

# REMITTANCES AND HOUSEHOLD WELFARE IN NIGERIA

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**University of Agder, 2023**

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## **ABSTRACT**

Remittance represents an injection into an economy and one of the leading recipients of remittances in Africa is Nigeria. Remittance which has evolved into one of Nigeria's primary external financial sources is particularly important for households in developing countries, as they often lack access to other sources of income and resources. Despite being one of Africa's top remittance-receiving nations, welfare statistics show that the nation has the worst welfare outcomes across the globe. This is worrying given that achieving many of the Sustainable Development Goals (SDGs) by 2030 is contingent on improving household welfare. Given this background, this study uncovers the influence of remittances on household welfare in Nigeria. To add to the literature, this study employed nationally representative household-level data. Furthermore, the study interacted remittance with rural and urban residency to ascertain if it amplifies or weakens the effect of remittance on household food and non-food consumption. Additionally, the study introduced an interaction model which seeks to ascertain whether the employment status of the remittance recipient amplifies or weakens the impact of remittance on household earning power. The result obtained showed that diaspora remittance has a significant positive impact on household food consumption. The interactive effect of remittance with spatial locations (urban and rural residency) further increases food consumption. However, the amplifying effect is higher when remittance interacts with rural residency. This indicates that rural dwellers use more remittance for food consumption than urban dwellers. Relatedly, the study revealed that remittance increases non-food consumption. The interaction model highlights the amplifying effect of spatial location on the interaction between remittance and household non-food consumption. However, the amplifying effect is higher when remittance interacts with urban residency suggesting that those in the urban areas will more likely spend their remittance on non-food consumption than those in the rural area. Lastly, the study also found that remittance inflow has a significant positive impact on the earning capabilities of households. When remittances interact with employment status, the study highlighted that both employed and unemployed persons increase their earning power through the receipt of remittance, the impact is higher for persons who are not employed. This is intuitive since the utility of additional money received is higher for low-income persons than the high-income persons. The study suggests that reducing the cost of remittance transfers and enhancing the financial infrastructure in remittance-recipient nations would be crucial tools for increasing remittance inflows through authorized channels.

**Keywords:** Remittance, Household, Welfare, Development, Unemployment,

## **DEDICATION**

I would love to dedicate this work to God almighty, for his infinite grace throughout this work. And to my adoring parents, Mr & Mrs Michael Nnagbo, for their unlimited prayers and supports towards the success of this work.

## **ACKNOWLEDGEMENT**

I would love to recognize everyone who was instrumental in my academic triumph.

First, to my supervisor, Professor Christian Webersik (PhD) for his guidance, motivations, and useful critiques of this work. Secondly, to my beautiful wife Blessing Martin, who have always supported me with love and understanding. Without them, I could never have advanced academically thus far.

Thirdly, I wish to specially thank my colleagues, who also ushered in vital suggestions during our study periods. Hence, in a unique way, I would like to appreciate my very good friend Mr Celestin Ifeanyi, whose indefatigable contributions were immeasurable.

Lastly, to the University of Agder, Government and good people of Norway for granting me the opportunity to be part of its rising alumni, to study in Norway for free and further my academic advancement. Similarly, my sincere appreciations extend to the administrators and tutors at the Department of Global Development and Planning for equipping me with enormous skills and knowledge vitally needed to excel throughout my work.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Introduction

Household welfare represents one of the critical objectives most governments around the world strive to attain. The major indicators of household welfare are income, poverty, and health among others (Ozoh et al., 2022a; Ozoh et al., 2022b). Household welfare is not homogenous across the globe and the welfare outcomes in Sub-Saharan Africa (SSA) are among the worst in the world. For instance, despite SSA's rapid economic expansion in recent decades, the sub-region faces numerous development challenges ranging from poverty, food insecurity, and inequality, as well as poor infrastructure (Dimnwobi et al., 2021). Most of the nations in SSA are impoverished. This is corroborated by a World Bank (2018) report that highlighted that the bulk of the world's poorest people reside in SSA, with roughly 41% of the residents are poor. This is because, despite the region's rapid economic expansion, the poverty rate is declining much more slowly than in other regions. This suggests that the rapid economic expansion experienced in the region over time was not inclusive. In a similar vein, the United Nations Development Programme (2017) claims that 10 of the globe's top 19 most unequal countries are located in SSA. As per the United Nations Educational, Scientific, and Cultural Organization (2018) and World Health Organization (2019) the SSA has experienced poor health and educational outcomes in comparison to other parts of the world.

Nigeria is one of the economies in SSA with dismal welfare outcomes. For example, the nation's poverty rate has fluctuated over the years, and for the majority of the periods, it has been on the rise. This is supported by the statistics from the National Bureau of Statistics (2006) which documented that poverty in Nigeria peaked in 1980 at 28.1% of the population, up from about 15% in 1960. By 1985, it rose to 46.3%, but by 1992, it had fallen to 42.7%. Analogously, the poverty level increased to 65.6% in 1996, out of overall inhabitants of roughly 102.3 million, however, in 2004 it fell to 54.4% before rising to 70% in 2018 (NBS, 2012, 2018). Another sign of the nation's dismal welfare outcomes is the fact that a significant percentage of the population lacks access to healthcare services (Orji et al., 2020). The nation's healthcare system has imposed a tremendous cost on people's quality of life. Over time, the sector has received limited attention. Due to a lack of resources, children and women from indigent families have limited access to the majority of healthcare services. One example is where the majority of youngsters do not have access to immunization, leading to a variety of abnormalities. Additionally, several youngsters



of school age are not attending school due to a range of factors, such as sociocultural beliefs, the high cost of education, and gender-related concerns among others. Relatedly, most parents lack formal education and as a result, they typically fail to appreciate or attempt to provide their children with a minimum education which over time influences the nation's future (Ajefu & Ogebe, 2020; Adebayo et al., 2021; Orji et al., 2020).

Several variables could influence the welfare outcome of a developing economy. Remittances which represent the share of a migrant's wages sent from the country of residence to the place of origin are one of such factors that influence household welfare (Adebayo et al., 2021; Ajefu & Ogebe, 2020). Remittances can stimulate welfare outcomes by raising household investment levels and increasing income and savings levels. Remittance-receiving households can direct the resources to access quality health care, food, clothing and shelter which enhances their living standards. Additionally, consumer sovereignty may be promoted through remittances by improving domestic market competitiveness by making a wide variety of goods and services available.

The literature on the drivers of remittances includes both microeconomic and macroeconomic factors (Nwokoye et al., 2020). The microeconomic component focuses on the individual's reasons for remittance. In this case, the fundamental factor that determines the decision to remit highlights aspects like migrant characteristics such as income level, educational level as well as household size. In their pioneering article on the incentives to remit, Lucas and Stark (1985) highlighted that the motivations for remittances range from pure compassion or altruism to sheer self-interest. The altruistic goal of remittances is motivated by innate sympathy and care for the betterment of family and close companions left behind by migrants. If money is given back home to raise the left behind family's standard of living and help stabilize consumption, migrants are being altruistic. The satisfaction of the migrant is contingent on the family's well-being which majorly relies on the household's domestic income level (Adenutsi & Ahortor, 2021). Consequently, it is anticipated that the level of remittance will rise as the migrants' wage or income increases but fall when the household's domestic income level expands. Altruistic remittance flows are anticipated to increase due to increased migrant remittances, a decline in the income of the recipients, the nation of origin going through a serious economic shock as well as the migrant's wish to return home while remittances are anticipated to gradually decline over time as the proportion of overseas migrants in the household falls (Gashaw, 2016). In contrast, self-interest motives stress a favourable correlation between remittances and the de

gree of household income which are motivated by the possibility of inheritance and an investment (portfolio) decision for asset acquisition or preparation for return to their home country (Abbas et al, 2017; Adenutsi & Ahorator, 2021).

One of the leading recipients of remittances in Africa is Nigeria. It is estimated that roughly 17 million Nigerians, or 12% of the nation's overall population, currently reside outside of Nigeria with this population concentrated primarily in developed European and North American countries, as well as neighbouring African nations (Fidelis, 2017; Cooper & Esser, 2019; PwC 2019). Because of the terrible socioeconomic circumstances in Nigeria which have been exacerbated by factors like poor infrastructures, insecurity, persistent unemployment and inflation, among others, highly trained and educated Nigerians have been fleeing to other nations (Bailey, 2022). Numerous Nigerians have immigrated using study and work visas to developed nations like the United States of America (USA), Canada, Norway, the United Kingdom (UK) among others. Some of the leading nations that send remittances to Nigeria includes USA, UK, Germany, Cameroon, Canada, Italy, Spain, Ghana, Benin and Ireland (Cooper & Esser, 2019; PwC 2019). The households are the primary receivers of remittances in Nigeria as migrants send remittances to help their families back home (Didia & Tahir, 2022).

Remittances have evolved into one of Nigeria's primary external financial sources since the mid-2000s. As per the statistics from the World Bank (2020), remittance inflows increased from US\$1 billion in 2003 to US\$18 billion in 2007 and US\$19 billion in 2008. The considerable increase in remittances witnessed during this period was linked to the banking sector reforms which improved trust in formal remittance channels as well as advances in the ICTs sector which makes it easy and faster for international transactions. Inflows of remittances increased from \$20.6 billion in 2011 to \$24 billion in 2018 before decreasing to US\$17 billion in 2020 as a result of the pandemic which has had an adverse influence on migrant workers' wages and jobs (World Bank, 2020). Even though aggregate remittance inflows to Nigeria trail those of India, Germany, France and China, Nigeria has a greater remittance-to-GDP ratio (4%) than any of these nations. This significant remittance influx could provide additional funds for income-generating and wealth-boosting activities that could influence a nation's household welfare.

Given the preceding information, this study uncovers the influence of remittances on household welfare in Nigeria using micro-level data.

## 1.2. Research Problem

Improving household well-being is a crucial issue across the globe. However, while diverse economies across the globe are reporting enhanced household well-being of their citizens, little progress has so far been made by Nigeria in promoting the welfare of the nation's populace. For instance, the per capita income growth of 1.1% in 2021 is lower than the SSA (1.5%) and the world's average of 4.8% (World Bank, 2021). Similarly, in 2019, Nigeria came in 161<sup>st</sup> place out of 189 nations, with a Human Development Index (HDI) of 0.539, suggesting a poor life expectancy, income and education. The country's HDI is lower than the sub-Sahara Africa (SSA) and the world average of 0.547 and 0.737 respectively (UNDP, 2020). Furthermore, the 2018 World Poverty Clock report highlighted that Nigeria is the globe's poverty capital. Poverty and persistent inequalities have generated opportunities for criminal activity and other types of deviant conduct, which has hampered development (Azolibe et al., 2022; Nwokoye et al., 2020). Roughly, most Nigerian women of childbearing age deal with a lot of health problems associated to childbirth. Even though it accounts for only 2.4% of the global population, 10% of maternal deaths worldwide are currently caused by Nigeria (UNICEF, 2019). As noted by UNICEF (2019), 576 deaths from maternal causes occur for every 100,000 live births and annually roughly 262,000 infants die during birth. Currently, 69 infant deaths are recorded for every 1,000 live births, while mortality among youngsters less than five years is at 128 per 1,000 live births (UNICEF, 2019). The country has the most out-of-school children worldwide (UNICEF, 2019) among other dismal welfare outcomes (Adebayo et al., 2021; Ozoh et al., 2022a; Ozoh et al., 2022b).

These welfare statistics for Nigeria are surprising given that the nation's economic growth has improved dramatically since the 1980s structural changes and it is expected that the increased growth will be more inclusive to boost the quality of life. However, the growth story of the country has miserably not been pro-poor with a minute impact on the household welfare indicators (Orji et al., 2020). It is also important to highlight that achieving the majority of the Sustainable Development Goals (SDGs) by 2030 is contingent on improving household welfare. Different Nigerian administrations have developed and implemented numerous programs and policies as a result of their concern over the poor welfare outcomes in the country and the desire to enhance it. Prominent among these interventions include the National Poverty Eradication Programme (NAPEP) of 2001, the N-Power Programme of 2016, Government Enterprise and Employment Programme (GEEP) of 2016 among several others.

Remittances represent one of the factors that could influence a household's welfare and Nigeria is a leading remittance destination in Africa. The core of migration decisions is the desire to enhance the lives of the migrant and the family left behind. Receipt of remittance provides a household with capability which could be expressed in improvement in earning power through investing in income-generating activities and wealth-boosting activities. The household may direct the remittance into welfare-enhancing activities such as food consumption and expenditure on non-food durables.

The survey of the literature highlights that previous studies in Nigeria are contingent on small individual surveys with a focus on certain geographical areas. The major drawback with utilizing these individual localized surveys is that they are unable to show the overall features of the nation's dynamics and outcomes from such studies may not be robust enough to show the implications of remittance on household welfare. This present study utilizes the nationwide survey to sidestep these shortcomings. Second, most related studies in Nigeria employed data that terminates in 2009. While these studies made considerable contributions to the extant literature, it is pertinent to document that several policy changes have occurred in Nigeria over these years. As a result, this research adds to the body of knowledge by using the most recent nationwide data sets. Third, most studies on the subject matter employed macroeconomic time series data. The issue with macroeconomic time series is the loss of crucial information about households as a result of the aggregation problem. This study sidesteps this issue by utilizing household-level data, particularly the 2019 General Household Survey. Fourth, this study extends the literature by becoming the first study to interact remittance with rural and urban residency to ascertain if it amplifies or weakens the influence of remittance on household food and non-food consumption. Additionally, the study introduced an interaction model which seeks to ascertain whether the employment status of the remittance recipient amplifies or weakens the impact of remittance on household earning power. Fifth, to my knowledge, studies exploring the influence of remittance on the household earning power effect of remittances are rare in the literature. Consequently, the researcher expands the literature by exploring this new area

### 1.3. Study Objectives

Enhancing household welfare is one of the fastest ways of attaining most of the SDGs specifically Goals 1, 2, 3, 4, 5, 6,7 and 10. Remittances could positively influence the well-being of the household because of their capacity to boost household consumption as they could be directed to welfare-enhancing activities such as food consumption and expenditure on non-food durables.

It could also be utilized in funding sustainable practices that boost the quality of life. Given that Nigeria is one of the leading recipients of remittances in Africa, one will expect that the nation will have improved welfare outcomes, but this is not the case. Consequently, this study appraises the influence of remittances on household welfare using diverse indicators to capture welfare outcomes.

#### 1.4. Research Questions

The researcher will rigorously pursue these research questions:

1. What effect do remittances have on Nigerian households' food consumption?
2. Do remittances influence household non-food consumption in Nigeria?
3. Does remittance impact Nigeria's household earning power?

#### 1.5. Geographic Study Area and Context

Nigeria is a country in West Africa. The country is one of Africa's economic powerhouses. With a population of 211,400,704 million in 2021 and a population growth rate of 2.5%, the nation is one of the world's most populous economies (World Bank, 2021). Nigeria is organized into 36 states, plus the Federal Capital Territory (FCT) of Abuja which are further organized into six geopolitical zones (see Figure 1) which are mainly utilized for power-sharing arrangements, political assignments, and political categorization.

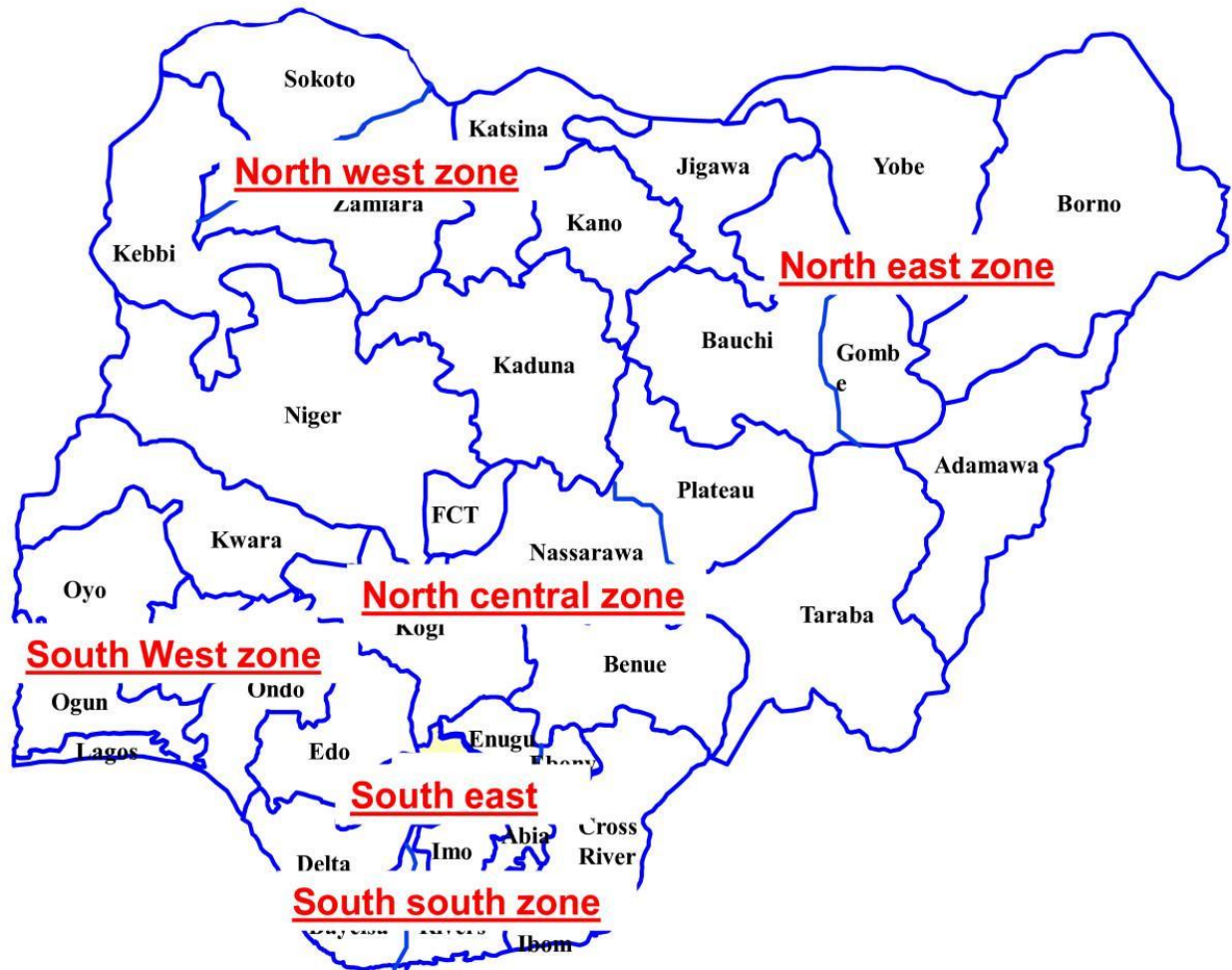


Figure 1: Nigeria’s map showing the geopolitical zones

Source: Adapted from Google

Nigeria’s economy is categorized as lower-middle income. The country’s natural resources are abundant, and its financial and communications sectors are all well-developed.

The nation’s GDP per capita is US\$2,085 in 2021 (World Bank, 2021). In addition, Nigeria had its biggest economic downturn in two decades in 2020, however, after the pandemic ban was lifted and oil prices rose in 2021, the economy gradually recovered, and the government implemented measures to lessen the impact of the economic downturn. The majority of the country’s exports and government earnings come from oil (Dimnwobi et al., 2017; Dimnwobi et al, 2022a; Dimnwobi et al, 2022b; Ekesiobi & Dimnwobi, 2020; Nwokoye et al., 2019, Orji et al., 2020). Nigeria is a major recipient of remittances in the world as remittances have evolved into one of Nigeria’s primary external financial sources. Despite being a top remittance-receiving nation, the nation has one of the worse welfare outcomes across the globe.

## 1.6. Study's Outline

This chapter documents the current state of remittances and welfare outcomes in Nigeria. In the next chapter, the researcher discusses the related literature on the theme. Chapter three describes the model, the data and the technique used to address the study's research questions while Chapter four utilized the analytical technique explained in the previous chapter to derive the results documented in this chapter. This chapter also discussed the outcomes generated in the study. The last chapter covers the conclusion, policy prescriptions and research ideas for additional research.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. Introduction

This chapter contains conceptual and theoretical insights, an overview of previous studies, policies introduced over time to boost welfare outcomes in Nigeria as well the research gaps identified in the literature.

#### 2.2. Conceptual Insights

Attempts have been made by several scholars to conceptualize household welfare. For instance, according to Amega (2018), household welfare is defined as a household's level of affluence and quality of living conditions. In this setting, household welfare might be assessed using several variables, including GDP per capita and other measures of population well-being (like pollution level, availability of health care providers and facilities, and literacy rate among others). Analogously, Dimova and Adebawale (2018) view household welfare as a representation of a household's economic well-being that might be evaluated based on its capacity or access to sources of livelihood. This definition suggests that the welfare of the household might be evaluated by income or consumption based on society's nature. This study adopts Dimova and Adebawale's (2018) perspective of household welfare and utilizes three indicators to measure household welfare namely food consumption, non-food consumption and household earning power.

