**POOR ROAD INFRASTRUCTURE AND ITS IMPACT ON RURAL DEVELOPMENT**

**ABSTRACT**

An efficient road transport network is crucial in the industrial sector for connecting the production site to the final consumption destination. The main objective of this study is to evaluate the effects of inadequate road infrastructure on the progress of rural areas in Ngor-Okpala local government area of Imo state. The study focused on analysing the socio-economic characteristics of the participants, evaluating the current state of road infrastructure, and assessing the government's involvement in the development of rural road infrastructure in the study area. This study also aimed to explore the different effects of inadequate road infrastructure on rural development in Ngor Okpala. The study utilised a survey descriptive research design. 240 participants were recruited to participate in this study using a convenience sampling method. Enrolment was determined by the availability and willingness of participants to participate in the survey. The study revealed that the condition of roads in Ngor Okpala is extremely poor. The study investigated the correlation between the condition of rural roads and rural development, revealing a significant impact of rural road condition on rural development. The findings of this study highlight the importance of having a well-functioning rural transport system in Nigeria to support comprehensive rural development. It is crucial for enhancing the quality of life and stimulating the economy of the country.

**CHAPTER ONE**

**INTRODUCTION**

* 1. **Background of the study**

It is widely acknowledged that Nigerian roads are typically in a state of dilapidation, inadequately maintained, or completely without pavement. Nigeria has the greatest road network in Africa, however only approximately 60,000km out of a total 195,000km road network is paved. The majority of the country's road infrastructure was built during the 1980s and 1990s, and a significant amount of it is currently in a state of disrepair due to inadequate maintenance. The roads, despite being built or maintained, deteriorate quickly due to the utilisation of substandard materials (Nura et al., 2022). Although significant financial resources are allocated each year to infrastructure development projects, there is still a lack of visible evidence to support the justification of the fiscal commitment for road conditions. The Nigerian road network is primarily categorised into three distinct classifications. The first category is Trunk Road "A," which refers to the fundamental structure of the national road network and extends across different regional divisions. The finance, construction, and maintenance of this category of roads are the responsibilities of the Federal Government of Nigeria, specifically the Federal Ministry of Works and Housing. The second road is the Trunk Road "B" which serves as a connection between the main cities within states (Ewnetu, 2023).

The state governments provide funding, oversee construction, and handle maintenance of these facilities. Trunk Road "C" is classified as a local government authority-maintained road in Nigeria, typically without a paved surface. Although the Trunk Road "A" is solely the responsibility of the Federal Government and therefore should be maintained in excellent condition, it is evident that it has become a convenient route for criminals such as bandits and kidnappers. They exploit the numerous potholes and deteriorated surface conditions, which compel commuters to reduce their speed. Furthermore, travelling on major highways often involves excessively long delays due to various variables such as road repairs or accidents caused by poor road conditions (Nurul et al., 2022).

In Nigeria, inadequate road infrastructure remains a significant contributing cause to vehicle accidents. The National Bureau of Statistics, in collaboration with the Federal Road Safety Corps (FRSC), released the Quarter 2-2020 Road Transport Data report. According to the report, a total of 2,080 road crashes took place in Quarter 2-2020, with many of them being caused by the poor road conditions. Among the recorded road traffic accidents, 5,353 Nigerians had injuries, while 855 lost their lives. In Quarter 2-2020, the total number of cars involved in accidents was 3,334 (Myakala & Shankar, 2023). Virtually all Nigerians and every sector of the Nigerian economy depend on some sort of transit, with road transport being the most widely used method. Consequently, a well-developed road infrastructure that ensures prompt and uninterrupted transportation of both people and products is essential for driving economic advancement. Undoubtedly, a well-developed road network significantly impacts the ease and movement of the workforce between different locations. It is undeniably crucial for effective governance and the well-being of the people. Without a doubt, an efficient road network and infrastructure reduce production costs and increase productivity, especially in the agricultural sector where the transportation of commodities from the farm to customers plays a crucial role in the production process (Kamaludin & Qibthiyyah, 2022).

A well-developed road transport network is essential in the industrial sector to connect the production site with the final consumption destination. Studies have demonstrated a robust and favourable correlation between road transport and economic advancement in Nigeria. There is strong evidence to support the notion that transport infrastructure has a positive impact on the welfare of Nigerian citizens. Road transportation plays a significant role in a country's Gross Domestic Product (GDP) and has a direct impact on its economic growth by facilitating the transportation of products and services to the final consumer. This suggests that a well-developed transport infrastructure is a potent instrument in enhancing productivity and efficient dissemination of products and services, ultimately leading to an upsurge in the economic growth of a nation. Nevertheless, in light of the country's inadequate transport system, a 2018 research conducted by the National Planning Commission (NPC) determined that Nigeria's existing transport infrastructure does not correspond with its goal of becoming one of the world's top 20 economies. Recognising the correlation between well-developed road infrastructure and economic expansion, enhancing the transport system will generate a favourable cascading impact on the nation's gross domestic product (GDP).

* 1. **Statement of the study**

The network of roads in Nigeria plays a crucial role in facilitating social and economic activities, as the extent and quality of the road network are directly linked to economic development. Roads are typically regarded as the primary public capital asset of a country, constituting approximately 15 to 30 percent of its Gross Domestic Product (GDP). The inadequate road infrastructure has become a matter of national disgrace, as there are few areas in the country that can claim to have well-maintained highways without any alternative options. This is compounded by the malfunctioning train system and the mostly ineffective air transport sector.

The study conducted in 2023, emphasises that the lack of good rural road infrastructure leads to insufficient access to social and economic possibilities. The enduring consequences of civil war and pervasive corruption have resulted in significant delays in providing essential services to rural areas, leading to widespread discontent among rural communities. In addition, Joshua et al., (2023) argue that numerous rural regions in Ngor Okpala continue to exhibit significant levels of unemployment, poverty, disparities, inadequate infrastructure, and deficient service provision. This condition has led to a sluggish rate of progress, particularly in terms of infrastructure development. According to Chaminuka, Senyolo, Makhura & Belete (2008), small-scale farmers in Nigeria face a significant obstacle in the form of high transaction costs caused by inadequate infrastructure. The same issue pertains to community people who persist in facing challenges in obtaining essential amenities such as water, electricity, and sanitation. According to Lawami (2019), the government has been unable to maintain the transport system as the primary catalyst for economic growth during the past few decades, hindering the ability of future generations to meet their needs. The primary objective of road infrastructure development is to guarantee universal mobility, enabling individuals to carry out their everyday household and business endeavours without any obstacles. Moreover, the establishment of sustainable road infrastructure results in enhanced quality of life, diminished poverty rates, and fostered economic expansion.

