



Global Journal of the Built Environment
(Published by the School of Environmental Studies, Federal
Polytechnic Nasarawa)

Available Online at: www.gjbeses.org



The Impact of Road Improvement on the Rental Value of Residential Properties in Nasarawa Town

Momoh Camara Mejid¹

¹ Department of Estate Management and Valuation, Federal Polytechnic, Nasarawa, Nasarawa state

Corresponding author's e-mail: momohmejid@yahoo.com

Abstract

The most common and very important means of transportation all over the world is road transportation and general, accessibility depends largely on efficient transportation network. In the past, Nasarawa town is virtually neglected in the area of road infrastructures by successive governments and the town was characterized with roads which are deteriorated into deplorable situation. Poth-holes existed in all the roads thereby causing traffic problems. However, Nasarawa state government of recent has invested massively on road infrastructure improvement in Nasarawa town. This study adopted a survey design with a structured set of questionnaires to gathered information on primary source using systematic sampling technique. A total number of one hundred and ten (110) questionnaires were distributed to the households along Nasarawa-Loko road out of which one hundred and five (105) were retrieved and five (5) were rejected due to improper filling. The study reveals that road improvement vis-à-vis reconstruction of road has significant impact on the rental value of residential properties in the study area. It improves the rental value significantly. The study however recommends among other things that Landed property generally is viewed as an indicator of the wealth of a nation and their value can be enhanced through the provision of good roads which will in turn improve on the revenue generated by government from the landed properties through tax, therefore, government at all level should increase budget provision for road infrastructural construction, rehabilitation and maintenance as a matter of great importance.

Key Words: Road, Infrastructure, Residential, Property Value.

Introduction

The relationship between road infrastructure improvements and residential property values has garnered significant attention in real estate and urban planning research. Understanding how enhancements in road infrastructure impact rental values is crucial for policymakers, investors, and urban planners aiming to make informed decisions that influence both economic outcomes and community well-being. Transportation according to Chinelo (2021), is seen as one of the important elements in the physical and socio-economic development of cities all over the world. Efficient transportation network is a factor that largely depends upon to achieve the proper functioning of an urban area. This in the opinion of Aderemo (2003), assist in accessibility to different land uses in the urban areas and therefore constitute an important element in urban development.

Most investors especially in real estate sector are generally concern on how to recoup back their invested capital within a shortest possible time and maximize their return on investment and whereas, real estate investment requires huge capital investment which in most developing countries are not easily to come by (Julius and Mustapha, 2009).

Before now, Nasarawa town is virtually neglected in the area of road infrastructures by successive governments in the past and the town was characterized with roads which are deteriorated into deplorable situation. Poth-holes existed in all the roads thereby causing traffic problems. However,

Nasarawa state government of recent has invested massively on road infrastructure improvement in Nasarawa town, for instance, the reconstruction of the popular Shagari Road which links the GRA and Nasarawa Police station, reconstruction of overseas road, reconstruction of student's village linking the Nasarawa market and a host of others. This effort was further complimented by the federal government by reconstructing the Nasarawa – Loko road which ease travel distance to Benue state and link the eastern part of the country. This study therefore looks at the impact of the road improvements on the rental value of residential properties in Nasarawa town by attempting to identify the nature of road improvement that has taken place in Nasarawa town and the impact it makes on residential rental value. Attention will be focus on properties along the Nasarawa-Loko road.

Literature Review

Theoretical Framework

To comprehend the impact of road infrastructure on residential rental values, it is essential to consider the theoretical underpinnings of property value determination. The Hedonic Pricing Model (Rosen, 1974) provides a foundational framework by suggesting that property prices are a function of both the attributes of the property itself and its surrounding environment, including transportation infrastructure. This model posits that improvements in road infrastructure can enhance accessibility, reduce travel time, and thereby increase property values.

Several studies have empirically examined how road infrastructure improvements affect residential property values. A study by Chien and Ding (2007) investigated the effects of highway expansions on residential property values in Taiwan. Their findings indicated that proximity to improved highways generally led to higher property values due to increased accessibility and reduced travel time. Similarly, a study by Cervero and Duncan (2003) in the United States found that properties near newly constructed roads experienced notable increases in rental values. This increase was attributed to improved connectivity and the consequent enhancement in the attractiveness of the location.

The quantification of the impact of road improvements on property values varies across studies. A meta-analysis by Gibbons and Machin (2005) synthesized findings from various research articles and revealed that the average increase in residential property values due to road improvements ranged from 5% to 20%, depending on the type and scale of the infrastructure project.

In contrast, some studies highlight the diminishing returns associated with road improvements. For instance, a research article by Blomley (2004) noted that the impact on rental values is more pronounced in areas with previously underdeveloped infrastructure but tends to level off as infrastructure quality approaches a higher standard.

