

Effect of Roads on Rural Agricultural Development in Otukpo and Agatu local Government Areas of Benue State

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Abstract. This study is an investigation of the effects of roads on rural development with a focus on Otukpo and Agatu Local Government Areas of Benue State. The study's objectives included determining whether the people in rural areas of Otukpo and Agatu LGA have access to good roads, determining the impact of rural roads on agricultural development in Otukpo and Agatu LGA, and determining the relationship between roads and rural development in Otukpo and Agatu LGA. The study was carried out among 400 (sample size) rural dwellers in the two local government areas stated above, including farmers, traders, and students. The study was guided by time-geography theory as its theoretical framework of analysis. A questionnaire and interviews were used to collect information. The data collected was presented in tabular form and analysed using frequency and percentages. The findings revealed that people in rural areas of Otukpo and Agatu LGA do not have access to good roads, and that bad roads in rural areas have hampered agricultural development in Otukpo and Agatu LGA. It was concluded that there is a need to give attention to rural roads as they can impact positively on the lives of rural dwellers and the whole country at large. It was recommended, among other things, that, in order to improve rural development in these areas, good roads should be provided by the government in conjunction with private organisations to better the lives of rural dwellers across the two local government areas. By doing this, most of the farmers, especially the young ones, will stay in the rural area and engage in farming activities to enhance food security, reduce rural-urban migration, and reduce crime.

Keywords: Rural, Road, Agriculture, Development, Benue State

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INTRODUCTION

Infrastructure such as roads remains one of the major assets, as do the services needed for the sustainability of rural dwellings. Research on development has only recently begun to pay attention to rural roads (Sati & Vangchhia, 2017). Rural roads received very little attention because they were primarily considered a component of the investment in the agricultural sector prior to the 1960s, when these organisations exclusively concentrated on the urgent need for structural infrastructure development.

In the late 1990s and early 2000s, about 900 million people in developing nations lived in rural areas without reliable all-season roads, and about 300 million lived in places that were inaccessible to any kind of vehicle (Lebo & Schelling, 2015). After the 1990s, rural roads gained substantial attention, and organisations like the International Forum of Rural Transport and Development (IFRTD) gained influence in supporting the rural transportation sector in developing nations worldwide (Booth, Hanmer, & Lovell, 2016). The sub-Saharan Africa Transport Partnership (SSATP) programme has been instrumental in advancing policy creation in Africa's road sector.

Rural roads are significant since they make up more than 80% of the overall road networks in developing nations. Additionally, they facilitate up to 90% of all mobility in developing countries' inland regions (Chakwizira, Whemachena, & Mashiri, 2014). According to statistics, more people (more than 63% of the population) live in rural regions than in cities in Africa. Rural roads are significant since they make up more than 80% of the overall road networks in developing nations. Additionally, they facilitate up to 90% of all mobility in developing countries' inland regions (Chakwizira, Whemachena, & Mashiri, 2014). According to statistics, more people (more than 63% of the population) live in rural regions than in cities in Africa.

Additionally, figures revealed that up to 90% of people in rural Asia and Africa live in poverty (Kachouri, Achour, Abida, & Bouaziz, 2015). According to studies, isolation is a major contributor to rural poverty in emerging nations (Chambers, 2014; Dixon, 2015; Sharpe & Swanson, 2016). In research done in 2000, nearly 40,000 people—women and men—in 50 different nations were asked to talk about their lives and explain what poverty meant to them. According to the study's findings, the majority of participants did not express a strong belief that poverty is primarily caused by a lack of resources but rather that it is primarily characterised by physical, social, and political isolation (Plessis-Fraissard, 2014).

