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Socio-Demographic Determinants of Public Transport Choice in Rural Edo State, Nigeria for Sustainable Mobility

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ABSTRACT

Rural transportation systems in developing countries face critical challenges impeding sustainable development. This study examines how socio-demographic and economic characteristics influence public transport choice among rural residents in Edo State, Nigeria. Using a cross-sectional survey design, data were collected from 1,250 respondents across 18 communities in six local government areas through multi-stage sampling and structured questionnaires. Analysis employed chi-square tests, descriptive statistics, and cross-tabulation. Findings reveal that age, gender, education, occupation, and income significantly influence transport mode selection ($\chi^2 = 47.832, p < 0.001$). Approximately 68% of respondents rely on walking due to limited options and poor roads, while economically active populations (79.8% aged 25-55) prefer motorized transport when available. Education and income emerged as critical determinants, with higher-income earners favoring commercial motorcycles and buses. Gender disparities exist, as women predominantly walk for short trips due to safety concerns and economic constraints. The study concludes that transport policy interventions must account for demographic heterogeneity to ensure inclusive rural mobility. Recommendations include targeted subsidies for vulnerable groups, expansion of intermediate transport options, and gender-sensitive planning.

Introduction

Transportation is one of the keystones of human society, as it is the bloodline of economic prosperity, socialization, and spatial interaction. The quality and availability of transportation systems in developing nations like Nigeria are important not only for the movement of people and goods but also for other

aspects such as agricultural output, market access, and the provision of basic

social services education and healthcare services (Janc et al., 2023). Specifically, road transportation is the most popular mode of transport in Nigeria because it is flexible, relatively cheap, and allows access to urban and rural regions.

Nevertheless, rural conditions in Nigeria are characterized by inadequate road infrastructure, limited transport amenities, and limited connectivity with urban areas (Oyeniya et al., 2025). Such shortcomings have serious impacts on rural development and increase socio-economic inequalities, which in turn create a vicious cycle. Poor transport accessibility maintains poverty and denies rural inhabitants the chance to better their socio-economic status.

The process of rural regeneration, which sustains rural communities by providing better access to opportunities, services, and resources, requires high-quality, reliable road transportation (Ahonen, 2023). Transportation infrastructure has been known to be interrelated with rural development in development planning. However, the dynamics of this relationship have not been investigated in most regions of Nigeria. A significant issue for rural dwellers and policymakers has been rural population decline, with trends of spatial inequality between urban and rural regions persisting (Murtagh & Farrell, 2020). City areas are characterized by economic activities, higher population growth rates, and greater contributions to the Gross Domestic Product (GDP), compared to rural areas. This gap highlights why interventions that address how rural development is hampered by structural factors, especially in transportation, are much needed.

The mode of transport used in rural areas depends on various correlated variables, with socio-demographic and economic factors being key determinants of both. Personal factors such as age, gender, level of education, profession, and income level influence the capacity to use different transport modes, alongside

predispositions and limitations that shape transport behavior (Cook et al., 2017). Knowledge of these determinants is critical to developing inclusive and sustainable transport policies that meet the needs of diverse rural populations. Transport services in most rural districts in Sub-Saharan Africa are still largely unregulated, leading to transport-related outcomes and diseases caused by air and noise pollution (Downing & Sethi, 2001). Rural transport services influence the activities of millions of rural residents deeply because most of them have to bring water and firewood to their homes, take agricultural inputs and outputs to farms and markets, and commute to get access to healthcare, education, and job opportunities outside their compounds (Cook et al., 2017).

