COMPARATIVE ANALYSES OF RESIDENTIAL AND COMMERCIAL LAND USES ON TRANSPORT DEMAND WITHIN ILARO TOWNSHIP

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ABSTRACT

This research work examined the comparative analyses of residential and commercial land uses on transport demand using Oke Ola and Igboro in Ilaro as case study. It evaluated the respective level of demand for transport by different land uses in the study areas, so as to determine the variation in transport demand of various land uses, as well as to identify causes of variation in transport demand by different land uses together with major means of mobility. The methodology adopted is origin-destination survey, using cordon count via a simple random sampling. A total of one hundred (100) copies of questionnaire were administered to respondents with focus on Oke Ola and Igboro areas of Ilaro township. Analyses were done with the use of descriptive and inferential statistics. The findings revealed that most of respondents (80%) in Oke Ola have their location of employment outside the study area, that is within Ilaro; when compared to Igboro, majority of the respondents (72%) have their locations of employment in the study area that is, within Igboro. In addition, findings also revealed that more trips were generated from Oke Ola and more trips were attracted to Igboro. Also, motorcycle accounts for highest vehicle type being used for travel in both areas under focus. The study recommends that Oke Ola, which serves as the residential land use should be structured or zoned with some adjoining commercial land uses, to stabilise the demand for transport in the study area, whileIgboro which serves as the commercial land use should be structured or zoned with some adjoining residential land uses, so as to stabilise the demand for transport in the study area. Also, it is recommended that there should be improvement in transport facilities within the entire Ilaro township.

Keywords: *Comparative Analyses, Commercial and Residential land uses, Transport Demand, Ilaro township*

1.0 INTRODUCTION

The demand for transport is a derived demand, an economic term, which refers to demand for one good or service in one sector occurring as a result of demand from another. Users of transport are primarily consuming the service not because of its direct benefits, but because they wish to access other services. Transport demand is about the movement of people as well as goods and services, because travelling is conducted in order to satisfy a need which includes but not limited to work, education,

recreation, etc; as part of the overall economic activity (Esbah, 2005). Hence, it is being vividly stated that work-related activities commonly involve commuting between the place of residence and that of the workplace. There is a supply of work in one location, that is residence and a demand of labour in another location, that is, workplace, hence, this relationship brings transport directly into becoming a derived demand and can also be perceived as an induced or latent demand, that is, a demand in response to the need for additional transport infrastructure which is meant to address increase in traffic volume. Many factors can affect travel demand, including demographics, the quality of facilities, the quality and price of alternatives, and land use patterns.

The relationship between transportation and land use development has been the focus of many scholars. Shoup, Pratt, and Turcotte (2008) opined that land use structure of any area greatly influences the demand for transport, especially land uses such as residential and commercial land uses. A number of problems are related to the demand for transport in a residential area, these include: the traffic volume which does not support public transport and if available it may be inadequate; people are more likely to walk long distance or travel in cars; also, problem such as longer waiting time to get transport means, longer commuting distance i.e. the condition of the adjoining land use, which do not support adequate public transport pose a great challenge on the people in Oke Ola to walk long distance or travel with their private vehicles. When compared to the commercial land use, the traffic volume in conjunction with various commercial activities may support adequate public transport because the land use is an example of trip attraction and it will attract different kinds or need for travel which will also influence the transport demand.

Moreover, residential land use and commercial land use attract and generate movements or traffics respectively. Consequently, the more land uses an urban area has, the more diversified or greater the destinations; modal trips; socio-economic activities; mobility conflicts vis-à-vis congestions. Zegras (2005) noted that a land use will influence transport demand in terms of the number of person and freight journeys attracted and generated; commercial land use as an example of trip attraction and using Igboro, a Central Business District in Ilaro as a classical example of commercial land use, more trips will be attracted to the area, rather few trips will be generated, trips for the purpose of shopping, social, work etc will be attracted to the area because it is most dominated by commercial activities. Therefore, the high scale of trip that will be attracted to the area will place a great demand for transport. Hence, this research examined the demand for transport by different land uses in the study areas, with a view to determining the variation in transport demand of various land uses, to identify causes of variation in transport demand by different land uses and also to identify major means of mobility. However, the research is limited to the residential land uses in Oke Ola and commercial land uses in Igboro areas of Ilaro, being the township under study, as well as the pattern of transport demand in the two study areas and the comparison of both were considered.

Therefore, to achieve the overall goal and objective(s) of this study, queries such as the followings become pertinent, viz:

i. What are levels of the demand for transport in Oke-Ola and Igboro?

ii. What are the travel patterns of land users in Oke Ola and Igboro?
iii. In what ways the two land uses impacted upon levels of transport demand and patterns of travels?
iv. In what better ways can the adversity inherent in the multidimensional interactions of the variables involved be addressed?