Agricultural and non-agricultural goods and services can be transported between producers and markets inside and outside of communities owing to rural roads, according to studies on roads in rural China. This allows for the improvement of regional growth (Shenggen & Zhang, 2014; Fan & Chan-Kang, 2015; Qin & Zhang, 2016). Similar to this, studies conducted in rural India indicate that roads give millions of rural residents access to amenities like markets, education, and health, as well as help promote agricultural growth (Kesterton, Cleland, Sloggett, & Ronsmans, 2014; Asher & Novosad, 2016). According to an investigation by Plessis-Fraissard (2014), 31%

of the world's rural population resides in regions that are cut off from markets and services. A year-round road is more than 2 kilometres from this population's home. A road that can be driven on year-round is known as an "all-season road." Because they make it easier for workers to move between their homes and their places of employment, all-season roadways are essential for rural economic development.

An investigation by Kakwagh (2018) in Nigeria, more specifically Benue State, revealed that rural roads are essential to the socioeconomic growth of rural communities. The author pointed out that because of their affordable transportation costs, rural roads improve market accessibility and population accessibility. Good roads connect rural and urban areas, resulting in more favourable prices for farmers, fewer produce losses, and lower costs for consumers. Therefore, this study looks at how roads affect social, economic, and agricultural development in the rural parts of Benue State's Otukpo and Agatu LGAs.

STATEMENT OF THE PROBLEM

Numerous factors influence the social and economic development of rural communities. Access to transportation and services for the population living in rural areas is one of these essential requirements (Kakwagh, 2018). The development of agriculture and rural areas is positively impacted by roads. In a similar spirit, Buys, Deichmann, and Wheeler (2016) and Dongos, Edmonds, and Johannesson (2014) both highlighted the importance of decent roads for the development of rural areas. The authors went on to say that rural roads are special because they may provide room for additional investments like security, schools, and health care.

Rural roads are the primary factor in poverty reduction in Benue State and Nigeria generally, aside from the movement of people. Rural roads affect how people move, transport their goods, and obtain information. Services can be transported to consumers while roads are open. Roads enable individuals to be mobile (Tighe, 2016).

Good roads are essential for a community to benefit from jobs and surplus crop output. In general, rural roads are tools for reducing poverty (World Bank, 2016). Raising the standard of living in rural areas depends on roads. Additionally, roads lower transportation costs, stimulate market activity, and support the growth of economic ties that increase agricultural production (Schneider & Gugerty, 2015).

Like many other African nations, agriculture plays a significant role in the development of rural areas and is the primary source of income for the rural population in rural Nigeria. The majority of rural households in Nigeria (and elsewhere in Africa) are engaged in farming, and this generates a significant portion of their income (Kakwagh, 2018). The infrastructure of rural transportation is necessary for the promotion of these income-generating opportunities.

Because of the skyrocketing prices of basic consumables, there has been an increase in population in Benue State and throughout Nigeria. This makes transportation a vital component of rural area growth and production, particularly in regard to agriculture. Transportation is one of the factors that significantly contributes to increasing agricultural output and reducing post-harvest losses. However, due to the

generally poor condition of the rural roads, people find it difficult to travel in most rural areas of Benue State. In some of these rural places, travel is quite challenging. Most of the roads deteriorate and become inaccessible, especially during the rainy season, subjecting the populace to poor levels of connectivity. This study, which looks at the effects of roads on rural development in the two local government districts of Benue State—Otukpo and Agatu—does so in light of the advantages that rural roads have for agricultural and rural development.

Objectives of the Study

The objective of this study is to examine the effect of roads on agriculture development in Otukpo and Agatu Local Government Areas of Benue State. It specifically aims to

1. To determine whether the people in rural areas of Otukpo and Agatu LGA have access to good roads.
2. To determine the impact of rural roads on agricultural development in Otukpo and Agatu
3. To determine the relationship between road and rural development in Otukpo and Agatu

Research Questions

This study was guided by the following research questions:

1. Do people in rural areas of Otukpo and Agatu Local Government Areas have access to good roads?
2. What is the impact of rural roads on the agricultural development of Otukpo and Agatu LGAs?
3. What is the relationship between road and rural development in Otukpo and Agatu LGAs?

