Rural Households' Attitude to Diversification into Non-farm Enterprises in Katsina State, Nigeria

Yakubu, Danlami Haruna
Department of Agricultural Extension and Rural Development, Usmanu Danfodiyo University, Sokoto, Nigeria
Email: danlami_y@yahoo.com
Phone: +2348069064617

Musa, Nasiru
Department of Agricultural Extension and Rural Development, Usmanu Danfodiyo University, Sokoto, Nigeria
Email: nm.danchafa2@gmail.com
Phone: +2347066763922

Abubakar, Bello Zaki
Department of Agricultural Extension and Rural Development, Usmanu Danfodiyo University, Sokoto, Nigeria
Email: bzgwandu@hahoo.ca
Phone: +2347036186460

Jabo, Muhammad Sani Muhammad
Department of Agricultural Economics, Usmanu Danfodiyo University, Sokoto, Nigeria
Email: sani.jabo@yahoo.com;
Phone: +2348035985520

Abstract
The study investigated the rural households' attitude to diversification into non-farm enterprises in Katsina State, Nigeria. A multistage sampling procedure was used to select 256 farmers for the study. Data were obtained with the aid of questionnaire and analyzed using percentage and regression analysis. The most positive attitude was "that non-farm enterprise is a crucial pathway to food security for rural households". It was closely followed by "non-farm enterprise is a source of agricultural household savings used for food purchase in hard times" and "non-farm enterprise provides a means to cope or survive when farming fails". Farmers expressed positive attitude to diversification into non-farm enterprises and do not depend on agriculture as a sole means of livelihood but diversified income sources; the diversified farmers had higher income level. Government should support the existing non-farm enterprises and encourage creation of new ones; also improve formal credit access. Furthermore, technical support and skills acquisition training programs should be provided to enhance the performance and efficiency of non-farm enterprises in rural areas.
Key words: Household attitude, non-farm enterprises

Introduction
Due to rapidly increasing population in Africa, more and more pressure is exerted on arable land, therefore many households are no longer able to live on agriculture alone but also engage in non-farm enterprises (Nagler and Naude, 2017). Most evidences show that rural non-farm (RNF) enterprises in Africa are fairly evenly divided across commerce, manufacturing and services, linked directly or indirectly to agriculture (Tsepiso, 2019). Gordon and Craig (2016) define non-farm enterprises as all economic activities other than the production of primary agricultural commodities. Non-farm activities, thus, include mining, manufacturing and constructions. Others are commerce, transport, and the full gamut of financial and government services. Working in agro-processing, such as the transformation of raw agricultural products by milling, packaging, bulking, or transporting also formed a key component of the rural non-farm employment.

Non-farm employment covers both the rural non-farm economy and seasonal migration (Barret, Reardon & Webb, 2018). According to Sylvester (2019) rural non-farm enterprises are important for absorbing surplus labor in rural areas; helping farm-based households spread risks and offer more remunerative activities to supplement or replace agricultural income and offering income potentials during the agricultural off-season and provide a means to cope or survive when farming fails.Nagler and Naude (2017) found that farmers in rural Nigeria utilize their non-farm incomes to relax credit constraints by spending on crop expenses and payments for hired labor and inorganic fertilizers. The fact that non-farm enterprises could potentially be important for rural development has only been recognized from the late 1990s onward, when it became clear that, contrary to expectations, the contribution of these enterprises to rural household income has not declined over time, but in fact increased (Davis *et al.*, 2017).An analysis of the Rural Income Generating Activities (RIGA) data base by Davis *et al.* (2017) found that rural non-farm enterprises contribute more than 50 percent to rural household income in 11 out of 15 countries, with a cross-country average of 58 percent. The most common evidence from most studies of off-farm work among farm households has been that income from off-farm work accounts for significant and increasing proportion of total income of farm households in the developing countries (Haggblade, Hazell & Reardon, 2016). Recent estimates by Haggblade *et al.* (2016) put the non-farm share of the total income of rural households in the developing countries in the range of 35% and 50%, with the contributions among rural households in sub-Saharan Africa expected to rise significantly in the coming years given the increasing population growth and limited agricultural productivity growth in the region.