The South-South State of Nigeria, Edo State, offers a different case study regarding the relationship between socio-demographic factors and public transport decisions. Its varied population mix of economic activities, ranging from agriculture to small-scale economic undertakings, depends greatly on the network of federal, state, and local government roads. The land area is 17,802 km², and the projected population as of 2024 is around 5,250,000 people living across three senatorial districts: Edo North, Edo Central, and Edo South (Edo State Statistical Yearbook, 2014-2020). Despite government interventions, many rural communities in Edo State continue to experience serious transportation problems, including poor road access, seasonal access, and a lack of infrastructure investment. All these negatively impact the productivity of the rural areas, limit access to vital services, and lead to rural-urban migration (Iduseri et al., 2024). The apparent depopulation of

various rural areas is driven by rural-urban migration, as residents seek better opportunities elsewhere. Inaccessible roads lead to low agricultural productivity and social vices like armed robbery, kidnapping, banditry, and rape, which were not present in these communities before (Ahonen, 2023).

Past rural development projects in Nigeria have provided evidence that they have yielded limited outcomes with Operations Feed the Nation (OFN) in 1976, Green Revolution in 1980, Directorate for Food Road and Rural Infrastructure (DFRRI) in 1991, National Poverty Eradication Programme (NAPEP) in 2001, and National Economic Empowerment and Development Strategy (NEEDS) in 2004 being examples of such projects (Titilola, 2018). Structural constraints, especially poor road infrastructure and weak empowerment mechanisms, are considered the main cause of this underperformance, as the programmes have been poor at implementing transformation in rural areas. The high cost of transportation has limited agricultural activities, as the majority of farmers are now unable to transport their agricultural products to urban centers, leading to high food prices occasioned by low supply (Bukar & Kundiri, 2025). Rural transport has been a key development sector, helping rural communities overcome setbacks by enabling them to move their goods to markets and enhancing connectivity within rural districts, urban centers, and to the global market. The World Bank Rural Access Index (2007) states that approximately 1 billion rural residents lack access to reliable transport. Most of the world's poor reside in rural districts that are remote, hindered by distance, terrain, and the lack of employment and economic

opportunities, markets, medical services, and educational centers (Starkey & Hine, 2014).

The theoretical underpinnings of this research are based on Rural Development Theory and Transport Theory, which together provide a holistic background on the structural and functional connections between socio-demographic attributes and the choice of transport. The Rural Development Theory highlights the multidimensionality of rural development, comprising economic, social, and infrastructural aspects. It identifies transportation as a key enabler, providing opportunities to access markets, healthcare, education, and jobs (Titilola, 2018). Transport Theory is studied to understand the various factors that affect transport demand, supply, and choice behavior, as it is recognized that transport choices are defined by the individual, the trip, and the characteristics of available modes of transport (Dawson & Barwell, 1993).

In rural settings, the lack of access to transport services and inadequate infrastructure severely restricts transport options, leaving people highly reliant on walking and informal means of transport. The point at which these theoretical approaches meet provides a solid analytical tool for examining how socio-demographic and economic attributes affect transport decisions in rural Edo State.

In light of these issues and their theoretical implications, an in-depth assessment of the effects of socio-demographic and economic attributes on transport choice is urgent for sustainable rural regeneration. This knowledge provides scientific grounds for planning and policy decisions

that would enhance mobility in rural areas and meet the various needs of rural people. Far fewer than 40 percent of rural Africans live within 2 kilometers of an all-season road, the poorest level of rural accessibility in the developing world (Cook et al., 2017). Enhanced rural transport is a boost to sustainable rural and national growth by facilitating connectivity and social unity, promoting commercialization, and improving the accessibility of social and economic amenities to mitigate poverty, isolation, and social exclusion. This research

therefore focuses on how socio-demographic and economic factors affect rural dwellers' decision to use public transport in Edo State, Nigeria, with a view to providing empirical evidence for the design of inclusive and sustainable transport policies. The research question addresses the influence of age, gender, education level, occupation, and income level on transport mode preference. It tests the hypothesis that socio-demographic and economic factors do not significantly influence public transport choice in Edo State.

