

Evaluating the Role of Urban Planning Policies on Sustainable Housing and Transport Infrastructural Development in Federal Capital Territory (FCT), Abuja

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Abstract

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The study examines the perceptions of residents and professionals of the level of implementation of sustainable housing and transport development practices and the linkages between institutional pillars and sustainable infrastructure development in FCT, Abuja. The specific objectives include analysing urban planning policies along the institutional pillars; determining the relationship between sustainable housing and transport infrastructure development and institutional pillars; and policy recommendations giving insights into sustainable urban infrastructure development in FCT. A total of 400 structured questionnaires were administered to the required respondents in the FCT and were retrieved and completed with 300 questionnaires resulting in a response rate of approximately 75 percent. Descriptive statistics (frequency, percentages, mean scores) and inferential statistics (regression analyses) are used in the method of analysis. The results displayed that the R-squares for impact of institutional pillars on housing infrastructure and sustainable transport infrastructure development were .375 and .340 respectively, and with both being less than .005 indicate that the models are a good fit for this study with both being less than .005. This study showed that there is a moderately positive correlation between the dependent variable (the housing infrastructure development) and the predictors (industrial pillars) and also indicated that the housing infrastructure development is associated with the predictors of the study (institutional pillars), where the normative pillars are good predictors of sustainable transport development. This study suggested that a policy on affordable housing development should be created by the FCT government. This would address the issue of the unaffordable housing in FCT, Abuja. This can be achieved by public- private partnerships, whereby investment is encouraged in the creation of low cost, high quality, eco-friendly housing that is sustainable.

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1 INTRODUCTION

Sustainable urban development is heavily dependent on urban planning, which is essential for providing the necessary infrastructure for housing and transportation. But fast urbanisation has continued to put a strain on urban infrastructure globally. Plautz (2018) estimates that about 55% of the world's population lives in urban areas, with this percentage

expected to rise to 68% by 2050. Urban population growth has also been substantial in Nigeria, rising from approximately 25% in 1990 to more than 50% in 2020, expected to reach nearly 70% by 2050 (Novatia Consulting, 2024). Urbanisation is associated with economic growth and development, but it also faces problems of housing shortage, traffic jamming and, environmental degradation, and growing demands on urban services and infrastructure. The Federal Capital Territory (FCT), Abuja, is a case in point of these challenges.

Abuja is a rapidly growing city in Africa, with a population growth rate that has put significant strain on the housing and transport sectors. As a result, the issues of housing affordability, lack of infrastructure, traffic congestion, greenhouse gas emissions, accessibility, and the growth of informal settlements have emerged as major urban development concerns. These challenges pose questions about the success of current urban planning policies in facilitating the sustainable development of housing and transport infrastructure in the city. Planning policies should support affordable housing, efficient and effective transportation systems, environmental protection, and social inclusion to contribute to sustainable urban development.

It has been suggested that sustainable housing can be provided by the provision of quality housing, access to basic services, and the use of energy-efficient construction and building techniques, and sustainable transportation involves the provision of transport systems that are accessible, affordable, safe, and environmentally friendly (Deep, 2023; Winkler et al., 2023). However, the effectiveness of the institutions responsible for urban planning and the enforcement of urban policy is crucial for the success of such sustainability efforts. While Akhanolu (2015); Isma'il et al. (2015); Aliu (2023); Ogryzek et al. (2020), Obianyo et al. (2021); Sobczuk and Borucka (2024) have studied issues surrounding housing development, transportation systems, urban sustainability, and infrastructure challenges, there is limited emphasis on the effects of urban planning policies on the development of sustainable housing and transportation infrastructure from the views of residents and professionals in Abuja. In addition, previous research has not investigated these relationships concerning the regulatory, normative, and cultural-cognitive dimensions of institutional theory that can influence implementation and development results of policies. This presents a significant gap in knowledge to be filled by this study.

The study aims to answer the following questions: What is the perception of residents and professionals towards sustainable housing and transport infrastructure development in Abuja, and what does the relationship of institutional pillars with sustainable housing and transport infrastructure development in the FCT, Abuja, look like? To answer these questions, the study analyzes urban planning policies, applying the Institutional Theory framework, and it investigates the role of regulatory, normative, and cultural-cognitive aspects of the institutional framework on the development of sustainable housing and transport infrastructure. The study is a useful addition to the literature because it offers empirical evidence on African capital city institutional factors influencing sustainable urban infrastructure development in a rapidly growing African capital city. In terms of design, the study is descriptive survey research, while in the data collection method, the study adopted a primary data collection method.

This study used residents and professionals within the FCT, Abuja. Descriptive and regression analytical techniques are used to analyse the relationship between the pillars of the institution and outcomes of sustainable infrastructure development. The rest of this paper is structured as follows. The literature review and theoretical framework is presented in Section Two. The methodology of the research is discussed in Section Three. Findings of the empirical research are presented and discussed in Section Four, and conclusions and recommendations for policy and practice are drawn in Section Five.

2 LITERATURE REVIEW

2.1 Brief Overview of Urban Planning Policies in Nigeria

Urban planning is also referred to as city planning. It is the act of designing land use and building environment, and ensuring that the infrastructure passing through the cities is accessible. According to Taylor (1998) urban planning is a master plan that shows the physical layout of human settlements with the primary concern of satisfying public

welfare, including sanitation, protection, land use, and the impact of the master plans on social and economic activities of the cities (Midgley, 1999). In Nigeria, Urban planning can be traced back to the pre-colonial era. During this period, lands are under the custody of traditional rulers of various ethnic groups. Traditional rulers and family heads are in charge of issuing land, and they use the land in accordance with the social, economic, and political conditions of the period (Adeniyi, 2013). City or urban areas are poorly developed, impacted, and are usually around the king's palace. Developed cities like Kano, Ibadan, Zaria, and Benin City are built around the emir or oba palace (Lamond et. al., 2015).