There is a rising believe among policy analysts, academia and government functionaries that provision of urban-type employment opportunities in the rural areas may be a veritable means of addressing the multifaceted problem of poverty, urbanization and unemployment in Nigeria. This view is supported by the Food and Agriculture Organization (FAO) (2015) that have observed that given the limitations imposed by the fixed stock of land and increasing urbanization, provision of opportunity for involvement of members of rural farm households in rural non-farm activities might turn out to be a means of creating favorable conditions to reduce poverty in the rural areas. Gordon and Craig (2016) also observed that growth in the rural non-farm activities might also be used to stem rapid rural-urban migration and

the attendant urban poverty in most developing countries. Osondu, Obike & Ogbonna (2018) outlined the following constraints to embark on non-farm enterprises: inadequate capital to start up non-farm business; lack of access to credit/finance and identification of non-farm business enterprise; others include land procurement issues; water availability; inadequate electricity; inadequate reliable public transport/road; insecurity or theft and technical issues. Even though there is consensus on the potentiality of non-farm enterprises in increasing rural incomes and improving food security, but there has not been much empirical work to analyze rural households' attitude to diversification into non-farm enterprises in Katsina State.

The study was carried out to investigate the rural households' attitude to diversification into non-farm enterprises in Katsina State. It specifically;

1. described the socio-economic characteristics of the diversified and non-diversified farmers and
2. determined the constraints to diversification into non-farm enterprises.

Hypothesis
Ho: There is no significant relationship between households' socioeconomic characteristics and their attitude to diversification into non-farm enterprises.

Methodology
The study was carried out in Katsina State, North-western Nigeria located between latitudes 11°08^{1}N and 13°22^{1}N and longitudes 6°52^{1}E and 9°20^{1}E (GPS, 2018). According to Shehu (2018) the State is made up of 34 Local Government Areas with 3 ADP Zones namely Ajiwa zone (zone one); Dutsinma zone (zone two) and Funtua zone (zone three). It has a total land mass of 24,971 square kilometers with an estimated projected population of 7,831,300 million people (NPC, 2018). The State shares common boundaries with Niger Republic to the North, Sokoto and Zamfara States to the West, Kaduna State to the South and Kano and Jigawa States to the East (Ibrahim, 2017). The duration of the rainfall is between May and October with the mean annual rainfall of 257mm, the minimum and maximum temperatures 15^{0}c and 39^{0}c respectively (NIMET, 2018). The Harmattan, which is the dry, cold and laden winds is experienced from December to February.

The Ajiwa zone (Zone one) of Katsina State Agricultural and Rural Development Authority (KTARDA) wasselected for the study. The zone comprises of 15 LGAs (Batagarawa, Baure, Bindawa, Charanchi, Daura, Dutsi, Jibia, Kaita, Katsina, Mai'adua, Mani, Mashi, Rimi, Sandamu and Zango) (Shehu, 2018). A Multistage sampling technique was employed to select the sample for this study. In the first stage, three (3) out of the 15 LGAs namely Jibia, Mashi and Rimi were purposively selected due to their considerable engagements in non-farm enterprises. In the second stage, all the 5 districts in the 3 LGAs were considered. They are Daddara, Jibia and Mashi. Others include Rimi and Tsagero. In the third stage, 15 (5%) out of 298 villages were selected. In the final stage, 2.5% of the households were randomly selected out of 10,166 (sampling frame). This gives a total of 256 households as the sample size for the study. The household's head was used to represent a household.
Questionnaire and interview schedule was used to collect the primary data for the study. Secondary information was obtained from the official records and related

literatures. Descriptive statistics (frequencies, percentages and mean) and logit regression analysis were used to achieve the objectives of the study.

Results and Discussion

Socio-economic Characteristics
A majority of the diversified (92.2%) and non-diversified (89.1%) farmers were married (90.6% overall) (Table 1). It indicates that the majority of the farmers were saddled with responsibilities of catering for their families. This is in line with the findings of Adewuyi and Yusuf (2018) that a majority of the farmers in Adamawa State were married.