Hence, amongst other things, attempt to provide answers to these queries, so as to illuminate the minds of all stakeholders with a view to addressing whatever challenges inherent in the determinacy of transport demand and travel patterns occasioned by the type of use to which land especially within major urban and semi-urban settlement that is the focus of this study.

2.0 LITERATURE REVIEW AND CONCEPTUAL DISCOURSE

2.0.1 CONCEPTUAL DISCOURSE

To understand this phenomenal of the comparative analysis of residential land use and commercial land use on transport demand; there is need to properly articulate it through some theories and concept, providing the lens through which the impacts of residential and commercial land use on transport demand could be explained. The following concepts were adopted in this study.

i. Land use and transport integrating model (Verma and Ramanayya, 2015).
ii. The four step transport demand model of McNally (2000)
iii. Integrated land use and transportation model Paully and Anette (2000).

i. Land Use and Transport Integrating Model: Verma and Ramanayya (2015) introduced this concept in to access the interactions between land use and transport system. Land use models can be integrated with travel demand models to reflect the interactions between the transportation system and land use development. Both households and businesses prefer locations with - everything else being equal- higher accessibilities, and therefore, are influenced by travel times that are an output of transportation models. The location choices of households, businesses and developers, in turn, influence the location and scale of travel demand that is calculated in the travel demand model. The integration of land use with transportation models has proven to improve the model sensitivities in scenario analyses. Common design principles show how different elements of land-use models work together. The importance of this concept to the study is to evaluate how land use models can be integrated to travel demand models to reflect the interaction between transportation system and land use.

ii. The Four-Step Transport Demand Model: Gaining prominence from the 1950s, the four-step travel demand model (FSM) has become the traditional tool for forecasting demand and evaluating performance of transportation systems and large scale transport infrastructure projects (McNally, 2000). The typical FSM consists of four distinct steps of trip generation, trip distribution, modal split and route assignment. Each step is intended to capture intuitively reasonable questions relating to: how many travels movements are made, where they will go, by what mode the travel will be carried out and

what route will be taken based on aggregate cross-sectional data (Mackett, 1993). Travel is modeled using trips as the unit of analysis based on origin-destination (O-D) survey. The spatial unit within which trips occur is represented as a number of aggregate Traffic Analysis Zones (TAZ) defined based on socio-economic, demographic, and land-use characteristics (Bhat and Koppelman, 1999; Fox, 1995; Martinez,2007). Trip generationmeasures the frequency of trips based on trip ends of production and attraction to estimate the propensity and magnitude of travel. At the trip distributionstage, trip productions are distributed to match the trip attractions and to reflect underlying travel impedance (i.e. time/cost), yielding trip tables of person-trip demands. The relative proportions of trips made by alternative modes are factored into the model at the stage of Modal split. At the final stage, Assignment/Route choice, modal trip tables are assigned to mode-specific networks. Generally, three different trip purposes; home-based work trips, home-based-non-work trips and non-home-based trips are defined in the model (McNally, 2000).

The relevance of the four step transport demand model to this study is to examine the frequency of trips i.e. the rate of trip generation and attraction, how trip productions are distributed to match the trip attractions, the proportion of trips made by alternative modes and also the route choice.

iii. **Integrated Land Use and Transportation Model:** The term "integrated" implies a feedback mechanism between the transportation and land use models. Paulley and Anette (2000) introduced this model in to access the feedback mechanism between transportation and land use. The transportation model deals with forecasting travel demand and determining the adequacy of the supply of transportation services. In almost all currently employed integrated models, the transportation model is a traditional four-step model that consists of trip generation, trip distribution, modal split, and trip assignment. The land use model, on the other hand, is concerned with modeling the demand for and the spatial distribution of employment, residential, shopping, and other activities to allocate the area's residents and workers to specific urban zones. The land use system supplies the transportation system with estimates of the location and volume of travel generators.

The travel costs resulting from the equilibrium between transportation demand and supply can be fed back into the residential and employment activity location models, which in turn modify its resident and employment location estimations. This allows transportation system changes to affect land utilization, which in turn feeds back its effects in the form of new levels and locations of traffic generation. The notion of locational accessibility here plays a central role in all currently operational models. As an integral component of such accessibility, travel cost changes become part of the mechanism used to reallocate labor, residents, retail and service activities, and when modeled, freight flows between spatially separated land uses. The relevance of this model to this research is to give an insight to how land use system supplies transport system with the estimates of location

and volume of traffic generators and attractors i.e. the interaction between land use and transportation.

