

ANALYSIS OF SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS INFLUENCE ON HOUSEHOLDS TRAVEL BEHAVIOUR IN URBAN ZARIA, KADUNA STATE

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Abstract

This study analyses the socio-economic and demographic characteristics influencing household travel behaviour in Urban Zaria, Kaduna State, Nigeria. A sample size of 384 households was drawn using the Krejcie and Morgan (1970) formula and proportionally distributed across the four districts: Samaru, Sabon Gari, Tudun Wada, and Zaria Walled City. A structured questionnaire was administered using systematic random sampling, and the data were analysed using descriptive statistics. Findings reveal a predominance of middle-income earners (₦31,000–₦60,000 monthly), heavy reliance on para-transit systems (motorcycles and tricycles), and significant gender and educational disparities in access to transport. The study also highlights the mobility needs of large households, casual workers, and underrepresented groups, particularly in underserved districts. The study recommends investment in affordable and inclusive transport infrastructure, integration of informal modes into the formal system, and district-specific strategies for improving accessibility.

Keywords: Behaviour, Household, Travel and Zaria

1.1 Introduction

Understanding the travel behaviour of households in Urban Zaria, a rapidly urbanizing city in northern Nigeria, requires a comprehensive analysis of various socio-economic and demographic factors. As an urban centre where traditional practices intersect with modern urban challenges, Zaria offers a unique context for analysing mobility patterns. This essay explores the intricate relationship between

household characteristics and travel behaviour, examining how these dynamics shape movement within the study area.

According to the World Bank (2021), socio-economic conditions refer to the interplay between social and economic factors, including income, education, occupation, and access to services, all of which collectively influence individual and community well-being, opportunities, and life outcomes. Similarly, the United Nations Population Fund Agency

(UNPFA, 2022) defines demographic characteristics as statistical data relating to population groups such as age, sex, marital status, household size, migration, fertility, and mortality which are essential for effective planning and policy formulation.

Travel behaviour is a critical concept in transportation planning, urban studies, and behavioural geography. It encompasses the decisions individuals and households make regarding travel frequency, mode choice, travel distance, time of travel, and purpose. These decisions are shaped by a complex interaction of personal attributes, spatial dynamics, socioeconomic conditions, and institutional frameworks (Mokhtarian & Cao, 2021).

The concept of the household has evolved considerably and varies across disciplines and global contexts. The United Nations (2017) defines a household as a group of individuals who make common provision for food or other essentials of living, regardless of whether they are related by blood or marriage. This inclusive definition enables standardized data collection across countries for census and survey purposes. Complementing this, the U.S. Census Bureau (2022) describes a household as all persons occupying a housing unit as their usual place of residence, emphasizing physical cohabitation over familial ties.

Moreover, the World Bank (2021) expands the definition by emphasizing the functional roles of households in pooling resources, sharing responsibilities, and making collective economic decisions. In this view, households are essential economic units of both production and consumption and are central to understanding poverty dynamics and welfare distribution. From a historical perspective, the term "household" is rooted in the Old English word *hūsbonða*, meaning "master of a house," illustrating its socio-cultural and hierarchical dimensions (PRB, 2003).

Travel, broadly defined by the International Transport Forum (ITF, 2021), encompasses any human displacement involving transport, whether for commuting, accessing services, or recreation. Their definition underscores the importance of transport infrastructure in promoting safe, efficient, and sustainable mobility. In contrast, Gehl (2022) adopts an urban mobility perspective, viewing travel as an integral part of everyday life embedded in spatial and temporal rhythms and shaped by the accessibility and design of public spaces. Gehl emphasizes the value of walkability, connectivity, and human-scale transport solutions.

