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Full Length Research Paper

Occupational diversification among small-scale rice farm families in Anambra State, Nigeria

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Abstract

The study assessed occupational diversification among small-scale rice farm families in Anambra State, Nigeria. A multi-stage sampling procedure was used to select 120 respondents. Data were collected from primary source through the use of validated interview schedule. Data were analyzed using descriptive statistics while hypothesis was tested using t-test. Findings showed that rice farmers mainly diversified their occupation in crop production, followed by crop processing under agricultural enterprise, while in non-agricultural enterprise, diversified mainly in petty trading. The mean annual income of rice production, agriculture and non-agriculture enterprises were ₦289,683.33, ₦260,266.66 and₦343,500.00, respectively, and there was significant difference (t= 12.346, p≤ 0.05) between the mean scores of the annual income from rice production and non-agricultural enterprises, but no significant difference (t= 1.886, p > 0.05) existed between the mean scores of the annual income from rice and agricultural enterprises. The major reasons for diversification were increase in income, poverty reduction, food security and overcome/reduce risk of crop failure. Major problems included inadequate finance/credit facilities, poor skill acquisition, market risk and poor access to modern technology/capital. The need to increase farmers' access to credits for start-off and more investments in other better yielding enterprises was recommended.

Keywords: Occupation, diversification, agriculture, enterprise, income, problems, rice farm families, Nigeria.

INTRODUCTION

Agriculture is one of the oldest and most important occupations of man. Nigerian agriculture depends on the rural population that produce over 90% of the nation's staple food under rain fed systems in a small-sized (0.5-4.0 hectares) farms holdings using traditional implements such as machetes and hoes (Njoku and Olomola, 2011). The agricultural sector in Nigeria is still facing the challenges of poor access to long term finance, low productivity, low level of private sector investment, non-competitiveness, inadequate funding and insufficient provision of essential farm inputs. The challenges also include critical inputs, such as good seeds/breeds (for crops, livestock and fishery), chemicals (fertilizer, herbicides, animal feed premixes, vaccines), mechanization (tractors, harvester, processing and storage equipment), persistent drift of population from rural to urban areas, weak linkage to agro-allied industries, low prices during harvest period, poor research co-ordination and weak linkage between research and extension, poor state of rural infrastructure such as feeder roads among others (Olufolaji, 2012). The significant investments are yet to flow into agricultural sector, while technology and infrastructural challenges remain as farm loss arising from poor processing, packaging and preservation

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technologies contribute to undermine agricultural performance (Federal Government of Nigeria (FGN), 2011). This calls for diversification.

Diversity corresponds to 'not having all one's eggs in a single basket.' It refers to a strategy of increasing the number of activities in a system and/or their separate products in order (i) to reduce overall system risk of income or family-sustenance failure and/or (ii) to increase overall production/profit (averaged over time) through a better use of available resources (Birthal, Joshi, Roy and Thorat, 2007). Livelihood diversification signifies the process by which rural households constructs an increasingly diverse portfolio of activities and assets in order to survive and improve their living (Elis, 2000; Suchiradipta, Sarkar, Feroze and Devarani, 2018). A high diversity level is conducive to system stability (but diversity might conceivably be achieved at the cost of a reduction in average profit). In terms of activities the most diversified farms are the small subsistence and semi-subsistence farms. The possibilities for diversification are relatively limited on small specialist farms growing a single traditional crop such as the paddy farms. Diversification is not a strategy generally available on those growing an industrial crop under conditions dictated by a landlord or factory (Culas and Mahendrarajah, 2005).

In the agricultural context, diversification can be regarded as the re-allocation of some of a farm's productive resources, such as land, capital, farm equipment and machines to other farmers and, particularly in richer countries, non-farming activities such as restaurants and shops. Factors leading to decisions to diversify are many, but include; reducing risk, responding to changing consumer demands or changing government policy, responding to external shocks and, more recently, as a consequence of climate change. Agricultural diversification involves movement of resources from low value commodity mix to high value commodity mix. It focuses mainly on horticulture, dairy, poultry and fisheries sector. While most definitions of diversification in developing countries do work on the assumption that diversification primarily involves a substitution of one crop or other agricultural product for another, or an increase in the number of enterprises, or activities, carried out by a particular farm, the definition used in developed countries sometimes relates more to the development of activities on the farm that do not involve agricultural production (Meynard, Messéan, Charlier, Charrier, et al., 2013).