In the colonial era, the British government replaced the traditional system of land ownership with a customary land tenure system. In the 1800s, the land tenure system was substituted by the Muslim Malik Law, which allowed the ruling class to assume rights and ownership of land. In 1910, the British government passed the Land Ownership Ordinance law, which allowed the ownership of land in Nigeria to be vested in the British governor for the benefit of the locals (Adeniyi, 2013). This phase represents the first stage of urban planning in Nigeria, as urban planning allows the development of public works such as road construction, railway development, health, and so on. Although the implementation of the ordinance law then was limited to European areas, making integration and a participatory planning approach difficult (Ogun, 1999).

In the post-colonial era, that is post 1990, the Nigerian government substituted the land tenure arrangement with the Land Use Decree of 1978 (Birner & Okumo, 2012). This decree now forms the basis or framework for urban planning in Nigeria and marks the beginning of land differentiation in Nigeria into communal and private (Lamond et al., 2015). The land use decree implies that responsibility for all land in Nigeria lies with the government, and they are responsible for its management and administration, resulting in the creation of land administration known as the Department of Land Service, which is responsible for land valuation, use, and housing, surveying and mapping, and a deed registry. At this period, housing and transport infrastructure began to expand outward from the European settlement and around the king's palace. Infrastructures like sanitation, airports, seaports, roadways, and public buildings were massively invested in because they are responsive to the socio-economic development of Nigeria (Aluko, 2011). In the modern era, urban land management and planning practices are becoming more complex, following the revised urban and regional planning degree (1992) in 1999. This sought to allocate land use planning and development in to three-tiers government structure. At this phase, urban area has metamorphosis, and the interest in citing urban infrastructures is to provide infrastructures that are resilient to adverse climate and are environmentally friendly.

2.2 Sustainable Housing Infrastructures Development

Urban growth has pushed the standard of living up and has also make housing nearly or almost unaffordable to the larger population. This gave birth to the problems of urban sprawl or informal housing development in peri-urban areas. however, a sustainable urban housing development in urban areas are capable of achieving the united nation 2030 Agenda, requiring provision of infrastructure which are sustainable, affordable, and accessible to all group of people in urban area (United Nation, 2024). Studies particularly those from Africa are mainly to investigate the prospects, strategies and challenges affecting sustainable housing infrastructures. For instance, Aliu (2023), studied the strategies and accessibility constraint of sustainable housing in Nigeria, results shows that affordability, energy efficient, housing resilience to physical, environmental and hazards are the key strategies used in achieving housing development. The study further argues that the major constraints faced by developers in Nigeria are funding, poor housing policy, high-inflation, cost of construction and unavailability of local construction materials.

In another study, Akhanolu et al. (2025), explore the principles, strategies, benefits, and problem of sustainable housing infrastructural development in Nigeria. The study uncovers that the combination of architectural designs, eco-friendly materials, and cutting-edge technology enhanced resources conservation, decrease energy consumption and improve sustainable practices. The study concluded by identifying the four dimensions of sustainable housing development which includes quantitative, qualitative, psychological and socio-cultural housing development. Thought, the study is insightful but the reliance on literature review without empirical data limits the study generalizability power. In a questionnaire survey, Isma'il et. al. (2015), utilized the case of Karu Local Government Area (LGA) to study urban growth and housing issues. The purpose of their study was to determine whether there is a significant relationship between urban growth and housing problem observed. The study identified poor accessibility, subpar housing,

challenges urban planners face in the development of many cities. In urban planning, institutions create the rules of the game which determine social and economic interaction; these rules are embodied in policies, regulations, and policy framework (North, 1990). Empirical studies by Nwaka (2005) indicate that weak institutions, such as non-enforcement and corruption in planning in Nigerian cities, particularly Abuja and Lagos, have resulted in the proliferation of informal housing and an unregulated transport system. Institutional isomorphism in urban planning practices was introduced by DiMaggio & Powell (1983). It's a situation in which institutions adopt a practice in urban planning not because they are the best but because of the legitimacy pressures from professional norms, government mandates, and international communities. Studies by Rakodi (2001) on urban governance in African cities reveal that city planning in Africa, particularly in Abuja, follows the western planning system but fails to consider local realities, resulting in informal housing and paratransit system development. This misalignment gave birth to poor policy outcomes in Nigerian cities.

Moreso, institutional theory provides comprehension of how fragmentation among planning and service delivery agencies results in poor integration in housing and urban transportation projects. Research by Gandy (2006) using the case of Lagos and Kinshasa reveals that competition among the planning and service delivery agencies results to disjointed infrastructural development. The study advocates for harmonizing the institutional framework to achieve sustainable urban outcomes. This study, therefore, conceptualized that the three core pillars of institutional theory influence the sustainable housing and infrastructural development in Abuja, as shown in Figure 1. Figure 1 shows the conceptual relationship between the dependent and independent variables of the study. The variables are further discussed as follows;

Sustainable transport infrastructural development: The term transport infrastructure refers to fixed network installation, it's a hardcore which allows transport operation possible. This includes among others road, rails, seaport, airport, pipelines development (Flinders, 2023). A transport infrastructure is said to be sustainable when they contribute significantly to the environment, social, reduce gas emission, and economy of the communities they served. In measuring this variable, the study measured resident perception on public transport accessibility, affordability, eco-friendly transport, transport infrastructures regularly maintained, and improved safety and reduction in travel time.

Sustainable housing infrastructural development: According to United Nation Habitat (2012) describe housing as a physical structure such as residential building, quality materials, housing design, its arrangement in space and the ecological interaction with the physical environment. Variables like housing affordability, use of energy-efficient materials, availability of basic amenities, housing areas close to schools, markets, and jobs, and high-quality and durable building structures were used to evaluate sustainable housing infrastructural development.