On the theoretical front, Ajzen's (2020) Theory of Planned Behaviour conceptualizes human action as a function of deliberate planning,

shaped by attitudes, perceived behavioural control, and social norms. In a complementary sociological lens, Giddens (2021) argues that behaviour is embedded in broader social structures and everyday practices. Thus, household travel is not merely a function of personal preference but is profoundly influenced by cultural expectations, urban systems, and institutional constraints particularly relevant in African cities where informal transport, gender dynamics, and economic disparities are significant.

Mokhtarian and Cao (2021) define travel behaviour as "the set of observable choices individuals make regarding their daily movements, shaped by their personal preferences, constraints, and broader urban environments." This definition highlights both internal motivations and external influences in shaping mobility. Similarly, Gössling et al. (2020) describe travel behaviour as "a pattern of repeated travel practices that reflect socio-cultural norms, environmental awareness, and infrastructure availability," indicating that behavioural choices are socially constructed and shaped by the built environment.

Furthermore, van Wee and Maat (2021) conceptualize household travel behaviour as a collective decision-making process, where families determine how, when, and by whom travel is undertaken. Such decisions consider

trip purpose, transport costs, available modes, and intra-household responsibilities. Adding a socio-cultural dimension, Cresswell and Uteng (2022) argue that travel is a socially embedded practice, influenced by daily routines, household roles, and cultural norms. They assert that mobility is not simply a functional choice but a habitual and culturally constructed activity shaped by shared expectations.

In summary, understanding household travel behaviour in Zaria requires a multidimensional approach that integrates socio-economic realities, demographic profiles, and behavioural theories. By synthesizing perspectives from sociology, urban planning, and transportation studies, this analysis reveals that travel behaviour is a socially embedded and context-sensitive phenomenon central to shaping equitable and sustainable urban mobility strategies.

1.2 Literature Review

The socio-economic and demographic factors influencing households' travel behaviour in developed and developing countries are interwoven and reflecting a complex interplay between various elements such as income level, education, employment status, household size, car ownership, age, gender, marital status, occupation, and housing tenure, ethnicity, built environment among others. This reviewed

literature synthesizes statistical evidence from the current findings from relevant literature on socio-economic and demographic factors influencing household travel behaviour and provide a comprehensive understanding of these influences.

The travel behaviour of individuals is influenced by a complex mix of socio-demographic and socio-economic factors, which differ significantly across various regions and populations. Researchers have thoroughly examined these factors to gain a better understanding of how they affect travel choices, mode preferences, and travel-making behaviour. For example, Rahman et al. (2021) explored how socio-economic and demographic factors influence the use of ride-sourcing services in Dhaka City, Bangladesh. Using a Bivariate-ordered Probit Model, the study found that socio-demographic factors such as gender, household density, income, educational qualification, and smart phone usage significantly affect the choice between motorcycles and cars for ride-sourcing. The findings suggest that people with certain socio-demographic backgrounds prefer motorcycles over cars and vice versa. The authors recommend that ride-sourcing service providers, transport agencies, and policymakers consider these factors to better understand and

cater to user preferences in developing countries.

Rahul et al. (2021) conducted a study in India to examine how activities and socio-economic/demographic factors influence acceptable walking distances. Using a multiple linear regression model, the researchers analysed walking characteristics across various socio-demographic subgroups and types of activities. They found that the type of activity significantly affects walking distance, with acceptable distances being 996 meters for work travels and 263 meters for personal/household business travels. The study also developed a standalone formula to simplify the determination of acceptable distances. The findings were used to propose policy guidelines, including a zonal priority criterion for pedestrian infrastructure development and a stratified urban space to encourage walking. The standalone formula was derived by equating the third derivative of the log-normal theoretical distribution to zero.