Crop diversification systems tend to be more agronomical stable and resilient. The common advantages found in most diverse systems include reduced disease, weed and insect pressures; reduced need for nitrogen fertilizer; reduced erosion; increased soil fertility and increased yields. Diversification also can provide habitat for beneficial insects and reduces pest numbers by rendering host crops less apparent for colonization by pests. Diversification increases economic stability by reducing financial risk, stabilizing farm income, and increasing choice of farm practices. Social benefits from diversification result from the opportunity to stabilize employment through an extended on-farm work season (Johnston, Vaupel, Kegel and Cadet, 1995). Crop diversification could be an effective strategy in this direction. Every effort, therefore, needs to be made by governments to explore fully the potential and prospects of crop diversification to forge the congruence of enhanced productivity, sustainability and profitability.

Crop diversification has been recognized as an effective adaptation option for farmers for risk mitigation (Gebrehiwot and Van der Veen, 2013). Crop diversification has often been examined as a tool to stabilize crop revenue and farm income (Chen, 2007). Lal, Gautam, Panda, Raja, Singh, Tripathi *et al*. (2017) noted that the potentiality of growing at least two crops in rainfed rice ecosystem was to utilize residual soil moisture for higher productivity and profitability. Diversifying rice systems in rotation with other cereals like wheat or maize, high-value crops like potato, legumes, or fodder crops is one way rice farmers can optimize their use of resources. Diversified cropping systems broaden the source of a farmer's food and income, increases their land productivity, and minimizes unpredictable risks such as the build-up of pest and diseases common in rice monoculture. Owing to market forces, rice-based cropping systems in irrigated and otherwise favourable environments in Asia and Africa – those are areas with sufficient rainfall, good soils, and good market access – are continuously being intensified to include wheat and maize. The increasing demand for maize in many Asian countries has led to diversifying rice-rice or rice-wheat systems into rice-maize systems that may also occupy up to three million hectares at present. In addition, rice is also grown with other crops like potato, legumes, or vegetables in about eight million hectares (Gebrehiwot and Van der Veen, 2013).

Rice is one of the most consumed staples in Nigeria, with consumption per capita of 32kg (PricewaterhouseCoopers (PwC), 2018). Nigeria currently consumes about 7.9million metric tonnes of rice annually while production is currently at 5.8 million metric tonnes. To make up for the shortfall in production, Nigeria spends over N356 million annually in importation of rice (http://nextzon.com/rice-production-in-nigeria). Nigeria's rice sub-sector is dominated by weak and inefficient producer-market linkages due to poor infrastructure including lack of improved processing facilities, low rice productivity, poor post-harvest handling and storage, expensive and

poor access to inputs (high quality seed, fertilizer, and crop protection products), inadequate market information, lack of transparency among players, low capacity to meet quality standards, and inefficient distribution of networks resulted in low productivity and participation of farmers in the rice field (USAID-MARKETS, 2010). These call for diversification in order to ameliorate the poor condition.

Rice production is major cash income of majority of rural dwellers who are relatively small holders in Anambra State. The rice farmers however, engage in other agricultural and non-agricultural activities such as mixed farming, crop processing, adoption of different rice production patterns and petty trading among other occupations to boost their income (Nwalieji, 2016). Information on the type, rationale and extent to which the rice farmers in Anambra State engage in other non-rice enterprises is not readily available. It is against this backdrop that this research on assessing occupational diversification among small-scale rice farm families in Anambra State, Nigeria was initiated. Specifically, the research:

i. identified various areas of diversifications among rice farm families;

ii. determined annual incomes realized from rice and non-rice enterprises by the farm families;

iii. ascertained reasons for diversification by the rice farm families; and

iv. identified problems faced by the rice farm families in diversification.

Research Hypothesis

The following research hypothesis was tested.

1. There is no significant difference between annual incomes realized by the rice farm families from rice and non-rice enterprises.