Rasila (2019) suggests that governments worldwide have implemented development plans to enhance the quality of life for their residents, particularly those residing in rural areas. Ezeuduji and Mgabhi (2023) highlight the significance of rural development in emerging nations like Nigeria, especially in rural communities with limited economic opportunities. It is also seen as a strategic instrument for enhancing the socio-economic development of individuals, with a primary emphasis on increasing residents' quality of life and augmenting their social and economic welfare.

The roads at Ngor-Okpala are said to be in a state of disrepair and are impeding productivity. Ogbe and Ejovi (2023) contend that the presence of well-maintained roads is an integral aspect of effective governance. They assert that the availability of good roads in Ngor-Okpala will facilitate increased productivity by providing convenient access to farming areas, enabling the transportation of agricultural produce to markets, and supporting other profitable endeavours that contribute to food security and overall well-being. According to the Guardian newspapers (2019), the poor condition of the roads in Ngor-Okpala acts as a deterrent for students, causing them to attend school irregularly and often arrive late. The reports indicate that the absence of electricity and effective healthcare in the area can be mitigated by the presence of adequate roads, which can motivate the population to engage in constructive activities. This study aims to reassess prior findings and examine the effects of inadequate road infrastructure on rural development, based on the assumption mentioned.

* 1. **Aims and objectives**

The primary goal of this study is to assess poor road infrastructure and its impact on rural development. Specifically:

To identify and examine the socio-economic characteristics of residents in Ngor Okpala Local Government Area.

To examine the existing condition of road infrastructure in Ngor Okpala.

To examine government contribution to rural road infrastructure development in the study area.

To identify the various impacts of poor road infrastructure on rural development in Ngor Okpala.

* 1. **Research questions**

What are the the socio-economic characteristics of people in Ngor Okpala Local Government Area?

What is the existing condition of road infrastructure in Ngor Okpala?

Have there been any significant government contribution to rural infrastructure development in the Ngor Okpala?

What are the impacts of poor road infrastructure on rural development in Ngor Okpala?

* 1. **Research hypotheses**

Ho1: There is no significant relationship between poor road infrastructure and rural development.

Ha1: There is a significant relationship between poor road infrastructure and rural development.

* 1. **Scope of the study**

This study has defined boundaries. The researcher has selected Imo state as the specific topic of inquiry. The roads inside the communities of Ngor Okpala local government area serve as important areas of study.

* 1. **Significance of the study**

The significance of this study lies in the pertinence of its findings to the many stakeholders. The results of this study will uncover the socio-economic characteristics of residents of the selected study area. Additionally, it will reveal the difficulties that residents in the selected study area encounter owing to the current road condition. The convergence of these two requirements will provide lawmakers, public institutions and non-governmental agencies with guidance on the specific aspects of road infrastructural policy to advocate, and execute. Their intervention will mitigate the impact of impact of bad road infrastructure on rural development. Additionally, the currency of this study sets it apart from other previous studies.

* 1. **Structure of the thesis**

This study is divided into five chapters. A background and direction of the study are captured in the chapter one. Chapter two deals with a review of related and relevant literature. This chapter is segmented into three sections- the conceptual, theoretical and empirical frameworks. Chapter three of this study describes the methods and approaches adopted in carrying out this study. In the chapter four, data collected are presented and analysed. The chapter five contains a summary of this investigation, a conclusion on the subject of inquiry, and possible recommendations.

**CHAPTER TWO**

**INTRODUCTION**

**2.1. Conceptual framework**

**The concept of Infrastructure**

Infrastructure refers to the fundamental physical and organisational systems, including transportation networks and architectural constructions like roads and bridges, that are essential for the efficient operation of a country, region, or organisation. Infrastructure plays a crucial role in fostering economic growth by boosting productivity and delivering essential services that improve the overall quality of life. The provision of a sufficient infrastructure base will lead to the development of various services, resulting in an overall increase in output. This includes improved roads to enhance agricultural productivity, the establishment of sea ports and rail links, the development of electrical generation, transmission, and distribution systems, as well as the implementation of water and irrigation projects.

These improvements will contribute to an enhanced quality of life and the urbanisation of differ The majority of impoverished individuals worldwide reside in rural regions characterised by a dearth of public infrastructure, particularly in terms of road networks. The substandard road infrastructure and limited road connectivity result in exorbitant transportation expenses, hinder the utilisation of high-quality resources, restrict local markets to only selling their products and purchasing consumer items, and limit off-farm employment prospects. Limited road connectivity has imposed limits on rural impoverished individuals, hindering their ability to reach essential social infrastructure, including educational and healthcare institutions. Hence, enhancing the rural road infrastructure appears to be a definitive method by which a significant number of individuals might have access to the market economy and consequently uplift themselves from poverty (Oraboune, 2008). Infrastructure has a crucial role in reducing poverty. It frequently serves as a catalyst for development and amplifies the effectiveness of interventions aimed at improving the access of impoverished individuals to various assets, such as human, social, financial, and natural assets.

The impact of it is experienced in both the economic and social domains. Insufficient infrastructure, such as roads, hinders the ability of impoverished individuals to effectively distribute and sell their goods in the marketplace. Roads in India have been found to contribute seven percent to the overall increase in output in rural areas. In the absence of electricity, the process of industrialization, which offers a significant employment opportunity for the impoverished, is unlikely to commence. A retrospective analysis of the rural electrification process in Costa Rica reveals that one of the electrification cooperatives experienced a significant increase in the number of important enterprises, rising from 15 to 86 following the implementation of electrification. In the absence of drinkable water and proper cleanliness, one's health is endangered. The social and economic impact are frequently interconnected (Pouliquen, 2000). A significant proportion of the global population living in poverty resides in rural regions that are geographically remote, characterised by challenging terrain and limited access to jobs, economic prospects, healthcare, education, and markets. The absence of fundamental infrastructure, such as pathways, trails, bridges, and roads, as well as limited access to transportation services, poses challenges for impoverished individuals in reaching marketplaces and accessing essential services. Rural isolation has been unequivocally proven to be connected to diminished agricultural productivity, which can be attributed to limited market access and inadequate use of fertilisers and contemporary agricultural technologies.

Furthermore, it is associated with adverse health outcomes and decreased rates of school enrollment. The elderly and individuals with disabilities can get trapped by rural solitude. Efficient transport infrastructure is an essential prerequisite for both economic development and the reduction of poverty. However, it is important to note that solely investing in transport would not solve the issues faced by the most impoverished households (Starkey & Hine, 2014). The sufficient provision of infrastructure services has consistently been recognised as crucial for promoting economic development and alleviating poverty, both in policy-making and scholarly circles. In recent times, there has been a growing focus on the influence of infrastructure on poverty and inequality. This has been highlighted by various studies conducted by Ariyo and Jerome (2004), Calderon (2008), Estache and Wodon (2010), and Ogun (2010).