2.0.1 LITERATURE REVIEW

Land use and transportation are mutually interconnected (Mitchell and Rapkin 1951). The use of the term "land use" is based on the fact that through development, urban space accommodates a great variety of human activities. Land is a convenient measure of space, and land use provides a spatial accounting framework for urban development and activities, (Silva, 2009). The location activities and their need for interaction create the demand for transportation, while the provisions of transport facilities influence the location itself. Land uses, by virtue of their occupancy, are taken to generate interaction needs (trip generation), and these needs are directed to specific targets by specific transportation facilities (trip distribution and modal split). The use of the transportation system creates congestion, which leads to user adjustments (recognized in a capacity constrained assignment). Several works have been done on the relationship between land use and transportation majority of which are concentrated in developed countries of the world. Transport is a land use itself and has the uniqueness of relating intimately with all other land uses. This interaction is understood when the town planners and engineers are able to predict the types and locations of future transportation, land uses and travel patterns. The interactive relationship serves as the basis for travel demand forecasting, which uses output of land use models as input, assuming that different land uses generate different levels of activity and travel. This plays a key role in whether a city is able to attract business" (Auclair, 1999).

Studies on land use and transportation in developing countries such as Nigeria in particular reveal several factors for the conflicts observed in many cities. Asuquo (1981) noted that land use and transportation are mutually embedded and that the organization of land use activities in any city basically rests on the effective linkages of the transport network system. Asuquo (1981) further noted that inadequately planned transportation systems, increase in demand of land for development and changes in land use activities/ patterns produce more pressure, confusion and social cost to the city and the inhabitants. Observation has been made that throughout the history of human settlements, transportation has always been closely related to the structure and density of settlement and the use of land and that transport route generates different land uses on its sides. The conflict between them obviously stems from the physical structure of towns as a result of structural conversion of buildings (Banjo 1984). Ayeni (1985) examined the traffic implication of the location of major economic activities in urban areas in Nigeria, using Agbowa Shopping Complex in Ogun State as a case study and contends that the location of such activities should be based on sound planning principles so as to eliminate the likely traffic problems that may develop when shopping complex becomes fully operational. Furthermore, Olanrewaju (1995) argued that the growth pattern and uncoordinated land use structure have complicated transport demand situation in Lagos, Nigeria and this same reason was noted by Fadare (1997) as being responsible for the transport problem in Ibadan. Transportation problems arising from conflicts with land use in

Nigeria have also received some emphasis in the works of other researchers such as Okpala (1980) in Enugu and Sule (1986) in Calabar.

2.1 The Land-Use-Transport Nexus: A Complex Two-Way Dynamic Process

A number of conceptual propositions have contributed to understanding the nature of the link between land-use and transportation. Wegener (2012) asserted that the 'land use- transport feedback cycle' offers one of the simple, yet insightful frameworks for conceptualizing the complex two-way dynamic link between the land-use system and transportation system. According to this framework, the distribution of land-use determines the location of activities. The need for interaction arises as a consequence of the spatial separation between the land-use activities. The transport system creates opportunities for interaction or mobility which can be measured as accessibility. The distribution of accessibility in space, over time, co-determines location decisions and so results in changes in the land-use system. In addition to the land-use transport feedback cycle, the 'Brotchie Triangle' has been useful in conceptualizing the land-use-transport symbioses. The framework shows the relationship between spatial structure/dispersal (e.g. degree of decentralization of working places) and spatial interaction as some measure of total travel (e.g. average trip length or travel time). Thus, the 'Brotchie Triangle' represents the universe of possible constellations of spatial interaction and spatial structure (Lundqvist, 2003). It allows various hypothetical combinations of spatial structure and their mobility implications, starting from a monocentric structure in which there is zero dispersion of jobs, to highly decentralize urban structures in which all jobs are as dispersed as population.

Despite the recognition that land-use interact with transportation, at least at the conceptual level, the mechanisms through which the systems impact each other have been difficult to isolate and measured empirically. This is because of the complex interaction among the several forces of physical, socio-demographic, economic and policy changes underlying the observed structure of the land-use and transport systems (Lundqvist, 2003; Wegener, 2012). The term land-use, for example encapsulates a variety of subsystems such as residence, workplace, and physical infrastructure as well as the outcome of complex urban market process (Mackett, 1993). Consequently, the underlying processes of change in the overall urban environment are difficult to track and much more complex to disentangle in both space and time.