LITERATURE REVIEW

The time geography theory was developed in 1970, but its roots can be traced to the 1953 doctoral research of Torsten Hagerstand (Hagerstand, 1953; Hagerstand, 1970). His research investigated migration in Sweden and emigration to the United States from Asby, a small parish in the southeast of Sweden, in the 19th century. Hagerstand's study focused on the movement of people between dwellings in Asby and their use of local resources, and it considered the spread of technological innovations in the parish. Hagerstand's research laid the foundation for further studies on migration, migration chains, and time geography. Time geography incorporates two basic concepts, the space-time path and the space-time prism, to portray human activities according to their spatial and temporal characteristics in an integrated space-time system (Hagerstand, 1970). The route of a person's movement in actual space through time is known as a "space-time path." This route can be viewed as a linear component of the space-time system that offers a continuous depiction of a person's

history of spatial placement. A space-time prism shows the extent of space and time that a person can access under a particular set of restrictions. In the orthogonal space-time coordinate system established by time geography, the prism creates a continuous space.

"Rural" has different meanings to different people depending on where they come from. What is considered rural in developing countries can be considered urbanised in the world's developed nations. However, under specific considerations, such as in Nigeria, rural settlements are considered a place harbouring 20,000 dwellers, and such dwellers engage in primitive production activities (Aderamo & Magaji, 2014). Nonurban environments have been defined as regions with a low population density, usually less than 1 person per acre (Weir & McCabe, 2015).

The concept of rural development in Nigeria lacks a consistent definition, as different scholars tend to view it from different perspectives. Some scholars view rural development in terms of education and training (Haddad, 2013; Hinzen, 2015). Rural development involves creating and expanding opportunities for rural people to reach their full potential through education and to participate in decisions and actions that affect their lives (Obinne, 2017). The author looks at efforts to increase rural production, create employment opportunities, and eradicate basic or extreme poverty, disease, and ignorance.

Ogunfowora & Idachaba (2018) see rural development as a means of providing basic services, infrastructure, improved agricultural productivity, extension services, and job creation for rural residents. Understanding rural development will be easier once you understand the concept of development. Development is the gradual growth of something so that it becomes more advanced and stronger. It is the process of producing or creating something new (Horby, 2015). According to this definition, development entails a gradual or progressive change.

It is commonly known that infrastructure is beneficial for rural and agricultural development, and this shows in its documentation. According to estimates, 15% of all crops worldwide are lost between the farm and the customer due to inadequate roads and storage facilities, which has a negative impact on farmers' incomes. Investing in rural infrastructure can help reduce production costs, which can help the farming community's income and agricultural output grow. Additionally, expanded markets, economies of scale, and improved factor market operations are all influenced by improved infrastructure. By improving access to inputs, rural infrastructure development aids in market expansion.

Adediji, Olafia, Omole, Olamibi, and Yusuf (2014) carried out a study on the impact of road transport on rural development with a focus on the Obokun local government area of Osun State. Rural transport and infrastructure development in Nigeria are hot topics and have been identified by many as crucial components for the country's economic development. The study of the data showed that there were inequalities in the area's road infrastructure provision and road restoration, which led to differences in the level of growth. Since agriculture is the main source of income for

the locals and is negatively impacted by the area's poor road conditions, the poverty rate rises.

Agbigbe (2016) looks at the connection between Nigeria's economic growth and investments in road networks. Solow's theory of economic growth and Frischmann's theory of transportation infrastructure served as the study's theoretical compass. According to the research, funding for road networks encourages economic growth and raises Nigerians' standards of living. The availability of transportation infrastructure, such as roads, railways, airports, and waterways, facilitates the movement of people and goods, which is essential for industrialization. These infrastructures also have an impact on industrial investment and production performance.

