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Modelling Intercity Trip Generation of Public Passenger Transport in Niger State, Nigeria

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Abstract

The persistent growth in intercity travel demand across Niger State has not been matched by adequate transport services and infrastructure, leading to inefficient passenger movement, delays, and poor service delivery. Despite these challenges, there is limited empirical understanding of the factors influencing intercity trip generation, creating a need for a study that models the determinants of public passenger transport demand in the State. This study aims to identify demographic, socioeconomic, and transportation-related factors that influence the weekly travel frequency of public transport passengers in Niger State. Key variables examined include age, marital status, household size, educational level, car ownership, trip purpose, trip distance, and perceived insecurity, each measured through categorical proxies. A cross-sectional survey research design was adopted, covering nine major cities: Minna, Bida, Kontagora, Suleja, Mashegu, Mokwa, Shiroro, New Bussa, and Lapai. Using Dillman's (2007) formula, a sample of 1,290 respondents was drawn from a population of 90,775 registered passengers with NURTW, RTEAN, and NSTA. Data were analysed using correlation and multiple linear regression, with diagnostic tests for multicollinearity (VIF < 10, Tolerance near 1). The regression model revealed an R^2 value of 0.967, indicating high predictive accuracy with statistically significant predictors ($p < 0.001$). The study concludes that demographic, socioeconomic, and transport-related factors strongly influence intercity trip generation in Niger State, providing an empirical basis for transport planning and policy. The study recommends that transport authorities should enhance safety and security, improve accessibility and convenience for key demographic groups and focus resources on the factors that most significantly influence intercity trip generation.

Keywords: Intercity, Trip Generation, Modelling, Public Transport Passenger

1. Introduction

Transportation plays a crucial role in the functioning and survival of any society and economy, facilitating the movement of people, goods, and services (Okonkwo, 2023). It is a vital component linking the physical environment to patterns of social and economic development (Olorunfemi, 2020). Borlo, et al (2021) emphasised that transportation is central to human society, significantly contributing to social and economic interactions. The transportation system is pivotal to the economic and social development of nations (Akinsehinwa, 2023). The mobility and accessibility it provides have shaped urban centres and influenced the location of social and economic activities (Ojekunle et al., 2018).

Intercity trip generation is a key aspect of transport planning, reflecting the frequency and volume of trips made between cities and towns. Efficient intercity travel systems can maximise economic growth by facilitating the movement of people and goods across urban and rural areas (Gebre & Quezon, 2021). However, intercity travel is complex, as people from diverse socioeconomic backgrounds travel for different purposes at varying times using multiple modes of transport (Usanga et al. 2020). These trips are influenced by the spatial distribution of settlements, economic activities, and transport infrastructure, with well-functioning road passenger systems comprising buses, minibuses, and taxis serving as the major drivers of intercity trip generation (Akinsehinwa, 2023; Green et al., 2023).

In Nigeria, particularly in Niger State, intercity passenger transport remains integral to mobility, connecting dispersed urban and rural areas (Owoeye, 2025). However, challenges such as rising transport costs, long travel times, inadequate terminal facilities, and safety concerns have constrained travel patterns and affected trip generation (Olawole and Aloba, 2014). Understanding these dynamics is crucial for transport planning, as it offers insights into travel demand, socioeconomic determinants of mobility, and the pressures on existing transportation infrastructure (Olorunfemi, 2020). By improving public passenger transport services and their components, it is possible to enhance intercity trip generation, optimise service provision, and support economic and social activities across the State

Despite the critical role of intercity travel in regional mobility, the literature reveals a significant gap: there is no specialised model to estimate intercity trip generation in Niger State, which limits the ability of planners and policymakers to accurately forecast travel demand and design appropriate transportation infrastructure (Ojekunle et al., 2021). This study aims to develop a tailored model for intercity trip generation in Niger State to forecast travel demand accurately, optimise public transport systems, and inform effective transport planning and policy. This study, therefore, seeks to model intercity trip generation of public passenger transport in Niger State, providing data-driven insights to improve mobility, efficiency, and regional integration.

2. Literature Review

This literature review examines intercity trip generation and public passenger transport, focusing on demographic, socioeconomic, and transport-related determinants, current mobility challenges, and the gap in a specialised model for Niger State that this study addresses.

