



THE DETERMINANTS OF LIVELIHOOD INCOME DIVERSIFICATION AMONG RURAL FARMING HOUSEHOLDS IN OSUN STATE, NIGERIA.

¹Akinyemi, M., ²Olayinka, J. A., ¹Junaidu, M., ¹Ekpa, D., ³Bodaga, T. and ¹Ibrahim, U. M.

¹Department of Agricultural Economics, Federal University, Dutsin-Ma, Katsina State, Nigeria.

²Department of Agricultural Economics, University of Ilorin, Kwara State, Nigeria

³Department of Agricultural Extension & Rural Development, Federal University, Dutsin-Ma, Katsina State, Nigeria.

Corresponding Author’s email: makinyemi@fudutsunma.edu.ng +2348150606588

ABSTRACT

Rural economy in Nigeria is worst hit with the erratic and unpredictable factors that affect agricultural practice which is the main livelihood of the rural farm households. Consequently, farmers are left with the option of sourcing other means of survival to cope with the hard times due to in consistent and seasonal distribution of income which characterize small farm holders in sub-Saharan African countries. This study investigates the factor influencing the livelihood income diversification among rural farm households in Osun state, Nigeria. Multi stage sampling techniques was employed to sample 120 structured and pre-tested questionnaires from 120 rural farm households. Descriptive statistics and multiple regression analysis were used to analyze the data. The results of the descriptive statistics revealed that household heads of age range 50-60 years are 38.6% and about 40.70% had primary education while 26.30% had no education. About 98.31% of the rural households engaged in farming out of which 80.57% have farm size ranging between 1-3 hacters. Logit regression analysis shows that access to credit was positively significant (P<0.05) which implies that farmers that have access to credit were more likelihood to have income diversification. Age of the farmers was negatively significant (P<0.1). It connotes that the older the farmers the lesser the likelihood to income diversification. Income equivalent of household was positively significant (P<0.1). Access to electricity was positively significant (P<0.05). This implies that access to electricity increase farmer’s likelihood to income diversification. The off-farm income analysis shows that education and farm size were respectively negative and positively significant (P<0.05) implying both education and off-farm income increase the likelihood of income diversification. The study concludes that household’s education and farm size positively influence off farm income diversification in the study area. It recommends that Agricultural policies and projects should be addressed toward improving farmer’s access to credit. Provision of infrastructures like electricity should be made available to the farmers Production incentives in kind that can stimulate farming should be accessible to every farmer.

Keywords: Determinant Livelihood, Income, Diversification, Nigeria.

INTRODUCTION

Agriculture remains a major driver of growth and development of any economy hence any worthwhile efforts of the government to invigorate agriculture to its enviable position can never be a waste and such must be encouraged and sustained. Rural households in Nigeria modify their economic activities revolving round agriculture and non-agriculture activities. The rural non-farm sector is often seen as an important pathway out of poverty (Lanjouw, 2016). Indeed, an empirical regularity emerging from studies of the non-farm economy in developing countries is that there exists a positive relationship between non-farm activities and welfare on the average (Barrett, Reardon and Webb, 2012). In addition, non-farm employment has the potential to reduce inequality, absorb a growing rural labour force, slow rural-urban migration and contribute to the growth of national income (Lanjouw & Feder, 2010). According to

Barrett *et al.* (2012), diversification is the norm and very few people get all their income from any one source, hold all their wealth in the form of any single asset, or use their assets in just one activity. This is especially true among agricultural households whose livelihoods are vulnerable to climatic uncertainties. For households facing substantial crop and price risks, and consequently agricultural income risks, there is a strong incentive to either, intensify, and diversify their agricultural production, or diversify their income sources. In principle, such diversification could be accomplished through land and financial diversification.