In the past twenty years, significant attention has been given to analysing and measuring the impact of infrastructure on economic growth and development (Programme, 2011). The process of reducing poverty necessitates the presence of economic growth, which, when coupled with effective macroeconomic management and strong governance, leads to long-lasting and socially equitable development (ADB 1999). There is a need to enhance the accessibility of education and health services, water and sanitation, employment opportunities, credit facilities, and markets for agricultural produce for the impoverished population. Furthermore, it is imperative to decrease the susceptibility of impoverished individuals to economic upheavals and environmental catastrophes in order to improve their welfare and promote investments in human resources as well as in ventures that carry greater risks but also yield larger rewards. The implementation of public policy reforms and the allocation of resources towards physical infrastructure will make a substantial impact on the advancement of socially inclusive development (Ali & Pernia, 2003). The transport infrastructure system comprises of highways, trains, ports, lighthouses, fairways, inland waterways, and airports equipped with aircraft traffic navigation systems. Transport infrastructure systems are commonly regarded as a fundamental aspect of government operations. Throughout history and across nations, governments have played a significant role in implementing, building, and upkeeping infrastructure systems. As a result of this participation, governments have assumed various functions in the transport infrastructure industry, including regulation, financing, ownership with the responsibility for construction and maintenance, and often significant involvement in the organisations providing transport services (Hasselgren, 2012).

Despite the recent significant increase in per capita income growth rates in many nations in the region, Sub-Saharan Africa remains the poorest region in the world. Due to prolonged economic stagnation, low quality of life, ethnic cleansing, tribal conflicts, political instability, and environmental catastrophes, infrastructure development has been neglected. Infrastructure refers to the public goods and services that are utilised as complementary inputs in the production process alongside traditional elements of production like capital, labour, and entrepreneurship. They enhance investment returns by minimising production costs and optimising transition efficiency (Novikova & Pomotilov, 2023). The success or failure of all other industrial endeavours is largely determined by the availability and effectiveness of infrastructural facilities and services. Investments in infrastructure, including electricity, water, transportation, and communication technology, foster economic growth and contribute to poverty reduction and enhanced living standards in developing nations (Kamaludin & Qibthiyyah, 2022). The absence of infrastructure hinders economic progress.

**The Concepts of Rural Development**

Furthermore, a universally acknowledged delineation of rural development is lacking. Consequently, various scholars and institutions have distinct definitions and conceptualizations of it. Advocates of this viewpoint contend that the concept of rural development has evolved over time due to shifts in the perceived methods and objectives of development (Anríquez and Stamoulis, 2007). The World Bank (1975) regarded rural development as primarily an economic matter, focused on increasing rural income levels by means of agricultural modernization. This description accurately represents rural development as a component of development during the 1970s. This is because during the 1970s, development was predominantly perceived through the lens of the economic aspect.

Currently, development is widely perceived as a comprehensive enhancement of a person's quality of life, encompassing economic, social, political, environmental, and administrative aspects. Therefore, the 1975 World Bank definition fails to acknowledge other significant aspects of progress mentioned before. Prior to the 1970s, rural development was commonly perceived as being equivalent to agricultural development. Khusaini et al (2023) contended that during the 1960s and early 1970s, the dominant feature of the observed development trajectory was vigorous industrialization. In this framework, rural development was conceptualised as a direct pathway towards structural transformation, involving the diversification of the economy away from agriculture. This process is expedited by swift agricultural expansion, particularly in the beginning stages, but ultimately results in a substantial decrease in the percentage of agriculture in overall employment and output, as well as the proportion of the rural population in relation to the whole population. In the 1980s, the World Bank established a definition for rural development as a strategic approach aimed at enhancing the economic and social well-being of impoverished rural populations. This definition has been subject to different interpretations over time. Furthermore, in the 1970s, the concept of rural development shifted to prioritise fairness, leading to a redefinition of rural development that emphasised the delivery of social services to those living in rural poverty. Since then, the idea of rural development in the 1970s has been strongly associated with improving living conditions and as a necessary condition for alleviating rural poverty (Johnston, 1970).

In addition to the World Bank definitions of rural development described above, Kata (1986) proposed a broader interpretation. According to Kata, rural development encompasses the comprehensive advancement of rural areas with the aim of enhancing the well-being and standard of living of rural inhabitants. Nevertheless, the author neglects many crucial facets of rural development, which will be thoroughly examined in this paper. Some scholars view rural development as a method to enhance the power and well-being of a particular group of individuals, specifically those who are marginalised in rural areas such as impoverished rural households, landless individuals, and small-scale farmers. The aim is to enable these individuals and their children to obtain a greater amount of their desired resources and necessities. According to Chambers (1987), it entails supporting the most impoverished individuals who are seeking a means of making a living in rural areas, in order for them to assert their rights and exercise greater authority over the advantages of rural development. This definition clearly delineates rural development as a focused approach aimed at empowering exclusively the marginalised segments of communities residing in rural regions. Nevertheless, rural development can be defined as a more comprehensive approach aimed at benefiting all segments of the population. Conceptually, it can be understood as a strategy aimed at enhancing the overall well-being of all segments of society (Jung & Qin, 2024).

In contrast to the aforementioned definitions of rural development, (Madhu, 2000) provides a comprehensive definition that encompasses the enhancement of both the physical and socioeconomic conditions in rural areas. The aim is to empower individuals to effectively meet their needs and maintain their overall welfare. According to this concept, rural development is now seen as the act of enhancing the opportunity and welfare of individuals living in rural areas. Rural societies undergo a process of transformation in their characteristics. Furthermore, it encompasses not just the advancement of agriculture but also the progress of human development and the pursuit of social and environmental goals, rather than solely focusing on economic aims. Hence, rural development covers the provision of health, education, and various other social services. Additionally, it employs a multi-sector strategy to stimulate agriculture, extract minerals, promote tourism, facilitate recreation, and foster specialty industries (IFAD, 2016). Recently, certain academics have started to acknowledge rural development as a component of overall development. Singh (2009) posited that rural development refers to the comprehensive development of rural areas with the aim of enhancing the standard of living for rural inhabitants. He states that rural development is a comprehensive and multidimensional concept that includes the development of agriculture and related activities, village and cottage industries, crafts, socioeconomic infrastructure, community services, facilities, and most importantly, the human resources in rural areas. In addition, he formulated the phrase rural development as a process, a phenomena, a strategy, and a discipline. As a procedure, it involves the active participation of individuals, communities, and nations in the pursuit of their desired objectives over a period of time. As a phenomenon, it arises from the interplay of diverse physical, technological, economic, socio-cultural, and institutional variables. The plan aims to enhance the economic and social welfare of a particular demographic, namely the impoverished rural population (Bao et al., 2022). As a field of study, it is characterised by its multidisciplinary nature, encompassing several disciplines such as agriculture, social sciences, behavioural sciences, engineering, and management sciences. The current understanding and ideas about rural development are acknowledged in the literature as encompassing all aspects that impact the lives of rural individuals and their overall well-being, both as independent entities and as essential members of the broader society and global community (Adisa, 2014).