On the other hand, several scholars from diverse disciplines have proposed several definitions of remittances over the years. According to Ajaero et al (2017), remittances are a substantial external financing sources that migrant workers bring home to their households in the form of assistance and financial support. Fonta et al (2021) define remittances as the flow of financial resources resulting from the trans-border mobility of a nation's citizens. In contrast to other financial movements like debt or stock flows, remittances are characterized as unrequited transfers where migrants give money to friends or family for whom the sender has no claims. Remittances, according to Urama et al (2016), are transfers between individuals (from migrants to relatives and family). Relatedly, remittances, according to Kapri and Jha (2020) are transfers between individuals (emanating mostly from migrants to relatives and family). Such remittances are rarely affected by the governance issues that can arise with official aid flows. According to Nwokoye et al (2020), the share of a migrant's wages transmitted from the country of destination to the place of origin is known as remittances. This study aligns with the view of Nwokoye et al (2020).



### 2.3. Theoretical Insights

Theories pertinent to this investigation are included in this section. Among these hypotheses is the neoclassical migration theory, the new economics of labour migration and the capability approach.

#### I. Neoclassical Theory of Migration

This theory developed by Todaro (1969) and Harris and Todaro (1976) represents one of the earliest and most widely utilized theories in explicating migration. The fundamental assumption is that migration is majorly driven by economic evaluations of corresponding costs and benefits (De Haas, 2010). Put differently, the fundamental motivation for labour migration is wage disparities between nations of the world and eliminating wage disparities will put an end to global migration. According to this theory, migration is linked to labour supply and demand dynamics across the globe. High pay in countries with a shortage of labour will entice immigrants from other economies with a labour surplus.

Howbeit, this theory has been criticized for lowering migratory factors, neglecting market flaws as well as emigrants' homogenization (Kurekova, 2011). Additionally, the theory dismisses alternative drivers of migration as well as migrants' membership of social classes like households and communities and instead sees migrants as atomistic and those who prioritize their own needs. Additionally, Faist (2000) observed that the wage-migration linear connection could not adequately account for the reality that countries that are impoverished and with poor individuals do not migrate or export the greatest labour. Although the neoclassical idea has been criticized, the theory continues to dominate discussions on the why individuals migrate

#### II. The New Economics of Labor Migration (NELM)

In the 1980s, the NELM surfaced as a purportedly different theoretical approach for explicating the factors influencing migration. The NELM seek to address the shortcomings of the neoclassical theory of migration and in so doing the theory has been variably described as a key divergence from previous migration theories (De Haas 2010; Hagen-Zanker 2008). The NELM was popularized by Stark and Bloom (1985) and the theory can be summarized into five key components. First, the theory assumes that impoverishment is a critical migratory driver. Second, the criticality of the family as the primary decision-maker. Third, migration is viewed as a risk-diversification approach and a means of addressing market inadequacy. Fourth, the theory incorporated information and theoretical issues into the migration process and lastly migration is regarded as a method of diffusion and innovation acceptance (Abreu, 2012).

Stark (1984) pioneered the importance of relative impoverishment as a key factor of migration. It is predicated on the supposition that prospective immigrants compare their income to that of others in their social environments, combined with their desire to elevate their placements in their environments are the key factors in making migratory decisions. Relatedly, Stark (1984) highlighted that rural regions in developing nations characterized by poor infrastructures and poor employment opportunities experience greater migration rates. Another insight from the NELM is that the household and not the individual is the key decision-maker in migration decisions and supporting a member of the household to migrate to a new environment can frequently be perceived as a way of mitigating risk and addressing the inefficiencies in the market (Lauby & Stark 1988). Contrary to the neoclassical migration hypothesis which avers that the migration choice is dependent on the individual, this theory holds that the decision to migrate is contingent on the household. This is because household future earnings could be negatively influenced by shocks and the relocation of a household member frequently acts as a type of protection or cover against potential income shocks. The inclusion of issues like inadequate information, personal insurance or the utilization of the game theoretical approach in making household-level decisions demonstrates the NELM's information-theoretical nature (Stark & Bloom 1985). Additionally, it offers a theoretical foundation for rethinking migration as a method of diffusion and innovation acceptance (Abreu, 2012).

Lastly, the NELM has been hailed as being effective in addressing the deficiencies of earlier theories of migration and this is contingent on the fact that relative to other migration theories, NELM is more sophisticated and grounded in reality and it is widely claimed that it provides a better balance than other migration theories (Abreu, 2012).

### III. Capability Approach (CA)

The CA was developed in the 1980s by an Indian philosopher and economist Amartya Sen, and it is still most strongly identified with him. Sen contends that the most crucial factor in determining welfare is to take into account what people are truly capable of becoming and doing. The focus should not be on possessions or assets as they are unsuitable because they only give a hazy or incomplete picture of how well a person's life is going (Sen, 1999). In demonstrating this thesis, Sen utilizes a bicycle which possesses the qualities of transportation, but the traits of individuals attempting to use it will determine whether it genuinely provides transportation. It could be thought of as a helpful instrument to expand an individual's mobility, but obviously, it won't accomplish that for someone unable to work. Although that individual, for some reason,

may find the bicycle appealing, the individual still does not have transportation for mobility purposes (Hirai et al, 2016)

The CA places a clear emphasis on the level of welfare that people can realistically attain. Sen observed that the core of the welfare analysis is the ideas of “functionings” and “capability”. Functionings are states of “being and doing” like having food to eat and a place to live. They must be separated from the commodities used to obtain them. Capability on the other hand represents the collection of valuable abilities that an individual effectively possesses. Therefore, an individual’s capability refers to their actual flexibility to select amongst several functioning combinations (Sen, 1999).

According to the capability theory, receipt of remittance provides a household with capability which could be expressed in improvement in earning power through investing in income-generating activities and wealth-boosting activities. The household may direct the remittance into welfare-enhancing activities such as food consumption and expenditure on non-food durables. However, if the household acquires more capabilities with the remittance, it is expected to provide it with more functioning. Sen emphasized that since an individual’s effective freedom to lead a productive existence in light of the worth of the functionings that are at their disposal is represented by the value of a set of capabilities when those functionings are improved, so too is that person’s effective freedom.

#### 2.4. Household Welfare Targeted Policies in Nigeria

This section documents several policies introduced over time by decision-makers in Nigeria to promote the quality of life of her citizens. For conciseness, these policies are divided into two categories: those implemented before the nation adopted civilian administration in 1999 and those implemented after the country embraced democratic governance. Beginning with the first category, one of the most prominent policies around this period is the Structural Adjustment Programme (SAP) formed in 1986 with assistance from the International Monetary Fund and focused on stimulating economic growth as well as development outcomes. Obadan (2002) noted that SAP was critical in promoting economic expansion but it underemphasized development outcomes and made socioeconomic problems worse. Secondly, in 1986, another intervention named the National Directorate of Employment (NDE) targeted at addressing the nation’s severe unemployment issues was established. This program has undergone several modifications and still exists in the country and several unemployed Nigerians have benefited from various programs of NDE across the nation.

Thirdly, in 1987, the Better Life Programme (BLP) was managed by Maryam Babangida (the wife of the then president) and was primarily focused on issues impacting rural women. The goals of the program were to encourage rural women to strive for a better life. The BLP's main activities were the creation of various enlightenment or educational projects, as well as the distribution of low-interest loans to rural women across the country (Oyeranti & Olayiwola, 2005). Fourthly, in 1989 the People's Bank of Nigeria (PBN) started its operations to encourage savings and make credit accessible to the nation's poor population (Ogwumike, 2002). As noted by Oyeranti and Olayiwola (2005), the aim of this intervention was defeated because they were underfunded by the federal government and there was evidence of financial impropriety in most of the bank's branches. The last of the interventions introduced pre-civilian era in the nation is the family economic advancement programme (FEAP) created in 1997 to provide funding for the production and processing of agriculture, as well as to assist in the expansion of micro business across the country. However, due to poor oversight and pervasive corruption, the FEAP had numerous challenges thereby rendering most of its plans impossible to implement (Abubakar, 2013).

The preceding paragraphs have highlighted the interventions introduced in Nigeria during the military era. As a result, the emphasis of this paragraph is on interventions introduced during the democratic rule which started in 1999. At the heart of the interventions is the National Poverty Eradication Programme (NAPEP) established in 2001 with the primary purpose of eradicating poverty across the nation. Given the prevalence and complexities of poverty in Nigeria, the decision-makers make an effort to guarantee that the operations and plans of the departments and agencies are efficiently harmonized. The government also works to ensure program sustainability, the construction of an appropriate institutional framework, and uniformity in policy (Aibieyi & Dirisu, 2010; Obikeze et al., 2015). As a response, the National Poverty Eradication Council (NAPEC) was established to harmonize the diverse poverty-reduction interventions of various government agencies. To achieve the objectives of sustainability, NAPEC has to see that the activities of these agencies are well-planned, centralized and cooperative with one another (Obikeze et al., 2015). Furthermore, N-Power was formed on June 8, 2016, to address unemployment in Nigeria and advance social development. The program aims to equip young people with the necessary skills to adequately compete in the global markets. Fahd (2016) and Olorunsola (2022) noted that the program is intended for unemployed Nigerians

between 18 to 35 years. It is a two-year funded program designed to engage people in their home states.

Relatedly, the government enterprise and employment programme (GEEP) was also launched in 2016 to fight poverty by providing finance to Nigerian business owners. The interventions promote financial inclusion and microcredit access to underprivileged Nigerians. By providing beneficiaries with official identities, bank accounts and mobile wallets, GEEP hopes to integrate them into the financial system so they may easily access money to grow their enterprises (Okwe, 2019). These interventions though laudable have been unable to address the poor welfare outcomes in Nigeria. Many explanations have been suggested for the inability of these interventions to yield the desired outcome which includes lack of continuity, pervasive corruption, poor coordination, and misplaced priorities among others (Abubakar, 2013).

## 2.5. Overview of Previous Studies

The literature is rich on the connection between remittances and household welfare (See Table 1.1). These studies have applied a variety of indicators to capture household welfare namely food and non-food consumption, income, subjective well-being, health, education, and human development index among several others. The subject matter has also been appraised using both macro and micro techniques. These studies are presented in this section divided across two strands. The first strand is on studies from other economies while the other strand is on studies from Nigeria which is the study's primary focus.

Amega (2018) employed the system generalized method of moment (GMM) as well as data from 46 SSA economies between 1975 and 2014 to evaluate how remittances affect health and educational outcomes and the study highlighted that health and education outcomes are positively influenced by remittances. Similarly, Azizi (2018) focused on 122 developing economies cutting across diverse regions of the world between 1990 and 2015 to unearth the influence of remittances on labour supply and human capital. The study captured human capital with nine health and nine educational proxies. The study discovered among other things that education and health outcomes are enhanced by remittances. Likewise, employing data from 67 developing nations cutting across several regions of the globe, Huay et al (2019) studied the effects of remittance on human advancement between 1980 to 2014. Utilizing the system GMM, the authors documented that human development is positively influenced by remittances. Sahoo et al (2020) applied the fully modified ordinary least square (OLS) and dynamic OLS to ascertain

the link between remittances and human advancement in six Asian economies between 1990 and 2018 and revealed that remittances promote human development.

While these studies utilized macro data, the subject matter has been studied in other economies using microdata. For instance, Kangmennaang et al (2017) applied the propensity score matching (PSM) to assess the household welfare effects of remittance and migration in Malawi using data collected in 2014 from 100 rural households in the Central and Northern areas of the nation. The possession of a range of agricultural goods by the households, consumer goods and assets were applied as the key welfare indicator and the study found a positive connection between remittance and household welfare. Likewise, in Ethiopia, Wolde (2018) sampled 220 households in the North Wollo zone of Ethiopia to explore the implications of remittances on the household's well-being. Applying the instrumental variable two-stage least square (IV2SLS) as well as consumption expenditure to represent household welfare, the study discovered that remittance is positively related to the welfare of the households. Wang et al (2019) utilized Kyrgyzstan's nationwide survey to appraise the household expenditures effects of remittances. Using eight variables to capture household expenditures namely housing, education, food, transportation and communication, medical, consumer goods, events and additional costs, the authors discovered that remittance has a minor influence on household spending. In a related study of 32 SSA countries, Sulemana et al (2019) utilized the Afrobarometer Surveys to appraise the effects of remittances on the subjective well-being of their households. Using diverse estimation techniques namely IV probit regressions, IV 2SLS and OLS, the authors confirmed that remittance positively influences subjective well-being. Analogously, Samaratunge et al (2020) utilized the 2016 National representative datasets to study how Sri Lankan households' consumption is affected by remittances and reported that remittances stimulate household well-being by increasing their per capita expenditure. Focusing on five SSA nations, Ajefu and Ogebe (2020) applied both the OLS and IV quantile regression to explore the influence of remittances on households' spending habits and confirmed that remittances boost spending on food, education and health. Similarly, Kapri and Jha (2020) reported that remittance expands healthcare spending in Nepal using 2011 nationwide microdata. Rahim et al (2020) interviewed 68 persons in Pakistan to document the criticality of remittances in boosting household living standards and found that remittances promote socioeconomic and development outcomes

The studies highlighted above present studies from other countries. This part documents related studies from Nigeria which is the main emphasis of this research. For instance, Nwaru et al (2011) sampled 120 participants to appraise the welfare effect of remittance in South Eastern

Nigeria and highlighted that remittances are critical to the household's well-being. Ajaero et al (2017) utilized the 2009 migration survey by the World Bank covering 2000 households across 12 states of Nigeria to document the criticality of remittances and migration on the well-being of Nigeria's households. The authors adopted consumer assets and productive assets as a measure of household welfare. Expectedly, the authors employed several estimation techniques like ordinary least square (OLS), probit and quintile estimation. While probit and quintile approaches were used to accomplish the study's other objectives, the outcome of the OLS revealed that remittances boost household welfare. Bang et al (2020) employed the 2009 national representative microdata and IV quantile regression to unearth the effects of remittances on Nigeria's income inequality and poverty and the study confirmed that by boosting household spending, poverty is decreased through remittances. Using PSM as well as data gathered from 450 individuals in the Southeast region of Nigeria, Fonta et al (2021) confirmed that remittances significantly promote welfare outcomes. Adebayo et al (2021) focused on a specific region in Nigeria to unearth the influence of remittance on household's welfare. The authors utilized PSM to document that remittances improved the well-being of the household.

One major issue with related Nigerian studies is that the authors employed either a small localized sample which does not show the dynamics of remittance and welfare outcomes in a multi-ethnic nation like Nigeria with diverse income levels. Analogously, most studies on the subject matter were conducted in other climes and the outcome from such endeavours may not work for Nigeria given the nation's peculiarity. Similarly, most studies in Nigeria have majorly utilized data that stopped in 2009. Such studies cannot be relied upon for policy prescriptions because they failed to capture several policy changes that have been introduced over time in Nigeria. Being a developing economy, the conditions that existed at that time are unlikely to be the same now thereby requiring a re-examination of the subject matter using the latest household-level survey for Nigeria

Table 1.1: Summary of Empirical Literature

<b>Studies</b>	<b>Countries (Region)</b>	<b>Nature of data</b>	<b>Methodology</b>	<b>Findings</b>	<b>Major Limitations</b>
Ajaero et al (2017)	Nigeria (Africa)	Nationwide survey	OLS	Remittances boost household welfare	The data the study utilized terminates in 2009. Several changes that have occurred in the nation's economy over these years were not captured
Kangmennaang et al (2017)	Malawi (Africa)	Individual localized survey	PSM	Positive connection between remittance and household welfare	Did not utilize a nationally representative dataset and their outcomes may not apply to Nigeria due to disparity in economic and institutional policies

Studies	Countries (Region)	Nature of data	Methodology	Findings	Major Limitations
Wolde (2018)	Ethiopia (Africa)	Individual localized survey	IV2SLS	Remittance is positively related to the consumption expenditure of the households	Did not utilize a nationally representative dataset and their outcomes may not apply to Nigeria due to disparity in economic and institutional policies
Amege (2018)	46 SSA nations (Africa)	Panel data	SGMM	Health and education outcomes are positively influenced by remittances	This study is primarily a macro-level study and household characteristics were not considered. Being a panel study, country-specific results for Nigeria was not documented
Azizi (2018)	122 developing economies (Diverse regions)	Panel data	OLS, IV fixed effects model	Remittances improve health and education outcomes	Although Nigeria was included in the panel, results specific to Nigeria were not documented.
Wang et al (2019)	Kyrgyzstan (Asia)	National representative datasets	Fixed effects model	Remittance has a minor influence on household spending	The outcome of this inquiry may not hold for Nigeria because of the peculiarity of the Nigerian policy environment. Relatedly, the study did not consider the influence of remittance on household earning power as well as hygiene
Huay et al (2019)	67 developing nations (Different regions)	Panel data (Macro study)	SGMM	Human development is positively influenced by remittances	Nigeria was not included in the sample of nations studied and as a result, the outcome of the study may not apply to Nigeria due to the country's peculiar environment
Sulemana et al (2019)	32 SSA nations (Africa)	Nationwide survey data	IV probit regressions, IV 2SLS, OLS	Remittance positively influences subjective well being	Although Nigeria was included in the panel, results specific to Nigeria were not documented
Bang et al (2020)	Nigeria (Africa)	National representative microdata	IV quantile regression	By boosting household spending, poverty is decreased through remittances	The data the study utilized terminates in 2009. Several changes that have occurred in the nation's economy over these years were not captured.
Sahoo et al (2020)	Six Asian nations	Macro data (Time series)	Fully modified OLS & Dynamic OLS	Remittances promote human development	Macro study and different scope to the current study
Samaratunge et al (2020)	Sri Lanka (Asia)	National representative datasets	PSM	Remittances stimulate household well-being by increasing their per capita expenditure	The study scope is different from this present study. This current study considers additional frontiers such as the influence of remittance on household earning power and hygiene
Ajefu & Ogebe (2020)	5 SSA economies (Africa)	National representative microdata	OLS, IV quantile regression	Remittances boost spending on education, food and health	Although Nigeria was included in the sample but the data the study utilized terminates in 2009. Several changes that have occurred in the nation's economy over these years were not captured.



Studies	Countries (Region)	Nature of data	Methodology	Findings	Major Limitations
Kapri & Jha (2020)	Nepal (Asia)	National representative microdata	PSM, 3SLS	Remittance has a positive and considerable influence on healthcare spending	The outcome of this inquiry may not hold for Nigeria because of the peculiarity of the Nigerian policy environment. Relatedly, the study did not consider the influence of remittance on household earning power as well as hygiene
Rahim et al (2020)	Pakistan (Asia)	Individual localized survey	Descriptive statistics	Remittances promote socioeconomic and development outcomes	Did not utilize a nationally representative dataset and their outcomes may not apply to Nigeria due to disparity in economic and institutional policies
Fonta et al (2021)	Nigeria (Africa)	Individual localized survey	PSM	Remittances significantly promote welfare outcomes	Focused on one region out of 6 regions in Nigeria.
Adebayo et al (2021)	Nigeria (Africa)	National representative microdata	PSM	Remittances boost welfare outcomes	Focused on one region out of 6 regions in Nigeria

Source: Authors' computation

## 2.6. Literature Summary

There have been numerous attempts in the literature to conceptualize the theme of the study. However, while the various perspectives of the scholars who attempted to define remittances and household welfare are novel, this study adopts the view of Nwokoye et al (2020) and Dimova and Adebowale (2018) for remittances and welfare respectively. Relatedly, the survey of the theories showed that two theoretical perspectives greatly affected most of the early migration research. The first is the neoclassical hypothesis which avers that migration is primarily motivated by economic assessments of relative rewards and costs. The theory emphasizes that migration is caused by salary disparities between regions as well as other labour market issues and migration will persist until wage disparities are eliminated across the globe. In essence, this hypothesis holds that individual migration decisions are made in response to variations in labour markets. The second is the NELM which on the other hand refutes the key tenets of the neoclassical economic premise that migration decisions are decided by independent individuals. NELM, on the other hand, contends that the family or household and not a single individual is the primary player in migration decision-making and remittances represent an unspoken agreement between migrants and their families. Put differently, the household collaboratively decides the choice to relocate and who will migrate because the household seeks to decrease its risks by expanding sources of revenue (Stark & Bloom, 1985). Therefore, migration is more of

a risk-sharing strategy than a way to boost household income, as a result, wage disparities are not necessarily a migration motivator and migration will still occur even if the wage disparity is closed. While the foregoing theories concentrate on migration predictors, the CA focuses on the welfare level that individuals can attain. CA prioritizes individual freedom and capabilities as the principal developmental goals. According to Sen, the best indicator of someone's welfare or how well they are doing is their ability to conduct the lives they value, not their income or perceived well-being.