It is widely agreed that a capacity to diversify is beneficial for households at or below the poverty line. Having alternatives for income generation can make the difference between minimally viable and destitution. However, diversification does not have an equalizing effect on rural income overall. Better-off families

are typically able to diversify in more favorable labour market than poor rural families (Oluwatayo, 2017). Poverty in Nigeria is on the increase and severity is more in the agricultural sector. It is a major problem which is more prevalent in the rural area as 75% of poor people in developing countries are in the rural areas (Basir and Olufunsho, 2014). All efforts of government to reduce poverty through various poverty alleviation programmes (though having their own irregularities) have not been very effective. Recent researches like Babatunde and Qaim (2016), have been proffering income diversification as a solution to alleviate poverty in the rural communities. While some argue that it had no significant effect on the welfare of the households in the area studied (Ijaya, Ijaya, Bello and Ajayi, 2018). It is on this note that this study seek to find out the factors influencing income diversification of rural household in the study area

Kwara state, in the east partly by Ekiti state and partly by Ondo state, and in the west by Oyo state.

Multi-stage sampling technique was used for the study. The first stage involved a random selection of five Local Government Areas (LGAs) from the thirty LGAs of the state. Two villages were randomly chosen from each of the five LGAs making a total of ten villages. The final stage involved the random selection of twelve farmers each from the ten villages. This is because the registered number of farmers in the farmer’s union are almost the same in the sampled villages. This would make a total numbers of 120 samples for this study.

MATERIALS METHODS

The study was conducted in Osun state. The state is an inland state in south-western Nigeria. The state is located in the raining forest with high intensity of rainfall.it is bounded in the north by

Analytical Techniques

The method used was adopted from Babatunde and Qaim (2016), which is the income-based approach, focusing on three measure of income diversification: The number of income sources (NIS).The share of off-farm income in total income (OFS).The Simpson Index of Diversity (SID) adopted by Minot et al., (2006).The NIS, which has also been used by Minot et al., (2016) and Ersado (2015), is relatively easy to measure, though it has been criticized for it arbitrariness. The Simpson Index of Diversity is defined as

$$SID = 1 - E P_i^2 \dots\dots\dots 1$$

Where P_i = the proportion of income coming from sources

The value of SID always falls between 0 and 1.

If there is just one source of income $P_i = 1$, so $SID = 0$.

As the number of sources increases, the share of P_i declines, as does the sum of the squares, so that SID approaches 1. If there are K sources of income, then SID falls between zero and $1-1/K$.

Logit model was however employed to ascertain the determinants of livelihood diversification among households in the study area. The logit model (Greene, 2003).

The model is explicitly defined as;

$$Y^* = a_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e_i \dots\dots\dots 2$$

Where e_i is normally distributed with zero mean and constant variance.

Where, Y^* is the livelihood diversification index obtained by dividing the number of livelihood sources employed by all the livelihood sources available in the study area. Thus, the value of the livelihood diversification index ranges between zero and one.

The explanatory variables used in the regression analysis were and measured as;

- X_1 = Age (in years)
- X_2 = Gender (Female = 1, Male = 0)
- X_3 = Years of formal education of the household head(years)
- X_4 = Household size(number)
- X_5 = Farm size (hectares)
- X_6 = Access to credit (dummied by yes = 1 and no = 0)
- X_7 = Access to electricity (dummied by yes = 1 and no = 0)
- X_8 = Income(naira)

b = Regression parameters or coefficient

e= Error term.

Starting with the specification of model, multiple regression analysis of the Ordinary Least Square (OLS) is used in testing the relative contribution of income diversification on the welfare of rural household in Osun state.

Following Minot et al., (2006) and Ijaya et al., (2009) method of estimation, the model is therefore stated as $WF_i = f(ID_i, HHc_i) \dots\dots\dots 3$

Where WF_i = welfare of individual household proxy by consumption expenditure per adult equivalent.

The statistical criteria based on statistical theory which in other word is referred to as the First Order Least Square Test, consisting of R-square (R^2), F-statistic and t-test.