As previously said, experts do not agree on the definition or conceptualization of rural development. Nevertheless, similar to the notion of development, the definition and ideas surrounding rural development have undergone consistent modifications and expansions, aligning with the evolving ideals of development. The review findings also indicate that the notion of rural development is multifaceted and may be approached from various perspectives, such as a concept, process, strategy, and topic of study. As previously mentioned in literature, there has been a tendency among certain scientists and institutions to strictly define rural development as solely an economic matter, focused on increasing rural income through the modernization of agriculture. However, in contemporary times, it is widely seen as a subdivision of development. For example, rural development can be roughly defined as the process that brings benefits to rural communities. Development, in this context, refers to the continuous enhancement of the living standards and welfare of the population (Singh, 2009; Anríquez & Stamoulis, 2007).

**The Impacts of Road Infrastructure in Rural Communities**

Kaiser and Barstow (2022) assert that the rural transport sector is crucial for sustainable development and has strong interconnections with other sectors. Rural transport plays a crucial role in achieving the Sustainable Development Goals (SDGs) and greatly contributes to the socioeconomic welfare of communities. Fungo, Krygsman, and Nel (2017) argue that rural infrastructure is essential for both rural and urban transport networks, as it plays a vital role in getting agricultural goods to the market. Enhancing rural road networks is crucial to foster the growth of the agricultural sector, which plays a vital role in sustaining the society's food supply. Road networks are crucial for the efficient production of raw materials and have a positive impact on poverty reduction and economic progress in multiple ways.

According to Dercon and Christiaensen (2011), roads have a significant effect on poverty and economic growth by reducing transportation costs and boosting the market access for rural populations and urban retail centres. Inadequate infrastructure can lead to higher costs for local business owners who lack access to well-built roadways, as the expenses associated with conducting business are elevated. Efficient road networks enhance local businesses by providing them with access to advanced technologies, reducing expenses and enhancing profits, as well as creating more job chances. Enhanced infrastructure, such as an extensive network of roads, facilitates increased mobility in rural areas, leading to enhanced productivity and economic expansion. It is important to remember that road infrastructure decreases poverty and enhances agricultural productivity, leading to increased employment prospects. Road infrastructure connects urban and rural regions, enabling the transportation of products and individuals, hence granting communities access to highways and facilitating the provision of services such as ambulance and police coverage in these areas. The absence of road infrastructure impedes the progress that could potentially benefit the community.

According to Barrio (2008), poverty and infrastructure are closely connected in a community, as the lack of infrastructure prevents the provision of fundamental services. The absence of well-developed road infrastructure has detrimental effects on both agricultural activities and small-scale, locally held enterprises. Deteriorated roads, prone to become slick during rainfall, significantly impede transportation efficiency and hinder the mobility of individuals within a given region. Nyawo and Mashau (2019) agree that adverse weather conditions, such as heavy rainfall, result in increased journey duration on unpaved roads. Hence, enhanced road networks facilitate convenient accessibility and mobility within the community, hence reducing transportation expenses and fostering economic growth. According to Sewella, Desaib, Mutsaaa, and Lotteringa (2019), numerous rural communities face limited access to social and economic opportunities due to their isolation, lack of functional bridges, poor road networks, and inadequate transportation services. Consequently, individuals are unable to reach educational institutions, essential amenities, employment opportunities, and convey commodities to commercial centres. The significance of rural roads infrastructure for rural communities should not be underestimated, as it serves to improve their socio-economic well-being in multiple ways. Enhancing the rural road networks can improve economic possibilities and promote sustainable lives in rural areas (Faiz; 2012; Porter, 2014). Similarly, investing in rural roads can frequently lead to enhanced local economic growth, as a well-developed road infrastructure facilitates commercial opportunities and improves corporate performance. Moreover, in industrialised nations, the enhanced rural road networks facilitated the movement of people from urban to rural areas, as they recognised the opportunities for socio-economic progress due to the presence of well-built road infrastructure. The enhancement of the rural roadways infrastructure also has a favourable impact on the agricultural output of the country. Improving rural roads is a proven way to attract development opportunities and enhance the sustainable livelihoods of rural residents. The absence of adequate infrastructure in rural areas has a significant impact on the provision of services, investment opportunities, the profitability and expansion of local enterprises, and the development of tourism.

Consequently, it is imperative for a nation to allocate sufficient funds for the building, enhancement, and upkeep of its road infrastructure. The physical characteristics of the road are essential in determining the levels of mobility and safety, especially for rural routes. The advancements in infrastructure possess the capacity to create a travel atmosphere that is safer, specifically by providing a more crash-resistant setting (Nyawo & Mashau, 2019).

According to Brits (2010), a key feature of transportation is the movement of commodities to their intended location, as they cannot be stored in one place for an extended period of time. Transport infrastructure is a crucial component for the efficient and effective operation and advancement of socio-economic activities within society. Transport is crucial for development, as it enables individuals to access employment, healthcare, education, and several other activities. In the absence of adequate physical access to resources and markets, economic growth declines and the goal of reducing poverty cannot be attained. Hlotywa and Ndaguba (2017) argue that road transport infrastructure investment (ROTI) plays a crucial role in promoting economic growth and development in a country. Adequate access to road infrastructure investment expedites economic activities, enhancing the livelihoods of individuals in communities and fostering economic development, hence improving societal well-being.

**Securing funding for road infrastructure**

McGaffin, Viruly, and Boyle (2021) assert that infrastructure plays a crucial role in stimulating economic growth and mitigating poverty and inequality. There exists a significant correlation between investing in infrastructure and promoting economic growth. Consequently, it is imperative to reorganise regions that are characterised by unfairness, inefficiency, unsustainability, and fiscal instability. The utilisation of public-private partnerships and infrastructure investment has facilitated the state in delivering infrastructure to remote communities that face challenges in accessing improved infrastructure. According to Luiz (2010), the research suggests that infrastructure has a crucial impact on fostering growth and development. The transport infrastructure issues in Africa have had a detrimental impact on its international competitiveness, trading costs, foreign direct investment (FDI), and economic performance. The impoverished population has been adversely impacted by the inadequate infrastructure for accessing employment opportunities, educational institutions, and healthcare facilities.

According to Van Rensburg and Krygsman (2019), there is a significant discussion in South Africa on the funding of road infrastructure to facilitate transport operations. The primary emphasis was placed on improving roads and meeting the increased financing requirements put forth by stakeholders, including the general public and state-owned companies (SOE). The primary points of contention revolved around opposition to the fuel charge, toll highways, and the perceived unjust taxation of drivers, as well as the concern that the road transport sector is subsidising other economic sectors. The government policy documents aim to express their inclination towards implementing the user-pay principle as a means of financing roads. According to Ngowi, Pienaar, Akindele, and Iwisi (2006), it is necessary to prioritise the establishment of a dependable and highly developed infrastructure in order to facilitate the progress and advancement of the nation. An essential determinant for attracting foreign direct investment (FDI) is the availability of efficient transport and state-of-the-art telecommunication systems. These factors are crucial for facilitating international trade expansion, fostering long-term investment and growth, and promoting social development within the society. Globalisation, as a means of financing all feasible infrastructure projects, particularly in poor nations, has shown to be unsuccessful.

