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Disparity in Peri-Urbanisation Process in Lagos, Nigeria

Funmilayo M. Adedire

Abstract

This chapter assessed the causes of disparity in the peri-urbanisation process in Lagos new towns and the accompanying effect on the characteristics of the transitioning settlements. Data collection was primarily through administration of 384 and 370 questionnaires to purposively selected housing units in Ikorodu and Ibeju-Lekki, respectively. These two settlements represent the most rapidly urbanising peri-urban in Lagos State. Primary data collected included drivers of urban expansion, residents' demography, locational convenience and commuting frequency. To supplement the primary data, spatial images of 2006 and 2016 were acquired as satellite images from Google Earth archive for this study. Data analysis was carried out using descriptive statistics for the quantitative data and time series and satellite image analysis for the qualitative data. The results show a varying extent of transition primarily influenced by the residents' demography, linkages to the urban areas, quality of life and stakeholders' response to housing policy. The study concluded that urban policy should be used as a tool to ameliorate the disparity in infrastructure development, which is the major driver of changes, and also, government involvement in housing provision should have a spread in all urban periphery settlements in Lagos State.

Keywords: commuting, land use, peri-urbanisation, periphery, rural-urban linkages, socio-demography

1. Introduction

Peri-urbanisation in Lagos State is spearheaded by many actors often with conflicting interest [1]. The pattern and rate of land conversion from agricultural land use to residential and other land uses at the peripheral does not have corresponding infrastructure. Imbalance in changes in the peri-urban interface of most developing countries poses several challenges to planning and ultimately leads to a distortion in urban policy [2]. Urban transition in Lagos peri-urban interface is traceable to many factors, some of which include socio-demography, linkages to the metropolises, availability of basic services, availability and affordability of housing for the low income migrants and the state government policy on land use.

While the conversion of land at the peripheral of cities can enhance the provision of housing and space for industrial expansion [3], interactions of many forces at the peri-urban interface determine the sustainability. Primarily, the heterogeneous population makes it difficult for an effective community participation in the development of basic services [4, 5]. Urban quality of life is a function of

participative planning and, this is greatly influenced by the socio-demography of the migrants which are mostly of the low income group in the periphery [6].

Urban form is a major determining factor in the extent and pattern of expansion. The dispersed nature of peri-urban settlements in most developing countries encourages government's disparity in infrastructure development. This is a major factor influencing the peri-urbanisation process in developing countries. Lack of urban compactness constitutes an economic burden in terms of providing basic services [7]. Isolated settlements from the urban core suffer from lack of infrastructure due to distance and the financial implications. Ease of commuting also encourages rapid expansion in cities' periphery [1]. Investigation by Adedire and Iweka [8] shows that effective linkages through different means of transportation are a catalyst in the development of metropolitan fringe. The expansion of settlements is in response to extent of linkages [9].

This study seeks to fill the gap in research on peri-urbanisation process in Lagos periphery. Some research works have been carried out on land use changes, rural-urban linkages and environmental quality in Nigerian peri-urban settlements [1, 10–12]. But none of these researches had assessed the disparity in the transition trends and the implications on the urban quality of life in Lagos peri-urban. Therefore, the aim of this study is to examine the causes of disparity in peri-urbanisation process in Lagos, Nigeria.

2. Literature review

One of the accompanying negative effects of urbanisation in developing countries is outward expansion of built up area and conversion of agricultural lands into residential and industrial uses [13]. The peri-urban expansion is part of a wider urbanisation process; it is the consequence of urbanisation [14]. Urbanisation in Lagos State, Nigeria has attached to it, peri-urbanisation which is an urban-driven transition in the territory outside the metropolitan regions or urban core [15].

The peri-urbanisation process is mostly in response to growth in population and spatial demand for industrial and economic activities. It is the gradual transformation of rural land to urban as a result of physical and human interactions [16]. The basic distinguishing factors between the rural, peri-urban and urban are population, built up density, infrastructure, administration, boundaries and economies [17]. Spatial morphology of rural-urban region includes the urban core, urban inner area, the suburban area, urban periphery, and rural hinterland [18].