Benita (2023) conducted a study in Jakarta City, Indonesia, focusing on non-mandatory travel behaviour across Central, North, and West regions. Using a dataset of 1,187 survey responses collected between December 2019 and March 2020, the study examined mode choice, distance travelled, and travel frequency. A multinomial transport mode

choice model was employed to analyse the relationship between travel modes, travel characteristics, and socio-demographic variables. The findings revealed distinct travel patterns, with Central Jakarta showing a high reliance on ride-hailing services and West Jakarta having more short-distance travels. Older individuals were more likely to walk than use motorcycles, and frequent travels were associated with motorcycle travel. Vehicle ownership negatively impacted the likelihood of switching from motorcycles to other modes. The study recommends strategies to reduce motor vehicle ownership, create walkable environments, and develop age-friendly public transport options to encourage a shift from motorcycle use to active and public transportation.

Aderibigbe and Gumbo (2022) focused on rural Nigeria to examine how socio-economic characteristics influence household travel behaviour. Using a multi-stage sampling technique, they systematically selected 12,365 registered buildings from a total of 28,341 and surveyed 495 household heads through questionnaires. The study found that most respondents, aged 60-69, primarily used non-motorized transport (walking and bicycling). Multiple regression analysis indicated that age and income were significant factors affecting travel-making behaviour. The authors

recommend that rural areas should receive equal consideration as urban areas in transport policy formulation due to their unique socio-economic attributes.

In Vishakhapatnam, India, Jain and Tiwari (2019) analysed travel behaviour using limited socio-economic data. They employed a methodology that included the analysis of travel length and mode choice variations based on socio-economic well-being status (SEWS). The study found that individuals in the low and low-middle SEWS groups predominantly walked and travelled shorter distances, while those in the middle-high and very-high SEWS groups travelled longer distances and used different modes of transport. The authors recommend interventions in development control regulations and infrastructure provision to encourage higher SEWS groups to adopt low-carbon transport modes. They also suggest that SEWS, which captures household consumption patterns, can serve as a proxy for income in travel behaviour studies.

Kattiyapornpong and Miller (2009) conducted a study in Australia to examine the impact of socio-demographic constraints on travel behaviour. Utilizing a large sample of 49,105 respondents, the authors employed binary logistic regression to analyse how variables such as age, income, and life stage influence travel choices. The findings revealed

that these socio-demographic factors significantly affect travel behaviour, with different constraints and freedoms observed across various groups. Notably, even the most constrained groups exhibited significant levels of travel, while some of the least constrained groups showed considerable non-travel behaviour. The study highlights the importance of considering these constraints in market segmentation and destination marketing strategies to better address the barriers faced by different demographic groups.

Al-Kaderi and Ali (2024) conducted a case study in the urban neighbourhood of Al Mansoura in Aden, Yemen, to investigate the correlation between socio-demographic variables and travel behaviour and mode choice. Using a mixed methodology that included field observations, interviews, questionnaires, GIS mapping, and street audits, the researchers collected both qualitative and quantitative data. They also produced a novel mapping of the semi-formal transportation lines in the city. The study found that income and gender significantly influence travel behaviour and mode choice: low-income individuals predominantly use public transport, while higher-income individuals prefer private vehicles. Additionally, females generally have less mobility and drive less than males due to cultural and educational factors, although a

small number of females who use private vehicles tend to work. The authors recommend considering these socio-demographic factors in urban planning and transportation policy to better address the needs of different population segments.

Gadepalli et al. (2020) investigated the socio-economic and travel characteristics influencing mode choice between city buses and informal transit services (ITS) in Visakhapatnam, India using household surveys. The researchers collected data and applied binary logistic regression to identify key variables affecting mode choice. The study found that gender, income, and travel time significantly influence users' preferences, with waiting time having the most substantial impact. High-frequency services offered by paratransit were particularly attractive to users making shorter travels. The authors recommend considering these factors in transit planning improving the integration and efficiency of both formal and informal transit systems.