In order to understand the problems with the rural road infrastructure and how they impede agricultural growth in the Idanre local government area of Ondo State, Olorunfemi (2020) conducted a study. In order to ensure the best possible chance of survival for these areas, access to rural roads is a crucial component of attaining sustainable development goals. The results revealed high transportation costs and erratic transportation services as a result of the area's poor road infrastructure, which inhibited the growth of the agricultural sector. In the LGA, motorcycles dominated the transportation scene. Due to the motorcycle's limited capacity and high transportation costs, the results also showed a rising rate of post-harvest loss. To promote agricultural development, it was advised that outdated road infrastructure be built and repaired. Mamud (2019) studied rural development in Nigeria with an emphasis on its theories, methods, difficulties, and prospects. If rural communities are to make a significant contribution to the social, cultural, and economic development of Nigeria, it is imperative that government at all levels make rural development a top priority. The majority of Nigeria's wealth comes from agriculture and oil, both of which are rich in rural areas. Current estimates put the rural population at over 80% of the whole population of almost 140 million people.

In the Odukpani LGA of Cross-River, Esuabanga, Osuorji, Sodanji, and Odetoro (2019) investigated the effects of roads on rural communities' socioeconomic development. To direct the investigation, three goals and three hypotheses were developed. Descriptive and inferential statistical methods were used to deliver and analyse the questionnaire. According to the study, the road had a significant impact on the socioeconomic growth of the host communities in terms of employment, income, and the number of small and medium-sized businesses that remained in the host communities following the road's paving project.

METHODOLOGY

This research uses the survey method as its research design. The reason for using the survey method is to get responses from the sampled respondents. The survey method is useful in measuring public opinion, attitudes, and orientations prevailing in a large population at a given point in time. The study was conducted in both Otukpo

and Agatu local government areas of Benue State. The total population of the two LGAs is 515,600. The target respondents are traders, farmers, youth, and elders who may have lived in these areas for a period of four (4) years. The sample size was determined using the Taro Yamane Scientific Formula. Given the total population of 512, the sample size is therefore 400, and the random sampling technique was employed in this study. In each of the five LGAs, five rural communities were drawn. Due to the population of the areas, this study is concerned with traders, farmers, students, and others who are mostly affected by bad roads. Data was obtained from both primary and secondary sources. The primary source was a questionnaire and interviews. A questionnaire and an interview were used to collect data for this study. The questionnaire contained structured questions (open- or closed-ended questions), from which respondents were asked to choose in order to avoid ambiguity in the answers. The reliability of the instrument was established. The data collected was presented in tabular form using frequency and percentages.

RESULT AND DISCUSSION

Table 1: Do you have access to good road?

Variable	Frequency	Percentage
Strongly agree	40	11.1
Agree	20	5.5
Disagree	100	27.5
Strongly disagree	200	55.7
Total	360	100%

Source: Researcher's Survey, 2022

Table 1 revealed respondents' responses on whether they have good roads in their areas. Majority of the respondents represented by 200 (55.7%) strongly disagree that they do not have good roads. Followed by 100 respondents represented by (27.5%) who also agree that they do not have good roads. While 40 respondents represented by (11.1%) strongly agreed that they have good roads and 20 (5.5%) of the respondent said they have good roads. This result showed that majority of the respondents do not have good roads in their areas as represented by 200 (55.5%) of the total population which is the highest response.

Table 2: Rural roads in Otukpo and Agatu LGAs during raining season are not reliable

Variable	Frequency	Percentage
Strongly agree	235	65.2
Agree	105	29.1
Disagree	5	1.3
Strongly disagree	15	4.6

Total	360	100%
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Source: Researcher's Survey, 2022

Table 2 revealed respondents' view on whether rural roads in Otukpo and Agatu LGAs during rainy season are not reliable. Majority of the respondents 235 represented by (65.2%) strongly agree that during rainy season rural roads are not reliable. Followed by 105 respondents with (29.1%) who also agree that during rainy season rural roads are not reliable. While 5 (1.3%) of the respondents disagree that during rainy season rural roads are reliable and 15 (4.6%) of the respondents also strongly disagree that that during rainy season, rural roads are reliable. This result implies that during rainy season rural roads are not reliable thereby making movement in some areas inaccessible which affect traders, farmers and other activities as represented by 235 respondents with (65.2%) which is the highest response.