2.1 Conceptual Review

The conceptual review highlights that intercity trip generation, defined as the number of trips originating from or destined to a city over a specific period, is influenced by travellers' characteristics and socioeconomic activities, serving as a key measure for transport planning (Usanga et al. 2020). Key determinants include demographic factors such as age, marital status, and household size; socioeconomic factors, such as educational level and car ownership; and transport-related factors, including trip purpose, trip distance, perceived insecurity, and service quality and availability. These factors are measured using proxies such as weekly trip frequency, trip distances, and categorisations of personal and transport attributes. Together, these variables form a framework that guides the analysis of travel behaviour and the modelling of intercity trip generation in Niger State, providing insights essential for forecasting demand, optimising public transport systems, and improving infrastructure planning.

2.2 Conceptual Framework

The framework in Figure 2 illustrates the relationship between the dependent variable, the frequency of passenger flow, and independent variables such as socioeconomic characteristics, location, cost, distance, trip duration, and others. These variables are interconnected and interrelated. Trip characteristics (such as cost, distance, and purpose) directly impact mode and route choices. For instance, long-distance journeys may lead passengers to opt for more affordable options, such as buses, while shorter trips may encourage the use of private vehicles. Socioeconomic factors play a key role in shaping trip characteristics.

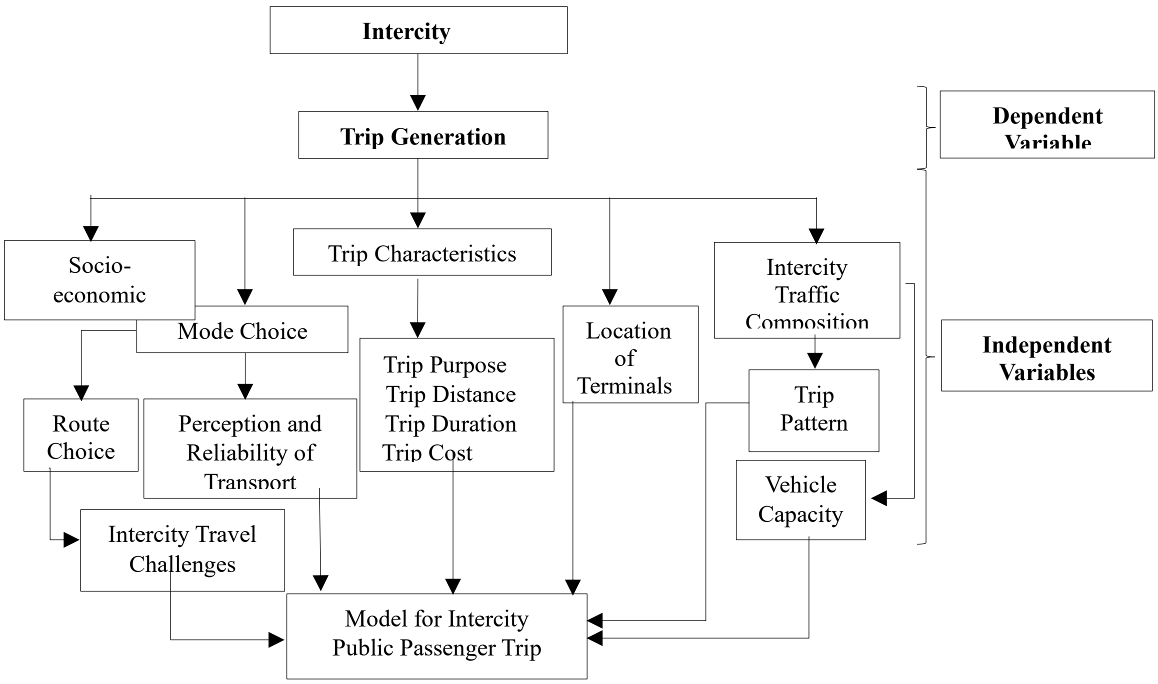

Figure 2: Conceptual Framework for the Study
Source: Author Concept (2025)

2.3 Theoretical Review

The Four-Step Travel Demand Model has been extensively applied in urban transportation planning (Modi et al. 2011). Ortúzar and Willumsen (2011) have further elaborated on this model. Notwithstanding its widespread use, scholars like Gebre and Quezon (2021) have pointed out a notable research gap concerning the adjustment of this model to contemporary transportation systems characterised by dynamic shifts in travel behaviour and an evolving array of mobility options.

