ANALYSIS OF THE SOCIOECONOMIC BENEFITS ARISING FROM KUBWA RAIL STATION IN ABUJA, NIGERIA

Abstract

The study examined socioeconomic benefits arising from location of rail station in Kubwa community, Abuja.The study adopted a survey research and data was collected from Household Heads of Rented Multi-tenanted apartment in Kubwa within 3km distance to Kubwa rail station. Structured questionnaires were used to elicit data from a sample of Household Heads of Rented Multi-tenanted apartment in Kubwa. The data collected was analyzed using weighted mean score and Kruktal Wallis test.In weighted Mean, factors are ranked from 1st to last position in descending order of their weighted means such that the factor with the highest weighted mean ranks first while the one with the lowest weighted mean ranks last. This method is used for its simplicity and ease of communicating the result of the research. The study found that that within one-kilometer radius of the rail station, increased property value is the highest socioeconomic benefit derived from the rail station. This was followed by improved accessibility and connectivity, cost-effectiveness, and increased retail activities. The research also revealed that increased property value is the most significant benefit within a two-kilometer radius, followed by improved accessibility and connectivity, and cost-effectiveness. Also, within three-kilometer radius, cost-effectiveness is the highest socioeconomic benefit derived from the rail station, followed closely by improved accessibility and connectivity, and time schedule and organization.Rail stations play a crucial role in urban and regional development that extends beyond mere accessibility by catalysing a variety of socioeconomic effects in the areas they serve. Consequently, government must place a high priority on the meticulous maintenance and upkeep of the rail infrastructure.

Keywords: Rail Station, Socioeconomic, Benefit, Rail Transportation

Introduction

Infrastructure development has been described as a critical factor driving economic growth (Estache, 2006). Physical infrastructures are permanent public facilities, amenities, or services with significant development costs, lengthy economic lifetimes, strong relationships to regional development, and a history of public involvement (Famuyiwa& Babawale, 2014). It includes but not limited to Transportation, Telecommunication, Electricity, Housing, Health and Education facilities. Investment on infrastructure such as transportation is capable of promoting positive externalities on land use, ease of doing business and generates employment (Fatai, Omolara&Taiwo, 2016).Rail transportation brings about accessibility of the population to employment, retail, and recreation activities. Accessibility does not merely improve commuting time, but also lead to increases in trade, improvements in land use distribution and in many cases, increases in land and property values (Gargiulo & De Ciutis, 2010; Medda, 2012).

Identifying rail station locations is one of the vital aspects of a Light Rail Transit (LRT) project (Roy& Maji, 2019) because the presence of rail stations in a location will transform the area; making it more attractive to investors and commuters.Rail stations serve as pivotal intersections where various modes of transportation converge, offering commuters efficient, reliable, and often environmentally friendly options(Roy& Maji, 2019). Investing in light rail transit services has social, environmental and economic benefits (Agarana et al., 2016). According to Chen & Vickerman, 2019; Rungskunruch, et.al, 2021, LRT stations can benefit the location which it is located throughincreased accessibility, connectivity, agglomeration, land use change, job creation, increased property value, increased retail activity, reduced commute time, reduced congestion, and security.

Nigeria owns the largest rail network in Western Africa; however, for many years now, the Nigerian railway does not play its role efficiently (Sikorska, 2020).Most of the rail networks/stations in Nigeria were inherited from the Colonial Masters and due to poor maintenance culture, all was moribund. However, the Nigeria government is making a giant stride in rejuvenating and expanding her moribund rail networks/stations across the country (Chen,2018).The narrow gauge is being replaced with standard-gauge rail (SGR).The Lagos to Kano rail network was broken down into stages due to financial constraint (Chen, 2018). Out of the stages, the 187-kilometer (116-mile) Abuja-Kaduna single-track (SGR) was first to be completed in 2014at a cost of $874 million (Chen, 2018). With rail stations in Kubwa, Idu and Rigasa in Kaduna.

However,the common perception about the real and quantifiable benefits of the urban public transport system is still poorly understood in Nigeria, especially in terms of how to quantify and how it is beneficial to people (Alade, 2013). Over the years, the sustainability of transportation infrastructures especially rail network/station in Nigeria has suffered a serious setback due to inadequate understanding of its socio-economic benefit to citizens. The conventional believe that transportation only provides accessibility benefit, depict inadequacies in the understanding of the value of public transport especially rail transportation to the socio-economic wellbeing of people. However, in order to forestall the new rail networks from going moribund like the previous ones inherited from the colonial masters, there is need for government and policy markers to know that rail station contribute significantly to socioeconomic development of places it is situated. This study therefore carried out a comprehensive analysis of the socio-economic benefits of the rail stationsin Kubwa community Abuja, Nigeria in order to ensure government and policy markers understand the major impact of the rail station on socioeconomic life of residents in Kubwa.