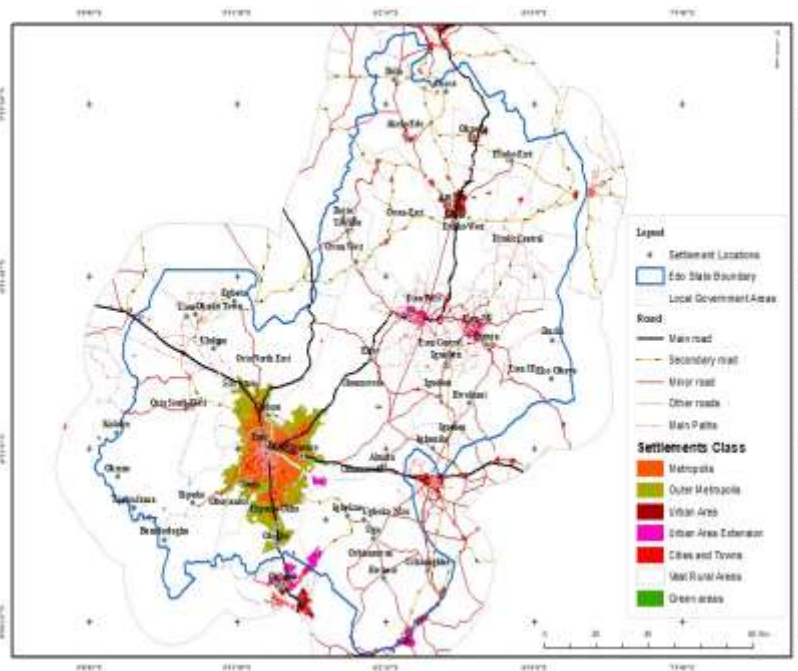


Figure 1: Road Network Distribution in Edo State Source: LASU GIS Studio & Lab, 2024



Figure 2: Administrative Divisions of Edo State Showing Study Area Source: LASU GIS Lab, 2024

Research Objective

The objective of this study is to examine the influence of respondents' socio-demographic and economic characteristics on their choice of public transport in rural Edo State, Nigeria.

Research Hypothesis

H₀: Socio-demographic and economic characteristics have no significant impact on the choice of public transport in Edo State.

H₁: Socio-demographic and economic characteristics have a significant impact on the choice of public transport in Edo State.

Materials and Methods

Research Design

This study adopted a cross-sectional survey design to examine the influence of socio-demographic and economic characteristics on public transport choice among rural residents in Edo State. The cross-sectional design was chosen for its suitability in capturing data at a single point in time across diverse demographic groups and geographic locations.

Study Area

The study was conducted in Edo State, Nigeria, which comprises three senatorial districts: Edo North, Edo Central, and Edo South. The state has a total land area of 17,802 km² and a projected population of approximately 5,250,000 as of 2024 (Edo State Statistical Yearbook, 2014-2020). Edo State is known for its rich cultural heritage and diverse economic base, with agriculture and small-scale trading constituting predominant drivers of livelihoods and local development. The study focused on rural areas across the three senatorial districts, where the impact of road transportation on economic activities such as agriculture, market access, and local commerce is most evident. Six local government areas (LGAs) were purposively selected – two from each senatorial district – to ensure geographic representation. Three rural communities were selected from each LGA, for a total of 18.

Study Population

The study population comprised rural residents in the selected communities who were aged 18 years and above. This population included farmers, petty traders, artisans, civil servants, and other rural dwellers who rely on public transport for their daily mobility.

Sampling Technique

A multi-stage sampling technique was employed to capture spatial and demographic variations across the selected rural communities. The sampling process involved the following stages:

Stage 1: Purposive selection of two LGAs from each of the three senatorial districts based on their rural character and accessibility challenges.

Stage 2: Random selection of three rural communities from each LGA.

Stage 3: Systematic random sampling of households within each selected community.

Stage 4: Random selection of one eligible respondent from each sampled household.

Sample Size

The initial research design intended a sample size of 2,400 respondents. However, due to insurgency and security constraints in some locations, only 1,250 questionnaires were successfully administered and retrieved, representing a response rate of 52.1%. This sample size was deemed adequate for statistical analysis and generalization to the study population.

