



**EFFECT OF LIVELIHOOD DIVERSIFICATION ON RURAL MIGRANT
HOUSEHOLDS' EXPENDITURE IN SOUTHWESTERN, NIGERIA**

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ABSTRACT

The study examen the effect of livelihood diversification on rural migrant households' expenditure in Southwestern Nigeria. A multistage random sampling technique was used to select the respondents for the study. Ekiti, Osun and Oyo states were randomly selected from the six states of the South-west, Nigeria. In all, a total of 413 respondents were selected for the study. Structured questionnaire was used to collect relevant data for the study. The data were subsequently analysed using descriptive statistics, estimation of Simpson's Index of Diversity (SID) and Simultaneous regression model (2-Stage Least Square). The results showed that majority (72.75%) of households were headed by males with the mean age and household size of 49.97 and 7 respectively. The first-generation migrants formed the majority (76.75%). The average duration of stay by the migrants was 29.51 years. Farming was chosen as the main occupation by more than half (55%) of household head. High degree of heterogeneity in terms of asset ownership and income generating activities was observed at household level. There was a moderate level of livelihood diversification as indicated by the estimated mean value (0.53) of SID. The SLS estimates revealed that livelihood diversification had a positive and significant ($p < 0.05$) influence on per capita household expenditure. It is therefore recommended that policies on rural development should follow a multidimensional approach in improving access to non-farm and off-farm employment.

Keywords: Expenditure, Diversification, Household, Migrants and Livelihood

INTRODUCTION

Migration has been documented as one of the many strategies which rural households and individual employ to diversify their livelihoods (Awunbila, 2017; World Bank, 2017). Migrants as conceptualized in this study are people who have left their homes or usual place of residence to a new location temporarily or permanently to reap social and economic benefits (International Organization for Migration, 2019). Migrants in rural areas find means to ensure their survival despite the conditions that tend to limit their social and economic opportunities. One of the commonest ways by which rural migrants meet their needs is by combining various activities that will ensure their survival within the society or localities they find themselves (Deotti and Estruch, 2016). The existence of inequalities and livelihood opportunities between rural areas in terms of access to economic resources and development is known to be a major cause of rural-rural or urban-rural migration (Ogunniyi *et al.*, 2018; Bisseleua *et al.*, 2018). Rural-rural or urban-rural migration is one of the commonest coping strategies adopted by poor rural households to stabilize their livelihoods and to adapt to climatic, environmental, social and economic changes. It is also one of the means adopted by poor rural farm households to overcome shortfalls in agricultural income and employment. (Deotti and Estruch, 2016).



One of the most significant impacts of livelihood diversification is its contribution to increased household income. Studies have consistently found that engaging in multiple income-generating activities leads to higher overall earnings (Slijper, 2021). This increased income allows households to meet their basic needs, invest in education and other productive assets; ultimately improving their overall standard of living (Rigg *et al.*, 2016). Other studies confirmed that livelihood diversification continues to be positively associated with increased household income (US Agency for International Development, 2023). Moreover, livelihood diversification has been found to reduce rural households' vulnerability to economic shocks. By diversifying their income sources, households are less exposed to risks associated with economic crises, natural disasters, and other unforeseen events (Zelege *et al.*, 2017; Abera *et al.*, 2021; Mudzielwana *et al.*, 2022). Although there is a consensus that most rural migrants get involved in many livelihood activities (Pitrwski *et al.*, 2013; Tanle, 2015) but there is little or no evidence that their involvement in many activities improve their level of expenditure. In particular, scanty attention has been given to the issue of livelihood income activities among rural migrants in Southwestern Nigeria. The present study therefore will attempt to provide empirical answers to bridge this knowledge gap.

MATERIAL AND METHODS

The study area

The study was carried out in Nigeria's southwestern geopolitical zone, which spreads between latitudes 6°21' and 8°37' N and longitude 2°31' E and 2°31' (NBS, 2017). It has a land area of 114,271 square kilometers, representing 12% of the country's land mass. The zone's population was estimated to be 21,974,678 according to the 2006 Census (National Population Commission, 2006). This zone is made up of four different sub-ecologies, namely; derived savannah, moist and dry lowland, mangrove forests, and swamps. It comprises 6 states, namely; Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo states. The region is characterized by a tropical climate usually with distinct rainy and dry seasons and a main growing season lasting about 9 months. The average annual rainfall with peaks in July and September is 1480 mm. The monthly temperature ranges from 18 to 24 °C during the dry season and 30 to 35 °C during rainy season. The main source of income for the people living in this zone is rain-fed agriculture which is characterized by arable cropping with cassava, maize, and yam as the main crops. Tree crops like cocoa, cashew, oil palm, and kolanut are commonly grown.