2.0 LITERATURE REVIEW

Rail transportation is often introduced as an alternative to road transportation because of its socio- economic benefits. Numerous studies have identified innumerable socioeconomic benefits associated with rail transportation, including increased accessibility, connectivity, agglomeration, land use change, job creation, increased property value, increased retail activity, reduced commute time, reduced congestion, and security(Okada, 1994; King, 1996; Gleave, 2018; Chen & Vickerman, 2019; Bekka, 2020; Rungskunruch, Jack, and Kaeumruen, 2021).

Okada (1994) examined the characteristics, economics, and social consequences effects of Japan's Shinkansen (a network of high-speed bullet trains). The bullet train socioeconomic impact was analyzed using descriptive statistics. According to the study, the Shinkansen has saved approximately 400 million hours of travel time annually, amounting to Y500 billion. The train was also found to increase employment generation; employment generation grew from (96.0) in 1985 to (108.1) in 1992 in commercial and retail sectors, and from (88.8) in 1985 to (106.9) in industrial fields. Additionally, less advantage like as reduced fuel use and Carbon dioxide(CO^2) emissions were highlighted as a benefit of rail transportation. King (1996) did a meta-analysis of earlier studies on current high-speed rail networks throughout the world using frequency table. The study classified the rail system socioeconomic benefits

into three categories: social/public, economic, and environmental. The social/public benefit includes time savings, traffic congestion reduction, and accident reduction. Economic benefits include regional development, demographic changes, economic expansion, encouragement of commercial and business operations, tourism promotion, and job creation, while environmental benefits include reduced pollution as a result of fewer hydrocarbon emissions. The study find out that social/public benefits of rail stations are most dominant. King (1996) corroborated the earlier findings of Okada, (1994)

Oxera (2014) examined the contribution of rail to the United Kingdom (UK) economy using frequency table. The study grouped the benefits accrued from rail transport into economic footprint (employment creation, tax contribution, Investment generation), user benefit (reduction in travel time), wider economic impact(reduced congestion, increased agglomeration, increased output),Social impact (reduced accidents, journey quality, accessibility, option value) and environmental impact (reduced emission, air quality, reduction in noise). The study found that rail transportation generates over 212,000 employments, contributes 9.3 billion pounds in gross value, contributes 3.9 billion pounds in tax revenue, reduces carbon dioxide (CO^2) emissions by 7.4 million tons, and saves 12 billion pounds in time per year. Houston, Boarnet, and Spears (2015) evaluated the Benefits of Light Rail Transit in Los Angeles, United States of America (USA), which began service in south Los Angeles in 2012, on the travel and activity patterns of both long-term residents and those who moved to the area following the start of service. Using a quasi-experimental, longitudinal research design, results for longer-term residents indicated that living within walking distance (1 kilometer) of the line was associated with a reduction of 11 household vehicle miles traveled (VMT) per day, a reduction likely due to their shorter average car trip. Residents that migrated to the region following the start of service were often younger, with higher rental rates and income.

Chen and Vickerman (2019) published research evaluating the economic and social impacts of high-speed rail (using data from Europe and the People's Republic of China). Using trend analysis and cost-benefit analysis (CBA), the study quantified the economic impact in terms of agglomeration, production change, competitive markets, labor supply implications, and job creation. It was determined that HS1 has a BCR of 1.0, while HSR 2 has a BCR of 1.8. Bekka (2020) quantified the economic benefits of commuter rail in the United States of America, using the Plaistow and Baton commuter rail lines to New Orleans as a case study. To

determine the value accrued to commuters, the study used Net Present Value (NPV) and Cost Benefit Analysis (CBA). The benefits quantified were classified according to their market impact: employment/personal income, employment/multiplier effect, and business income/multiplier effect. While the non-market benefits include increased access, affordability, simulation of community growth, and congestion and delay reduction. According to the study, the NPV of the Plaistow commuter rail is $48.10 and the BCR is 2.3, while the BCR and IRR of the Boston to New Orleans passenger rail are 1.40 and 4%, respectively. This research confirms previous research by Chen and Vickerman, (2019), which found that rail stations had a favorable socioeconomic impact on residents living near them, as well as a positive net present value.Jack Rungskunruch and Kaeumruen (2021) did a study on the socioeconomic benefits of Japan's Shinkansen network, utilizing Pearson's Correlation (PCC) to ascertain the railway impact on individuals of all genders and ages. The study examined the broad impact of social factors on population dynamics, education, age dependency, job chances, and death rate, utilizing a unique dataset covering 55 years of social factors. The study findings indicated that younger generations benefitted the most from the railway aiding their equal educational access.

