(RESEARCH ARTICLE)

Satisfaction Scrutiny of commuter using mass transit scheme in Northern, Nigeria.

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Abstract

Satisfaction assessments compute through travellers are often utilized in performance engendered contracts because of their hypothesized nexus with corporation performance. Contrariwise, few researchers have really dichotomizedon the interconnection between passenger satisfaction quantifies and fact-based performance measures in mass transit scheme. This study scrutinizes the connection between the goal performance measures of public transport schemes and the satisfaction ersatz by passengers within Nasarawa, Niger and Federal Capital Territory Abuja North-central, Nigeria. Three objective service performance computes were obtained for each state viasurvey research approach, answered by one thousand and two hundred travellersin total. Above and beyond attribute measures was subjected via total satisfaction as a subjective compute. Numerous correlational scrutinize shows that the correlation between satisfaction and system performance in mass rapid transit system is far below perfection.

Keywords: Passengers; Traffic Jamming; Transport System; Mass Transit; North-central.

1. Introduction

The level of mass transit scheme provision in the third world is very small. Public transport supply cannot handle the demand, because of fast urbanization and the rising economic deeds in the developing nations, which make it challenging for the transportation needs of the populaces to be effusively satisfied [1-3]. Rabiu et al. [4] says, there are forty (40) percent fewer buses per head of populace in the third world and the average number of buses operated per one hundred thousand (100,000) populations is sixty-five (65), while in the United Kingdom, the figure is ninety (90).Furthermore, in the developing world, car owner rates are also small, from World Bank figures record in 1997 it reveals that an average of sixty-four (64) cars per one thousands (1,000)inhabitants in Latin America and the Caribbean, fifteen (15) cars per one thousand (1,000)inhabitants in Asia and thirteen (13) cars per one thousand (1,000) residents in Africa [5-7]. Thus in 2000, roughly seventy (70) percent of the world's vehicles were testified to be in more developed nations. The United States and a minority of other wealthy nations have above four hundred (400) cars per one thousand (1,000) populaces. In contrast, less developed nations such as Sierra Leone, Bangladesh and India had less than five (5) cars per one thousand (1,000) people in 2000 [8, 9]. But in the developed scenario where related mobility problems occur or where there are some symptoms of crisis the majority of the populace depend heavily on several modes of public transport or mass transit system for their movement [10]. The merit of public transport are uncountable; amongst them are its effective usage of space, more energy efficient, emit lower airborne pollutants, lessen the amount of land utilized for transport deeds including parking and normally result in better physical environment in built-up areas [11 - 13]. Mass transit scheme has also verified to be an effective tool in battling congestion. Due to the numerous merits of public transport, governments in third world nations are now becoming conscious that for developing nations to be more productive, improving public transport should be one of the most pressing issues on their schedule [1, 8]. In

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nations where mass rapid services are provided, there is a need to make their functions more efficient so as to satisfy the mobility needs of the people which is normally the concern of government.

