

**EFFECTS OF NON-FARM INCOME DIVERSIFICATION STRATEGIES ON  
SUSTAINABLE LIVELIHOOD STATUS OF RURAL WOMEN IN NIGER  
STATE, NIGERIA**

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**AUGUST, 2023**

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**A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL FEDERAL  
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DEGREE OF MASTER OF TECHNOLOGY IN AGRICULTURAL  
EXTENSION AND RURAL DEVELOPMENT**

**AUGUST, 2023**

## DECLARATION

I hereby declare that this thesis titled **“Effects of Non-farm Income Diversification Strategies on Sustainable Livelihood Status of Rural Women in Niger State, Nigeria”** is a collection of my original research work and it has not been presented for any other qualification anywhere. Information from other sources (published or unpublished) has been duly acknowledged.

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## CERTIFICATION

This thesis titled **“Effects of Non-farm Income Diversification Strategies on Sustainable Livelihood Status of Rural Women in Niger State, Nigeria”** by EDOTA, Hassana Asmau (MTech/SAAT/2018/7927) meets the regulations governing the award of the degree of (M.Tech) of the Federal University of Technology, Minna and it is approved for its contribution to scientific knowledge and literary presentation.

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## **DEDICATION**

This thesis work is dedicated to God Almighty and my late parents, may their souls rest in peace (Ameen).

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## ABSTRACT

The study examined the effects of non-farm income diversification strategies on sustainable livelihood status of rural women in Niger State, Nigeria. Multi-stage sampling technique was used to select 208 respondents. Data were collected using questionnaire and interview schedule; and analyzed using descriptive statistics (percentage, mean count and frequency distribution), livelihood status index (LSI) and regression analyses. The result revealed that 56.30% of the women were married, while 49.50% of the women in the study area were still within their active and productive age. The most effect of nonfarm income diversification strategies on the livelihood status of the rural women was settlement of children school fees (88.90%) ranked 1<sup>st</sup>, signifying that nonfarm income had assisted the women in settling the school fees of their children. Also, contribution to food security (58.70%) ranked 2<sup>nd</sup>, signifying that nonfarm income diversification strategies has contributed immensely to reduce the problem of food security in the study area. About 58.20% of them had one form of formal education or the other. The mean monthly household income of the respondents was ₦41309.02, indicating that the rural women had monthly household income above the approved minimum wage in Nigeria. The result also revealed that under non-farm income, petty trading (85.6%) ranked 1<sup>st</sup>. The coefficient of experience in non-farm income sources (0.3439) and education (0.1015) was positively significant at 10% level of probability indicating that increase in experience and education will lead to increase in improvement of women' livelihood status. Larger proportion (84.10%) of the women had moderate livelihood status. The result showed that the severe constraints were difficulty in accessing productive resources ( $\bar{X}$  =2.81) ranked 1<sup>st</sup>, signifying that non accessibility of productive resources was the major constraint in the study area, inadequate information and training on non-farm activities (2.74)ranked 2<sup>nd</sup>, inadequate access to credit (2.70)ranked 3<sup>rd</sup>.It is recommended that Government should come up with flexible policy that will create a suitable atmosphere for women to market their business in order to get higher value for their goods and in returns enhance their livelihoods and regular visit of extension workers

should be prioritized by public extension system in order to increase women access to training that will improved their livelihood status.

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## CHAPTER ONE

### 1.0

### INTRODUCTION

#### 1.1 Background of the Study

Involvement of rural women in livelihood activities ensures family sustainability, hence leading to economic development of the populace. Therefore, women have a lot of opportunities to participate in various livelihood activities ranging from agricultural (crop production, poultry production, dairy production, fish production and crop processing) to non-agricultural sector (tailoring, hair plaiting, food vendor, hair dressing, weaving of basket or mat and civil service) (Pur *et al.*, 2016). Farming households in developing nations receive quite reasonable proportion of their incomes from non-agricultural employment and non-farm income is income earned from non -agricultural sources either in wage-employment or self-employment (Barrete and Jacob, 2001).

According to Haggblade *et al.* (2007), non-agricultural income constitutes 30 – 45 percent of farming household's income across the developing world. Literature revealed two main factors that drive diversification into off-farm activities among farm households in developing countries. These factors are broadly classified into “pull factors” and “push factors”. Reasons why a farm household can be pulled into the off-farm sector include higher returns to labour and or capital; and the less risky nature of investment in the off-farm sector (Kilic *et al.*, 2009). The push factors that may drive off-farm income diversification includes the need to increase family income when farm income alone cannot provide sufficient livelihood (Minot *et al.*, 2006); the desire to manage agricultural production and take risks in the face of a missing insurance market (Barrete and Jacob, 2001); and the need to earn income to finance farm investment in the absence of a

functioning credit market (Ruben and Van den Berg, 2001; Kilic *et al.* 2009; Oseni and Winters, 2009).

Nevertheless, agricultural investment immediate benefit of off-farm income diversification is specifically important for rural farm families, this is because lack of liquidity and poor access to credit are the most serious problems to improve agricultural productivity among farm households in developing country. (Deininger *et al.*, 2007) Given the risk associated with farming incomes, economic opportunities aside agriculture propels rural growth and leads to a reduction in rural poverty (Christopher *et al.*, 2001; Ellis, 2000). Deviation into non-farm activities also help reduce income differences on account of seasonal variations in crop production and potentially adverse climatic shocks, movement of capital and labour out of agriculture also enhances the growth of manufacturing and service sector leading to overall economic growth. There are abundant empirical evidence on how livelihood diversification and greater non-farm income have helped rural women in the developing nation. (Christopher *et al.* 2001; Frank, 2007; Himanshu and Abhijeet, 2013).

Livelihood diversification can occur in two ways, that is, either out of necessity or by choice (Ellis, 2000). Diversification out of necessity refers to conditions in which the income from the household's farm production is not enough to sustain an acceptable standard of living, while diversification by choice refers to voluntary reasons for diversification, which are always connected to the desire for higher returns from off-farm activities. However, according to Ellis (2000), having different income sources can also be considered a risk-coping strategy because diversified households are less vulnerable to economic shocks than undiversified households. It is important to note that different income-generating activities cannot be viewed partly, as they are linked through

investment, production and consumption. For example, income from wage labour can be used to purchase equipment, which can increase the productivity of the farm (Davis *et al.*, 2009).

Stampini and Davis (2009) posited that income from non-agricultural wage work helps households to overcome the credit constraints faced in farming, and households that participate in non-farm wage work spent more on inputs for farming. In the same vein, Oseni and Winters (2009) asserted that households in Nigeria use income from non-farm work to purchase inputs for agricultural production. Importantly, rural women contribute in agricultural and non-agricultural livelihood activities so as to uplift their family wellbeing. They are also involved in various types of livelihood activities in order to generate additional income for the sustainability of the family. These livelihood activities vary from one locality to another depending on where the rural women find themselves and the potentials present in the area. Participation of rural women in livelihood activities ensures the sustainability of a family, hence leading to economic development of the populace and also contributes to agricultural development and rural enterprises through these activities (Pur *et al.*, 2016)

The increasing detachment of women and children from men's income has led to an upsurge in the involvement of rural women into livelihood activities (Ajayi *et al.*, 2016). Thus the emerging trend is such that some men cannot provide for their families sufficiently, therefore, their wives have to engage in livelihood activities such as hair plating, crop production/ processing, animal rearing, poultry keeping among petty trading, weaving of mats and baskets for the family sustenance (Wanyama *et al.*, 2010). The term "Sustainable Livelihood" is used here to refer to a livelihood that can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets both



now and in the future, while not undermining the natural resource base. Diversification is defined as the process by which rural households construct increasingly diverse livelihood portfolios, making use of increasingly diverse combinations of resources and assets in order to meet their basic needs, improve their living standards or welfare, and manage risk (Niehof, 2004). The growing importance of non-agricultural activities of rural women is often hardly recognized in notions of status and propriety upheld by the community and in some places this disjuncture between economic reality and social status serves as a wedge between the generations.

Rural women can diversify occupations in different ways. However, non-farm employment now offers the most common diversification strategy for rural women. Several classifications of activities included in rural occupation portfolios have been proposed focusing on different criteria such as on-farm or nonfarm and self-employment or wage labour (Slater 2002; Ersado, 2007; Démurger *et al.*, 2010). In Nigeria, the government and donor agencies have been active in their efforts to analyze and find solutions to the menace of poverty, the federal government has also established programmes which focused on the empowerment of women involved in agricultural and non- agricultural production of which non-farm income increasingly plays an important role and exhibits an increasing share in agricultural household income (Ajani and Igbokwe 2013). Thus, the non-farm employment has been generally recognized to have the potential of raising agricultural household income, thereby reducing rural poverty.

## **1.2 Statement of the Research Problem**

In spite of the growing significance of farm and off-farm activities, very little is known about the role farm and off-farm activities play in the income generation strategies of farm households in developing economies like Nigeria (Ibekwe *et al.*, 2010). The

tendency for rural households to engage in multiple occupations is frequently noticeable, but few attempts have been made to link this behaviour in an organized way to rural poverty reduction and food security policies. Also less emphasis has been given to household level choices and especially to the explanation of differences of strategies among households in terms of income-source diversification.

Also, rural women need to diversify their source of income since farming is rain fed thus seasonal particularly in Nigeria so as to enable them to acquire additional income to take care of their economic responsibilities. Several studies might have been conducted about livelihood of rural women in Nigeria, but not sustainable because at the end of the day rural women still go back to their norm practices. It is on this basis that the study seeks to examine the effects of non-farm income diversification strategies for sustainable livelihood status of rural women in Niger State, Nigeria. Thus, the study attempted to provide answers to the following research questions:

- i. What are the socio economic characteristics of rural women in the study area?
- ii. What are sources of non-farm income for the rural women?
- iii. What are the livelihood status of rural women in the study area?
- iv. What are the effects of non-farm income diversification strategies on the livelihood status of rural women in the study area?
- v. What are the determinants of non-farm income diversification strategies among rural women in the study area?
- vi. What are the constraints associated with non-farm income diversification for rural women in the study area?

### **1.3 Aim and Objectives of the Study**

The aim of the study is to examine the effects of non-farm income diversification strategies on sustainable livelihood status of rural women in Niger State. The specific objectives are to;

- i. describe the socio economic characteristics of rural women in the study area;
- ii. ascertain the sources of non-farm income for rural women;
- iii. determine the livelihood status of rural women;
- iv. examine the effects of non-farm income diversification strategies on the livelihood status of rural women;
- v. estimate the determinants of the non-farm income diversification strategies among rural women and
- vi. examine the constraints associated with non-farm income diversification for rural women in the study area.

### **1.4 Hypotheses of the Study**

The following hypotheses were tested in the study

**HO<sub>1</sub>:** There is no significant relationship between the non-farm income diversification of rural women and their livelihood status in the study area.

**HO<sub>2</sub>:** There is no significant relationship between the non-farm income diversification and selected socio economic characteristics (age, marital status, household size, educational level and farming experience) of rural women in the study area.

### **1.5 Justification of the Study**

Generally, findings from the study will provide information to the government on livelihood status of rural women. Specifically, the outcome from the non-farm income diversification will provide needed information to the relevant stakeholders on type of

non-farm income investment and frequency of investment practiced by the rural women as well as the effects of such non-farm income on their livelihood status. The finding from the study will provide background information to agricultural extension agents on how to educate rural women on measures to adopt that will improve their livelihood status or diversify their source of income.

More so, the findings from this study will help rural women in their investment decision making, provide information for policy makers in agricultural extension organizations, serve as basis for further research studies and provide the government, ministry of agriculture and international policy makers with measures that will improve income distribution in order to narrow down the income gap between the rural and urban women. It will help bring to light, roles, task, responsibilities and activities that are performed by rural women that have been underestimated.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Concept of Income Diversification Strategies

The concept of diversification is generally defined as an increase in the number of household income components, while non-farm income diversification is defined as non-farm income shares by components of the household income (Mohammad and Koichi, 2009). Income diversification refers to numerous different concepts. The forms of diversification differ depending on the definitions used. One of the definitions of term income diversification is that it refers to intensification in the digit of sources of income or the balance among the distinct sources. Therefore, a household with two sources of income would be more diversified than a household with just one source, and a household with two income sources, each contributing half of the total, would be more diversified than a household with two sources (Samuel, 2012).

Diversification in non-farm activities has become an important part of livelihood strategies among farm households in most developing countries. One of the most established characteristics of rural households in developing countries is that they can obtain their incomes from different sources (Davis *et al.*, 2010). Household income diversification is the norm in rural societies and owing to the risks and uncertainties that characterized agriculture, attention of most farming households in developing countries is gradually shifting to off-farm activities (Odoh and Nwibo, 2017). In Nigeria for instance, the rural economy is characterized by two major activities: farm and non-farm economic activities. In the rural economy, off-farm economic activities are receiving prominence as integral components of their livelihood economies (Haggblade *et al.*, 2007).

The off-farm economic activities which are common in rural Nigeria are petty trading (food stuff sales, fruit sales, and provision sales), dress making, palm wine tapping, craft making (wood and calabash carving, carpentry, pot making, leather works and weaving), welding, hair salons and auto repairs. These non-farm activities provide employment options outside the farm, reduce rural urban migration, promote income distribution and diversification and inter-sectoral linkages capable of leading to a vibrant rural economy (Odoh and Nwibo, 2017). Therefore, income diversification with respect to rural livelihood is the method of swapping from low-value crops (stable food crops) to higher value crops (typically commercial crops), livestock and non-farm activities (Nse-Nelson *et al.*, 2016).

Livelihood diversification has been scrutinized as a rational reaction by rural households due to lack of opportunities for specialization, and was initially not considered the most desirable alternative. Conversely, current studies specify that rather than promoting specializations within existing groups, upgrading them, to argument income could be more realistic and important for poverty decline. In Nigeria, the issue of poverty reduction has been a very serious one especially when one looks at the enormous wealth the country controls, which has qualified the condition to be unexpectedly described as suffering in the midst of plenty (Samuel *et al.*, 2013).

Occupational diversification is needed by rural women since farming in sub-Saharan Africa is rain-fed and therefore, seasonal. This is to enable rural women to acquire additional income to take care of economic responsibilities during the off-season periods. The impact of occupational diversification varies from negative effects – the withdrawal of critical labour from the family farm to positive effects – the alleviation of credit constraints and a reduction in the risk of innovation. The contribution made by

occupational diversification to rural livelihoods is a significant one, which has often been ignored by policy makers who have chosen to focus their activities on agriculture (Ajani and Igbokwe, 2013). Recent trends in agricultural modernization have failed to improve the welfare of rural women. Advances in technology and labour market imperfections have accentuated the concentration of rural women in non-farm activities in the rural sector. This has led to de-agrarianisation which offers rural women an opportunity for occupational adjustment, income-earning re-orientation, social identification and spatial relocation away from agricultural-based modes of livelihood (Ajani and Igbokwe, 2013).

Majority of rural women have traditionally diversified their productive activities to cover a range of other productive areas. Many of the diversification activities followed by rural women involve micro-enterprises, and the significance of micro-enterprises in generating employment and income in rural areas of Africa has become increasingly recognized (Samuel *et al.*, 2013). Past studies had testified that the input of off-farm economic activities in rural economy cannot be ignored because it has grown substantially from 30% to 50% in the developing economies during the last two decades. In this esteem, the behaviour of rural households towards diversifying their sources of income and employment in favour of non-agricultural activities could be considered as an important requirement for reduction of rural poverty in this country. It is consequently imperative to examine the contribution of off -farm economic activities to household income (Madaki and Adefila, 2014).

Diversification into non-farm activities also help reduce income variability on account of seasonal variations in crop production and potentially adverse climatic shocks. Movement of capital and labour out of agriculture also facilitates the growth of manufacturing and service sectors, leading to overall economic growth (Sumit and Andaleeb, 2017).

Diversification in developing countries is as a result of increasingly complex portfolio of activities and assets in order to survive and improve standard of living (Yakubu *et al.*, 2015). Majority of rural women have historically diversified their productive activities to encompass a range of other productive areas. Many of the diversification activities pursued by rural women involve microenterprises, and the importance of microenterprises in generating employment and income in rural areas of Africa has become increasingly recognized. Therefore, the rural non-farm activities would then include activities such as petty trading, household and non-household manufacturing, processing, repairs, construction, transport and communication, community and personal services in rural areas and the rural non-farm sector does not involve a homogeneous set of activities in terms of income and productivity levels (Ajani and Igbokwe, 2013).