Most of the available studies examined socioeconomic benefits of rail station outside Nigeria borders and in well-developed and civilized countries of the world. Nigeria is a developing country, just rebuilding her moribund railway networks. Also, area of influence to the rail stations differs from location to location and on different type of properties. This might affect the application of these findings in Nigeria. This study therefore, tends to fill the gap that exists.

3. DATA DESCRIPTION AND METHODOLGY

This study is survey research and the data was collected from Household Heads of Rented Multi-tenanted apartment in Kubwa within 3km distance to Kubwa rail station. Abuja - Kaduna rail networks have two rail stations in Abuja. One is situated in Kubwa community, which is a residential area and the other in Idu which is an industrial area (Rail Technology,2021).This study focused on Kubwa rail station. Following studies such as (Bernknopf, Gillen, Wachter & Wein, 2010; Gopalakrishnan, Smith, Slott, & Murray, 2011) the sampling frame for multi-tenanted apartments within a three-kilometer radius of the Kubwa rail stationwas determined using Geographic Information System (GIS) software.The three-kilometer radius surrounding Kubwawas divided into three bands of one (1) kilometer

each. Using the GIS software, 2700 multi-tenanted residential properties (see table 1).This technique was 'ground truthed' to ensure the area coverage and properties sensed remotely are accurate.

The sample size for residential properties within the study area was determined using Taro **Yamane formula's** (2021) sample size determination approach. The following is the Taro Yamane formula:

n = N / (1 + N(e^2)) ---------- Equation 1

Where: n is the sample size for a finite population

N: size of population

e: margin of error considered is 5% for this study

Table 1: Sample size for the residential properties

S/N	Distance to Rail Station(KM)	Number of residential properties	Sample Size
1	1	930	120
2	2	850	109
3	3	920	119
	Total	2700	348

Source: Author's Computation (2023)

The data collection instrument that wasemployed in this study is a structuredquestionnaire which was self-administered on the households' heads. The study employed both stratified and simple random sampling. The stratified random sampling approach was used to divide the properties located near rail stations into three distance bands, while the simple random sampling technique was used to choose the needed sample size within the properties located within each band's distance from the rail station.