2. Material and methods

2.1 Study Area

North Central Nigeria, also named Middle Belt is a region with convergence of cultural purviews and also maintains a tremendous degree of ethno-linguistic multiplicity (Population Census 2006). Such as Niger–Congo, Afro-Asiatic and Nilo-Saharan languages are all spoken in this region, also served as three primary African language families. Nigeria states within this region are; Niger, ancient Plateau (now Plateau and Nasarawa), Kogi, ancient Gongola (now Adamawa and Taraba), Kwara, Benue and the Federal Capital Territory. Though Southern Yobe State, Southern Kaduna, Southern Gombe, Southern Bauchi, Southern Kebbi, and Southern Borno, are all ethnically considered as part of the Middle Belt [1, 11- 13]. North-central comprises of numerous cultural groups speaking of over 230 dialects, with the inhabitants of 17.3 million as of 1991, but now anticipated to be over 45 million populaces living in the North-central region, with a predominant Christian inhabitants of 65%, Animist populace of 10% and Muslim populace of 25% of the whole population. In this study out of seven states within North-central region, three states that are the swiftest growing built-up centers was picked which is Abuja, capital of the country Nigeria and other two neighboring states, Nasarawa and Niger.
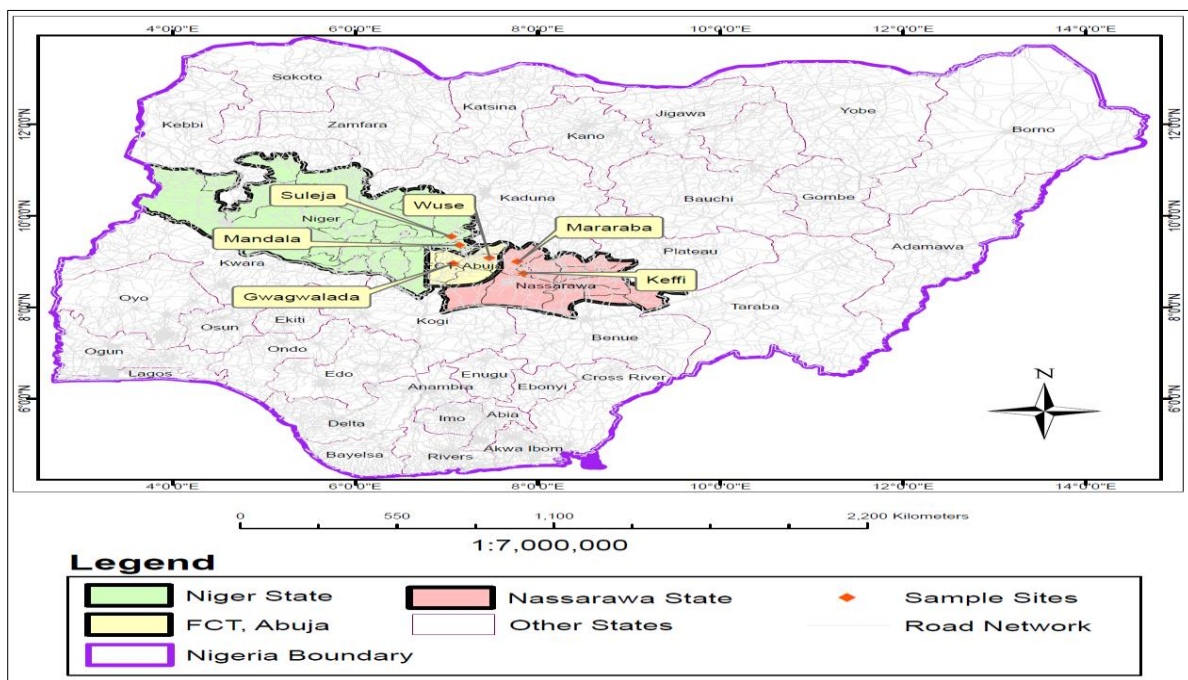

Figure 1 Study vicinities map

The Federal Capital Territory (FCT), the capital city of Nigeria, is situated in this territory, and Abuja which is the capital city of Nigeria is located in this territory. FCT was created in 1976 from parts of the states of Kaduna, ancient Kwara, Niger and Plateau States with the vastness of its landform carved out of Niger State. Contrasting to other States of Nigeria, which are ruled by elected Governors, it is overseen by the Federal Capital Territory Administration and ruled by a minister chosen by the President. Bordered by Kaduna to the northeast, Kogi to the southwest, Niger state to the West and North, and Nasarawa to the east and south. It is between longitude 6.45 and 7.39 east of Greenwich Meridian, and latitude 8.25 and 9.20 north of the equator. Abuja has a landmass of roughly 7,315 km², and it is positioned within the Savannah district with moderate climatic conditions [1, 11- 13]. Nasarawa is one of state in north central Nigeria, and is capital is Lafia. It is bounded in the south by Kogi and Benue States, the north by Kaduna State, in the east by Taraba and Plateau States, and in the west by the Federal Capital Territory. Agriculture serves as the backbone of its economy with the production of diversities of cash crops all through the year. Nasarawa state home some institutions such as College of Agriculture in Lafia, Bingham University at Karu, College of Education in Akwanga, Nasarawa State University (Population Census 2006), Federal Polytechnic Nasarawa, a newly established Federal University of Lafia, Mewar International University at Masaka, Maloney Hill, FarinRuwa

Falls in Wamba Local Government region of the state and salt Village in Keana Local Government Region of the State that produces naturally iodized salt from the lake situated near it (PHC Priority Tables 2006; Population Census 2006). With area total of 27,117km² and Populaces of 1,869.377 as of 2006. Niger is the largest state in the country, and its state's capital is at Minna. It was created in 1976 when the then North-Western State was bifurcated into Niger State and Sokoto State. It is home to Abdulsalami Abubakar and Ibrahim Babangida, two (2) of Nigeria's previous military rulers. The renowned Gurara Falls is in Niger State, and Gurara Local Government Region is titled after the Gurara River, on whose course the fall is positioned [1, 11- 13]. Also located there is Kainji National Park, the prevalent National Park of Nigeria, which encompasses the Zugurma Game Reserve, Kainji Lake and, the Borgu Game Reserve. Greater parts of various indigenous tribes of Niger State are from the Koro, Hun-Saare, Gbayi, Kambari, Nupe, Kamuri and Hausa, the locations are displayed in Figure 1.