Furthermore, there appears to be little consensus in the literature, on the causal mechanisms by which urban form influences travel and vice versa. Some studies have concluded that urban structural variables (i.e. density, diversity, design, destination accessibility and distance to transit) have statistically significant influence on travel behaviour (Aditjandra , Grim and Næss, 2013; Grunfelder and Nielsen, 2012; Handy, 2005). Other studies have however, reported marginal or weak causal link between commuting behaviour and urban form (e.g. Cevero and Landis, 1997; Chowdhury, 2013; Nelson and Sanchez, 1997). Despite the on-going intellectual debate, the fundamental principle that land-use impacts transport and vice versa, is acknowledged by many scholars and supported by empirical findings from different contexts.

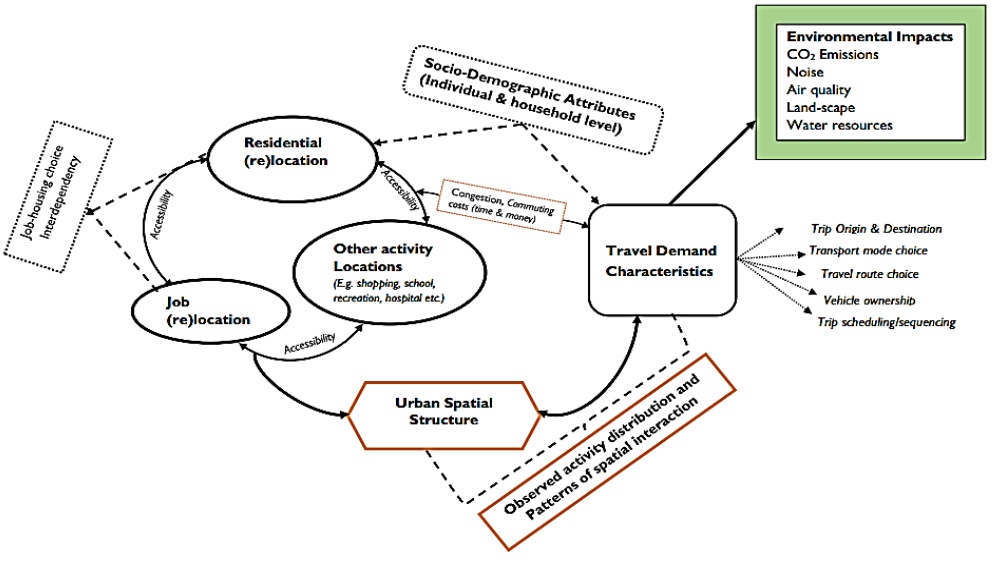

Figure 1: Land Use and Transportation Integration (LUTI) Model [Verma and Ramanayya, 2015]

3.0 MATERIALS AND METHOD

3.0.1 METHODOLOGY OF DATA GATHERING

The research study uses primary and secondary data. The questionnaires were of two different sections. The section A and section B; The questionnaire was carefully and technically designed to include information on household characteristics of respondents, socioeconomic characteristics, transport demand data which include the trip purpose, origin and destination of trips, transit mode used, trip type etc. A total number of 100 questionnaires were used in this study. 50 questionnaires were administered to sampled buildings in Oke Ola, and also 50 questionnaires were administered to sampled buildings in Igboro. The sampling technique that was adopted in this study was the random sampling technique i.e. the systematic sampling technique which involved selecting at regular intervals. This involves administering questionnaire to the first household head in every fifth (5th) house in both sides of the area. Also, the data collected from the study area were analyzed using the descriptive statistics technique (tables and percentiles).

Oke Ola

Oke Ola (Fig 3.4) is a classical example of an area that has developed rapidly in Ilaro, Ogun State. The Oke-Ola soils are mostly loamy and humus, rich in manure and elements that supports the growth of cocoa, cashew, pawpaw, plantain, oranges etc. The Oke-ola inhabitants have their farmlands at the extreme end of the community. The most dominated transport means in Oke-Ola is by motorcycle. The main entrance of the study area is located beside Conoil filling station and also the road is untarred. Other neighboring area includes Ikosi, Ona-Ola, Orita etc.

The study area is located in Ilaro, the headquarters of the Yewa south Local Government now known as Yewa land (Fig 3.3) which replaced the Egbado division of the former western state. It is located in the South western parts of Nigeria; its geographical coordinates are 6° 53' 0" North, 3° 1' 0" East. The temperature in Oke-Ola ranges between an average minimum of 23°C to a maximum of 34.2°C. The climate in Oke-Ola is suitable for travel throughout the year.

Igboro

Igboro is an area in Ilaro, Ogun State. Igboro (Fig 3.5) serves as a trade centre or the Central Business District (CBD) in Ilaro which accommodates different commercial activities and schools. The area also accommodates different historical buildings and monuments and also banking industry. Some of these historical monuments are the statue of Oronna and his Leopard which is still there for tourists and lovers of history to see, the Oronna hall, Asiri Abo food joint, the Christian Cathedral church etc. The banking industries are the Union bank, Skye bank, Wema bank and the Access bank. The major mode of transportation in Igboro is primarily by road, which links to different areas in Ilaro and also serves as a transport route that connects to other neighboring towns like Owode, Papalanto and Ibese.