Scope of the Study

The study on occupational diversification among rice farm families in Anambra State, Nigeria covered all small-scale rice farm families that cultivate less than 5 hectares of paddy rice and as well engage in one or more occupation in Anambra State. The farm family in this study is defined as a household that cultivates and owns farm land collectively.

RESEARCH METHODOLOGY

The Study Area

The study was carried out in Anambra State, Nigeria. Anambra State of Nigeria is made up of 21 Local Government Areas (LGAs) and four Agricultural Zones (AZs) - Aguata, Anambra, Awka and Onitsha. It is located in the South-East region of Nigeria between longitude 6^0 36'E and 7^0 21'E and latitude 5^0 38'N and 6^0 47'N. The State is bounded in the north by Kogi State, in the west by River Niger and Delta State, in the south by Imo State and on the east by Enugu State. Anambra State occupies an area of 4,416 sq. km and has a population of 4,177,828 out of which 2,117,984 are male and 2,059,844 female (NPC, 2006). The number of farm families is 338,721 with an average size of 6 persons per farm family or household (ASADEP, 2011). The climate is typically equatorial with two main seasons, the dry and the rainy seasons. The vegetation consists of rainforest. Other parts consist of woody savannah and grasslands. Crops, livestock and fisheries are main stock in the farming system of the state. Off-farm activities like processing and marketing are also vital components. Major crops grown in the state among others include rice, cassava, yam, maize, okra, cocoyam, melon, cowpea and pigeon pea. Rice and non-rice enterprises abound in the State. The non-rice production enterprises/occupations available in the area include production, marketing and processing of farm produce; rearing of farm animals; handicrafts; petty trading; tailoring; hair dressing; catering services; teaching; public service; traditional health care services; wage labour, among others The State has a population of about 25,000 rice farmers and 33 public extension agents (ASADEP, 2011).

Population and Sampling Procedure

The population of the study comprised all small-scale rice farmers in Anambra State. Multi-stage sampling procedure, involving a combination of purposive and simple random sampling techniques, was used to select 120 respondents. Stage I involved purposive selection of three (3) out of four agricultural zones in the State. The reason for the selection was because the zones are known as rice producing zones and they include Aguata, Anambra and Awka zones. Stage II involved simple random selection of two (2) extension blocks each from the selected zones to give six (6) blocks. In Stage III, two (2) circles were selected from each of the selected blocks using simple random sampling technique to give 12 circles. Stage IV involved simple random selection of ten (10) rice farmers in each of the circles, giving a total of 120 respondents.

Methods of Data Collection

Data for the study were collected from primary source through the use of validated interview schedule. The interview schedule contained relevant questions that were divided into sections according to the objectives of the study. The instruments for data collection were validated by two academic staff in the Department of

Agricultural Economics and Extension, Chukwuemeka Odumegwu Ojukwu University (COOU). One hundred and twenty (120) copies of interview schedule were administered to the respondents by personal interview with the help of two trained field officers/ enumerators. Data were collected on various areas of diversifications among rice farm families, annual incomes realized from rice and non-rice enterprises, reasons for diversification by the rice farm families, and problems faced by the rice farm families in diversification. All the one hundred and twenty (120) copies of interview schedule administered were returned.

Measurement of Variables

To identify various areas of engagements among rice farm families, the respondents were asked to indicate other occupations apart from rice production they engaged in, such as production, marketing and processing of farm produce; rearing of farm animals; handicrafts; petty trading; tailoring; hair dressing; catering services; teaching; public service; traditional health care services; wage labour, among others. These were grouped into agricultural and non-agricultural occupations.

To determine annual incomes realized from rice and non-rice enterprises by the rice farm families, the respondents were asked to estimate the total amount of money (₦) they realize from sales of rice farm produce and that of non-rice farm produce, within the last one year.

To ascertain reasons for diversification by the rice farm families, the respondents were asked to indicate possible variables such as, overcome risk and seasonality; increase in income; assurance of household food security; reduction of poverty and vulnerability; increase in climate variation; seasonality of farming activities among others, using a four point Likert-type scale of "strongly disagree (1)", "disagree (2)", "agree (3)" and "strongly agree (4)". The values on the Likert-type scale were added to obtain 10, which are further divided by 4 to obtain a mean value of 2.5. This was used to determine the major reasons. Any mean value that is equal or greater than 2.5 was regarded as a major reason, while any mean value that is less than 2.5 was regarded as minor reason.