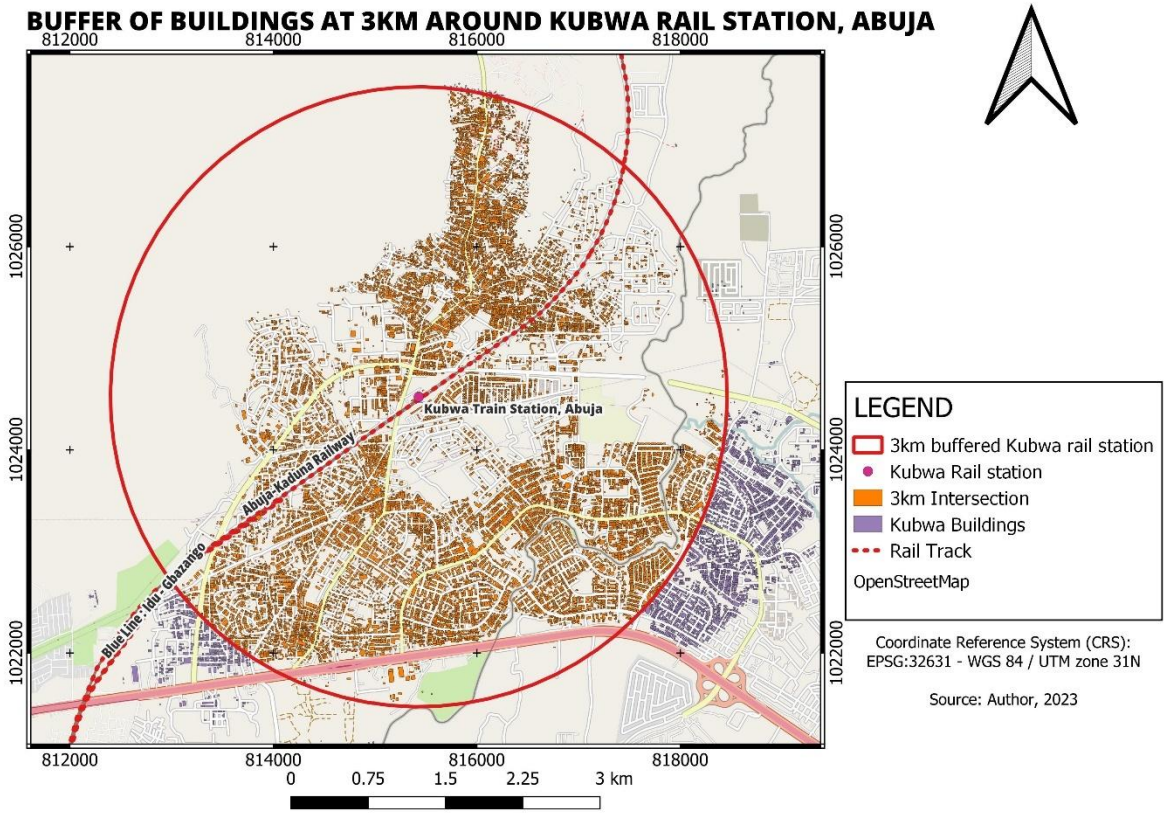

Figure 1: Showing the Study Area

Analysis of the data was based onweighted mean score and kruktal Wallis test. In weighted Mean, factors are ranked from 1st to last position in descending order of their weighted means such that the factor with the highest weighted mean ranks first while the one with the lowest weighted mean ranks last. This method is used for its simplicity and ease of communicating the result of the research (Bello, 2009). For example, the weighted mean on a 5-point scale with 5, 4, 3, 2 and 1 denoting "strongly agree", "Agree", "Undecided", "Disagree", and "Strongly Disagree" respectively is computed using

$$WM = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + n_1}{n_5 + n_4 + n_3 + n_2 + n_1} \quad \text{Equation (ii)}$$

Where n_5 = number of responses for "strongly agree",

n_4 = number of responses for "Agree",

n_3 = number of responses for "Undecided"

n_2 = number of responses for "Disagree",

n_1 = number of responses for "Strongly Disagree"

According to Adabre and Chan (2019) for proper estimations, the mean values can be categorized i.e where 4.30≥Mean≤5.0 were regarded of having a 'Very High Effect', 3.50≥Mean≤4.29 were also regarded of having 'High Effects', 2.70≥Mean≤3.49 were regarded of having a 'Moderate Effect', 'Low Effect' 1.90≥Mean≤2.69 and 'Very Low Effects' 1≥Mean≤1.89 respectively.

According to Xia, (2020), the Kruskal–Wallis test is a nonparametric approach to the one-way ANOVA. The procedure is used to compare three or more groups on a dependent variable that is measured on at least an ordinal level. It extends the Mann-Whitney *U* test to more than two groups.The Kruskal-Wallis test can be used to determine if there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable. This test was performed to determine if there is statistically significant difference in the responses of Household heads in different bands within 3km radius. A significance level of 0.05 indicates a 5% risk of concluding that a difference exists when there is no actual difference. If the p-value is less than or equal to the significance level, the null hypothesis is rejected and it is concluded that not all the group medians are equal.

4. RESULTS AND DISCUSSION

Table 2 below presents a summary of the administered questionnaires and the retrieved questionnaires. Accordingly, the quantity and percentage of questionnaires given to and collected from respondents in the research region are calculated.

Table 2: Questionnaires Administered and Retrieved from Households head

Distance to Rail Station(KM)	Questionnaire administered on Household Heads	Questionnaire retrieved	Percentage
1	120	95	79%
2	109	84	77%
3	119	79	66%
Total	348	258	74%

Source: Author's Computation (2023)

From the table 2 above, it shows that a total number of 348 questionnaires were administered to the household heads within Kubwa rail station, out of which 258 (74%) questionnaires were retrieved and used for analysis.According to Moser and Kalton (2017), the result of a survey could be considered significant if the response rate is not lower than 30-40%. Based on this, the percentage of the returned questionnaires is adequate for the analysis.

For the purpose of determining the reliability ofthe survey instrument, a Cronbach's AlphaCoefficient test was employed to determine theinternal coherence of a collection of items inquestionnaires and the values obtained were0.846 for the constructs employed.This

Characteristics	Frequency	Percentage

figureshow an acceptable Cronbach'sAlpha Coefficient values, indicating a highconsistency of the survey instrument. Accordingto Chan, Darko, Olanipekun, and Ameyaw (2020)values less than 0.5 shows that the questionnaireis weak and not fit for the study, values rangingfrom 0.5 to 0.69 are fair, values between 0.7 to0.8 are acceptable while values above 0.8 areexcellent.

4.1 Socio Economic Characteristics of Household Heads in Kubwa Community

The socio-demographic attributes of the participants aid in assessing their propensity to provide positive feedback with respect to the subject matter under consideration. Therefore, the sociodemographic attributes of the participants, who were selected as representatives of household heads in Kubwa, who completed the administered questionnaires, are delineated in Tables 3.