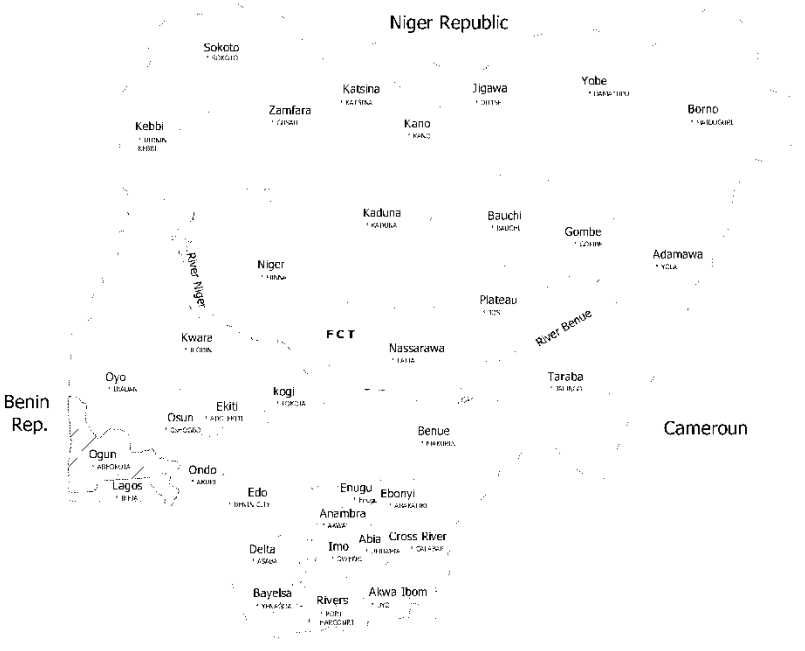

Figure 2: Map of Nigeria showing Ogun State

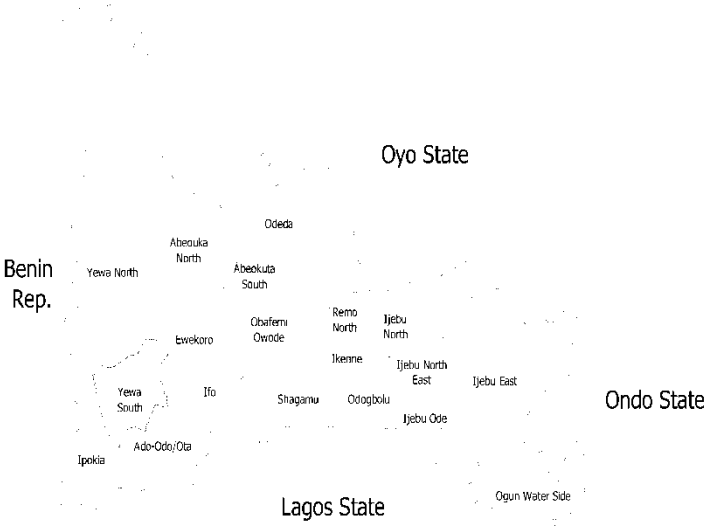

Figure 3: Map of Ogun State showing Yewa South L. G.