Traditionally, within travel demand modelling, trip generation is the initial component that provides the possibility for subsequent steps such as destination choice and mode choice. Regarding intercity travel, a trip is typically classified as either business or non-business (Akpoghomeh and Mbee, 2021; Afolabi et al. 2017). The Trip Generation Model forecasts the number of person-trips that will originate from one end in each traffic zone within the town for a specified period (Okoko, 2006; Akpoghomeh, 2021). In trip generation modelling, two major zones are recognised (i.e. origin and destination zones). The various techniques used to analyse trip generation models, as cited by Okoko (2006), Ekong (2013), Gebre and Quezon (2021) &

Akpoghomeh (2021), include multiple linear regression models, trip analysis and cross-classification or category analysis.

Figure 3 illustrates a four-step transport modelling framework, explaining how travel demand is generated and ultimately results in real traffic flows. The process begins with trip generation, which involves the activity system (e.g., schools, workplaces, households, and businesses) that interacts with the transport system to produce trips. Invariably, these trips are allocated in the distribution, determining the origin-destination patterns. The process begins with trip generation, where the activity system (e.g., households, businesses, schools) interacts with the transport system to produce trips. These trips are then allocated in the trip distribution, determining the origin-destination patterns. The mode choice is the next step, where travellers choose between various transport modes, such as car, train, and bus, based on duration, cost, and convenience. Moreover, route choice allots trips to specific paths in the network, resulting in traffic flows. Lastly, feedback and equilibration loops guarantee the model accounts for congestion and changing travel patterns, creating a dynamic tool for transport planning and policy evaluation.

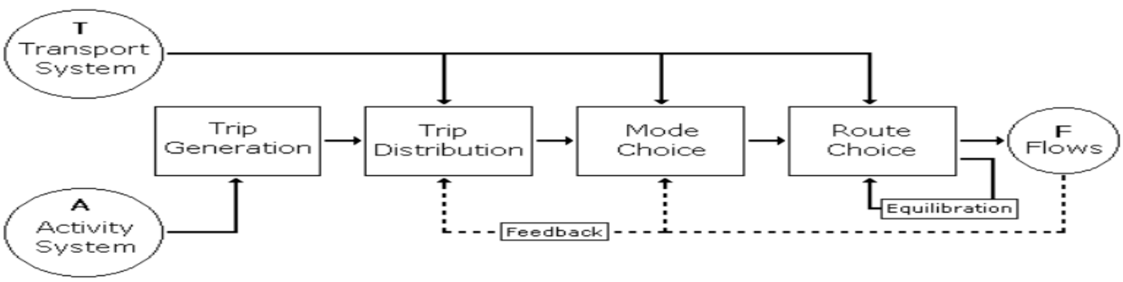

Figure 3: The Four-Step Model
Source: McNally (2007)

2.4 Empirical Review

Empirical studies highlight that public transportation is the most effective means of moving large groups of people, particularly in densely populated urban areas (Gbadamosi & Olorunfemi, 2016). Cities are characterised by clusters of human activities such as manufacturing, trading, transportation, and tertiary services that generate high population concentrations. These activities are functionally differentiated and spatially segregated, shaping the spatial configuration of urban areas and influencing travel patterns (Ojekunle and Owoeye, 2018). The resulting spatial segregation creates imbalances in land use, necessitating consistent spatial interaction to maintain functional interrelationships between urban zones (Zhang et al. 2023). Empirical evidence further shows that rapid urbanisation globally is driving increased population densities in cities, which in turn intensifies demand for efficient and reliable public transport systems to support mobility, accessibility, and economic activity.

Ojekunle et al. (2021) modelled the determinants of inter-urban trip flow patterns of selected cities in Niger State, Nigeria. In the study, the dependent variable was inter-urban travel flow (ITF), while the independent variables included travel distance (TD), travel time (TT), population (PP), public institution (PI), and fare charged (FC), with population (PP) and fare charged (FC) identified as the significant predictors. A multiple stepwise regression model was adopted. Modi et al. (2011) reviewed the transportation planning model and concluded that trip generation provides an estimate of the total number of trips generated to and attracted from different zones within the study area.