Table 1: Socio Economic Characteristics of Household Heads in Kubwa Community

Gender	Male	185	71.71
	Female	73	28.29
	Total	**258**	**100**
Age	21- 30 Years	12	4.65
	31- 40 Years	30	11.63
	41- 50 Years	114	44.19
	51 – 60 Years	77	29.84
	61 Years and above	25	9.69
	Total	**258**	**100**
Highest Academic Qualification	OND	35	13.57
	HND	67	25.97
	B.Sc/B.Tech	142	55.04
	M Tech	12	4.65
	Phd	2	0.77
	Total	**258**	**100**
Occupation	Unemployed	6	2.33
	Self Employed	45	17.44
	Civil Service	151	58.53
	Private Employee	56	21.70
	Total	**258**	**100**
Years of Staying	Below 10 Years	74	28.68
	11-20 Years	93	36.05
	21-30 Years	65	25.19
	31 -40 Years	17	6.59
	41 Years and above	9	3.49
	Total	**258**	**100**

Source: field survey,2023

Table 3 indicatesthat 71.71% of the respondents were male while 28.29% were female. The observed distribution reveals a gender disparity within the community, wherein the proportion of males assuming household headship responsibilities is comparatively higher.

This phenomenon can be attributed to deeply rooted cultural practices and traditions, particularly prevalent in African societies.In various African cultures, traditional gender roles and societal expectations have traditionally positioned males as the primary family providers and decision-makers. This traditional division of labor typically places males in charge of economic provision, decision-making, and external representation of the family. As a consequence, women's roles may become more centered on domestic and caregiving responsibilities.The analysis of age groups indicates that household heads in the 41-50 years category represent the largest segment, accounting for 44.19% of the total. This suggests that individuals in their forties are more likely to assume the role of household heads in Kubwa. The 31-40 years age group follows with 11.63%, while those aged 51-60 years and 61 years and above make up 29.84% and 9.69% respectively. The presence of a diverse age range suggests a mix of experienced individuals.

Also, the data indicates that a significant proportion of household heads in Kubwa possess a Bachelor's degree (BSc/BTech), comprising 55.04% of the sample. Subsequently, individuals possessing Higher National Diplomas (HND) account for 25.97%. The percentage of individuals possessing Ordinary National Diplomas (OND) is 13.57%, whereas the proportion of individuals holding Master's degrees (M Tech) and Ph.D. degrees is comparatively lower, at 4.65% and 0.77% respectively. The results suggest that there is a considerable degree of academic achievement among the heads of households in Kubwa, with this, it is expected that the quality of data obtained from this cream of respondents are reliable based on their level of educational attainments.

In terms of occupation, the results indicate that a significant proportion of household heads in Kubwa are employed in civil service, comprising 58.53% of the sample. The proportion of private employees is 21.70%, whereas self-employed individuals constitute 17.44% of the overall population. The low proportion of individuals who are not employed (2.33%) indicates a community with a high level of employment and activity.The analysis of the duration of stay in the Kubwa community reveals a diverse distribution. Household heads who have lived in the community for 11-20 years represent the largest segment, accounting for 36.05% of the total. Those who have resided for below 10 years and 21-30 years, constitute 28.68% and 25.19% respectively. Household heads who have stayed for 31-40 years and 41 years and above are relatively smaller groups at 6.59% and 3.49% respectively. These findings suggest a mix of long-term residents and individuals who have recently settled

in the Kubwa community. This imply that the information provided by these respondents can be relied upon.

4.2 Socioeconomic Benefits of the Rail Station to Kubwa Community Hub in Abuja

This section aims to assess the extent to which the placement of rail stations in Kubwa has resulted in socioeconomic advantages for the residents located in the areas.The ranking of socioeconomic benefits derived from the rail stations is presented in Tables 4, 5,6,7 and8.