Table 1: Distribution of the respondents according to socioeconomic characteristics

Variable	Diversified (n=128) %	Non-diversified (n=128) %	Pooled sample (n=256) %
Marital Status			
Married	92.2	89.1	90.6
Single	3.9	3.9	3.9
Widower	2.3	3.9	3.1
Divorced	1.6	3.1	2.3
Educational attainment			
Non-Formal Education	40.6	77.3	59.0
Primary Education	24.2	13.3	18.8
Secondary Education	25.0	6.3	15.6
Tertiary Education	10.2	3.1	6.6
Farm size (hectare)			
<1	36.7	5.5	21.1
1-2	46.1	27.4	36.7
3-4	17.2	67.2	42.2
Mean farm size	**1.6**	**3.1**	**2.4**
Household Size			
1-5	10.2	2.4	6.3
6-10	68.8	20.4	44.5
>10	21.0	77.3	49.2
Mean household size	**8.8**	**11.6**	**10.2**
Farming experience (years)			
11-20	77.4	20.3	48.8
21-30	22.0	29.0	25.8
>30	0.8	50.8	26.2
Mean farming experience	**18.9**	**30.8**	**24.9**
Major Occupation			
Non-farm occupation	64.8	0.0	32.4
Farm occupation	35.2	100	67.6
Annual Income (₦)			
400,000-450,000	3.9	11.2	7.4
451,000-501,000	1.6	66.4	34.0
502,000-552,000	7.9	14.1	11.0
553,000-603,000	21.2	2.4	11.7
>603,000	65.6	6.3	36.0
Mean Income	**598,328.1**	**496,023.0**	**547,175.8**

Source: Field survey data, 2019

Result of the study also revealed that 59.0% of the respondents, with 40.6% diversified farmers and 77.3% of the non-diversified farmers had no formal education (primary, secondary or tertiary education) (Table 1). This implies that more than half of the farmers in the study area had no formal education. The findings of Shittu (2017) also indicated that more than half of the farmers in rural south-western Nigeria had no formal education.

Most (67.2%) of the non-diversified respondents had farm size of 3-4 hectares while 46.1% and 36.7% of the diversified respondents had 1-2 and <1 hectares of farm land respectively with 2.4 hectares being the average farm size for the respondents (Table 1). Shittu (2017) also reported that farmers in rural south-western Nigeria had 2.5 hectares as their average farm size. This implies that farmers with smaller farm lands tend to diversify into non-farm enterprises.

Again Table 1 revealed that the majority (77.3%) of the non-diversified farmers had household size of more than 10 members while 68.8% of the diversified farmers had 6-10 members with 10 members being the average household size for the respondents. This implies that farmers in the study area have large households. It may be due to their polygamous lifestyle. It also implies that the non-diversified farmers had larger household size. The findings of Ahmed (2019) also revealed that 58% of the farmers in Konduga, Borno State had households size of 6-10 persons.

Study findings revealed 64.8% of the diversified respondents had non-farm occupation as their major (Table 1). This may be due to the fact that larger segment of the diversified farmers gain larger portion of their income from the non-farm enterprises. This finding is in consonance with that of Olaolu, Akinnagbe & Agber (2018) which revealed that 58% of the farmers in Kogi State had business and other non-farm activities as their major sources of income.

Findings in Table 1 depicted that 65.6% of the diversified respondents had an annual income above ₦603,000, with ₦578,328.1 being the average, while 66.4% of the non-diversified respondents had an income within the range of ₦451,000-501,000 with ₦496,023.0 being the average. The overall average income was ₦547,175.8. This indicates that the diversified farmers had larger income level and so, should have better living standard. This finding is in line with that of Adewunmi (2019) that most of the diversified households in rural south-western Nigeria had larger income levels than the non-diversified.