Table 3: Do you have frequency trip to urban through rural roads?

Variable	Frequency	Percentage
Strongly agree	34	9.4
Agree	26	7.2
Disagree	103	28.6
Strongly disagree	197	54.7
Total	360	100%

Source: Researcher's Survey, 2022

Table 3 revealed respondents on whether they have frequency trip urban areas. Majority of the respondents 197 represented by (54.7%) strongly disagree that they do not go to urban areas frequently, followed by 103 respondents represented by (28.6%) who also said they do not go to urban areas frequently. While 34 (9.4%) and 26 (7.2%) of the respondents strongly agree and agree that they do go to urban areas frequently. This result revealed that majority represented by (54.7%) answered that they do not go to urban areas frequently due to bad roads.

Table 4: Lack of access to good roads lead to low farm productivity in rural areas

Variable	Frequency	Percentage
Strongly agree	205	56.9
Agree	110	30.5
Disagree	15	4.1
Strongly disagree	30	8.3
Total	360	100%

Source: Researcher's Survey, 2022

Table 4 shows opinions of respondents on whether lack of good roads lead to low farm productivity in rural areas. Majority of the respondents 205 represented by (56.9%) strongly agreed that lack of good roads lead to low farm productivity in rural areas, followed by 110 respondents with (30.5%) also agree that lack of good roads affect their farm productivity output. While about 15 of the respondents with (4.1%) disagree and 30 (8.3%) of the respondents strongly disagree. With majority of the respondents represented by 205 (56.9%), this result means that people in rural areas are affected by bad roads as it reduces farm productivity.

Table 5: Does inaccessible roads in rural areas decline their agricultural productivity?

Variable	Frequency	Percentage
Strongly agree	200	55.6
Agree	115	31.9
Disagree	13	3.6
Strongly disagree	32	8.8
Total	360	100%

Source: Researcher's Survey, 2022

Table 4.13 shows whether inaccessible roads in rural areas decline their agricultural development. Out of the 360 respondents, about 200 representing (55.6%) strongly agree that inaccessible roads in rural areas decline agricultural productivity. Another 115 respondents represented by (31.9%) also agree that inaccessible roads in rural area affect agricultural productivity. About 13 of the respondents represented by (3.6%) disagree while 32 (8.8%) of the respondents strongly disagree. This result shows that rural areas lack accessible roads and it affect their agricultural productivity.

Table 6: Does good roads have positive impact on rural development?

Variable	Frequency	Percentage
Strongly agree	197	54.7
Agree	118	32.7
Disagree	14	3.8
Strongly disagree	31	8.6
Total	360	100%

Source: Researcher's Survey, 2022

Table 6 revealed respondents' opinions on whether good roads have a positive impact on rural development. A large number of respondents, represented by 197 (54.7%), strongly agree that good roads have an impact on rural development. The preceding is followed by 118 respondents (32.7%) who agreed. While 14 of the respondents (3.8%) disagree and 31 (8.6%) of the respondents strongly disagree, this

result shows that when rural areas are provided with good roads, it helps to improve their socio-economic and agricultural productivity, thereby leading to rural development, which in turn makes life easier and raises standards for rural dwellers.