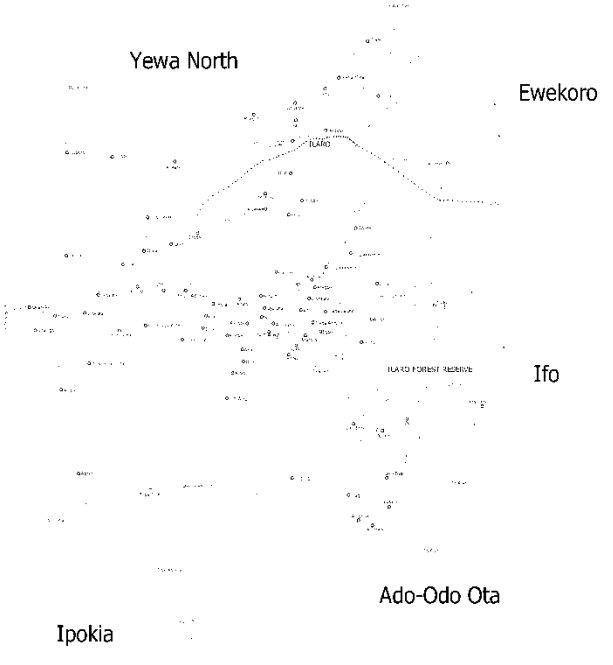

Figure 4: Map of Yewa South LGA showing Ilaro Township

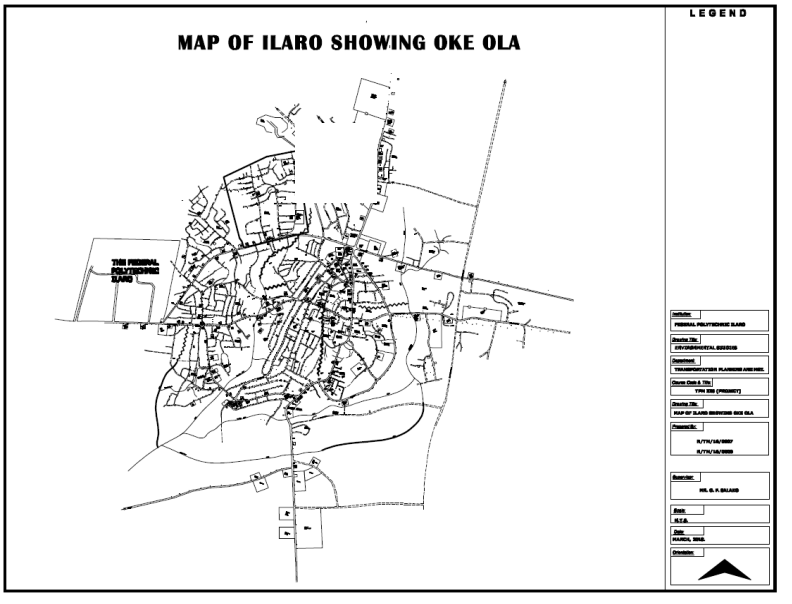

Figure 5: Map of Ilaro Township showing Oke Oka

3.0.2 METHODOLOGY OF DATA ANALYSIS AND RESULTS' INTERPRETATION

Section A:Demographic Data

The Table 1 reveals the personal information of both zone (Oke-Ola and Igboro) which connote residential area and commercial area. From the table 1, the male gender were more interviewed and responsive to the questionnaire, having 26 (52%) for Oke Ola, and 28(56%) for Igboro. At Okeola (residential area), majority of the respondent are Married 31 (62%) compared to that of Igboro (commercial area) having its majority has Single and Married 24(48%) each. In which more individual fall into the category of 25-35years age-structure 25(50%) for Oke Ola while, 29(58%) for Igboro; this explained that majority of the populace were active group been characterized for more productive and rapid economy growth in any developing region.

The household size is one of the factors to determine the frequency of trip making in a region hence the study revealed that out of 50 respondent in each cases, 25 (50%) have its size has 3-5 for Okeola and 18 (36%) for both less than 3 and 3-5 class at Igboro. also the analysis revealed that majority of the respondent are self-employed in each cases, 20 (40%) for Okeola and 29(58%). For Okeola axis, its majority obtained a monthly salary of N71, 000 and above representing 16 (32%) and a sum of N31, 000 – N50, 000 representing 19 (38%) for Igboro axis, thus more revenue would be allocated to trip-making in Okeola compared to that of Igboro.

Majority of the respondent were above illiteracy level having obtained a higher qualification than First school leaving certificate (FSLC), at Okeola 23 (46%) out of 50 respondent obtained a maximum of SSCE while, at Igboro 24 (48%) obtained a Tertiary certificate. Vehicle ownership in study areas were shown that majority of the respondent 24 (48%) have less than 2 vehicles at Oke Ola also, 31 (62%) out 50 respondents had less than 2 vehicles at Igboro. Respective locations of employment were also shown; majority of the respondent in Okeola had its location within Ilaro settlement representing 29(58%) while at Igboro had its location within Igboro representing 43(86%) validating the region has Central Business District (CBD).

Table 1: Personal Data (Oke Ola and Igboro)

			OKE OLA	**IGBORO**
1	Gender	Male	26 (52%)	28 (56%)
		Female	24 (48%)	22(44%)
		Total	50(100%)	50(100%)
2	Marital status	Single	13(26%)	24(48%)
		Married	31(62%)	24(48%)
		Separated	4(8%)	1(2%)
		Widow	2(4%)	1(2%)
		Total	50(100%)	50(100%)
3	Age	15-25yrs	9(18%)	6(12%)
		25-35yrs	25(50%)	29(58%)
		35-45yrs	12(24%)	11(22%)
		45yrs and above	4(8%)	4(8%)
		Total	50(100%)	50(100%)
4	Household size	Less than 3	10(20%)	18(36%)
		3-5	25(50%)	18(36%)
		5-8	14(28%)	12(24%)
		8 and above	1(2%)	2(4%)
		Total	50(100%)	50(100%)
5	Occupation	Civil servant	16(32%)	6(12%)
		Trading	7(14%)	15(30%)
		Unemployed	4(8%)	0 (0%)
		Self employed	20(40%)	29(58%)
		Others	3(6%)	0(0%)
		Total	50(100%)	50(100%)