- I. **Regulative pillar:** this component reflects how formal rules, policies, the enforcement framework, and government mandates impact urban housing and infrastructural development. This variable was measured using well-defined and clear urban planning laws and policies, efficient building permits and approval, penalties for planning regulation violations, consistent enforcement of planning policies, and the existence of a monitoring planning framework for housing/transport.
- II. **Normative pillars:** This variable focuses on how professional norms, values, and expectations among planners, developers, and institutions impact transport and housing development in Abuja. Variables, among others, like following of professional ethical standards, priority of sustainability, housing and transport standards are cleared and followed, and so on.
- III. **Cultural cognitive pillars:** The components refer to believe system, community norms, perceptions and informal rules that impact urban planning. In examining this pillar, residential awareness of urban planning policies, people belief that urban planning policies are significant for future development among others were used.

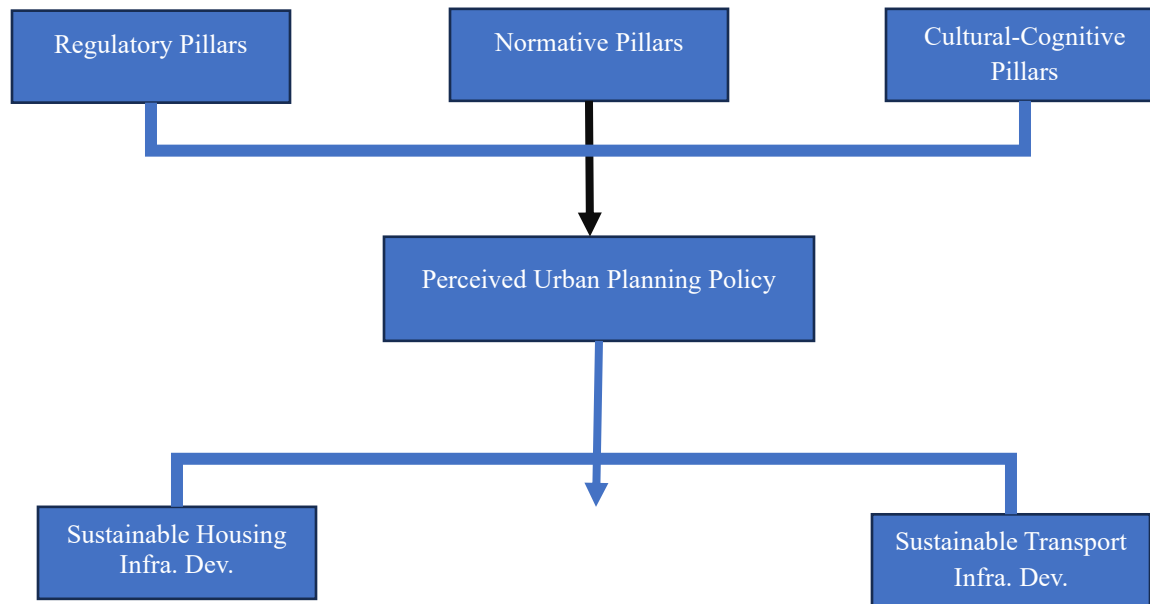


Figure 1: Conceptual Relationship of the Study
Sources: Author's Construct (2025)

3 RESEARCH METHODOLOGY

3.1 Research Design

The study used a descriptive research design to describe the features of the study population. This approach is suitable because it allows for examining public perception, institutional practices, and observatory results without manipulating the variables. According to Saundar et al. (2019), descriptive research designs are effective in producing precise profiles of events, scenarios, or people, making it perfect for examining how institutional elements, that is regulatory, normative, and cognitive pillars, influence sustainable urban infrastructural developments.

3.2 Population and Sampling Techniques

The study population comprises of the residents of the Federal Capital Territory, Abuja, including those who are professionals in housing and transport infrastructural development. According to City Population (2022) prediction, the projected population of Abuja is 4,210,000, which includes both the population of people in urban and city areas of Abuja. This study relies on simple random sampling techniques to distribute the questionnaires to the respondents.

3.3 Determination of Sampling Size

In order to determine sample size, the study utilized Taro Yemane's sample size extended formula by Anokye (2020) as shown in equation 1.

$$n = \frac{N}{1 + N.e_{adj}^2} \dots\dots\dots \text{Eqn (1)}$$

Where N is the entire population (i.e., 4,210,000), n is the sample size and e_{adj}^2 is the adjustable margin of error (0.05 for social science). Using this formula and parameters, the study sample size is 400.

3.4 Source and Data Collection Procedures

This study relies on both primary and secondary data sources. The primary data was collected using a structured questionnaire survey distributed among the residents and professionals in Abuja. The secondary sources used for data collection for this research is mainly desk-base review, including review of relevant journal articles, publish books, and internet publication. The study utilizes seven (7) days to collect information from the residents of Abuja through

hand delivery with the aid of two-field assistance. While google form was also sent to those professionals who were not withing our reach.

3.5 Description of Questionnaires

The study questionnaire comprises of four sections (A, B, C & D). The first section (A) composes of 8-criterions used to examine the socioeconomic features of the residents and professionals in Abuja. the second (B) and third (C) sections consist of 5 items each to measure sustainable housing and transport infrastructural development in FCT, Abuja while last section (D) consist of five variables (5) each to measure the three key pillars of institutional theory. the items in the questionnaires are design in such a way that it allows respondents to respond in a 5-point Likert scale where 1-represent strongly disagree and 5-represent strongly agree.

3.6 Validity and Reliability

This study used content validity through professionals, and past literatures to validated reliability of the study variables. In order to determine the internal consistency of the research instrument, the study conduct pilot survey using 10% of the questionnaires which were distributed among transport and building professionals in Abuja while Cronbach Alpha was used to test the internal reliability of the variables using two-tailed hypothesis. The results show high internal consistency as all the variables are above 0.70.