## **2.2 The Rural Non-farm Economy**

The rural non-farm sector is an ailing understood part of the rural economy of developing countries and relatively little is known about its role in the large development process and coupled with insufficient attention at both the empirical and theoretical level. A common view is that rural off-farm employment is a low productivity sector producing low quality goods, expected to wither away as a country develops and incomes rise (Jean and Peter, 2000). Also Logman (2012), opined that many households participated in farm activities but majority of them get their income from non-farm activities in the rural area as agriculture alone cannot provide sufficient livelihood opportunities. Migration is not an option for everyone and where possible, policy-makers may in any case prefer to limit the worst excesses of urbanization with its associated social and environmental problems. However, occupations in rural areas are not all farm-oriented. Women who form majority of the rural dwellers are involved in non-farm occupations such as weaving, dress making,



petty-trading, hair dressing, teaching, midwifery, making of confectioneries, among others. This is because farming is a seasonal occupation in Nigeria except in areas where some forms of irrigation are practiced thereby enabling the production of crops off season. Most rural women, therefore, endeavor to supplement their incomes with petty jobs outside the farm (Mbah and Igbokwe, 2015). The non-farm sector plays a crucial role in employment generation. The establishment of rural-based industries, in particular, has often been very effective in creating new job opportunities and providing supplemental income (Mbah and Igbokwe, 2015).

Even though agriculture remains the main source of income and employment in rural areas of the developing countries, the non-farm sector is progressively becoming imperative. At the initial of the new millennium, 30-40% of rural full-time employment was attributed to non-farm economic activities in developing countries (Madaki and Adefila, 2014). It is a generally accepted fact that agricultural sector is incompetent of generating adequate gainful employment opportunities amidst of increasing population in the developing countries. As a result, the impetus for achieving sustained rural economic development in rural areas has to pivot around expanding the base of non-farm activities. If such a comprehensive planning approach can be evolved, it could go a long way in reducing poverty, unemployment and out-migration in rural areas. The significance of the non-farm sector is even more pronounced in agriculturally backward and low productivity zones (Madaki and Adefila, 2014).

### **2.2.1 Concept of non-farm income**

In Africa, various studies have shown that most rural households are involved in agricultural activities as their main source of livelihood, however, they also engage in

other income generating activities to augment the main source of income (Adepoju and Obayelu, 2013). Greater non-farm income and livelihood diversification have been measured as useful instruments to boost growth, lower rural poverty and augment farm income in the developing countries (Sumit and Andaleeb, 2017). Off-farm activities revolve around the questions of what drives participation to off-farm work and how off-farm income contributes to farm activities. Regarding the significance of non-farm income for total household welfare various proportions help for total household income have been evidenced (Erik *et al.*, 2012). A fundamental interrogation is whether surplus income earned outside farming is spent on farm-related venture or whether it is invested outside agriculture (Erik. *et al.*, 2012).

Two sets of variables are discovered that affect the decision of whether or not to invest in non-farm income activities. The first concerns the nature of the existing capital market: if rural credit markets function poorly, non-farm income becomes a substitute for borrowed capital for investments. Secondly, it depends on the characteristics of such income, such as its timing and nature in comparison to the needs of agricultural production, and also on the household's internal dynamics in terms of distribution and the control of funds (Sumit and Andaleeb, 2017).. However, some scholars like Ellis (2000), claim that diversification may also have long-term negative effects because poor farmers who engage in non-farm activities do so in order to survive, not to improve the sustainability of their livelihoods or to invest in production (Bassie, 2014).

In the rural areas, the majority of households are involved in farm activities but many of them get their income from non-farm activities (World Bank, 2008). Hence, in the rural area, it is inflexible to find peasants who do only farming. As a matter of fact, households devote part of their time to farm activities and part of it to non-farm ones. The growth of

non-farm activities can ease the constraint on credit and liquid assets required for agricultural production and can boost agricultural competitiveness (World Bank, 2008). Non-farm activities could arise from the bankruptcy of economic institutions. As a matter of fact, the lack of a farming insurance system to cater for the risks in a sector for where uncertainty seems a permanent feature due to climatic situations will lead to the development of off-farm activities (Pam, 2011). Thus, the rural non-farm sector provides chances for rewarding for the risks and uncertainties related to the differences in farm income (Pam, 2011).

However, the degree that the demand for products from the non-farm sector depends on the income from the farming sector, the level of non-farm activities will be low if the farm income is low. This means that the role of non-farm employment in compensating for the fluctuations of farm income is limited. The efficiency of the non-farm sector in steadying income over different seasons or consecutive years will therefore depend on the strength, the nature of links between farm and nonfarm activities and the type of non-farm activities concerned (Pam, 2011). The non-farm income generating activities differ across geo-political positions and countries. This is noted in the study of Yakubu *et al.* (2015) who reported much variation among countries in the share of off-farm activities. Non-farm income activities include all economic activities in rural areas except agriculture, livestock, fishing and hunting. It includes activities like processing, marketing, manufacturing, wage and casual local employment in the rural villages (Odoh and Nwibo, 2017).

### **2.2.2 Concept of livelihood**

Livelihoods comprises of capabilities, assets and activities required for a means of living. The choice of a livelihood approach that a household follows is dependent on the socio-

economic features of the household including the skills which its members have at their disposal. In this case, livelihood skills refer to capabilities, resources, and opportunities for pursuing individual and household economic goals such as income generation. Livelihood skills include technical and vocational abilities (carpentry, sewing, weaving, and gardening) (Kamwi *et al.*, 2018). On the other hand, livelihood consist of capabilities, the assets (natural, physical, human, financial and social capital), the activities and access to these mediated by institutions and social relations that together determine the living gained by individual rural woman.

The Nigeria economy is historically agrarian, with most of rural women living in below poverty line with adequate access to social services and infrastructures (Abubakar *et al.*, 2019). Poverty is generally defined as the scarcity of human basic needs. In poor rural communities non-farm income can be an integral part of development contributing to sustainable livelihood and enhancing social well-being. Non-farm activities and income therefore contributed significantly to food security, income generation, trades, and improved living standards in most developing countries (Umar and Mohammed, 2018). However, a livelihood is sustainable when it can cope with, recover from stresses and shocks as well as maintain or enhance its capabilities and assets both now and in the future while not undermining the natural resources base (Mohammed *et al.*, 2019a).

According to Mohammed *et al.* (2019b) the four principal ways of acquiring livelihoods by rural women are; first is the production base livelihood. A large proportion of the small and marginal rural women gain livelihood through production on small plot of land, for these rural women availability or access to inputs and improved methods of production are quite critical for their livelihood. Second is the labour-base livelihood. Most of the landholders and land-less rural women derive livelihood by selling their labour. For

improved livelihoods, demand for labour, wage rates and prices of food are critical factors. Third is the exchange or market base livelihood. The rural women that produce surplus food or non-food agricultural products or non-farm goods earn their livelihoods by selling these surpluses in the market. The marketing system for these products and relative prices of what they sell and what they buy affect their livelihoods. The fourth set of livelihood is transfer based entitlements. The rural women without any income earning assets or able bodied person to work depend on their livelihoods on transfer from government or other social organizations. Government social security and food assistance programmes are relevant or significant for this group of rural women in fulfilling their livelihood requirements

Okoro and Odebode (2009) in their study emphasized that livelihood is the activities, assets that jointly determine the living gained by the rural households. It is sustainable when it has the capacity to meet the immediate needs of the people while its ability to meet future needs is not jeopardized. However, agriculture is the main source of livelihood in Nigeria, especially in the rural areas and is plagued with various problems (Oyakhilomen and Kehinde, 2016). As a result, most of the rural households are poor and are beginning to diversify their livelihoods into off and non-farm activities as a relevant source of income. The farm sector employs about two-thirds of the country's total labour force and provides a livelihood for about 90% of the rural population (Oyakhilomen and Kehinde, 2016).

Rural women are involved in both farming and non-farming activities and they are the key development actors, playing a significant role in the domestic and socio-economic life of the rural society by supporting their households and communities in achieving food and nutrition security, generating income, and improving rural livelihoods and overall

well-being. However, despite the contributions of women to development, much attention has not been given to these rural women (Egwuonwu, 2018). The contribution of non-agricultural activities to household income in the developing world in general and Sub-Saharan Africa in particular is substantial. Local non-farming income contributes between 30 to 40 % of rural household income in the developing world (Oyakhilomen and Kehinde, 2016). Various studies have shown that while most rural households are involved in agricultural activities such as livestock, crop, or fish production as their main source of livelihood, they also engage in other income generating activities to augment their main source of income (Oyakhilomen and Kehinde, 2016).

Agricultural activities are main source of livelihood however, households engage in off-farm activities to generate more income to cushion the effects of poverty (Yakubu *et al.*, 2015) income from rural non-farm enterprises greatly exceeded the value of farm wage income mostly in Sub – Saharan Africa. Reliance on agriculture tends to diminish continuously due to population growth, lack of credit facilities to poor rural farmers, coupled with high cost of agro- inputs and high cost of production. Okoro and Odebode (2009) equally reported inadequacy of farm income and high incidence of poverty among small – scale farmers. Oyesola and Ademola (2012) supported the view as they reported that vast majority of rural families in Nigeria who are basically farmers but could not meet the global challenges in the quest to ameliorate rural poverty. Therefore, resorted to diversify into non-farm income generating services as coping strategy.

Therefore, a livelihood status is the summation of an individual's abilities, assets, and activities. Livelihood is defined to be made up of the abilities, assets (stores, resources, claims, and access) and activities necessary for a means of living (Ajayi *et al.*, 2016). Ability is vital in livelihood study as it does not only include mere physical labour, but

include knowledge, training and special skills. Included in the measurement of abilities are time input to work in hours per day and days per week. Others are years of experience, number of active family support, training on activities; either indigenous, non-formal or formal, and also, support either from social groups or extension services. Livelihood analysis takes into account the range of tangible and intangible assets necessary to build a livelihood, identifying five types of core assets, namely; natural, physical, financial, human, and social assets (Oyesola and Ademola, 2012).

### **2.2.3 Concept of rural women**

Rural woman constitutes the family that leads to society and nation. Overall development of women is necessary for the development of society and nation. The emergence of women entrepreneurs and their contribution to the national economy is quite visible in Nigeria. Obi *et al.* (2017) noted that entrepreneurship development among rural women helps to enhance their personal capabilities and increase decision making status in the family and society as a whole. Entrepreneurship among rural women, no doubt improves the wealth of the nation in general and of the family in particular (Mishra and Kiran, 2014).

Women entrepreneurship involves women empowerment which means raising the awareness and consciousness of women towards act and laws that are detrimental to their progress and survival. It also means giving women the authority and legal power to participate without any hindrance. Olawamimo, (2011) and Obi *et al.* (2017) affirms that it is a process of awareness and capacity building leading to greater participation in decision making process, control and transformation actions, so as to enable them perform better towards improving themselves, their families and society as a whole. However, there are widespread gender gaps in access to and control of resources, in power, voice

and economic opportunities. Women bear the largest and direct costs of inequalities (Obi *et al.*, 2017).

Obi *et al.* (2017) stated that people living in rural peripheries, especially women, shoulder the burden of the worlds' poverty particularly in the least developed countries and Sub-Saharan Africa. Indeed, the development of rural women entrepreneurs is a path out of poverty. The interest and capacity of women to engage in entrepreneurship has the two-fold effect, empowering them economically and contributing to the equitable and inclusive economic growth of their countries. Women entrepreneurship development is the instrument of women empowerment. Mishra and Kiran (2014) asserted that empowerment through entrepreneurship leads to self-fulfillment and makes women aware about their status, existence, right and their position in the society.

#### **2.2.4 Importance of rural women in livelihood participation**

People living in rural peripheries, especially women, shoulder the burden of the worlds' poverty. Women play a significant role to ensure their families' well-being. They are regarded as the backbone of rural economies in developing countries like Nigeria and specifically in Africa (Abdi, 2014). In modern era, women are becoming socially empowered, and economically empowered through business ownership. Manjunatha (2013) stated that the participation of women in the field of economy not only improves the nation but also improves that of women. Nigerian rural women entrepreneurs become part and parcel of the development of the nation. As rural women is one of the major human resources and opened to all natural resources. They even assist men in all walks of life along with agriculture and by participating in business, they can lower the concept of "brain drain" within the nation by finding employment in their own rural area.



Empowerment is a process of positive change that improves women's fallback position and bargaining power within a patriarchal structure, and identify different causal pathways of change; material, cognitive, perceptual and relational. In short, empowerment is a process of awareness and capacity building leading to greater participation, to greater decision-making power and control, and to transformative action. Derera (2015) posited that economic empowerment is not the sole protective factor that reduces the chances of gender violence, other factors such as education and modified cultural norms are important for the overall wellbeing of an individual.

## **2.3 Empirical Review of Past Studies**

### **2.3.1 Socio-economic characteristics of rural women**

Socio-economic status is a complex term used to categorize a group or an individual in a society (Nhung *et al.*, 2019). In recent decades, many definitions of socioeconomic status have been released, most of which incorporate educational level, representing social status; amount of income, representing economic status; and type of occupation, representing work status. Income is a significant index of Socio-economic status because it directly impacts health, access to goods, access to services, and increases the power in the family, but is also controlled by occupation and educational level and vice versa (Nhung *et al.*, 2019). United Nations Women also emphasized that to reduce the vulnerability associated with the change of socioeconomic conditions, rural women need an appropriate support system that assists them in the short term and that improves their human capital and resource access in the long term (Nhung *et al.*, 2019).

The socio-economic status of rural women is the consequence of their livelihood activities, which are mostly dependent on natural resources, including land, water, and natural forest. Among these resources, agricultural land is the most important factor for

rural development as access to it is key to the livelihoods of rural women as well as economic growth (Nhung *et al.*, 2019). Decreasing access to land resources might lead to difficulties in the livelihood activities and socioeconomic status of rural women. In recent decades, increasing access to land resources has been one of the solutions that has been applied in most developing countries to improve the socio economic status of rural women (FAO, 2013).

#### **i. Access to land**

Lack of land for farming is perhaps the severest constraint faced by the rural poor, and one that affects more women than men. In rural areas, there are very few employment opportunities. Moreover, they worked as casual and seasonal labourers in agriculture or construction may not be an option for women. There is a growing body of literature (Thabit *et al.*, 2015) which argues that credit programme empower women by strengthening their economic roles, enhancing their capacity to contribute their family's income, helping them to establish their identity outside the family and giving them experience and self-confidence in the public sphere.

#### **ii. Access to credit**

One of the most significant obstacles of engaging in non-farm activities is credit constraint: a restricted access to credit and financial savings can impede investments as well as the acquisition of assets that are essential to most non-farm activities. Diversifying sources of income is a major challenge in our country as rural people face financial shortage to invest in farm. Therefore, they are involved in different non-farm activities with less investment (Nishad and Tanjila, 2015).

### **iii. Farm size**

In agricultural production land is an important resource. Due to the fragmented nature of farm holdings in rural areas of a developing economy like Nigeria, rural women always diversify their livelihood activities. Also, an increase in farm size in form of land consolidations will increase farm income through better economies of scale (Samuel, 2012). The small size of farm holdings has been one of the factors that are driving people out of farm business and has been regarded by many authors as one of the push factors (Samuel, 2012).

### **iv. Household-size**

Household size is an important factor for livelihood diversification. According to Samuel (2012), household size affects the ability of rural women to supply labour to the farm. In a large family, some members could remain engaged in traditional farming while others could option for non-farm activities. It will also reduce the risk of livelihood failure. Babatunde and Martin (2019) noted in their study of pattern of income diversification in rural areas of Nigeria that income diversification is not only a risk management strategy in rural Nigeria, but a means to increase overall income which is consistent with previous studies from Sub-Saharan Africa. The authors further argued that diversification has a significant positive impact on total household income as households have unequal abilities to diversify their income sources. Education, asset endowment, access to credit and good infrastructure conditions increase the level of household diversification, as they improve the opportunities for households to start their own businesses and find employment in the higher paying non-farm sector. In other words, resource-poor households in remote areas are constrained in diversifying their income sources.