3. Results and discussion

3.1 Demographic Analysis

3.1.1 Sex and profession

The demographic scrutiny (Gender and occupation) created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 2.
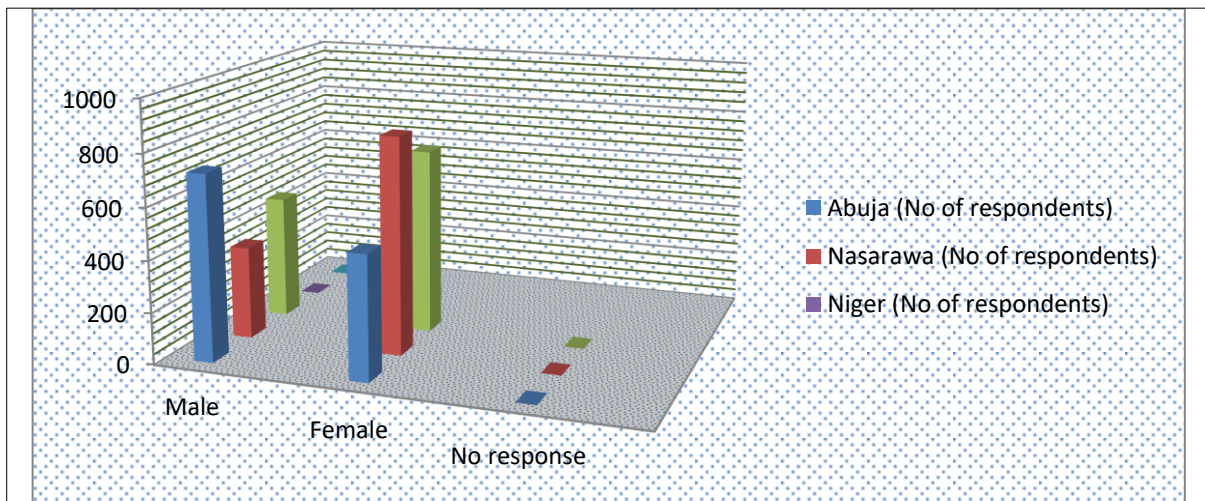

