their income and welfare status. Fasakin & Popoola (2019) reported that credit had a positive relationship with the welfare of farmers in Osun State, Nigeria.

The coefficient of livelihood diversification strategies was significant at 1% and related positively to the welfare of the respondents. This implies that farmers who diversify their livelihood activities would have better welfare than those with sole livelihood activity. Diversification makes a smooth flow of income to the household by reducing predictable and unpredictable fluctuations. This finding is in tandem with Okon, Enete & Okorji (2017) who reported a positive perception between livelihood strategies and welfare of urban farmers in South-South Nigeria. Also, Dia, Jongur & Onu (2022) reported a positive relationship between livelihood strategies and the welfare of farmers in Adamawa State, Nigeria.

Table 4: Factors that affect the welfare status of cassava farmers in the study area (n=120)

Variables	Linear	Exponential	Semi log	(+) Double log
Intercept	26543.35 (0.78)	4.53 (36.16)***	-40273.78 (-0.31)	4.39 (9.70)***
Age	-212.47 (-0.28)	-0.02 (-0.84)	-15165.22 (-0.18)	-0.11 (-5.37)***
Farming experience	486.87 (0.90)	0.01 (0.51)	23114.44 (0.96)	0.04 (0.44)
Household size	-17442.15 (-6.31)***	-0.07 (-7.75)***	141728 (5.25)***	0.74 (7.79)***
Level of education	1637.62 (1.36)	0.06 (1.56)	4472.50 (0.20)	-0.50 (-3.92)***
Farm size	-54941.14 (-3.89)***	-0.22 (-4.18) ***	-115602.50 (-3.15)***	0.04 (0.60)
Credit access	-2204.84 (-0.18)	0.15 (3.28)***	27102.95 (0.61)	-0.37 (-2.35)**
Livelihood strategies	34442.95 (2.58)**	0.16 (3.17) ***	44081.18 (3.20)***	0.18 (3.81)***
Cooperative membership	-1984.58 (-0.15)	-0.07 (-0.15)	5549.18 (0.12)	-0.06 (-0.04)
R^2	**0.529**	**0.605**	**0.581**	**0.615**
R^{-2}	**0.511**	**0.576**	**0.437**	**0.587**
F-ratio	**12.45*****	**21.24*****	**18.55*****	**22.14*****

Source: Field Survey, 2024, Note: Note: values in parentheses () are the respective t-ratio. ***, **, and * implies statistical significance at 0.01, 0.05and 0.1 probability levels respectively.

Conclusion

The respondents were middle aged, males, educated and experienced cassava farmers. Apart from cassava production, they embarked on non-farm activities and off-farm activities. The respondents spent an average amount of ₦96,547.22 on welfare-related items, which could be translated to $2.15 daily on food and non-food items. Age (P<0.01), household size (P<0.01), education (P<0.01), amount of credit used (P<0.05) and livelihood diversification strategies (P<0.01) are the factors influencing the welfare of the farmers.

Recommendations

Based on the findings, the study recommends that;

i. The government through the Federal Ministry of Agriculture and Rural Development should provide grant and zero-interest credit to farmers to enable them to invest in both farm and non-farm activities to boost their income and welfare.

ii. Government and non-governmental organizations should encourage farmers through training and capacity building to engage in diverse income-generating activities outside cassava production to increase their income and improve their overall welfare.

References

Adetarami, O, Olagunju, O. O, Adekola, A.O, Johnson, S.B. & Akintola, T. E. (2022). Use of Agricultural Programmes' Technical Information on Adoption of Improved Technologies by Cassava Farmers in Ogun State, Nigeria. *Nigerian Agricultural Journal*, 53(1), 113-123.

Afodu, O. J, Afolami, C. A & Lawrence, B. O. (2020). Effect of livelihood diversification and technology adoption on food security status of rice farming households in Ogun State, Nigeria. *Agricultural Socio-Economics Journal*, 20(3), 233-244.

Amurtiya, M. A. (2021). Rural livelihood improvement: An Assessment of Household Strategies and Activities in Adamawa State, Nigeria. *The Journal of Rural and Community Development*, 16(1), 1–22.