Farmers` Attitude to Diversification into Non-Farm Enterprises
Farmers' attitudes described their opinion, thinking and spirit towards diversification into non-farm enterprises. The most positive attitude was expressed by the respondents in the statement that non-farm enterprise is a crucial pathway to food security for rural households which had the mean score of 5.00 (above the mid-point of 3.0). It was closely followed by non-farm enterprise is a source of agricultural household savings used for food purchase in hard times and non-farm enterprise provides a means to cope or survive when farming fails each with mean scores of 4.97 and 4.95 respectively. The former had mean scores of 4.97 and 4.96 for diversified and non-diversified farmers respectively, while the later had mean scores of 4.96 and 4.94 for diversified and non-diversified farmers respectively (Table 2). This result is in

line with findings of Owoo and Naude (2019) that households in rural Africa had positive and favorable attitudes to diversification into non-farm enterprises.

Table 2: Households attitude to diversification into non-farm enterprises

Attitudinal indicators	Diversified (n=128)	Non-diversified (n=128)	Pooled sample (n=256)
	Mean	Mean	Mean
Non-farm enterprise (NFE) is a crucial pathway to food security for rural households	5.00	5.00	5.00
NFE is a source of agricultural household savings used for food purchase in hard times	4.97	4.96	4.97
NFE provides a means to cope or survive when farming fails	4.96	4.94	4.95
NFE absorbs surplus labor in rural areas	4.93	4.95	4.94
NFE income provide the cash that enables a farm household to purchase food during drought or harvest shortfall	4.92	4.91	4.92
NFE offers income potentials during the agricultural off-season	4.92	4.89	4.91
NFE income enables rural households to overcome credit and risk constraints on agricultural innovations	4.90	4.89	4.89
NFE supplements agricultural income	4.89	4.87	4.88
NFE helps farm based households avert risks associated with farming	4.89	4.87	4.88
NFE provides expansion of non-agricultural employment and thus raise wages in agricultural labor market	4.87	4.86	4.87

Source: Field survey data, 2019   NFE = Non-farm Enterprise

Households' Socio-economic Characteristics and their Attitude to Diversification into Non-Farm Enterprises

The likelihood ratio statistics as indicated by chi-square statistics was highly significant (P<0.01), suggesting that the logit regression model has a considerable explanatory power for the data (Table 4). The Pseudo R^2 value of 0.61 approaches 1 which implies that the logit is a better model and fits the data very well. Result of the logit regression analysis revealed that, age was statistically significant (-0.082: p<0.01). The negative coefficient indicated that age had negative relationship with households' attitude to diversification into non-farm enterprises (Table 3). This result corroborates that of Osondu *et al.* (2018) which showed age had negative relationship with households' attitude to diversification into non-farm enterprises.

Marital status was statistically significant (0.068: p<0.1). The positive coefficient indicated that marital status had positive relationship with households' attitude to diversification into non-farm enterprises (Table 3). This is in line with the findings of Oluwale, Olaposi and Adelewo (2016) who reported marital status had significant relationship with households' attitude to diversification into non-farm enterprises.

Formal education was statistically significant (0.093: p<0.01). The positive coefficient indicated that formal education had positive relationship with households' attitude to diversification into non-farm enterprises (Table 3). This confirms the findings of Ahmed (2019) that formal education had significant relationship with households' attitude to diversification into non-farm enterprises.

Farm size was statistically significant (-0.056: p<0.05). The negative coefficient indicated that farm size had negative influence on households' attitude to diversification into non-farm enterprises (Table 3). This confirms the findings of Owoo and Naude (2019) who reported farm size had significant relationship with households' attitude to diversification into non-farm enterprises.

Households' size was statistically significant (0.072: p<0.05). The positive coefficient indicated that households' size had positive relationship with households' attitude to diversification into non-farm enterprises (Table 3). This confirms the findings of Owoo and Naude (2019) who reported households' size had significant relationship with households' attitude to diversification into non-farm enterprises. So the null hypothesis which stated there is no significant relationship between households' socioeconomic characteristics and their attitude to diversification into non-farm enterprises is rejected.