3.7 Tools and Method of Data Analysis

The study utilize frequency, and mean index score to analyzed the collected data. The results were displayed using charts, and tables to give pictorial view of the study results. The inferential statistics was tested using regression model on SMART-PLS 4.1.1.1 while excels were used to put the study results on charts. The regression model for the study is stated as follows;

$$Y_T = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_T \dots\dots\dots \text{Eqn (2)}$$

$$Y_H = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_H \dots\dots\dots \text{Eqn (3)}$$

where Y_T is the sustainable transport infrastructural development, Y_H The sustainable housing infrastructural development, β_1 - β_3 is the model slope, e_T & e_H are the error terms, X_1 is regulatory pillars, X_2 normative pillars & X_3 is the cultural-cognitive pillars.

3.8 Study Area

The FCT Abuja is the capital city of Nigeria which is located in latitude 9° 4'N and longitude 7° 29'E. Abuja being the seat of power houses the national assemble, supreme court, presidential villa and government institution which spread across 50-districts. Abuja is the second most populous city after Lagos and become capital for Federal Republic of Nigeria in December, 12 1991 (Abba, 2012). The Abuja population in 2006 us 776,298 and has a total of 179674 household within the period (National Population Council, 2006). According to Aguochi (2004), Abuja has an annual growth rate of 35% and become the fastest growing city in African continent. In 2016, Abuja municipal area is estimated at around 6 million peoples which makes it the most populated city in Nigeria after Lagos State. Abuja is made up of six council area with six local government area which includes Abaji, Kwali, Kuje, Gwagwalada, Bwari, and Abuja Municipal Council in line with Figure 2.

Abuja is connected to Nassarawa, Kaduna, Plateau, Benue, Minna, Lokoja, and northeastern Nigeria by road. It links to Kaduna by rail. Abuja has a light rail system which begun operation in 2018 and became the first rapid transit in west Africa. Abuja also houses the second largest international airport (i.e., Nnamdi Azikiwe International Airport) in Nigeria which handle both domestics and international flights. In term of economy, real estate is the main driver of Abuja economy and it's supported by natural resources such as clay, gold, feldspar, tantalite among others which serves as raw materials for medical, pharmaceutical, food processing and other company processing for commercial purposes and for food.

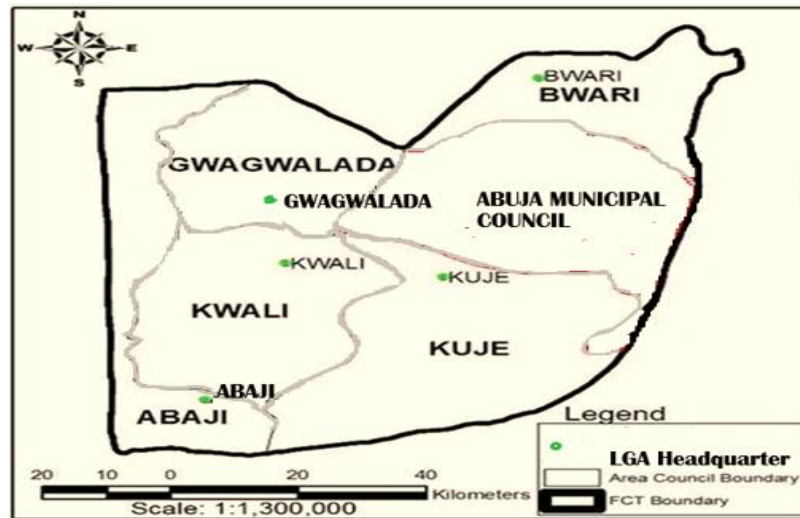


Figure 2: Map of Abuja showing the Study Area
Sources: Author's Design (2025)

Abuja has tropical wet and dry climate, experiencing three weather condition year that is the warm, humid rainy season and dry season. Between the two seasons, there is harmattan season occasioned by northeast trade winds. The rainy season starts around April and end in October with a daytime temperature of 28oC-30oC while in dry season, the average temperature maybe as high as 40o C. Studies by Nigerian Metrological Agency and Atmospheric Science Group of Imo State University shows that within the period 1993 and 2013, Abuja average maximum temperature trend downward while the average minimum and mean temperature trends upward (Orisakwe et al., 2017). Abuja is also prone to natural disaster like flood particularly in Gwagwalada area. This adverse weather condition in Abuja highlights the important of urban planning policy to support the development of sustainable housing and transport infrastructures which are resilience to climate changes.

4 RESULTS AND DISCUSSION

4.1 Analysis of the Socioeconomic Features of the Respondents

The analysis of the gender of the respondent in Figure 3 indicates that there are more men (63%) than women (37%) who have participated in the survey. This finding is an indication that there are more males in the urban planning space in Abuja; this distribution impacts policies and urban development decision-making and may reflect a male perspective, thereby making planning policy fail to put into consideration female-specific transport safety needs, housing security, and access to services.

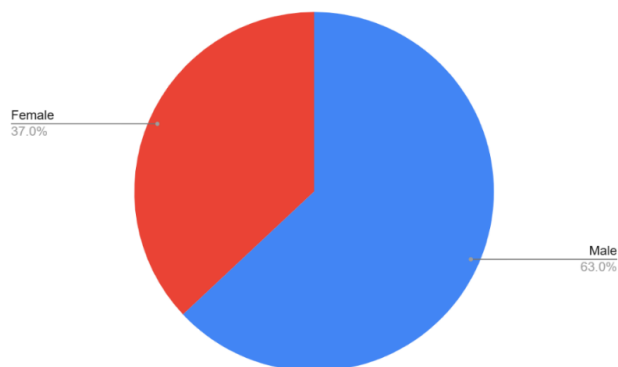


Figure 3: Gender of the respondents (Source: Authors Survey, 2025)

The age distribution in Figure 4 indicates a significant proportion of the respondents are within the productive and economically active population, specifically those in the 26-35 years (30.0%), 35-45 years (25.0%), and 46-55 years (20.0%). This age group accounts for 75% of the entire respondent population, revealing that the majority of the respondents are in their working and house-forming ages. Similarly, those in the age bracket of 18-25 years (15.0%) and those over 50 years (10.0%) account for 25% of the study samples, indicating younger and elderly people who are among the dependent population in Nigeria. These findings highlight that urban planning and development policy should be inclusive, considering the growing demand from residents, especially youths, for housing affordability and efficient public transportation. In addition, the findings suggest that urban planning policy should cater to the transportation needs of the elderly, such as access to healthcare and safe and accessible transport service.