Asfaw, S., McCarthy, N., Paolantonio, A., Cavatassi, R., Amare, M. & Lipper, L. (2015). Livelihood diversification and vulnerability to poverty in rural Malawi. Agricultural Development Economics Division Food and Agriculture Organization of the United Nations. ESA Working Paper No. 15-02, Rome.

Dia, Y. Z, Jongur, A. A & Onu J. I. (2022). Livelihood diversification strategies as a means to poverty reduction among rural farming households in Adamawa State, Nigeria. *Green Rep.*, 2022, 3(7), 39-48.

Dirribsa, S. A & Tassew, B. O. (2015). Analysis of livelihood diversification strategy of rural household: A Case study of Ambo District, Oomiya Regional State, Ethiopia. Department of Cooperatives & Institute of Cooperatives & Development Studies, Ambo University, Oomiya Regional State, Ethiopia. *International Journal of Current Research and Academic Review*, 3(8), 406-426

Fasakin, I. J & Popoola, O. O. (2019). Agriculture co-operative associations, livelihood income and rural households' welfare in Osun State, Nigeria. *Greener Journal of Agricultural Sciences*, 9(2), 180-188.

Jackson, S.O, Weli, V.E & Chukwu-Okeah, G. (2021). Climate change and adaptation strategies of arable crop farmers In Abia State, Nigeria. *Earth & Environmental Science Research & Reviews*, 4(2), 91-97.

Ma, Y & Zhao, X. (2022). What affects the livelihood risk coping preferences of smallholder farmers? A Case Study from the Eastern Margin of the Qinghai-Tibet Plateau, China. *Sustainability*, 14(1), 46-68.

Mohammad, S. H, Md, T. U, Shankar, K. R & Mohammad, I. H. (2021). Welfare impact of market participation: The case of rice farmers from wetland ecosystem in Bangladesh. *Environmental Challenges*, 5(2) 100-212.

Musa, S. M, Samuel, E. B, Sani, M. & Mari, E. (2022). Cassava Production, Processing and Utilization in Nigeria: A Review. *African Scholar Journal of Biotechnology and Agricultural Research (JBAR-1)*, 26(1), 44-64.

Nchor, J. U. (2022). Strategies and their determinants among informal households in Calabar, Nigeria. *Sustainability*, 15(5), 2-20.

Obasi, I. O, Simonyan, J. B, Echebiri, R. N, Okpara, B. O, Ugboaja, C. I, Njoku, M. E, Onwumere, J. C, Chinatu, L. N, Okereke, E. W, Nkwoala, C & Nosike, R. N. (2020). Welfare effect of farmers-herders' conflict in South-

East Nigeria. *Nigerian Journal of Agriculture, Food and Environment.* 16(1), 98-108

Okon, U. E., Enete, A.A & Okorji, E. C. (2017)**.** Perspectives on Livelihood Strategies of Urban Farmers in Nigeria: Empirical Evidence from South-South Region. *American Journal of Human Ecology vol. 6 No. 1:17-26*

Okoror, O. T, Ahmadu, J & Ekomwen, B. E. (2019). Effects of livelihood diversification on the poverty status of cassava farmers in Edo South, Edo State, Nigeria. *Albanian j. Agric. Sci.*, 18(1), 1-8.

Onya, S. C, Ebe, F. E & Obike, K. C. (2021). Effect of crop diversification on food security status among arable crop farmers in Ikwuano Local Government Area, Abia State, Nigeria. Nigerian Agricultural Journal, 52(1), 53-60.

Onyenwoke, C. A & Simonyan, K. J. (2018). Cassava post-harvest processing and storage in Nigeria: A review. *African Journal of Agricultural Research*, 53(9), 1851-1863.

Yizengaw, Y. S, Okoyo, E. N & Beyene, F. (2015). Determinants of livelihood diversification strategies: The case of smallholder rural farm households in Debre Elias Woreda, East Gojjam Zone, Ethiopia. *Academic Journals*, 10(19), 8-19.