The survey of the literature shows that the theme has been studied across single-country studies (Ajaero et al, 2017; Bang et al, 2020; Fonta et al, 2021) and panel studies (Amega, 2018; Azizi 2018; Fonta et al, 2021; Sahoo et al 2020). While some of these studies (Amega, 2018; Azizi 2018; Sahoo et al 2020) utilize macro data thereby ignoring the microeconomic conditions of the households, other studies (Fonta et al, 2021; Kangmennaang et al, 2017; Kapri & Jha, 2020; Wang et al, 2019) have employed microdata. Despite these efforts, there are still some areas of the theme which is yet to be explored in the literature and the next paragraph expounds the study's contribution to the literature.

This study's novelty is seven-fold. First, most studies on the theme employed macroeconomic time series data. The issue with macroeconomic time series is the loss of crucial information about households as a result of the aggregation problem. This study sidesteps this issue by utilizing household-level data, particularly the 2019 General Household Survey. Second, a few inquiries have been directed to the subject matter in Nigeria. However, these studies have focused on a specific geographical area. For instance, Nwaru et al (2011) and Fonta et al (2021) employed small individual surveys with a focus on certain geographical areas while Adebayo et al (2021) utilized national representative data to study just one region out of the six regions in Nigeria. The major drawback with utilizing these individual localized surveys or focusing on one region of the country is that they are unable to show the overall features of the nation's dynamics and outcomes from such studies may not be robust enough to show the implications of remittance on household welfare. This present study utilizes a nationwide survey as well as studying the six regions of the nation to sidestep these shortcomings. Third, most studies in Nigeria (Adebayo et al, 2021; Ajaero et al, 2017, Bang et al, 2020) have majorly utilized data that stopped in 2009. Being a developing economy, the conditions that existed at that time are unlikely to be the same now thereby requiring a re-examination of the subject matter using the latest household-level survey for Nigeria. Making use of the data comprehensiveness, the study appraises the influence

of remittance on a household's earning capacity, food and non-food consumption. Fourth, this study extends the literature by becoming the first study to interact remittance with rural and urban residency to ascertain if it amplifies or weakens the remittance effects on household food and non-food consumption. Additionally, the study introduced an interaction model which seeks to ascertain whether the employment status of the remittance recipient amplifies or weakens the influence of remittance on household earning power. Fifth, receipt of remittance provides a household with capability which could be expressed in improvement in earning power through investing in income-generating activities and wealth-boosting activities as well as utilization of modern facilities. While this is critical in developing economies, previous studies particularly in Nigeria (to my knowledge) are yet to explore the influence of remittance on household earning power which is critical in boosting the quality of life. Sixth, to my knowledge, this study represents the first attempt at exploring the influence of remittance on Nigeria's household welfare since the launch of the latest 2019 General Household Survey. Lastly, the study's outcome will provide important information for rejigging current interventions in Nigeria to improve household welfare conditions.

## 2.7. Summary

This chapter was necessary to familiarize the researcher with the level of work that has been conducted on the theme. Specifically, the chapter documented the conceptual and theoretical insights, synopsis of prior studies and the various shortcomings identified in the literature. The next chapter describes the procedures the researcher employs to rigorously answer the research questions.

## CHAPTER THREE

### METHODOLOGY

#### 3.1. Introduction

Empirical research involves the use of scientific methods in obtaining answers to research questions. In other words, it is required that the procedure for conducting empirical research must be systematic, objective and unambiguous. This is because the results obtained from empirical research could be used to develop theoretical hypotheses about how systems or objects behave (inductive research) or to support or refute scientific hypotheses (deductive research). Replicability is a crucial prerequisite for any research findings in any circumstance. For other researchers to verify the accuracy of the findings, the procedures used in obtaining study outcomes must be stated and communicated to the research community. Research methods are the collection of procedures, processes, or strategies used by a researcher along with their justification. The research strategies and sampling techniques are covered in this chapter. The methods for data gathering and estimating are also covered.

#### 3.2. Research Design

The strategy utilized to address study questions is known as research design. The major goal of this inquiry is to probe the role of diaspora remittance on household welfare. Thus, achieving this goal requires that the researcher obtains quantitative estimates that will be subjected to empirical testing. Thus, the study adopts a quantitative research design. This will enable the researcher to use quantitative methodologies to generate quantitatively the relationship between sets of data. According to Babbie (2010), quantitative research is a method for unbiasedly testing theories by examining the relationships between and among variables. The dependability, objectivity, and generalizability of the quantitative research approach are typically guaranteed. With this strategy, participants are chosen at random from the research population in an objective manner. To obtain estimates that could be relied upon to make inferences about the relationships between specific variables, statistical procedures are employed. Since the researcher using this approach is regarded as being external to the particular research he is performing, the results are expected to be repeatable by another researcher.

### 3.3. Study Population and Sampling Frame

This study assessed the impact of remittance inflow on Nigeria's household welfare. With an estimated household size of 5.06 persons, Nigeria has estimated 38 million households (NBS, 2020). These households are made of both male-headed and female-headed households with parents, children and relatives in a blend of both nuclear and extended families. The households' heads (and other members of households) participate in farm and non-farm activities. A sampling frame or "survey frame" is a list of every person or unit in the target population. A researcher can choose a sample from the population using this frame and guided by a set of rules or considerations. The researcher may adopt a random sampling technique in selecting the component units of a frame. In a random sample, each unit has an equal probability of being picked. However, the research may opt for other probability sampling methods (such as stratified sampling, systematic sampling, multi-stage cluster sampling, etc) or non-probability sampling approaches (such as convenience, judgmental, etc).

This study proposes to utilize the 2019 general household survey data which is contingent on a sample of 5,000 households. A stratified probability sampling technique was employed for the general household survey (GHS). In stratified sampling, random samples are drawn from non-overlapping groups within the population. Three layers of stratification - region, size, and head of household are used in the survey. For many reasons, stratified sampling is desirable. First, it guarantees that accurate estimates are obtained for population subgroups with established accuracy levels. The second benefit is that it ensures accurate estimations are made for the entire population. This is accomplished by making sure that samples from all subgroup attributes are taken. Thirdly, it makes sure that households from all of the designated sectors are included in the sample so that the selection is spread out throughout a wider range of regions and demography.

### 3.4. Theoretical Framework

The theoretical foundation is established on Amartya Sen's capability theory (Sen, 1970; Sen, 1985; Sen, 2004). The choice of this framework over other theories of remittance or welfare is due to its superiority in providing an analytical framework of how remittance could impact household welfare. The capability theory directly addresses the level of welfare that individuals can realistically attain contingent on their capabilities. Sen observed that the core of the welfare analysis is the ideas of "functioning" and "capability".

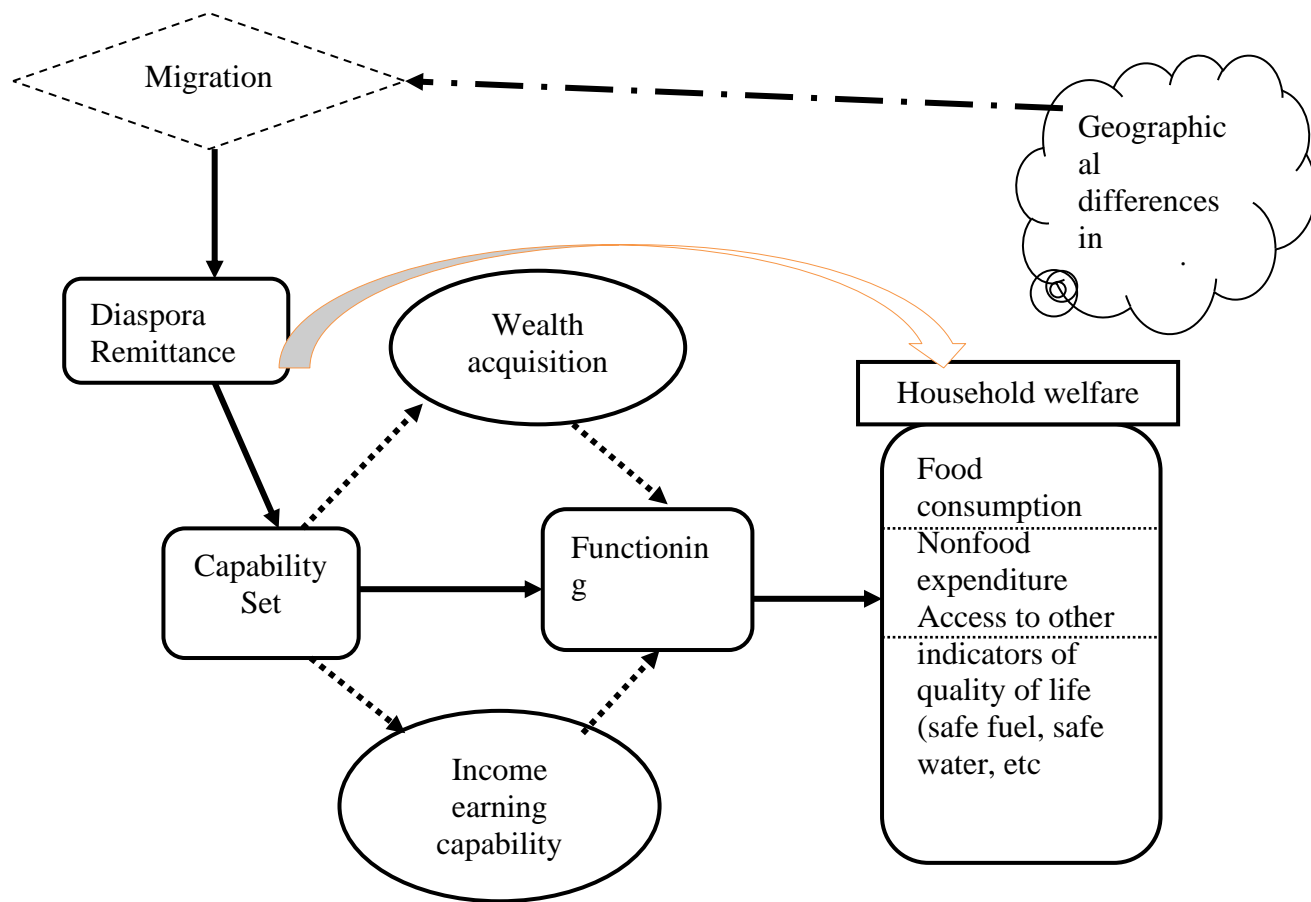


Figure 2: Sketch explaining the theoretical framework.

Source: Sketched by the Author

As shown in Figure 3.1, geographical differences in economic opportunities and labour market return buoy the desire to migrate. However, at the core of migration decisions is the desire to improve the lives of the migrant and the family left behind. In this study, the researcher’s interest is in the welfare of the relatives of the migrant workers who receive remittances from the migrants.

According to the capability theory, receipt of remittance provides a household with capability which could be expressed in improvement in earning power through investing in income-generating activities and wealth-boosting activities. The household may direct the remittance into welfare-enhancing activities such as food consumption and expenditure on non-food durables. However, if the household acquires more capabilities with the remittance, it is expected to provide it with more functioning. Sen emphasized that since an individual’s effective freedom to live a life that is useful based on the value of the functionings that are offered to them is

represented by the value of a set of capabilities when those functionings are improved, so too is that person's effective freedom.

Following Ajaero et al (2017) and Adebayo et al (2021), we set up a model of remittance-household welfare as follows. Suppose a household maximizes its expected lifetime utility at each period by allocating its income from different sources between consumption, purchase of assets or wealth instruments and precautionary savings. The migrant, therefore, faces the following utility problem:

$$MaxU = \sum_{i=0}^{\infty} \Phi^{i-t} \left( S_{it}^{\phi_i} C_{it}^{*\gamma} A_{it}^{\eta} \right) \quad 3.1$$

Subject to:

$$S_t^i + P_t C_t + A_t - A_{t-1} = W_t + R_t^* + r_t A_{t-1} + D_t \quad 3.2$$

Where

U = the utility function of the household

$\Phi$  = the time discount rate of the household

A = the stock of interest-bearing assets owned by the household such that  $A > 0$ .

C = household consumption (including consumption spending on durable and nondurable goods)

W = wages earned. Here wages earned are broadly defined to include all earnings from employment, including wages/salary from paid employment and profit earned from self-employment.

R = remittance that the household receives from family members in the diaspora at each period.

P = price of goods in the home country. To put it another way,  $P_t C_t$  denotes the total expenditure on consumption by the household.

D = debt borrowed by the household. To ensure that the migrant repays the debt in the period t+1, we impose the non-ponzi constraint. The non-ponzi constraint is written as:

$$E_t \lim_{j \rightarrow \infty} \frac{D_{t+1}^*}{\prod_{k=0}^j 1 + r_{t+k}} \leq 0 \quad 3.3$$

t= time period

$\phi, \gamma, \eta$  = measures of elasticity of substitution between competing uses of aggregate household income

Equation 3.2 denotes the budget constraint faced each period by the household. This shows that expenditure on the consumption of both durable and non-durables, savings for precautionary purposes and investment in income-yielding assets must be equal to total earnings from both paid- and self-employment, income from interest-bearing assets, and borrowing. Suppose other sources of income are negligible. Equation 3.2 implies that household consumption spending on food, non-food and other means of livelihood such as clean water, and hygiene among others places a competing demand on remittance for expenditure on income-earning capabilities such as the purchase of interest-bearing assets, including investment in farm and non-farm businesses. Note that this assumption is used to make the model simpler. One could assume that sources of income are used to finance consumption, purchase of assets and savings each period without altering the results. Intuitively,

$$\frac{\partial C_t}{\partial R_t} = \gamma < 1 \quad 3.4$$

$$\frac{\partial S_t}{\partial R_t} = \phi < 1 \quad 3.5$$

$$\frac{\partial C_t}{\partial R_t} = \eta < 1 \quad 3.6$$

And

$$\phi + \gamma + \eta = 1 \quad 3.7$$

Equations 3.4 to 3.6 are the results of resolving the household's optimization problem under the skewed assumption that only remittance matters. The level of the consumption of a household per period might, however, also be the result of an optimization problem involving additional



revenue sources, where the household would solve an intertemporal problem and be able to accumulate its assets to support future consumption. However, such an approach will only complicate the model without significantly changing the outcome.

### 3.5. Model Specification

To investigate the impact of diaspora remittance on household welfare, a Heckman model or Heckman model is employed. The Heckman model, often known as the Heckit model, is a two-stage Heckit that corrects for sample selection bias, one of the main sources of endogeneity in cross-sectional data. Research suffers from selection bias when groups, people, or data are arbitrarily chosen for analysis in a way that does not accurately reflect the population under investigation. Heckman (1979) created a two-stage estimate technique that presumes that in order to minimize such biases, a selection criterion must be met before the outcome variable will be observed. In other words, in addition to the estimated equation, the Heckit model also includes a second equation referred to as the selection equation.

Suppose the probability of household welfare improving is  $W^h$  such that:

$$W_j^{h*} = X_j \Omega + \mu_j \quad 3.8$$

In Equation 3.8, the latent variable  $W_j^{h*}$  is a function of  $X_j$ . Suppose that the outcome variable

$$W_j^h = 1 \text{ when } W_j^{h*} > 0$$

$$W_j^h = 1(X_i \Omega + \mu_{1i} > 0) \quad \text{outcome equation} \quad 3.9$$

The first hurdle in estimating equation 3.9 is that as a latent variable,  $W_j^{h*}$  will not be observable for all samples. It will only be observable if a household receives remittance. Suppose the diaspora remittance received by the  $i^{th}$  household is indicated as  $R_i$ . Then, the outcome variable,  $W_i^h$ , for  $i^{th}$  observation is observable only if:

$$R_i = 1(Z_i \Psi + \mu_{2i} > 0) \quad \text{selection equation} \quad 3.10$$

Where  $Z_i$  is a vector of covariates that determine  $R_i$ .  $\mu_1$  and  $\mu_2$  are error terms that adhere to the following bivariate normal distribution:

$$\begin{bmatrix} \mu_{1i} \\ \mu_{2i} \end{bmatrix} \sim N \begin{bmatrix} 1 & \varphi\sigma \\ \varphi\sigma & \sigma^2 \end{bmatrix} \quad 3.11$$

Where  $\varphi$  and  $\sigma$  are correlation and scale coefficients respectively. Equation 3.11 also shows that the variance  $\mu_i$  has been normalized to 1.

Equation 3.8 and 3.10 shows that  $R_i$  and  $Z_i$  are observed for a random sample of households while  $W_i^h$  is observed only when  $R_i = 1$  (that is when the  $i^{th}$  household receives remittance). in this regard, Equation 3.8 is re-stated as:

$$\begin{aligned} E(W_i^h / R_i = 1) &= E(W_i^h / R_i^* > 0) = E(W_i^h / \mu_i > -X_i\Omega) \\ &= X_j\Omega + E(\mu_{2i} / \mu_{1i} > -Z_i\Psi) \\ &= X_j\Omega + \varphi\sigma_{\mu_1}\Pi_i(\eta_{\mu_2}) \end{aligned} \quad 3.12$$

Where

$$\Pi_i(\eta_{\mu_2}) = \frac{\rho(\eta_{\mu_2})}{1 - \beta(\eta_{\mu_2})} = \frac{\rho(-\eta_{\mu_2})}{\beta(-\eta_{\mu_2})} = \frac{\rho(Z_i\Psi / \eta_{\mu_2})}{\beta(Z_i\Psi / \sigma_{\mu_2})} \quad 3.13$$

Where  $\rho$  denotes standard normal density function,  $\beta$  the stands for standard normal distribution function and  $\Pi_i(\eta_{\mu_2})$  represents the inverse mill ratio.

As observed by Heckman (1979),  $Z_j$  is correlated with  $\Pi_i(\eta_{\mu_2})$ . In other words, regression of  $W$  on  $X$  excluding  $\Pi_i(\eta_{\mu_2})$  using the least square procedure will produce an inconsistent estimator  $\Omega$ . Heckman suggested the use of the probit model for estimating the selection equation which  $\Pi_i(\eta_{\mu_2})$  is estimated as defined in Equation 3.13. Using the estimated inverse mill ratio  $\{\hat{\Pi}_i(\eta_{\mu_2})\}$ , the outcome equation estimated using the least square procedure is both unbiased and consistent.

### 3.6. Definition of Variables

All the variables that would be used in all estimates proposed in this study are explained in Table 3.1. The value assignments for the discrete options are also defined.

**Table 3.1: Identification of Variables**

Variable	Description and Measurement
<b>Dependent Variable: Measures of Household Welfare</b>	
Food consumption (cons_food)	This is a continuous variable. It is measured as the total household spending in naira. That is, it is the product of quantity consumed and the price paid.
Non-food consumption (cons_nonfood)	This is also a continuous variable that captured the total spending of each household on all household consumptions other than food. It covers expenditure on education, leisure, health care, household durables (eg television)
Household earning power (earning)	This is a binary choice variable that indicates whether a household invested remittance receipts on farm or non-farm businesses. If a household invested remittance on income-generating activity, the variable takes 1, otherwise, it takes 0.
<b>Explanatory Variables</b>	
Remittance (rem)	This is a continuous variable. It is the amount of remittance received by a household in the last 12 months preceding the survey. This will enter the model in log form
Male head of household (hh_male)	This is a binary choice that is assigned 1 if a respondent is the male head of household and 0 otherwise
Female head of household (hh_female)	This is a binary choice that is assigned 1 if a respondent is the female head of household and 0 otherwise
Age (age)	This is a continuous variable and it would enter the model in log form.
Access to credit	This is a binary choice that is assigned 1 if a respondent accessed credit in the 12 months prior the the survey. It is assigned zero if otherwise
Household size (hh_size)	This refers to the number of persons in a household, including the father, mother, children and relatives. The value is indicated as the log of household size.
Households in the rural area (rural)	This variable takes 1 if the household is in a rural area, and 0 if otherwise
Households in the rural area (urban)	This variable takes 1 if the household is in an urban area, and 0 if otherwise
Employed (employed)	It is a binary variable that takes 1 if a respondent is employed and 0 if otherwise.
Unemployed (unemployed)	It is a binary variable that takes 1 if a respondent is employed and 0 if otherwise.
Safety net	This is a binary variable that assumes 1 if a respondent has a social security scheme such as a pension, insurance, etc. it is assigned 0 if otherwise
Price shock	This is a binary variable that is assigned 1 if a respondent experienced price shock in the past 12 months before the survey. It is assigned 0 if otherwise

Variable	Description and Measurement
Years of education (edu_year)	This is a continuous variable measured as the number of years a respondent spent in school. It entered the model as a natural log.
Insecurity (insecurity)	This is a binary variable that is assigned 1 if a respondent experience insecurity in the 12 months preceding the survey, otherwise, it is assigned 0
Ownership of land	If a respondent owns at least 1 hectare of land, then it is assigned 1, otherwise 0
Ownership of house by a household (house)	Ownership of the house is assigned 1 if a household owns its own house, otherwise 0
Access to electricity (electric_access)	If a respondent has access to electricity, then it is assigned 1, otherwise 0

Source: Researchers Computation (2023)

The summary of the central tendency of the data is shown in Table 3.2

### 3.2: Summary of Central Tendency

Covariates	Nature of variable	Mean	Min	Max	Standard dev
cons_nonfood	Log	2.854	2.049	4.707	0.897
cons_food	Log	2.805	1.991	4.897	0.793
Remittance	Log	4.268	2.642	4.567	0.691
earning power	Log	3.447	2.932	4.476	0.771
Age	log	1.367	0.301	1.806	0.287
HH_male	male =1	0.490	0.000	1.000	0.211
HH_female	female =1	0.510	0.000	1.000	0.119
HH_size	log	0.748	0.000	1.255	0.018
Rural	rural = 1	0.570	0.000	1.000	0.192
Urban	Urban =1	0.430	0.000	1.000	0.023
electric_access	access = 1	0.420	0.000	1.000	0.028
own_land	own at least 1 hectare =1	0.240	0.000	1.000	0.188
own_house	own house =1	0.450	0.000	1.000	0.219
edu_years	log	0.740	0.000	1.447	0.412
Employed	employed = 1	0.660	0.000	1.000	0.023
safety net	has a social security scheme = 1	0.180	0.000	1.000	0.219
price shock	experienced price shock = 1	0.890	0.000	1.000	0.004
access_credit	Access credit =1	0.281	0	1	0.209
Insecurity	insecurity = 1	0.717	0	1	0.318

Source: Researchers Computation (2023)

### 3.7. Data Sources

In essence, this research is quantitative research using micro econometric techniques. Survey data, specifically those from the Nigerian General Household Survey (NGHS), was used in this

study. The NGHS is accessible on the World Bank website or the data portal of the Nigerian Bureau of Statistics (NBS). The NGHS, a partnership project, is a household survey carried out by the NBS in collaboration with the World Bank, the National Food Reserve Agency (NFRA), the Federal Ministry of Agriculture and Rural Development (FMA&RD), and the Bill and Melinda Gates Foundation (BMGF). The total sample surveyed is 5,000 and there are about four waves. A representative sample of the respondents was chosen using a multi-stage stratified sampling strategy. Around 60 locations were selected from each of Nigeria's 37 states out of a total of 2220 enumeration sites for the survey sampling (the FCT is considered as the 37th state).