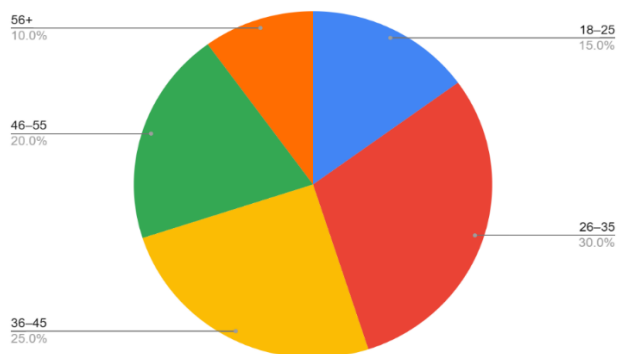


Figure 4: Age distribution (Source: Authors Survey, 2025)

The marital status distribution in Figure 5 reveals that majority of the respondents are married (60.0%), followed by those who are single (30.0%) and divorced/widowed (10.0%). The dominance of married people in the sample is therefore an indication that many respondents are likely head of their families and are key decision makers in their owns. Therefore, urban planning policy should ensure that urban infrastructural development is adequate, affordable, accessible and proximity to school and healthcare services. This portion of respondents who are single are those who are still developing their careers, indicating high demand of affordable housing and mobility.

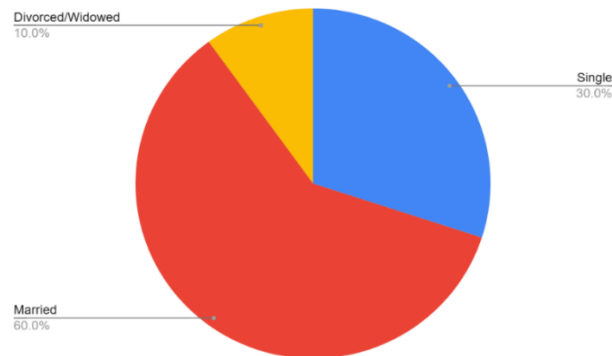


Figure 5: Marital Distribution (Source: Authors Survey, 2025)

Figure 6, shows the employment distribution of the respondents, from the analysis reveals that 45% of the respondents are either employed with public or private sector, about 25% are self-employed, indicating a growing trend in entrepreneur and participation in informal sector in FCT, Abuja. this outcome indicate that majority of the respondents relies on regular income either from monthly salaries or business activities, which influence their expectation and understanding with urban infrastructures. Moore so, 15% of the respondents are student whom depend on family income, 10% of them were unemployed while the remaining 5% are retired. These groups are vulnerable and often experience transport or housing affordability challenges.

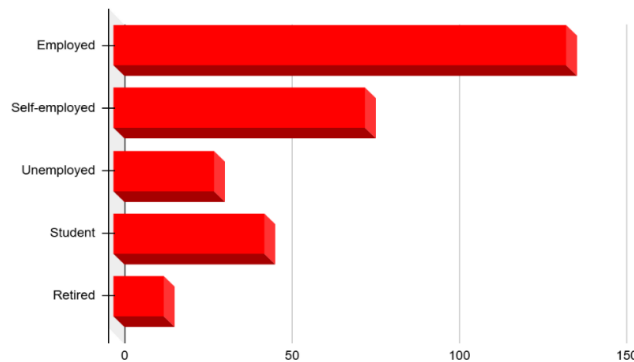


Figure 6: Employment distribution (Source: Author's Survey, 2025)

Our examination of the monthly income of the respondents in Figure 7 reveals that 30% of the respondents earn between ₦100,001 and ₦200,000, about 25% each earn around ₦50,001 and ₦100,000 and over ₦200,000 per month. In addition, 20% of the respondents earn less than ₦50,000 monthly. This outcome is a revelation that majority of the respondents are higher income earner this reflect their position in informal employment, business owners or government roles. The income disparities in Abuja reveals the ability of the population to afford housing and transportation services.

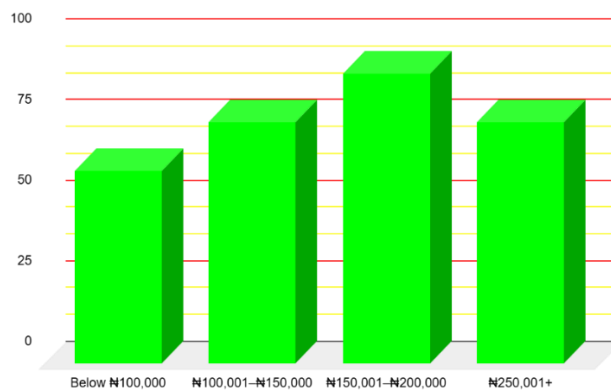


Figure 7: Monthly income distribution (Source: Authors Survey, 2025)

The length of stay in Abuja offers an insight on the impact of urban planning policy on urban dwellers over time. From the analysis in Figure 8 reveals that 50% of the respondents have been in Abuja for over 10 years, about 25% of them have reside in Abuja within the period of 6-10 years, 20% of them have spent between 1-5 years in Abuja and 5% of them have reside in Abuja in less than a year. This proportion of people represent those who recently migrate to Abuja and may experience transport and housing affordability.