Notable transformations in the peri-urban include socio-demographic, morphological, cultural, economic and functional changes [19]. The urban periphery in most developing countries, allows multi-dimensional development. It accommodates industrial activities due to the limited land area in the city centre and also provides a means of housing for the urban population [20]. In addition, peri-urban settlements also serve as a major provider of housing for urban population in highly populated cities in developing countries [7, 20, 21].

With high population growth rate and continuous rural-urban drift in most developing countries, housing deficit becomes a critical challenge [22]. This creates a seized opportunities in real estate development in creating well planned towns in the peri-urban. Therefore, peri-urban settlements in African nations are emerging with massive investment in housing development and infrastructure development because of the possibility of lower houses price of housing, large living space and a better environment. In addition, location of housing in the peri-urban is enhanced by transport, accessibility to employment and services. This is partially responsible for the growth of peri-urban settlements in Lagos [1, 8].

Drivers of housing expansion in the peri-urban are perceived infrastructural development, improved socio-economic activities and development of the tourism sector [23]. With improvement in transportation and the rising household incomes, which enhances more vehicle ownership, housing development in African peri-urban settlements is also increased [19]. Also the decline in urban environmental quality influences residential development in cities' periphery of developing countries [6]. Improved transport infrastructure has aided the spread of most peri-urban radially in all directions. Transport and communications are key factors in addition to infrastructure in facilitating and encouraging urban-rural migration regarded as counter urbanisation [10, 24].

In addition, the relocation of economic activity to peri-urban zones of most developing nations gradually leads to pull factors in terms of opportunity to engage in small industry, property investment, and improved urban quality, cheaper land for housing and improved infrastructure. Locational benefits are enabled by closeness to places of work, which is made achievable by improved transportation and the presence of public and private institutions, also commercial ventures [25].

The roles of different actors also inform the type and extent of urban transition in the peri-urban. Notable actors are local farmers, peri-urban residents, entrepreneurs, property developers and government institutions [26]. Entrepreneurs represent the demand side of the land market due to the spatial demand for commercial and industrial activities. The supply and demand of land market is controlled by property developers having greater hold on monetary and political powers, and in return influencing changes in the interface. They fill in the gap created by laxity of government in terms of formal control [26].

3. Study areas

To compare and contrast the peri-urbanisation process in Lagos State, Ikorodu and Ibeju-Lekki are selected as case studies. Ikorodu represents the highly urbanised peri-urban in Lagos in terms of residential development and population growth while Ibeju-Lekki represents the least urbanised peri-urban in Lagos in term of population growth and housing development. Ikorodu is located in the North East of Lagos State along the Lagos lagoon and situated at a distance of approximately 36 km north of Lagos. It occupies a land area of about 345 km². It is situated at approximately latitude 6°36' North and longitude 3°30' East. Ikorodu had an enumerated population of 535,619. The sample frame constitutes the existing buildings in the peri-urban. Ibeju-Lekki local government area is approximately 75 km long and

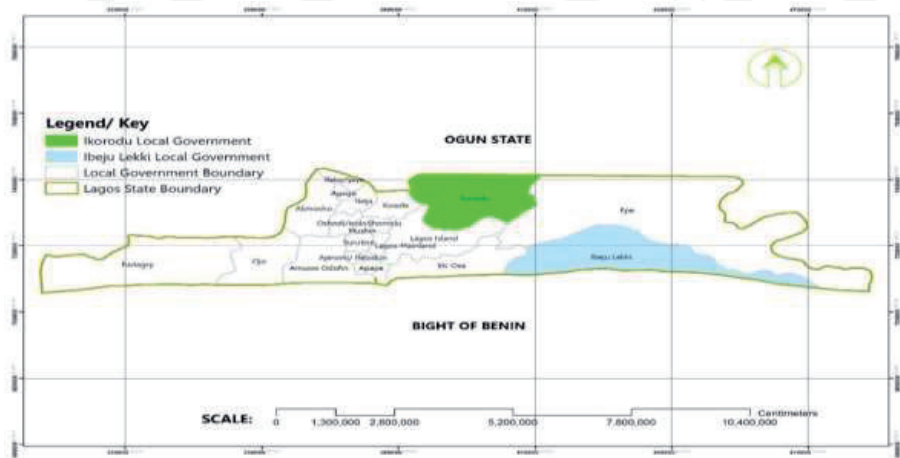


Figure 1.
Map of Lagos State showing the case studies. Source: Field work (2017).