### 3.8. Overview of Ethical Issues

Social science involves ethical considerations. It is therefore required that a researcher identifies the ethical risk for participants and also for the researcher. Once identified, there must be clearly stated plans on how to mitigate such risks. This section assesses the conceivable ethical issues, and associated risks, and provides a clearly defined plan on how to mitigate the risks and comply with ethical requirements.

#### 3.8.1. Risks for Participants

Empirical research could pose some risks to research participants. Potential risks generally include physical risks (e.g, injury, discomfort), psychological risks (e.g, altered behaviour, guilt, loss of self-esteem), socio-economic (e.g, labelling a participant in a manner that has negative consequences, damages to the employability of a participant), loss of confidentiality, and legal risks.

A researcher is thus obliged to reduce, if not eliminate, any potential risk exposure to the participants. This study does not pose any potential risk to participants. The study uses a household survey that was collected by the National Bureau of Statistics (NBS)/World Bank. The enumeration and survey by NBS/World Bank followed international standards and all conceivable ethical requirements were complied with. The data available for the researcher's use does not disclose the identity of the participants. It identifies the participants with codes. In the course of this study, it is neither envisaged nor contemplated that the researcher shall in any way have contact with the participants. Therefore, there is no physical, psychological, socio-economic, legal or confidentiality risk associated with the participants of this study.

#### 3.8.2. COVID-19 Risk Assessment for Participants

COVID-19 poses a potential risk in field research. Although COVID-19 has a wide range of symptoms, some patients show absolutely no symptoms. This makes it imperative to examine the risks of exposure among participants. It is also important to note that some persons are more

prone to COVID-19 than others. Put differently, the risk of survival is lower in some demography than in others. For example, older people are generally believed to be more susceptible to COVID-19 than the middle-aged population. Also, persons with underlying illnesses (such as compromised immune systems, heart or lung disorders, and obesity) may be at higher risks than others. Given that this study does not have direct engagement with participants, the researcher does not envisage any COVID-19 risk. The study does not require participants to meet, interact or exchange anything. It does not also require the research to have any interface with participants. The study uses secondary data obtained through an earlier survey done by NBS/World Bank. The study area is Nigeria, domiciled in West Africa. The level of vaccination is very low. However, the risk of COVID-19 in Nigeria is quite low. As of October 28, only 266,043 cases of COVID-19 have been confirmed, with only 3,155 deaths reported. So far (as of 16 October 2022), only about 83,127,883 vaccine doses have been administered. This puts the level of vaccination at about 20% of the population. However, given that this work does not require direct interaction or interface with participants, there is zero risk of COVID-19 to the participants. Meanwhile, the researcher has been fully vaccinated. Although the researcher is aware that being fully vaccinated does not guarantee 100% protection from COVID, there is no risk that my vaccination or COVID status portends to the participants. The researcher further reiterates that there is zero risk of community transmission in the course of the proposed study. The proposed study is, no doubt, a nationwide study. Admittedly, the level of COVID-19 vaccination is low in Nigeria. However, given that there is no participant-to-participant interaction or researcher-to-participant interface, the researcher reaffirms that there is no risk of COVID-19 transmission at the community level. The data the study intends to utilize for this study is obtainable from the World Bank or NBS via their online portal. It does not require that researcher travel out of our country of residence.

### 3.8.3. Risks for Yourself

Field research can expose the researcher to some risks. For example, a researcher could be exposed to physical risks including injuries, accidents, etc. A researcher may also be exposed to behavioural risks such as being attracted to risky behaviours of the participants, etc. The risk of disease contamination could be high in some communities. There could also be a risk of legal violations. This makes it imperative for the researcher to identify such risks, if any, and develop a mitigation plan.

There are no recognized risks associated with the researcher conducting this study. As was previously mentioned, the researcher would primarily rely on survey data provided by the

NBS/World Bank. The data are gathered from World Bank or NBS online portal. The researcher makes bold to say that no risk profiles are facing the researcher.

- Physical Risk – There are no physical risks to the researcher. This is because the researcher would not be travelling for fieldwork in search of data. The data would be obtained from an online portal. The researcher is not exposed to the risk of insecurity and it is not envisaged that the researcher would sustain any injury in the course of this study.
- Psychological Risks – The study requires the researcher to use statistical and econometric techniques to study certain pre-determined objectives. The data is secondary data that has been obtained through a survey done by NBS/World Bank. The participants are identified using codes and the identities are concealed. The researcher cannot have direct contact with the participants. Therefore, there are limited possibilities that there will be psychological risks.
- Legal Risks – This study poses a legal risk to the researcher through data sourcing. The data source requires that the researcher acknowledges the World Bank/NBS when the data is used. The researcher is aware of this copyright requirement. Therefore, the data source shall be appropriately cited as required. It is also required that the researcher makes a written request to the World Bank through its data portal. The researcher is aware of this and such a request has been duly made.
- Socio-economic Risks – This area of this study is Nigeria. Admittedly, insecurity is high in Nigeria that could lead to socio-economic risks. However, the researcher does not intend to travel to Nigeria to do this study. The literature review requires a desk review of articles published by peer-reviewed journals which are either open-source journals or available through our institution's e-library. The researcher is therefore not exposed to any such risk of economic or social losses.

#### 3.8.4. COVID-19 Risk Assessment for Yourself

It should be noted that the researcher is not within the high-risk age. However, although the researcher has never tested positive for COVID-19, the researcher is fully vaccinated. Although this is not a sufficient guarantee of being free from COVID-19 risks, the researcher stays in Norway, where over 11 million doses of the COVID-19 vaccine have been administered to a population of about 5 million. In Nigeria, it is estimated that less than 20% of the population has been vaccinated. This represents a high risk in the country. However, this does not pose any risk whatsoever to the researcher since the researcher does not contemplate travelling to Nigeria to

carry out this research. Assertively, this study, in itself, does not pose any risk of COVID-19 to the researcher.

### 3.8.5. Informed Consent

In social research, the researcher obtains informed consent and this adheres to the principles of autonomy, beneficence, and justice. This implies that each participant should be given the freedom and respect to independent decisions as to participate in the research or not. It also requires that the participant should be provided with sufficient information regarding the fieldwork to enable the participant to make an informed decision. It also requires that there should not be any use of undue pressure on the participant. It is also required that the participants are given fair and equitable opportunities to participate in the research and vulnerable persons should be protected. According to the concept of autonomy, each person should be given respect, space, and chance. Thus, to guarantee that the freedom and rights of participants to engage in research are respected, informed permission is necessary.

Informed consent entails informing the subject (who is anticipated to participate in a research procedure) of the study's objectives, the method to be deployed in the research, the subjects' rights concerning participating in the research, as well as any risks and rewards that might be associated with doing so. As noted earlier, this study does not require the researcher to carry out a primary data survey. The data to be used is to be obtained from an existing survey. This implies that the researcher is not required to obtain informed consent from the participants. This is because no identifiable person(s) is(are) required. All requirements for informed consent were complied with by the data agency (NBS/World Bank). Specifically, NBS/World Bank clearly states that before permitting a participant to take part in the interview, informed consent was obtained (GHS, 2019). Since the researcher is not required to interview any identifiable participant for the study, it is not necessary to get additional consent beyond that which the data agency has already obtained.

### 3.8.6. Internet Research

This study is essentially quantitative research. It, however, requires sourcing articles from the internet for the review of related literature. It also requires the use of internet sources for sourcing the data. Technically, internet research entails gathering data from the internet or the web. In this regard, the usage of online-focused group discussions, online key informant interviews, online surveys, online text analyses, and online social network analyses can be utilized to conduct research with geographically dispersed people. This study does not require online primary data gatherings such as online interviews, online focus group discussions or online surveys. The use of the internet for this study is essentially required for two principal tasks. First, journal articles



are sourced from both open-source and other web sources. These journal articles are used in this study's literature review. As required, all articles and e-books sourced from the internet will be adequately cited and referenced. Second, the survey data would be sourced from the World Bank portal. This data shall be used for statistical and econometric analysis. Again, the data source would be appropriately cited and referenced.

It is also necessary to note that in the original survey, GHS (2019) affirmed that the data was not gathered through the Internet. Participants were identified in all 36 states of Nigeria plus the FCT. Research assistants interviewed the participants through physical contact and not through the Internet. Therefore, it is not envisaged that there will be any violation of Internet research guidelines.

### 3.8.7. Personal Data Protection

Personal data is information belonging to a person or individual. If a person can be located by using a specific location, name, identifying number, or any other distinctive characteristic that is directly related to a well-known participant or person, that person is said to be identifiable. Relevant laws in Nigeria and elsewhere requires the protection of the privacy of persons participating in research. This requires that the names, correspondence, residences, and telephone numbers of the participants are not made public. The researcher does not know or have access to the personal information of the participants other than the codes which are used to identify each participant, there will be no violation of the privacy of the personal data of the participants. Thus, the researcher hereby states categorically that the personal data of the participants are protected.

As noted earlier, the names of the participants are indicated as codes. These codes are not associated with any known identity other than for research. There is no possibility of unveiling the identities of the persons with such code: such information is not and cannot be available to the researcher. The research shall strictly use the codes provided for identifying each participant. Also, the locations, including the local government councils and states of the participants are identified using codes. The data allows the researcher to identify that a participant, say, with code, ABC123 is from the state (sub-national government) ZZ78. However, it does not allow the researcher to know the true person who has the code. This implies that the house addresses of the participants cannot be revealed. Essentially, there is no risk relating to the personal data of participants in the course carrying out this study.

### 3.9. Summary

The strategies adopted to attain the goal of the study are presented in this chapter. This includes the theoretical foundation, sampling technique, empirical model and data sources. The following chapter will employ the strategies discussed in this chapter to provide the outcome of the study.

# CHAPTER FOUR

## PRESENTATION AND ANALYSIS OF RESULTS

In the chapter, the researcher first utilized the descriptive statistics to display the fundamental dynamics of household wellbeing and remittance inflow. Next is a series of estimations designed to address the research questions. Lastly, the results emanating from the study are discussed.

### 4.1. Descriptive Statistics

#### (a) Response Rate

As earlier stated, this study employed the survey data of the Nigerian General Household Survey of 2019 (GHS, 2019). The GHS is a World Bank-supported survey with a sampling frame of 22,000 households. It covers all 36 states plus the FCT. The latest GHS was conducted in 2018/19 and 5,000 households were sampled from the 22, 000 sampling frames. Out of the 5,000 households that were sampled for the 2018/19 survey, only 4,976 were interviewed successfully. this represents a response rate of 99.5%. The distribution of the 4,976 respondents across all of Nigeria’s geopolitical zones and spatial residence (rural versus urban) is displayed in Table 4.1.

Table 4.1: Distribution of Respondents across the Geopolitical Zones

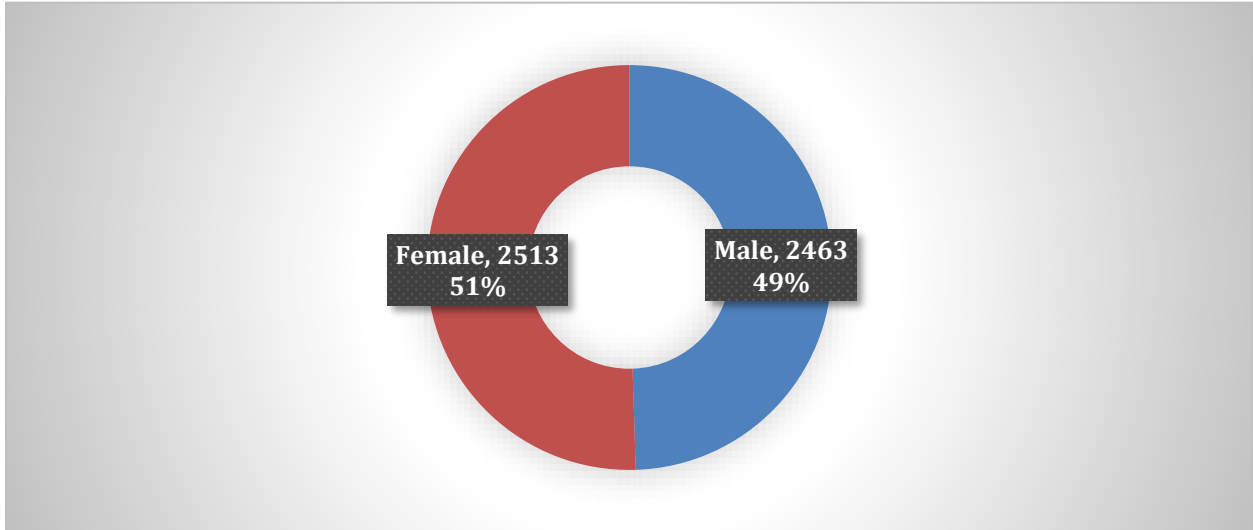
Geopolitical Zones	Number of Respondents	%
North-Central	838	16.84
North-East	826	16.60
North-West	847	17.02
South-East	827	16.62
South-South	814	16.36
South-West	824	16.56
Urban	1573	31.61
Rural	3403	68.39
Total	4976	100.00

Source: NGHS (2019); Researchers Computation (2023)

In total, 838 (16.84%), 826 (16.60%), and 847 (17.02%) respondents were selected from the North Central (NC), North East (NE), and North West (NW), respectively. The South-East (SE), South-South (SS), and South-West (SW) each produced 827 (16.62%), 814 (16.36%), and 824 (16.56%) of the total. This demonstrates that the distribution is equitable across all geopolitical zones. In terms of spatial residence, the respondents were chosen from both urban and rural residents in a similar manner. There were 1,573 respondents in total, or 31.61% of the respondents, who resided in urban areas. A total of 3,403 respondents, or 68.39% of the sample, came from rural areas. This geographical distribution ensures that experiences are evenly distributed across spatial boundaries.

(b) Gender Distribution

Figure 4.1 shows that there is a fair distribution of the respondents based on gender. The total population of male respondents is 2,463 (49%) while the females are 2,513 (51%).



Source: NGHS (2019); Researchers Computation (2023)

Figure 4.1: Gender Distribution of Respondents

In the same vein, Table 4.2 presents the gender distribution of each geopolitical zone or region as well as the spatial locations. About 49.7% of respondents, or 782 of those from urban regions, are men, while 50.3%, or 791 of those from urban areas, are women. Also, 1,681 (49.4%) men and 1,722 (50.6%) women were selected from rural areas. Based on regions or geopolitical zones, the percentage of male respondents is 50.8% (NC), 49.1% (NE), 50.1% (NW), 48.8% (SE), 49.0% (SS), and 47.9% (SW). A similar percentage of female respondents came from the following geopolitical zones: 49.2% from NC, 50.9% from NE, 49.9% from NW, 51.2% from SE, 51.0% from SS, and 52.1% from SW. This demonstrates that both genders are fairly represented across all geopolitical zones.

Table 4.2: Gender Distribution

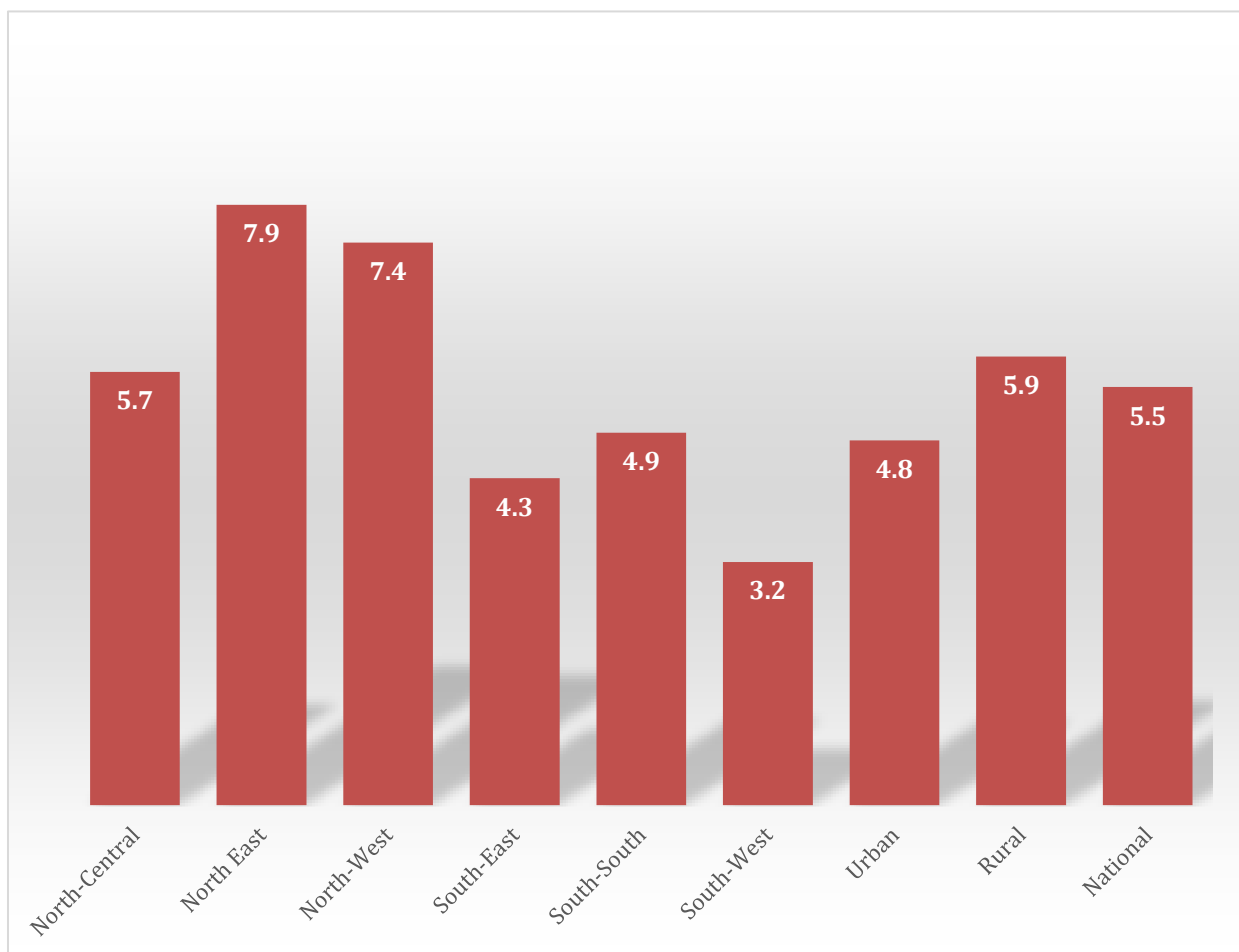
Gender Distribution	Male		Female	
	Frequency	%	Frequency	%
North-Central	426	50.8	412	49.2
North-East	406	49.1	420	50.9
North-West	424	50.1	423	49.9
South-East	404	48.8	423	51.2
South-South	399	49	415	51
South-West	395	47.9	429	52.1
Urban	782	49.7	791	50.3

Rural	1,681	49.4	1,722	50.6
National	2,463	49.5	2,513	50.5

Source: NGHS (2019); Researchers Computation (2023)

(c) Household Size

According to Figure 4.1, there are 5.5 people in each household on average across the country. The average number of people living in one household in a rural home was 5.9, compared to 4.8 in an urban one. The NE provided the largest household size, 7.9 people per home. Following this are NC (7.3) and NW (7.4) (5.7). In SW, 3.2 people were living in each home, whereas in SE and SS, 4.3 and 4.9 people were living in each household, respectively.