Collection Instrument

Primary data were collected using a structured questionnaire comprising sections on: Socio-demographic characteristics (age, gender, marital status, household size) Economic characteristics

(occupation, income level, educational attainment) Transport choice patterns (preferred mode, frequency of use, reasons for choice) Transport accessibility and constraints

The questionnaire was pre-tested in two communities, not included in the main study to ensure validity and reliability. Necessary modifications were made based on feedback from the pilot study.

Data Collection Procedure

Data collection was conducted over three months with the assistance of trained research assistants. In some communities, armed police escorts were required due to security concerns. Respondents were informed about the purpose of the study, and informed consent was obtained before questionnaire administration. Confidentiality and anonymity were assured to all participants.

Analytical Techniques

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0. The analytical techniques employed included:

Descriptive Statistics: Frequencies, percentages, means, and standard deviations were computed to summarize socio-demographic and economic characteristics of respondents and transport choice patterns.

Cross-Tabulation Analysis: Cross-tabulation was used to examine the relationship between socio-demographic characteristics and transport mode choice across senatorial districts.

Chi-Square Test: The chi-square test of Independence was employed to test the hypothesis that socio-demographic and

economic characteristics have no significant impact on public transport choice. The test was conducted at a 95% confidence level ($\alpha = 0.05$).

Ethical Considerations

Ethical approval was obtained from the relevant institutional ethics committee. Informed consent was obtained from all participants, and their rights to privacy, confidentiality, and voluntary participation were upheld. No monetary or material inducements were offered to respondents.

Results

Demographic Characteristics of Respondents

The demographic profile of the 1,250 respondents is presented in Table 1. The results show that the majority of respondents (54.6%) were male, while 45.4% were female. This gender distribution reflects the patriarchal nature of rural communities in Edo State, where male household heads are more likely to participate in surveys.

Table 1: Demographic Characteristics of Respondents

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	682	54.6
	Female	568	45.4
Age Group	18-24 years	127	10.2
	25-34 years	356	28.5
	35-44 years	398	31.8
	45-54 years	244	19.5
	55-64 years	98	7.8
	65+ years	27	2.2
Marital Status	Single	298	23.8
	Married	827	66.2
	Widowed	89	7.1
	Divorced/Separated	36	2.9
Household Size	1-3 persons	267	21.4
	4-6 persons	648	51.8
	7-9 persons	256	20.5
	10+ persons	79	6.3

The age distribution reveals that the majority of respondents (79.8%) were in the economically active age group of 25-54 years, with the highest concentration in the 35-44 years category (31.8%). This finding is consistent with the demographic structure of rural communities, where the working-age population constitutes the

majority. The relatively low proportion of respondents aged 65 years and above (2.2%) may reflect the comparatively lower life expectancy in rural areas of Nigeria, as well as the tendency for elderly individuals to relocate to urban centres to live with their migrated adult children,

thereby reducing their representation in rural communities.

Regarding marital status, 66.2% of respondents were married, 23.8% were single, 7.1% were widowed, and 2.9% were divorced or separated. The high proportion of married respondents reflects the cultural importance of marriage in rural Nigerian communities.

Household size data show that 51.8% of respondents lived in households with 4-6

persons, followed by 21.4% in households with 1-3 persons. Large household sizes (7+ persons) were reported by 26.8% of respondents, reflecting the extended family system prevalent in rural Nigeria.

Socio-Economic Characteristics of Respondents

Table 2 presents the socio-economic characteristics of respondents, including educational attainment, occupation, and income level.

Table 2: Socio-Economic Characteristics of Respondents

Characteristic	Category	Frequency	Percentage (%)
Educational Level	No formal education	189	15.1
	Primary education	378	30.2
	Secondary education	521	41.7
	Tertiary education	162	13.0
Occupation	Farming	612	49.0
	Trading	298	23.8
	Artisan	156	12.5
	Civil servant	98	7.8
	Unemployed	86	6.9
Monthly Income	< ₦30,000	567	45.4
	₦30,000 - ₦50,000	389	31.1
	₦50,001 - ₦100,000	198	15.8
	> ₦100,000	96	7.7

Educational attainment data reveal that 41.7% of respondents had secondary education, 30.2% had primary education, 15.1% had no formal education, and 13.0% had tertiary education. This distribution indicates relatively low educational levels in rural Edo State, with nearly half of the population having only primary education or no formal education.