Ibrahim and Onuk (2009) reported that household income and household farm size had negative and significant relationship with non-farm diversification. This implies that the lower the household income and household farm size, the higher the tendency to diversify into non-farm activities and vice-versa. Households with smaller farms are likely to combine farm and non-farm activities than those with larger ones. Ibrahim and Onuk (2009) also noted that dependency ratio and access to credit had positive and significant coefficients. A household with a very high ratio of dependents has a higher tendency to diversify into other non-agricultural activities in order to cope with the needs of the household. Access to credit plays a crucial role in the decision to diversify. Increase in access to credit by a given household will increase the level of non-farm diversification. The reason is that the increase in the capital base will enable household to start another business apart from the previous one because there is available capital.

#### **v. Age**

According to Ibekwe *et al.* (2010), in their work on determinants of farm and off farm income among households in South East Nigeria, age of household head was significant and negatively correlated with farm income. This may be due to the fact that the older the farmer the less productive the farmer will be and this equally has implication for farm productivity. Also Lemi (2006) in his work on income diversification in Ethiopia noted that age has positive but declining effects on participation in off-farm diversification, which implies that farmers participate in off-farm activities at a decreasing rate as they advance in age.

#### **vi. Level of education**

Education and training produce a labour force that is skilled. Unskilled agricultural wage labour is supplied by rural households. This has implication for poor wages and low income. The determinants of participation in and returns to rural non-farm activities

include the households' assets endowment (quantity and quality) and its access to public goods and services as shown in various studies (Samuel, 2012). For particular activities, such as education, some households are "pushed" to diversify their activities off-farm only to cope with external shocks to their own farming (such as drought or a steep decline in farm-gate prices). Rural women may be "pulled" into non-farm activities because it often pays more than farming and generates cash.

Oluwatayo (2009) in his work on poverty and income diversification among households in rural Nigeria noted that household heads with formal education, married, engaged in farming as primary occupation and those living far away from headquarters of state or local government are less diversified than those with no formal education, single/divorced/widowed, non-farming households and those living very close to the state or local government headquarters. The implication of this is that rural women with formal education (especially those educated up to tertiary level) are engaged in better and well-paid salaried jobs than those with no formal education hence they have lower likelihood of combining two or more jobs (multiple job holding).

Education helps men and women to claim their rights and realize their potential in economic, political and social arenas. It is also the single most powerful way to lift people out of poverty. Yet, many people particularly women are still excluded from education in Nigeria. Education should be an intrinsic part of any strategy to address the gender-based discrimination against women and girls that remains prevalent in our society (Uzoma, 2013). The current wave of globalization has greatly improved the lives of women worldwide, particularly the lives of women in the developing world. Nevertheless, women remain disadvantaged in many areas of life, including education, employment, health, and civil rights. According to World Bank (2008), about 57 percent

of the 72 million primary school aged children who do not attend school are females. Additionally, girls are four percent less likely than boys to complete primary schools (FAO, 2013).

Educational attainment and literacy levels varied between regions and by area of residence, whether urban or rural (Annabel and Mairo, 2007). The lowest levels of educational attainment and highest rates of illiteracy are in the North East and North West Regions. About 75 percent of young women who live in rural areas of North East or North West have never been to school. Similarly, 64 percent of young women in North East and 71 percent of young women in North West are illiterate. All the southern regions have high rates of educational attainment, even in the rural areas: 78 percent of rural girls in South East and 70 percent of rural girls in South South attained secondary level education or higher. Illiteracy is low in the southern regions as well; fewer than 10 percent of girls in South East are illiterate (Annabel and Mairo, 2007).

Education and training are essential components of any strategy to improve agricultural and non-farm productivity and pull households out of poverty. Learning about improved production technologies and methods, new products and markets, business and life skills (such as health management, decision-making, self-confidence, or conflict management) can make a big difference (Obi *et al.*, 2017). However, more than one-third (38%) of Nigerian women and 21% of men within the age of 15-49 years have no education, Only 17% of women and men have attended primary school. More than one-third (36%) of women and nearly half of men have attended secondary school. Less than 10% of women and 14% of men have attended more than secondary school. Women and men in urban areas are most likely to achieve higher levels of education. Nearly half of women

(47%) and one-quarter of men are illiterate (Nigeria Demographic and Health Survey, 2013).

#### **vii. Marital status**

Obi *et al.* (2017) revealed that culturally and particularly in the rural setting, the female children are not given equal opportunity to study like their counterparts; hence they had limited education and training which tended to affect effective performance in later life. The result of early marriage of a girl child and it is one of the major obstacles in the rural areas for women empowerment and education. In some parts of the nation, guardians and parents think that girls are their burden. So they always try to marry them out (Obi *et al.*, 2017). Most rural women in Nigeria are lagging far behind in the field of education because of early marriage. Female children in rural areas who are educated are provided either less or inadequate education than their male counterpart partly due to poverty, early marriage, low socioeconomic status. Lack of education is also one of the biggest obstacles for rural women who want to start an enterprise. Due to lack of proper education, women entrepreneurs remain in dark about the development of new technology, new methods of production, marketing and other governmental support which will encourage them to flourish.

#### **2.3.2 Sources of non-farm income**

A research conducted by Ajani and Igbokwe (2013) indicated that rural women derived higher incomes mostly from occupations such as petty trading, teaching, catering services, tailoring, public services and making of confectioneries. Income generating activities including income in-kind that are not agricultural but are located in rural areas. In addition to this, non-farm income is income from local non-farm wage employment, local non-farm self-employment, and migration income and non-agricultural rural

activities which include non-farm activities that are carried out in the farm but are not related to crop production (Tsepiso, 2016).

The rural non-farm sector entails a diversity of activities that includes commerce, manufacturing and services. Many people participate in rural non-farm activities to diversify their livelihood options. The rural non-farm sector ensures diversification of incomes among the rural households. People make a living out of different activities such as tailoring, weaving, carpet making, blacksmithing, carpentry and many others (Obinna and Onu, 2017). According to the author, in some households, the incomes derived from these activities supplement those from agriculture, while in some families, rural non-farm activities are the main source of income. Hence, the more activities outside agricultural activities the more the level of participation of rural women in these activities.

### **2.3.3 Effects of non-farm income on livelihood status of rural women**

The growth of non-farm activities can ease the constraint on credit and liquid assets required for agricultural production and can boost agricultural competitiveness (World Bank, 2008). The savings generated by farm activities can also serve as the basis for non-farm investment. The growth of non-farm activities can come about as a result of an anti-hazards strategy on the part of households. In this rationale, the diversification of sources of income would then be seen as a strategy to fight the hazards related to being involved in an activity that is only centered on farming. Rural households seek to protect themselves against the hazards related to their environment by diversifying crops and production zones and by using manual techniques (Pam, 2011).

Off- farm activities contribute to household food security by providing cash for food and other household purchases and equally, in agricultural assets acquisition. Obinna and Onu (2017) reported that off- farm activities were risks minimizing strategies that safeguarded



farmers against crop and market failures. It has been asserted that about 70 % of Nigerian's poor live in rural areas and are largely reliant on agriculture or agriculture related activities for livelihood. On the same note, Obinna and Onu (2017) also reported that vast majority of rural households in Nigeria mostly female headed households are basically farmers who could not meet the basic household needs in order to amend rural poverty and ensure household food security. Thus, most of them try to diversify into non –farm and off – farm income generating services as coping strategy.

It has been reported that the primary concern of women is usually the welfare of their families, spending money generated on personal items only after the family needs are met. People take up other jobs apart from their primary occupation, which is farming to take care of their family and to be economically independent irrespective of their ethnic group or background. Socio-culturally, women play double role of wives and mothers. Most women are responsible for the health, nutrition and education of members of the family in the rural community (Onyebu, 2016).

In order to meet the herculean task of providing for the family's need, women engage in all sorts of off-farm activities to raise income for the family. These activities range from trading to working as government employees. The role of women in income generating activities is of paramount importance to financial development in Africa (Onyebu, 2016). More importantly, recognizing and supporting this is crucial and vital for the development or growth of women and the fulfillment of their economic potentials, while they are often hidden, silent and not appreciated, rural women represent probably the world's most powerful untapped natural resources (Yusuf *et al.*, 2015).

The non-farm sector plays a crucial role in employment generation. The establishment of rural-based industries, in particular, has often been very effective in creating new job

opportunities and providing supplemental income (Mbah and Igbokwe 2015). Diversified production and trade activities have also offered rural communities better employment prospects and accordingly more stable growth of their economies. The rural non-farm economy is a very important portion of rural Nigeria, it accounts for a large proportion of total rural employment and the rural income.

The share of income coming from non-farm activities often correlates with total income, both across households and across countries. In addition, the positive wealth -non-farm correlation may also suggest that those who begin as poor households in land and agricultural enterprise may decide to invest in better productive agricultural technologies or in non-farm activities capable of lifting them from poverty (Adelekan and Omotayo, 2017). According to Elkhilil *et al.* (2014), women comprise 50 per cent of the world's total population, perform two-third of the world's work hours, receive 10 per cent of world's income and own less than one per cent of total assets. Women are 70% of the world's poor and 70% of agricultural labour in developing countries.

#### **2.3.4 Determinants of non-farm income diversification**

The prevailing literature on determinants of non-farm activities are summarized by Nagler and Naudé (2014), noted that a distinction is regularly made between push and pull factors in an attempt to understand what determines the share of non-farm employment/income in sub-Saharan Africa including trying to understand what drives household decision taking to enter the sector. Push factors relate to minimizing risks, in particular those associated with a high dependency on agriculture, managing the repercussion of shocks or use of surplus family labour, in particular during the farm calendar offseason. Pull factors, such an individual and household level capabilities, including educational attainment and assets, as well as institutional and regional features.

Losch *et al.* (2012) noted two broad designs emerging. The first of these is positive diversification' in which self-employment contributes significantly to household income. The second, and more common, is a pattern of more 'neutral diversification' in which the poor and more marginalized households develop coping strategies by accessing minor self-employment activities with very low returns.

Exogenous features of the locations where households are based and which influence household livelihood choices are many and include, for example, the agro climatic environment which determines the extent to which farming is productive or risky. There is evidence that rural entrepreneurship fares better under favourable agro-climatic conditions (for example, better rainfall) that are good for agricultural productivity and where other natural resources, for example, mining and tourist attractions, can be found (Felicity, 2014). The advance of the farming sector activities provides opportunities to the non-farm sector, thanks to the request for inputs and services which such a growth needs. In conditions where there are no credit constraints, the non-farm income becomes a determinant in the rural households' strategy for farming investment (Pam, 2011).

In the past years, governments of developing countries (Ahmed, 2012) have focused almost exclusively on agricultural developments as the way to reduce rural poverty and achieve sustainable economic growth. Regardless of this narrow view, it is apparent in developing regions that the rural sector is much more than just farming and gender relationships are also important in shaping diversification process. Social organization and culture can significantly influence the relative access of diverse gender (and age groups) to household's capital assets or constraints promote their movement. (Ahmed, 2012). However, this might result in a diverse grade of participation in diversification activities and/or in an unequal distribution of their profits between genders (Ahmed,

2012). In some activities, migratory wage labour or off-farm enterprises are basically men business, which results in transferring to women the whole responsibilities of conventional subsistence and cash cropping (the so called “feminization of agriculture”). However, in other cultures, women are often able to play an autonomous role on their own small-scale enterprises or migrating to town or abroad (Ahmed, 2012).

The determinants of rural income diversification can be modeled through a simple model of participation choice .and two levels of analysis can be considered, the household choice of activity portfolio, and the individual choice of partaking in off farm activities (Sylvie *et al.*, 2010). People take up other jobs apart from their primary occupation, which is farming to take care of their family and to be economically independent irrespective of their ethnic group or background. Socio-culturally, women play dual role of wives and mothers. Most women are responsible for the health nutrition and education of members of the family in the rural community and also in order to meet the task of providing for the family need, women participate in all sorts of off-farm activities to raise income for the family. These activities range from trading to working as government employees (Onyebu, 2016).

However, Push determinants are negative factors that may force rural women to seek additional livelihood activities within and/or outside farming and they include factors such as risk, seasonality, land constraints driven by population pressure and fragmented land holdings, missing or incomplete factor markets (land, capital, labor), and market access problems due to poor infrastructure and high transaction costs, asset strategies and coping behavior ( Such factors tend to dominate in high-risk and low-potential agricultural environments, subject to drought, flooding and environmental degradation (Haggblade *et al.*, 2007). They are associated with survival-led type of diversification,

whereby poorer rural farm households are pushed to engage in low-return nonfarm activities to ensure survival, to reduce vulnerability or to avoid falling deeper into poverty (Haggblade *et al.*, 2007).

On the other hand, pull determinants are positive factors which provide incentives for rural women to expand their livelihood activities within and/or outside farming. Examples include commercialization of agriculture, improved infrastructure, proximity to an urban area, market access, growth of rural towns, development of labor markets, improvements in education and technology (Haggblade *et al.* 2007; Losch *et al.*, 2012). Such pull factors tend to dominate in less risky, more dynamic agricultural environments (Haggblade *et al.* 2007). They are associated with opportunity-led type of diversification which occurs when wealthier rural households engage in high-return nonfarm activities, with accumulation objectives, in order to increase their incomes and maximize returns from their assets (Haggblade *et al.* 2007).

## **2.4 Associated with Non-farm Income Diversification**

Various studies have also shown that the rural poor have less access to lucrative substitute activities than their better-off counterparts because of high barriers to entry associated with these activities (Sylvie *et al.*, 2010). In spite of the growing significance of farm and off-farm activities, very little is known about the role farm and off-farm activities play in the income generation strategies of farm households in developing economies like Nigeria (Ibekwe *et al.*, 2010)

### **2.4.1 Credit**

One of the most significant obstacles to entry is credit constraint: a restricted access to credit and financial savings can impede high first investments as well as the acquisition of assets that are essential to most non-farm activities. Diversifying sources of income is

a major challenge in our country as rural people face financial shortage to invest in farm. Therefore, they are involved in different non-farm activities with less investment (Nishad and Tanjila, 2015). However, not everyone has access to these high-return activities. Because of barriers to entry, such as insufficient skills, contacts, and capital (Vimefall, 2015). These constraints are especially difficult for poor rural women to overcome but can also be linked to gender. Female-headed households may be constrained because they are often poorer and because they face special constraints due to gender. Generally, they have less education and less access to productive assets and credit, which both limit their options for diversification. Female-headed households might also be hindered by norms about female labor force participation. In addition to lack of access to productive resources rural women sometimes lack access to credit. This is especially important if the rural women want to diversify into self-employment.

Furthermore, access to high-return off-farm wage employment requires a certain level of human capital. Although the gender gap in education has decreased in most developing countries, female heads of household generally have lower levels of education than their male counterparts (FAO 2011). They might also lack the connections needed to access these forms of employment, and sometimes, social norms regarding female labor force participation hinder women from entering the labor market. Even though agriculture or on-farm livelihood activities, particularly food and cash crops production, livestock rearing and fishery, income from non-farm sources is increasingly becoming important source of income in Nigeria (Hudu *et al.*,2015).

However, while non-farm self-employed income reduced income inequality, non-farm wage income increased income inequality and the tendency for non-farm income to increase income inequality is usually caused by certain entry barriers which limits poorer

rural women from partaking actively in the non-farm sector. However, very few evidence by way of empirical studies actually examined gender differential participation in various livelihood portfolios available (Hudu *et al.*, 2015). Nigeria is a developing country with predominant rural settings. Agriculture is the major economy and about 80 percent of its people live in the rural areas. The women work hard all day long in the domestic sphere and sometimes outside the home. In some cases, they even undertake works culturally assigned to men in the household division of labour; nevertheless, their labour is generally not recognized by the male members of the family as well as the large society (Hossain, 2011).