Sampling technique and Sample Size

A multistage random sampling technique was used to select respondents for the study. Ekiti, Osun and Oyo states were randomly selected from the six states of the South-west, Nigeria. Twenty percent of the rural LGAs were selected in the respective states. Ten percent of wards in each LGA were chosen where sampling frame was created for migrant households from which 40% of households on the sampling frames were selected to arrive at 413 respondents. Structured questionnaire was used to collect data on respondents' generational status, duration of stay, household assets, livelihood activities and other important variables relevant to the study.

Method of Data analysis

Data were analysed using descriptive statistics, estimation of Simpson's Index of Diversity (SID) and simultaneous regression models. Simpson's Index of Diversity index encompasses both the count of income sources and the significance or uniformity of these sources, as articulated by Minot *et al.* (2006). It is calculated using the following formula:

$$d = 1 - \sum P_i^2 \quad \dots(1)$$

where:

d = Simpson's index of diversification.

n = number of livelihood activities.

P_i = proportion of income generated from each activity.

i = number of income sources indexed by i.

This metric of income diversification (d) quantifies the variety of income sources numerically and ranges between zero and one. A value closer to one indicates greater diversity in household income, with a diversification index of one signifying extreme diversification. The index is formulated by evaluating each income source, weighted by its proportionate contribution to the total income. The empirical model for (d) is articulated as follows:

$$d = 1 - \sum_{i=1}^3 \left(\frac{fincom}{thi} \right) + \left(\frac{Nfincom}{thi} \right) + \left(\frac{Offincom}{thi} \right) \quad \dots(2)$$

where:

fincom = Farm income

Nfincom = Non-farm income

Offincom = Off- farm income

thi = Total household income

This approach aimed at assessing income diversification is more inclusive as it considers transfer payments to individual households. The index has been employed in studies by Ahmed *et al.* (2018), Djibo and Shifaraw (2018), and Abiodun *et al.* (2019). The most comprehensive structural form of the expenditure function for household i can be articulated as (Ersado, 2006):

$$Y_i = D\beta_1 + X_i \beta_2 + \mu_i \quad \dots(3)$$

Where:

Y_i = per capita consumption expenditure (i.e. expenditure on food and non-food items)

D = income diversification index

X_i = vector of explanatory variables

β = vector of respective parameters

μ_i = error term

The potential endogeneity of D in equation (3) was addressed by employing Two-stage Least Square (2SLS). Subsequently, the actual problematic D variable in the equation was replaced by a counterpart variable, which was purged of its stochastic or random component. This ensured the application of the ordinary least squares procedure. To achieve this, a reduced form equation was specified as a function of all the exogenous variables in equation (4) and a set of instrumental variables.

$$D_i = X_i \delta_1 + Z_i \delta_2 + \varepsilon_i \quad \dots(4)$$

Where Z_i is a vector of instrumental variables, having impact on income diversification but not on household expenditures. The predicted values from this OLS-estimated form equation (5)

$$\hat{Y}_i = \hat{D}_i \delta_1 + Z_i \delta_2 + \omega_i \quad \dots(5)$$

The explanatory variables X_i are as previously defined, while the vector of instruments Z_i includes access to credit, access to land, health status of the household head, vocational training acquired, the number of social organizations, the value of household disposable assets, and migrant's generation.

RESULTS AND DISCUSSION

Socio-economic characteristics of rural migrant households

The socio-economic characteristics of the respondents presented in table 1 show that the majority (72.25%) are male, whereas 27.25% were female. This suggests that the rural settings have higher number of male-headed households. Consequently, this gender imbalance is likely to affect the respondents' choices with respect to diversifying their means of livelihoods. As men are frequently perceived as more active and motivated to improve the wellbeing of their household members, they may be more inclined to pursue additional income-generating activities. The average age of household heads, which is 49.97 years indicates that the age range of migrant household heads falls within the productive years. This aligns with previous research conducted by Fabusoro *et al.* (2010) and Oyesola and Ademola (2011) who reported that rural labor forces in the southwestern region of Nigeria generally range from 20 to 55 years old. Consequently, the household heads in this study are more likely to seek additional avenues for income generation.