Foley et al. (2022) conducted a mixed-method systematic review and meta-ethnography to explore socioeconomic and gendered differences in travel behaviour in Africa. The study searched multiple databases in 2019 and retrieved 103 studies (20 qualitative, 24 mixed-methods, 59 quantitative). Using Critical Appraisal Skills Program checklists,

qualitative data were synthesized through meta-ethnography, and quantitative data were analysed using narrative synthesis and pattern matching. The findings revealed that travel is intertwined with social mobility, necessary for accessing resources, and associated with cost and safety barriers. Lower socioeconomic individuals relied on walking and paratransit, faced affordability issues, and travelled less overall. Women and girls experienced travel inequity through reliance on walking, lack of access to private vehicles, risk of personal violence, and societal constraints. The study highlighted the need for improved safety, efficiency, and affordability of public transport and walking to address these inequities. Limitations included a lack of analytical rigor in qualitative studies and a predominance of cross-sectional quantitative studies.

These studies collectively highlight the crucial role of socio-demographic and socio-economic factors in shaping travel behaviour across various regions. Kattiyapornpong and Miller (2009) and Jain and Tiwari (2019) highlight the impact of income and life stage on travel behaviour in urban settings. Meanwhile, Aderibigbe and Gumbo (2022) and Rahman et al. (2021) extend this understanding to rural areas and developing countries, where non-motorized transport and ride-sourcing services are more common. Rahul et al. (2021) and

Benita (2023) emphasize the importance of activity type and regional differences in influencing travel choices. Additionally, studies by Al-Kaderi and Ali (2024) and Gadepalli et al. (2020) reveal the significant influence of gender and income on mode choice. Foley et al. (2022) provide a broader perspective on the inequities in travel behaviour, particularly for lower-income groups and women, advocating for policy interventions to address these disparities.

1.3 Study Area

Urban Zaria is located in the central plain of northern Nigeria, about 950km above the sea level, approximately between latitudes 11° 00' - 11° 10' North of the equator and longitudes 7° 36' - 7° 45' East of the Greenwich Meridian (Fig. 1). Zaria and Sabon Gari are the two local government areas (LGAs) that form the study area, with the Kubanni River as the boundary that separates the two areas. The headquarters of Zaria LGA is located in Zaria city, near the Emirs palace, while that of Sabon Gari is located at Dogarawa. The 13 electoral wards that make up Zaria LGA are Anguwan Fatika, Anguwan Juma, Dambo, Dutsen Abba, Gyallesu, Kaura, Kufena, Kwarbai, Limancin Kona, Tudun Wada, TukurTukur and Wucicciri; while the 11 wards that constitute Sabon Gari LGA are Anguwan Gabas, Basawa, Bomo, Chikaji, Dogarawa, Hanwa, Jama'a, Jushi,

Muchia, Samaru and Zabi wards. Urban Zaria is a heterogeneous environment that accommodates people from diverse ethnic and religious backgrounds with various functions such as administrative, educational, commercial, industrial, military and paramilitary, traditional and religious activities.