Table 3: Relationship between socioeconomic characteristics and attitude to diversification into non-farm enterprises

Variable	Coefficient	Standard Error	Z-value
Constant	0.457	0.271	1.687*
Sex	0.033	0.189	0.177
Age	-0.082	0.008	-10.251***
Marital status	0.068	0.035	1.942*
Major occupation	0.056	0.059	0.946
Formal education	0.093	0.008	11.625***
Farm size	-0.056	0.027	-2.074**
Household Size	0.072	0.031	2.322**
Farming experience	-0.006	0.007	-0.915
Prob>chi^2 = 0.000			
Log likelihood = -5.178			
Pseudo R^2 = 0.61			

***P ≤ 0.01, **P≤0.05, *P≤0.1

Constraints to Diversification into Non-farm Enterprises
These are the problems or difficulties the farmers encounter with diversification into non-farm enterprises. The result showed that the entire (100.0%) non-diversified respondents reported poor access to credits as severe constraint militating against diversification into non-farm enterprises (Table 4). Similarly, a majority (98.4%) of the diversified respondents reported poor access to credit as a severe constraint. A majority (98.4%) of both diversified and non-diversified farmers had inadequate electricity as a severe constraint. The entire (100.0%) non-diversified farmers had inadequate capital as a severe constraint, while 97.7% of the diversified farmers had

the inadequate capital as a severe constraint to their diversification into non-farm enterprise. The majority of both non-diversified (98.4%) and diversified respondents (96.1) reported poor road network as a severe constraint. Insecurity/theft was reported by majority of the non-diversified respondents (97.7%) and diversified respondents (95.4%) as a severe constraint. However, the majority of both diversified respondents (96.1%) and non-diversified respondents (88.3%) reported water scarcity as a mild constraint. Poor market and marketing centers were reported by majority of both diversified (96.1%) and non-diversified respondents (93.8%) as a mild constraint. This implies that the major constraints to diversification into non-farm enterprises were poor access to credit, inadequate electricity and inadequate capital. Others include poor road network and insecurity/theft. This finding is in line with Osondu *et al*. (2018) that reported inadequate capital to start up non-farm business; lack of access to credit/finance and inadequate electricity among the major constraints to diversification into non-farm enterprise.

Table 4: Distribution of households according to constraints to diversification into non-farm enterprises

Variable	Diversified		Non-diversified	
	Severe	Mild	Severe	Mild
	%	%	%	%
Poor access to credit	98.4	1.6	100.0	0.0
Inadequate electricity	98.4	1.6	98.4	1.6
Inadequate capital	97.7	2.3	100.0	0.0
Poor road network	96.1	3.9	98.4	1.6
Insecurity/theft	95.4	4.6	97.7	2.3
Water scarcity	3.9	96.1	11.7	88.3
Poor market and marketing centres	3.9	96.1	6.3	93.8

Source: Field survey data, 2019

Conclusion and Recommendations
Farmers expressed positive attitude to diversification into non-farm enterprises and do not depend on agriculture as a sole means of livelihood but diversified income sources. There were clear differences in income between the diversified and non-diversified farmers with the diversified farmers having higher income level. However, non-farm enterprises were constrained by inadequate capital, inadequate power supply and insecurity among others.

Government should support the existing non-farm enterprises and encourage creation of new ones; it should also improve electricity supply and formal credit access. Furthermore, technical support and skills acquisition training programs should be provided to enhance the performance and efficiency of non-farm enterprises in rural areas.

References:
Adewunmi, O. (2019). Non-Farm Income Diversification and Poverty Reduction among Rural Farm Households in Southwest Nigeria. *European Journal of Social Sciences*, 21(1): 112-125.

Adewuyi, A.K. and Yusuf, H. (2018). Effect of Poverty on Food Security of Rural Households in Adamawa State, Nigeria. *Journal of Environmental issues and Agriculture in Developing Countries*, 3(1): 150-167.

Ahmed, F. (2019). Income Diversification Determinants among Farming Households in Konduga, Borno State, Nigeria. *Journal of Academic Research International*, 2(2): 555-561.

Barrett, C., Reardon, T. and Webb, P. (2018). Non-Farm Income Diversification and Household Livelihood Strategies in Rural Africa: Concepts, Issues, and Policy Implications. *JournalofFood Policy*, 26 (4): 315-320.