#### **2.4.2 Socio-cultural factors**

According to Obi *et al.* (2017), in many countries, socio-cultural factors do not act in favour of women, where their traditional role is subordination to men, often in patronizing relationships in which the woman's place is in the home rather than the workplace. History shows that out of all deprived groups in the world women have suffered the most. Their suffering knows no bounds when it comes to culture, race, region or religion. Our society has not ceased from being dominated by the male gender. The effect is that women are not treated as equal partners with men both inside and outside the home. In fact, they are regarded and treated as weaklings that are dependent on men for survival. Rural areas tend to be more traditional in regard to the gender issue. The gender issue in rural areas is usually a much stronger hindering factor to potential women entrepreneurs than it is in urban areas; their self-esteem and managerial skills being lower when compared to urban women and access to external financial resources being more difficult than in urban areas (Ezeibe *et al.*, 2013).

Also, Ola and Aladekomo (2013) stated that the challenges of women's empowerment are more cultural than technological as well as more about people and systems than about digital tools. Greater percentage of the population of Nigeria is rural and agriculture is the mainstay of the impoverished people's livelihood. Nigerian women are considered to be at the lowest rung of poverty ladder, the reason being that their rights to own property are impeded by cultural practices. Male supremacist structures of authority, whether in kinship structures or traditional rulers, often act to systematically marginalize women restricting their access to and control over land and economic enterprise.

The significance of such access and control is located in the relationship between land rights, property rights and the sustainability of livelihood. Although entrepreneurship is an individual feature, as the result of knowledge, competence, skill, courage, ingenuity and activity, social and cultural context can strengthen or weaken the entrepreneurial attitudes of individuals. The impact of socio-cultural environment on entrepreneurship poses a challenge about the need for the society to have new values and orientation favourable to entrepreneurship and emergence of entrepreneurs and it is stated that socio-cultural factors can influence both positively and negatively entrepreneurial emergence in a society (Obi *et al.*, 2017).

#### **2.4.3 Inadequate family support**

Family support has been suggested to have a negative impact on women's entrepreneurial behaviour (Halkias *et al.*, 2011). Iliya *et al.* (2017) noted that the support of the husband in fulfilling family responsibilities can be extremely helpful for these rural women the fact that women need to leave their children in order to pursue entrepreneurial activities is not appreciated. Studies of (Halkias *et al.*, 2011), revealed two opposing pictures in this respect. In some cases, families are very supportive and play an important and supportive



role in helping women to develop business ideas whereas families are regarded as constraint by rural women. They receive no appreciation for their work and in most cases they are discouraged (Itani *et al.*, 2011).

#### **2.4.4 Female child early marriage**

Obi *et al.* (2017) revealed that culturally and particularly in the rural setting, the female children are not given equal opportunity to study like their counterparts; hence they had limited education and training which tended to affect effective performance in later life. The result of early marriage of a girl child and it is one of the major obstacles in the rural areas for women empowerment and education. In some parts of the nation, guardians and parents think that girls are their burden. So they always try to marry them out (Obi *et al.*, 2017). Most rural women in Nigeria are lagging far behind in the field of education because of early marriage Female children in rural areas who are educated are provided either less or inadequate education than their male counterpart partly due to poverty, early marriage, low socioeconomic status. Lack of education is also one of the biggest obstacles for rural women who want to start an enterprise. Due to lack of proper education, women entrepreneurs remain in dark about the development of new technology, new methods of production, marketing and other governmental support which will encourage them to flourish.

#### **2.4.5 Lack of access to finance**

Overtime, researchers have been emphasizing that lack of access to finance is also one of the major barriers that female entrepreneurs face (Obi *et al.*, 2017). A majority of the females rely on family funding or personal savings (Itani, *et al.*, 2011). A study conducted in Nigeria discovered that after family funding, these female entrepreneurs rely on donations, bank loans, governmental schemes and charity by religious institutions which

are not often granted (Halkias *et al.*, 2011). Finance as one of the social cultural factors that may hinder women participation in livelihood activities which invariably affect their economic empowerment. Women report that bank officials tend to ignore them in meetings and prefer speaking to their male business partners. The fact that banks engage in gender bias prevents many women from even approaching them for financial assistance. Some women get so discouraged that they do not bother to seek bank financing and turn instead to informal savings groups (Obi *et al.*, 2017).

Often time, these women are requested, by the bank officials, to pay a certain percentage of the loan they apply for, present some cartons of beer and other items. Sadly, this does not guarantee that they will eventually receive the loan. Some are forced to open an account with the bank with a specific amount of money. They are threatened that they will not get the loan if they do not have an account with the bank. It is really sad. With this kind of attitude, how will poverty be alleviated and these women reasonably empowered economically? This seriously affect their livelihood activities.

#### **2.4.6 Male dominated society**

In our constitution there are equal rights for men and women but in real sense equality does not occur in rural areas. Women are being neglected in many spheres of life. Women are not treated equal to men. As far as rural areas are concerned, people have a set attitude that women are only for household work. Their entry to business needs the approval of the head of the family (Obi *et al.*, 2017). Entrepreneurship has traditionally been seen as a male preserve and male dominated. All these put a break in the growth of women entrepreneurs. Thus male entrepreneurs become hurdle in the success of women entrepreneurs.

### **2.4.7 Government policies**

Obi *et al.* (2017) stated that one of the major challenges of women entrepreneurship development in developing countries, particularly Nigeria, is government policies. These range from infrastructure to tax policies. The country lacks infrastructures like good roads to ease the transportation of products, poor electricity supply which forced entrepreneurs to use other sources of power generation like generators.

## **2.5 Theoretical Framework**

### **2.5.1 Theory of sustainable livelihood**

The theory categorize people into different livelihood strategies according to their access both material and social resources and their capabilities to combine them to livelihood strategies for a means of living (Almeida, 2006). The theory categorize assets that are generally recognized within sustainable livelihoods into five: Natural (Environmental) Capital: Natural resources (e.g land, water, wildlife, biodiversity, environmental resources). Physical Capital: Basic infrastructure (e.g water, sanitation, energy, transport, communications), housing and the means and equipment of production. Human Capital: (e.g Health, knowledge, skills, information, ability to labour). Social Capital: Social resources (e.g relationships of trust, membership of groups, networks, access to wider institutions) Financial Capital: financial resources available (e.g regular remittances or pensions, savings, supplies of credit).

The ability to combine these assets to livelihood strategies is influenced by the prevailing transforming structures, institutions and the vulnerability context. The transforming structures and the processes are the institution, organizations, policies and the legislation which determine the access to five different types of capital, terms of exchange between the different types of capital and the economic and other returns from livelihood

strategies. The vulnerability context present three main categories: trends, shocks and seasonality which affect assets and livelihood strategies and determine the level of vulnerability. Livelihood is sustainable when it can cope with stresses and shocks and maintain or enhances its capabilities of assets both now and in the future, while not undermining the natural resource base (Almeida, 2006).

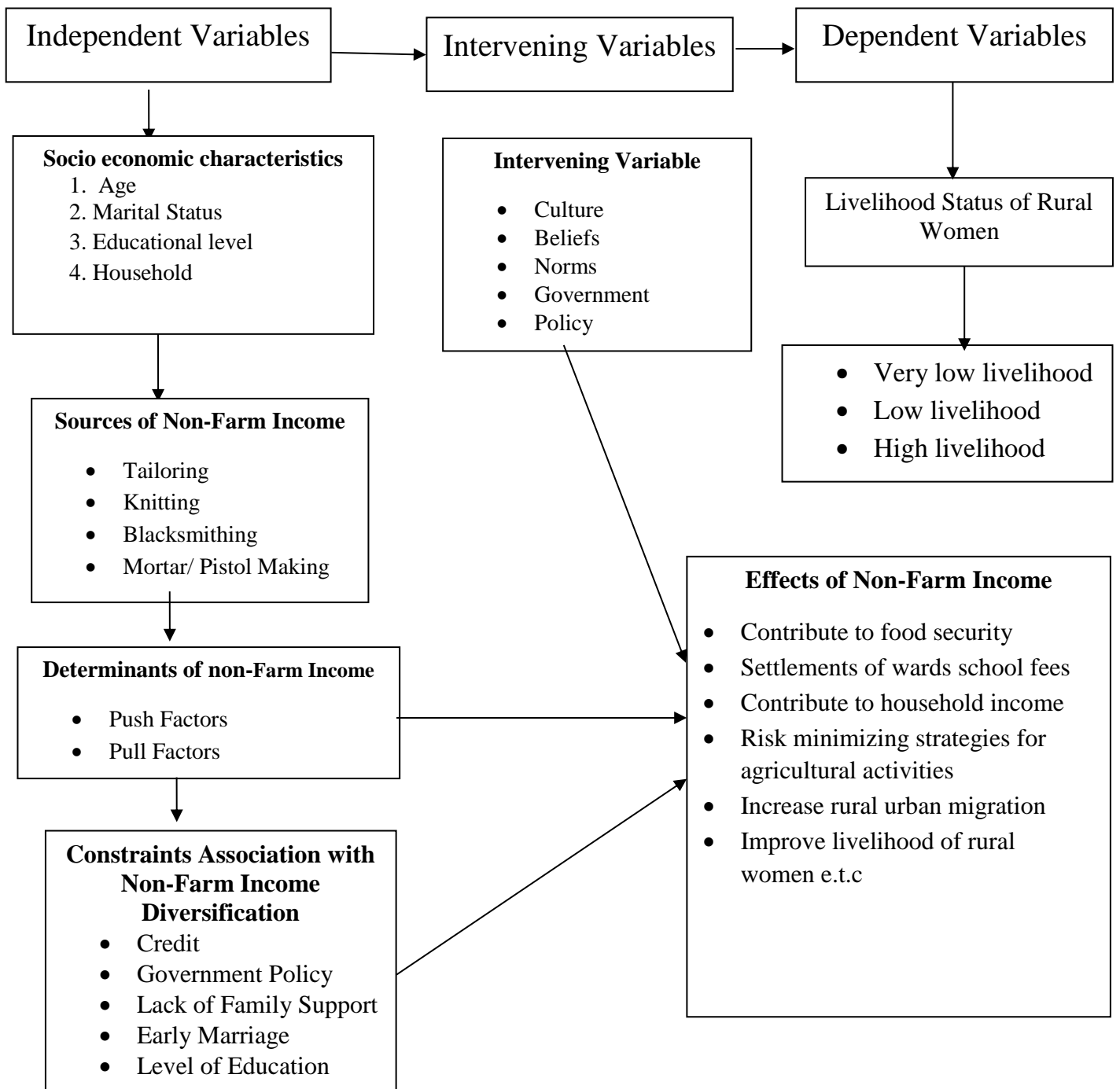
### **2.5.2 Conceptual framework**

The conceptual framework of this study shows the relationship between dependent, independents and intervening variables. The dependent variable of the study is livelihood status while the independent variables are; socio-economic characteristics and practices of sustainable livelihood strategies. The intervening variables include; Culture, norms, Government policy, cooperative societies and beliefs. Sex is expected to have negative effect on income diversification, elderly in rural communities may find it difficult to diverse their income sources to enhance their livelihood status, and this may be attributed to cultural belief that elderly people particularly women should not be engage in certain non-farm activities such as dry cleaning, barbing saloon and motor cycle riding while those within the active age are likely to diverse their income sources that will go a long way to boost their income and enhance their livelihood status.

Education plays a significant role in income diversification for better livelihoods. The more educated the rural women are, the more likely they would diverse their income sources to enhance livelihood because of their level of awareness and exposure. Rural women with higher level of education are likely to diversify their source of income to improve their livelihood. Rural women with large household sizes are expected to diversify their sources of income more to improve livelihood as a result of family pressure. The practice of sustainable livelihood activities is very important for the

sustenance of better livelihood. Thus, rural women that practice sustainable livelihood activities such as tailoring, hair dressing, knitting, hand craft and blacksmithing will have long time benefits and sustained livelihood. Similarly, if the rural women encounter a lot of challenges in diversification of income sources that can affect the livelihood of rural women negatively and vice versa. On the other hand, the intervening variables such as culture, belief and government policies can affect diversification of income sources which will go a long way in affecting the livelihood of rural women

## CONCEPTUAL FRAMEWORK OF THE STUDY



**Figure 2.1: Conceptual model on the effects of non-farm income diversification strategies for sustainable livelihood status of rural women**  
 Source: Researcher construct (2020)

## **CHAPTER THREE**

### **3.0 METHODOLOGY**

#### **3.1 Study Area**

The study was conducted in Niger State. The state is located in the North Central Savannah vegetation zones of Nigeria. It lies between Latitude 8° 20' and 11° 30' North and Longitudes 38° 30' and 8° 20' East of the Equator (Niger State Bureau of Statistics (NSBS), 2013). Niger State is in North-Central part of Nigeria and shares common boundaries with Zankara State to the North, Kebbi State to the North East, Kogi State to the South, Kwara State to the South – East and Federal Capital Territory (FCT) to North West and South West. The State also shares a common international boundary with the republic of Benin along New Bussa, Agwara and Wushishi Local Government Areas (Mohammed and Olaleye, 2015).

Niger State has the largest land area in Nigeria with a total land mass of 76, 363Km<sup>2</sup> representing about 9.3% of the total land mass of the country. It is made up of 25 Local Government Areas namely: Agaie, Agwara, Bida, Borgu, Bosso chanchaga, Edati, Gurara, Katch, Kontagora, Lapai, Lavun, Magama, Mariga, Mashegu, Mokwa, Munya, Paikoro, Rafi, Shiroro, Suleja, Tafa, and Wushishi Local Government Areas. The State is divided into three agricultural zones namely I, II and III for better administration of agricultural activities. Each of these agricultural zones have their headquarters at Bida, Kuta and Kontagora respectively. The bureau of statistics maintained an approximate population growth rate of 2.5% geometrically. Based on that, the projected population in 2020 was estimated to be 6,722,378.

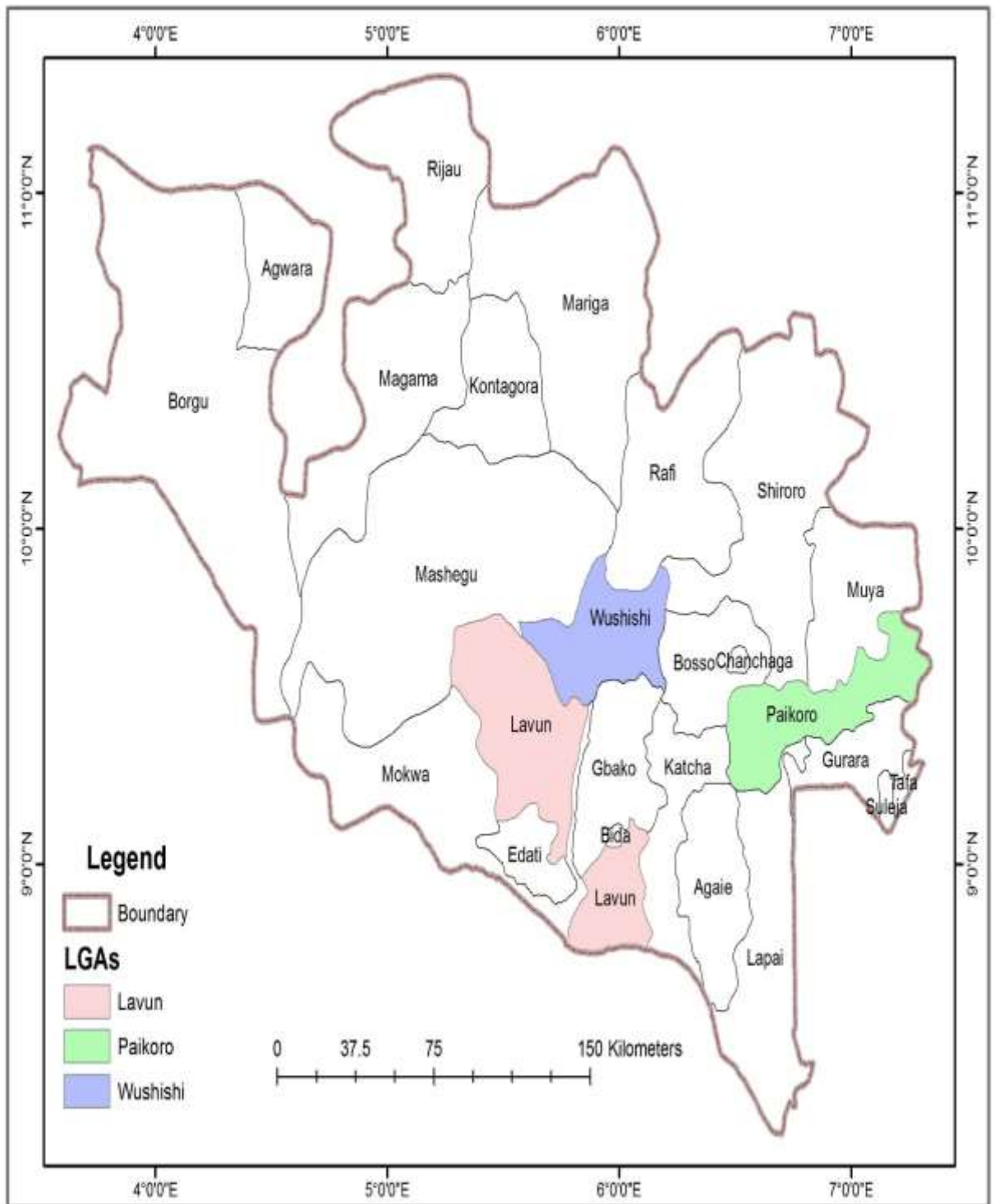
The climate and ecological conditions of the State is favoured with mean annual rain fall of 782-1250 mm and temperature is about 23°C - 34°C (Tsado, 2013). The State has basically two types of soil (Sandy soil and Clay soil). The sandy soil has little erosion hazards, while the clay soil has better water holding capacity. There is abundant wild vegetation of Shea trees and small scale farmers are the dominant. About 85% of the populace in the State are farmers, while 15% are involved in other vocation such as white collar jobs, businesses, crafts and arts (Tsado, 2013). The major crops cultivated are millet, rice, maize, guinea corn, beans, cassava, groundnuts and sweet potatoes (Mohammed and Olaleye, 2015). Majority of the famers keep livestock like poultry, goat and sheep. Other engaged in crafts such as sculptures, weaving and blacksmith (Tsado, 2013).