Figure 2 Gender of respondent in North-Central Nigeria
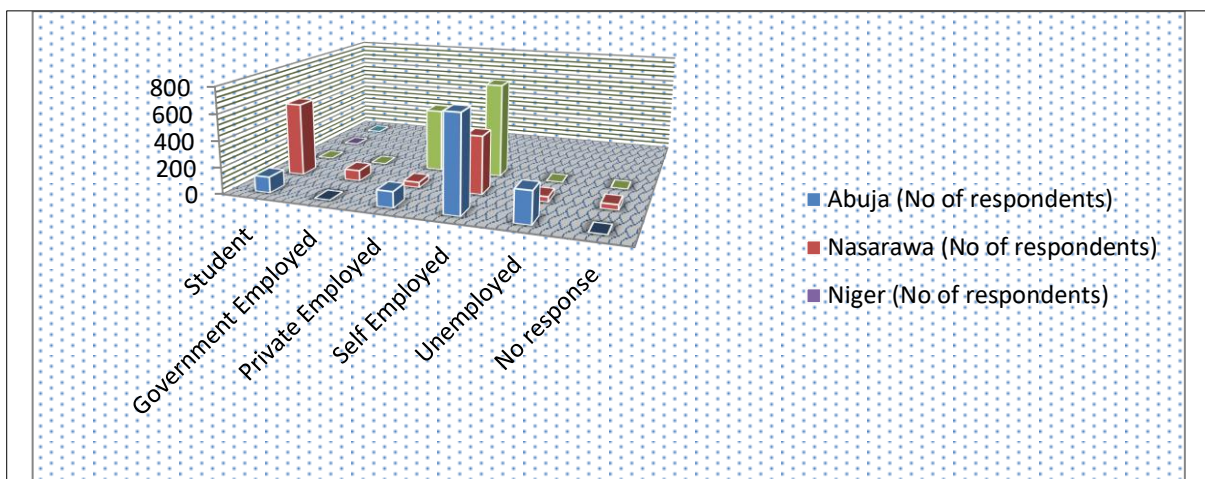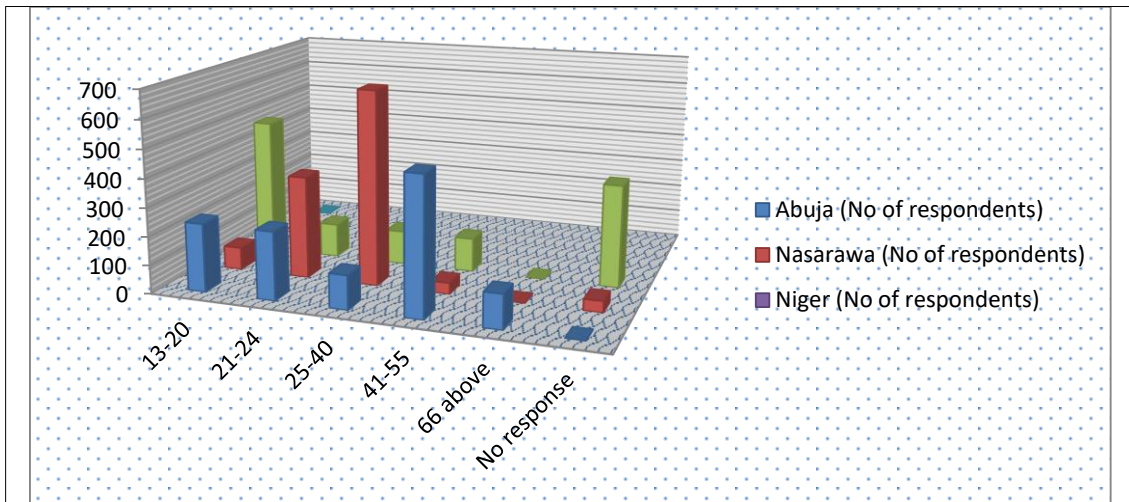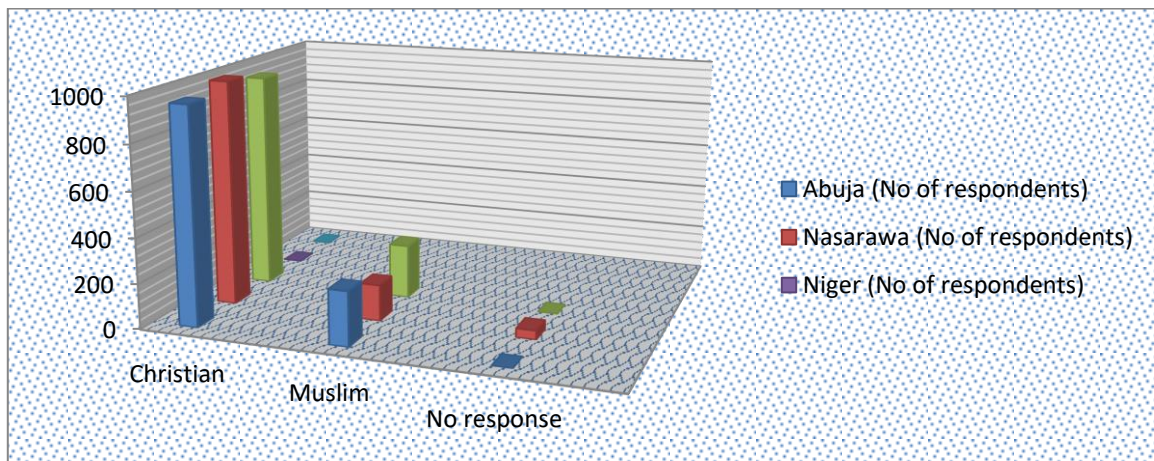

Figure 3 Profession of respondent in North-Central Nigeria

3.1.2   Age Group and Religions

The Age group and religions created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figures 4 and 5.
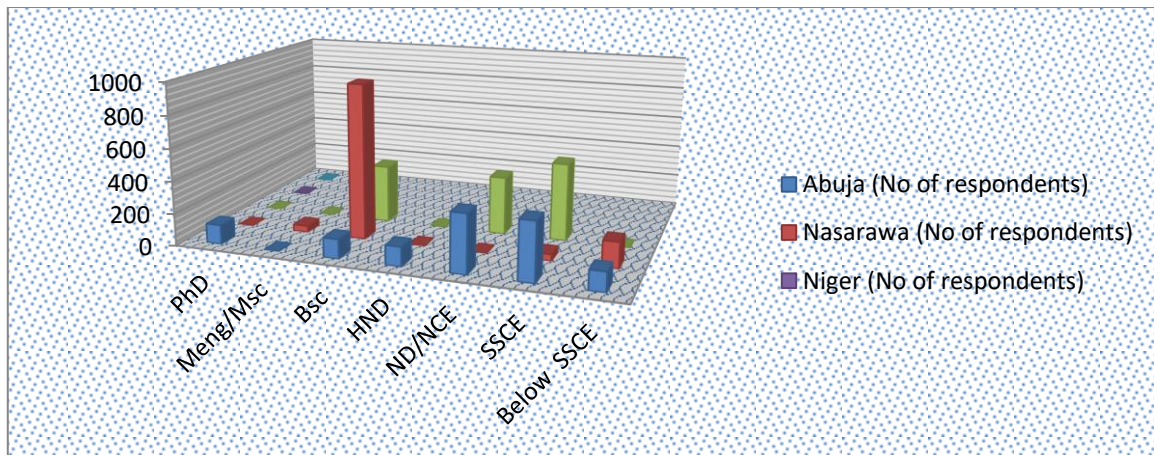