The majority (85.25%) of the respondents were married while about 84.5% had access to formal education with the average year of formal education estimated at 7.81 years.

Table 1: Socio-economic characteristics of rural migrant households

Variables	Frequency	Percentage	Mean	Standard Deviation
Sex of Household Head				
Female	109	27.25		
Male	291	72.75		
Age of Household Head				
<30 years	6	1.50	49.97	10.25
30-40 years	80	20.00		
41-50 years	134	33.50		
51-60 years	102	25.50		
Above 60 years	78	19.50		
Marital Status				
Married	341	85.25		
Widow/Widower	37	9.25		
Divorced/Separated	22	5.50		
Years of formal education				
0 year	62	15.50	7.81	4.86
1-6 years	157	39.25		
7-12 years	129	32.25		
Above 12 years	52	13.00		
Household Size				
<4 persons	29	7.25	8	2.69
4-8 persons	294	73.50		
9-12 persons	59	14.75		
Above 12 persons	18	4.50		
Generation of migrant				
First generation	307	76.75		
Second generation	93	23.25		
Duration of stay of household head				
<15 years	60	15.00	29.51	14.71
15-25 years	140	35.00		
26-35 years	67	16.75		
Above 35 years	133	33.25		

Source: Field Survey (2023)



The literature widely acknowledges a positive relationship between access to education and involvement in income-generating activities. Babatunde and Matin (2009) emphasized that education significantly and positively influence the diversification into non-farm income. The level of literacy within rural farm households is vital for improving productivity, enhancing production efficiency, and ultimately increasing income, leading to a more diverse range of income sources for improved well-being. In addition, the married will have access to profitable advice from their spouse when taking decisions.

The result further indicates that majority of respondents (73.50%) had a household size of 4 to 8 individuals, with an average household size of 8. This suggests a relatively large family size within migrant households. Consequently, in the study area, a larger household size implies that there is a higher likelihood of diversified income sources if all members of the household contribute to the overall welfare of the household. This finding aligns with the research conducted by Fabusoro *et al.* (2010) and Aderinto (2012), which also found that relatively large household sizes are prevalent in rural areas.

It can also be seen from the results that about 76.75% of them were first generation migrants while 85% of the respondents have spent at least 15 years as migrants in their respective locations with the mean duration of stay estimated to be 29.51 years. Length of stay in location is an important determinant of migrants' welfare. Demivera (2019) also found out that most migrants experience more positive and significant impact of migration over time than negative ones. Some results have emerged from literature that length of stay of migrants is positively related to acquisition of assets and social integration (Mara and Landesmann, 2013).

Income sources of household heads in the study area

Table 2 shows that more than half (53%) of the respondents had farming as their major occupation, 27.75% chose non-farm as their major source of livelihood while 19.25% of the migrant's household chose off-farm activities as their major occupation. Non-farm activities do not involve farming as the source of income. Non-farm activities provide employment for the landless. Off-farm activities are agricultural related but occur beyond the farm. Examples of off-farm are extension services, processing, packaging, storage and transportation. Diversification of income sources into farm and non-farm enhance food security, increase agricultural production by smoothing capital constraints and also to better cope with environmental shocks

Table 2: Distribution of respondents according to income sources of household heads

Income sources of HH head	Frequency	Percentage
Farm	212	53.00
Non-farm	111	27.75
Off-farm	77	19.25
Total	400	100

Source: Field Survey (2023)

Number of income outlets of the respondents

This section presents livelihood diversity in the study area according to number of income sources. Table 3 shows that 23.75% of the respondents had only one source of income while 24% relied on two income sources. Also, 20.75% of the respondents had three sources of income, 15.75% had four sources, 8.75% had five income outlets; while 6.75% had 6 income outlets the remaining 2.50% had 7 sources of income.

Table 3: Distribution of household according to number of income outlets.

