
THE ECONOMIC SIGNIFICANCE OF HIGHWAYS: A CASE STUDY OF THE BENIN-AUCHI ROAD IN EDO STATE, NIGERIA.

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ABSTRACT

The efficient flow of people and goods within urban areas is hindered by the presence of poor road conditions and insufficient transportation infrastructure. The presence of inadequate infrastructure can present a barrier to both domestic and international investment in urban regions. Based on the collected data, it is evident that a total of 96 individuals have experienced a road accident on this particular route, resulting in a percentage of 22.5 percent. The study extended its investigation to ascertain whether participants had witnessed any vehicular accidents along the designated pathway. Based on the available data, it was observed that 252 individuals responded affirmatively to the statement, whereas 156 individuals responded negatively. A data consisting of 408 participants which pertains to the occurrence of fatalities among the respondents' relations along the specified route. 106 individuals (24.8%) responded affirmatively, while 292 individuals (68.2%) responded negatively. The information presented pertains to the time periods of 2010-2015, 2016-2020, and 2021 onwards. The data presented indicates a notable rise in travel duration as a consequence of the poor road conditions. The cost exhibited convergence within the range of 1501 naira to 3000 naira. In contrast to the period spanning from 2010 to 2015, during which the price range fluctuated between 600 naira and 1500 naira.

Keywords: *Transportation, Highway, Economic Significance, Road, Benin, Auchi*

INTRODUCTION

Transport is a globally significant human activity of great importance. Transportation plays a crucial role in the economies of nations, exerting a substantial influence on spatial interactions. It facilitates the establishment of vital connections among countries, regions, and economic activities, as well as fostering linkages between individuals and the global community.

Transportation plays a pivotal role in facilitating specialisation, thereby facilitating the production and consumption of goods across multiple locations. Enhanced transport infrastructure facilitates increased trade and the dispersion of population. Enhancing the capacity and efficiency of transport has long been recognised as a crucial factor for achieving economic prosperity (Naazie, Braimah & Atindana, 2018).

According to Enwerem and Ali (nd), roadways can be regarded as the primary mode of land transportation. In Nigeria, road transport is the most widely utilised and economically accessible mode of travel. The road is widely regarded as the most accessible mode of transportation for individuals. Effective road transport can yield economic benefits for countries, businesses, and individuals alike. Transportation infrastructure plays a pivotal role in facilitating the movement of individuals and goods, thereby contributing to economic expansion. Additionally, it enhances accessibility to vital services such as healthcare and education, while also fostering social connections by connecting people with their acquaintances and recreational activities. However, it is important to take into account the associated costs in addition to the benefits. The available data from low-income countries indicates that communities residing in remote areas with limited access to well-constructed roads experience elevated poverty rates, lower rates of school attendance, and inferior health outcomes. However, it should be noted that the precise correlation between road infrastructure and human development has not been thoroughly established (Watkins & Sridhar, 2009).

The attribute of mobility holds significant importance in economic activity as it fulfils the fundamental requirement of moving from one location to another. This requirement is common among passengers, goods, and information. There exists a discernible relationship between the quantity and quality of transport infrastructure and the level of economic development. There is often a positive correlation observed between high levels of development and the presence of extensive transport infrastructure and interconnected networks. Effective transport networks have the potential to yield favourable outcomes and benefits for both the economy and society, thereby generating positive multiplier effects. This study aims to examine the impact of the Benin – Auchi road on motorists and travellers.

REVIEW OF LITERATURES

In the contemporary context of a globalised economy, transport infrastructures play a pivotal role as catalysts for economic growth and development. The establishment of a conducive economic environment that promotes growth necessitates the presence of essential physical infrastructure, which enables the efficient transportation of individuals, commodities, and knowledge. In an era characterised by increased global connectivity, interdependence, and a shift towards service-based economies, the capacity to conduct business transactions with efficiency, speed, security, and convenience has become progressively vital for fostering economic growth, promoting social unity, and facilitating cultural revitalization (Omozuwa, 2018). Road transport plays a crucial role in enabling the efficient movement of goods and individuals, thereby serving as a vital component in the functioning of a market economy. This holds true for both businesses and households, encompassing individuals residing within a particular geographic region. The transportation network encompasses not only the present-day motorway infrastructure, but also urban thoroughfares, auxiliary routes, and rural pathways that cater to diverse modes of transportation and individuals. The majority of road infrastructure in Nigeria exhibits significant deterioration, resulting in adverse economic consequences. A significant factor that impacts vehicle maintenance in Nigeria is the inadequate state of the road infrastructure. The distance between Auchi and Benin is measured to be 134.4 kilometres, with an average travel time of 2 hours and 1 minute. However, the current condition of the road poses significant risks for drivers and is further exacerbated by time inefficiencies caused by its poor state (see figure 1).