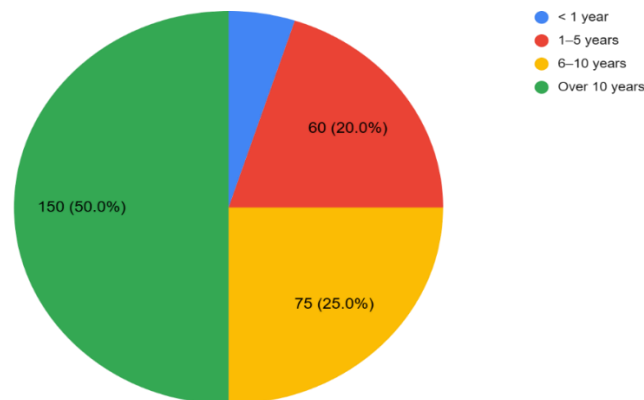


Figure 8: Length of Residence in FCT (Source: Authors Survey, 2025)

Figure 9 reveals the type of housing occupied by the respondents. The analysis reveals that 32.3% of the study respondents live in a flat or apartment, about 24.2% lived in semi-detached houses and 19.4% each lived in a detached and informal or slum settlement respectively. In addition, only 4.8% of the respondents reside other type of housing other than the aforementioned. The findings emphasis different type of housing experience among respondents, and this a prerequisite for urban planning policies consider various housing typologies in their plans.

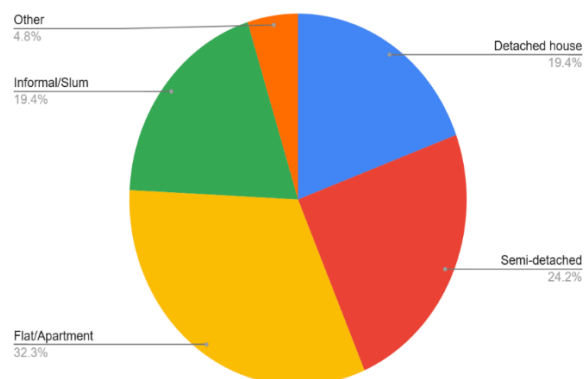


Figure 9: Type of Housing Occupied by Residents (Sources: Authors Survey, 2025)

The analysis of the choice of transport mode used by respondents in Abuja reveals that 33.3% of the respondent used public business, 26.7% use private cars, 15% use tricycle, 10% use motorcycle and only 15% of them use BRT/high-capacity buses. These findings highlight that significant proportion of the Abuja urban population depends on informal and public transportation systems, which are ill-regulated, overcrowded and lack safety standards.

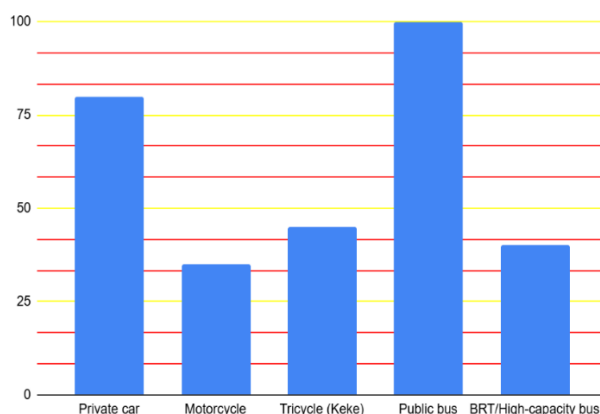


Figure 10: The Primary Mode of Transport used by Respondent (Source: Authors Survey, 2025)

4.2 Analysis of how Urban Planning Policy support Sustainable Housing Infrastructures in Abuja

The results in Table 1 shows the analysis of how urban planning policy supports sustainable housing infrastructural development. The results indicate that respondents disagree on the sustainability of housing infrastructural development in the Federal Capital Territory (FCT), Abuja. From the analysis, there is agreement that basic services are well provided ($M=4.058$), and residents are located near activity centers like schools, markets, and jobs ($M=3.800$). The analysis also shows that respondents disagree that there is high and durable structure quality ($M=2.650$), housing is affordable ($M=1.106$) and houses are built using energy-efficient materials ($M=1.340$). The overall mean score for core in Table 1 is 2.591, revealing disagreement that there is no sustainable housing infrastructural development in Abuja. These findings suggest that the residents of Abuja are satisfied with basic amenities and structural integrity; the problem of housing affordability and energy-efficient material remains a critical issue that requires policy attention and improvement in urban planning within FCT, Abuja.

Table 1: Mean Distribution of Sustainable Housing Infrastructures

S/N	Criterion	Mean Scores	Comments
1	Housing are affordable for most residents.	1.106	Disagree
2	Houses are built using energy-efficient materials	1.340	Disagree
3	Basic services are well-provided	4.058	Agreed
4	Residential areas are located close to schools, markets, and jobs	3.800	Agreed
5	High and durable structure quality	2.650	Agreed
Mean Average Scores		2.591	Disagree

Note: Mean score less than 3.00 indicate disagreement, above 3.00 indicate agreement and mean score equal to 3.00 indicate moderate
(Source: Authors Survey, 2025)

4.3 Analysis of how Urban Planning Policy Support Sustainable Transport Infrastructures

The analysis in Table 2 reveals mixed perceptions concerning sustainable transport infrastructure in the Federal Capital Territory, Abuja. From the analysis, it reveals that respondents agree that public transport is easily accessible ($M = 3.017$) and that there is regular maintenance of road and transport infrastructures ($M = 3.856$). The analysis in Table 2 shows disagreement in the respondent's perception regarding the affordability of transport service among most income groups ($M=2.451$); eco-friendly transport is supported ($M=1.406$), and the transport system ensures safety and reduces travel time ($M=2.025$). The average mean score of 2.551 is below the threshold of 3.00, indicating general disagreement among respondents regarding sustainable transport infrastructure development. These findings are a revelation that there is a gap in the area of inclusive and eco-friendly transport infrastructural development, implying that while access to transport services and infrastructural maintenance is acceptable, their affordability and environmentally friendly transport system are significant weaknesses in urban planning policies that require urgent attention.