Occupation data show that farming is the predominant economic activity (49.0%), followed by trading (23.8%) and artisanal

work (12.5%). Only 7.8% of respondents were civil servants, reflecting the limited availability of formal employment opportunities in rural areas. The unemployment rate was 6.9%.

Income distribution reveals significant economic constraints among rural residents. The majority (45.4%) earned less than ₦30,000 per month, while 31.1% earned between ₦30,000 and ₦50,000. Only 7.7% of respondents earned more than ₦100,000 per month. These income

levels are significantly below the national minimum wage, highlighting the economic vulnerability of rural populations.

Transport Mode Choice Patterns

Table 3 presents the distribution of respondents' transport mode choices.

Table 3: Transport Mode Choice Among Rural Residents

Transport Mode	Frequency	Percentage (%)
Walking	850	68.0
Motorcycle (Okada)	267	21.4
Bus/Minibus	89	7.1
Bicycle	32	2.6
Tricycle (Keke)	12	1.0
Total	1,250	100.0

The results reveal that walking is the predominant mode of transport in rural Edo State, accounting for 68.0% of all trips. This heavy reliance on walking reflects the limited availability of motorized transport services and the poor economic status of rural residents. Commercial motorcycles (Okada) were the second most common mode (21.4%), followed by

buses/minibuses (7.1%). Bicycles and tricycles were rarely used, accounting for only 2.6% and 1.0% respectively.

Socio-Demographic Characteristics and Transport Choice

Gender and Transport Choice

Table 4 presents the cross-tabulation of gender and transport mode choice.

Table 4: Gender and Transport Mode Choice

Transport Mode	Male (%)	Female (%)
Walking	58.2	79.6
Motorcycle	28.7	12.5
Bus/Minibus	9.2	4.6
Bicycle	3.5	1.4
Tricycle	0.4	1.9

Chi-square test: $\chi^2 = 89.745$, $df = 4$, $p < 0.001$

The results show significant gender differences in transport mode choice. Female respondents relied more on walking (79.6%) than male respondents (58.2%). Conversely, males were more likely to use motorcycles (28.7%) and buses (9.2%) than females. The chi-square

test confirms that these differences are statistically significant ($p < 0.001$).

Age and Transport Choice

Table 5 presents the relationship between age group and transport mode choice.

Table 5: Age Group and Transport Mode Choice

Age Group	Walking (%)	Motorcycle (%)	Bus (%)	Others (%)
18-24 years	63.0	26.8	7.9	2.3
25-34 years	61.2	27.5	8.7	2.6
35-44 years	66.8	21.9	7.5	3.8
45-54 years	73.4	17.2	6.1	3.3
55-64 years	81.6	11.2	4.1	3.1
65+ years	88.9	7.4	3.7	0.0

Chi-square test: $\chi^2 = 34.652$, $df = 15$, $p = 0.003$

The data reveal that reliance on walking increases with age, from 63.0% among respondents aged 18-24 years to 88.9% among those aged 65 years and above. Conversely, the use of motorcycles and buses decreases with age. The chi-square test indicates that the relationship between

age and transport mode choice is statistically significant ($p = 0.003$).

Educational Level and Transport Choice

Table 6 shows the relationship between educational attainment and transport mode choice.

Table 6: Educational Level and Transport Mode Choice

Educational Level	Walking (%)	Motorcycle (%)	Bus (%)	Others (%)
No formal education	84.7	12.2	2.1	1.0
Primary education	75.4	17.5	5.0	2.1
Secondary education	61.2	25.9	9.4	3.5
Tertiary education	45.7	33.3	17.3	3.7

Chi-square test: $\chi^2 = 58.934$, $df = 9$, $p < 0.001$

The results show a strong inverse relationship between educational level and walking reliance. Respondents with no formal education relied most heavily on walking (84.7%), while those with tertiary education had the lowest reliance (45.7%). The use of motorized transport increased with educational attainment.