The dwellers of Niger State are predominantly Muslims and Christians with very few traditional worshippers and Atheists. However, there are three major ethnic groups (Nupe, Gbagyi, and Hausa) in the State, other tribal groups include - Kadara, Koro, Baraba, Kakanda, Ganagana, Dibo, Kambari, Kamuku, Pangu, Dukkawa, Gwada and Ingwai. Niger State also has numerous settlers from other parts of the country living peacefully and contributing their quota to the development of the State (NSBS, 2013). The state is one of the richest in the country in terms of tourism. Some of the tourist centres are Zuma Rock, Gurara Falls, Baro Empire Hill, Lord Lugard Colonial Ruins at Zungeru, Nagwamatse Well and Kainji Lake National Park (NSBS, 2013).

Niger State is endowed with two major rivers. The state is drained by River Niger, from which it derives its name, which runs from west to east to join the ocean and forms the southern boundary of the State, and River Kaduna which runs from the eastern part of the state to the southern to join River Niger at Nupeko. The two major rivers have numerous



tributaries including Shiroro and are homes to three hydro-electric dams, Kainji, Shiroro and Jebba including an on-going one at Zungeru area. The tributaries serve as areas for prospecting for alluvial gold deposits as well as points for washing and panning of rock materials for gold recovery, thereby causing contamination of these sources by heavy metals (Idris *et al.*, 2018).



**Figure 3.1: Map of Niger State showing the study area**  
**Source: Niger State Ministry of Agriculture & Rural Development (2018)**

### 3.2 Sampling Procedure and Sample Size

Three stage sampling procedure was employed for this study to select respondents. First stage involved random selection of one Local Government Area from each of the agricultural zones in the State. The second stage involved random selection of three villages from each of the selected Local Government Areas to get a total of six villages. The third stage which is the final stage involved proportionate selection by 12% of the registered rural women in agriculture from each village selected.

**Table 3.1: Sampling Distribution of Respondents**

<b>Zone</b>	<b>LGA</b>	<b>Villages</b>	<b>Sample frame</b>	<b>Sample size (12%)</b>
<b>I</b>	Lavun	Gbatanagi	259	31
		Batati	236	28
		Ma'ali	121	15
<b>II</b>	Paikoro	Kafinkoro	234	28
		Tungamallam	239	29
		Gwam	96	12
<b>III</b>	Wushishi	Kanko	251	30
		Gbarizhiko	217	26
		Akare	82	10
	Total	9	1735	208

Source: Niger State Ministry of Agriculture and Rural Development (2018)

### 3.3 Method of Data Collection

Primary data were used for the study. Structured questionnaire complemented with an interview schedule was used for data collection. Trained enumerators were employed to assist the researcher in data collection.

### 3.4 Measurement of Variables

#### 3.4.1 Dependent variable

The dependent variable in the study is livelihood status of rural women. This was determined using Livelihood Status Index (LSI) adopted from Samuel and Isaac (2019) in a research title factors affecting the choice of livelihood principles and practice among

the rural women in Madagali Local Government Area in Adamawa State Nigeria. The livelihood indicators that were considered include household assets, production assets and livestock assets which were measured in terms of numbers and monetary value (Naira). Therefore, the livelihood status were categorized as follows:

$\leq 0.35$  = Very low livelihood

0.36 – 0.59 = Low livelihood

0.60 – 0.85 = Moderate livelihood, and

$> 0.86$  = High livelihood

### **3.4.2 Independent variables**

#### **(A) Socio-economic characteristics of the respondents**

**Age:** This was measured by the actual years of the rural women at the time of data collection

**Marital Status:** This was measured as dummy variable (1 if married, 0 otherwise)

**Education:** This was measured by number of years spent in formal education

**Household Size:** This was measured by the number of people eating from the same pot

**Access to Credit:** This was measured in Naira

**Membership of cooperative Society:** This was measure as dummy variable (1 member, 0 otherwise)

**Access to extension Services:** This was measured by number of times rural women receive extension services.

**Farming experience:** This was measured by number of years involved in farming activities

**Household income:** This was measured in Naira

**Skills acquisition training:** This was measured by number of times training was received

**Number of training skills acquired on non-farm activities by the respondents:** This was measured in number of skills on non-farm activities

**Annual income from non-farming activities:** This was measured in naira

**(B) Sources of non-farm income**

This was measured based on the available non-farm opportunity to the rural women. Different non-farm income sources were listed in the questionnaire and the rural women were asked to tick the one they are into. This was measure in terms of number and value (Naira) realized by the rural women from these non-farm income activities.

- a. Mat weaving
- b. Cap weaving
- c. Mortar/Pistol making
- d. Sewing/Tailoring
- e. Black smiting
- f. Petty trading
- g. Food vendors
- h. Knitting
- i. Dry cleaning
- j. Hair dressing
- k. Charcoal sales
- l. Domestic work
- m. Construction work
- n. Mining/Quarry work
- o. Telecommunication services
- p. Transportation services

**(C) Effects of non-farm income diversification strategies on livelihood of rural women**

This was measured as dichotomous variables where the rural women were asked to tick appropriately based on the outline factors that was taken into consideration as the non-farm income diversification strategies and how it affect the livelihood status of rural women.

- i. Contribute to food security
- ii. Settlement of ward school fees
- iii. Contribute to household income
- iv. Improve expenditure on cultural ceremonies
- v. Risk management strategies for agricultural activities
- vi. Improve expenditure for non – food items
- vii. Enhance settlement of hospital bills
- viii. Improve livelihood of rural women
- ix. Improve procurement of farm inputs

**(D) Determinants of non-farm income Diversification Strategies among Rural Women**

This was measured as dichotomous variables where the rural women were asked to tick appropriately based on the factors (pull or push) that drive rural women to diversify their source of income. These factors are

- a. Commercialization of agriculture
- b. Improved infrastructure
- c. Proximity to an urban area
- d. Growth of rural towns

- e. Improvement in market access
- f. Improvement in education and technology
- g. Risks and shocks associated with agriculture
- h. Seasonality of farming
- i. Land constraints
- j. Problem of market access
- k. Missing or incomplete factor markets

### **(E) Constraints faced by the Rural Women**

The constraints associated with non-farm income diversification by the rural women were measured using 3 – point Likert type rating scale of Very Severe = 3, Severe = 2 and Not Severe = 1. The mean bench mark was obtained by adding the scores together (3+ 2+ 1 = 6) and divide by the points which is 3 to get mean value of 2.0. Therefore, calculate mean value of greater than or equals mean value of 2.0 implies severe constraints, while calculated mean value of less than 2.0 implies not a severe constraints.

### **3.5 Method of Data Analysis**

Objective i, ii and vi were achieved using descriptive statistics (such as mean, frequency distribution and percentage), objective iii was achieved using Livelihood Status Index (LSI), objective iv was achieved using Ordered Logit regression Model and objective v was achieved using linear regression model. Hypothesis i of the study was tested using Pearson’s Product Moment Correlation, Hypothesis ii was tested using the t-value from the linear regression model.

### 3.6 Model Specification

#### 3.6.1 Livelihood Status Index

This was measured based on the livelihood activities available to the rural women. Different livelihood activities were listed out in the questionnaire to know the livelihood status of rural women in the study area. Therefore, the Livelihood status index as used by Samuel and Isaac (2019) is mathematically expressed as:

$$LSI = \frac{\text{Number of livelihood activities adopted by nth respondent}}{\text{Total number of livelihood activities}} \quad (3.1)$$

Where;

LSI = Livelihood Status Index

Meanwhile, the LSI was further categorized by the researcher as follows:

< 0.31 = Low livelihood status

0.31 – 0.50 = Moderate livelihood status

0.51 – 0.70 = High livelihood status

> 0.70 = Very high livelihood status

#### 3.6.2 Ordered logit regression

Objective iv was achieved using ordered logit regression model as used by Olughu (2019). Ordered logit model is generalization of the widely used logit analysis with respect to more than two outcomes of an ordinal dependent variable as in the case of livelihood status categorized into ordered values of low (0), moderate (1) and high (2)).

The explicit form of the model is expressed as:

$$Y = \beta_o + X_i\beta_i + \varepsilon_i$$

The explicit are specify as follows

$$Y = \beta_o + \beta_i X_i + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 - - - - - \beta_{13}X_{13} + e \quad (3.3)$$



Y = Livelihood status of the rural women measured in an ordinal scale of  $< 0.31$  to  $\geq 0.70$  which was categorized and coded as low (0), moderate (1) and high (2).

$X_1$  = Mat weaving (1 if yes; 0 if otherwise)

$X_2$  = Cap weaving (1 if yes; 0 if otherwise)

$X_3$  = Mortar and pestle (1 if yes; 0 if otherwise)

$X_4$  = Sewing/Tailoring (1 if yes; 0 if otherwise)

$X_5$  = Black smiting (1 if yes; 0 if otherwise)

$X_6$  = Petty trading (1 if yes; 0 if otherwise)

$X_7$  = Food vendor (1 if yes; 0 if otherwise)

$X_8$  = Knitting (1 if yes; 0 if otherwise)

$X_9$  = Dry cleaning (1 if yes; 0 if otherwise)

$X_{10}$  = Hairdressing (1 if yes; 0 if otherwise)

$X_{11}$  = Charcoal production (1 if yes; 0 if otherwise)

$X_{12}$  = Domestic work (1 if yes; 0 if otherwise)

$X_{13}$  = Telecommunication services (1 if yes; 0 if otherwise)

e = Error term

$\beta_0$  = Constant

$\beta_1 - \dots - \beta_{13}$  = Coefficient of the independent variables

$X_1 - \dots - X_{13}$  = Independent variables (3.4)

### 3.6.3 Linear regression model

Objective v was achieved using linear regression model as used by Mohammed *et al.*, (2020). The explicit form of the model is expressed as:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + U$$

Where;

Y = Non-farm income livelihood diversification strategies of the rural women (measured in number of livelihood diversification strategies adopted)

X<sub>1</sub> = Age (years)

X<sub>2</sub> = Marital Status (1 if married, 0 if otherwise)

X<sub>3</sub> = Household size (number)

X<sub>4</sub> = Experience (years)

X<sub>5</sub> = Education (years)

X<sub>6</sub> = Household income (Naira)

X<sub>7</sub> = Livelihood status (measured as ordinal)

X<sub>8</sub> = Cooperative membership (1 if member, 0 if otherwise)

X<sub>9</sub> = Extension contact (Number)

X<sub>10</sub> = Access to formal credit (1 if yes, 0 if otherwise)

X<sub>11</sub> = Access to informal credit (1 if yes, 0 if otherwise)

X<sub>12</sub> = Training acquired (number)

e = Error term

a = Constant

b<sub>1</sub> - - - -b<sub>12</sub> = Coefficient of the independent variables

X<sub>1</sub>- - - -X<sub>12</sub> = Independent variables

#### **3.6.4 Pearson Product Moment Correlation (PPMC) model**

Pearson Product Moment Correlation Coefficient was used to test for Hypothesis i and

the formula is given as:

$$r_{xy} = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n(\sum x^2) - (\sum x)^2)(n(\sum y^2) - (\sum y)^2)}} \quad (3.5)$$

Where;

$r$  = Correlation Coefficient

$y$  = Livelihood status of the rural women

$x$  = Non-farm income diversification strategies adopted by the rural women

$n$  = Total number of observations

$\Sigma$  = Summation

## CHAPTER FOUR

### 4.0 RESULTS AND DISCUSSION

#### 4.1 Socio-economic Characteristics of the Respondents

The socio-economic characteristics of the respondents under consideration include sex, age, marital status, household size, farming experience, educational level, primary occupation and household monthly income.

##### 4.1.1 Age

Table 4.1 revealed that majority (98.5%) of the respondents were within the age of 31 – 50 years. The mean age of the respondents was 40 years. This finding indicates that women in the study area were still within their active and productive age where diversifying into nonfarm income is of high priorities in order to enhance their livelihood. This is in consonance with the findings of Nwaru and Ekumankama (2012) which showed that mean age of 49 years for women that diversified their livelihood activities in South East of Nigeria. Similarly, Odoh and Nwiboh (2017) reported that majority of women in South east Nigeria that diversified into non-farm income were young and active in their respective occupations.

##### 4.1.2 Marital status

Table 4.1 indicated that 56.30% of the respondents were married while 32.20% and 11.50% were single and widowed respectively. This implies that most of them were married. Marriage added additional responsibilities that push rural women to diversify into non-farm income generation for improving livelihood status and also to assist their families. This finding concurs with Adeoye *et al.* (2019) who reported that majority of rural households in Nigeria are married.

**Table 4.1: Distribution of respondents according to socio-economic characteristics (n=208)**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Mean</b>
<b>Age (years)</b>			
< 31	3	1.5	40
31 – 40	103	49.5	
41 – 50	102	49.0	
<b>Marital status</b>			
Married	117	56.3	
Single	67	32.2	
Widowed	24	11.5	
<b>Household size</b>			
< 6	49	23.6	7
6 – 10	154	74.0	
11 – 15	5	2.4	
<b>Experience (years)</b>			
< 11	81	38.9	11
11 – 20	127	61.1	
<b>Educational level</b>			
No Formal	87	41.8	
Primary	91	43.8	
Secondary	29	13.9	
Tertiary	1	0.5	
<b>Primary Occupation</b>			
Farming	180	86.5	
Non-farming	28	13.5	
<b>Household income per Month (₦)</b>			
20,001 - 30,000	5	2.4	41309.02
30,001 - 40,000	104	50.0	
40,001 - 50,000	96	46.2	
> 50,000	3	1.4	

Source: Field Survey, (2020)

#### 4.1.3 Household size

Table 4.1 showed that majority (74.0%) of the respondents had between 6 – 10 persons, while 23.6% had less than 6 persons. The mean household size of the respondents was 7.0 persons, implying that the rural women in the study area had large household size. It is generally believed that large household size is an advantage in the farming households in terms of its effect on household labour force supply that will assist in sourcing for non-farm income in order to improve their livelihood status. The findings agree with Odoh *et al.* (2019) who reported a mean household size of 8 persons for smallholder cassava

farmers in Afikpo North Local Government Area. This is also consistent with Odoh and Nwibo (2017) who reported that large household contribute to off-farm activities among women in South East Nigeria.