Table 2: Mean Distribution of Sustainable Transport Infrastructure

S/n	Criterion	Mean scores	Comments
1	Public transport in FCT is easily accessible to everyone	3.017	Agree
2	Transport services are affordable for most income groups	2.451	Disagree
3	Non-motorized or eco-friendly transport is supported	1.406	Disagree
4	Roads and transport facilities are regularly maintained	3.856	Agree
5	The transport system ensures safety and reduces travel time	2.025	Disagree
Average Mean Score		2.551	Disagree

Note: Mean score less than 3.00 indicate disagreement, above 3.00 indicate agreement and mean score equal to 3.00 indicate moderate
(Source: Authors Survey, 2025)

4.4 Analysis of the Components of Institutional Pillars

The analysis of the components of institutional pillars in Table 3 shows varied perception across the three pillars impacting sustainable urban infrastructural development in FCT, Abuja. From the analysis, it was observed that regulatory pillars show positive perception overall with a mean score of 3.417, with agreement on penalty for planning regulatory violation ($M= 3.760$), enforcement of planning policies ($M= 3.870$), and availability of urban infrastructure ($M= 4.123$). Also, the normative pillar had the lower average mean score of 2.855, revealing weak ethical adherence and commitment among stakeholders, specifically clearly defined standards. This outcome highlights a gap in professional norms and institutional priorities in urban planning in FCT, Abuja. Meanwhile, the cultural-cognitive pillar recorded negative perception with a mean index score of 2.789. These findings advocate for public awareness and community support for sustainable urban infrastructural development to exist. Public trust in planning authorities and belief in planning policies remain feeble. These findings imply that while the regulatory pillar is effective, both the cognitive and normative pillars require institutional strengthening to foster an inclusive and robust urban development framework in FCT, Abuja.

Table 3: Mean distribution of the component of institutional theory

S/N	Institutional Pillars	Criterion	Mean Score	Comment
	Regulatory	i. Clear and well define Urban planning laws and policies in FCT	2.798	Disagree
		ii. Efficient processing of building permits & approvals	2.534	Disagree
		iii. Penalties for planning regulations violation	3.760	Agree
		iv. Consistent enforcement of planning policies	3.870	Agree
		v. Availability of urban infrastructure development monitoring framework	4.123	Agree
	Average Mean Score		3.417	
	Normative	i. Urban planning professional follow ethical Standards		Agree
		ii. Sustainable priority in planning institution		Agree
		iii. Planning aligns with global and national goals		Agree
		iv. Infrastructural development standards are clearly defined and followed		Disagree
		v. Planning commitment among stakeholders		Disagree
	Average Mean Score		2.855	
	Cultural-Cognitive	i. Awareness of existing urban planning policy	2.367	Disagree
		ii. Planning policy beliefs shape future development	2.906	Disagree
		iii. Informal development practices influence housing and transport	3.760	Agree
		iv. Public trust urban planning authorities	2.512	Disagree
		v. Community values support sustainable infrastructural development	2.420	Disagree
	Average Mean Score		2.789	

Note: Mean score less than 3.00 indicate disagreement, above 3.00 indicate agreement and mean score equal to 3.00 indicate moderate

(Source: Authors Survey, 2025)

4.5 Analysis of the Relationship Between Housing Infrastructural Development and Institutional Pillars

In determining the relationship between housing infrastructure and institutional pillars, the study formula a null hypothesis which is stated as follows;

H01: The institutional pillars have no positive statistical influence sustainable housing infrastructural development in Abuja.

The outcome of the hypothesis is shown in Table 4 & 5, the analysis in Table 4 shows the model summary of the regression model. The model reveals a moderately positive relationship between dependent (i.e., housing infrastructural development) and predictors (i.e., institutional pillars). The table 4 shows a multiple R value is 0.686, the R square value is 0.375 indicating that about 37.5% of the variance in sustainable housing development were explained by the predictors. The Adjusted R-square of 0.350 shows the model complexity and conforms a fairly strong explanatory power. The F-statistics of 21.600 and the significance level of P-value of 0.000 points that the overall model is statistically significant, thereby rejecting the null hypothesis and accepting the alternative hypothesis which state that institutional pillars significantly influence sustainable housing infrastructural development in Abuja.

Table 4: Model Summary

Statistics	R	R ²	Adjusted R ²	F – Statistics	P-Value (Model Sig.)
Value	.686	.375	.350	21.600	.000

Source: Authors Survey (2025)

The regression coefficient in Table 5 reveals that regulatory (0.003) and normative pillars (0.000) are positively significant at P-value of 0.05, indicating that a unit change in urban planning policy specifically development of transport infrastructures will result to 0.306 and 0.450 increase in regulatory and normative pillars. While the cultural-cognitive pillar (0.176) is not significant at P-value of 0.05 but a unit rise in urban policy will result to 0.150 increase or change in cultural cognitive pillars. The regression model for the analysis is shown as follows;
Housing Infrastructural Development = 1.201 + 0.306(Regulatory Pillars) + 0.450(Normative Pillars) + 0.150(Cultural-Cognitive Pillar) + ϵ

Table 5: Regression Coefficient

Predictors	Unstandardized Coeff. (B)	Standard Error	t-value	p-value	Comment
Constant (β_0)	1.201	.451	2.671	.008	Positively Significant
Regulatory (β_1)	.306	.107	3.000	.003	Positively Significant
Normative (β_2)	.450	.120	2.750	.000	Significant
Cultural-Cognitive (β_3)	.111	1.360	.176	.150	Not Significant

Predictors: Regulatory, Normative and cultural-cognitive
Source: Authors Survey (2025)

4.6 Analysis of the Relationship Between Sustainable Transport Infrastructural Development and Institutional Pillars

The relationship between sustainable infrastructural development and institutional pillars was achieved using regression model which are shown in Table 6 and 7. The regression hypothesis is shown as follows;

H02: Institutional pillars has no positive statistical influence on sustainable transport development in Abuja

The table 6 shows the model summary, revealing a moderate positive relationship between institutional pillars and sustainable transport development. The multiple regression coefficient R of 0.58 indicate that the combination of the regulatory, normative and cognitive pillar is moderately related to improvement in transport infrastructure development. The coefficient of determination R-square is 0.340, point that about 34% of the variation in sustainable transport development are explained by the institutional components. The Adjusted R-square is 0.320 which reflect a meaningful explanatory power. Comparing the F-statistics value of 19 with the P-value of 0.000 confirm that the overall regression model is statistically significant, implying the institutional theory has the ability to predict sustainable transport development.