To identify problems faced by the rice farm families in diversification, the respondents were asked to indicate on a 4 point- Likert-type scale, how serious each of the various shortlisted problems affects rice farm families in diversification in the area. Their response categories were: very serious (VS) = 4; somewhat serious (SS) = 3, serious (S) = 2 and not serious (NS) = 1. These values were added to obtain a value of 10 which was divided by 4 to get a mean score of 2.50. The respondents' mean were obtained on each of the items. Any mean score ≥ 2.50 was regarded as a major problem, while any mean score < 2.50 was regarded as a minor problem.

Methods of Data Analysis

The Statistical Product and Service Solution (SPSS) software Version 23 was used for data analysis. Descriptive statistics such as frequency, percentage and mean were used to identify various areas of diversifications among rice farm families (Objective i), determine annual incomes realized from rice and non-rice enterprises (Objective ii), ascertain reasons for diversification by the rice farm families (Objective iii), and identify problems faced by the rice farm families in diversification (Objective iv).

Test of hypothesis

The hypothesis that there is no significant difference between annual incomes realized by the rice farm families from rice and non-rice enterprises was tested using paired t-test.

RESULTS AND DISCUSSION

Areas of Diversifications among Rice Farm Families

This section is grouped into agricultural and non-agricultural occupations/enterprises. This grouping is in line with Mbah (2016) who reported in her study that women were involved in both farm and non-farm occupations such as plantingof crops, keeping of livestock such as chicken; petty-trading; tailoring; teaching; among others.

Agricultural occupation

Table 1 shows distribution of rice farmers according to occupational diversification into agricultural enterprises. The table indicates that rice farmers mostly (68.3%) diversified their occupation in crop production, followed by crop processing (56.6%), agro-produce marketing (54.1%), vegetable production (50.0%), farm animals/livestock production (26.7%), fish production (25.0%), fruits production (18.3%), horticulture/gardening (17.5%) and agro-input dealer (13.3%). This implies that many areas in agriculture other than rice production abound in which the farmers engaged themselves for livelihood. Singh (2001) noted that rice is the most important food crop in Asia and however, in marginal and upland areas of Asia, rice-based cropping systems have low returns. Therefore, shifting marginal areas out of rice into more profitable crops is seen as a solution. Indeed, diversification away from rice to high-value crops such as fruits,

Table 1. Distribution of respondents according to occupational diversification into agricultural enterprises.

Agricultural enterprise	Frequency	Percentage
Crop production	82	68.3
Crop processing	68	56.6
Agro-produce marketing	65	54.1
Animal/livestock production	32	26.7
Fish production	30	25.0
Horticulture/ gardening	21	17.5
Fruits production	22	18.3
Vegetable production	60	50.0
Agro-input dealer	16	13.3

Source: Survey, 2019. Multiple responses recorded.

vegetables and flowers has been successful in many Asia countries of the Region, although quality and timely production are usually crucial to economic success with such high-value crops.

Non-agricultural occupation

Entries in Table 2 show distribution of rice farmers according to occupational diversification into non-agricultural enterprises. The table reveals that rice farmers diversified their occupation mainly in petty trading (60.8%) followed by civil/ public services (46.6%), tailoring (36.7%), wage labour (23.3%) handicraft (16.7%), catering services (6.7%), hair dressing (5.0%) and traditional health care services (3.3%). The finding implies that apart from rice production the farmers engaged themselves in non-agricultural ventures especially petty trading and as well as cultivating rice while working as a civil servant for higher income. This is in line with Ibekwe, Eze, Ohajianya, Orebiyi *et al.* (2010) who noted that when farming is less profitable and more risky due to population growth and market failures, many rural farmers are pushed into non-farm activities. Farm household diversification into non-farm activities emerges naturally from diminishing or time-varying returns to labour or land, from market failures for credit or frictions (mobility or entry into high-return niches), from ex ante risk management, and from ex post coping with adverse shocks (Barrett, Reardon and Web, 2001).