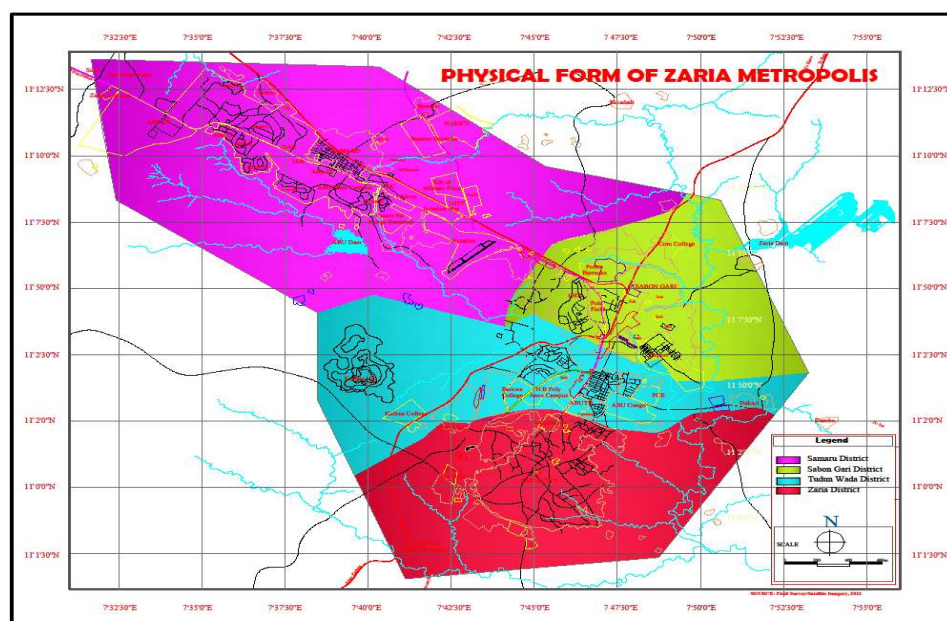


Figure 1: Physical Form of Zaria Metropolis; Source: URP Dept. ABU, Zaria 2022

1.4 Methodology

Data for the study were obtained in the field across four districts that make up Urban Zaria (Samaru, Sabon Gari, Tudun Wada and Zaria Walled City). For the purpose of this study, the 1991 population census conducted by the National Population Commission was used and projected to 2024 using the standard population formula with an annual growth rate of 3% for Kaduna state. The study used a household size of six (6) persons per household as stated by the National Bureau of Statistics (NBS, 2010) as a criterion for determining the number of

households since the households constitute the primary units for this analysis. Therefore, the estimated projected 2024 population of 1,327,693 was divided by six (6), which resulted in an estimate of 221,282 households across the study area (See Table 1).

To determine the appropriate sample size for the study, 384 was adopted using the Krejcie and Morgan (1970) statistical formula. To determine the sample size for each district, proportional allocation was used (See Tables 1 and 2). A set of 384 structured questionnaires was administered across the four districts.

Sampling Technique

The systematic random sampling technique was employed in the selection of households along the streets. Streets within each district were purposively selected based on their representation of residential, commercial, and mixed-use areas. A comprehensive listing of all houses along the selected streets was conducted in each district. The total number of houses identified was: Samaru (1,220 houses), Sabon Gari (2,340 houses), Tudun Wada (1,940 houses), and Zaria Walled City (2,180 houses).

The first house in each street was selected using a random number table, and all subsequent units in the sample were chosen at a systematic interval. The sampling interval (k) was calculated by dividing the total number of houses on each street by the required sample size for that district. This resulted in an average interval of twenty (20) houses across all districts. All 384 questionnaires were successfully returned from the field. Data collected from the field were quantitative, and results of the study were analysed using descriptive statistics.

Table 1: Population of Households Per Districts in the Study Area

Zaria urban Area	District	Projected Population Per District (2024)	Estimated No. of Households Per District
Sabon-Gari LGA	Samaru	186,991	31,165
	Sabon-Gari	386,589	64,432
Total		573,580	95,577
Zaria LGA	Tudun Wada	374,738	62,456
	Zaria Walled City	379,375	63,229
Total		754,113	125,685
Grand Total		1,327,693	221,282

Source: Author's projection, 2024

Table 2: Sample Size per District in the Study Area

Zaria Metropolitan Area	District	Sampled Size Per District
Sabon-Gari LGA	Samaru	54
	Sabon-Gari	112
Total		166
Zaria LGA	Tudun Wada	108
	Zaria Walled City	110
Total		218
Grand Total		384