Table4: Socioeconomic Benefits of the Rail Station to Kubwa Community within 1KM

VARIABLE	SA	A	U	D	SD	N	M.S	RANK
Increased property value	55(57.89)	25(26.3)	6(6.32)	9(9.5)	0(0.00)	95	4.33	1st
Improved Accessibility & Connectivity	44(47.3)	30(31.5)	21(21.0)	0(0.00)	0(0.00)	95	4.24	2nd
Cost Effectiveness	45(47.4)	26(27.36)	10(10.5)	9(9.5)	5(5.20)	95	4.02	3rd
Increased Rental Activities	40(42.10)	30(31.57)	15(15.79)	6(6.32)	4(4.20)	95	4.01	4th
Provision of alternative road	40(42.1)	35(36.8)	0(0.00)	17(17.9)	3(3.15)	95	3.97	5th
Safety Impact	37(38.9)	32(33.6)	5(5.2)	11(11.5)	10(10.5)	95	3.78	6th
Increased Job opportunities	35(26.32)	20(21.0)	5(5.2)	21(22.10)	14(13.3)	95	3.43	7th
Time Schedule & Organization	25(26.32)	20(21.0)	13(13.68)	15(15.79)	22(23.16)	95	3.12	8th
Increase Urbanization	25(26.32)	20(21.0)	13(13.68)	14(14.73)	23(24.21)	95	3.11	9th
Creating more livable environment	15(15.79)	25(26.32)	20(21.0)	18(18.94)	17(17.89)	95	3.03	10th
Leading to Community Development	15(15.79)	25(26.32)	20(21.0)	13(13.68)	22(23.16)	95	2.98	11th

Source: field survey,2023

Table 4ranked the socio-economic benefits derived from the rail station situated in Kubwa by the residents of the community. For residents living within the one-kilometer radius to the rail station, the table shows that increased Property value, improved accessibility and Connectivity, Cost Effectiveness and increased retail activities ranked 1st ,2nd ,3rd and 4th

respectively with a mean score of 4.33, 4.24, 4.02 and 4.01. According to Adabre and Chan (2019) mean values 4.30≥Mean≤5.0 were regarded as having a 'Very High Effect' and 3.50≥Mean≤4.29 were also regarded as having 'High Effects'. This imply that the residents within the one-kilometer distance to the rail station are benefitting from these socioeconomic benefits from the rail station. Also,safety impact, increased Job opportunities, time schedule and organization, increase urbanization (influx of people to environment), creating more livable environment and leading to Community development have a mean score of 3.97, 3.78, 3.43, 3.12, 3.11, 3.03 and 2.98 respectively ranked 5th ,6th,7th,8th ,9th ,10th and11th. Increase property value ranked first because it is believed accessibility provided by rail station capitalized in property around it. The rail station has led to significant socioeconomic benefits for residents within a one-kilometer radius, supporting the study's premise. According to Debrezion et.al, (2007) rail stations provide accessibility and environmental impacts, which contribute to increase in property values.

Table 5: Socioeconomic Benefits of the Rail Station to Kubwa Community within 2KM

VARIABLE	SA	A	U	D	SD	N	M.S	RANK
Increased property value	40(47.6)	35(41.6)	0(0.00)	5(5.9)	4(4.7)	84	4.21	1st
Improved Accessibility & Connectivity	35(41.6)	30(31.5)	8(9.52)	7(8.33)	4(4.21)	84	4.01	2nd
Cost Effectiveness	34(40.4)	27(32.1)	10(11.9)	13(15.4)	0(0.00)	84	3.98	3rd
Increased Rental Activities	30(35.7)	35(41.6)	0(0.00)	9(10.7)	10(11.9)	84	3.78	4th
Time Schedule & Organization	25(29.7)	35(41.7)	3(3.57)	14(16.6)	7(8.33)	84	3.67	5th
Increased Job opportunities	30(35.7)	29(34.5)	0(0.00)	14(16.66)	11(13.09)	84	3.63	6th
Safety Impact	26(30.9)	29(29)	8(9.5)	8(9.5)	13(15.5)	84	3.56	7th
Provision of alternative road	20(23.8)	30(35.7)	0(0.00)	26(30.9)	8(9.5)	84	3.33	8th
Increase Urbanization	27(32.1)	10(11.9)	7(8.3)	20(23.8)	20(23.8)	84	3.04	9th
Creating more livable environment	23(39.2)	21(25.0)	10(11.9)	0(0.00)	20(23.8)	84	2.98	10th
Leading to Community Development	5(5.95)	12(14.3)	11(13.1)	12(14.3)	44(52.4)	84	2.07	11th

Source: field survey,2023

Table 5 provides the socioeconomic benefits derived from the rail stations from residents within two-kilometer radius to the rail station. Likewise, increased property value ranked first with a mean score of 4.21, followed by improved accessibility and connectivity with a mean score of 4.01 and cost effectiveness ranked third with a mean score of 3.98. This signifies that rail station contribute to increase property values through the accessibility provided by the rail networks. While socioeconomic benefits such as increased retail activities,timeschedule and organization,increased job opportunities,safety impact, provision of alternative to road,creating more livable environment, increase urbanization (influx of people to environment), and leading to community development ranked 4th, 5th ,6th ,7th ,8th ,9th ,10th and11th accordingly with a mean score of 3.78,3.67,3.63,3.56,3.33,2.98,2.72 and 2.07 respectively. According to Medda (2012) rail station does not merely provide accessibility but can lead to increase trade, reduction in cost of transportation, improvement in land use distribution and improve commuting time. Table 5 highlights rail station benefits within various radii. Within two kilometers, property value rise aligns with accessibility, linking rail to trade and land use. Beyond, cost-effectiveness, accessibility, and time organization prevail, showcasing rail's escalating transport-oriented impact. These insights can aid informed planning and development strategies.