According to a study conducted by Business Bliss Consultants FZE (2018), a significant proportion of Nigeria's road infrastructure exhibits inadequate construction and maintenance, resulting in a limited lifespan. The primary objective of road design is to ensure their longevity, typically spanning a duration of thirty to fifty years. Nigeria, nonetheless, deviates from this general trend. The surfaces of the majority of Nigerian highways exhibit a limited lifespan, typically not exceeding six months to one year. The roads in Nigeria often exhibit the formation of potholes as a result of various factors, thereby causing inconvenience during travel and exerting adverse socioeconomic consequences on the nation. Good roads can bring about socio-economic benefits to countries worldwide in various ways. The network of roads is considered a crucial national asset and

infrastructure within every nation. The economic benefits of well-constructed road infrastructure are attributed to their ability to enhance the efficient movement of individuals and goods across different geographical areas. The nation of Nigeria does not fully benefit from the numerous advantages that come with having well-developed road infrastructure. The absence of these benefits can be attributed to the inadequate infrastructure in Nigeria, characterised by the presence of potholes, inoperable vehicles, security checkpoints impeding smooth traffic flow, and distressing accidents.



Fig 1: Map of Benin-Auchi Road

When examining the socioeconomic implications of inadequate road conditions, it is customary to consider both the financial burdens on drivers and the expenditures incurred by road management authorities. The cost of road usage is influenced by the characteristics of the road, such as rutting and roughness. Consequently, a road exhibiting significant levels of rutting and roughness will result in higher costs for users compared to a road with a smooth surface. Nevertheless, the road manager incurs expenses for the upkeep of a well-maintained road, encompassing charges for rehabilitation as well as routine and essential maintenance. The condition of the road has a substantial impact on individuals who utilise it. The implementation of this system will result in a modification of the individual's driving conduct, compelling them to adjust their speed, execute turns, or, if deemed necessary, opt for an

alternate path. Furthermore, it is worth noting that the economy will also experience significant effects as a result of this. The presence of a poorly maintained road can lead to increased expenses associated with vehicle maintenance, prolonged travel duration, and potential damage to transported cargo. Furthermore, the implementation of this measure will have implications for the ecology, accident rates, and the overall comfort experienced by road users (Johansson, 2006). The movement of individuals and goods within urban areas is impeded by substandard road conditions and inadequate transportation infrastructure. Insufficient infrastructure can pose a hindrance to both domestic and international investment in urban areas. According to the World Bank (1992), inadequate infrastructure at the city level resulted in a decrease in both business and household productivity, thereby affecting the overall productivity of the economy. Economies characterised by higher levels of mobility often exhibit more favourable prospects for development compared to economies with lower levels of mobility. The increasing advancement of transportation technology is increasingly intertwined with the crucial role of managerial skill in logistics, thereby fostering economic growth. The establishment and maintenance of transport systems necessitate a substantial amount of infrastructure. In addition to physical assets, such as roads and vehicles, the effective functioning of these systems relies on the presence of various intangible resources. These intangible resources encompass management practises and information systems, as highlighted by Hine et al. (2002) and Jean-Paul & Theo. Notteboom (1992).

The research focuses on the Benin – Okene – Abuja road within the Edo state axis of Nigeria. The portion under consideration is located between Benin - Auchi, traversing Edo south senatorial district; through Edo Central senatorial district; and terminating at Auchi, situated in the Edo North senatorial district. The research methodology employed in this study will involve the utilisation of a survey approach. A Likert scale questionnaire was utilised to assess the perception of various stakeholders. The collected responses were analysed and it examines the impact of poor road conditions on drivers, their vehicles, and individuals travelling along the route.