Source: Author's projection, 2024

1.5 Results and Discussion

Gender, Age, Marital Status and Occupation of Respondents

Table 3 presents the gender distribution of respondents in the study area. The results reveal that a substantial proportion are male (64.1%), while females account for less than four in ten (35.9%). This indicates a notable gender imbalance, with male respondents comprising the majority. These findings align with the socio-cultural context of Urban Zaria, where traditional roles and responsibilities often influence patterns of urban mobility and access to transportation. In addition, the finding aligns with Al-Kaderi and Ali's (2024), where cultural and socioeconomic factors often limit female participation in travel surveys and public mobility in Aden, Yemen. This imbalance correlates with Foley et al. 's (2022) systematic review across Africa, which identified societal

constraints and safety concerns as barriers to female mobility, leading to underrepresentation in transport studies. However, it dissociates from the findings of Jain and Tiwari's (2019) study in India, where more balanced gender samples were achieved through targeted recruitment, highlighting how methodological and cultural nuances shape respondent demographics.

The age distribution of respondents, also shown in Table 3, indicates that the largest proportion fall within the 36 to 45 years bracket (27%), followed by those aged 46 to 60 years (25.2%). The lowest proportion is in the 60 years and above category (11.9%). These findings highlight a predominance of middle-aged individuals whose travel behaviour is likely influenced by daily commuting for work and family-related responsibilities. This group typically requires reliable, affordable, and

efficient transport services, especially for work, school drop-offs, and healthcare access. The finding aligns with those of Benita (2023), where middle-aged adults exhibited the highest travel demand due to work and family responsibilities in Jakarta. However, it dissociates from Aderibigbe and Gumbo's (2022) rural Nigerian study, where older adults (60+) showed significant travel activity, highlighting contrasting urban-rural age-related mobility patterns. The underrepresentation of older adults reflects common sampling biases in urban travel studies, as noted by Foley et al. (2022), where older populations are often less engaged in survey participation.

As presented in Table 3, the majority of respondents are married (77.9%), with smaller proportions being widowed (14.3%) and divorced or separated (7.8%). This reflects the social structure of Zaria, where marriage is a culturally significant institution associated with stability and communal identity. The predominance of married respondents implies that household travel behaviour is significantly influenced by family-related obligations, such as commuting for work, taking children to school, and accessing health or shopping services. Married individuals often require more structured and coordinated travel schedules, highlighting the need for family-friendly transport systems that prioritize affordability,

safety, and accessibility. Conversely, the small representation of divorced, widowed, and separated individuals may obscure the unique mobility challenges these groups face, such as limited income or lack of transportation support networks. The finding aligns with those of Rahman et al. (2021), where marital status increased trip frequency for household-serving purposes in Dhaka. This 147 correlates with Kattiyapornpong and Miller's (2009) study, which identified married individuals as having more complex travel patterns due to familial responsibilities. The relatively low proportion of divorced/separated respondents is consistent with Aderibigbe and Gumbo's (2022) observations where marital status remains a stable demographic factor influencing travel needs in rural Nigeria.

Table 3 reveals the distribution of household sizes among respondents in the study area. The results show that the largest segment consists of households with 11 to 15 members (33%), followed by households with 6 to 10 members (30.4%). Conversely, the smallest proportion includes households with 1 to 5 members (11.9%), while those with 15 or more members make up 24.4%. These findings indicate a notable prevalence of larger households, which likely impacts urban mobility and sustainable transport by increasing the demand for group-oriented or shared

transportation options to meet diverse travel needs. Households with 11 to 15 members are likely to have more complex and frequent transportation requirements compared to smaller households, including school commutes, work travel, and access to services. The finding aligns with those by Rahman et al. (2021) who reported that larger household sizes in developing countries significantly increase

trip generation, for educational and household-serving purposes. This contrasts with those of Aderibigbe and Gumbo (2022) who noted that in high-income countries, where smaller households (e.g., 1-4 members) dominate and exhibit different travel patterns, such as higher per-capita vehicle use and more discretionary travel