Modi (2010) posited that the gravity model predicts trip movements between zones by considering the population size and the distance that separates them. This foundational approach underscores the model's reliance on socioeconomic and spatial factors in transportation planning. However, scholars such as Okoko (2006) and Akpogomeh (2021) have highlighted a research gap in this domain, emphasising the necessity for enhanced Gravity Model versions encompassing supplementary factors influencing trip generation. These critiques highlight limitations in traditional models, underscoring the need to integrate variables such as travel costs and infrastructure quality to enhance predictive accuracy in empirical studies.

Empirical studies on intercity trip generation demonstrate the use of various models to analyse travel demand and passenger behaviour in urban and regional environments. This study employs the multiple linear regression model to investigate the complex relationships between demographic, socioeconomic, and transport-related factors and intercity travel demand and weekly trip patterns in Niger State. By meeting key statistical assumptions, the model provides a reliable framework for understanding intercity trip generation and offers insights to inform transport planning and policy formulation.

3. Methodology

The study employed a cross-sectional survey design to investigate factors influencing intercity trip generation in Niger State, focusing on public transport passengers across nine major cities. A sample of 1,290 respondents was drawn from a population of 90,775 intercity public transport passengers using a multistage and systematic random sampling technique to ensure representativeness. The nine cities selected for the study include: Minna, Bida, Kontagora, Suleja, Mashegu, Mokwa, Shiroro, New Bussa and Lapai. These cities were chosen due to their high population concentration and serve as transport hubs for direct public transport service from the state capital and other urban centres. Additionally, these cities have a well-developed transportation infrastructure, including extensive road networks and organised intercity bus terminals, which aid accessibility and connectivity. The geographical spread of cities and the rural-urban dichotomy also play a role in the selection. Thereby, making them representative of the State's overall demographic and public transportation characteristics. Structured questionnaires were used to collect data on demographic, socioeconomic, and transport-related factors, including trip frequency and purpose. Dillman's (2007) formula was used to draw a sample of 1,290 respondents from a population of 90,775 registered with NURTW, RTEAN, and NSTA. Approximately 95.3% of the questionnaires were returned as valid. Data were analysed using correlation and multiple linear regression, with diagnostic tests for multicollinearity (VIF < 10, Tolerance near 1). To calculate the sample size using the formula given below, we need to substitute the values into the formula:

$$N_s = \frac{(N_p)(p)(1-p)}{(N_p-1)\left(\frac{B}{C}\right)^2+(p)(1-p)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where;

Ns = Complete sample size needed (notation often used is n)

Np = Size of the population (notation often used is N) = (90,775)

P = proportion expected to answer a certain way (50% or 0.5 is most conservative)

B = Acceptable level of sampling error (0.03) = (3%)

C = Z statistic associated with confidence interval = (2.17) (for 97% Confidence level)

Substituting the values into the formula:

$$N_s \approx \frac{(90{,}775)(0.5)(1-0.5)}{(90{,}775-1)\left(\frac{0.03}{2.17}\right)^2+(0.5)(1-0.5)}$$

$$\approx \frac{(22{,}693.75)}{(90{,}774)(0.000191)+(0.25)}$$

$$\approx \frac{22{,}693.75}{(90{,}774)(0.000191)+(0.25)}$$

$$\approx \frac{22{,}693.75}{17.587834}$$

$N_s \approx$ 1,290

To model intercity trip generation of public passenger transport in Niger State, a multiple linear regression model (MLR) was used. This model was adopted to estimate intercity flows and leverage the data obtained on trip distances, trip costs, trip durations, population, socioeconomic characteristics, and service satisfaction.

The multiple linear regression model was adopted and adapted from standard statistical modelling techniques (Gujarati and Porter, 2009) and Ojekunle et al. (2021) to estimate the total number of intercity passenger trips generated in cities within Niger State.

The multiple linear regression model equation is expressed as:

$Y = \beta_0 + \sum_{i=1}^{n} b_i x_i + \varepsilon$………………………………………..……. (1)

This could be expanded to accommodate n number of predictor variables as follows:

Y= $\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots + \beta_n X_n + \varepsilon$…………........................ (2)

Where:

Y = Dependent variables

β_0 = Y-intercept (it's the value of Y when all X's are 0)

X_1, X_2 …….X_n = Independent variables (the predictors or features)

$\beta_1, \beta_2, \ldots \beta_n$ = Coefficients of the independent variables (these values indicate the change in Y for a one-unit change in the respective X variable, holding all other variables constant) ε = Error term (captures the variability in Y that the predictors do not explain)

The model used:

$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_k X_k + \varepsilon$ ……………………………….…………… (4)

For modelling intercity trip generation in the study area, the study model was adopted to estimate the' total number of passengers ' trips generated in cities through multiple linear regression.