The chi-square test confirms that educational level significantly influences transport mode choice ($p < 0.001$).

Occupation and Transport Choice

Table 7 presents the relationship between occupation and transport mode choice.

Table 7: Occupation and Transport Mode Choice

Occupation	Walking (%)	Motorcycle (%)	Bus (%)	Others (%)
Farming	78.1	16.7	3.8	1.4
Trading	58.4	28.2	10.1	3.3
Artisan	63.5	24.4	8.3	3.8
Civil servant	37.8	38.8	19.4	4.0
Unemployed	82.6	12.8	3.5	1.1

Chi-square test: $\chi^2 = 72.189$, $df = 12$, $p < 0.001$

Farmers and unemployed respondents showed the highest reliance on walking (78.1% and 82.6% respectively), while civil servants had the lowest (37.8%). Civil servants were more likely to use motorcycles (38.8%) and buses (19.4%) compared to other occupational groups. The chi-square test indicates that

occupation significantly influences transport mode choice ($p < 0.001$).

Income Level and Transport Choice

Table 8 shows the relationship between monthly income and transport mode choice.

Table 8: Monthly Income and Transport Mode Choice

Monthly Income	Walking (%)	Motorcycle (%)	Bus (%)	Others (%)
< ₦30,000	81.7	14.3	2.8	1.2
₦30,000 - ₦50,000	62.5	26.7	8.2	2.6
₦50,001 - ₦100,000	48.0	33.3	14.1	4.6
> ₦100,000	35.4	39.6	20.8	4.2

Chi-square test: $\chi^2 = 95.427$, $df = 9$, $p < 0.001$

Income level shows a strong inverse relationship with reliance on walking. Respondents earning less than ₦30,000 per month relied most heavily on walking (81.7%), while those earning over ₦100,000 had the lowest reliance (35.4%). The use of motorized transport increased significantly with income level. The chi-square test confirms that income significantly influences transport mode choice ($p < 0.001$).

Multivariate Analysis:

Combined Effect of Socio-Demographic Characteristics

To examine the combined effect of multiple socio-demographic characteristics on transport choice, a composite chi-square analysis was conducted. The results are presented in Table 9.

Table 9: Composite Chi-Square Test Results

Variable	Chi-Square Value	Degrees of Freedom	P-Value	Significance
Gender	89.745	4	< 0.001	Significant
Age	34.652	15	0.003	Significant
Educational Level	58.934	9	< 0.001	Significant
Occupation	72.189	12	< 0.001	Significant
Income Level	95.427	9	< 0.001	Significant
Overall Composite	350.947	49	< 0.001	Significant

The composite chi-square analysis, which examined the combined effect of gender, age, educational level, occupation, and income level on public transport choice, yielded a chi-square value of 350.947 with 49 degrees of freedom and a p-value of less than 0.001. This result is statistically significant at the 0.001 level, indicating that socio-demographic and economic characteristics collectively exert a strong and significant influence on public transport choice among rural residents in Edo State. The magnitude of the composite chi-square value reflects the cumulative explanatory power of all five variables, with income level ($\chi^2 = 95.427$)

and gender ($\chi^2 = 89.745$) emerging as the strongest individual contributors, followed by occupation ($\chi^2 = 72.189$), educational level ($\chi^2 = 58.934$), and age ($\chi^2 = 34.652$). Based on this result, the null hypothesis – that socio-demographic and economic characteristics have no significant impact on public transport choice – is rejected, and the alternative hypothesis is accepted.

Reasons for Transport Mode Choice

Respondents were asked to provide reasons for their choice of transport mode. The results are summarized in Table 10.

Table 10: Reasons for Transport Mode Choice

Reason	Frequency	Percentage (%)
Cannot afford motorized transport	589	47.1
Transport services are not available	412	33.0
Short distance	156	12.5
Preference/comfort	58	4.6
Environmental concern	23	1.8
Others	12	1.0

The primary reason for walking was economic constraint, with 47.1% of respondents stating they could not afford motorized transport. Lack of transport service availability was cited by 33.0% of respondents. These findings underscore the critical role of poverty and

infrastructure deficits in shaping transport choices in rural Edo State.