RESULT AND DISCUSSION

Socio-economic characteristics of the respondents

The result from socio-economic characteristics (table 1) shows that Male headed households are 92.4% as against the 7.6% female household. About 92% of the total respondents were married, this accounts for large households in the study area. The modal age of the household heads in the study area is between 50-60years which accounts for about 39% of the respondents. It shows that farmers in the study area are elderly and this may have reduced the tendency of the farmers to diversify income. in the study area

Table 1 further shows that 40.7% of the heads of the farming households in the study area had only primary school education, while 26.3% had no formal education. This might probably hamper adoption of modern method of farming and reduces possibility for income diversification. Olorunsanya, (2009) reported similar low level of education among rural farming households in Kwara State. The modal farm size in the study area ranges between 0-3 hectares (about 81%). Farm size has direct connection with farm income. Olorunsanya (2009) opined

Factor Affecting Income Diversification

Table 2 reveals that in the first regression on Simpson Index of Diversity, the age of the household head is negatively influencing the overall diversification. Households with older head tend to have a lower number of income sources and their distribution is more uneven. Access to credit has a positive significant influence on Simpson Index of Diversity. Households that received loan in the last five years have increased their sources of income and the distribution of income from those sources is more even. Households that have access to electricity provided by government tend to increase their sources of income and have a more even mix income. Income per adult equivalent of households also, has a positive influence on the overall mix of income. Indicating that, wealth increases income sources and helps to maintain a balance among income from different sources. In the second regression on the off-farm income share, age of the household head has a positive significant influence on the share of off-farm income. This

that diversification can be justifiable whenever there is a failure in a particular enterprise. The size of the cultivated farm is too small this give room for the alternative sourcing of income.. Forty-four percent of the household heads belong to cooperative society. Membership of cooperative avails farmers of some financial benefits, hence farmers can use such privileges to expand their farms. The table also revealed that 72.88% of the respondents could access credit, while 27.12% could not for one reason or the other. This can however be used to diversify to other areas of agricultural venture or for the expansion of their current business. Households can use the credit for another income generating venture especially when such is less risk and there is higher likelihood of higher returns. From the table 83.05% of the farming households have access to electricity. This is a strong stimulus to income diversification because power generation is very important to investment in non-agricultural venture. The households can use this privilege to establish other businesses after their daily farm activities and also during the off seasonal farming activities.

shows that older household heads tend to diversify away from farming activities which may be due to the drudgery involved in farming. Years of formal education has positive significant impact on the off-farm income share. This indicates that the more educated the households are, the less they depend on farming activities and they tend to diversify away from agriculture. This is similar to previous studies that have stated the important role of education for off-farm diversification (Lanjouw 2001). Diversification also increases with increase in household size. This is because members of a household form labour asset endowment for the household to diversify. Income per adult equivalent has a positive significant influence showing that richer households depend less on agriculture and received more of their income from off-farm activities. Farm size however, has a negative significant effect on share of off-farm income indicating that households with larger farm land depend more on agriculture and receive lesser income from off-farm activities.

Table 1: Socio-economic Characteristics of Respondent (n = 118)

Characteristics	Frequency	Percentage
Gender of the household head		
Female	9	7.6
Male	109	92.4
Marital Status of the household head		
Single	0	0
Married	114	96.6
Widowed	4	3.4
Divorces	0	0
Age of the household head		
28-38	9	7.3
39-49	32	27
50-60	46	38.8
61-71	30	26.1
>71	1	0.8
Formal education of the household head		
No Formal Education	31	26.30
Primary Education	48	40.70
Secondary Education	22	18.60
Tertiary Education	17	14.40
Household Size		
3-6	46	38.98
7-10	52	44.07
11-14	15	12.71
15-18	4	3.39
19-21	1	0.85
Cooperative membership		
Member	52	44.07
Non-member	66	55.93
Primary Occupation		
Farming	116	98.31
Civil Service	2	1.69
Income Source		
Crop farming only	39	33.05
Crop and livestock	48	40.68
Crop, livestock & Artsian	31	26.27
Access to Credit		
Access	86	72.88
No Access	32	27.12
Access to Electricity		
Access	98	83.05
No Access	20	19.95