Therefore, the multiple linear regression model equation is expressed below:

$$Y = \beta_0 + \beta_1(x_1) + \beta_2(x_2) + \beta_3(x_3) + \beta_4(x_4) \ldots\ldots + \beta_{15}(x_{15}) + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (5)$$

Y = Total weekly trips of passengers

X_1 is the Age, X_2 is the Income level, X_3 is the Gender, X_4 is the Household size, X_5 is the Occupation, X_6 is the duration of trip, X_7 is the Cost of trip, X_8 is the distance of trip, X_9 is the Marital Status, X_{10} is the Trip purposes, X_{11} is the Average waiting time, X_{12} is the Service satisfaction, X_{13} is the Education Level, X_{14} is the Car Ownership, X_{15} is the Insecurity, Population (X_{16}), type of vehicle travelling with (X_{17}), Time of Day for Trip is the X_{18} , and ε is the Error term of prediction.

Table 1 presents the nine selected cities in Niger State, the sample frame, and the proportion of questionnaires administered, as well as the number of validly returned questionnaires in the study area.

Table 1: Population and Sample Size of Intercity Passengers

S/No	City	Names of Parks	Population of Passengers (Sample Frame)	No of Questionnaires Distributed	No of Valid Questionnaires Returned
1	Minna	Abdulsalam, Mobil & NSTA	18,527	263	255
2	Kontagora	Kontagora Central Park	10,162	145	141
3	Bida	Etsu Nupe Garage	10,267	146	139
4	Suleja	Old Garki Garage	10,637	151	148
5	Mokwa	Mokwa Garage	9,012	128	125
6	Mashegu	Mashegu Garage	5,832	83	83
7	Shiroro	Shiroro Garage	8,572	122	119
8	Lapai	Lapai Garage	8,891	126	122
9	New Bussa	New Bussa Central Garage	6,875	126	98
	Total		**90,775**	**1,290**	**1,230**

Source: Author's Field Survey (2025)

Figures 4 and 5 show the map of Nigeria, indicating the study State and selected cities in the study area.