The impact of road infrastructure improvements on rental values can vary significantly depending on the locality. A

study by Ko and Fujii (2005) investigated the effect of road upgrades on rental values in urban and rural areas in Japan. They found that while urban areas experienced substantial increases in rental values, rural areas showed minimal changes. This discrepancy was attributed to differences in pre-existing infrastructure conditions and population density. Additionally, research by Dargay and Hanly (2007) highlighted that the benefits of road improvements are not evenly distributed across all residential properties. Properties located at strategic points, such as near major intersections or transport hubs, tend to benefit more compared to those situated further away.

The socioeconomic and environmental context can also influence the relationship between road infrastructure improvements and property values. A study by Schwanen and Mokhtarian (2005) explored how road improvements impact rental values differently in socioeconomically diverse neighborhoods. They found that while road improvements generally lead to increased rental values, the magnitude of this effect is often more pronounced in higher-income neighborhoods. Moreover, environmental considerations play a role. A study by Handy (2005) indicated that the perceived environmental impact of road improvements, such as increased noise and pollution, could counteract the positive effects on rental values in some cases.

Concept of Road

Road according to Alimi, Ayedun and Oni (2014), is a thoroughfare, route or way on land between two places that has been paved

or otherwise improved to allowed travel by foot or some form of conveyance, including a motor vehicle, bicycle, cart or horse. It is worth note at this point that the most common and very important means of transportation all over the world is road transportation and general accessibility depends largely on efficient transportation network. Road accessibility according to Ileoje (2004), as cited in Ladan (2007), can be categorized based on their quality which is largely determined by the number of lanes, type of surface, width and the nature and type of facilities available. The road categorization includes trunk "A" which is owned and maintained by the federal government, some of which are normally dual carriage. There are also generally tarred trunk "B" roads normally links local government area within a state together. These categories are normally owned and maintained by the state government. The third category are mostly untarred season trunk "C" roads mostly owned and maintained by local governments.

The Impact of Road Improvement on Residential Property Value

Many scholars have tried to establish a link between road infrastructure improvement and residential property value. For instance, Ogbuefi and Egbenta (2002), in their study titled the relationship between transport service and property value in Enugu, Nigeria, discovered that time distance is a very poor predictor of value since with good transportation network, residents can afford to stay anywhere outside the city center and still enjoy infrastructural facilities provided in the city. Similarly, Alimi *et.al* (2014),

appraised the relationship between road improvements and immediate neighborhood residential properties value in Lagos, the discovered that among the factors that can improve the value of properties, road improvement is a contributory factor.

It is generally believed that sites adjacent to main transport routes enjoy relative advantage over those located some distance away, and other sites located at route intersections possesses relative advantage with greater advantages with greater advantages belonging to sites located at focus of transport system. These advantages are determined in relation to accessibility, which has different characteristics in relation to individual sites thus differentiating between sites in terms of accessibility advantages. Many studies emphasized the effect of the factors on the value of properties generally with little considerations given to road construction and its effect on the value of residential properties.

The Study Area

Nasarawa local government area in Nasarawa state is located in the north central region of Nigeria. The local government has her headquarter in Nasarawa town. The local government is located at 8°32'N 7°42'E. the local government has an area of 5,704km² and a population of 189,835 as at 2006 population and housing Census. The Nasarawa town which lies north in the Okwa river, a tributary of Benue River was founded in 1838 by Umaru Makama Dogo, a dissident official from the nearby town of Keffi, as the set of the new emirate of

Nasarawa. Umaru expanded his domain by conquering neighboring territory and made Nasarawa a vassal state to Zaria, a town of about one hundred and seventy-five miles (two hundred and eighty-two kilometers) north away from Nasarawa.

The inhabitants of the area are mostly Hausa Fulani who migrated from Zamfara and Zaria, the Afo people, the Agatu, the Gwandaras etc. the economic base of Nasarawa town is predominantly agriculture with other petty trading activities. Recently, mining activities are taking place within the local government by the Chinese nationals which has contributed significantly to the economic base of the town. Nasarawa town

play the host to the famous federal polytechnic Nasarawa.

Methodology

The study adopted a survey design using a structured set of questionnaires to gathered information on primary source using systematic sampling technique. A total number of one hundred and ten (110) questionnaires were distributed to the households along Nasarawa-Loko road out of which one hundred and five (105) were retrieved and five (5) were rejected due to improper filling. The remaining one hundred were analyzed using SPSS version 26 for the study.