According to Hlotywa and Ndaguba (2017), there has been a noticeable decrease in spending in road transport infrastructure since 2009, resulting in reduced economic investment and gross domestic product (GDP). Hence, it is crucial to acknowledge that investments in road transport infrastructure have a direct influence on economic growth by generating employment possibilities and enhancing the quality of life for individuals. It plays a crucial role in the production of raw materials and services, leading to enhanced quality of life and increased value for money. Schachtebeck and Mbuya (2016) argue that infrastructure investment is a crucial means to build road infrastructure in the country. The development of new road infrastructure is funded by public finance, as it is regarded as a public good that should be accessible to all individuals. Hence, the advancement of road infrastructure is advantageous for a multitude of purposes, including commerce and transportation.

The government initiatives, including the Community Based Public Works Programme, the Poverty Relief and Infrastructure Investment Fund, the Comprehensive Agricultural Support Programme, and the Consolidated Municipal Infrastructure Programme, aimed at enhancing the quality and quantity of infrastructure in rural areas, have had limited effects on the livelihoods of rural residents (Chaminuka, Senyolo, Makhura & Belete, 2008). The African Development Bank recognises that investing in infrastructure, such as transport, power supply, and telecommunications, is crucial for enhancing economic growth, alleviating poverty, and enhancing living standards. Infrastructure investment at a large scale facilitates improved private sector operations by reducing manufacturing costs, creating opportunities for new markets in goods and services, and promoting commerce. Enhancements in road infrastructure are anticipated to increase the selling price of goods and services produced, while simultaneously reducing production costs by minimising transportation expenses (Fungo, Krygsman & Nel, 2017). The presence of high-quality road networks offers numerous advantages to the country, contingent upon the availability of stable and ample funding mechanisms. Financing road infrastructure in Gambia is a complex and contentious matter. It poses challenges in implementing new methods of road user charges and the user-pay concept, which are crucial for promoting a sustainable policy framework for road development. The Gambian framework is facing financial strain in funding the road infrastructure due to its inherent characteristics and reliance on public resources. The government is facing challenges in allocating adequate funds for road infrastructure while simultaneously addressing other pressing developmental demands in a financially efficient manner (Van Rensburg & Krygsman, 2019).

**Effects of Road Access Channels**

The road is a significant factor in the production process. There has been a limited amount of scholarly research focused on highlighting the specific ways in which the advantages of road access are achieved. Comprehending the mechanisms by which road access diminishes poverty and fosters economic progress is crucial for policymakers and development practitioners. Rural households derive benefits from roads through multiple ways. Roads have a significant impact on poverty and economic progress by decreasing transportation expenses and enhancing the accessibility of rural households to various markets and urban areas. Farm households with limited road access are prone to selling their products at a reduced price directly from their farms. Furthermore, roads provide farmers with the means to acquire improved technologies, reduce their expenses, obtain greater prices for their products, and explore career prospects outside of farming (Binswanger et al, 1993; Decron et al, 2009). Furthermore, roads have a significant role in facilitating consumption smoothing during periods of shocks and also have a crucial impact on income distribution. However, none of these studies offer empirical evidence about the postulated mechanisms by which roads impact rural welfare.

Biehl (1991) presents an alternative viewpoint suggesting that the productivity and wages of a region rise in correlation with the amount of infrastructure available. The contention is that regions equipped with sophisticated infrastructure, such as a well-developed road network, are more likely to achieve enhanced regional integration and efficient mobilisation of resources, hence fostering productivity and economic growth (World Bank, 1994; World Bank, 2009). An empirical study conducted by the OECD (Égert, B, 2009) demonstrates that investment in infrastructure, particularly roads, has a more substantial impact on long-term productivity and income growth compared to investment in other forms of capital. A study conducted by Fan and Chan-Kang (2005) shown that the rapid expansion of motorways, particularly the improvement of low-quality feeder roads, plays a significant role in reducing poverty and promoting economic growth in China. The study demonstrates the positive impact of road investment on agricultural output and non-farm employment, leading to a reduction in food prices. This is particularly beneficial for impoverished households. Fan et al. (2002) conducted studies on China that revealed the significant impact of government spending on various areas, such as research and development (R&D), education, irrigation, and basic infrastructures like roads, electricity, and telecommunications. These investments were found to greatly enhance agricultural productivity and reduce poverty. Of all these options, investing in roads yields the highest return in the non-farm sector by creating more job opportunities and improving rural wages. They claim that the road's impact on reducing poverty is primarily channelled through non-farm employment.

An alternative viewpoint is that roads can have a positive impact on rural households by increasing the value of their property. Jacoby (2000) conducted a study that analysed how rural roads in Nepal affect the allocation of resources and estimated the impact of reduced transportation costs. He contended that the availability of road access reduces transportation expenses, hence leading to a rise in non-farm incomes and property values. The study also aims to analyse the allocation of road benefits among various income categories in Nepal and concludes that while a significant portion of the benefits in rural areas goes to poor households, it is not sufficient to significantly reduce income disparity.

**The influence of road infrastructure on poverty levels and consumption patterns**

Improved road infrastructure can significantly contribute to economic growth, particularly in countries with limited starting road density, and even more so for landlocked nations such as Nigeria. Several studies have examined the influence of roads on economic development. In a study conducted by Worku (2011), the author examined the influence of the development of the roads sector on the economic growth of Nigeria. The study utilised time series data on the nation's road infrastructure and economic growth, specifically focusing on the years 1971 to 2009. The author utilises the metric of total road network per worker and does separate experiments to determine the significance of paved and gravel roads. The findings from a two-step GMM estimator indicate that paved roads have a favourable and statistically significant effect on economic growth, whereas gravel roads do not have such an impact. While acknowledging the positive contribution of roads to the country's GDP, the analysis fails to account for the disparities in road accessibility across different regions and how this disparity may impact economic performance at smaller administrative levels. This research aims to investigate whether investment in road infrastructure has had a positive impact on poverty reduction in rural Ethiopia, where approximately 80% of the population resides.