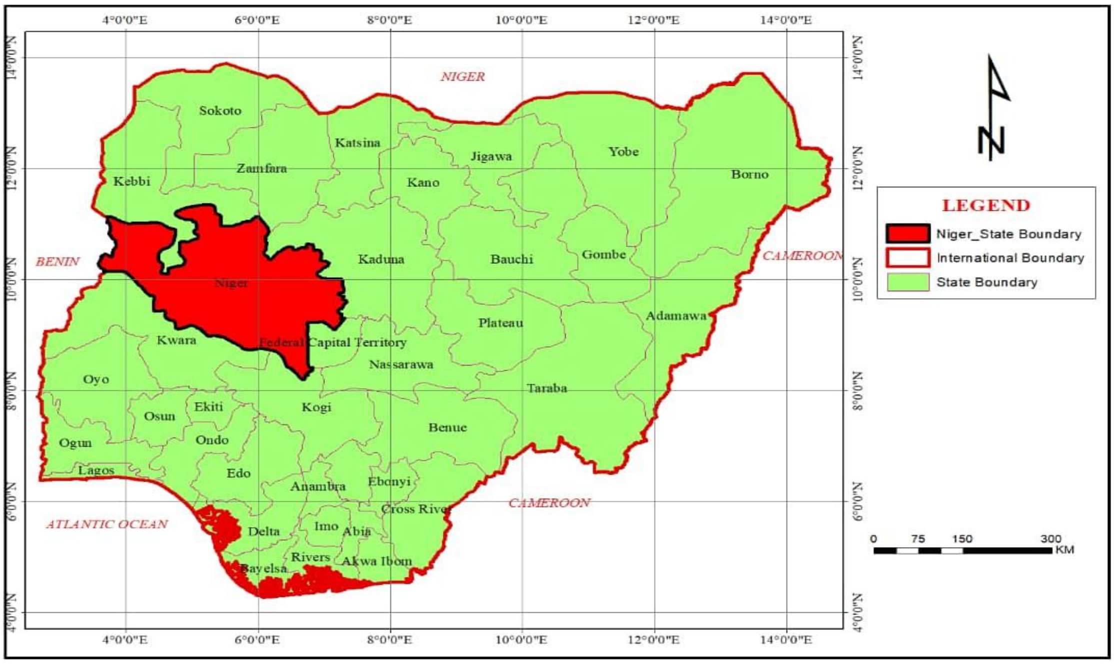

Figure 4: Map of Nigeria showing Niger State
Source: Niger State Ministry of Lands and Housing, Minna (2025)

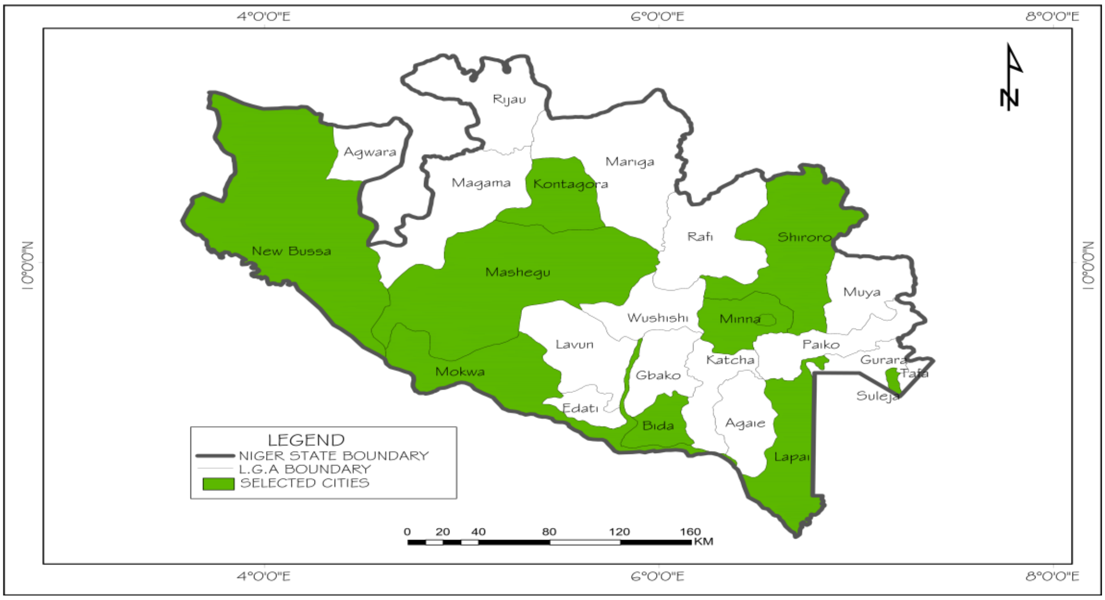

Figure 5: Map of the Study Area Showing the Selected Cities in Niger State
Source: Author's Field Survey (2025)

4. Results and Discussion

4.1 Multicollinearity Diagnostic of the Independent Variables

Table 2: Multicollinearity Diagnostic of the Independent Variables

Variable	Tolerance	VIF	Decision
Age	0.421	2.377	Retain
Marital Status	0.486	2.058	Retain
Occupation	0.06	16.654	Remove (High Multicollinearity)
Household Size	0.416	2.406	Retain
Income	0.027	36.581	Remove (High Multicollinearity)
Educational Level	0.571	1.752	Retain
Type of Vehicle Travelling With	0.037	26.899	Remove (High Multicollinearity)

Car Ownership	0.205	4.879	Retain
Trip Purpose	0.257	3.885	Retain
Average Waiting Time at Motor Parks	0.098	10.168	Remove (High Multicollinearity)
Cost of Trip	0.099	10.136	Remove (High Multicollinearity)
Service Satisfaction	0.071	14.105	Remove (High Multicollinearity)
Trip Distance	0.800	1.25	Retain
Gender	0.062	16.165	Remove (High Multicollinearity)
Insecurity	0.186	5.372	Retain
Time of the Day You Make Your Trip	0.061	16.479	Remove (High Multicollinearity)
Population	0.062	16.002	Remove (High Multicollinearity)