#### **4.1.4 Farming experience**

Table 4.1 revealed that 61.1% of the respondents had farming experience of 11 – 20 years, while 38.9% had farming experience of less than 11 years. The mean farming experience of the respondents was 11 years. This signifies that rural women in the study area were well experienced in diversifying into other nonfarm income sources. This could be advantageous in the utilization of different types of non-farm income strategies that will enhance their income and livelihood status because they may have a better understanding of the local market demands, consumer preferences, and business practices, which are essential for running a successful non-farm enterprise. This finding agreed with that of Babatunde and Martin (2019) who reported that adequate experience positively influenced diversification into non-farm income activities in Nigeria.

#### **4.1.5 Educational level**

Table 4.1 revealed that 58.2% of the respondents had one form of formal education or the other. On the other hand, 41.8% of them had no formal education. This finding shows that more than half of the women in the study area had formal education and this may influence decision to apply different strategies of non-farm income that will improve their livelihood. This finding agrees with Adeoye *et al.* (2019) who reported high level of formal education among women households in South West Nigeria. High literacy could offer rural women the need to use their knowledge in diversifying their sources of non-farm income, to checkmate uncertainty in farming and to improve their livelihood.

#### **4.1.6 Primary occupation**

Table 4.1 showed that majority (86.5%) of the respondents had farming as their primary occupation, while 13.5% of the respondents had non-farming activities (weaving, tailoring, knitting, food vendor and charcoal selling) as their primary occupation. This finding indicates that majority of the respondents had farming as their major occupation. This is because, larger percentages of Nigeria populace have farming as their major source of livelihood as agriculture remains the mainstay of the rural economy. This finding is in line with that of Ayantoye *et al.* (2017) who reported that farming is the major occupation of rural households in Kwara State, Nigeria. However, by engaging in non-farm income activities, rural women improve their livelihood.

#### **4.1.7 Household income**

Table 4.1 showed that half (50.0%) of the respondents had monthly household income between ₦30,001 – ₦40,000, while 46.2% had monthly household income between ₦40,001 – ₦50,000. The mean monthly household income of the respondents was ₦41,309.02 indicating that majority of the rural women in the study area had monthly household income of above the recommended minimum wage in Nigeria. This suggests that non-farm income diversification strategies can lead to increased income for rural women and their households, which can in turn improve their living standards and contribute to the economic growth of the country. This finding is in agreement with Babatunde and Martin (2019) who reported that increase in income of rural household had tendency of improving their livelihood.

#### **4.1.8 Institutional variables**

##### **i. Cooperative membership**

Table 4.2 revealed that majority (87.0%) of the respondents were members of cooperative societies, while 13.0% did not belong to any cooperative. Membership of cooperative societies by rural women grants them access to vital information, assistance from donor/agencies, strategies on improving non-farm income and their livelihood status. This finding is in agreement with Yebisi (2014) who reported that membership of cooperative create an avenue of accessing vital information that will increase farmers enterprises and income diversification strategies.

##### **ii. Access to extension services**

Table 4.2 showed that 19.2% of the respondents had access to extension services, while majority (80.8%) of them did not had access to extension services. This implies that majority of the rural women in the study area did not have access to extension services. Inability to access extension services could have negative effect on livelihood status of the rural women. It is noteworthy that frequency of contact with extension agents facilitates dissemination of information or new practice that could be of benefit to rural women by enhancing their non-farm income activities and livelihood status in general. This agrees with the finding of Amogne *et al.* (2017) who reported that frequency of contact with extension workers by the rural women is expected to enhance their skills on non-farm income therefore improve their livelihood status

##### **iii. Access to non-formal credit**

Table 4.2 showed that 26.0% of the respondents had access to non-formal sources, while 74.0% did not. This shows that majority of the respondents did not have access to non-formal credit. This finding contradicts that of Salawu *et al.* (2016) who found that



accessibility of credit was an important factor for the participation of household in non-farm activities. However, 24.5% of the respondents accessed credit from friends, while 1.5% of them accessed from relatives. This might be due to lack of trust involved in accessing credit from friends and relatives.

**Table 4.2: Distribution of respondents according to institutional variables assessed (n=208)**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Mean</b>
<b>Cooperative membership</b>			
Yes	27	13.0	
No	181	87.0	
<b>Extension contact</b>			
Yes	40	19.2	2
No	168	80.8	
<b>Access to non-formal credit</b>			
Yes	54	26.0	
No	154	74.0	
<b>Sources of non-formal credit</b>			
None	154	74.0	
Friend	51	24.5	
Relatives	3	1.5	
<b>Access to formal credit</b>			
Yes	66	31.7	
No	142	68.3	
<b>Sources of formal credit</b>			
None	142	68.3	
Agric. Bank	61	29.3	
Commercial Bank	5	2.4	
<b>Access to market</b>			
Yes	38	18.3	
No	170	81.7	
<b>Access to trainings</b>			
Yes	33	15.9	
No	175	84.1	
<b>Skill training received</b>			
Tailoring	5	2.4	1
Mat weaving	1	0.5	
Hair dressing	6	2.9	
Petty trading	21	10.1	

Source: Field Survey, (2020)

**iv. Access to formal credit**

Table 4.2 revealed that 31.7% of the respondents had access to credit from formal sources, while 68.3% did not. More so, 29.3% of them accessed credit from agricultural bank, while only 2.4% accessed credit from commercial banks. This implies that most of the rural women did not accessed credit from the formal sources as commercial banks are less patronized for financial support in the study area. This may be attributed to high interest rate and cumbersome administrative procedure on loan application and disbursement. This finding contradicts that of Etuk *et al.* (2018), who reported that larger proportion of farm households in Cross-River State, Nigeria had access to credit.

**v. Access to modern market**

Table 4.2 showed that 18.3% of the respondents had access to modern market, while 81.7% of the respondents did not had access to modern market. This shows that majority of the respondents did not access market in the study area. The lack of access to markets can have significant negative effect on the livelihood status of rural women by denying women access to buyers of their produce that could improve their livelihood. This finding contradicts that of Mohammed *et al.* (2019) who reported that larger percentage of rural populace in Niger State had access to modern market for forest products.

**vi. Access to training**

Table 4.2 indicated that 15.9% of the respondents received skills training on non-farm income diversification strategies, while 84.1% of them did not received skills training. This shows that majority of the respondents in the study area did not receive skills training on non-farm income diversification in the study are. However, 10.1% of the respondents who received skills training was on petty trading, while 2.9%, 4.0% and 0.5% of the respondents received skills training on tailoring, hair dressing and mat weaving,

respectively. This finding agrees with the work of Amogne *et al.* (2017) who reported that training acquisition could help to equip rural women with new skills and increase their expertise thereby granting them access to other occupational enterprises that will improve their livelihood status.

#### **4.2 Sources of Non-farm Income for the Rural Women**

Table 4.3 showed the distribution of the respondents according to sources of non-farm income. Petty trading (85.60%) ranked 1<sup>st</sup>. This shows that majority of women in the study area sourced for income from petty trading. This might be due to the fact that trading is the most common business among rural women in the study area. Also, 75.5% and 72.6% sourced for income from mat weaving and charcoal sales ranked 2<sup>nd</sup> and 3<sup>rd</sup>, respectively. On the other hand, 62.0% sourced for income from hair dressing ranked 4<sup>th</sup>, while 42.3% sourced for income from dry cleaning ranked 5<sup>th</sup>. In spite of the growing significance of farm and off farm activities, very little is known about the role farm and off farm activities play in the income generation strategies of farm household in developing economies like Nigeria (Ibekwe *et al.*, 2010).

More so, 39.9% of the respondents sourced for income from cap weaving ranked 6<sup>th</sup>, while 33.2% sourced for income from domestic work (house maid) ranked 7<sup>th</sup>. Guiseppe and Zezza (2017) reported that income from non-agricultural enterprises and non-agricultural wage labour have accounted for greater proportion of the total income of rural household in Africa. Similarly, Ogbanje *et al.* (2015) corroborated that majority of rural households receive income from off-farm sources and self-employment activities like handicrafts, food processing, shop-keeping and trading on non-agricultural foods. Batool *et al.* (2017) reported that most diversified farm families diversify income livelihood mainly into off-farm, self-employment such as engaging in agricultural wage-labour,

small manufacturing factories, construction and transportation as a means of shielding themselves from risk and the uncertainties of agricultural production.

**Table 4.3: Distribution of respondents according to sources of non-farm income (n=208)**

<b>Variables*</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Rank</b>
<b>Petty trading</b>	178	85.6	1 <sup>st</sup>
<b>Mat weaving</b>	157	75.5	2 <sup>nd</sup>
<b>Charcoal sales</b>	151	72.6	3 <sup>rd</sup>
<b>Hair dressing</b>	129	62.0	4 <sup>th</sup>
<b>Dry cleaning</b>	88	42.3	5 <sup>th</sup>
<b>Cap weaving</b>	83	39.9	6 <sup>th</sup>
<b>Domestic work (house maid)</b>	69	33.2	7 <sup>th</sup>
<b>Telecommunication services</b>	66	31.7	8 <sup>th</sup>
<b>Sewing/tailoring</b>	56	26.9	9 <sup>th</sup>
<b>Food vendor</b>	39	18.8	10 <sup>th</sup>
<b>Mortar and pestle making</b>	30	14.4	11 <sup>th</sup>
<b>Knitting</b>	9	4.3	12 <sup>th</sup>
<b>Mining/quarry work</b>	7	3.4	13 <sup>th</sup>
<b>Site construction work</b>	5	2.4	14 <sup>th</sup>
<b>Black smiting</b>	4	1.9	15 <sup>th</sup>
<b>Transportation services</b>	2	1.0	16 <sup>th</sup>

Source: Field Survey, (2020)

\*Multiple responses

#### 4.2.1 Non-farm income distribution

Table 4.4 showed that income of ₦11,162.63 realized from telecommunication services per week ranked 1<sup>st</sup> among other sources of income. This was followed by income of ₦10,840 realized from black smiting ranked 2<sup>nd</sup>. Also, income of ₦9,049.17 realized from food vendor ranked 3<sup>rd</sup>, while income of ₦7,716.54 realized from petty trading, income of ₦6,392.86 realized from sewing/tailoring and income of ₦5,453.92 realized from domestic work (house maid) ranked 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup>, respectively. The popularity of telecommunication as a source of income may be due to the widespread availability and use of mobile phones in rural areas. Black smiting, on the other hand, may be a traditional occupation in some areas but have over the years a sustainable source of income for those who engaged on it, and have been passed down through generations. Food vending is

another common source of income for rural women, particularly in areas with high population density and/or high levels of commercial activity. Petty trading, sewing/tailoring and domestic work/housemaid are also common sources of income for rural women, as they require minimal capital investment and can be done from home. This finding is in agreement with Batool *et al.* (2017) who stated that diversifying into non-farm income serve as means of shielding farmers from risk and uncertainties of agricultural production. Odoh *et al.* (2019) reported that off-farm processing, petty-trading, rental services, civil and public service were the major non-farm income diversification activities among rural households in Southeast, Nigeria.

**Table 4.4: Distribution of respondents based on income realized from non-farm income (n=208)**

<b>Variables</b>	<b>Mean (₦) per week</b>	<b>Rank</b>
<b>Telecommunication services</b>	11,162.63	1 <sup>st</sup>
<b>Black smiting</b>	10,840.00	2 <sup>nd</sup>
<b>Food vendor</b>	9,049.17	3 <sup>rd</sup>
<b>Petty trading</b>	7,716.54	4 <sup>th</sup>
<b>Sewing/tailoring</b>	6,392.86	5 <sup>th</sup>
<b>Domestic Work (house maid)</b>	5,453.92	6 <sup>th</sup>
<b>Mat weaving</b>	4,989.87	7 <sup>th</sup>
<b>Site construction work</b>	4,722.22	8 <sup>th</sup>
<b>Mortar and pestle making</b>	4,683.33	9 <sup>th</sup>
<b>Cap weaving</b>	4,560.26	10 <sup>th</sup>
<b>Transportation services</b>	4,500.00	11 <sup>th</sup>
<b>Mining/quarry work</b>	4,100.00	12 <sup>th</sup>
<b>Dry cleaning</b>	3,654.79	13 <sup>th</sup>
<b>Hair dressing</b>	3,596.13	14 <sup>th</sup>
<b>Charcoal sales</b>	3,562.61	15 <sup>th</sup>

**Source: Field Survey (2020)**

### **4.3 Livelihood Status of the Respondents**

Table 4.5 revealed that majority (76.0%) of the respondents had moderate livelihood, while 19.7% of the respondents had low livelihood status. Also, only few (4.3%) of the respondents had high livelihood status. This suggest that majority of the respondents had moderate livelihood status which could be attributed to their engagement in non-farm income livelihood activities. However, based on mean livelihood index of 0.325, there is the need for the respondents to improve on their participation in non-farm incomes as a strategies to enhance their livelihood status. The proportion of the respondents with low livelihood status suggest that there are limited opportunities for engaging in non-farm income among the rural women in the study area which could have enhance their livelihood status. Some of the limited opportunities include access to resources like credit, land and technology which are necessary for agricultural and non-agricultural livelihood activities. In addition, limited access to markets and lack of infrastructure such as roads and electricity can further limit economic opportunities among rural women. This is also challenges of limited access to education, skill training and participation in decision making process that could have positively impact their ability to generate income for improve livelihoods. This finding corroborates the work of Okafor and Onyenweaku (2018) who reported that rural women in Nigeria faced significant challenges in accessing resources and generating income resulting in low livelihood status. Socio-cultural factors such as gender inequality and discriminatory practices also hinder the economic empowerment of rural women.

**Table 4.5: Distribution of the respondents based on their livelihood status (n=208)**

Livelihood status	Livelihood class	Frequency	Percentages
<b>Low</b>	< 0.31	41	19.7
<b>Moderate</b>	0.31 – 0.50	158	76.0
<b>High</b>	0.51 – 0.70	9	4.3
<b>Total</b>	Total	208	100.0
<b>Mean Livelihood Index</b>	0.325		
<b>Minimum Livelihood Index</b>	0.188		
<b>Maximum Livelihood Index</b>	0.563		

Source: Field Survey (2020)

#### 4.3.1 Perceived effects of non-farm income diversification strategies

Table 4.6 revealed that settlement of children schools fees (88.9%) which is the most significant perceived effects of non-farm income diversification strategies on the livelihood of rural women, signifying that non-farm income has assisted women in settling the school fees of their children. This could be attributed to the fact that education is highly valued in Nigerian culture, and rural women place a premium on ensuring that their children receive a good education. Non-farm income, therefore, provides an avenue for them to generate income to support their children's education. Also, non-farm income diversification strategies helps in contributing to food security (58.7%) and procurement of farm inputs (57.2%). This implies that non-farm income diversification strategies has contributed immensely to resolve the problem of food insecurity among rural women in the study area. This agrees with reports of Mohammed *et al.* (2020) who reported that sponsoring of ward to school and increase in food security are the most livelihood benefits enjoyed by rural farming populace in Niger State Nigeria.

Furthermore, Table 4.6 revealed that non-farm income diversification strategies among rural women had leads to enhancement in settling hospital bills (54.3%) and improved expenditure on non-food items (52.4%). This could be attributed to the fact that non-farm income provides additional financial resources that can be used to address health and non-food related needs. With increased income from non-farm sources, rural women can afford to pay for medical bills and purchase non-food items such as clothing, household items, and educational materials for their children. This finding is consistent with Oyekale and Okuneye (2018) who reported that non-farm income plays a critical role in improving the welfare of rural households in Nigeria. Similarly, Gruhn *et al.* (2018) noted that diversification into non-farm activities can help rural households to manage risks and improve their livelihoods.

More so, the findings showed that 49.0% and 39.9% of the respondents agreed that non-farm income diversification strategies had help to improve their livelihood status and risk management in agricultural activities, respectively. However, 32.2% and 31.3% of the respondents indicated non-farm income diversification strategies had contributed to household income and improved expenditure on cultural ceremonies. This finding further agrees with that of Mohammed *et al.* (2020) who reported that improvement in livelihood activities, settling of medical bills and improvement in livelihood status were some of the benefits of the livelihood diversification by rural farming populace in Niger State, Nigeria.