Acknowledging the reality that agriculture serves as the primary livelihood for those living in rural poverty, it is crucial to enhance their opportunities to engage in markets, utilise technology, and obtain agricultural resources in order to reduce rural poverty. Renkow et al. (2004) conducted a study which demonstrates that geographical isolation leads to economic isolation, resulting in higher fixed transaction costs for agricultural households in Kenya. The maximum likelihood model is utilised to predict the responsiveness of transaction costs and market participation to rural infrastructure. Thus, they emphasise that public infrastructure plays a crucial role in promoting market integration and reducing transaction costs. Renkow et al. (2004) is significantly limited by the absence of a direct assessment of the road accessibility of rural settlements. They categorise villages into those that are transported by trucks and those transported by non-motorized vehicles. Their discovery that distance amplifies fixed transaction costs is only statistically significant for settlements that have access to truck transportation. Dercon et al. (2009) analyse panel data from fifteen rural communities in Ethiopia to investigate the effects of an agricultural extension programme and access to roads on poverty and consumption growth. According to the study's GMM model, having access to all-weather roads decreases poverty by 6.9% and improves average consumption growth by 16.3%. These findings remain consistent even after accounting for regional fixed effects and seasonal shocks. Although intriguing, the authors employ a simplistic metric for road accessibility, primarily relying on a binary variable that indicates whether households have access to a fully paved road leading to the nearest town. This road accessibility measure fails to account for the tangible improvements in road infrastructure resulting from road upgrades, maintenance, and the construction of new roads. Our work utilises a more accurate measure of road access that changes over time, however we rely on the same data source as Dercon et al. (2009).

In a similar vein, Jalan and Ravallion (2002) conducted a study that yielded strong findings about the persistent poverty experienced by rural households in specific geographic areas. The study utilised longitudinal data collected between 1985 and 1990, focusing on a sample of 5600 agricultural households in rural China. The researchers propose that the increase in consumption is determined by the household's personal capital and the capital associated with their geographic location. The study considers road density per ten thousand inhabitants as a geographic variable that influences the productivity of private capital. The authors employ GMM modelling to determine that roads in China have a substantial and statistically significant effect on the rise of consumption. Furthermore, the report highlights that in order to achieve consumption growth, the degree of road density must surpass 6.5 kilometres per 10,000 population. Khandker and Koolwal (2011) analyse the long-term effects of rural roads using panel data at the household level from Bangladesh during the period of 1997 to 2005. The researchers assess the impact of road construction on consumption expenditure by comparing the levels before and after the project in both control and treatment villages. The results obtained from the GMM estimation indicate that roads have a positive and statistically significant impact on per capita expenditure, particularly in the short term, especially for households that are extremely impoverished. Over time, higher-income groups will have significant advantages as a result of the rising rate of return on rural investments and the growth of non-farm employment opportunities. The researchers also determined that the initial disparity in households' characteristics and road quality has a significant influence on the long-term effects of the roads. Additional research conducted by Mu and Dominique (2007), Khandker et al. (2006), Stifel et al. (2012), and Wondemu and John (2010) has also demonstrated a substantial correlation between roads and the reduction of poverty and economic growth. These studies utilised impact evaluation approaches and panel data estimation, focusing on individual road projects.

**2.2. Theoretical Framework**

This study is based on the Modernization Theory developed by Walt Whitman Rostow in the 1960s. The theory was influenced by the United States government's need to establish an ideological foundation for its backing of the Alliance for Progress, a new policy towards Latin America. The basis of this theory is to build an ideal of a modernised nation that sets universal norms for economic, social, and cultural growth in all countries (Freire & Lima, 2018). Chigudu (2019) asserts that modernization theory examines the social progression and advancement of societies by implementing policies aimed at enhancing productive measures, hence transitioning from a pre-modern state to a more advanced socio-economic position.

The modernization idea emphasises the need to improve the economic and social well-being of rural areas in order to promote societal growth. In order to accomplish development in rural areas, the government should prioritise road infrastructure as a crucial aspect that can stimulate economic growth and enhance living standards. Olasupo and Plaatjie (2016) argue that this growth and development was closely linked to the societies, political organisations, and economic sectors that were experiencing significant expansion. Given the substantial growth of these sectors, it is imperative to prioritise development, particularly in rural communities. According to Ukwandu (2017), policy officials praised modernization theory as a means of fostering economic growth in African nations and enhancing the living conditions of impoverished individuals on the continent. The ideology prioritised the development of contemporary infrastructure as a means to modernise traditional African societies. According to Hopkins (2019), Undoubtedly, a key benefit of the theory was its capacity to swiftly yield outcomes for policymakers without necessitating extensive historical investigation. Olasupo and Plaatjie (2016) contend that some scholars perceive modernization theory not just as a catalyst for change, but also as a response to change. The modernization idea has faced criticism for its failure to acknowledge the distinctiveness of each community.

It is important to consider that every society in a specific context faces distinct obstacles. Hence, with regards to development, it is imperative for the government to comprehend the specific concerns of each region in order to effectively tackle their respective issues. Numerous rural regions lack adequate road infrastructure, necessitating increased focus and attention. According to Tagarirofa (2017), the modernization theory in Africa has prioritised rural development projects that are rooted in the traditional values of rural communalistic societies. This emphasis led to the establishment of participatory development as a standard practice in most development projects, with the aim of achieving significant improvements and active involvement in improving the well-being of society. Modernization theory is a social science theory that examines the processes of growth and development. It emphasises the significant role of the state in generating demand for products and services to foster economic progress (Hyden, 2010). The foundation of modernization theory rests on the premise that by implementing advanced technological and scientific practices, particularly through industrialization that relies on a flexible and inexpensive workforce, developing nations will undergo swift economic progress and development, ultimately benefiting rural regions (Ukwandu, 2017).

**2.3. Empirical research**

Multiple studies have examined the correlation between road infrastructure and the alleviation of poverty. Nevertheless, there is a lack of data in developing countries, particularly at the household level, such as in Nigeria. An inverse relationship was identified between infrastructure investment and poverty based on the macro-level data from Nigeria spanning from 1970:1 to 2005:4. Nevertheless, research conducted by Ogun (2010) demonstrated that investing in social infrastructure yielded a more significant impact on reducing poverty when compared to investing in physical infrastructure.

According to Runsinarith (2009), an analysis of government investments in irrigation, road, electrical, and mobile phone infrastructure in two provinces in Cambodia revealed a direct reduction in poverty incidence. Fan, Nyange, & Rao (2005) conducted a study in Tanzania utilising micro data to evaluate the impact of public investment on poverty reduction. They found that access to road networks and other public facilities, such as electricity, significantly contribute to increasing household income.

Khandker, Bakht, and Koolwal (2009) conducted a study to determine the impact of road investments on poverty and other opportunities for rural households in Bangladesh from 1997 to 2001. By employing the difference-in-difference method with household-level fixed effects, the researchers demonstrated a direct reduction in multi-dimensional poverty as a result of investing in rural roads. Dercon, Gilligan, Hoddinott, & Woldehanna (2009) conducted a study on 15 communities in Ethiopia and found that the presence of all-weather roads reduced poverty by 6.9 percentage points and boosted consumption by 16.3 percentage points. Furthermore, a separate study conducted on 20 developing nations uncovered various intricate routes towards diminishing urban absolute poverty by means of infrastructure. Nevertheless, the correlation between the length of paved roads and the direct channel proxy is deemed statistically significant when viewed from a macroeconomic standpoint (Seetanah, Rammesur, and Rojid, 2009).