Table 3 Gender, Age, Marital Status and Household Size of Respondents

Demographic Characteristics	Variables	Frequency	Percentage (%)
Gender	Male	246	64.1
	Female	138	35.9
Total		384	100
Age	18-25 years	71	18.4
	26-35 years	66	17.1
	36-45 years	104	27
	46-60 years	97	25.2
	60 years and above	46	11.9
Total		384	100
Marital Status	Married	300	77.9
	Divorce/separated	30	7.8
	Widow	54	14.3
Total		384	100
Household Size	1-5	46	11.9
	6-10	117	30.4
	11-15	126	33
	15 and above	94	24.4
Total		384	100

Source: Author's field Survey, 2024

Household Monthly Income, Educational Status, Employment Status, Occupation and Vehicle Ownership of Respondents

Table 4 presents the distribution of household monthly income in Urban Zaria. The results show that the majority of respondents fall within the ₦31,000 to ₦60,000 income range (39.5%), followed by those earning between ₦61,000 and ₦90,000 (20.8%). Smaller proportions earn less than ₦30,000 (14.5%), between ₦91,000 and ₦120,000 (9.4%), or ₦121,000 and above (15.6%). These results indicate that a significant proportion of respondents have income levels within the lower to middle-income bracket. This suggests that many households in Urban Zaria are characterized by limited financial resources, which may reflect the overall economic conditions of the area. The findings correlate with those of Jain and Tiwari's (2019), where middle-income groups demonstrated higher reliance on paratransit and walking in Vishakhapatnam. Similarly, Foley et al. (2022) confirmed that moderate-income households typically allocate a substantial portion of their earnings to transport, often exceeding 20% of monthly income systematic review across African contexts. However, the findings dissociate from patterns observed in Rahman et al. (2021) Dhaka study, where ride-sourcing services were predominantly used by higher-income groups; in Zaria, the limited penetration

of such services suggests more reliance on traditional paratransit like motorcycles and tricycles, even among moderate-income earners.

Regarding education, Table 4 shows that the majority of respondents have a Diploma/NCE (42%), followed by those with a university degree (27.6%), while the least represented category is non-formal education (7.8%). This highlights a predominant level of formal education among respondents, with a significant proportion holding diplomas or certificates and a considerable number possessing university degrees. The findings indicate that respondents are likely to have greater awareness of and access to formal transportation systems, and their mobility preferences may be influenced by factors such as convenience, affordability, and the availability of reliable services. The findings aligns with those of Jain and Tiwari's (2019) who reported that mid-level education increases sensitivity to transport safety and comfort. This contrasts with Foley et al. (2022), who reported that broader educational disparities such as high rates of illiteracy or very low formal education alongside small highly educated elites in other African countries directly exacerbated transport inequity.

Table 4 presents the employment status of respondents in the study area. The results indicate that a majority are employed full-time (68.3%), followed by smaller percentages of casual workers (18.4%), with the least being retired (4.7%) and unemployed. This shows that a significant proportion of respondents are engaged in full-time employment, suggesting a relatively stable workforce with regular income sources. This aligns with Zaria's economic context, where full-time positions, particularly in sectors like civil service and trade, may drive consistent mobility patterns and increased demand for reliable transportation options. The finding also, associates with those of Kattiyapornpong and Miller's (2009) who noted that formal employment correlates with higher and more predictable travel demand. This contrasts with Gadepalli et al. (2020), who reported that high rates of informal or casual work in developing led to irregular travel patterns and greater reliance on flexible, informal transport modes.

The occupational distribution, as shown in Table 4, reveals that the largest proportion of respondents are civil servants (38.8%), followed by traders (26.0%), with a small percentage engaged in other occupations (2.6%). This pattern reflects the employment landscape of Urban Zaria, where government and administrative institutions play a dominant role

in the local economy. The findings aligns with Gadepalli et al. (2020), where formal employment structures correlated with predictable, peak-hour commute patterns and higher public transport use in Visakhapatnam. However, it dissociates from contexts where informal economies dominate, such as in Aderibigbe and Gumbo's (2022) rural Nigerian study, where irregular livelihoods led to more variable travel patterns. The trader cohort reflects common occupational patterns in urban developing countries, as seen in Rahman et al. (2021) Dhaka study, where commercial occupations increased multi-purpose, flexible travel demands.