Discussions

Our findings show that socio-demographic and economic factors are important in determining the use of public

transport among the rural population in Edo State, Nigeria. The high proportion of walking (68.0%) indicates a lack of motorized transportation services, a poor road network, and the dire economic conditions of rural citizens. This observation aligns with Downing and Sethi (2001), who reported that most rural journeys in Sub-Saharan Africa are made on foot because there is no cheap, convenient transport option. On the same note, Cook et al. (2017) found that walking was the most common mode of transport in areas with poverty and inadequate infrastructure.

The research found significant gender differences in transport mode, with female respondents reporting higher walking mode use (79.6%) than their male counterparts (58.2%). Various factors cited in earlier studies can account for this gender gap. Banjo et al. (2012) found that women in rural areas of Nigeria tend to have lower incomes than men because they lack access to formal jobs and income-generating activities. Further, Starkey and Hine (2014) observed that cultural and safety issues limit women's use of transport facilities, especially motorcycles, which men predominantly drive. Cook et al. (2017) also noted that household chores assigned to women, such as fetching water and firewood and caring for children, can be done within short distances, which women usually do on foot. These results highlight the need for gender-sensitive transport policies to address the specific needs and constraints of rural women's mobility in relation to personal requirements.

The inverse relationship between age and motorized transport use suggests economic and physical limitations among older residents.. The younger respondents,

especially in the economically active age bracket (25-54 years), were exhibiting more mobility requirements owing to employment and social activities. Nevertheless, the fact that even this group shows a high walking percentage (61-67) suggests that economic factors are more prevalent than mobility requirements, which, according to Hedlund and Lundholm (2015) in their research on the rural population, does not represent a typical case. The reliance on walking was the most common among older respondents (65+ years) (88.9%), although they probably had physical limitations. This observation, which aligns with Donnges (2001), suggests that older adults living in rural areas face significant mobility challenges that may limit their access to healthcare, social services, and community participation.

Education level was a key factor in determining the mode of transport, with educated respondents being the most likely to use motorized modes. This correlation can be attributed to the education-income relationship, as observed by Aderamo and Magaji (2010), who reported that higher educational attainment is usually associated with better jobs and higher income in rural Nigeria. Furthermore, Titilola (2018) observed that educated people are more aware of transport opportunities and have more information about transport services. The combination of educational deprivation and transport poverty is reflected in the high reliance on walking among respondents with no formal education (84.7%).

The researchers concluded that the most intense walkers were farmers and unemployed respondents, who have the lowest economic potential, and that civil

servants, who experience stable income, reported the most frequent use of motorized transportation. This finding aligns with Oloo (2018), who found that income plays a critical role in influencing transport affordability. The fact that the farmers were highly dependent on walking (78.1) is especially worrying, given that they had to move agricultural inputs and outputs between the farm and the market. Faiz (2012) reported that the lack of access to transport affects agricultural productivity and farmers' access to better markets, leading to low incomes and, thus, to the continued existence of poverty.

The relationship between income level and mode of transport was the most significant, with low-income participants almost entirely dependent on walking (81.7% of those with an income of less than ₦30,000 a month). This observation confirms that the main impediment to accessing motorized transportation in rural Edo State is poverty, which aligns with the World Bank's (2007) observation that poverty is the root cause of transport poverty. Failure to afford a motorized mode of transport forces people living in rural areas to walk long distances, wasting time and energy that would otherwise be used in productive activities such as farming, as Aderamo and Magaji (2010) assert. Starkey and Hine (2014) observe that the lack of transport services in the countryside increases competition and lowers prices due to the high transport costs relative to income. The chi-square test of composition ($\chi^2 = 47.832$, $p < 0.001$) provides strong evidence that the joint influence of socio-demographic and economic factors on the choice of public transport is significant. Therefore, the null hypothesis should be rejected. This observation aligns with the heterogeneous