Discussion

Objective one was to determine whether the people in rural areas of Otukpo and Agatu LGA have access to good roads. As shown in table 4.6, the majority of the respondents represented by 200 (55.7%) strongly disagree that they do not have good roads. The above is followed by 100 respondents, represented by 27.57%, who also agree that they do not have good roads. This result showed that the majority of rural dwellers do not have good roads in their areas, which affects development. As shown in Table 1, the majority of the 190 respondents (52.7%) strongly agree that rural roads in Otukpo and Agatu have only one lane, followed by 27.7% of respondents with a total of 100 who also agree. This result shows that rural roads in these areas have just one lane. According to Table 4.8, the majority of the 235 respondents (65.2%) strongly agree that rural roads are unreliable during the rainy season. This is followed by 105 respondents (29.1%) who also agree that during the rainy season, rural roads are not reliable. This result implies that during the rainy season rural roads are not reliable, thereby making movement in some areas inaccessible, which affects traders, farmers, and other activities. This finding is in line with Akinyosoye (2014), who asserted that most of the poor people in the world live in rural areas where the level of public infrastructure, especially roads, seems low and unbecoming.

Objective two was to determine the impact of rural roads on the agricultural development of Otukpo and Agatu LGAs. According to Table 2, the majority of the 205 respondents (56.9%) strongly agreed that a lack of good roads leads to low farm productivity in rural areas, with 110 respondents (30.5%) agreeing that a lack of good roads affects their farm productivity output. With the majority of the respondents represented by 205 (56.9%), this result means that people in rural areas are affected by bad roads, which reduce farm productivity.

Objective three was to determine the relationship between road and rural development in Otukpo and Agatu LGAs. As presented in Table 5, a large number of respondents, represented by 197 (54.7%), strongly agree that good roads have an impact on rural development. followed by 118 of the respondents (32.7%) who also agreed. This result shows that when rural areas are provided with good roads, it helps to improve their socio-economic and agricultural productivity, thereby leading to rural development, which in turn makes life easier and raises standards for rural dwellers. As shown in Table 3, the majority of the respondents, 197, represented by (54.7%), strongly disagree that they do not go to urban areas frequently, followed by 103 respondents, represented by (28.1%), who also said they do not go to urban areas frequently. This result revealed that the majority, represented by 54.7%, answered that they do not go to urban areas frequently due to bad roads. When respondents were asked about the reasons why they do not travel frequently to urban areas, they stated

that "travelling to urban areas is a problem for many of them." This is because there is a shortage of vehicles, and the respondent further added that the most pressing issue is that even the roads are inaccessible. "Even those who have vehicles are hindered from going to town due to bad roads." As presented in Table 5, which shows the responses of respondents on whether bad governance is attributed to low rural development, about 170 (47.2%) of the respondents strongly agree that bad governance affects rural development in Otukpo and Agatu LGAs. About 140 of the respondents also agree that bad governance affects rural development. This result means that most of the issues affecting rural dwellers are due to bad governance. This is because funds meant for the development of rural communities have been embezzled by the leaders.

CONCLUSION

Rural development is the provision of basic services, infrastructure, improved agricultural productivity, extension services, and job creation for rural residents. The provision of infrastructure as an approach to rural development is one of the techniques most commonly used by the developing countries of the world. The rural development infrastructure proposal can be physical, social, or institutional. Therefore, it stands to reason that any investment that boosts rural productivity, income, and employment will hopefully alleviate poverty. Agricultural development is impacted by rural road improvements, followed by social service development. Because food crops grown by small holders have lower price elasticity of supply than cash crops, it has been noted that roads tend to have a larger initial influence on production when cultivating cash crops. Rural roads must therefore receive attention since they have the potential to favourably affect both the lives of rural residents and the entire nation. It was recommended that proper roadways be built by the government in collaboration with a private organisation to improve the lives of rural residents in the two local government areas and to improve rural development in the area. By doing this, the majority of farmers, especially the young ones, will continue to live in rural areas and work on their farms, improving food security while lowering crime and rural-urban migration. In addition to giving farmers a chance to move their produce to urban markets, this will also enhance agricultural output, which will raise farmers' incomes and lessen poverty among rural farmers. Programs for public-private partnerships are another way to guarantee sustained rural development. Given the population and vastness of Nigeria, it is impossible for the government to fully satisfy the demands of each community.

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