VARIABLE	SA	A	U	D	SD	N	M.S	RANK
Cost Effectiveness	27(34.1)	30(37.9)	0(0.00)	22(27.8)	0(0.00)	79	3.79	1st
Improved Accessibility & Connectivity	28(35.4)	22(27.8)	10(12.6)	19(24.0)	0(0.00)	79	3.74	2nd
Time Schedule & Organization	26(32.9)	31(39.2)	3(3.8)	0(0.00)	20(25.3)	79	3.58	3rd
Increased property value	20(25.3)	17(21.51)	21(26.6)	21(26.6)	0(0.00)	79	3.45	4th
Increased Job	20(25.3)	18(22.78)	21(26.6)	17(21.51)	2(2.53)	79	3.43	5th

Table 6: Socioeconomic Benefits of the Rail Station to Kubwa Community within 3KM
Source: field survey,2023

opportunities								
Safety Impact	25(31.6)	16(20.2)	13(16.5)	11(13.9)	14(17.72)	79	3.34	6th
Provision of alternative road	25(31.6)	15(18.98)	10(12.6)	10(12.65)	19(24.00)	79	3.21	7th
Increased Rental Activities	10(12.6)	15(18.98)	15(18.98)	21(26.6)	19(24.05)	79	2.73	8th
Increase Urbanization	10(12.65)	10(12.65)	10(12.65)	23(29.11)	26(32.91)	79	2.43	9th
Leading to Community Development	10(12.65)	10(12.65)	10(12.65)	23(29.11)	26(32.91)	79	2.43	9th
Creating more livable environment	5(6.33)	10(12.65)	16(20.25)	25(31.64)	23(29.11)	79	2.35	11th

Table 6 further provides the socioeconomic benefits derived from the rail stations from residents within three-kilometer radius to the rail station. Cost effectives ranked first with a mean score of 3.79 followed closely by improved accessibility and connectivity with a mean score of 3.74 and time schedule and organization followed in the third position with a mean score of 3.58. As the distance to the rail station increased the benefit derived from it majorly focused on transportation benefits being derived from the rail station as noted by the residents living within the 3km distance to the rail station. While increased property value,increased job opportunities andsafety impact ranked 4th, 5th and 6th respectively with mean ranked of 3.45, 3.43 and 3.34 respectively.The implications drawn from Table 5reveals that the socioeconomic advantages of the rail station change as the distance from the station increases. Within a three-kilometer radius, the station's transportation benefits are highlighted by its affordability, accessibility, and time management. This highlights the increasing emphasis on commuter benefits with increasing distance. In addition, the rankings of increased property value, employment opportunities, and safety impact demonstrate the station's multifaceted contributions to the community's growth.

Table 7: Socioeconomic Benefits of the Rail Station to Kubwa Community

	1KM		2KM		3KM		Overall	
Socioeconomic Benefits	**Mean Score**	**Rank**	**Mean Score**	**Rank**	**Mean Score**	**Rank**	**Mean Score**	**Rank**
Increased Property Value	4.33	1st	4.21	1st	3.45	4th	4.00	1st
Improved Accessibility and Connectivity	4.24	2nd	4.01	2nd	3.74	2nd	3.99	2nd
Cost Effectiveness	4.02	3rd	3.98	3rd	3.79	1st	3.93	3rd
Increased Retail Activities	4.01	4th	3.78	4th	2.73	8th	3.51	5th
Provision of alternative to road	3.97	5th	3.33	8th	3.21	7th	3.50	6th
Safety Impact	3.78	6th	3.56	7th	3.34	6th	3.56	4th
Increased Job opportunities	3.43	7th	3.63	6th	3.43	5th	3.50	6th
Time Schedule and Organization	3.12	8th	3.67	5th	3.58	3rd	3.46	8th
Increase urbanization (influx of people to environment)	3.11	9th	2.72	10th	2.43	9th	2.75	10th
Creating more livable environment	3.03	10th	2.98	9th	2.35	11th	2.79	9th
Leading to Community Development	2.98	11th	2.07	11th	2.43	9th	2.50	11th

Source: field survey,2023

Furthermore, Kruskall Wallis H test was conducted to test the level of difference in the responses of the Households head in three different kilometers bands. The result is presented in Table 7.