Annual Income of the Farm Families

These include annual incomes realized from engagement in rice and non-rice enterprises by the farm families.

Annual Incomes Realized From Rice and Non-Rice Enterprises by the Farm Families

Table 3 shows distribution of rice farmers according to annual incomes realized from rice and non-rice enterprises. The table indicates that greater proportion (33.3%) of the respondents realized between ₦201,000- ₦300,000 annual incomes from rice production enterprise while the mean annual income was ₦289,683.33. Also, greater percentage (45.8%) of the respondents realized annual income range of ₦201,000- ₦300,000 from agriculture enterprise and the mean annual income was ₦260,266.66. The table further reveals that greater percentage (30.0%) of the respondents realized annual income between ₦201,000- ₦300,000 from non-agriculture enterprises with mean annual income of₦343,500.00. The mean annual income of non-rice production enterprises (agriculture and non-agriculture) was about ₦603,767. These findings imply that all the enterprises are high income yielding but non-rice production enterprises are far better than the rice production enterprise, hence the diversification.

The findings are in line with Birthal, et.al (2007) who noted that in making decisions about diversification, farmers need to consider whether income generated by new farm enterprises will be greater than the existing activities, with similar or less risk. According to Lanjouw and Murgai (2008), non-farm income increasingly plays an important role and exhibits an increasing share in agricultural household income. Thus, the non-farm employment has been generally recognized to have the potential in raising agricultural household income, thereby reducing rural poverty.

T-test Analysis comparing Mean Annual Incomes from Rice and Non-Rice Enterprises of the Farm Families

Entries in Tables 4 and 5indicate results of Paired Samples T-test analysis carried out to test the hypothesis, which stated that there is no significant difference between annual incomes realized by the rice farm families from rice and non-rice enterprises.Table 4 compared annual income from rice and other agricultural enterprises. The result shows that the mean annual income from rice enterprise was ₦ 289,683.33,

Table 2. Distribution of respondents according to occupational diversification into non-agricultural enterprises.

Non-agricultural occupation	Frequency	Percentage
Petty trading	73	60.8
Handicraft	20	16.7
Tailoring	44	36.7
Hair dressing	6	5.0
Catering services	8	6.7
Civil/public service	56	46.6
Traditional healthcare services	4	3.3
Wage labour	28	23.3

Source: Field Survey, 2019

Table 3. Distribution of respondents according to annual incomes realized from rice and non-rice enterprises by the farm families.

Income (₦)	Rice enterprise		Non-rice enterprise			
			Agriculture		Non- agriculture	
	%	M	%	M	%	M
1,000-100,000	5.0		10.0		3.3	
101,000-200,000	18.3		21.7		8.3	
201,000-300,000	33.3		45.8		30.0	
301,000-400,000	26.7	289,683.33	16.7	260,266.66	26.7	343,500.00
401,000-500,000	14.2		4.2		23.3	
501,000-600,000	1.7		1.7		6.7	
Above 600,000	0.8		-		1.7	

Source: Field Survey, 2019.

Table 4. Annual income from rice and other agricultural enterprises.

Variable	Mean	Difference between Means	t	Sig.
Annual income from rice enterprise (₦)	289683.33	29416.67	1.886	0.062
Annual income from agricultural enterprise (₦)	260266.66			

while the mean annual income from agricultural enterprise was ₦ 260,266.66, and the difference was ₦ 29,416.67.It is also evident from Table 4 that there was no significant difference (t= 1.886, p > 0.05) between the mean scores of the annual income from rice enterprise and agricultural enterprise. This implies that increase in income is not the major determinant of occupation diversification into other agriculture enterprises by the rice farmers.

Table 5 compared annual income from rice and non-agricultural enterprises. The result reveals that the mean annual income from rice production enterprise was ₦ 289,683.33, while the mean annual income from non-agricultural enterprises was ₦343,500.00, and the difference was ₦53,816.67. It is also revealed from Table 5 that there was significant difference (t= 12.346, p≤ 0.05) between the mean scores of the annual income from rice production enterprise and non-agricultural enterprise. This implies significant increase in income of non-agricultural enterprise which is far higher than that of rice enterprise; and that an increase in income is the major determinant of occupation diversification into non-agricultural enterprises by the rice farm families. The finding is in line with Suchiradipta,

Table 5. Annual income from rice and non-agricultural enterprises.