6	Monthly salary	Less than N 31, 000	9(18%)	6(12%)
		N31, 000- N50,000	15(30%)	19(38%)
		N51, 000- N70, 000	10(20%)	11(22%)
		N71, 000 and above	16(32%)	14(28%)
		Total	50(100%)	50(100%)
7	Level of education	Primary	1(2%)	3(6%)
		Secondary	23(46%)	23(46%)
		Tertiary	19(38%)	24(48%)
		Others	7(14%)	0(0%)
		Total	50(100%)	50(100%)
8	Vehicle owners	Less than 2	24(48%)	31(62%)
		2-4	11(22%)	6(12%)
		4-7	2(4%)	0(0%)
		None	13(26%)	13(26%)
		Total	50(100%)	50(100%)
9	Location	Within study area	16(32%)	43(86%)
		Within Ilaro	29(58%)	7(14%)
		Outside Ilaro	5(10%)	0(0%)
		Total	50(100%)	50(100%)

Source: Researchers' Survey, 2019.

Section B: Transport Demand and Traffic Patterns

Table 2 revealed the journey information of the respondent in the study areas, at Okeola majority of the respondent travel everyday in week representing 29 (56.9%) also at Igboro representing 28 (54.9%) consequent upon this, they also use the available means of transport (road) irrespective of the region 28 (59%) at Okeola and 28 (59%) at Igboro. 22 (45.1%) of the respondent at Oke Ola assert that Affordability is the reason behind the use of the available means of transport while at Igboro, majority assert that Accessibility is the factor for the use of the available means of transport representing 27(54%). It is also revealed the cost of daily transportation, 17(33.3%) accounted for a sum of N50 - N100 at Okeola, while a sum of N100 - N200 accounted for 19 (38%) at Igboro.

The level of satisfaction of the available means of transport were revealed, at Okeola majority of the respondent 41(82.4%) were satisfied with the transit system also at Igboro, majority of the respondent 29(58%) were satisfied. Despite the level of satisfaction, respondent still prefer other modes of transport thus at Oke Ola majority of the respondent representing 23 (46.1 %) prefers rail transport also at Igboro, majority of the respondent representing 20 (40%) prefers rail transport. The origin of trips were also enlisted, majority of the respondent representing 48 (96%) originated at Oke Ola within Oke Ola zone while, majority of the respondent representing 11

(22%) originated at Ona Ola within Igboro zone. Destination of trips at Oke Ola zone, majority of the respondent representing 13 (26%) had its destination at Oke Ola while at Igborozone, majority of the respondent representing 43(86%) had its destination at Igboro.

Majorly at Oke Ola, time of trip making of the respondent accounted for am – am representing 40 (80%) also at Igboro it accounted for am – am representing 42 (84%). Also work purpose representing 40 (80%) and 36 (72%) majorly accounted for both journey purpose at Oke Ola and Igboro respectively. Home based trip were trip type at Oke Ola representing 49 (98%) while Non-home based trip were trip type at Igboro representing 47 (94%). The mode of travel were majorly private at Oke Ola representing 33(66%) also at Igboro representing 30 (60%). Both regions (Oke Ola and Igboro) had majorly motorcycle as its vehicle type representing 23(46%) and 26 (52%) respectively.

Table 2: Journey Information (Oke Ola &Igboro)

			OKE OLA	IGBORO
1	Travel per week	everyday	29 (56.9%)	28(54.9%)
		Twice in a week	4 (7.8%)	3(6%)
		3-5times a week	13(25.5%)	19(38%)
		Only weekend	4(7.8%)	-
		Total	50(100%)	50(100%)
2	Use of the available means of transport	everyday	28(59%)	28(59%)
		Twice in a week	3(5.9%)	6(12%)
		Thrice in week	19(37.3%)	9(18%)
		Others	-	7(14%)
		Total	50(100%)	50(100%)
3	Why use the available means of transport	Affordable	22(45.1%)	14(28%)
		Convenient	9(17.6%)	7(14%)
		Accessible	16(31.4%)	27(54%)
		Others	3(5.9%)	2(4%)
		Total	50(100%)	50(100%)
4	Daily cost of transportation	N50-N100	17(33.3%)	13(26%)
		N100-N200	15(31.4%)	19(38%)
		N200-N300	5(9.8%)	13(26%)
		Others	13(25.5%)	5(10%)
		Total	50(100%)	50(100%)
5	Level of satisfaction	Very satisfied	5(9.8%)	10(20%)
		Not satisfied	3(5.9%)	8(16%)
		Satisfied	41(82.4%)	29(58%)
		Others	1(2%)	3(6%)
		Total	50(100%)	50(100%)