Table 8: Kruskal Wallis H test of difference between the Households Heads on the Socio-economic Benefits of the Rail Station to Kubwa Community

Socioeconomic Benefits	ASYMP. SIG	Decision
Increased Property Value	.552	Accept H_0
Improved Accessibility and Connectivity	.531	Accept H_0
Cost Effectiveness	.637	Accept H_0
Increased Retail Activities	.524	Accept H_0
Provision of alternative to road	.031	Reject H_0
Safety Impact	.722	Accept H_0
Increased Job opportunities	.041	Reject H_0
Time Schedule and Organization	.512	Accept H_0
Increase urbanization (influx of people to environment)	.024	Reject H_0
Creating more livable environment	.000	Reject H_0
Leading to Community Development	.113	Accept H_0

Source: field survey,2023

Table 7 shows that there is no statistically significant difference in seven of the socioeconomic variables across the groups. (Increased Property Value, improved accessibility and connectivity cost Effectiveness, increased Retail Activities,safety impact,time schedule and organization and leading to community development). All these socio-economic variables all have a p value greater than 0.05, which shows that the respondents across the three bands agreed that these socio-economic benefits are derived from the rail station located in Kubwa community.

Furthermore, there was statistically significant difference in four of the socio- economic variables. Socio-economic variables such as creating more livable environment with significance level of 0.000,increase urbanization (influx of people to environment) with a significance level of 0.24, increased Job opportunities with a significance level of 0.041 and provision of alternative to road with a significance level of 0.031. The households' heads in Kubwa community differs on the benefits being derived in this respect.

The implications of Table 7 highlight the complex findings of the study. Seven socioeconomic characteristics did not show any statistically significant differences, which suggests that respondents generally agreed on the advantages of the rail station. This raises the study's credibility by demonstrating a general consensus regarding its favorable effects on things like property value, accessibility, safety, and etc. The existence of statistically significant variations in four variables, however, denotes a range of opinions. This suggests that even if the majority recognizes the good benefits of the station, there are divergent views on issues like creating more livable environment, urbanization, job opportunities, and provision of alternative to road. This shows that benefits being derived from rail station varies.

For the rail station situated at Kubwa area (residential area), the study found that the socioeconomic benefits derived from the rail station was ranked as follows Socioeconomic benefits such as increased property value, improved accessibility and connectivity and cost effectiveness ranked first, second and third respectively with mean score of 4.00, 3.99 and 3.93 accordingly. This reveals that the most impact of the rail station in Kubwa community. While safety impact ranked fourth with a mean score of 3.56 followed by increased retail activities at the fifth position with a mean score of 3.51 and the duo of provision of alternative to road and increased job opportunities at sixth position with a mean score of 3.50.Socio economic benefits such as time schedule and organization, creating more livable environment, increase urbanization and leading to community development ranked 8^{th},9^{th},10^{th} and 11^{th} with mean score of 3.46,2.79, 2.75 and 2.50 respectively. Increased property value ranked first because there was influx of people into the environment which led to increase in house rent and land value. Also, there is high demand for residential buildings in the area. Also, the rail station helps in making it easier to travel to Kaduna and it also save cost of transportation when travelling. These benefits have made Kubwa is sort after area in Abuja metropolis. The findings in this study were in tandem with Okada (2019) and Oxera

(2014) both studies agreed that rail station leads to economic development (increase property value) and that rail station brings about accessibility and connectivity of where its serves.

5.0 CONCLUSION AND RECOMMENDATION

Thestudy examined socioeconomic benefits arising from location of rail station in Kubwa community, Abuja.The research revealed that within one-kilometer radius of the rail station, increased property value is the highest socioeconomic benefit derived from the rail station. This was followed by improved accessibility and connectivity, cost-effectiveness, and increased retail activities. The research also revealed that increased property value is the most significant benefit within a two-kilometer radius, followed by improved accessibility and connectivity, and cost-effectiveness. The study revealed that within three-kilometer radius, cost-effectiveness is the highest socioeconomic benefit derived from the rail station, followed closely by improved accessibility and connectivity, and time schedule and organization. The research revealed that increased property value, enhanced connectivity and accessibility, and cost-effectiveness were consistently identified as the top three advantages across all three radii.

Rail stations play a crucial role in urban and regional development that extends beyond mere accessibility by catalysing a variety of socioeconomic effects in the areas they serve. Consequently, the government must place a high priority on the meticulous maintenance and upkeep of the rail infrastructure. By doing so, they ensure not only the continued smooth operation of transport networks, but also the diverse benefits that communities derive from enhanced mobility, reduced congestion, environmental sustainability, economic development, and improved quality of life.

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