Variable	Mean	Difference between Means	t	Sig.
Annual income from rice enterprise (₦)	289683.33	53816.67	12.346*	0.000
Annual income from non-agricultural enterprise (₦)	343500.00			

* = Significant, (p≤ 0.05).

Table 6. Distribution of respondents according to reasons for diversification.

Reason	Mean	SD	Rank
Increase in income	3.92*	0.242	1st
Assurance of household food security	3.17*	0.531	3rd
Reduction of poverty and vulnerability	3.71*	0.387	2nd
Seasonality of farming activities	2.67*	0.611	8th
Overcome/ reduce risk of crop failure	3.17*	0.474	3rd
Geographical factors like climate and soil conditions	2.57*	0.620	11th
Technological factors like irrigation facilities	2.27	0.717	12th
Economic factors like relative prices of commodities, size of holdings, urbanization, market infrastructure	2.82*	0.455	5th
Policies of the government/ changing government policy	2.08	0.800	13th
Responding to changing consumer demands/ changes in demand pattern	2.64*	0.605	9th
Low returns/productivity/less profitability of rice	2.77*	0.513	6th
High cost of rice production	2.67*	0.611	8th
Acquisition of capital for further investment	2.57*	0.620	11th
Instability of price of rice commodity	2.75*	0.501	7th
Lack of good market for rice produce	1.87	0.811	14th
To meet up with economic responsibilities during off- season periods	2.87*	0.489	4th
Need for value addition/ adding value	2.08	0.800	13th
Inconsistency on rice importation policy	2.61*	0.634	10th
Generating employment opportunities	2.87*	0.489	4th

*= M ≥ 2.50 = major reason; SD= standard deviation.

Sarkar, Feroze and Devarani (2018) who observed from several empirical studies that non-farm diversification have been customarily found to be more remunerative and opening up of the choice vis-a-vis opportunity for diversification of the rural people's livelihood. Food and Agriculture Organization (FAO) (2005) noted that the majority of women in the formal work sector as semi-skilled and unskilled workers. The more diversified rural women's activities, the greater the women's income. In areas where women undertake processing, services or other enterprises, often in addition to crop and livestock production, their earnings account for a larger share of family income.

Reasons for Diversification by the Rice Farm Families

Table 6 shows distribution of the respondents according to reasons for diversification. The table indicate that the major reasons for diversification were in descending order of increase in income (M= 3.92), reduction of poverty and vulnerability (M=3.71), assurance of household food security(M=3.17), overcome/reduce risk of crop failure (M= 3.17), meet up with economic responsibilities during off- season periods (M= 2.87), generating employment opportunities (M= 2.87), economic factors like relative prices of commodities, size of holdings, urbanization, market infrastructure (M=2.82), low returns/productivity/less profitability of rice (M=2.77), seasonality of farming activities (M=2.67), high cost of rice production (M=2.67), responding to changing consumer demands/ changes in demand pattern (M=2.64), inconsistency on rice importation policy (M=2.61), geographical factors like climate and soil conditions (M=2.57) and acquisition of capital for further investment (M=2.57). Table 6 also reveals that the standard deviation values were less than one in all cases, showing that the responses of the

Table 7. Distribution of respondents according to problems faced in diversification.

Problem	Mean	SD	Rank
Market and price risks	2.87*	0.467	3rd
Risk associated with existing crop management practices	2.52*	0.531	10th
Adverse changes like degradation of natural resources and the environment	2.08	0.733	14th
Socio-economic needs like employment generation, attaining self-sufficiency in some crops	2.57*	0.512	9th
Inadequate empowerment	2.47	0.610	12th
Poor skill acquisition	2.97*	0.408	2nd
Inadequate training opportunities	2.51*	0.545	11th
Poor educational attainment	2.74*	0.497	5th
High cost of transportation	2.68*	0.551	6th
Inadequate finance/credit facilities	3.08*	0.394	1st
Lack of access to modern technology/capital	2.77*	0.450	4th
Poor market networks	2.67*	0.547	7th
High cost of labour	2.64*	0.578	8th
Policy due to taxes, licenses, roadblocks, residence permits	2.37	0.601	13th