**Table 4.6: Perceived effects of non-farm income diversification strategies on the livelihood of rural women (n=208)**

<b>Variables*</b>	<b>Frequency</b>	<b>Percentage</b>
Settlement of children schools fees	185	88.9
Contribution to food security	122	58.7
Improved procurement of farm inputs	119	57.2
Enhanced settlement of hospital bills	113	54.3
Improved expenditure on non-food items	109	52.4
Improved livelihood status of rural women	102	49.0
Risk management strategies in agricultural Activities	83	39.9
Contribution to household income	67	32.2
Improved expenditure on cultural ceremonies	65	31.3

**Source: Field Survey (2020)**

**\*Multiple responses**

### **4.3.2 Perceived factors influencing non-farm income diversification strategies**

#### **a. Push factors**

Table 4.7 revealed the results of push factors that influence non-farm income diversification strategies among the respondents in the study area. The result revealed that risk and uncertainties associated with agriculture (75.0%) ranked top-most among the perceived push factor that influence non-farm income. Agriculture is the mainstay of the rural economy in Nigeria and rural women are actively involved in agricultural activities. However, agriculture is highly dependent on weather conditions and other environmental factors, which make it highly risky and uncertain. Most farmers usually experience low crop yield or total crop failure due to unpredictable weather conditions such as drought, floods, pests and diseases. Such events could lead to loss of income and plunge the farmers into debt. Meanwhile, the high level of risk associated with agriculture can prompt rural women to seek non-farm income sources as a way of diversifying their income streams and reducing their vulnerability to agricultural shocks. Non-farm income

can provide a more stable source of income that is less dependent on environmental factors and can be used to supplement agricultural income during times of crop failure or low yields

Also, 58.2% and 51.4% of the respondents reported that missing or incomplete factor market and seasonality of farming were the push factor influencing non-farm income in the study area. The situation of missing and incomplete factor market could be attributed to inability of rural women to engage in profitable agricultural activities. This make it difficult for them to earn a sustainable income from farming alone especially in areas where farming is highly seasonal. In addition, the seasonality of farming can lead to periods of low or no income for rural households as their income is tied to the agricultural cycle. This makes it imperative for rural women to diversify their income sources to ensure a more stable and sustainable livelihood. Non-farm income will provide a buffer against seasonality of farming because income is earned throughout the year and is less dependent on weather patterns and crop yields.

These findings are consistent with the study of Christiansen *et al.* (2011) who reported that non-farm income can serve as an important coping mechanism for rural households during times of agricultural stress such as drought or crop failure. Similarly, a study by Hazarika *et al.* (2018) reported that non-farm income plays a crucial role in mitigating the impact of agricultural risks on rural livelihoods. Furthermore, 35.6% and 33.7% reported that inadequate farmlands as a result of population pressure and access to market due to poor infrastructure, respectively were push factors that influence non-farm income. This is in line with the work of Effiong and Aboh (2018) who stressed that push factors are responsible for youth migration in most of the rural areas.

## b. Pull Factors

Table 4.7 indicated that 92.3% of the respondents agreed that commercialization of agriculture was one of the pull factors influencing non-farm income. Also, improved infrastructure (76.9%) and improvement in education and technology (62.0%) were other factors influencing non-farm income. These mostly arise due to poor or absence of infrastructures and improvement in education and technology that will be of benefits to respondents in the study area. This agreed with the finding of Basil and Omole (2017) who reported that alternative sources of income and better employment opportunities were pull factors responsible for choice of alternative source of income.

**Table 4.7: Perceived factors influencing non-farm income sources (n=208)**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Push factors*</b>		
Risk and uncertainties associated with Agric.	156	75.0
Missing or incomplete factor markets	121	58.2
Seasonality of farming	107	51.4
Farmland constraint driven by population pressure	74	35.6
Market access problem due to poor infrastructure	70	33.7
<b>Pull Factors*</b>		
Commercialization of Agriculture	192	92.3
Improved Infrastructure	160	76.9
Improvement in education and technology	129	62.0
Growth of rural towns	100	48.1
Improvements in market access	85	40.9
Proximity to an urban area	65	31.3

**Source: Field Survey (2020)**

**\*Multiple responses**

#### **4.4 Effects of Non-Farm Income on Livelihood Status of the Respondents**

Table 4.8 showed the Ordered Logit estimate of the effects of non-farm income diversification strategies on livelihood status of rural women in the study area. It revealed Pseudo R<sup>2</sup> value of 0.3050 which indicates that the model explains about 31% of the variation in the dependent variable – the livelihood status. The log likelihood value of -75.0883 is the maximum value of the log-likelihood function used to estimate the parameters of the model. The Chi<sup>2</sup> value of 65.90 indicates that the regression coefficients are statistically significant at the 1% level of significance, meaning that the model provides a good fit for the data. The z-value of mat weaving (2.58) was positive and significant at 0.01 probability level. This implies that engaging in mat weaving as a non-farm income diversification strategy had positive and direct relationship with the livelihood status of rural women. This could be attributed to the fact that mat weaving provides rural women with an additional source of income that they can facilitate their livelihoods. By diversifying their income sources, rural women can ensure a more stable and sustainable livelihood.

Additionally, mat weaving is a skill that can be easily acquired and requires minimal startup costs. This means that it can be a viable income-generating activity for rural women who may not have access to land or other productive resources. Furthermore, mat weaving can be done at home, which provides rural women with the flexibility to balance their household and care giving responsibilities with income-generating activities. The finding is in agreement with the study of Hazarika *et al.* (2018) who reported that non-farm activities such as weaving and handicrafts play an important role in diversifying rural livelihoods and improving household welfare in India. Similarly, Rondinelli *et al.*

(2014) found that non-farm activities can provide a buffer against agricultural risks and contribute to the resilience of rural households in Africa.

The z-value of sewing/tailoring (3.00), petty trading (2.75), food vendor (3.79) and dry cleaning (2.41) were positive and significant at 0.01 and 0.05 probability level, respectively. This implies that engaging in sewing/tailoring, petty trading, food vendor and dry cleaning as a non-farm income diversification strategy had direct relationships with the livelihood status of rural women. This could be attributed to the fact that these non-farm activities provide rural women with an additional source of income that could improve households' welfare and ensure a sustainable livelihood. Sewing or tailoring are skills that are easily acquired and require minimal startup costs. They can be done at home, making it a flexible means for rural women to balance their income-generating activities.

Petty trading, food vending and dry cleaning are activities that require minimal start-up costs and can easily be integrated into household routines. They can also provide rural women with opportunities to network with other women and access information and resources that can improve their business acumen and help them to grow their businesses. This corroborates with the work of Hazarika *et al.* (2018) who reported that non-farm activities such as handicrafts, weaving and petty trading play an important role in diversifying rural livelihoods welfare in India. Similarly, Ewebiyi and Meliudu (2013) reported that non-farm activities (petty trading, food vending and tailoring or sewing) are the common sources of livelihood for farmers in South Western Nigeria.

The z-value of hair dressing (2.11), charcoal sales (1.88), domestic work (house maid) (3.02) and telecommunication services (2.23) were positive and significant at 0.01, 0.05

and 0.1 probability level, respectively. This implies that engaging in hair dressing, charcoal selling, domestic work (house maid) and telecommunication services as a non-farm income diversification strategy had direct relationships with the livelihood status of rural women in the study area. Diversifying into non-farm income generating activities such as hair dressing, charcoal selling, domestic work like house maid and telecommunication services provides rural women with alternative sources of income that could enhance their economic and livelihood status. The finding agrees with Baiphethi and Jacobs (2015) who reported that non-farm income activities enable farmers to diversify their sources of income in order to improve their livelihood status.

**Table 4.8: Ordered Logit regression estimate of effects of non-farm income diversification strategies on the livelihood status of respondents**

<b>Variables</b>	<b>Coefficient</b>	<b>Standard error</b>	<b>Z-value</b>
<b>Mat weaving</b>	0.0214	0.0083	2.58***
<b>Cap weaving</b>	0.0137	0.0096	1.43
<b>Mortar and pestle making</b>	0.0015	0.0130	0.11
<b>Sewing/tailoring</b>	0.0216	0.0072	3.00***
<b>Blacks smiting</b>	0.0263	0.0206	1.27
<b>Petty trading</b>	0.0156	0.0057	2.75***
<b>Food vendor</b>	0.0299	0.0079	3.79***
<b>Knitting</b>	-0.0426	0.0405	-1.05
<b>Dry cleaning</b>	0.0254	0.0105	2.41**
<b>Hair dressing</b>	0.0165	0.0078	2.11**
<b>Charcoal sales</b>	0.0147	0.0078	1.88*
<b>Domestic work (house maid)</b>	0.0253	0.0084	3.02***
<b>Telecommunication services</b>	0.0101	0.0045	2.23***
<b>Pseudo R<sup>2</sup></b>	0.3050		
<b>Chi<sup>2</sup></b>	65.90***		
<b>Log likelihood</b>	-75.0883		

Source: Field Survey (2020)

Note: \*\*\*, \*\* and \* implies significant at 1%, 5% and 10% level of probability, respectively

#### **4.4.1 Marginal estimates of effects of non-farm income diversification strategies on the livelihood status**

The marginal estimates of the Ordered Logit of effects of non-farm income diversification strategies on livelihood status of the rural women is presented in Table 4.9. The marginal effects which is the degree/magnitude of change in the dependent variable due to change in the independent variables is shown by the coefficient of the regression at various level of classification. At the low livelihood level of classification, the coefficient of mat weaving (0.0104), a sewing/tailoring (0.0104), petty trading (0.0754), food vending (0.0145), dry cleaning (0.0123), hair dressing (0.0079), charcoal sales (0.0071), domestic work (house maid) (0.0012) and telecommunication services (0.0049) were positive and significant at 1% and 10% levels of probability. This implies that a unit increase in any of these non-farm income activities will have positive effects or change in livelihood status of the rural women by about 1%, 1%, 7.5%, 1.5%, 1.2%, 0.8%, 0.7%, 0.1% and 0.5%, respectively.

Similarly, at the moderate livelihood level of classification, the coefficient of mat weaving (0.0093), sewing/tailoring (0.0093), petty trading (0.0067), food vending (0.0129), dry cleaning (0.0110), hair dressing (0.0071), charcoal sales (0.0064), domestic work (house maid) (0.0109) and telecommunication services (0.0044) were positive and significant at various levels of probability. This implies that a unit increase in any of these non-farm income activities will have positive effects or change in livelihood status of the rural women by about 0.9%, 0.9%, 0.7%, 1.3%, 1.1%, 0.7%, 0.6%, 1.1% and 0.4%, respectively. However, at the high livelihood level of classification, only the coefficient of food vending (0.0016) was positive and significant at 0.1 level of probability implying that a unit increase in food vending as non-farm income activity will have positive effects or change in livelihood status of the rural women by about 0.2%. In general, engaging in

these activities as a non-farm income diversification strategy can provide rural women with additional sources of income which will improve their overall livelihood status.

**Table 4.9: Marginal estimates of the Ordered Logit regression**

Variables	Y = 0 (Low)	Y = 1 (Moderate)	Y = 2 (High)
Mat weaving	0.0104 (2.36**)	0.0093 (2.31**)	0.0011 (1.34)
Cap weaving	-0.0067 (-1.41)	0.0059 (1.40)	0.0007 (1.05)
Mortar and pestle making	-0.0007 (-0.11)	0.0006 (0.11)	0.0007 (0.11)
Sewing/tailoring	0.0104 (2.66***)	0.0093 (2.54***)	0.0114 (1.48)
Blacks smiting	-0.0127 (-1.35)	0.0114 (1.35)	0.0014 (1.02)
Petty trading	0.0754 (2.48**)	0.0067 (2.42**)	0.0008 (1.36)
Food vendor	0.0145 (3.34***)	0.0129 (3.03***)	0.0016 (1.66*)
Knitting	0.0426 (1.05)	-0.0184 (-1.04)	-0.0022 (-0.91)
Dry cleaning	0.0123 (2.21**)	0.0110 (2.13**)	0.0013 (1.39)
Hair dressing	0.0079 (2.00**)	0.0071 (1.96*)	0.0009 (1.29)
Charcoal sales	0.0071 (1.87*)	0.0064 (1.85*)	-0.0008 (-1.23)
Domestic work (house maid)	0.0012 (2.86***)	0.0109 (2.70***)	0.0013 (1.52)
Telecommunication services	0.0049 (2.00*)	0.0044 (1.96*)	0.0005 (1.28)

Source: Field Survey, 2020

Note: \*\*\*, \*\* and \* implies significant at 1%, 5% and 10% level of probability, respectively

#### 4.5 Determinants of Non-farm Income Diversification Strategies among Respondents

The result of the linear regression model showing determinants of non-farm income diversification strategies among rural women is presented in Table 4.10. The R<sup>2</sup> value of 0.8008 which implies that 80% variation in non-farm income diversification strategies was explained by the independent variables included in the model. The significant of the F-statistic (P<0.01) revealed that the model is a good fit and that all the variables included in the model have a joint influence on the dependent variable. This means that the independent variables collectively have a significant impact on the non-farm income diversification strategies of rural women. The coefficient of age (-0.1212) was negatively significant at 1% level of probability, which is an indication that as women advances in



age their tendency to diversify into non-farm income reduces. The coefficient of marital status (0.1311) was positively significant at 10% level of probability, implying that women are more likely to diversify into non-farm income than men. Furthermore, coefficient of experience (0.0958) was positively significant at 1% level of probability. This denotes that women with experience in income generating activities are more likely to diversify. The coefficient of income (0.0001) was positively significant at 5% level of probability, showing that as women access more income, their tendency of diversifying into non-farm income strategies increases. This finding agrees with a priori expectation that stated that women with high income have high propensity to diversify. This result agrees with findings of Odoh and Nwibo (2017) who reported that increase in annual income played important roles in income diversification in Southeast of Nigeria.

The coefficient of livelihood status (9.6936) was positively significant at 1% level of probability, signifying that women with improved livelihood are likely to diversify into non-farm income activities due to availability of capital needed for diversification. This finding is in consonance with that of Babatunde and Martin (2019) who indicated that increase in productive asset will increase income diversification among rural household in Nigeria. The coefficient of cooperative (0.3532) was positively significant at 1% level of probability, implying that women that belong to cooperative will diversify because of benefit attached to cooperative ranges from access to information, capital and other incentives required for diversification. This finding is in line with that of Adeoye *et al.* (2019), who reported that membership of cooperative increases rural household diversification in Nigeria.

The coefficient of extension (0.0789) was positively significant at 5% level of probability, implying that women with constant extension access will diversify in order to attract

better livelihood status. More so, coefficient of non-formal credit (-0.2725) was negatively significant at 5% probability level. This shows that non-availability of credit from non-formal institutions will increase diversification into non-farm income sources in order to augment insufficient credit. This finding is in agreement with Babatunde and Martin (2019), who reported that access to credit is a major boost to income diversification among rural households in Nigeria. The coefficient of formal credit (0.2191) was positively significant at 10% level of probability. This shows that access to formal credit will ease the stress of diversification. This finding corroborates Iyanda *et al.* (2014), who reported that formal source of credit have contributed positively in diversification strategies in Yewa North of Ogun State.