In a study by Ali et al. (2015), it was found that reducing transport costs in Nigeria's road infrastructure will result in substantial benefits in terms of income and location. Furthermore, it reduced the probability of experiencing multidimensional poverty. This study is related to the current literature and ongoing discussion regarding the correlation between road infrastructure and its impact on reducing poverty. One of the causes for this conversation is the lack of definitive cause-effect proof. Furthermore, the proposed analytical model's indirect pathway of economic expansion has not effectively resulted in poverty reduction.

**CHAPTER THREE**

**RESEARCH METHODOLOGY**

**3.1 Introduction**

In this chapter, we would describe how the study was carried out.

**3.2 Research design**

The study employed the survey descriptive research design to examine poor road infrastructure and its impact on rural development in Ngor Okpala.

**3.3 Research settings**

This study was carried out in Ngor Okpala Local Government Area of Imo State, Nigeria. Ngor Okpala is the largest local government area in Imo State and one of the largest in Nigeria. It connects Abia and Rivers states of Nigeria.

**3.4 Sources of Data**

The data for this study were generated from two main sources; Primary sources and secondary sources. The primary sources include questionnaire, interviews and observation. The secondary sources include journals, bulletins, textbooks and the internet.

**3.5 Population of the study**

A study population is a group of elements or individuals as the case may be, who share similar characteristics. These similar features can include location, gender, age, sex or specific interest. The emphasis on study population is that it constitute of individuals or elements that are homogeneous in description (Udoyen, 2019). The study population constitute of residents of Ngor Okpala local government area.

**3.6 Sample size determination**

A study sample is simply a systematic selected part of a population that infers its result on the population. In essence, it is that part of a whole that represents the whole and its members share characteristics in like similitude (Udoyen, 2019). In this study, the researcher used the convenience sampling technique to determine the sample size.

**3.7 Sample size technique**

Using convenience sampling method, a total of 240 participants were recruited to participate in this study. Enrolment was based on availability and willingness of participants to join in the survey.

**3.8 Instrumentation**

This is a tool or method used in getting data from respondents. In this study, questionnaires and interview are research instruments used. Questionnaire is the main research instrument used for the study to gather necessary data from the sample respondents. The questionnaire is structured type and provides answers to the research questions and hypotheses therein. This instrument is divided and limited into two sections; Section A and B. Section A deals with the personal data of the respondents while Section B contains research statement postulated in line with the research question and hypothesis in chapter one. Options or alternatives are provided for each respondent to pick or tick one of the options.

**3.9 Reliability**

The researcher initially used peers to check for consistence of results. The researcher also approached senior researchers in the field. The research supervisor played a pivotal role in ensuring that consistency of the results was enhanced. The instrument was also pilot tested.

**3.10 Validity**

Validity here refers to the degree of measurement to which an adopted research instrument or method represents in a reasonable and logical manner the reality of the study (Udoyen, 2019). Questionnaire items were developed from the reviewed literature. The researcher designed a questionnaire with items that were clear and used the language that was understood by all the participants. The questionnaires were given to the supervisor to check for errors and vagueness.

**3.11 Method of Data Collection**

The data for this study was obtained through the use of questionnaires administered to the study participants. Observation was another method through which data was also collected as well as interview. Oral questioning and clarification was made.

**3.12 Method of Data Analysis**

The study employed the simple percentage model in analysing and interpreting the responses from the study participants while the hypothesis was tested using chi-square.

**3.13 Ethical consideration**

The study was approved by the Project Committee of the Department. Informed consent was obtained from all study participants before they were enrolled in the study. Permission was sought from the relevant authorities to carry out the study. Date to visit the place of study for questionnaire distribution was put in place in advance.

**CHAPTER FOUR**

**DATA PRESENTATION AND ANALYSIS**

**Demographic and socio-economic characteristics**

|  |  |  |
| --- | --- | --- |
| **Gender** | **Frequency** | **Percent** |
| Male | 82 | 91.1 |
| Female | 8 | 8.9 |
| Total | 90 | 100 |

**Source:** Survey Data, 2024

The respondents were 82 **(91.1%)** male 8 **(8.9%)** female. this shows that majority of the respondents were male and they always engage in business activities of the mentioned regions of Somalia

|  |  |  |
| --- | --- | --- |
| **Age** | **Frequency** | **Percent** |
| 20-39 | 190 | 79.1 |
| 40-59 | 50 | 20.9 |
| Total | 240 | 100 |

**Source**: Primary Data, 2024

Majority of the respondents 86 (**95.6%)** aged between 20-39. this indicates that most of the respondents were mid-aged.

# Marital Status

|  |  |  |
| --- | --- | --- |
| **Marital Status** | **Frequency** | **Percent** |
| Married | 82 | 34.1 |
| Single | 158 | 65.9 |
| Total | 240 | 100 |

**Source:** Primary Data, 2024

Most of the respondents 58**(64.4%)** married whereas 32**(35.6%)** have not yet married. This figures out that majority of the respondents who contributed the study married.

# Level of Education

|  |  |  |
| --- | --- | --- |
| **Education Level** | **Frequency** | **Percent** |
| Uneducated | 33 | 13.7 |
| Primary | 81 | 33.7 |
| Secondary | 99 | 41.2 |
| Tertiary | 27 | 11.2 |
| Total | 240 | 100 |

**Source:** Primary Data, 2024

The information mentioned above proves that 33**(13.7%)** are secondary graduates. 81**(**33.7**%)** of the respondents have acquired primary education; 99 (41.2%) have acquired secondary education; while 27 (11.2%) have had tertiary education.

4.3. Income level

|  |  |  |
| --- | --- | --- |
| **Monthly Income level** | **Frequency** | **Percent** |
| Less than NGN35000 | 94 | 39.1 |
| NGN35000-NGN70,000 | 69 | 28.7 |
| NGN70,000-NGN100,000 | 35 | 14.5 |
| Above 100k | 42 | 17.5 |
| Total | 240 | 100 |

**Source:** Primary Data, 2024

The information mentioned above shows that 98(39.1%) earn less than NGN35,000; 69(28.7%) earn between NGN35,000 to NGN70,000; 35(14.5%) earn between NGN70,000 to NGN100,000; while 42 (17.5%) earned above NGN100,000.

The existing condition of road infrastructure in the study area

|  |  |  |
| --- | --- | --- |
| **State of road in Ngor Okpala** | **Frequency** | **Percent** |
| Good | 41 | 17 |
| Manageable | 57 | 23.7 |
| Deplorable | 142 | 59 |
| Total | 240 | 100 |

**Source:** Primary Data, 2024

The table above shows that 41(39.1%) participants agreed that Ngor Okpala roads are in good state; 57 (23.7) opined that the roads in Ngor Okpala are manageable while 142 respondents opined that the roads in Ngor Okpala are in a deplorable state.