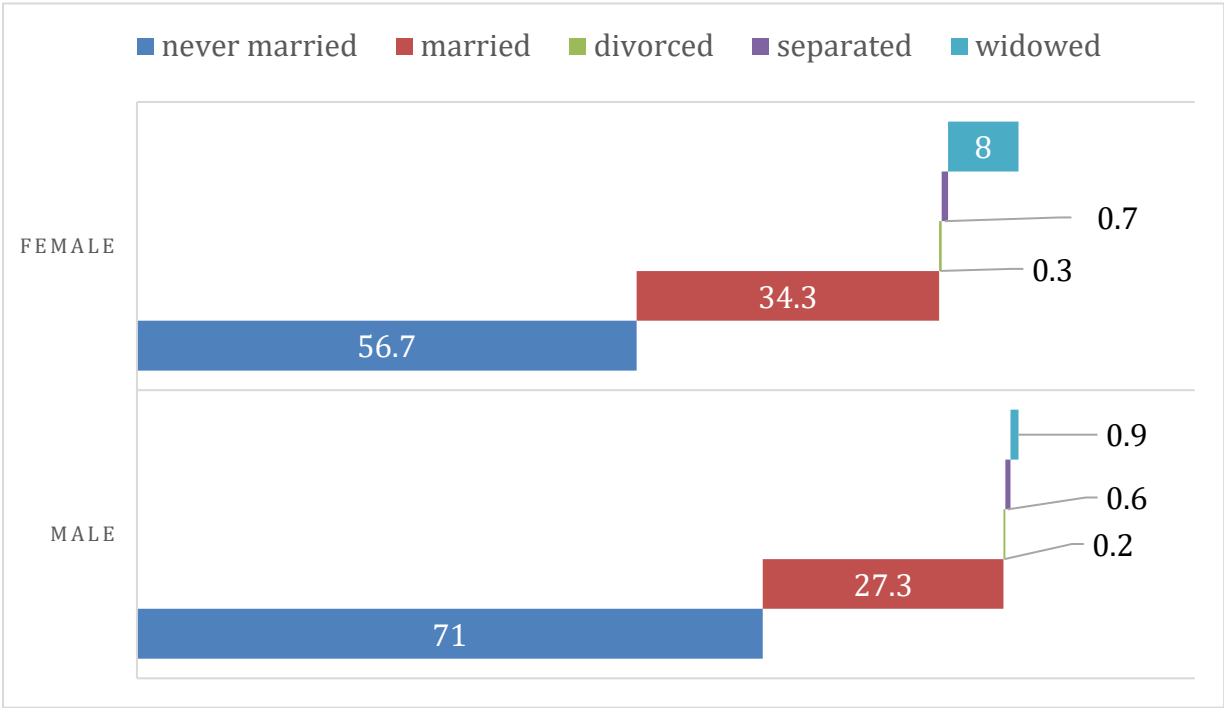
Source: NGHS (2019); Researchers Computation (2023)

Figure 4.2: Household Size

(d) Marital Status

Figure 4.3 shows the national distribution of marital status based on gender. In percentage terms, about 71.0% of the male respondents are single (never married), another 27.3% are married while 0.2%, 0.6% and 0.9% are divorced, separated, and widowed respectively. In contrast, about

56.7% of the female respondents are single (never married), another 34.3% are married while 0.3%, 0.7% and 8.0% are divorced, separated, and widowed respectively.



Source: NGHS (2019); Researchers Computation (2023)  
 Figure 4.3: Marital Status

Among the rural respondents, 71.9% of male respondents are never married while another 26.6% of male respondents are married. Others include 0.2% of divorced males, 0.5% of separated males and 0.8% of widowed males. On the other hand, for female rural respondents, only 7.9%, 0.5% and 0.3% are widowed, separated, and divorced respectively. About 55.9% and 35.5% of female rural respondents are never married and married respectively. For the urban respondents, the marital status is as follows: never married (male 69.2%, female 58.1%), married (male 28.6%, female 32.3%), divorced (male 0.2%, female 0.3%), separated (male 0.8%, female 1.2%), and widowed (male 1.2%, female 8.1%). The marital status for the geopolitical zones is also shown in Table 4.3.

Table 4.3: Marital Status

Marital Status		North-Central	North - East	North-West	South-East	South-South	South-West	Urban	Rural	National
Never Married	Male	71.6	76.3	74.2	67.3	71.4	62.3	69.2	71.9	71
	Female	54.9	59.6	58	53.7	60.3	53	58.1	55.8	56.7
Married	Male	27.1	23	24.9	30	26.3	34.4	28.6	26.6	27.3
	Female	36.2	35.3	38.4	28.1	27.9	35.4	32.3	35.5	34.3
Divorced	Male	0.1	0.1	0.1	0.3	0.2	0.6	0.2	0.2	0.2
	Female	0.2	0.4	0.1	0.3	0.9	0	0.3	0.3	0.3

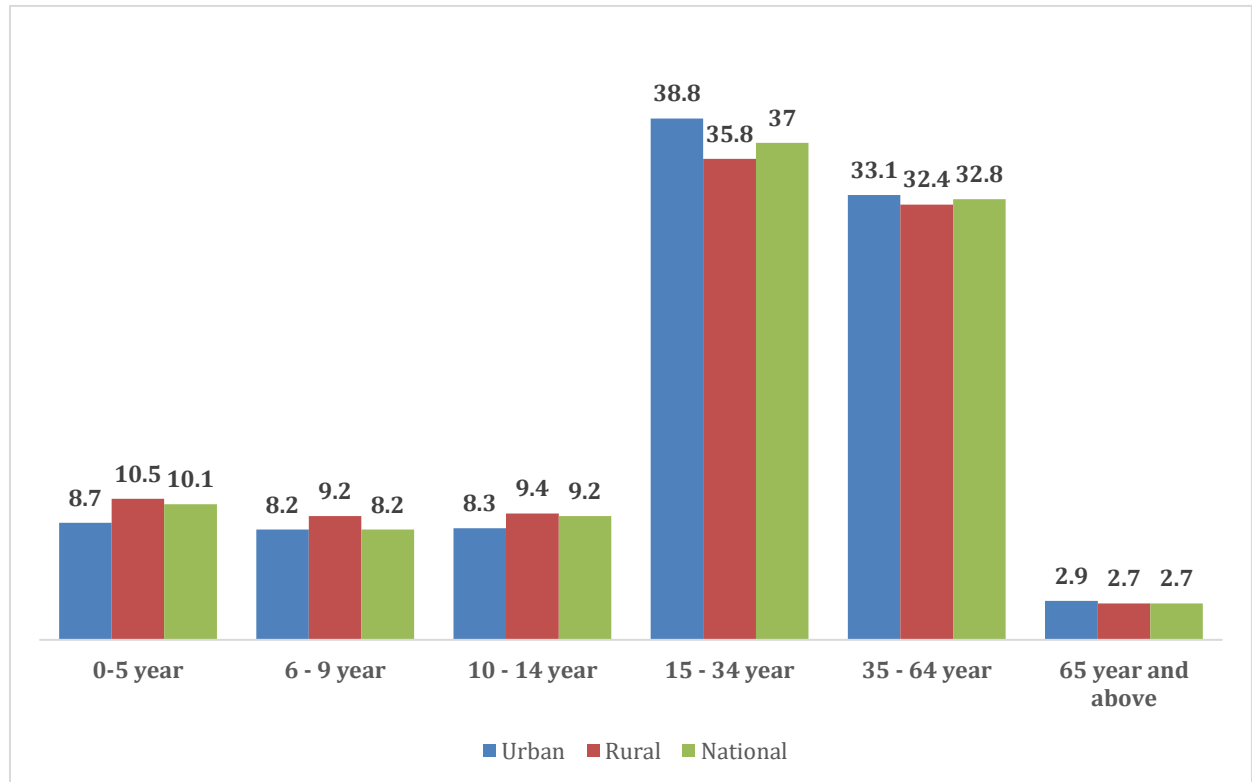
Marital Status		North-Central	North - East	North-West	South-East	South-South	South-West	Urban	Rural	National
Separated	Male	0.3	0.3	0.3	0.7	1.1	1.2	0.8	0.5	0.6
	Female	0.6	0.1	0.1	0.7	1.1	1.9	1.2	0.5	0.7
Widowed	Male	0.9	0.3	0.5	1.7	1	1.5	1.2	0.8	0.9
	Female	8.1	4.6	3.4	17.2	9.8	9.7	8.1	7.9	8

Source: NGHS (2019); Researchers Computation (2023)

(e) Age Distribution

The national age brackets of the respondents and the distribution based on spatial location are presented in Figure 4.4. At the national level, 10.1% of the respondents were within the age 0-5 years, another 8.2% were within the age bracket 6 -9 years and 9.2% were from 10-14 years. Also, about 37% of the respondents were drawn from persons age bracket 15-34 years, another 32.8% were drawn from the age bracket 35-64 years while only 2.7% were drawn from 65 years and above.

The rural representation was 10.5%, 9.2%, 9.4%, 35.8%, 32.4% and 2.7% for age brackets 0-5 years, 6-9 years, 10-14 years, 15-34 years, 35-64 years and 65 years and above respectively. In the same vein, urban representation was 8.7%, 8.2%, 8.3%, 38.8%, 33.1%, and 2.9% for age brackets 0-5 years, 6-9 years, 10-14 years, 15-34 years, 35-64 years and 65 years and above respectively.



Source: NGHS (2019); Researchers Computation  
 Figure 4.4: Rural, Urban and National Age Distribution (2023)

Across the geopolitical zones, the age distribution follows a similar pattern. As shown in Table 4.4, all the age brackets were drawn with the largest magnitude from the age bracket 15-34 years followed by the age bracket 35-64 years.

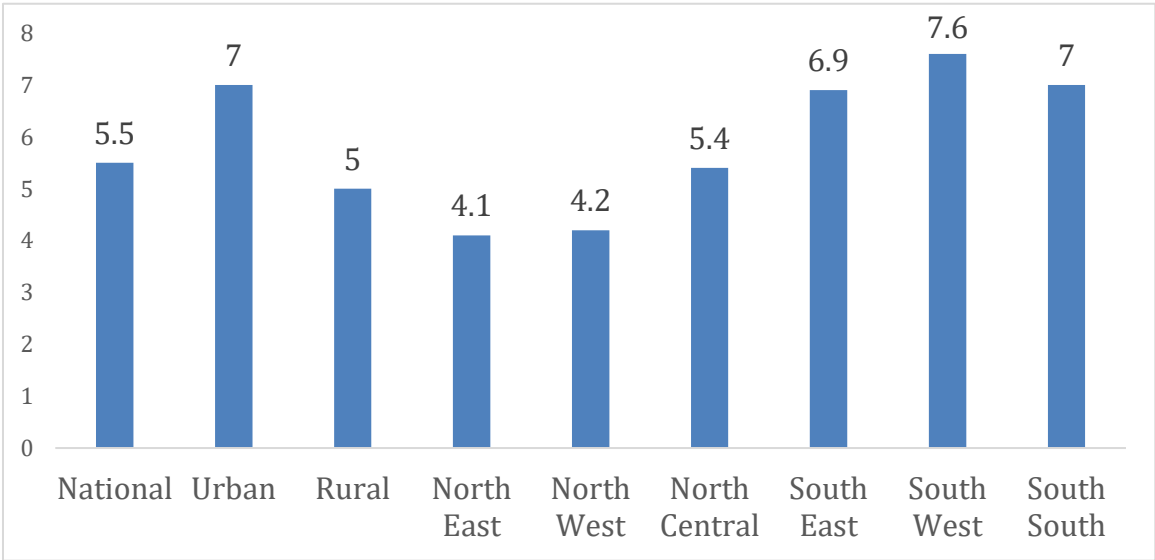
Table 4.4: Age Distribution of Respondents

Age Distribution	0-5	6 - 9	10 – 14	15 - 34	35 - 64	65 and above
North-Central	7.5	8.3	8.9	34	30.6	10.7
North-East	11.5	10.8	10.2	35.2	30.5	1.8
North-West	12.9	8.2	10.7	35.5	30.7	2
South-East	7.4	6.3	6.9	37.3	36.7	5.4
South-South	8.9	6.7	8.5	37.9	35.2	2.8
South-West	7.6	6.8	7.2	38.5	33.5	6.4
Urban	8.7	8.2	8.3	38.8	33.1	2.9
Rural	10.5	9.2	9.4	35.8	32.4	2.7
National	10.1	8.2	9.2	37	32.8	2.7

Source: NGHS (2019); Researchers Computation (2023)

(f) Educational Attainment

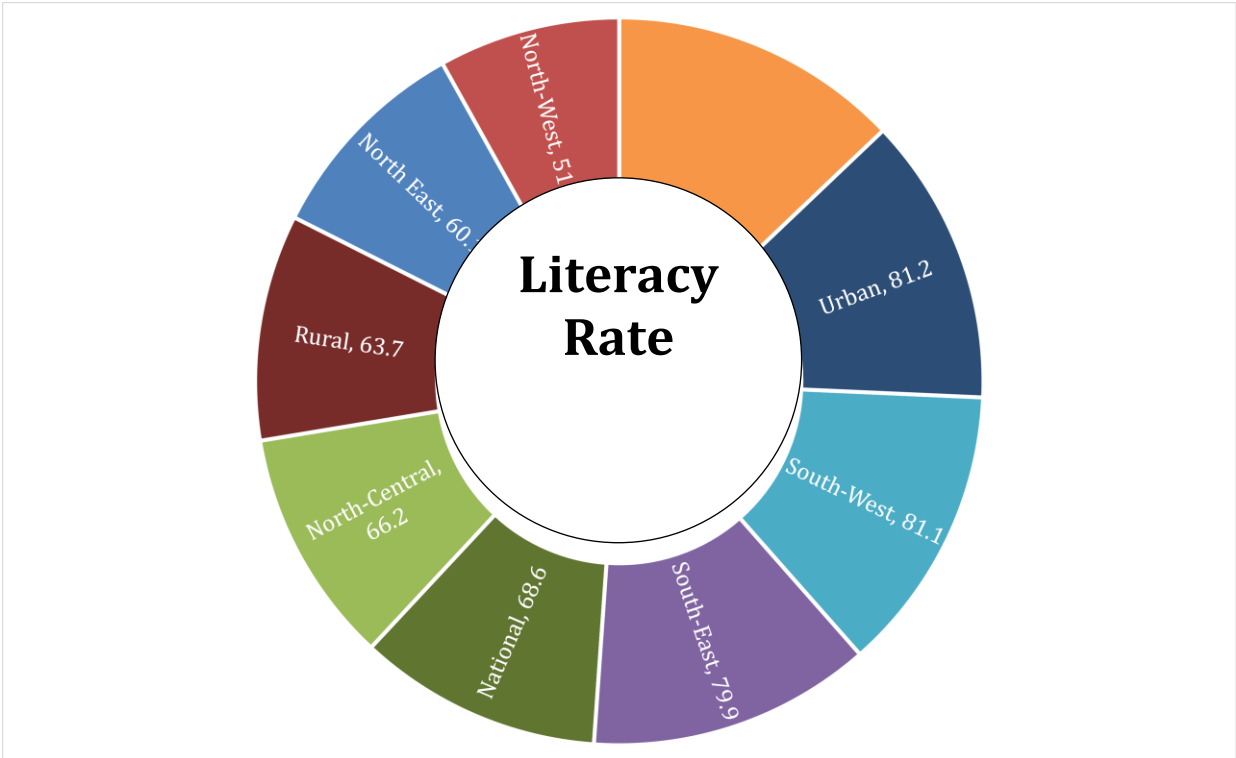
Figure 4.5 shows the mean years of education at the national level, subnational level and spatial locations. The national average mean years of education was 5.5 years with rural and urban areas recording 5 years and 7 years respectively.



Source: NGHS (2019); Researchers Computation (2023)  
 Figure 4.5: Mean Year of Education



The highest mean years of education of 7.6 years was recorded in the South-West. This is followed by 7.0 years and 6.9 years recorded in the South-East and South-South respectively. The least mean year of education of 4.1 years was recorded in the North-East, followed by 4.2 years (North-West) and 5.4 years (North-Central). This distribution demonstrates that there is a significant discrepancy in educational attainments between Southern Nigeria and Northern Nigeria.



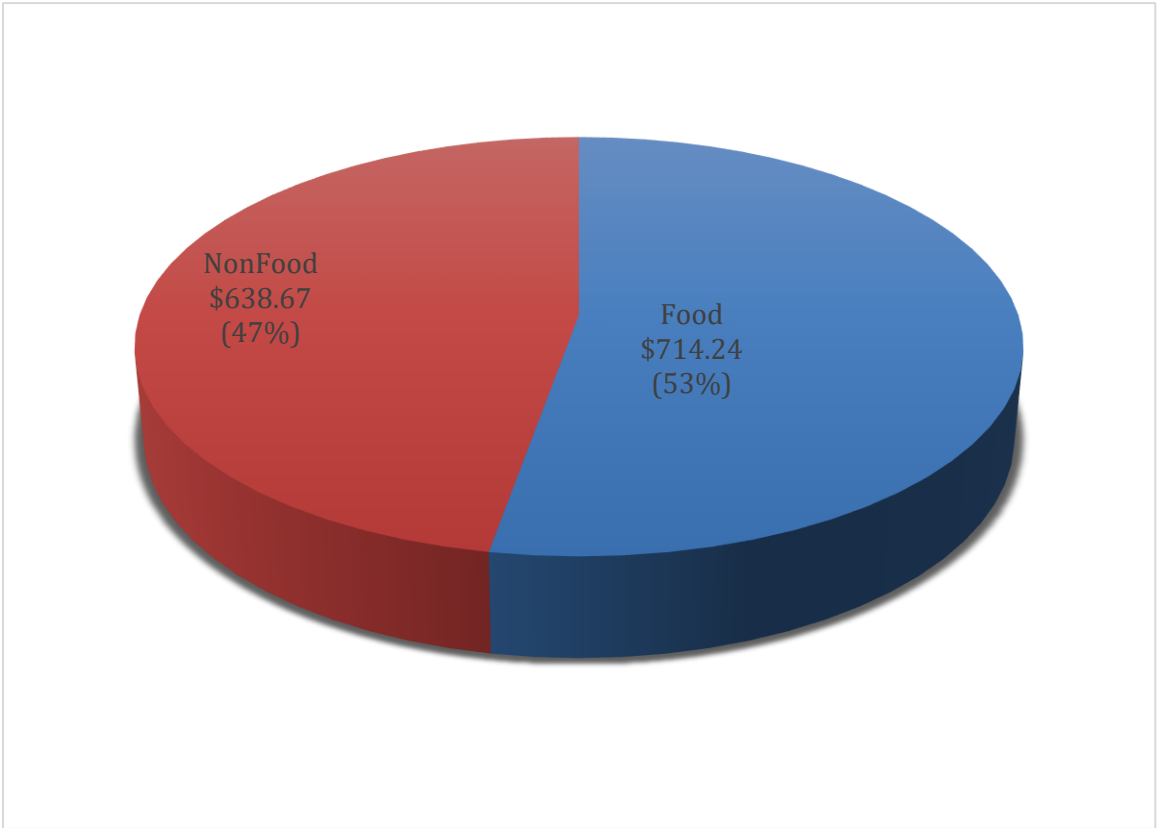
Source: NGHS (2019); Researchers Computation

Figure 4.6: Self-Reported Literacy (%)

In the same vein, the mean year of education shows a somewhat similar pattern as the self-reported literacy rate. Figure 4.6 shows that the national self-reported literacy rate was 68.6%. This indicates that 68.6% of the respondents indicated that they could read and write in any Nigerian language including English, Igbo, Hausa, and Yoruba language. Across the geopolitical zones, the highest literacy rate of 81.7% was recorded in the South-South followed by 81.1% and 79.9% recorded in the South-West and South-East respectively. The least literacy rate of 51.2% was recorded in the North-West, followed by 60.1% in the North-East and 66.2% in the North-Central. The disparity between the mean literacy rates in the rural versus urban areas is wide with rural area averaging 63.75 while the urban area averaged 81.2%.