*= M ≥ 2.50 = major problem; SD= standard deviation.
Source: Field Survey

rice farmers on these reasons for diversification did not vary much from the mean, signifying convergence of views with regards to these reasons. The findings imply that there were many reasons behind the decisions for occupational diversification among rice farm families in the study area. The findings are in line with Chand and Chauhan (2002) which held the view that there are certain advantages to adoption of crop diversification which include stability of yields, reduced risk of crop failure, increased productivity, increased agro-returns, enhanced employment, conservation and enhancement of natural resources and so on. Singh (2001) noted that new opportunities that would benefit crop diversification are technological breakthroughs, changes in demand pattern, changes in government policy, development of irrigation and other infrastructure, development of new trade arrangements, and others. Ajani and Igbokwe (2014) also noted that rural women need to diversify their occupations since farming is rain-fed and therefore seasonal. This is to enable them to acquire additional income and meet up with economic responsibilities during off- season periods. In addition, Skoufias, Bandyopadhyay and Olivieri (2016) in their study noted that occupational diversification among household members in rural India is investigated as an adaptation strategy against the risks
arising from the variability of local rainfall.

Problems Faced by the Rice Farm Families in Diversification

Table 7 shows distribution of rice farmers according to problems faced in their cause of diversification. Entries in the table show that major problems faced in descending order of seriousness included inadequate finance/credit facilities (M=3.08), poor skill acquisition (M=2.97), market and price risks (M=2.87), lack of access to modern technology/capital (M=2.77), poor educational attainment (M= 2.74), high cost of transportation (M=2.68), poor market networks (M=2.67), high cost of labour (M=2.64), socio-economic needs like employment generation, attaining self-sufficiency in some crops (M=2.57), risk associated with existing crop management practices (M=2.52) and inadequate training opportunities (M=2.51). Inadequate empowerment (M=2.47), policy due to taxes, licenses, roadblocks, residence permits (M=2.37) and adverse changes like degradation of natural resources and the environment (M=2.08) were the minor problems faced by the farm families in the area.

The findings are in line of Singh (2001) who noted that challenges and threats necessitating crop diversification result from: a) market and price risks; b) risk associated with existing crop management practices; c) adverse changes like degradation of natural resources and the environment; and d) socio-economic needs like employment generation, attaining self-sufficiency in some crops and earning foreign exchange from others.

Mbah (2016) reported that rural women's major roles infarm and non-farm activities are affected by higher barriers in education and training which limit the capacity to engage in more productive and remunerative work, perform managerial and leadership roles and participate fully in the development of their communities. Bhue and Vijay (2018) noted that the rural occupational structure of the Indian economy has witnessed

a change between 2003 and 2013, and understanding the occupational diversification is the central part of understanding the nature of transitionary process in Indian economy.

CONCLUSION AND RECOMMENDATIONS

Rice farm families engaged themselves in agricultural and non-agricultural ventures in order to increase income and raise standard of living, hence the diversification. However, the attempt by rice farmers to diversify to other occupations were challenged by inadequate finance/credit facilities, poor skill acquisition, market and price risks, poor access to modern technologies and poor educational attainment among others which need urgent policy formulations to ameliorate the problems.

The following recommendations are made based on findings:

i. There should be increase in access to credit by the farmers to enable them acquire enough funds for start-off and more investments, since inadequate finance/credit facilities was one of the prominent problems faced by rice farmers in their cause of diversification. To achieve this, governments should come up with policy that would provide farmers with enough soft credit in order to reduce or minimize the difficulties encountered in accessing credit by farmers.

ii. Farmers should be exposed to more opportunities for relevant and adequate skill acquisition trainings to enable them excel in their area of diversification. This could be achieved by creation of skill acquisition centres in various local government areas of the state.

iii. Adult literacy programme centers should be created by the government in the various rice farming communities in order to raise the educational attainment of the rural farmers. This will help them in making rightful decisions on occupational diversification.

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