Research Results and Findings

The results of the research are presented in tables listed below. The presentations are based on the various sections of the questionnaire

administered. A 5 point Likert scale was used to ascertain respondents' perception of the statements, which they were to affirm to or disagree to in relevant sections. The issue of the gender of respondents is presented in table 1. The table indicates the a total of 428 respondents responded, 194 were males and 234 were females. The percentage information show that male is 45.3 percent and females 54.7 percent. The information about respondents' ages is the focus of table 2. The table show that age grouped intervals was used. The age group intervals are 0-20 years, 21-30 years, 31-40 years, 41-50years and above 50 years. The analysis show that a total of 418 responded in this section. 100 were between 0-20years, 244 between 21-30 years, 40 between 31-40 years, 10 and 24 between 41-50 years and above 50 years respectively. This is 23.9 percent, 57 percent, 9.3 percent, 2.3 percent, 5.6 percent respectively. From this table 10 respondents did not provide information about their ages, this is 2.3 percent of the total returned questionnaires

Table 1. GENDER

		Frequency	Percent
Valid	MALE	194	45.3
	FEMALE	234	54.7
	Total	428	100.0

Table 2. AGE

		Frequency	Percent
Valid	0-20 YEARS	100	23.4
	21-30 YEARS	244	57.0
	31-40 YEARS	40	9.3
	41-50 YEARS	10	2.3
	ABOVE 50 YEARS	24	5.6
	Total	418	97.7
Missing	System	10	2.3
Total		428	100.0

Categorization of respondents into whether they are drivers or travellers was captured in table 3. From this table 418 responded, while 10 did not, making 2.3 percent. This information show that 86 of the respondents were drivers and 332 were travellers. These correspondents to 20.1 percent and 77.6 percent respectively.

Table 3. WHO ARE YOU?

		Frequency	Percent
Valid	DRIVER	86	20.1
	TRAVELLER	332	77.6
	Total	418	97.7
Missing	System	10	2.3
Total		428	100.0

The duration in years that respondents have been travelling through this route is presented in table 4. Years interval of 0-5 years, 6-10 years, 11-15 years, 16-20 years and above 20 years was used. 418 provided information in this section. 126 have been plying this route between 0-5 years, 110 each for 6-10 years and 11-15 years. While 30 and 42 were for 16-20 years and above 20 years respectively. This show that 0-5 years make up 29.4 percent, 6-10 years and 11-15 years are 25.7 percent each and 16-20 years is 7 percent and above 20 years is 9.8 percent.

Table 4. HOW LONG HAVE YOU BEEN TRAVELLING THROUGH THIS ROUTE

		Frequency	Percent
Valid	0-5 YEARS	126	29.4
	6-10 YEARS	110	25.7
	11-15 YEARS	110	25.7
	16-20 YEARS	30	7.0
	ABOVE 20 YEARS	42	9.8
	Total	418	97.7
Missing	System	10	2.3
Total		428	100.0

Involvement in accident along the route is the subject of table 5. The responses show that 96 respondents have been involved in a road accident along this route, giving a percentage of 22.5 percent. While 322 have not been involve in an accident, making up 75.2 percent. 10 respondents making 2.3 percent did not provide information in this table.

Table 5. HAVE YOU BEEN INVOLVED IN AN ACCIDENT?

		Frequency	Percent
Valid	YES	96	22.5
	NO	322	75.2
	Total	418	97.7
Missing	System	10	2.3
Total		428	100.0

The research went further to find out if respondents have witnessed any road accidents on the route. From the information provided 252 said YES to the statement, while 156 said NO. 408 responded to this statement from which 58.9 percent are of Yes and 36.4 percent as No. 20 respondents did not provide information in this section.

Table 6. HAVE YOU WITNESSED ACCIDENTS ON THIS ROAD

		Frequency	Percent
Valid	YES	252	58.9
	NO	156	36.4
	Total	408	95.3
Missing	System	20	4.7
Total		428	100.0

A total of 408 respondents provided information presented in table 7 on if any of the respondents have lost anyone on the road along the route. 106 respondents indicated Yes, corresponding to 24.8 percent and 292 respondents indicated No making 68.2 percent. 4.7 percent did not provide this information.

Table 7. HAVE YOU LOST ANYONE ON THIS ROAD?

		Frequency	Percent
Valid	YES	106	24.8
	NO	292	68.2
	Total	408	95.3
Missing	System	20	4.7
Total		428	100.0

The Benin – Auchi highway connects some major towns namely; Ehor, Ekpoma, Irrua, Uromi and Auchi. The figures from respondents and their destinations are 42, 152, 60, 42, 40, 92 for the towns listed above. The corresponding percentages are 9.8 percent, 35.5 percent, 14 percent, 9.8 percent, 9.3 percent and 21.5 percent respectively presented in table 8. Tables 9-11 presents information on the duration of the journeys to the various towns. Typically, journey's to Ehor and Ekpoma should be less than one hour. The information provided were for 2010-2015, 2016-2020 and 2021 above. The duration from these tables show an increase in the travel duration due to the bad condition of the road.

Table 8. YOUR DESTINATION?