Source : Field Survey 2018

Table 1: Parameter estimate for the Logit model

	Simpson Index of Diversity		Off-farm Income Share	
	Coefficient	Z-value	Coefficient	Z-value
Age	-0.050 ^x	-1.67	0.70 ^{xx}	2.06
Gender (dummy)	1.644	1.24	0.651	0.51
Years of education	-0.076	-1.27	0.150 ^{xx}	2.38
Household size	0.152	1.32	0.210 ^x	1.98
Farm size	-0.038	-0.23	-0.515 ^{xx}	-2.41
Access to credit (dummy)	1.167 ^{xx}	2.22	0.228	0.38
Electricity (dummy)	1.556 ^{xx}	2.00	1.289	1.57
Income-equivalent of household	0.000 ^{xxx}	0.00	0.00 ^{xxx}	3.70
Constant	-4.021	-2.20	-10.235	-4.36
Log likelihood	-98.131		-85.523	

Source: Data Analysis 2018

^{x,xx,xxx} = coefficients are significant at the 10%, 5%, and 1% level, respectively.

CONCLUSION

Majority of the rural households in Osun state have at least two income sources. On the average, only 54.44% of total household income is generated from farming, while the rest is coming from different off-farm sources. Differentiating income sources by income groups shows that richer households derive at least 60% of their income from off-farm activities, whereas it accounts for only 23.88% of the income of the poorest households. Poorest households, because of their lower endowment with physical capital not related to agriculture, have fewer opportunities to participate and derive income from off-farm activities. Thus, the asset owned by the poor rural households have to be considered before introducing an off-farm activity in an attempt to alleviate poverty. A number of factors were responsible for diversification in the study area. Income per adult equivalent of households, their access to formal financial market and electricity all have a positive significant effect on the overall mix of income. Indicating that as these increases; the number of income sources tends to increase and income derived from those sources tends to be more even. However, age of the household head has a negative significant impact on the overall diversification of the household income.

Improvement on the infrastructures and access to credit like electricity available to rural households because it is seen to have significant effect on income diversification. Policies that will allow rural households to diversify the more into high yielding agricultural inclined off-farm activities such will have a significant effect on the welfare of the rural farming households. Farmers should be sensitized on the opportunities in off-farm economy. Agricultural policies and projects should be targeted toward increasing the returns from activities in which particularly poor households are already involved.

REFERENCES

- Babatunde, R.O. and Qaim, M. (2016): Pattern of income diversification in rural Nigeria: determinants and impacts. *Quarterly Journal of International Agriculture* 48(4): 305-320.
- Barrett, C.B., M. Bezuneh and A. Aboud (2012): Income diversification, poverty traps and policy shocks in Cote d'Ivoire and Kenya. In: *Food Policy* 26(4): 367-384.

- Chimobi, U. (2010): Poverty in Nigeria: Some Dimensions and Contributing Factors *Global Majority E- Journal* 1(1), 46-56.
- Ellis, F. (2000). Rural livelihoods and diversity in developing countries. Oxford University Press, Oxford, UK.
- Ersado, L. (2015) Income Diversification in Zimbabwe: Welfare Implications from Urban and Rural Areas.
- FCND Discussion Paper 152. *International Food Policy Research Institute*. Washington, D.C.
- Ijaya, M.A., Ijaya, G.T., Bello, R.A., Ajayi, M.A (2018). Income diversification and household well-being in Ilorin metropolis, Nigeria. *International Journal of Business Management, Economics and Information Technology* 1(1): 1-12
- Lanjouw, P, (2016): Nonfarm employment and poverty in rural El Salvador, In: *World Development* 29 (3): 529-547
- Lanjouw, P & Feder, G, 2010. Rural nonfarm activities and rural development: From Experience towards strategy. *World Bank Rural Development Strategy*. Background Paper No. 4. World Bank, Washington, DC.
- Minot, N., M. Epprecht, T.T.T. Anh and L.Q. Trung (2016): Income Diversification and Poverty in the Northern Upland of Vietnam. Research Report No. 145. *International Food Policy Research Institute*, Washington D.C.
- Oluwatayo, I.B. (2017). Poverty and income diversification among households in rural Nigeria: *A gender analysis of livelihood patterns*. Instituto de Estudos Sociais Economicos 41(1): 1-23



©2021 This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International license viewed via <https://creativecommons.org/licenses/by/4.0/> which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is cited appropriately.