Results and Discussion

Table 1. Nature of Road Improvements in Nasarawa Town

Nature of Activity	Mean	Standard Deviation	Mean Ranking
Reconstruction	4.0200	0.8874	1 st
Drainage Provision	3.6200	0.94945	2 nd
Street Light Provision	3.5800	0.96588	3 rd
Road Widening	2.9200	1.09802	4 th
New Construction	2.8200	0.84543	5 th
Pedestrian Way Provision	2.1400	0.85304	6 th
Road Grading	1.7000	0.67420	7 th
Poth-Holes Filling	1.6800	0.64948	8 th

Table 1 above shows the result of the nature of road improvement activities that took place in Nasarawa town recently. Reconstruction of road ranked first with a

mean of 4.0200 which shows that a lot of damaged but existing roads within the town were reconstructed at least to a motorable standard. Such roads were upgraded and are

now motorable thereby making the movement around and across the town easier. Next on the ranking is drainage provision which ranked second after reconstruction of roads with a mean of 3.6200. This is evidence to the fact that during the road reconstruction, provision was made for drainage facilities to ensure an upgrade of the standard of the road and also ensure durability of the road. Street light provision ranked third with a mean of 3.5800 which is an indication that deliberate effort was made to provide street light to compliment and ease movement within the town especially when the darkness fall considering the fact that the town now link several cities in the country. Road widening ranked fourth with a mean of 2.9200, an indication that the width of some roads was expanded during the reconstruction which help to increase the number of lanes existing on the road vis-à-vis the number of vehicles that can plight the road concurrently without problem. Although, the number of the roads

that enjoy such expansion are relatively small.

The fifth activity in the ranking is new road construction which has a mean of 2.8200, obviously, there was no new road construction recently in Nasarawa town but rather an improvement and reconstruction of the already existing ones. Provision of pedestrian road came sixth in the ranking with a mean of 2.1400 signifying that while road upgrading was taking place in Nasarawa town, there was no provision for pedestrian to ease the crossing of the road by the users. Road grading which has a mean of 1.7000 came seventh in the ranking while Poth-holes fillings was eight in the ranking with a mean of 1.6800, therefore, both road grading and Poth-holes fillings does not take place in Nasarawa as at the time of this study.

Table 2. Paired T-Test for Rental Value Before and After the Road Improvement

Paired Samples Statistics

	Mean	N	Std. Deviation	Mean differences	T-value	Sig. (2-tailed)
Rent before	69250.00	4	60791.30969	-62,000	-3.431	.042
Rent after	131250.00	4	94372.93044			

Table 2 above shows the result of the paired sample T-test for rent passing on residential properties before and after the road improvement exercise. Four types of residential properties were sampled for this study comprises of single room, a room self-contain, one bedroom flat and two-bedroom

flats. The result shows that, before the road improvement activities, the properties have a mean of 69,250 but the mean skyrocketed to 131,250 after the road improvement which resulted to a mean difference of 62,000

The result was tested at a confidence level of 95% and significance level at 0.05 and it provides a t-value of -3.421 and a significance level of 0.042. this shows clearly that there is a significance differences between the rental value of residential properties before the road improvement and the rental value of residential properties after the road improvement exercise in Nasarawa town.

Discussion of Findings

From the above analysis, it is clear that the major road improvement activity that has taken place in Nasarawa recently is the reconstruction of the existing but damaged road within the town. The analysis also reveals that while the reconstruction was ongoing, deliberate effort were made to provide drainage facilities to support the road and in addition, there was provision of street light.

No new road construction actually took place but however a little portion of the roads that were reconstructed were actually expanded in their width.

Another major discovery is that the road improvement vis-à-vis reconstruction of road has significant impact on the rental value of residential properties in the study area. It improves the rental value significantly.

The study also reveals that despite the major improvement on the roads in the study area, there is no provision for pedestrian which can assist when crossing the road from one side to the other as well as avoiding possible accident that can result from crossing the

road. This can have significant effect on road users most times when the road is busy.

Conclusion and Recommendations

The literature consistently indicates that road infrastructure improvements generally lead to higher rental values for residential properties, driven by enhanced accessibility and reduced travel times. However, the magnitude of this impact varies based on factors such as location, existing infrastructure, and socioeconomic context. This study however does not explore the long-term effects and the influence of emerging technologies on this dynamic which will be necessary as an area for further research. It is also our believe that the recommendation made in this study will assist to awaken the critical stakeholders in the area of road infrastructure to attach the required importance to road infrastructures. This study therefore synthesizes existing research on the effect of road infrastructure improvement on residential rental values, providing a comprehensive understanding of the topic and suggesting areas for future research.

The study however recommends among other things that government at all level should increase budget provision for road infrastructural construction, rehabilitation and maintenance as a matter of great importance. Landed property generally is viewed as an indicator of the wealth of a nation and their value can be enhanced through the provision of good roads which will in turn improve on the revenue generated by government from the landed properties through tax.

It is also recommended that real estate investors should strive to honored their tax obligation in other to increase the revenue base of the government which will be used for critical infrastructures such as roads and other important facilities that can help improve the value of properties.

The study also recommend that the public authority should pay attention to the provision of pedestrian in no distant time in other to avoid traffic jam and possible accident whenever the road is busy considering the fact that the town now links several cities within the country.

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