		Frequency	Percent
Valid	EHOR	42	9.8
	EKPOMA	152	35.5
	IRRUA	60	14.0
	EWU	42	9.8
	UROMI	40	9.3
	AUCHI	92	21.5
	Total	428	100.0

Table 9. DURATION OF YOUR JOURNEY? (2010-2015)

		Frequency	Percent
Valid	0-1 HOUR	174	40.7
	1-2 HOURS	184	43.0
	2-3 YEARS	30	7.0
	3-4 HOURS	10	2.3
	Total	398	93.0
	Missing	System	30
Total		428	100.0

Table 10. DURATION OF YOUR JOURNEY? (2015-2020)

		Frequency	Percent
Valid	0-1 HOUR	74	17.3
	1-2 HOURS	202	47.2
	2-3 YEARS	132	30.8
	3-4 HOURS	10	2.3
	Total	418	97.7
	Missing	System	10
Total		428	100.0

Table 11. DURATION OF YOUR JOURNEY? (2021- TILL DATE)

		Frequency	Percent
Valid	1-2 HOURS	174	40.7
	2-3 YEARS	152	35.5
	3-4 HOURS	82	19.2
	4-5 HOURS	20	4.7
	Total	428	100.0

Tables 12-14 present the cost of travelling through this route for 2010-2015, 2016-2020 and 2021 till date. The information collected show that the cost to the various destinations increased due to the bad situation of the road. Comparing the transport fare between 0-500 naira decreased

from 64 respondents between 2010-2015 to 20 in 2021 till date. This covers journey to Ehor by implication. The cost converged around 1501 naira to 3000 naira. Unlike between 2010-2015 when it was between 600 naira to 1500 naira.

Table 12. HOW MUCH IS THE COST? (2010-2015)

		Frequency	Percent
Valid	0-500 NAIRA	64	15.0
	600-1000 NAIRA	130	30.4
	1001-1500 NAIRA	144	33.6
	1501-2000 NAIRA	60	14.0
	2001-2500 NAIRA	10	2.3
	Total	408	95.3
Missing	System	20	4.7
Total		428	100.0

Table 13. HOW MUCH IS THE COST? (2016-2020)

		Frequency	Percent
Valid	0-500 NAIRA	12	2.8
	600-1000 NAIRA	52	12.1
	1001-1500 NAIRA	170	39.7
	1501-2000 NAIRA	124	29.0
	2001-2500 NAIRA	60	14.0
	Total	418	97.7
Missing	System	10	2.3
Total		428	100.0

Table 14. HOW MUCH IS THE COST? (2021 - TILL DATE)

		Frequency	Percent
Valid	0-500 NAIRA	20	4.7
	600-1000 NAIRA	12	2.8
	1001-1500 NAIRA	52	12.1
	1501-2000 NAIRA	140	32.7
	2001-2500 NAIRA	114	26.6
	2501-3000 NAIRA	80	18.7
	3001-5000 NAIRA	10	2.3
	Total	428	100.0

CONCLUSION

The conclusion of this research is presented in table 15 below.

The number of respondents providing information for each statement in the questionnaire is captured under N, the maximum response is in Maximum and the mean and standard deviations for each is provided.

Table 15. Summary table

	N	Maximum	Mean	Std. Deviation
GENDER	428	2.00	1.5467	.49839
AGE	418	6.00	2.1340	1.15522
WHO ARE YOU?	418	2.00	1.7943	.40473
HOW LONG HAVE YOU BEEN TRAVELLING THROUGH THIS ROUTE	418	5.00	2.4067	1.26269
YOUR DESTINATION?	428	6.00	3.3785	1.73724
HAVE YOU BEEN INVOLVED IN AN ACCIDENT?	418	5.00	1.8900	.65871
HAVE YOU WITNESSED ACCIDENTS ON THIS ROAD	408	2.00	1.3824	.48656
HAVE YOU LOST ANYONE ON THIS ROAD?	408	3.00	1.7647	.47908
DURATION OF YOUR JOURNEY? (2010-2015)	398	4.00	1.6884	.71923
DURATION OF YOUR JOURNEY? (2015-2020)	418	4.00	2.1866	.74500
DURATION OF YOUR JOURNEY? (2021- TILL DATE))	428	5.00	2.8785	.87869
HOW MUCH IS THE COST? (2010-2015)	408	5.00	2.5637	1.00165
HOW MUCH IS THE COST? (2016-2020)	418	5.00	3.4019	.97508
HOW MUCH IS THE COST? (2021 - TILL DATE)	428	7.00	4.3925	1.31471

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