Income source outlets	Frequency	Percentage	SID
1	85	21.25	0.53
2	96	24.00	
3	83	20.75	
4	63	15.75	
5	35	8.75	
6	27	6.75	
7	11	2.75	
Total	400	100	

Source: Field Survey (2023)

Livelihood diversification among the rural migrant households

The results presented in table 4 revealed that the Off-farm activities have the highest SID with 44.16% of households having SID of 0.6 and above. This is similar to the findings of Anang and Yeboah (2019) who asserted that the income from off-farm work complements income from farm activities and helps to expand other economic activities. On the aggregate, the results revealed that less than 1% of the respondents has SID of less than 0.20, 17% had SID ranging between 0.20 and 0.40, 47.5% had SID of 0.41-0.60 while 35.75% had SID above 0.60. The average livelihood diversification index stood at 0.53; an indication that livelihood activities of the respondents are moderately diversified. The findings are similar to that of Oni and Fashogbon (2012) who asserted that households in rural areas including that of migrants are risk neutral with SID of 0.53. The estimated moderate level of livelihood diversification could be attributed to challenges encountered by the participants, such as low level of assets, inadequate rural infrastructural facilities, inadequate credit facilities and poor marketing facilities among others which militate against suitable environment for venturing into many livelihood activities.

Table 4: Distribution of the livelihood diversification among the rural migrant households

Simpsons Income Diversity Index)	Farm	Non-farm	Off-farm	Total	Mean
<0.20	2 (0.94)	1 (0.90)	0 (0.00)	3(0.75)	0.53
0.20-0.40	45 (21.23)	14 (12.61)	9 (11.69)	68 (17.00)	
0.41-0.60	101(47.64)	51 (45.95)	34 (44.16)	186 (46.50)	
Above 0.60	64 (30.19)	45 (40.54)	34 (44.16)	143 (35.75)	
Total	212 (100.00)	111(100.00)	77 (100.00)	400 (100.00)	

Source: Field Survey (2023)

Note: Figures in brackets are in percentages (%)

Effect of Diversification of Livelihood Strategies on Well-Being of Migrant Households

Table 5 displays the outcome of the two-stage least square (2SLS) method to analyze how diversification of livelihood strategies affects the well-being of migrant households. The first stage of the analysis demonstrates the impact of certain variables on the diversification index while the second stage regression illustrates the effect of income diversification on per capita household expenditure. The analysis tested for the existence of causality effect with the aid of instrumental variables. For this study, the endogeneity effect of diversification index was verified using seven instrumental variables namely; access to credit, land access, health status of household head, vocational training acquired, number of social organizations, value of household disposable assets and migrant's generation. The endogeneity test reveals that there was endogeneity at 5% level of significance and it is justifiable to use instrumental variable regression model so as to mitigate the effect of endogeneity. Both the robust χ^2 (1) = 0.00041, (p= 0.0318) and robust regression

statistic $F(1,387) = 0.000397$, ($p = 0.0241$) tests were significant, the null hypothesis of exogeneity was rejected; Simpson's income diversification index was then considered endogenous. Test for weak instrument which involved testing for joint significance of the instruments showed that the model has strong instruments because the F -value = 26.45 is greater than 10, the rule of thumb value for strong instruments. Therefore, the included instrumental variables are strong instruments for Simpson's income diversification index. The test of over-identifying restriction which aimed to determine whether there were more instruments than necessary for estimating the parameter values was performed. The null hypothesis, affirming the validity of the instruments, was accepted as it demonstrated significance at the 1% level ($p = 0.0062$). Consequently, there is no over-identification restriction.

Table 5: Effect of diversification of livelihood strategies on the well-being of migrant households

Simpson's income index	Coefficient	Robust Std. Err	t-value	P> t
Sex	0.0111	0.0087	1.27	0.204
Age	-0.0001	0.0004	-0.28	0.778
Household size	-0.0002	0.0021	-0.07	0.942
Education years	-0.0009	0.0007	-1.19	0.236
Farm size	-0.0016**	0.0006	-2.47	0.014
Dependency ratio	-0.0090	0.0090	-1.00	0.316
Farm income	-9.61e-08***	5.41e-09	-17.77	0.000
Non-farm income	5.23e-08***	1.60e-08	3.28	0.000
Off-farm income	1.28e-07***	1.78e-08	7.18	0.000
Remittances	1.83e-07***	6.05e-08	3.03	0.003
Credit access	0.0028	0.0070	0.41	0.685
Land access	-0.0056	0.0091	-0.62	0.538
Health status	0.0088	0.0144	0.61	0.544
Vocation training	0.0014	0.0079	0.18	0.860
Social Organization	0.0039	0.0034	1.16	0.245
Assets value	4.05e-09***	1.53e-09	2.64	0.009
Migrant generation	0.0103	0.0093	1.10	0.272
Constant	0.5712	0.0264	21.57	0.000
Observation = 400				
Wald chi2(11)= 449.19				
Prob > chi2= 0.0000, R-squared= 0.5035				