Davis, B., Winters, P., Carletto, G., Covarrubias, K., Zezza, A. and Bonomi, G. (2017). Rural Income Generating Activities: Cross-Country Comparison. *ESA Working Paper, FAO Rome*: 7-16.

Food and Agriculture Organization (FAO), (2015). The State of Food and Agriculture. *FAO Series No. 31, FAO, Rome, Italy*: 56.

Global Positioning System (GPS) (2018). Coordinates of Katsina, Nigeria. Available at https://latitude.to/map/ng/nigeria/.../katsina... Retrieved on 13-12-2018, Accessed on 20-3-2018.

Gordon, A. and Craig, C. (2016). Rural Non-farm Activities and Poverty Alleviation in Sub-Saharan Africa, Natural Resources Institute Policy Series. ISBN 0-85954-533-4. Available at http://gala.gre.ac.uk/11126. Accessed on 15-06-2019.

Haggblade, S., Hazell, P. and Reardon, T. (2016). The Rural Non-farm Economy: Prospects for Growth and Poverty Reduction. *Journal ofWorld Development*, 38(10):1429–1441.

Ibrahim S.B. (2017). Katsina State: Its people and History. Paper presented to 2017 Batch 'A' Corps members at Government Day Secondary School Dutsin-ma, Katsina, on 12th Sept, 2017: pp.12.

Nagler, P. and Naude, W. (2017). Non-farm Entrepreneurship in Rural Africa: Patterns and Determinants, IZA Discussion Paper. No. 8008, Institute for the Study of Labor, Bonn, Germany. Retrieved from http://hdl.handle.net/10419/93258.

National Population Commission (NPC), (2018). National Population Commission. Available at http://www.joent.com DIR/INFOR/GET/98845. Retrieved on 10-11-2018, at
15:20pm.

Nigerian Metrological Agency (NIMET, 2018). Katsina Climate. Available athttps//nimet.gov.ng/…2018%20SRP. Accessed on 23-07-2019.

Olaolu, M.O., Akinnagbe, O.M. and Agber, T. (2018). Impact of National Fadama Development Project Phase (II) On Poverty and Food Security among Rice

Farming Beneficiaries in Kogi State, Nigeria. *American Journal of Research Communication*, 9(10): 285-295.

Oluwale, B.A., Olaposi, T.O. and Adelewo C.M. (2016). Factors Influencing Entrepreneurial Orientation of Small Holder Farmers in Southwestern Nigeria. *Journal of Management and Technology*, (2): 120-138.

Osondu, C.K., Obike, K.C. and Ogbonna, S. (2018). Determinants of Decision to Non-Farm Entrepreneurship by Women Farmers in Ikwuno Local Government Area of Abia State, Nigeria. *Journal of Agriculture and Forestry Research*, 4(2): 41-49.

Owoo, N. and Naude, W. (2019). Non-farm Enterprises Performance and Spatial Autocorrelation in Rural Africa. Evidence from Ethiopia and Nigeria. *Journal of World Development*, 40(12): 411-426.

Shehu, A. and Siddique, S.F. (2016). Non-farm Enterprises and Poverty Reduction among Households in Rural Nigeria: A Propensity Score Matching Approach. *Journal of Humanities and Social Sciences*, 19(4): 57-61.

Shehu, I.M. (2018). An Interview and Briefing on Katsina State Agriculture and Rural Development Authority (KTARDA). Conducted in the Office of the Executive Director of KTARDA, Ajiwa, Katsina. On 19th November, 2018.

Shittu, M.A. (2017). Off-farm Labor Supply and Production Efficiency of Farm Households in Rural Southwest Nigeria. *Journal of Agricultural Economics*, 2(6): 21-36.

Sylvester, J. (2019). Rural Non-farm Wages and Poverty Alleviation in Sub-Saharan Africa. Available at http://mpr.ub.uni-muenchen.de/48027/. Accessed on 10-04-2020.

Tsepiso, A.R. (2019). The Role of the Non-farm Sector in Rural Development in Lesotho. *Journal of Modern African Studies* 54(2): 317-338.