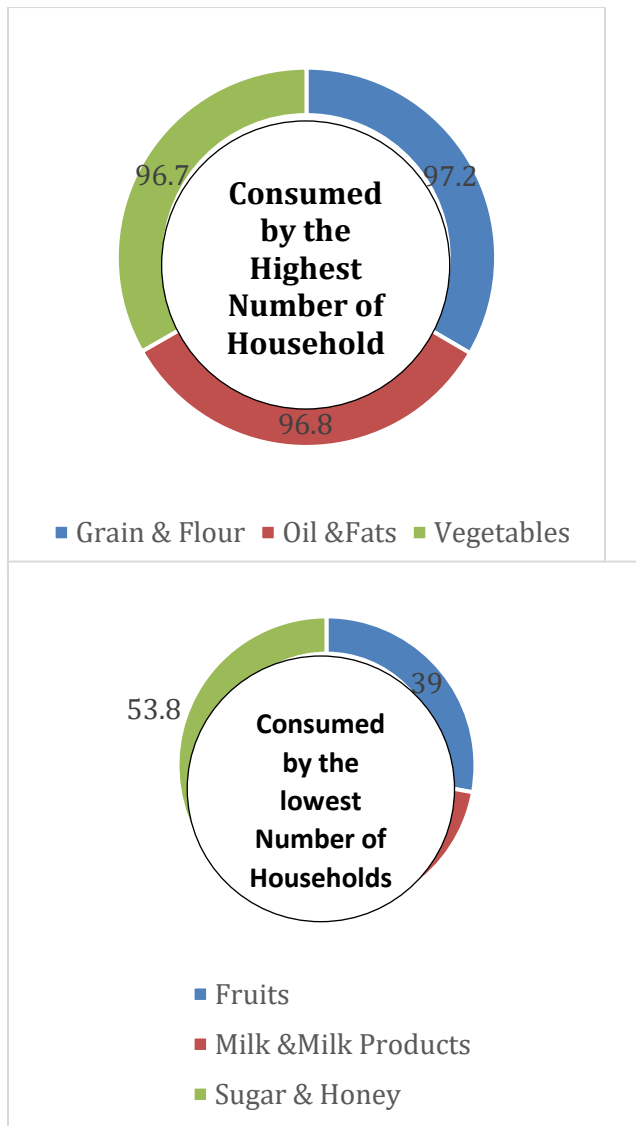
**(g) Household Consumption (Food and Non-food) Expenditure**

Figure 4.7 presents information on annual household consumption of both food and non-food durables and nondurables. Mean household consumption amounts to ₱492,420 (\$1,353) per annum. Expenditure on food accounts for 53% of household expenditure. This amounts to ₱259,962 (\$714.24). In the same vein, non-food expenditure amounts to ₱232,458 (\$638.67) which represents 47% of the total household spending.



Source: NGHS (2019); Researchers Computation (2023)

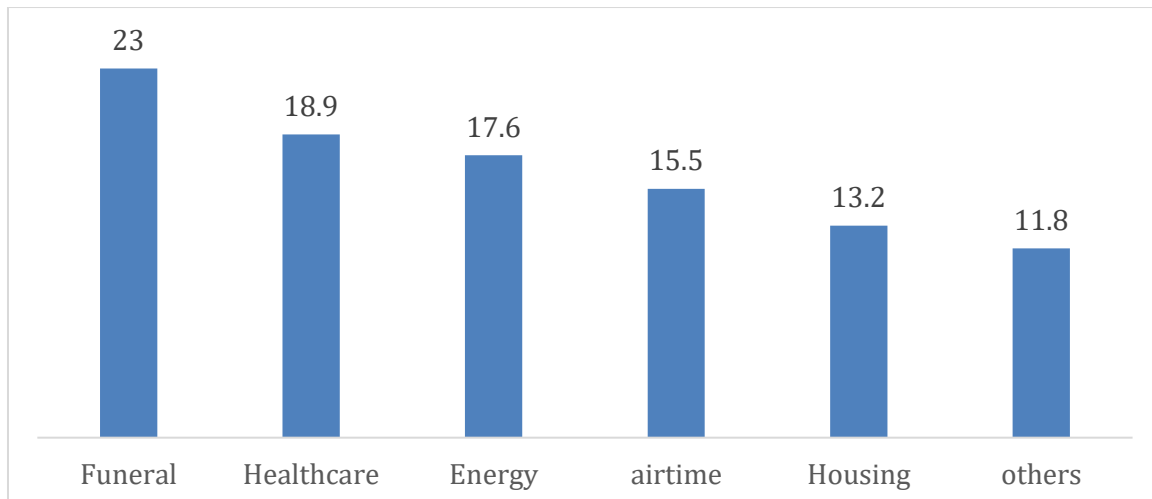
Figure 4.7: National annual consumption expenditure per household



Source: NGHS (2019); Researchers Computation

Figure 4.8: Top and Least Three Consumed Food Items by Households (%)

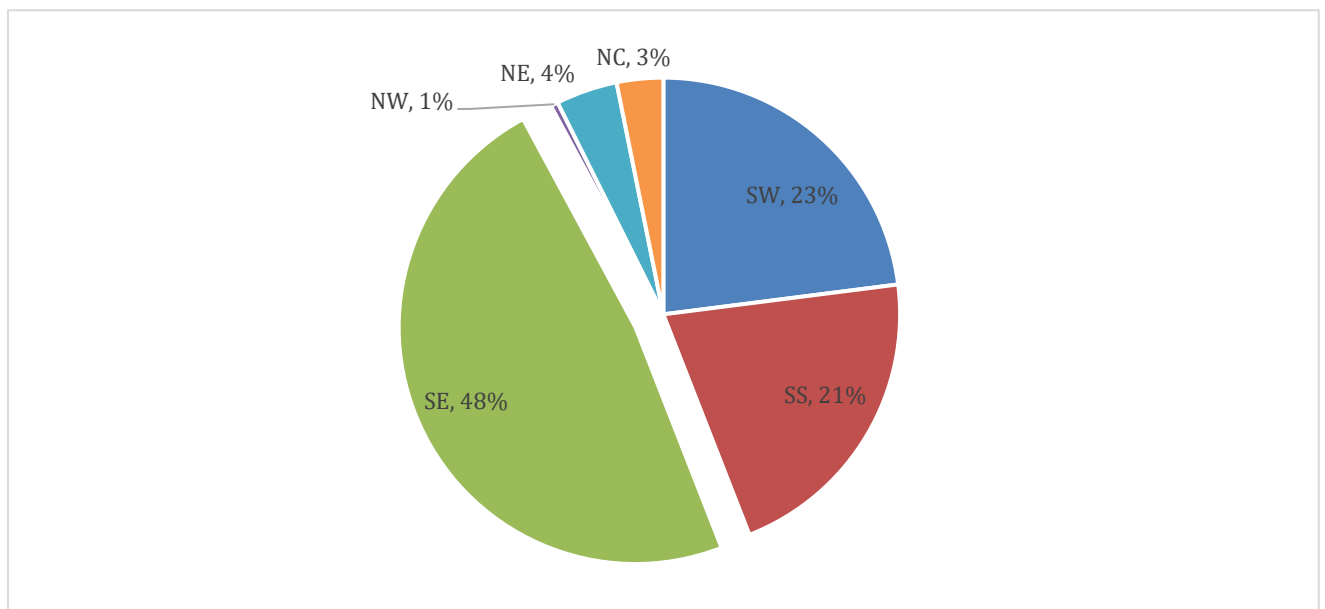
The survey data also shows that the food that is mostly consumed by the households is grain and flour. This is consumed by 97.2% of households. The second and third most consumed food items by households include oil and fats (96.8%) and vegetables (96.7%). In the same vein, the least consumed food by households is fruit. Only 39% of households spent on fruits. Others include milk and milk products (47%) and sugar and honey (53.8%).



Source: NGHS (2019); Researchers Computation (2023)

Figure 4.9: Non-food expenditure by categories (%)

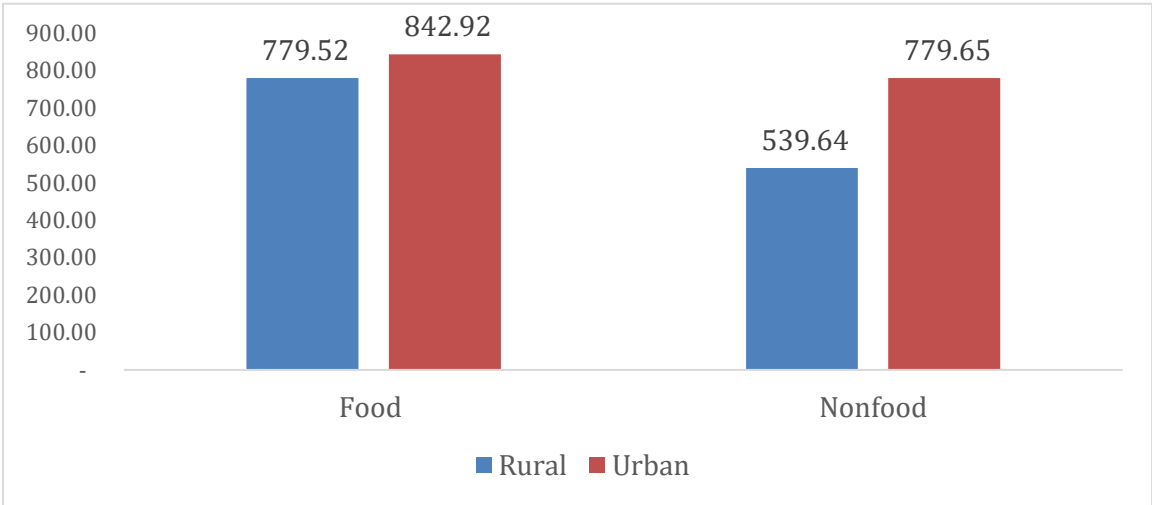
On the other hand, Figure 4.9 presents the share of expenditures on non-food items. The item that tops the list is funerals which account for 23% of non-food expenditure. Most of the funeral expenditures on funeral are registered in Southern Nigeria (See Figure 4.10). Specifically, South East accounts for about 48% of the funeral spending. This is followed by the South West (23%) and South-South (21%). The least funeral spending was recorded in northern Nigeria with North East, North Central and North West accounting for 4%, 3% and 1% respectively.



Source: NGHS (2019); Researchers Computation (2023)

Figure 4.10: Funeral Spending by Geopolitical Zones (%)

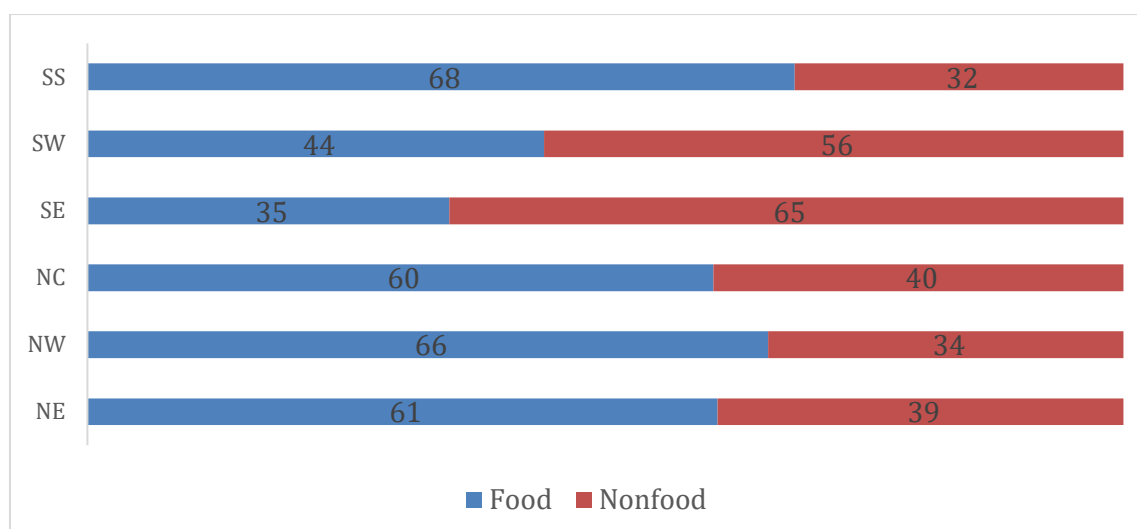
Figure 4.11 presents the annual food and non-food expenditure based on spatial location. The mean annual expenditure on food in the rural area was ₦283,722 (\$778.52) while that of urban dwellers was ₦306,798 (\$842.92). In the same vein, non-food expenditure was ₦196,413 (\$539.64) and ₦283,770 (\$779.65) for rural and urban dwellers respectively. This shows that urban dwellers spend more on both food and non-food items than rural dwellers. It also shows that rural dwellers spend more of their income on food items (60%) than urban dwellers (52%).



Source: NGHS (2019); Researchers Computation

Figure 4.11: Food and non-food expenditure based on spatial location (\$)

In terms of geopolitical or regional comparison, Figure 4.12 shows that the South-South (SS) spent 68% on food. Food expenditure in the other geopolitical zones includes 66% (NW), 61% (NE) and 60% (NC). Other zones spent more on non-food than food items. For example, SE and SW allocated 65% and 56% of their consumption spending on non-food items.



Source: NGHS (2019); Researchers Computation (2023)

Figure 4.12: Food and non-food expenditure based on geopolitical zones (%)

#### (h) Remittance

Table 4.5 summarizes the remittance receipt based on the survey data. At the national level, about 14% of the households reported receipt of diaspora remittance in the past 12 months prior the survey. The highest receipt of diaspora remittance was from the South-West (\$54,327.82), followed by the South-East (\$47,702.48), and South-South (\$23,851.24). Others include North-West (\$5,300.28), North-Central (\$2,789.67) and North-East (\$47,702.48). Urban dwellers also received an average of \$31,801.65 while rural dwellers received \$13,250.69 on average.

Table 4.5: Remittance Receipt

	International Remittance	
	% of HHs	Mean Amount (\$)
North-Central	2	2,789.67
North-East	2	2,650.14
North-West	4	5,300.28
South-East	36	47,702.48
South-South	18	23,851.24
South-West	41	54,327.82
Urban	24	31,801.65
Rural	10	13,250.69
National	14	18,550.96

Source: NGHS (2019); Researchers Computation (2023)

## 4.2. Econometric Estimations of the Impact of Diaspora Remittance on Household Welfare

Having examined the descriptive attributes and patterns of the survey data, this section focuses on the econometric estimations of the impact of remittance inflow on household welfare. Specifically, the impact of diaspora remittance on the food consumption of households, non-food consumption, and earning power of households was examined. As earlier stated, the Heckman model was employed in all the estimations. The Heckman model requires that a selection equation is first estimated before estimating the outcome equation. The selection equation is referred to as the first stage of estimation while the outcome equation is the second stage.

Table 4.6: Probit regression predicting the likelihood of receiving remittance

Covariate	Coef.	Std. Err	z
lnage	0.115***	0.033	3.454
HH_male	0.082***	0.009	8.979
HH_female	0.011**	0.005	2.189
HH_size	0.058*	0.032	1.800
rural	0.048***	0.004	11.426
urban	0.072***	0.011	6.435
own_house	0.043*	0.024	1.808
edu_years	0.065	0.011	0.835
access_cred	0.036*	0.020	1.796
Insecurity	0.023**	0.004	2.323
C	-0.035**	0.014	-2.462
LR	-897.307		
X <sup>2</sup>	517.902		
Obs	697		

\*, \*\*, and \*\*\* indicate significant at 10%, 5% and 1% level respectively

Source: GHS (2019); Researchers Computation (2023)

The selection equation estimates the likelihood of receiving remittance in the past 12 months preceding the survey. Using the probit model within the family of maximum likelihood techniques, consistent estimates can be obtained, including the residual which will be used in the estimation of the outcome equations to correct for selection bias. Estimates obtained from the covariates show that age, ownership of assets, insecurity and gender increases the likelihood of receiving remittance. however, household size, access to credit and education do not significantly increase the likelihood of receiving remittance. The result also shows that the model is robust. This is indicated by the likelihood ratio and the Chi-square statistic which are statistically significant at a 1% significance level.

#### 4.2.1. Impact of Remittance on the Food Consumption of Households

Table 4.7 summarizes one of the second-stage estimations of the Heckman model. The residual obtained from the first stage is used for obtaining the inverse mill ratio (RHO) in the second stage estimation.

Table 4.7: Summary of the estimates of the impact of remittance on food consumption

Covariates	Model 1		Model 2	
	Coef.	Std. Err	Coef.	Std. Err
Lnremittance	0.017***	0.005	0.081**	0.034
Lnremittance x rural			0.275**	0.119
Lnremittance x urban			0.025**	0.010
Lnage	0.312***	0.103	0.146***	0.017
hh_male	0.088	0.064	0.041	0.038
hh_female	-0.571***	0.178	-0.267***	0.021
Inhh_size	0.446***	0.114	0.208***	0.057
Employed	0.032**	0.015	0.015***	0.002
Unemployed	-0.011**	0.005	-0.090***	0.027
Safety Net	0.051**	0.023	0.068***	0.026
price shock	0.308	0.238	-0.144**	0.072
access_cred	0.011	0.006	0.051***	0.008
Insecurity	-0.599***	0.153	-0.280*	-0.165
Inedu_years	-0.044**	0.020	-0.021***	0.003
C	0.217***	0.038	-0.102***	0.012
Controlled for:				
Religion	Yes		Yes	
Geopolitical Zone	Yes		Yes	
LOG (SIGMA)	-0.106**	0.044	-0.049***	0.016
SIGMA	0.783***	0.160	0.893***	0.331
RHO	-0.952***	0.287	-0.992***	0.342
R <sup>2</sup>	0.692		0.729	
Wald (Chi2)	289.23 (0.000)		299.02 (0.000)	
Obs	697		697	

\*, \*\*, and \*\*\* indicate significant at 10%, 5% and 1% level respectively.

GHS (2019); Researchers Computation (2023)

From the first-stage estimation, the inverse mill ratio was estimated as discussed earlier. The ordinary least square procedure was employed in the estimation of the Heckman second stage. The addition of the inverse mill ratio was essential in preventing sample selection bias. This is indicated by the significance of the RHO. After estimating the main model (called model 1), an interaction variable was added to the equation to obtain model 2.

The result shows that the coefficient of remittance is 0.017 with a standard error of 0.005. This suggests that every one unit of remittance increases food consumption by 0.017 units. It further shows that food consumption in the household is a positive function of diaspora remittance. From



Model 2, when rural and urban residency interacts with the remittance, the coefficient changes to 0.275 and 0.025 respectively. This also indicates that rural dwellers use more remittance for food consumption than urban dwellers.

The coefficient of age and household size are 0.312 and 0.446 respectively. This indicates that food expenditure will increase by 0.312 units if the age of the head of the household increases by one unit. This suggests that the older ones spend more on food than the younger ones. On the other hand, an increase in household size by one unit will lead to a 0.446 unit increase in household consumption. Put differently, larger-sized households will spend more on food than smaller-sized households. The result also shows that the coefficient for males and females are 0.088 and -0.571 respectively. This indicates that being a male head of household increases spending on food than being a female head of household. This could be indicative of more women are in the lower wealth quintile than men. In addition, the coefficients for employment, safety net and insecurity are 0.032, 0.051 and -0.599. This indicates that employment and social safety net increase household spending on food. However, insecurity reduces household food consumption. This could result from income loss or substitution effect. Another interesting finding is that the coefficient of education is -0.044. This indicates that food consumption is inversely related to education. Conversely, it shows that those with lower educational achievements are more likely to spend a greater proportion of their income on food than otherwise.

Robustness indicators such as the R-square (R<sup>2</sup>) and F-statistic (F-stat) are also reported in Table 4.10. The R-square of 0.69 > 0.50, and the F-stat of 289.23 with a p-value of 0.000 show that the estimated model is robust and could be relied upon for inferences.

**4.2.2. Impact of Remittance on Household Non-food Consumption**

Table 4.8 shows that the RHO is -0.930 which is not only approximately one but also statistically significant at a 1% significance level. This shows that the Heckman model is robust. This is also corroborated by the R-square (0.702) and F-stat (119.04). The R-square shows that the model explains about 70% of the variations in household food consumption. The F-statistic of 119.04 with a p-value of 0.000 shows that the covariates of the model are jointly statistically significant. The first model is the main model while model 2 is the interaction model which highlights the amplifying effect of spatial location on the interaction between remittance and household non-food consumption.