**Government contribution to road infrastructure in Ngor-Okpala**

|  |  |  |
| --- | --- | --- |
| Has government built or renovated roads in Ngor Okpala? | Frequency | Percent |
| Yes | 37 | 15.4 |
| No | 150 | 62.5 |
| I don’t know | 53 | 22 |
| Total | 240 | 100 |

**Source:** Primary Data, 2024

The table above shows that 37(15.4%) participants opined that the government have shown responsibility by building new roads or renovating old roads in Ngor Okpala; a total of 150 (62.5) disagreed with this opinion while 53 respondents were uncertain.

**Impacts of poor road infrastructure in Ngor Okpala.**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Statement** | **Mean** | **Standard**  **deviation** |
|  | Lack of road infrastructure has led to poor standard living in Ngor Okpala | 1.16 | .364 |
|  | Lack of road infrastructure has led to economic deficit in Ngor Okpala. | 1.12 | .329 |
|  | Lack of road infrastructure has led to productivity decline in Ngor Okpala. | 1.22 | .418 |
|  | Lack of road infrastructure is an obstacle to the free trade in Ngor Okpala. | 1.17 | .375 |
|  | Lack of road infrastructure promotes unemployment in your Ngor Okpala. | 1.27 | .445 |
| **Mean**  **index** |  | **1.1** | **0.38** |

The findings of the above table indicate that lack of road infrastructure contributes to poor standard of living and also brings retardation of economic development. The mean scores **(1.1)** and this shows that majority of the study respondents agree lack of road infrastructure creates unemployment and free trade barriers.



**Test of hypothesis**

Ho1: There is no significant relationship between poor road infrastructure and rural development.

Ha1: There is a significant relationship between poor road infrastructure and rural development.

## Table 2: x2 Calculation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **O** | **E** | **(O-E)** | **(O-E)2** | **(O-E)2/ E** |
| A | 50 | 30.56 | +19.44 | 377.91 | 12.37 |
| B | 11 | 30.56 | -19.56 | 382.59 | 12.52 |
| C | 86 | 75.16 | +10.84 | 117.51 | 1.56 |
| D | 64 | 75.16 | -11.16 | 124.55 | 1.66 |
| E | 103 | 134.28 | -31.28 | 978.44 | 7.29 |
| F | 165 | 134.28 | +30.75 | 945.56 | 7.04 |
| Total | 479 |  |  |  | 42.44 |

Source: Field Survey, 2024 **x2** =42.44

## Table 3: Summary of x2 Calculation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | DF | Critical limit | Calculate chi-square value | Decision |
| Road infrastructure and rural development | (R-1)(C-1) |  |  | Reject Ho while H1 is accepted |
|  |  |  |
| (3-1)(2-1) | 5.99 (0.05%) | 42.44 |
| 2×1 | 9.21(0.01%) |  |
| 2 |  |  |

Source: Field Survey, 2024

**Rule:** If the x2 Calculated value is greater than x2 critical value reject Ho. Therefore; In this case thex2calculated value is 42.44 which is greater than the critical values 5.99 and 9.21. In this regard Ho is rejected while H1 is accepted. Therefore, it can be concluded that rural road condition has influence on the cost of transporting farm produce in the study area.

**CHAPTER FIVE**

**SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION**

* 1. **Summary of Findings**

Road infrastructure plays a crucial role in fostering rural development in Nigeria. It improves the efficient transportation of raw resources and agricultural produce. Analysis of the research area's socio-economic characteristics indicated that 39.1% of the participants have a monthly income below ₦35,000. However, in interacting with the respondents, it was discovered that they lack a consistent source of income. The amount of money they receive sporadically from selling their farm produce fluctuates, and there are instances where they may not earn any Naira in a given month. However, their highest income is often generated during the rainy season and harvest periods, which occur between June and December annually.

The primary occupation in the research region was agriculture, with 75% of the respondents engaged in farming, followed by trading, which accounted for 20% of the respondents. Public transport was the most prevalent mode of transportation in the research area, with the highest proportion. This survey also uncovered that the majority of the roads leading to the several farm settlements were in a state of disrepair, followed by insufficient transportation services. These factors have consequences for the expenses associated with transporting agricultural goods throughout the harvest season and the progress of the study region. The study revealed that a significant majority of the participants allocate a greater share of their funds towards transporting agricultural goods, with half of that amount specifically designated for the evacuation of these goods. This outcome has significant ramifications for the agricultural practices employed by farmers in the Ngor Okpala region. Nevertheless, the expense of conveying agricultural produce is contingent upon the specific type of crop. Furthermore, the economic consequence of this was evident in the limited quantity of food crops that could be cultivated during the season. The roadways linking several settlements within the research region were small and lacked pavement, whereas the majority of the surfaced roads exhibited a deteriorated surface with potholes. The hypothesis examined the relationship between rural road condition and rural development, and found that rural road condition significantly impacts rural development. An interview conducted with the Department of Works at the Local Government Headquarters revealed that they annually undertake road upgrading projects in select settlements within the local government, particularly during the dry season. However, the Department has been encountering financial constraints and insufficient equipment, which hinder their ability to effectively maintain and upgrade rural roads. Furthermore, interviews conducted with the Road Workers (NURTW) in the study region revealed their dissatisfaction with the deteriorating state of the roads, particularly during the rainy season. This unfavourable condition significantly impacts the maintenance of their vehicles. In addition, several communities are inaccessible to commercial and personal vehicles, but may only be reached by motorcyclists.

* 1. **Conclusion**

The research has thoroughly analysed the current state of road infrastructure in the study area. The study thoroughly analysed the socio-economic activities of the study area, as well as the condition of rural roads and the numerous transportation challenges that accompany them. Nevertheless, the study emphasises the crucial role of effective and efficient rural transport in achieving comprehensive rural development in Nigeria. This is essential for improving the standard of living and boosting the nation's economy. If the recommendations resulting from the findings are taken seriously and given the attention they deserve, it has the potential to significantly improve the living standards and economy of rural areas in Nigeria. This will address the concerning issue of rural-urban migration and contribute to the growth of the Nation’s agro base industries by ensuring better access to raw materials and food crops in rural areas.

* 1. **Recommendations**

To address the challenges posed by inadequate road infrastructure in rural areas, the following measures are suggested:

1. It is crucial for relevant government agencies to support or finance researchers from esteemed educational institutions to conduct regular research on rural road infrastructure and transport. This will greatly contribute to the advancement of rural development in Nigeria.
2. The local government council should have the necessary resources to effectively manage and maintain rural roads, ensuring efficient and safe traffic flow in the study area.
3. This proposal suggests the establishment of a community development office within the Local Government council. The purpose of this office would be to coordinate different communities and provide them with education on the importance of investing in road maintenance and actively participating in the transport system of their respective communities.

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