Author's Computation (2025)

Table 3: Retained Independent Variables after Multicollinearity Diagnostic

Variable	Tolerance	VIF	Decision
Age	0.421	2.377	Retain
Marital Status	0.486	2.058	Retain
Household Size	0.416	2.406	Retain
Educational Level	0.571	1.752	Retain
Car Ownership	0.205	4.879	Retain
Trip Purpose	0.257	3.885	Retain
Trip Distance	0.800	1.25	Retain
Insecurity	0.186	5.372	Retain

Source: Author's Computation through SPSS (2025)

Table 2 shows the results of the multicollinearity diagnostic using Durbin-Watson, which was performed among the independent variables used for regression analysis to check if two or more independent variables in the regression model are highly correlated with each other, which could result in issues like inflated standard errors and variances, unreliable coefficient interpretation and reduced model reliability. These problems distort regression results without biasing overall predictions, but they undermine inference and variable importance. Specifically, the collinearity statistics looked at the Tolerance and Variance Inflation Factor (VIF) values. A tolerance value quantifies the proportion of variance in an independent variable that remains unexplained by the other independent variables in the model. When the tolerance value is near 1, it suggests that multicollinearity is low. The variance inflation factor (VIF) assesses the extent to which collinearity inflates the variance of a regression coefficient estimate. A VIF surpassing 10 suggests significant multicollinearity.

Based on the Tolerance and VIF values, the following variables were retained, as shown in Table 3: Age, Marital Status, Household Size, Education Level, Car Ownership, Trip Purpose, Trip Distance, and Insecurity. The following variables were removed: Occupation, Income, Type of Vehicle Travelling With, Average Waiting Time, Cost of Trip, Service Satisfaction, Gender, Time of the day you make your trip and population. Therefore, removing the variables with high multicollinearity invariably improves the reliability of the regression model's prediction.

4.3. Multiple Linear Regression Results

Table 4 Regression Analysis Result

Statistic	Value
R^2	0.967
F-statistic	2093.147
Model p-value	0.000

Source: Author's Computation (2025)

The results in Table 4 indicate a highly robust regression model, with an R^2 of 0.967 showing that nearly all variations in the dependent variable are accounted for by the predictors, leaving only a small fraction unexplained. The exceptionally large F-statistic (2093.147) further demonstrates that the combined influence of the independent variables significantly enhances the model's predictive power compared to a baseline with no predictors. Additionally, the model p-value of 0.000 confirms strong statistical significance, implying that the observed relationships are unlikely to be due to chance. Overall, the combination of a very high R^2, a strong F-statistic, and a highly significant p-value underscores that the model is reliable, valid, and effective in explaining and predicting the outcome variable.

4.4. Coefficients of Retained Independent Variables of the Regression Analysis

Table 5: The Coefficients of Retained Independent Variables of the Regression Analysis

Variable	B (Unstandardised Coefficient)	Std. Error	Beta (Standardised Coefficient)	T	Sig.
(Constant)	0.594	0.058	—	10.241	0.000
Age	–0.022	0.003	–0.051	–7.333	0.000
Marital Status	0.014	0.005	0.022	2.800	0.005
Household Size	0.002	0.006	0.003	0.333	0.739
Educational Level	0.002	0.002	0.005	1.000	0.318
Car Ownership	–0.050	0.013	–0.045	–3.846	0.000
Trip Purpose	–0.013	0.004	–0.032	–3.250	0.001
Trip Distance	–0.010	0.003	–0.020	–3.333	0.001
Insecurity	0.327	0.012	0.342	27.250	0.000

a. Dependent Variable: Total Number of Weekly Trips
Significant at 0.05 Level
Source: Author's Computation (2025)

$$Y = \beta_0 + \beta_1(x_1) + \beta_2(x_2) + \beta_3(x_3) + \beta_4(x_4) \ldots\ldots + \beta_{15}(x_8) + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (6)$$

Hence, using equation:

Total No of Weekly Trip = β_0 + β_1(Age) + β_2(Marital Status) + β_3(Household Size) + β_4(Educational Level) + β_5(Car Ownership) + β_6(Trip Purpose) + β_7(Trip Distance) + β_8(Insecurity) + ε

Where:
Y = Total Number of Weekly Trips
β_0: Intercept (constant)