Table 4.8: Impact of Remittance on household non-food consumption

Covariates	Model 1		Model 2	
	Coef	std er	Coef	std er

Lnremittance	0.129***	0.040	0.139***	0.036
Lnremittance x rural			0.146***	0.053
Lnremittance x urban			0.267**	0.105
Lnage	0.078***	0.017	0.049***	0.007
hh_male	0.290***	0.078	0.075***	0.017
lnhh_female	-0.095***	0.031	0.022***	0.004
lnhh_size	-0.041***	0.005	-0.040***	0.004
Employed	0.036**	0.017	0.124***	0.029
Unemployed	-0.019***	0.007	-0.097**	0.044
Safety Net	0.048**	0.023	0.094***	0.028
price shock	-0.624***	0.215	-0.031***	0.008
access_credi	0.222***	0.056	0.042***	0.005
Insecurity	-0.106***	0.022	-0.048***	0.006
lnedu_years	0.078***	0.017	0.038***	0.004
C	-0.002***	0.001	-0.099***	0.013
Controlled for:				
Religion	Yes		Yes	
Geopolitical Zone	Yes		Yes	
LOG (SIGMA)	-0.161***	0.056	-0.072***	0.022
SIGMA	0.690**	0.299	0.848***	0.311
RHO	-0.930***	0.211	-0.978***	0.105
R <sup>2</sup>	0.702		0.761	
Wald chi2	119.04(0.000)		179.32 (0.000)	
Obs	697		697	

\*, \*\*, and \*\*\* indicate significant at 10%, 5% and 1% level respectively.

Source: GHS (2019); Researchers Computation (2023)

The results obtained show that the coefficient of remittance is 0.129 with a standard error of 0.040. These results show that increasing remittance by one unit will lead to 0.129 unit increases in non-food consumption. In model 2, when rural or urban residency interacts with the remittance, the result shows that the coefficient for remittance x urban is 0.267 while that of remittance x rural is 0.146. This suggests that those in the urban areas will more likely spend their remittance on non-food than those in the rural areas. The coefficient of age and employment are 0.078 and 0.036 respectively. This indicates that older persons are likely to spend more on non-food consumption than younger persons.

The result also shows that price shock will reduce non-food consumption while having social safety net will increase such consumption. The coefficient for price shock and safety net are -0.624 and 0.048 respectively. In terms of education, the result obtained is the inverse of what was obtained in the estimation of food consumption. The result shows that the coefficient of education is 0.078. This implies that persons with higher education are more likely to spend more on non-food consumption than on food consumption. The coefficient for household size is -0.041 while that of insecurity is -0.106. This suggests that larger households will spend less on non-

food consumption. It is important to note that in an average Nigerian household, about 56% of household consumption is food with some households spending as much as 80% on food (NBS, 2021). This suggests that raising food consumption could lead to reducing non-food consumption, except there is a substantial increase in real income. In the same vein, being a male head of household is associated with larger non-food consumption than being a female head of household. The coefficients for males and females are 0.290 and -0.095 respectively. This could be reflective of the lower wealth-holding status of women in Nigeria.

#### 4.2.3. Impact of Remittance on Household Earning Power

The last research question seeks to ascertain the impact of remittance on household earning power. It examines whether remittance is reinvested in income-earning activities which are expected to increase the earning power of the household. Two models were estimated, namely Model 1 and Model 2. Model 2 is the interaction model which seeks to ascertain whether the employment status of the remittance recipient amplifies the impact of remittance on household earning power.

Table 4.9: Summary of estimates for the impact of remittance on household earning power

Covariates	Model 1		Model 2	
	Coef	std er	coef	std er
Lnremittance	0.063***	0.008	0.192**	0.081
lnremittance x employ			0.146***	0.048
lnremittance x unemployed			0.609***	0.046
Lnage	0.043***	0.011	0.059*	0.034
hh_male	0.085***	0.029	0.074**	0.037
hh_female	0.148	0.106	0.059***	0.007
own_house	0.343***	0.065	0.178***	0.018
Employed	0.198***	0.034	0.066*	0.037
Unemployed	-0.029***	0.009	-0.164**	0.008
electric_access	0.068***	0.020	0.059***	0.012
own_land	0.032***	0.010	0.062***	0.011
access_credi	0.088***	0.012	0.179***	0.034
Insecurity	-0.095*	0.054	-0.297	0.260
lnedu_years	0.043***	0.017	0.058**	0.023
C	-0.034***	0.005	-0.053*	-0.030
Controlled for:				
Religion	Yes		Yes	
Geopolitical Zone	Yes		Yes	
LOG SIGMA	-0.161***	0.056	-0.153***	0.049
SIGMA	0.690**	0.299	0.703***	0.180

Covariates	Model 1		Model 2	
RHO	-0.991***	0.225	-0.960**	0.412
R2	0.689		0.660	
Wald chi2	598.87 (0.000)		568.92 (0.000)	
Obs	697		697	

\*, \*\*, and \*\*\* indicate significant at 10%, 5% and 1% level respectively.

Source: Source: GHS (2019); Researchers Computation (2023)

The estimate for the inverse mill ratio is approximately 1 (1.03) and it is statistically significant. This suggests that the selection bias will be effectively corrected by the RHO, making the Heckman model robust. In the same vein, the R-square and the F-stat are 0.689 and 598.87 respectively. This implies that the explanatory variables of the model explain 69% of the variations in household earning power. The F-statistic which is statistically significant also shows that the model parameters are jointly statistically significant. In other words, the model is robust and could be used for inferences.

The coefficient of remittance is 0.063, indicating that a unit increase in remittance could raise household earning power by 0.063 units. This suggests that remittance received by households could increase the earning of households. Model 2 also shows that although both employed and unemployed persons can increase their earning power through the receipt of remittance, the impact is higher for persons who are not employed. This is intuitive since the utility of additional naira received is higher for low-income persons than the high-income persons. It also suggests that the unemployed person likely to invest remittance received to earn from such money than those who are already working and could see remittance as additional income to support the one they are already earning.

The result also shows that ownership of wealth such as land and house increase the earning power of households. The coefficients for ownership of house and land are 0.343 and 0.032 respectively. Also, the coefficient of access to credit is 0.088. This shows that household earning is a positive function of access to credit. It suggests that credit obtained by households is not used for consumption; it could be invested in both farm and nonfarm activities which will help the household to earn more subsequently.

### 4.3. Test of Hypothesis

In section 4.2, the estimates of the impact of remittance on household welfare were discussed. The robustness indicators such as inverse mill ratio, R-square and F-statistic were also discussed.

In this section, the research hypotheses are tested. To test hypotheses, the study employs the confidence interval technique. In the confidence interval technique, the test statistics is the confidence interval ranging from the lower bound to the upper bound. Technically, the confidence interval is the range within which an unknown population parameter is expected to lie at a given confidence level. For example, a 95% two-sided confidence interval for the coefficient  $\Pi_j$  is an interval that contains the true value of  $\Pi_j$  with a 95% probability. The confidence interval of a parameter estimate is computed as follows:

$$\hat{\Pi}_j \pm z_{\alpha/2} Se(\Pi_j)$$

Where  $\Pi_j$  is the parameter estimate,  $Se(\Pi_j)$  is the standard error of the parameter estimate and  $z_{\alpha/2}$  is the critical value for a two-tailed test at a 95% confidence interval which is 1.96. contingent on the test outcome,  $H_0$  can be rejected if and only if the true population parameter lies within the range, otherwise accept  $H_0$ .

Table 4.10: Summary statistics for the test of hypotheses

	Estimates	Std error	95% Confidence interval	Decision
<b>Hypothesis 1: Remittance does not have a significant impact on household food consumption</b>				
Remittance ↓ Food consumption	0.017	0.005	0.007 < 0.017 < 0.028	Reject $H_0$
<b>Hypothesis 2: Remittance does not have a significant impact on household non-food consumption</b>				
Remittance ↓ Non-food consumption	0.129	0.040	0.051 < 0.002 < 0.206	Reject $H_0$
<b>Hypothesis 3: Remittance does not have a significant impact on household earning power</b>				
Remittance ↓ Earning power	0.063	0.008	0.047 < 0.004 < 0.080	Reject $H_0$

Source: Researchers Computation (2023)

The results shown in Table 4.10 indicates that all the null hypotheses are rejected at a 95% confidence level which is equivalent to a 5% significance level. Thus, we conclude as follows:

1. Remittance has a significant positive effect on household food consumption
2. Remittance has a significant positive impact on household non-food consumption
3. Remittance has a significant positive impact on household earning power.

#### 4.4. Discussion of Findings

Remittance is particularly important for households in poor countries, as they often lack access to other sources of income and resources. In many cases, remittances can be the most important source of external income for households in developing economies. In poor countries, remittances can help to alleviate poverty by providing households with the resources they need to meet their basic needs. This can include food, housing, healthcare, and education. Remittances can also help to improve access to these basic services, which can have long-term benefits for households and communities. In addition, remittances can provide a source of investment for households in poor countries. This can lead to the creation of new businesses and job opportunities, which can help to stimulate economic growth and development in the receiving country.

The findings of this study show that remittance is a crucial source of income and resources for households in Nigeria. The findings show that it can help to boost household consumption and earning power.

##### 4.4.1. Remittance inflow and consumption

One of the findings of this study is that diaspora remittance has a significant positive impact on household consumption, including food and non-food consumption expenditure. The finding of this study corroborates Combes and Ebeke (2011), and Hossain and Gani (2022). Diaspora remittance acts as a significant source of consumption expenditure for many households in recipient countries, particularly in developing countries. It provides a valuable lifeline for many individuals by enabling them to afford necessities and purchase more luxurious goods, thereby improving their overall standard of living. Thus, the positive impact of diaspora remittance on consumption underscores its crucial role in promoting household welfare in recipient countries.

One of the most significant impacts of diaspora remittance on consumption is that it boosts consumer spending. When the funds received through remittance are used to buy goods and services, it results in increased demand for those products in the local market. As a result, the economy experiences an uptick in consumer-driven growth, which can lead to higher employment rates and increased revenue for local businesses. Essentially, diaspora remittance plays a crucial role in enhancing the quality of life of the recipient households. It enables them

to access better quality goods, services and experience an improved standard of living. Individuals who receive diaspora remittances can use them to finance a range of expenses such as food, clothing, rent, education, healthcare, and leisure activities. This, in turn, benefits the economy, as increased consumption leads to an increase in tax revenue, hence, boosting the government's expenditure potential.

Remittance inflows are thought to increase family consumption levels by reducing the volatility, and unpredictability of income. According to Hossain and Gani (2022), households' spending patterns differ depending on whether they got remittances or not.

- **Increase in household income:** Remittances provide an additional source of income to low-income families, enabling them to improve their living standards. This money can be used for both food and non-food consumption such as clothing and housing. Ilahi and Jafarey (1999) further observe that a greater chunk of diaspora or workers' remittances are targeted at easing the financial situation of the households. Ilahi and Jafarey (1999) argue that in some developing countries, households view remittance as a permanent rather than transitory income. This study also shows that there is the prevalence of implicit family loan contract between a migrant and the home family. The home family raises money, sometimes through the sale of properties and borrowing, to finance the migration agenda. Once the migrant began to earn, he or she is altruistically bound to begin to take care of the home family through remittances. Thus, the home family considers it as a right to receive such income from abroad. Thus, the home family views the remittance inflow as permanent rather than transitory income.
- **Education:** Remittance inflow can be used to pay for children's education expenses, including tuition fees, books, and uniforms. Askarov and Doucouliagos (2020) note that remittances enable children from low-income families to access better educational opportunities. Unlike the Norway and other European countries, education is not free in Nigeria. Thus, the poor are associated with high school dropout rate and this reinforces a vicious circle of poverty. Several families therefore depend on inflow from relatives abroad for the children's education. This education support extends beyond the nuclear family to the extended family. Thus, it is a popular practice in Nigeria for migrants to have a list of cousins, nieces and nephews on their school support list. Also, in instances where remittances are not explicitly meant for education support, it reduces the household budget imbalance and ensure that parents invest in their children's education. Remittances allow youngsters who otherwise couldn't afford it to go to school.

- **Healthcare:** In low-income countries like Nigeria, health insurance scheme exists only for the upper class. The poor families may not have access to quality healthcare. However, remittance inflow can be used to pay for medical expenses and purchase of necessary medicines. It can support households to afford clean water and sanitary conditions that can improve their health. It can also aid households to afford clean cooking fuels which will help to reduce the health effects of fire woods and other unhealthy cooking fuel. Overall, remittance inflow can help to improve the health of individuals and families and reduce the financial burden of healthcare costs.
- In the same vein, Osili (2007) emphasized that the lack of a steady income for unemployed individuals can often lead to a higher level of financial insecurity and stress. This can make any additional money they receive, such as through remittance, more valuable to them in terms of reducing their financial stress and improving their overall well-being. Finally, the social isolation and feelings of worthlessness that can accompany unemployment may lead to a greater desire for material possessions or experiences that can provide a temporary boost in happiness. This can make any additional money they receive more valuable to them in terms of being able to afford these experiences or possessions.

#### 4.4.2. Household earning capabilities and investments.

The findings of this research highlight that remittance inflow has a significant positive impact on the earning capabilities of households. In other words, several Nigerian households use the remittance they received to create more wealth that will further support their livelihood. As noted by Nanziri and Mwale (2023), remittance could be a veritable vehicle for increasing household earning capabilities. Earning capabilities refer to the potential or ability of an individual to generate income or revenue. Several factors contribute to earning capabilities, including education, skills, experience, and investments. In line with Amartya Sen's capability theory, the most potent toolkit for improving household welfare is to increase household capabilities.

There are several ways by which diaspora remittance can help increase the earning power of households. First, diaspora remittance can increase the amount of disposable income available to households. Higher disposable income can help households to support human capital development through education, healthcare, and other areas of personal development that can increase household capabilities and earning power. Second, remittance income can help households to diversify their sources of income. This can reduce their dependence on a single income source. This can help to mitigate the risk of income loss due to events such as job loss or natural disasters. For example, a poultry farmer can use remittance income to expand into other



lines of farming activities such as crop farming or start some nonfarm petty businesses. In other words, when there is epidemic and the birds die, the farmer can rely on the other businesses created using remittance income. This bolsters household earning power at such times.

Another important vehicle through which remittance inflow fosters household earning capabilities by boosting economic activity. When households receive remittance money, they are likely to spend it on goods and services, which can create a multiplier effect in the economy. This boost in economic activity will further lead to an increase in wages as well as dividends received by households. This will increase household earnings. In the same vein, remittance income can foster household earning power by increasing access to credit. When families and friends receive remittance money, they are seen as more creditworthy by lenders, which can help them to obtain loans and other forms of credit. It also helps families to obtain assets that can be used as collateral when seeking loans. Increased access to credit does not only provide households with cashflows but also support investment in income-bearing assets and businesses. Remittance income can also be invested in fixed income securities and other financial assets that can increase household earning capabilities.

Another interesting finding from our study is that remittance raises the household earning power of the unemployed more than that of the employed. This could be explained by the phenomenon of higher marginal utility of low-income persons relative to high-income persons (Blundell et al, 2013; Blundell et al, 2016). As noted by Blundell et al (2013), the utility of income refers to the satisfaction or happiness that a person derives from the income they earn or the money they have. Blundell et al., (2016) further noted that the unemployed have higher marginal utility for every additional dollar received than the employed persons. This may be because unemployed individuals may have a lower income than employed individuals, and therefore, they may have a greater need for money to meet their basic needs such as housing, food, and healthcare. This means that any additional money that they receive may have a greater impact on their overall well-being and happiness.

Anyanwu and Erhijakpor (2010), Acharya and Leon-Gonzalez (2012) and Bang et al (2020) advanced several other reasons remittance can have a stronger impact on the earning power of the unemployed than that of the employed. These include

- **The starting point:** The unemployed person has no earnings or a very low income, while the employed person already has an income. Hence, the remittance received can be a

significant boost to the unemployed person's earning power as compared to the employed person.

- **Skill development:** The unemployed person can use the remittance money to acquire new skills or improve existing skills, making them more employable and potentially increasing their earning potential in the long run.
- **Entrepreneurship:** The unemployed person can use the remittance money to start a small business, which can generate income and potentially provide employment opportunities to others, further contributing to their earning power.
- **Debt repayment:** If the unemployed person has debt, remittance money can be used to pay it off, which can reduce financial stress and increase their earning power.

Remittance income can have a greater impact on the earning power of both the unemployed and employed persons. It provides the employed persons with capabilities to expand their earning potentials, cope with shocks and remain resilient. Similarly, it can provide unemployed persons with opportunities to improve their financial situation and create a better future for themselves. Overall, remittance income is a veritable source of income for household consumption expenditure including education and healthcare. It also helps to bolster household earning power

#### 4.5. Summary

This chapter employed the various strategies discussed in the preceding chapter to analyse the data to provide solutions to the research's inquiries. The results obtained show that about 14% of the households received remittance in the 12 months preceding the survey. The results also show that remittance inflow was used by households to support both food and non-food consumption. Given that education and healthcare costs are borne by the households, the study found that remittance inflows are channelled to education, healthcare, clean water and sanitary conditions, in the same vein, the study found that remittance income is also used to boost household earning capabilities. This can be achieved through manpower development, diversification of income sources, investment in income-bearing assets and improvement in the credit worthiness of the households. This suggests that diaspora remittance is desirable and could be used to alleviate poverty and create opportunities for improved earnings. The next chapter is the final part of this research endeavour

## CHAPTER FIVE

### SUMMARY AND POLICY SUGGESTIONS

This chapter is the final part of the study which summarizes the study, provides policy suggestions and made a few suggestions on future research directions.

#### 5.1. Research Summary

Concerns about the deteriorating welfare outcomes in developing countries have grown in recent years. While advanced economies have made great strides in boosting the living standards of their people, household welfare continues to decline in developing nations. Decision-makers and scholars are working to change the narrative since this tendency jeopardizes the attainment of the SDGs. In this context, some development economists have hypothesized that diaspora income may hold the key to boosting welfare in developing nations. Families in developing nations depend heavily on remittances because they frequently have limited access to alternative sources of funding and resources. Remittances are frequently the most significant source of foreign income for households in developing economies. It can assist reduce poverty in underdeveloped nations by giving households access to the resources they need to meet their fundamental requirements. This can apply to shelter, food, medical treatment, and education. Remittances can aid in enhancing access to these fundamental services, which could benefit households and communities in the long run. Remittances can also serve as a source of investment for households in developing nations. This might result in the opening up of new firms and employment opportunities, which would support the recipient nation's efforts to strengthen its economy. Consequently, this study investigates how remittances affect household welfare.

The study's problem was stated at the outset. The fundamental ideas were also explained. For instance, consistent with Nwokoye et al (2020), remittance was viewed as the share of a migrant's wages sent from the destination country to the place of origin. Analogously, the study equally adopted Dimova and Adebowale's (2018) view that household welfare is a representation of a household's economic well-being that might be evaluated based on its capacity or access to sources of livelihood. This definition suggests that the welfare of the household might be evaluated by income or consumption based on society's nature. Furthermore, the related theories were documented. For instance, the neoclassical migration hypothesis holds that individual migration decisions are made in response to variations in labour markets. Similarly, the new

economics of labour migration (NELM) avers the household collaboratively decides the choice to relocate and who will migrate because the household seeks to decrease its risks by expanding sources of revenue. Therefore, migration is more of a risk-sharing strategy than a way to boost household income, as a result, wage disparities are not necessarily a migration motivator and migration will still occur even if the wage disparity is closed. While the aforementioned theories concentrate on the factors that influence migration, the capability approach (CA) concentrates on the level of welfare that people can achieve. CA prioritizes individual freedom and capabilities as the principal developmental goals. Sen claims that rather than taking into account people's income or subjective well-being, the best indicator of how well they are doing is their ability to lead the lives they value.

The survey of the literature shows that the theme has been studied across single-country studies (Ajaero et al, 2017; Bang et al, 2020; Fonta et al, 2021) and panel studies (Amega, 2018; Azizi 2018; Fonta et al, 2021; Sahoo et al 2020). While some of these studies (Amega, 2018; Azizi 2018; Sahoo et al 2020) utilize macro data thereby ignoring the microeconomic conditions of the households, other studies (Fonta et al, 2021; Kangmennaang et al, 2017; Kapri & Jha, 2020; Wang et al, 2019) have employed microdata. The examination of the literature also reveals that studies using nationally representative data sets are sparse in Nigeria. Also, this study provides the pioneer attempt in the literature to interact remittance with rural and urban residency to ascertain if it amplifies or weakens the effect of remittance on household food and non-food consumption. Additionally, the study introduced an interaction model which seeks to ascertain whether the employment status of the remittance recipient amplifies or weakens the impact of remittance on household earning power.