Figure 4 Age group of North-Central Nigeria respondents

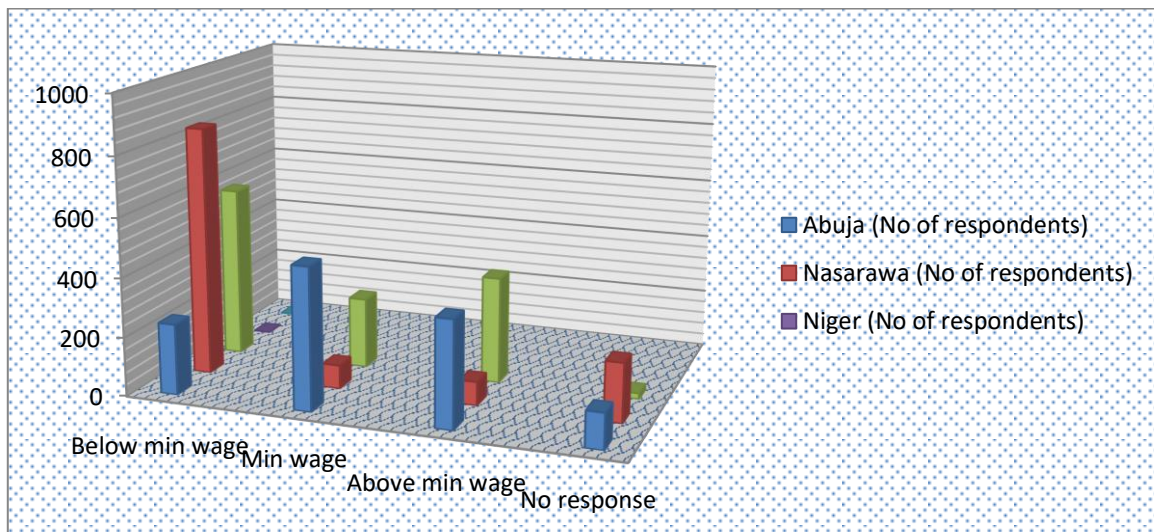**Figure 5** Religions of North-Central Nigeria respondents

3.1.3   Education

The Education level created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 6.

Figure 6 Literacy Level of North-Central Nigeria respondents

3.1.4   Salary

The salary created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 7.


Figure 7 Income level of North-Central Nigeria respondents.

Figures 2 – 7 reveals that demographic information (sex, profession, age, religion, education and salary) for each of the three districts, female travelers greater than male, Self-employed travelers has the highest, between 25 and 40 years travelled most, Christian travelers are more than other religions, while travelers with at least degree certificate travelled most and the highest income or salary is below minimum wage. These results indicate that occupation, age and literacy level of the populace control travel management which is in agreement with paper work by Adetunji [8] and Efobi and Anierobi [10].

3.2   Trip Pattern

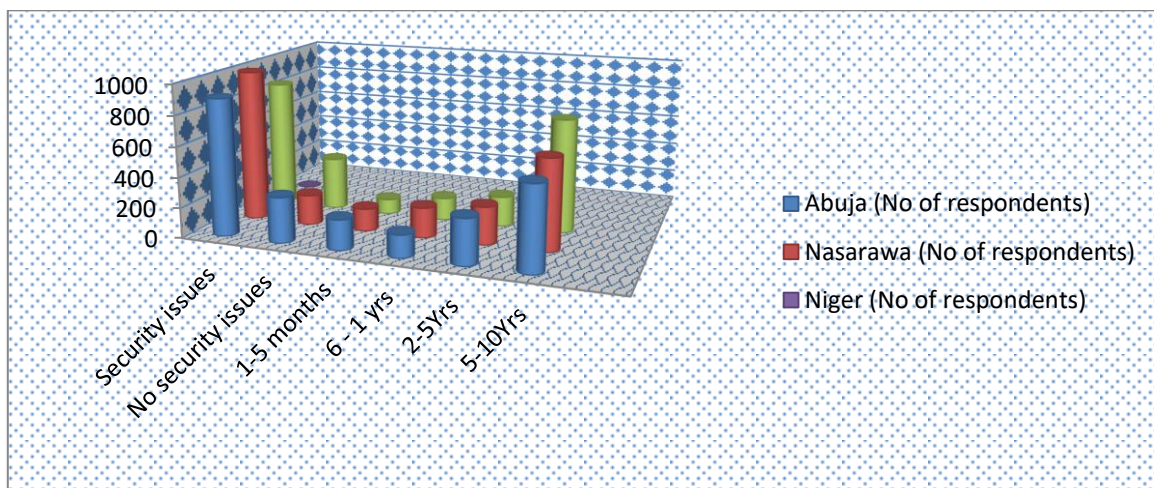*3.2.1   Travelers identity and travelling purpose*