Table 6: Model Summary

Statistics	R	R ²	Adjusted R ²	F – Statistics	P-Value (Model Sig.)
Value	.580	.340	.320	19.0	.000

Source: Authors Survey (2025)

The regression coefficient Table in Table 7 reveals that both regulatory (P-value= 0.005) and normative pillars (0.002) are good predictors of sustainable transport development since their P-values are statistically significant at 0.05, while the cultural-cognitive pillar is not statistically significant at 0.05. In general, a unit increase in regulatory, normative and cultural-cognitive pillars will results to 0.320, 0.420, and 0.182 increase in sustainable transport development. The regression model for the relationship is stated as follow;

Sustainable Transport Development = 1.100 + 0.320(Regulatory Pillars) + 0.450(Normative Pillars) + 0.182(Cultural-Cognitive Pillar) + ϵ

Table 7: Regression Coefficient

Predictors	Unstandardized Coeff. (B)	Standard Error	t-value	p-value	Comment
Constant (β_0)	1.100	.481	2.290	.025	Significant
Regulatory (β_1)	.320	.210	2.910	.005	Positively Significant
Normative (β_2)	.420	.133	3.243	.002	Positively Significant

Cultural- Cognitive (β_3)	.812	.210	.176	.150	Not Significant
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Predictors: Regulatory, Normative, and cultural-cognitive
Source: Authors Survey (2025)

4.7 Discussion of Findings

The outcome of this study shows disagreement among the residents of FCT, Abuja, that housing infrastructures are not sustainable, basic services are provided but unaffordable, low-quality housing structures and non-compliance with the use of eco-friendly materials. This study is in line with the work of Adamolekun and Akhimien (2018) and Isma'il et al. (2015), who concluded that housing in Nigeria is unaffordable and is characterized by low-quality structures and a lack of eco-friendly materials in the construction. Similarly, the findings uncover that there is a negative perception regarding sustainable transport infrastructure in Abuja, though accessible and transport infrastructures are often maintained (see Table 2) but are non-affordable, unsafe, time-wasting, and lacking in the utilization of clean energy. This study advocates that future urban planning should consider investing in transportation systems that support sustainable mobility. The use of solar vehicles, clean energy, and electric cars are sustainable initiatives that may reduce transportation costs and decline its impact on the environment (Sobczuk & Borucka, 2024).

In addition, the results of the analysis show that institutional pillars are good predictors of sustainable housing and transport infrastructural development in FCT, Abuja, as demonstrated in Tables 5 & 6; regulatory and normative pillars are statistically significant in predicting sustainable urban infrastructural development, while cultural-cognitive pillars are not statistically significant. It was observed that regulatory pillars specifically, penalties for violating planning regulations, consistency in enforcing planning policies, and the availability of an urban infrastructural development monitoring framework are key contributing factors influencing sustainable infrastructural development. However, urban planning policy may focus on considering effective monitoring and providing infrastructure across FCT, Abuja. Moreover, normative factors, specifically, professional adoption of ethical standards, sustainable priority in planning institutions, and alignment of planning with global goals are key contributing factors impacting sustainable development. This study advocates that future urban planning should integrate sustainable practices and align their plans with global Sustainable Development Goals (SDGs 9 & 11), which are aimed at ensuring affordable, accessible, and environmentally friendly housing and transport infrastructure development.

Finally, the cultural-cognitive has the lowest contribution to sustainable urban infrastructural development, particularly the component "informal development practices influence housing and transport, 'which demonstrates a negative influence on sustainable infrastructural development. Informal settlement or development often lacks proper planning, thereby causing overutilization of urban utilities and transportation systems (Kavishe et al., 2025).

5 CONCLUSION AND RECOMMENDATION

The evaluation of the role of urban planning policies on sustainable housing and transport infrastructural development in FCT, Abuja, focused on determining the relationship between institutional pillars and sustainable infrastructural development. This study also analyzed residents' perception of the extent of sustainable housing and transport infrastructural development in FCT, Abuja. The results of the analysis enable this study to conclude that residents disagreed that there is low housing and infrastructural sustainable development implementation in FCT, Abuja. In addition, this study concludes that regulatory and normative pillars are positively correlated with housing/transport infrastructural development, while cultural-cognitive pillars show no significant relationship. In conclusion, effective urban planning policy integrates sustainability in urban infrastructural development, improves monitoring, and ensures that there are minimal violations of planning standards. The study concluded by recommending that;

1. The municipal government should develop policies that encourage the development of affordable housing. This will solve the problem of unaffordable housing bedeviling FCT, Abuja. These initiatives can be done through public-private partnerships by promoting investment in the construction of low-cost, quality, and eco-friendly housing that meets sustainable standards.

2. The FCT Municipal should encourage the development of safe, accessible, and affordable transport infrastructure across the FCT. This will solve the problem of unsafe and time-wasting FCT transportation systems as well as reduce greenhouse gas emissions through the adoption of non-motorized or eco-friendly transport.
3. Urban planning policy should be backed by a regulatory framework and consistency in enforcement apparatuses. Consequences for violation of planning standards, specifically those involving housing quality and informal development, should be clearly outlined and implemented. Urban planners should also strengthen their responsibility through monitoring urban development across all six districts of Abuja.
4. Urban development agencies should align urban planning with the global sustainability initiatives, specifically SDG-9 & 11. This involves professionals to implement ethical planning practices, prioritize sustainability initiatives in infrastructural development, and ensure alignment with international good practices.
5. Professionals may engage in public awareness campaigns to enlighten the communities in engaging in sustainable infrastructural development; this will solve the problem of informal infrastructural development practices.

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