Adopting Amartya Sen's capability theory, this study applied the Heckman model for the models' estimations. The result obtained showed that diaspora remittance has a significant positive impact on household food consumption. The interactive effect of remittance with spatial locations (urban and rural residency) further increases food consumption. However, the amplifying effect is higher when remittance interacts with rural residency. This indicates that rural dwellers use more remittance for food consumption than urban dwellers. Relatedly, the study revealed that remittance increases non-food consumption. The interaction model highlights the amplifying effect of spatial location on the interaction between remittance and household non-food consumption. However, the amplifying effect is higher when remittance interacts with urban residency suggesting that those in the urban areas will more likely spend their remittance

on non-food consumption than those in the rural area. Lastly, the study also found that remittance inflow has a significant positive impact on the earning capabilities of households. When remittances interact with employment status, the study highlighted that both employed and unemployed persons increase their earning power through the receipt of remittance, the impact is higher for persons who are not employed. This is intuitive since the utility of additional naira received is higher for low-income persons than the high-income persons. It also suggests that the unemployed person likely to invest remittance received to earn from such money than those who are already working and could see remittance as additional income to support the one they are already earning.

## 5.2. Policy Suggestions

**Lowering remittance-related costs:** The cost of sending remittances from abroad to Nigeria as well as several Sub-Saharan African nations remains high. The significant costs involved with sending remittance in Nigeria from overseas has a tendency to decrease the volume or flow of remittances to the nation and potentially lower household welfare. Decreasing the cost of sending remittances might motivate the members of the sending household to use authorized remittance routes while also encouraging the recipients to stay in the financial industry where they can obtain additional financial services.

**Tax Credit:** A tax credit provided to remittance handling organizations equates to a reduction in the fees paid by remittance senders and/or recipients. Nigeria could take a cue from Pakistan which introduced a remittance initiative in 2009. When they implemented a tax credit for remittance service providers, diaspora remittances skyrocketed, eventually displacing foreign direct investment into the nation.

**Value re-orientation:** The study revealed that funerals top the list of non-food expenditures in Nigeria. Given this, migrants and families who receive remittances need to be reoriented regarding the advantages of investing remittances in productive ventures rather than using them for extravagant ceremonies. Additionally, as a fiscal measure, a reduction in tax on investable money received from remittances needs to be considered.

**Infrastructure Improvements:** It is common knowledge that the nation's infrastructure is in deplorable conditions. However, to further deepen the effects of diaspora income on household welfare, infrastructures that would promote the prompt reception of remittances, such as good roads, transit facilities, and banks should be supported by the nation's decision-makers. Furthermore, infrastructure such as electricity, water and health infrastructures necessary to boost household welfare should also be provided.

### 5.3. Future Research Directions

This research employed relevant analytical techniques to answer the study's research questions. However, other issues may warrant further scrutiny, but they are beyond this study's scope. For instance, Nigeria is currently battling with energy insecurity (Dimnwobi et al., 2023) which poses a huge challenge towards the attainment of SDGs in 2030. The inflow of remittances has been identified as a major source of funds or subsidies and Nigeria has been identified as one of the nations that receives the highest remittance. Hence, the study suggests that future inquiries can be directed to the criticality of diaspora income on Nigeria's energy insecurity. Secondly, remittances can serve as a diversification strategy to reduce negative effects on the resources available to households, providing a second adjustment factor to prepare for shocks and perhaps lowering the dependency on child labour. Hence, the study suggests that future studies should assess the implications of remittance on child labour in Nigeria. Lastly, an increase in remittance inflow could result in higher demand for home accessories, like energy-guzzling and environmentally harmful gadgets, which would increase pollution. Given that environmental sustainability is key to improving people's quality of life, future studies can appraise the effects of remittance on ecological performance in Nigeria.

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APPENDICES

Objective 1: Food Consumption and Lnremittance - model 1

Heckman selection model

(regression model with sample selection)

Number of obs = 4976  
 Censored obs = 697  
 Uncensored obs = 4279  
 Wald chi2(23) = 289.23  
 Prob > chi2 = 0.0000  
 Pseudo R2 = 0.6921

Log likelihood = -128902.09

	Coef.	Std err	z	P >  z	[95% Conf. interval]	
lncons_food						
lnremittance	.0174600	.0052450	3.33	0.001	.0071798	.0277402
lnage	.3119830	.1031882	3.02	0.003	.1097341	.5142319
hh_male	.0880124	.0636928	1.38	0.168	-.0368254	.2128502
hh_female	-.5713836	.1781338	-3.21	0.001	-.9205258	-.2222414
lnhh_size	.4462269	.1143968	3.90	0.000	.2220092	.6704446
employed	.0321050	.0153541	2.09	0.036	.0020109	.0621990
unemployed	-.0108923	.0051846	-2.10	0.035	-.0210542	-.0007305
Safety Net	.0506100	.0229731	2.20	0.027	.0055827	.0956373
price shock	.3084214	.2377289	1.30	0.196	-.1575273	.7743700
access_credit	.0108221	.0063277	1.71	0.087	-.0015801	.0232243
insecurity	-.5990585	.1533037	-3.91	0.000	-.8995337	-.2985833
lnedu_years	-.0442902	.0204742	-2.16	0.030	-.0844196	-.0041608
_cons	.2173740	.0379119	5.73	0.000	.1430666	.2916814
lnremittance						
lnage	.1146472	.0331932	3.45	0.001	.0495884	.1797059
hh_male	.0817583	.0091055	8.98	0.000	.0639115	.0996052
hh_female	.0113660	.0051934	2.19	0.028	.0011869	.0215450
lnhh_size	.0575550	.0319807	1.80	0.072	-.0051272	.1202372
rural	.0482104	.0042192	11.43	0.000	.0399408	.0564801
urban	.0721431	.0112116	6.43	0.000	.0501683	.0941180
own_house	.0431423	.0238630	1.81	0.070	-.0036293	.0899138
lnedu_years	.0654803	.0112213	.84	0.411	.0434866	.0874740
access_credit	.0357261	.0198868	1.80	0.072	-.0032521	.0747043
insecurity	.0229248	.0036258	2.32	0.020	.0158182	.0300314
_cons	-.0350704	.0142472	-2.46	0.014	-.0629949	-.0071459
/athrho	-.9610988	.4592192	-2.09	0.036	-1.8611684	-.0610292
/lnsigma	-.1062909	.0442898	-2.40	0.016	-.1930988	-.0194829
rho	-.9522989	.2871099			-1.5150342	-.3895636
sigma	.7830123	.1600213			.4693705	1.0966542
lambda	.0133909	.0063192			.0010053	.0257765

**Objective 1: Food Consumption and Lnremittance -model 2 (interaction model)**

Heckman selection model

(regression model with sample selection)

Number of obs = 4976  
 Censored obs = 697  
 Uncensored obs = 4279  
 Wald chi2(23) = 299.02  
 Prob > chi2 = 0.0000  
 Pseudo R2 = 0.7291

Log likelihood = -130899.23

	Coef.	Std err	z	P >  z	[95% Conf. interval]	
lncons_food						
lnremittance	.0814922	.0338756	2.41	0.016	.0150960	.1478884
c.lnremittanc.1.rural	.2750178	.1191550	2.31	0.021	.0414740	.5085616
c.lnremittanc.1.urban	.0245834	.0104001	2.36	0.018	.0041992	.0449677
lnage	.1456873	.0172073	8.47	0.000	.1119610	.1794136
hh_male	.0410993	.0378105	1.09	0.281	-.0330093	.1152080
hh_female	-.2668201	.0214781	-12.42	0.000	-.3089171	-.2247231
lnhh_size	.2083755	.0565257	3.69	0.000	.0975851	.3191659
employed	.0149921	.0022276	6.73	0.000	.0106260	.0193583
unemployed	-.0897123	.0271050	-3.31	0.001	-.1428381	-.0365866
Safety Net	.0678557	.0260330	2.61	0.009	.0168309	.1188804
price shock	-.1440241	.0715620	-2.01	0.044	-.2842856	-.0037626
access credit	.0505109	.0077107	6.55	0.000	.0353980	.0656238
insecurity	-.2797435	.1651418	-1.69	0.090	-.6034215	.0439344
lnedu_years	-.0206823	.0029759	-6.95	0.000	-.0265151	-.0148494
_cons	-.1015076	.0120106	-8.45	0.000	-.1250483	-.0779668
lnremittance						
lnage	.1146472	.0331932	3.45	0.001	.0495884	.1797059
hh_male	.0817583	.0091055	8.98	0.000	.0639115	.0996052
hh_female	.0113660	.0051934	2.19	0.028	.0011869	.0215450
lnhh_size	.0575550	.0319807	1.80	0.072	-.0051272	.1202372
rural	.0482104	.0042192	11.43	0.000	.0399408	.0564801
urban	.0721431	.0112116	6.43	0.000	.0501683	.0941180
own house	.0431423	.0238630	1.81	0.070	-.0036293	.0899138
lnedu_years	.0654803	.0112213	.84	0.411	.0434866	.0874740
access credit	.0357261	.0198868	1.80	0.072	-.0032521	.0747043
insecurity	.0229248	.0036258	2.32	0.020	.0158182	.0300314
_cons	-.0350704	.0142472	-2.46	0.014	-.0629949	-.0071459
/athrho	-.9980909	.4320970	-2.31	0.021	-1.8450010	-.1511808
/lnsigma	-.0492453	.0159364	-3.09	0.002	-.0804806	-.0180100
rho	-.9921189	.3419649			-1.6623702	-.3218676
sigma	.8928011	.3305165			.2449887	1.5406135
lambda	.1180987	.0420428			.0356949	.2005026

**Objective 2: non-food consumption and lnremittance -model 1**

Heckman selection model

(regression model with sample selection)

Number of obs = 4976  
 Censored obs = 697  
 Uncensored obs = 4279  
 Wald chi2(23) = 119.04  
 Prob > chi2 = 0.0000  
 Pseudo R2 = 0.7022

Log likelihood = -150902.08

	Coef.	Std err	z	P >  z	[95% Conf. interval]	
<hr/>						
lncons_nonfood						
lnremittance	.1286040	.0396957	3.24	0.001	.0508004	.2064076
lnage	.0779534	.0172550	4.52	0.000	.0441335	.1117733
hh_male	.2901698	.0779100	3.72	0.000	.1374662	.4428733
hh_female	-.0952850	.0311103	-3.06	0.002	-.1562611	-.0343089
lnhh_size	-.0406652	.0051942	-7.83	0.000	-.0508458	-.0304846
employed	.0357529	.0173539	2.06	0.039	.0017391	.0697666
unemployed	-.0190787	.0067922	-2.81	0.005	-.0323913	-.0057660
safety Net	.0479202	.0234656	2.04	0.041	.0019276	.0939127
price shock	-.6241700	.2150381	-2.90	0.004	-1.0456448	-.2026953
access_creddt	.2215616	.0555481	3.99	0.000	.1126873	.3304359
insecurity	-.1061262	.0220858	-4.81	0.000	-.1494144	-.0628379
lnedu_years	.0779534	.0172550	4.52	0.000	.0441335	.1117733
_cons	-.0024793	.0007078	-3.50	0.000	-.0038665	-.0010920
<hr/>						
lnremittance						
lnage	.1146472	.0331932	3.45	0.001	.0495884	.1797059
hh_male	.0817583	.0091055	8.98	0.000	.0639115	.0996052
hh_female	.0113660	.0051934	2.19	0.028	.0011869	.0215450
lnhh_size	.0575550	.0319807	1.80	0.072	-.0051272	.1202372
rural	.0482104	.0042192	11.43	0.000	.0399408	.0564801
urban	.0721431	.0112116	6.43	0.000	.0501683	.0941180
own_house	.0431423	.0238630	1.81	0.070	-.0036293	.0899138
lnedu_years	.0654803	.0112213	.84	0.411	.0434866	.0874740
access_credit	.0357261	.0198868	1.80	0.072	-.0032521	.0747043
insecurity	.0229248	.0036258	2.32	0.020	.0158182	.0300314
_cons	-.0350704	.0142472	-2.46	0.014	-.0629949	-.0071459
<hr/>						
/athrho	-.9368923	.4421206	-2.12	0.034	-1.8034487	-.0703360
/lnsigma	-.1609756	.0556970	-2.89	0.004	-.2701418	-.0518094
<hr/>						
rho	-.9308972	.2111250			-1.3447022	-.5170922
sigma	.6902786	.2989627			.1043117	1.2762455
lambda	.2089077	.0671533			.0772873	.3405281

**Objective 2: non-food Consumption and Lnremittance -model 2 (interaction model)**

Heckman selection model

(regression model with sample selection)

Number of obs = 4976  
 Censored obs = 697  
 Uncensored obs = 4279  
 Wald chi2(23) = 179.32  
 Prob > chi2 = 0.0000  
 Pseudo R2 = 0.7612

Log likelihood = -159087.98

	Coef.	Std err	z	P >  z	[95% Conf. interval]	
<hr/>						
lncons_nonfood						
Lnremittance	.1392842	.0362425	3.84	0.000	.0682489	.2103196
c.lnremittance.1.rural	.1458472	.0530698	2.75	0.006	.0418304	.2498640
c.lnremittance.1.urban	.2668375	.1053603	2.53	0.011	.0603312	.4733437
Lnage	.0490089	.0066728	7.34	0.000	.0359303	.0620876
hh_male	.0754809	.0170846	4.42	0.000	.0419950	.1089668
hh_female	.0223956	.0042571	5.26	0.000	.0140516	.0307395
lnhh_size	-.0397548	.0042807	-9.29	0.000	-.0481450	-.0313647
Employed	.1237125	.0287321	4.31	0.000	.0673977	.1800274
Unemployed	-.0971782	.0443555	-2.19	0.028	-.1841151	-.0102414
safety Net	.0939314	.0280073	3.35	0.001	.0390370	.1488258
price shock	-.0306722	.0077980	-3.93	0.000	-.0459564	-.0153881
access_credit	.0422724	.0048732	8.67	0.000	.0327209	.0518240
Insecurity	-.0477333	.0063076	-7.57	0.000	-.0600961	-.0353704
lnedu_years	.0377792	.0038452	9.83	0.000	.0302426	.0453158
_cons	-.0985742	.0129396	-7.62	0.000	-.1239358	-.0732125
<hr/>						
Lnremittance						
Lnage	.1146472	.0331932	3.45	0.001	.0495884	.1797059
hh_male	.0817583	.0091055	8.98	0.000	.0639115	.0996052
hh_female	.0113660	.0051934	2.19	0.028	.0011869	.0215450
lnhh_size	.0575550	.0319807	1.80	0.072	-.0051272	.1202372
Rural	.0482104	.0042192	11.43	0.000	.0399408	.0564801
Urban	.0721431	.0112116	6.43	0.000	.0501683	.0941180
own_house	.0431423	.0238630	1.81	0.070	-.0036293	.0899138
lnedu_years	.0654803	.0112213	.84	0.411	.0434866	.0874740
access_credit	.0357261	.0198868	1.80	0.072	-.0032521	.0747043
Insecurity	.0229248	.0036258	2.32	0.020	.0158182	.0300314
_cons	-.0350704	.0142472	-2.46	0.014	-.0629949	-.0071459
<hr/>						
/athrho	-.9797566	.4708336	-2.08	0.037	-1.9025903	-.0569228
/lnsigma	-.0716356	.0224501	-3.19	0.001	-.1156378	-.0276334
<hr/>						
Rho	-.9780918	.1053925			-1.1846612	-.7715225
Sigma	.8479386	.3107219			.2389237	1.4569535
Lambda	.1897803	.0859135			.0213898	.3581708

**Objective 3: earning power and Lnremittance - model 1**

Heckman selection model

(regression model with sample selection)

Number of obs = 4976



Log likelihood = -140902.87

Censored obs = 697  
 Uncensored obs = 4279  
 Wald chi2(23) = 598.87  
 Prob > chi2 = 0.0000  
 Pseudo R2 = 0.6892

	Coef.	Std err	z	P >  z	[95% Conf. interval]	
earning_power						
lnremittance	.0632618	.0084876	7.45	0.000	.0466261	.0798974
lnage	.0428255	.0113320	3.78	0.000	.0206148	.0650361
HH_male	.0851546	.0291496	2.92	0.004	.0280214	.1422878
HH_female	.1481153	.1056387	1.40	0.162	-.0589365	.3551670
own_house	.3431749	.0649322	5.29	0.000	.2159078	.4704419
employed	.1980060	.0344901	5.74	0.000	.1304053	.2656066
unemployed	-.0290787	.0094119	-3.09	0.002	-.0475260	-.0106313
electric_access	.0684433	.0204209	3.35	0.001	.0284184	.1084683
own_land	.0319517	.0103258	3.09	0.002	.0117132	.0521903
access_credit	.0879689	.0124861	7.05	0.000	.0634962	.1124417
insecurity	-.0952725	.0544672	-1.75	0.080	-.2020281	.0114831
lnedu_years	.0428255	.0168321	2.54	0.011	.0098345	.0758164
_cons	-.0341937	.0051962	-6.58	0.000	-.0443781	-.0240092
lnremittance						
lnage	.1146472	.0331932	3.45	0.001	.0495884	.1797059
hh_male	.0817583	.0091055	8.98	0.000	.0639115	.0996052
hh_female	.0113660	.0051934	2.19	0.028	.0011869	.0215450
lnhh_size	.0575550	.0319807	1.80	0.072	-.0051272	.1202372
rural	.0482104	.0042192	11.43	0.000	.0399408	.0564801
urban	.0721431	.0112116	6.43	0.000	.0501683	.0941180
own_house	.0431423	.0238630	1.81	0.070	-.0036293	.0899138
lnedu_years	.0654803	.0112213	.84	0.411	.0434866	.0874740
access_credit	.0357261	.0198868	1.80	0.072	-.0032521	.0747043
Insecurity	.0229248	.0036258	2.32	0.020	.0158182	.0300314
_cons	-.0350704	.0142472	-2.46	0.014	-.0629949	-.0071459
/athrho	-.9920897	.4315860	-2.30	0.021	-1.8379983	-.1461811
/lnsigma	-.1609756	.0556970	-2.89	0.004	-.2701418	-.0518094
Rho	-.9908972	.2247328			-1.4313736	-.5504209
Sigma	.6902786	.2989627			.1043117	1.2762455
Lambda	.1080987	.0326394			.0441255	.1720720

**Objective 3: earning power and Lnremittance -model 2 (interaction model)**

Heckman selection model

(regression model with sample selection)

Number of obs = 4976  
 Censored obs = 697  
 Uncensored obs = 4279  
 Wald chi2(23) = 568.92  
 Prob > chi2 = 0.0000  
 Pseudo R2 = 0.6601

Log likelihood = -140897.67

	Coef.	Std err	z	P >  z	[95% Conf. interval]	
<b>earning_power</b>						
Lnremittance	.1915702	.0807016	2.37	0.017	.0333952	.3497453
c.lnremittance.1.employed	.1463637	.0476079	3.07	0.002	.0530522	.2396751
c.lnremittance.1.unemployed	.6091707	.0456644	13.34	0.000	.5196685	.6986729
lnage	.0586818	.0339877	1.73	0.084	-.0079341	.1252978
hh_male	.0744149	.0372446	2.00	0.045	.0014154	.1474143
hh_female	.0587388	.0071657	8.20	0.000	.0446940	.0727835
own_house	.1782914	.0178856	9.97	0.000	.1432356	.2133471
employed	.0656244	.0367021	1.79	0.073	-.0063118	.1375606
unemployed	-.0164238	.0082132	-2.00	0.045	-.0325217	-.0003259
electric_access	.0588427	.0121488	4.84	0.000	.0350311	.0826544
own_land	.0623569	-.0112703	-5.53	0.000	.0844466	.0402671
access_credit	.1790278	.0342721	5.22	0.000	.1118546	.2462010
Insecurity	-.2967975	.2596970	-1.14	0.256	-.8058036	.2122086
lnedu_years	.0575147	.0233651	2.46	0.014	.0117192	.1033103
_cons	-.0530204	.0296531	-1.79	0.073	-.1111404	.0050996
<b>lnremittance</b>						
lnage	.1146472	.0331932	3.45	0.001	.0495884	.1797059
hh_male	.0817583	.0091055	8.98	0.000	.0639115	.0996052
hh_female	.0113660	.0051934	2.19	0.028	.0011869	.0215450
lnhh_size	.0575550	.0319807	1.80	0.072	-.0051272	.1202372
rural	.0482104	.0042192	11.43	0.000	.0399408	.0564801
urban	.0721431	.0112116	6.43	0.000	.0501683	.0941180
own_house	.0431423	.0238630	1.81	0.070	-.0036293	.0899138
lnedu_years	.0654803	.0112213	.84	0.411	.0434866	.0874740
access_credit	.0357261	.0198868	1.80	0.072	-.0032521	.0747043
insecurity	.0229248	.0036258	2.32	0.020	.0158182	.0300314
_cons	-.0350704	.0142472	-2.46	0.014	-.0629949	-.0071459
/athrho					-	-
	-.9709068	.3583969	-2.71	0.007	1.6733647	-.2684489
/lnsigma					-	-
	-.1531079	.0491848	-3.11	0.002	-.2495102	-.0567056
					-	-.1521535
rho	-.9602898	.4123144			1.7684260	
sigma	.7028977	.1801477			.3498082	1.0559872
lambda	.1500790	.0515928			.0489571	.2512009