6	Preferable mode of transport	Rail	23(46.1%)	20(40%)
		Road	15(30.4%)	21(42%)
		Water	10(19.6%)	8(16%)
		Air	2(3.9%)	1(2%)
		Total	50(100%)	50(100%)
7	Origin of trips	Oke –Ola	48(96%)	8(16%)
		Leslie	1(2%)	2(4%)
		Sabo	1(2%)	5(10%)
		Igboro	-	6(12%)
		Oke -Ela	-	6(12%)
		Library	-	3(6%)
		New garage	-	3(6%)
		Ona –Ola	-	11(22%)
		Fowobi	-	1(2%)
		Orita	-	2(4%)
		Outside Ilaro	-	3(6%)
		Total	50(100%)	50(100%)
8	Destination of trips	Igboro	10(20%)	43(86%)
		Oke Ola	13(26%)	-
		Library	4(8%)	1(2%)
		New garage	7(14%)	2(4%)
		Sabo	2(4%)	-
		Ona-Ola	4(8%)	-
		Fowobi	1(2%)	-
		Orita	3(6%)	2(4%)
		FPI	4(8%)	1(2%)
		Outside Ilaro	2(4%)	1(2%)
		Total	50(100%)	50(100%)
9	Time of trips	Am- am	40(80%)	42(84%)
		Am- pm	1(2%)	-
		Pm – pm	9(18%)	8(16%)
		Total	50(100%)	50(100%)
10	Journey purpose	Work	40(80%)	36(72%)
		School/ education	1(2%)	-
		Shopping/ personal	6(12%)	6(12%)
		Health	2(4%)	4(8%)
		Social/ recreation	1(2%)	2(4%)
		Home	-	2(4%)
		Total	50(100%)	50(100%)

11	Trip type	Home based trip	49(98%)	3(6%)
		Non- home based trip	1(2%)	47(94%)
		Total	50(100%)	50(100%)
12	Mode of travel	Private	33(66%)	30(60%)
		Public	17(34%)	20(40%)
		Total	50(100%)	50(100%)
13	Vehicle type	Car	16(32%)	14(28%)
		Bus	1(2%)	1(2%)
		Walking	10(20%)	9(18%)
		Motorcycle	23(46%)	26(52%)
		Total	50(100%)	50(100%)

Source: Researchers' Survey, 2019.

4.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

4.0.1 SUMMARY OF FINDINGS

The summary of findings on the comparative analysis of residential and commercial land uses on transport demand in Oke Ola and Igboro are highlighted below:

1. According to this study, the research was able to ascertain that most of respondents in Oke Ola have their location of employment outside the study area although within Ilaro; when compared to Igboro majority of the respondents have their location of employment in the study area (Igboro). This implies that more trips will be generated from Oke Ola and more trips is attracted to Igboro.
2. It was discovered that majority of respondents in Igboro use the available means of transport (motorcycle) because it is very much accessible to them unlike in Oke Ola where most of respondents in this study area use a mixture of private cars and motorcycle.
3. Also, this study was able to ascertain that motorcycle accounts for highest vehicle type being used for travel in both study area.

4.0.2 CONCLUSION

The demand for transport is a derived demand, individual use transport not primarily because of its direct benefit but in other to access other services. For the movements of passengers, the location of residential and commercial areas tells a lot about the generation and attraction of movements. Basically from this study, the residential land uses generate trips based on the individual located in the residential area. When compared to the commercial area being accessed in this study, it was discovered that more trips are attracted to this area that is Igboro; this is because individual has one or two need they have to satisfy in this area. Also, trips are generated from the residential area that is Oke Ola majorly because individual in this area do not find their needs around them then go to other locations to access their needs which made them demand for transport. Trip making by residential land uses do not have its trip end (destination) within its region but at other land uses such as commercial or public land uses.

4.0.3 RECOMMENDATIONS

1. Oke Ola which serves as the residential land use for this study should be structured or zoned with some adjoining commercial land uses to stabilise the demand for transport in the study area that is the trips generated and attracted.
2. Igboro which serves as the commercial land use for this study should be structured or zoned with some adjoining residential land uses to stabilise the demand for transport in the study area that is the trips generated and attracted.
3. Governments at all levels are advised to provide more affordable transport systems to the citizens.
4. Research of this nature should be encouraged and financed since the importance of transportation to man cannot be overemphasized.

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