**Table 4.10: Regression estimates of the socio-economic determinants of non-farm income diversification strategies**

<b>Variables</b>	<b>Coefficient</b>	<b>Z-value</b>
<b>Age</b>	-0.1212	-8.74***
<b>Marital status</b>	0.1311	1.91*
<b>Household size</b>	0.0212	0.84
<b>Experience</b>	0.0958	5.93***
<b>Educational level</b>	0.0099	1.14
<b>Household income</b>	0.0001	2.25**
<b>Livelihood status</b>	9.6936	15.17***
<b>Cooperative</b>	0.3532	4.35***
<b>Extension</b>	0.0789	1.94*
<b>Non formal credit</b>	-0.2725	-2.24**
<b>Formal credit</b>	0.2191	1.77*
<b>Training</b>	-0.0063	-0.14
<b>Constant</b>	4.8433	8.82***
<b>R-squared</b>	0.8008	
<b>Adj R-squared</b>	0.7886	
<b>F-value</b>	1%	

Source: Field Survey (2020)

Note: \*\*\*, \*\* and \* implies significant at 1%, 5% and 10% level of probability, respectively

#### **4.6 Constraints Associated with Non-Farm Income Diversification by the Respondents**

Table 4.11 showed the result of constraints associated with non-farm income diversification for rural women. The result showed that difficulty in accessing productive resources ( $\bar{X}$  =2.81) ranked first, signifying that non accessibility of accessing productive resources was the most severe constraint in the study area. Lack of information and training on non-farm activities ( $\bar{X}$  =2.74) ranked second. This implies that inadequate training on non-farm income activities strongly affected non-farm income in the study area. This finding agreed with that of Khatun and Roy (2012) who reported that lack of productive resources and inadequate training, were the major problems to livelihood diversification. This also agreed with finding by Sekumade and Osundare (2014) who stressed that non-availability of productive resources is a major challenge to livelihood diversification among rural households in Ogun State, Nigeria.

More so, inadequate access to credit ( $\bar{X}$  =2.70) ranked 3<sup>rd</sup>. This indicates that women in the study area did not have adequate access to credit. Also, poor educational level of rural women ( $\bar{X}$  =2.64) and poor transportation (2.49) were ranked 4<sup>th</sup> and 5<sup>th</sup> respectively. Ewebiyi and Meliudu (2013) reported that lack of access to credit and poor education were constraints to livelihood diversification. Ayantoye *et al.* (2017) reported that lack of credit facility was a major problem to livelihood diversification among farmers in Kwara State, Nigeria. Other severe constraints in the study area were; poor government policies ( $\bar{X}$  =2.17) and socio-cultural problems ( $\bar{X}$  =2.08) However, lack of family support ( $\bar{X}$  =1.80), problem of male dominated society ( $\bar{X}$  =1.75) and female child early marriage ( $\bar{X}$  =1.71) were not severe. This implies that they did not affect non-farm income livelihood diversification in the study area.

**Table 4.11: Constraints associated with non-farm income diversification by respondents (n=208)**

<b>Variables</b>	<b>Very severe</b>	<b>Severe</b>	<b>Not severe</b>	<b>Sum</b>	<b>Mean</b>	<b>Decision</b>	<b>Rank</b>
Difficulty in accessing productive resources	174 (83.7)	29 (13.9)	5 (2.4)	585	2.81	Severe	1 <sup>st</sup>
Inadequate information and training on non-farm activities	162 (77.9)	37 (17.8)	9(4.3)	569	2.74	Severe	2 <sup>nd</sup>
Inadequate access to credit	163 (78.4)	28 (13.5)	17 (8.2)	562	2.70	Severe	3 <sup>rd</sup>
Poor educational level of rural women	149 (71.6)	44 (21.2)	15 (7.2)	550	2.64	Severe	4 <sup>th</sup>
Poor transportation means	126 (60.6)	58 (27.9)	24 (11.5)	518	2.49	Severe	5 <sup>th</sup>
Poor government policies	78 (37.5)	88 (42.3)	42 (20.2)	452	2.17	Severe	6 <sup>th</sup>
Socio-cultural problem	41 (19.7)	142 (68.3)	41 (19.7)	432	2.08	Severe	7 <sup>th</sup>
Lack of family support	30 (14.4)	106 (51.0)	72 (34.6)	374	1.80	Not severe	8 <sup>th</sup>
Problem of male dominated society	33 (15.9)	89 (42.8)	86 (41.3)	363	1.75	Not severe	9 <sup>th</sup>
Female child early marriage	32 (15.4)	84 (40.4)	92 (44.2)	356	1.71	Not severe	10 <sup>th</sup>

**Source: Field Survey (2020)**

## **4.7 Hypotheses Testing**

### **4.7.1 Hypothesis 1**

The null hypothesis I which states that there is no significant relationship between the non-farm income diversification of rural women and their livelihood status was tested using Pearson's Product Moment Correlation (PPMC). The result as presented in Table 4.12 revealed r value of 0.8112 which is closer to 1, thus implying positive and strong relationship. This shows that non-farm income diversification strategies significantly influences the livelihood status of the rural women in the study area. Therefore, the null

hypothesis was hereby rejected, while the alternative hypothesis that there is significant relationship between the non-farm income diversification of rural women and their livelihood status is accepted.

**Table 4.12: PPMC estimates of hypothesis I (n = 208)**

<b>Variable</b>	<b>Livelihood status</b>	<b>Non-farm income diversification</b>
Livelihood status	1.0000	
Non-farm income diversification	0.8112**	1.0000

**Source: Field Survey (2020)**

**Note: \*\*implies strong correlation**

#### **4.7.2 Hypothesis II**

The null hypothesis I which that there is no significant relationship between the non-farm income diversification and some socio-economic characteristics of the rural women in the study area was tested using Linear regression. The result as presented in Table 4.13 revealed that only household size (1.77) and farming experience (2.45) were positive and significant. These suggest that as the household size increases and women acquired more farming experience, they are likely to engage in non-farm income generating activities to improve their livelihood status. Therefore, null hypothesis that stated that there is no significant relationship between the non-farm income diversification and some socio-economic characteristics like household size and farming experience was rejected, while the alternative hypothesis that there is significant relationship between household size, farming experience and non-farm income diversification is accepted. However, the null hypothesis that stated that there is no significant relationship between the non-farm income diversification and some socio-economic characteristics like age, marital status,

education and income was accepted because these variables shows no significant relationship.

**Table 4.13: Linear regression estimates of hypothesis II**

<b>Variable</b>	<b>Coefficient</b>	<b>Standard error</b>	<b>z-value</b>
Age	0.1279	0.0939	1.36
Marital status	-0.0085	0.4087	-0.02
Household size	0.2381	0.1343	1.77*
Experience	0.2742	0.1118	2.45**
Education	-0.0509	0.0482	-1.06
Income	-0.0019	0.0036	-0.05

**Source: Field Survey (2020)**

## CHAPTER FIVE

### 5.0 CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

Based on the findings, it can be concluded that women in the study area were in their active and productive age and married. Also, majority of the women had large households size and well experienced in farming. Most of the respondents had formal education while majority had farming as primary occupation. Further findings showed that majority of respondents did not had access to credit and enough extension services in the study area. Majority of the respondents had moderate livelihood status, while settlement of children schools fees, contribution to food security and improved procurement of farm inputs were the major benefits of non-farm income.

Mat weaving, sewing/tailoring, petty trading, food vending, dry cleaning, hair dressing, domestic work (house maid) and telecommunication had significant effect on the livelihood of rural women. Also, age, marital status, experience, income, livelihood status, cooperative, extension, non-formal credit and formal credit determine non-farm income diversification strategies among rural women. The most severe constraints associated with non-farm income diversification were difficulty in accessing productive resource, inadequate information and training on non-farm activities and inadequate access to credit.

#### 5.2 Recommendations

- i. Inadequate credit is one of the major constraints to non-farm income diversification in the study area. Women should source for credit through informal and formal means for enhancing their livelihood status.

- ii. Rural women should be encourage through various agricultural programmes to diversify into other viable income generating activities in order to improve on their livelihood status.
- iii. Government should come up with flexible policy that will create a suitable atmosphere for women to market their business in order to get higher value for their goods and in returns enhance their livelihoods.
- iv. Inadequate information and training on non-farm income activities is one the constraints faced by women. Regular visit of extension workers should be prioritized by public extension system in order to increase women access to training that will improved their livelihood status
- v. Difficulty in accessing productive input is one of the constraints faced by women in the study area. However, individual women should be supported by government, NGO and women groups with productive inputs in the study area.

### **5.3 Contribution to Knowledge**

The study established that 76.0% of the livelihood status of rural women is moderate. It was also revealed that the effects of non-farm income diversification strategies on the livelihood status of rural women is settlement of children schools fees (88.9%) which is the most significant, signifying that non-farm income has assisted women in settling the school fees of their children. Furthermore the study also established that the determinants of the non-farm income diversification strategies among rural women on push factor is risk and uncertainties associated with agriculture (75.0%) while on pull factor showed that 92.3% agreed on commercialization of agriculture. The study also revealed that the constraints associated with non-farm income diversification for rural women in the study area is difficulty in accessing productive resources with a mean value of 2.81.



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**APPENDIX I**  
**DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT, SCHOOL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY, FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE, NIGERIA.**

**TOPIC: EFFECTS OF NON-FARM INCOME DIVERSIFICATION STRATEGIES ON SUSTAINABLE LIVELIHOOD STATUS OF RURAL WOMEN IN NIGER STATE, NIGERIA**

**QUESTIONNAIRE**

Dear Respondent,

I am a student of the above mentioned university, I am carrying out a research project on the aforementioned topic. Information supplied shall be solely for research purposes and will be treated as confidential. You are please required to fill in the answers for the following questions, marking 'x' as applicable

**INSTRUCTION:** Kindly fill in the gap where necessary and tick as appropriate

Survey identification

Questionnaire Number.....

State.....

Name of the zone.....

Name of the LGA.....

Name of the rural area.....

Date of the interview.....

**SECTION A: SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS**

1. How old are you?.....Years.
2. Please indicate your marital status.....(a) Married ( b)Widow (c) Divorced (Seperated)
3. What is your house hold size?.....
4. For how long have you been farming?.....

5. Level of formal education (mark only one)

- (a) No formal education  (b) Primary School  (c) Secondary school   
(d) Tertiary institution

8. How many years did you spend in formal education?.....

9. What is your primary occupation?

- (a) Farming  (b) Non-farming

10. What is your secondary occupation?

- (a) Farming (b) Blacksmithing (c) Petty Trading (d) Civil service job (e) Charcoal dealer  
(f) Tailoring (g) Hair dressing (h) Mat weaving (i) Specify others.....

11. What is your estimated house hold income per annum.....

12. Do you belong to any cooperative society? (a) Yes (b) No

13. Do you have contact with extension agent this farming season? (a) Yes (b) No

14. If yes, indicate the number of visit.....

15. Do you have access to Non -formal credit? (a)Yes (b) No

16. If yes, indicate from which source

- (a) Agricultural Bank (NACRDB (b) Commercial banks (c) Specify others.....

18. Do you have access to informal credit? (a) Yes (b) No

If yes, indicate from which source (a) Friends (b) Relatives (c) Specify others.....

19. How will you access the availability of market for your non-farm business?

- (a) Available (b) Not available?

20. Are you happy with the income generated from non -farm activities? (a)Yes (b) No

21. Have you acquired any training on skills acquisition (a) Yes (b) No

22. If yes, indicate from below the occupy non-farm activities you have acquired training on...

(a) Tailoring (b) Knitting (c) Cap weaving (d) Mat weaving (e) Hair dressing (f) Dry cleaning (g) Petty trading (h) Mortar and Pistol making (i) Food vendor (j) Others specify...

23 How many times have you acquired the skills acquisition training?

(a) 1 (b) 2 (c) Others specify...

**SECTION B: SOURCES OF NON - FARM INCOME FOR RURAL WOMEN**

25. Indicate sources of non – farm income for your livelihood from the list below

No	Sources of non – farm income	Tick
a.	Mat weaving	
b.	Cap weaving	
c.	Mortar and pestle making	
d.	Sewing / Tailoring	
e.	Black Smiting	
f.	Petty trading	
g.	Food vendors	
h.	Knitting	
i.	Dry cleaning	
j.	Hair dressing	
k.	Charcoal production	
L	Domestic work	
m.	Construction work	
n.	Mining work Quarry work	
O	Telecommunication Services	
p.	Motorcycle riding	

## SECTION C: LIVELIHOOD STATUS OF RURAL WOMEN

26. What is your estimated income from the following Non-Farm Activities?

No	Non-farm activities	Income /month
a.	Mat weaving	
b.	Cap weaving	
c.	Mortar and pestle making	
d.	Sewing / Tailoring	
e.	Black smiting	
f.	Petty trading	
g.	Food vendors	
h.	Knitting	
i.	Dry cleaning	
j..	Hair dressing	
k.	Charcoal production	
l.	Domestic work	
m.	Construction work	
n.	Mining work Quarry work	
o.	Telecommunication Services	
p.	Motorcycle riding	

**SECTION D: PERCEIVED EFFECTS OF NON – FARM ON THE  
LIVELIHOOD STATUS OF RURAL WOMEN**

27. Please kindly indicate the benefit of participation in non-farm activities on your livelihood

<b>No</b>	<b>Perceived factors</b>	<b>Tick</b>
a.	Contribute to food security	
b.	Settlement of wards school fees	
c.	Contribute to household income	
d.	Improve expenditure on cultural ceremonies	
e.	Risk management strategies for agricultural activities	
f.	Improve expenditure for non – food items	
g.	Enhance settlement of hospital bills	
h.	Improve livelihood status of rural women	
i.	Improve Procurement of Farm Inputs	

## SECTION E: DETERMINANTS OF NON – FARM INCOME

28. Please kindly indicate from below the push factors that influence your income diversification sources.

No	Push Factors	Tick
a.	Risk and shocks associates with agriculture.	
b.	Seasonality of farming.	
c.	Land constraint driven by population pressure and fragmented land holdings.	
d.	Market access problem due to poor infrastructure.	
e.	Missing or incomplete factor markets (land, capital, labour).	

29. Please kindly indicate from below the pull factors that influence your income diversification sources.

No	Pull Factors	Tick
a.	Commercialization of agriculture	
b.	Improved infrastructure	
c.	Proximity to an urban area	
d.	Growth of rural towns	
e.	Improvements in market access	
f.	Improvement in education and technology	



**SECTION F: CONSTRAINTS OF NON – FARM INCOME DIVERSIFICATION STRATEGIES.**

30. Indicate in order of severity which of the following problems serves as major challenges to you in diversifying your income sources.

No	Constraints	Not severe	Severe	Very severe
1.	Inadequate access to credit			
2.	Socio – cultural problems			
3.	Lack of family supports			
4.	Female child early marriage			
5.	Male dominated society			
6.	Government policies			
7.	Poor transportation means.			
8	Inadequate education.			
9.	Lack of training and information on non-farm activities			
10.	Difficult in accessing productive resource such as store and availability of labour			



blacks~g		.0000114		.00001	1.35	0.177	-5.1e-06	.000028	414.423
pettyt~g		6.73e-06		.00000	2.42	0.015	1.3e-06	.000012	6409.04
foodve~r		.0000129		.00000	3.03	0.002	4.6e-06	.000021	1756.11
knitting		-.0000184		.00002	-1.04	0.301	-.000053	.000016	111.538
drycle~g		.000011		.00001	2.13	0.033	9.0e-07	.000021	1354.81
hairdr~g		7.12e-06		.00000	1.96	0.050	9.9e-09	.000014	3215.96
charco~n		-6.35e-06		.00000	-1.85	0.064	-.000013	3.7e-07	2235.05
domest~k		.0000109		.00000	2.70	0.007	3.0e-06	.000019	1337.26
teleco~s		4.38e-06		.00000	1.96	0.050	-4.5e-10	8.8e-06	3145.53

EST FOR HYPOTHESIS I

. ologit livelihoodstatus age marital household experience education income

Iteration 0: log likelihood = -108.03849  
 Iteration 1: log likelihood = -102.46977  
 Iteration 2: log likelihood = -101.78658  
 Iteration 3: log likelihood = -101.78394  
 Iteration 4: log likelihood = -101.78394

Ordered logistic regression                      Number of obs    =    208  
    LR chi2(6)        =    12.51  
    Prob > chi2       =    0.0515  
 Log likelihood = -101.78394                      Pseudo R2        =    0.0579

livelihoodstatus		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
age		.1279028	.0939478	1.36	0.173	-.0562315	.3120371
marital		-.0084701	.4087423	-0.02	0.983	-.8095904	.7926502
household		.238126	.1342917	1.77	0.076	-.0250808	.5013329
experience		-.2741702	.1118328	-2.45	0.014	-.4933585	-.054982
education		-.0509846	.0482268	-1.06	0.290	-.1455074	.0435382
income		-.0000197	.0000356	-0.55	0.580	-.0000895	.00005
/cut1		.6333777	3.596509			-6.41565	7.682405
/cut2		6.251263	3.636591			-.8763236	13.37885