Travelers nationality and purpose for movement created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 8.
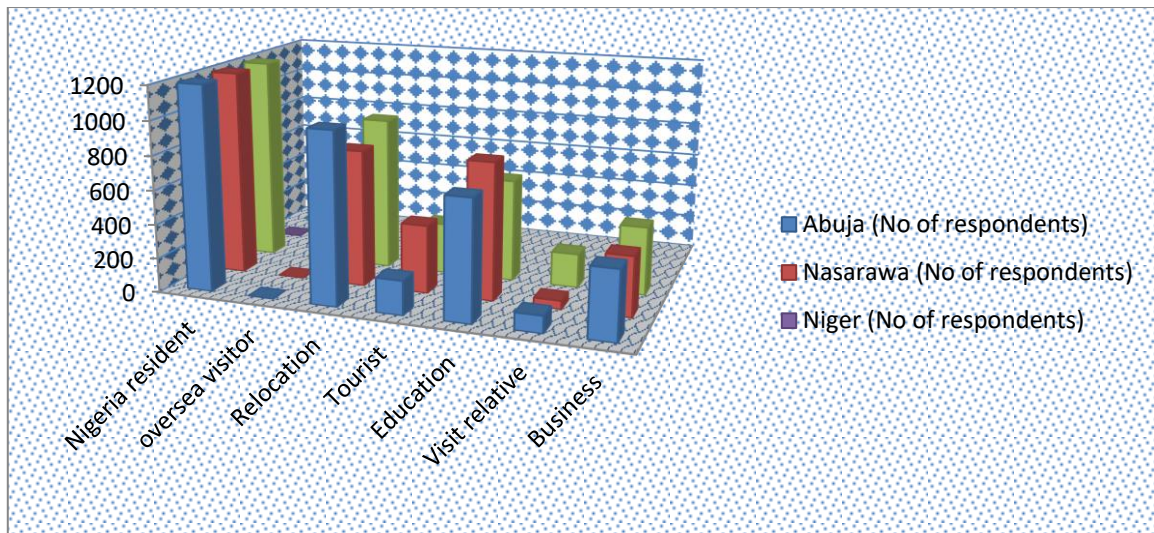
Figure 8 Travellers nationality of respondent in North-Central Nigeria

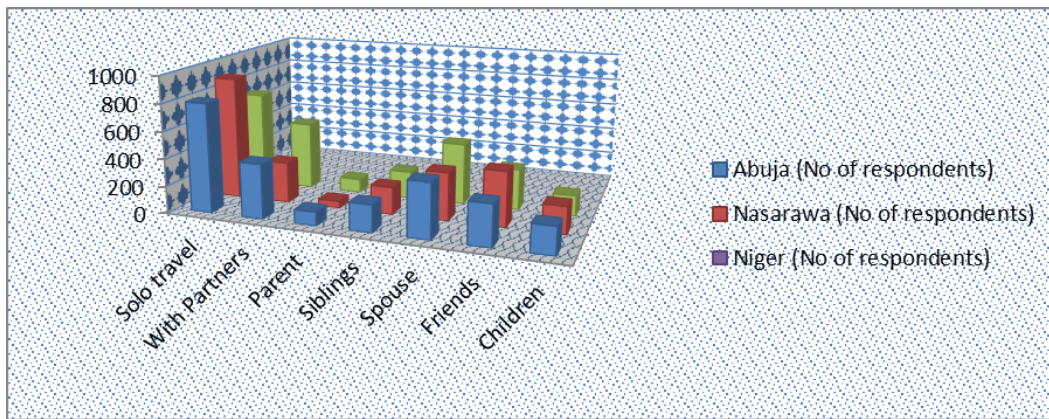*3.2.2   Travelers Security issues and travelling duration*

Travelers security issues witness and duration created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 9.