Vehicle ownership among respondents in the study area, including private cars, tricycles, motorcycles, and walking/bicycles, is a major socioeconomic characteristic affecting household travel behaviour. These variables were identified and examined with the data presented in Table 5. The Table presents the modes of transport owned by respondents in the study area. The results show that the largest proportion of respondents use tricycles (31.7%), followed by motorcycles (29.6%), and cars or buses (27.3%). A smaller percentage use bicycles (4.7%) or other modes of transport (6.5%). These results illustrate a diverse transportation landscape in Urban Zaria. The high usage of tricycles suggests they play a

crucial role in the local transportation system, offering flexibility and accessibility, particularly in navigating congested or less developed areas. Tricycles are known for their ability to maneuver through traffic and provide relatively affordable transport options, which likely contributes to their popularity. In addition, tricycles are also an emerging mode of transport taking over from buses, motorcycles, and taxi in commercial urban passenger transportation particularly the study area.

Findings aligns with those of Rahman et al. (2021), where paratransit and motorcycle-based ride-sourcing prevailed due to their

affordability and flexibility in dense urban environments in Dhaka. Further, it correlates with Gadepalli et al.'s (2020), where informal transit services were preferred for shorter trips due to lower waiting times study in Visakhapatnam. However, it dissociates from Foley et al.'s (2022), which highlighted walking as the primary mode for lower-income groups; here, motorized paratransit dominates despite income constraints, suggesting unique local factors like topography, cultural preferences, or infrastructure gaps influencing mode choice in African.

Table 4 Household Monthly Income Level, Educational Status, Occupation, Employment Status and Vehicle Ownership of Respondents

Socio-economic	an Variables	Frequency	Percentage (%)
Demographic Characteristics			
Household Monthly Income	Less than ₦30,000	56	14.5
	₦31,000 - ₦60,000	152	39.5
	₦61,000 - ₦90,000	80	20.8
	₦91,000 - ₦120,000	36	9.4
	₦121,000 and above	60	15.6
Total		384	100
Educational Status	Primary School	-	-
	Secondary School	100	22.6
	Diploma/NCE	161	42
	University	106	27.6
	Non formal	17	7.8
Total		384	100

Employment Status	Full Time	71	18.4
	Retired	66	17.1
	Casual	104	27
	Unemployed	97	25.2
	Others	46	11.9
Total		384	100
Household Size	1 – 5	46	11.9
	6 – 10	117	30.4
	11 – 15	126	33
	15 and above	94	24.4
Total		384	100
Vehicle Ownership	Private car	105	27.3
	Tricycle	122	31.7
	Motorcycle	114	29.6
	Bicycle	18	4.7
	Other	25	6.5
		384	100

Source: Author's field Survey, 2024

1.6 Conclusion and Recommendations

This study demonstrates that socio-economic and demographic characteristics such as income, education, household size, and employment status were found to be critical in shaping mobility choices, with full-time workers and traders generating higher travel demand. The findings of this study emphasizes the complex relationship between household demographics, socioeconomic status, and mobility within Zaria Metropolis. Urban travel behaviour is not only shaped by income and occupation but also by characteristics such as

gender, household size, educational background, and district-level disparities. The existence of informal and intermediate transport modes such as motorcycles and tricycles reveals a heavy reliance on para-transit systems due to limited formal public transport options. This includes prioritizing inclusive policies for vulnerable populations, enhancing infrastructure in underserved areas, integrating informal transport into formal systems, and developing context-specific solutions that address the diverse mobility needs of different household types. By aligning transport

strategies with household characteristics, urban policymakers can significantly improve accessibility, reduce mobility-related exclusion, and promote sustainable urban development across Zaria Metropolis.

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