$\beta_1 - \beta 1_8$: Coefficients for each independent variable

Therefore, substituting the coefficients in Table 5 into the regression equation,
the model derived for this study is:

Total No of Weekly Trip=0.594−0.022(Age)+0.014(Marital Status)+0.002(Household Size)+ 0.002(Educational Level)−0.050(Car Ownership)−0.013(Trip Purpose)−0.010 (Trip Distance) + 0.327 (Insecurity)+ ε

The regression results in Table 5 indicate how different factors influence the total number of weekly passenger trips in Niger State. The significant constant term ($B = 0.594$, $p < 0.001$) establishes a meaningful baseline level of weekly trips when all predictors are zero. Age has a strong negative effect ($B = –0.022$, $p < 0.001$), showing that older individuals tend to make fewer weekly trips. Marital status has a small but significant positive effect ($B = 0.014$, $p = 0.005$), suggesting that married or cohabiting individuals take slightly more weekly trips. Car ownership has a negative impact on the frequency of weekly trips ($B = –0.050$, $p < 0.001$), indicating a tendency for car owners to rely less on public transportation. Both trip purpose ($B = –0.013$, $p = 0.001$) and trip distance ($B = –0.010$, $p = 0.001$) reduce the number of weekly trips, indicating that longer distances and specific travel motivations may limit trip frequency. Notably, insecurity is the strongest positive predictor ($B = 0.327$, $p < 0.001$), highlighting that perceived safety risks strongly influence intercity travel demand, possibly due to route choices or altered travel behaviour. In contrast, household size ($B = 0.002$, $p = 0.739$) and educational level ($B = 0.002$, $p = 0.318$) do not have a significant effect on the number of weekly trips.

Overall, the study's findings are consistent with previous research, which shows that demographic factors, particularly age, and trip characteristics, such as distance, significantly affect intercity travel frequency. Specifically, older individuals tend to make fewer trips (Ojekunle et al., 2021). The negative impact of car ownership supports earlier observations that private vehicle owners depend less on public transport, while marital status and trip purpose also play a significant role in shaping travel behaviour (Modi et al., 2011; Usanga et al., 2020). Notably, perceived insecurity emerged as the strongest positive predictor, highlighting its critical influence on intercity travel demand. In contrast, household size and educational level showed a limited effect, aligning with prior studies (Borlo et al., 2021).

5. Conclusion and Recommendations

The study concludes that intercity trip generation in Niger State is jointly influenced by demographic, socioeconomic, and transport-related factors, with age, marital status, car ownership, trip purpose, trip distance, and perceived insecurity emerging as significant determinants of weekly passenger trips. Older passengers and car owners tend to travel less frequently, while marital status and certain travel motivations slightly increase the frequency of trips. Importantly, perceived insecurity has the strongest positive effect, highlighting the critical role of safety concerns in shaping travel behaviour, whereas household size and educational level show no significant influence.

This finding demonstrates that intercity travel demand is shaped not only by conventional demographic and trip characteristics but also by safety perceptions, a factor often underexplored in prior studies. The results provide a strong empirical foundation for transport planning and policy, indicating that addressing safety, managing trip distances, and accounting for passenger demographics are essential for optimising public transport services, and that the derived model can serve as a reliable tool for forecasting travel demand, enhancing mobility, and mitigating challenges such as insecurity and rising transport costs.

Based on the findings of this study, the following four key recommendations are proposed to improve intercity passenger transport and trip generation in Niger State:

1. Given that perceived insecurity is the strongest predictor of intercity travel, transport authorities should implement robust security measures along travel routes and at terminals, including surveillance systems, adequate lighting, and deployment of security personnel to boost passenger confidence.

2. Older passengers and car owners make fewer trips; therefore, age-friendly services, comfortable seating, reduced waiting times, and incentives for private vehicle owners to use public transport (e.g., discounted fares and convenient routes) should be prioritised.

3. Transport planners should design schedules and routes that match travel purposes and distances, ensuring efficient, cost-effective, and reliable services for work, education, social, and long-distance trips, thereby encouraging higher trip frequency.

4. Since household size and educational level were not significant predictors, resources should be concentrated on factors that meaningfully influence intercity trip generation, such as demographic characteristics, travel motivation, trip distance, and security concerns, to maximise transport system efficiency and passenger mobility.

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