Source: Field Survey (2023) **Note:** ***, ** and * represent level of significance at 1%, 5% and 10% respectively

Effect of Income Diversification Strategies on Migrant Household Expenditure

The effect of income diversification strategies on migrant household expenditure was analyzed using the results from the second stage regression in the 2SLS model (Table 6). Eleven variables were tested in the model, with five found to be statistically significant at different levels. The coefficient of household income diversification index (0.1293) was positive and statistically significant at the 1% level. This suggests that an increase in the household income diversification index by one unit would enhance migrant household welfare by 12.93%, holding all other variables constant. These findings align with the conclusions of Adepoju and Obayelu (2013). The coefficient of age was positive (0.1468) and significant at the 10% level, indicating that a unit increase in the age of the household head is associated with a 14.68% increase in the expenditure of sampled migrant households. This finding contradicts the research by Nguyen and Nguyen

(2019) which reported that age and gender of household heads have no connection with household consumption expenditure.

On the other hand, the coefficient of household size was negative (-0.6587) and statistically significant at the 1% level. This negative relationship with household expenditure implies that an increase in the size of the migrant household by one unit would result in a 65.87% reduction in household welfare for the studied respondents. Essentially, an increase in household size increases the likelihood of experiencing poverty. This observation is consistent with the findings of Adepoju and Obayelu (2013). Consistent with a priori expectations, the coefficient of the dependency ratio (-11508.46) is negative and significant at the 5% level of statistical significance. This negative relationship with household welfare suggests that a unit increase in the household dependency ratio would lead to a 11508.46 unit decline in the welfare of migrant households in the study area. This aligns with the findings of Wenjia *et al.* (2022) and Iram and Butt (2004), indicating that a higher dependency ratio has a significant negative effect on rural household welfare, likely due to increased constraints on economic activities within the household.

Furthermore, in line with a priori expectations, the coefficient of remittances is positive (0.1274) and statistically significant at the 5% level. This positive association implies that remittances have a direct link with household welfare, signifying that a unit increase in the amount of remittances would enhance migrant household welfare by 12.74%, while holding all other variables constant. This result aligns with the findings of Wenjia *et al.* (2022), using evidence from China, where additional income through remittances was shown to contribute positively to sustainable household well-being and assets.

Table 6: Effect of livelihood strategies diversification on migrant household expenditure

Per capita expenditure	Coefficient	Robust Std. Err	t-value	P> t
Income diversification index	0.1293***	0.0364	3.55	0.000
Sex	-0.0224	0.0280	-0.80	0.424
Age	0.1468*	0.0812	1.81	0.071
Household size	-0.6587***	0.0446	-14.77	0.000
Education years	0.0071	0.0156	0.45	0.650
Land size	0.0352	0.0256	1.37	0.170
Dependency ratio	-11508.46**	5553.765	-2.07	0.038
Farm income	9.98e-08	1.15e-07	0.87	0.387
Non-farm income	3.46e-08	6.62e-08	0.52	0.602
Off-farm income	5.22e-08	1.58e-07	0.33	0.742
Remittances	0.1274	0.0641	1.99	0.047
Constant	12.0611	0.7656	15.75	0.000
Observation = 400				
Wald chi2(11) = 449.19				
Prob > chi2 = 0.0000, R-squared = 0.5035				

Source: Field Survey (2023) **Note:** ***, ** and * represent level of significance at 1%, 5% and 10% respectively

CONCLUSION AND RECOMMENDATIONS

The study explored the effect of rural livelihood diversification on rural migrant households' expenditure in Southwestern Nigeria. Although farming is the primary occupation for most households, the majority have reasonably diversified income sources, recognizing that sole reliance on farming may not sustain their desired livelihoods. The livelihood diversification index suggests a moderate level of rural livelihood diversification. This development may be attributed to common challenges that may be confronting the migrants. Livelihood diversification had a positive and significant influence on per capita household expenditure.



Tailored policies that are essential to promote sustainable rural livelihoods based on the varying levels of access and ability of households to engage in market-oriented activities are therefore recommended. In addition, encouraging diversification through increased vocational training and guidance holds promise in alleviating poverty among rural poor households. This approach will provide greater opportunities for specialization in high-return skill development thereby benefiting rural migrant households in the long run.

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