Figure 9 Travellers security issues witness and duration of respondent in North-Central Nigeria.
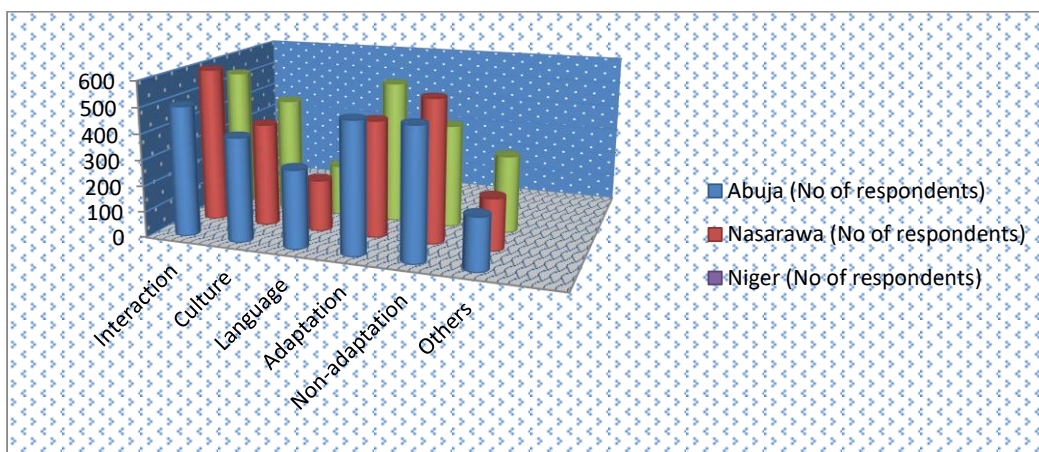
3.2.3   Travelling preference

Travelers preference created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 10.

Figure 10 Travelers preference of respondent in North-Central Nigeria

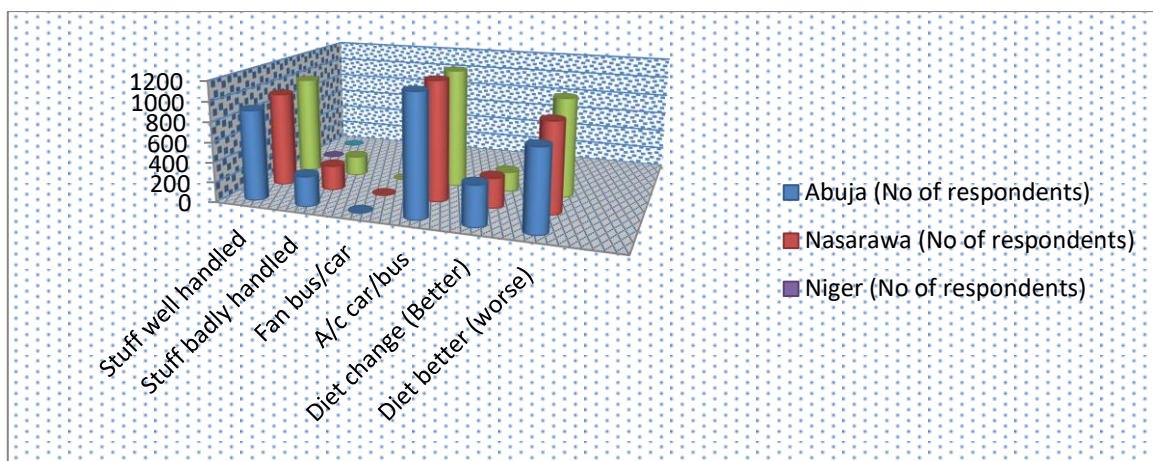### 3.2.4 Innovation knowledge and Adaptation

New things learned and adaptation created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 11.

Figure 11 New things learned and adaptation by respondent in North-Central Nigeria

3.2.5 Stuff handling, mode and diet.

Stuff handling, preference mode and diet created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Figure 12.

Figure 12 Stuff handling, preference mode and diet by respondent in North-Central Nigeria

3.3 Multivariance analysis

3.3.1 Outcome of Descriptive statistics

The statistics created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are displayed in Table 1.