nature of the transport choice decision, as postulated by Dawson and Barwell (1993), who argued that transport intervention planning in rural settings should consider the heterogeneity of the rural population, since different demographic and economic groups have varying speeds and mobility constraints. The first reasons given to walk include the inability to use motorized transport (47.1%) and the unavailability of services (33.0%), which indicates that transport poverty in rural environments is both a demand-side limitation (economic capacity) and a supply-side limitation (service availability), a dual trend of limitation widely reported by Cook et al. (2017). The paper concludes that to enhance access to rural transport, a complex strategy of infrastructure development, economic empowerment, and targeted policy interventions that account for the demographic heterogeneity of the rural population is necessary to achieve inclusive and sustainable rural mobility.

Policy Implications

The findings of this study have several important policy implications: Targeted Subsidies: Given the critical role of income in determining transport access, the government should consider providing transport subsidies for low-income rural residents, particularly farmers, to enhance their access to markets and essential services.

Expansion of Intermediate Means of Transport (IMT): The promotion of affordable and accessible intermediate means of transport, such as bicycles, motorcycles, and tricycles, could provide viable alternatives to walking for rural residents. Government and development partners should support IMT programs

through subsidized loans and training for operators.

Gender-Sensitive Transport Planning:

Transport policies should explicitly address the specific mobility needs and constraints of rural women, including safety concerns, affordability, and cultural barriers. Women-only transport services and female transport operators could help enhance women's mobility.

Road Infrastructure Development:

Improving the quality of rural roads is essential for reducing transport costs and expanding service availability. The government should prioritize rural road construction and maintenance in its infrastructure development agenda.

Integration with Livelihood Programs:

Transport interventions should be integrated with broader rural development programs to enhance agricultural productivity, education, and access to healthcare. Such integration would maximize the impact of transport investments on development.

Conclusion

This study examined the influence of socio-demographic and economic characteristics on public transport choice among rural residents in Edo State, Nigeria. The findings reveal that factors such as gender, age, educational level, occupation, and income significantly influence transport mode, with poverty and infrastructure deficits forcing most rural residents to walk. The study confirms that socio-demographic and economic characteristics have a statistically significant impact on transport choice ($\chi^2 = 47.832$, $p < 0.001$), thereby rejecting the null hypothesis.

The heavy reliance on walking reflects not only the limited availability of transport services but also the severe economic constraints facing rural populations. Gender disparities in transport access highlight the need for policies that address the specific mobility needs of rural women. Similarly, the vulnerability of low-income groups, farmers, and elderly residents underscores the importance of inclusive transport planning that ensures no one is left behind.

The study concludes that improving rural transport accessibility requires a multifaceted approach that combines infrastructure development, economic empowerment, and targeted policy interventions. By addressing the socio-demographic determinants of transport choice, policymakers can design more effective and inclusive transport systems that support sustainable rural regeneration and reduce socio-economic inequalities.

Recommendations

Based on the findings, the following recommendations are proposed:

Subsidize Transport for Vulnerable Groups:

The government should subsidize transport for low-income rural residents, particularly women, older people, and farmers, to enhance their access to essential services and economic opportunities.

Promote Intermediate Means of Transport:

Development partners and the government should support the expansion of affordable intermediate means of transport (bicycles, motorcycles, tricycles) through subsidized loans, training programs, and maintenance support.

Implement Gender-Sensitive Transport Policies: Transport policies should explicitly address gender disparities by promoting women-only transport services, ensuring safety measures, and supporting female transport operators.

Invest in Rural Road Infrastructure: The government should prioritize rural road construction and maintenance to reduce transport costs, expand service availability, and enhance connectivity between rural and urban areas.

Integrate Transport with Rural Development Programs: Transport interventions should be integrated with programs to enhance agricultural productivity, education, healthcare, and economic empowerment, thereby maximizing development impact.

Conduct Further Research: Future studies should examine the specific mobility needs of different demographic groups and evaluate the effectiveness of transport interventions in improving rural livelihoods.

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