Table 1 Descriptive statistics

North-central	N	Minimum	Maximum	Sum	Mean	Std. Devia	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
					No of respondents				
Student	3	0	560	680	226.67	294.845	86933.33	1.415	1.225
Government Employed	3	0	80	80	26.67	46.188	2133.333	1.732	1.225
Private Employed	3	40	480	640	213.33	234.379	54933.33	1.508	1.225
Self Employed	3	440	720	1880	626.67	161.658	26133.33	-1.732	1.225
Unemployed	3	0	240	280	93.33	128.582	16533.33	1.545	1.225
No response	3	0	40	40	13.33	23.094	533.333	1.732	1.225

Result from Table 1, revealed that self-employed has the highest mean of 626.67 respondents, followed by students (226.67 respondents), whereas no response is the lowest with value at (13.33 respondents). In the same way, students have the maximum Standard deviation of 294.845 respondents, then private employed of 234.379 respondents, while no response have the least value of 23.094 respondents.

3.3.2 Outcome of Cluster Analysis

The cluster scrutiny created using the three provinces Questionnaire that were distributed to four hundred (400) travelers selected arbitrarily making total of 1200 respondents are showed in Table 2 and graphically presented in Figure 13.

Table 2 Cluster Analysis (CA) using Proximity matrix (squared euclidean distance)

Case	Squared Euclidean Distance		
	2:	3:	4:
2:	0.000	326400.000	201600.000
3:	326400.000	0.000	595200.000
4:	201600.000	595200.000	0.000
This is a dissimilarity matrix			

Result from Table 2 which was graphically represented in Figure 13 achieved via squared Euclidean distances for similarity measurement which in turn generated a dendrogram. It identifies connexion groups amongst the travelers. Two statistically substantial Clusters are created; vividly: Clusters 1 and 2, which in turn produced two sets of connexion between the respondents which is in agreement with paper work by Ibrahim-Adedeji et al. [1] and Sumaila [7]. Furthermore, Figures 14 and 15 showed author and travelers within North-central Nigeria filling the questionnaires.
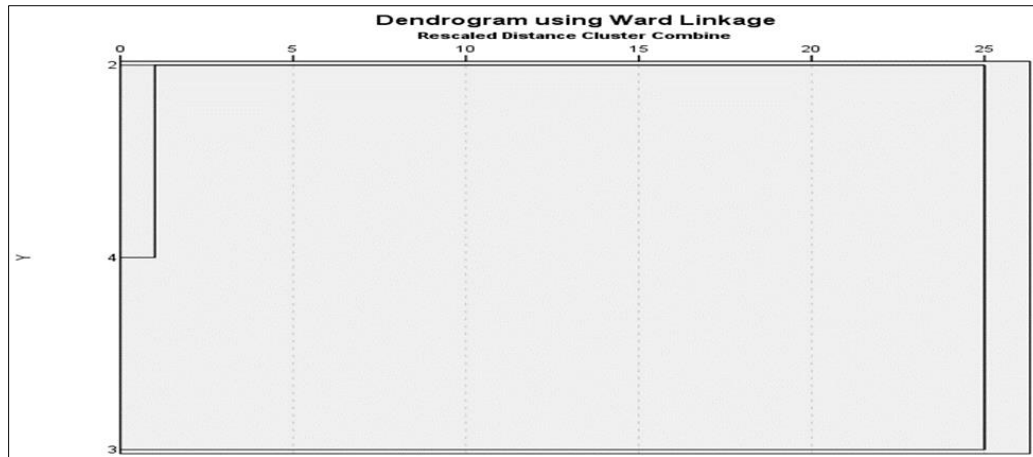
Figure 13 Dedrogram using ward technique by North-Central Nigeria respondents

Figure 14 Author at study location, Suleja Niger state and KeffiNasarawa state, North-central Nigeria**.**

Figure 15 Passengers at study location filling the questionnaire

4. Conclusion

This study evaluates mass transit system and travelers satisfactory in some states within North-central, Nigeria. Demographic information of the three districts displays that women travelers are more than men travelers, Self-employed users has the highest value, between twenty five (25) and forty years (40) travelled most, Christian travelers are greater than other religions, while passengers with at least degree level travelled most and the highest salary is less than minimum wage. Correspondingly, these study outcomes ascertain that occupation, age and education state of the populaces homogenize travel management. Nevertheless, preponderances are from other tribe or state within Nigeria and incapacitate people hardly travelled. Contrariwise from the opinion about trip pattern, majority passengers ratify

that there are security issues in some trips made not all, while the travel duration between five to ten years, and they have visited between eleven to twenty states. For innovative things learned, interaction has the highest, whereas adaptation is on the average and their belonging is well-handled. Moreover, majority prefer travel with spouse though the fees did not always allow them to do so and when there is change in diet because of new locality, majority witness worse situation. To end with, from standard deviation results student's travelers have the highest value of 294.845 respondents, and self-employed with highest mean of 626.67 respondents.

Compliance with ethical standards

Disclosure of conflict of interest

Authors have declared that no competing interests exist.

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