about 20 km wide and has a land area of about 646 km², which equals one quarter of the total land mass of Lagos State. It is situated at approximately latitude 40°15' North latitude 40°17' North and longitude 13,015' East and 13,020' East. According to the National Population Commission [27] census, Ibeju-Lekki had a population of 117,481 out of Lagos State's total of 9,113,605 (**Figure 1**).

4. Methodology

Primary and secondary data for this study were extracted from the responses in the questionnaire, analysis of observation chart and the analysis of the spatial data. Quantitative data include the drivers of urban expansion, residents' demography, locational convenience and commuting frequency. Data analysis was carried out using descriptive method. Spatial data that is, satellite images were acquired from Google Earth while shape-files of the study areas were extracted from the state government's archive. Analogue spatial data were converted to digital and brought into ArcGIS environment in to reference them geographically.

5. Results and discussion

5.1 Land use changes between 2006 and 2016

It can be observed in **Figures 2a, b** and **3a, b** and that both Ikorodu and Ibeju-Lekki have experienced noticeable spatial expansion in terms of residential development between years 2006 and 2016. Ikorodu could be seen to have developed more in areal extent than Ibeju-Lekki as shown by **Figure 3** that greater percentage of the latter is still undeveloped. Ikorodu has less undeveloped area of land mass having experienced a surge in housing development within the study timeline. Urban expansion in both locations is motivated by different factors. Analysis of agricultural and residential land use in the study areas is presented in **Table 1**.

5.2 Chronological change in land use in the study area

Prior to 1980, peripheral settlements in the study areas were predominantly green areas used mainly for agriculture, conservation, water catchment, forest

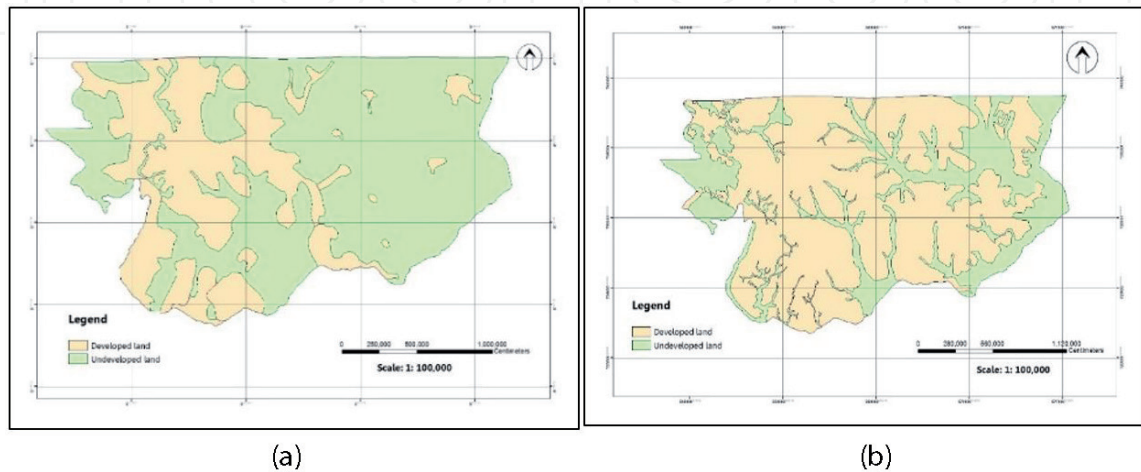


Figure 2.
(a) Extent of residential expansion in 2006. (b) Extent of residential expansion in 2016. Development trend in Ikorodu study area 2006–2016. Source: Field work (2017).

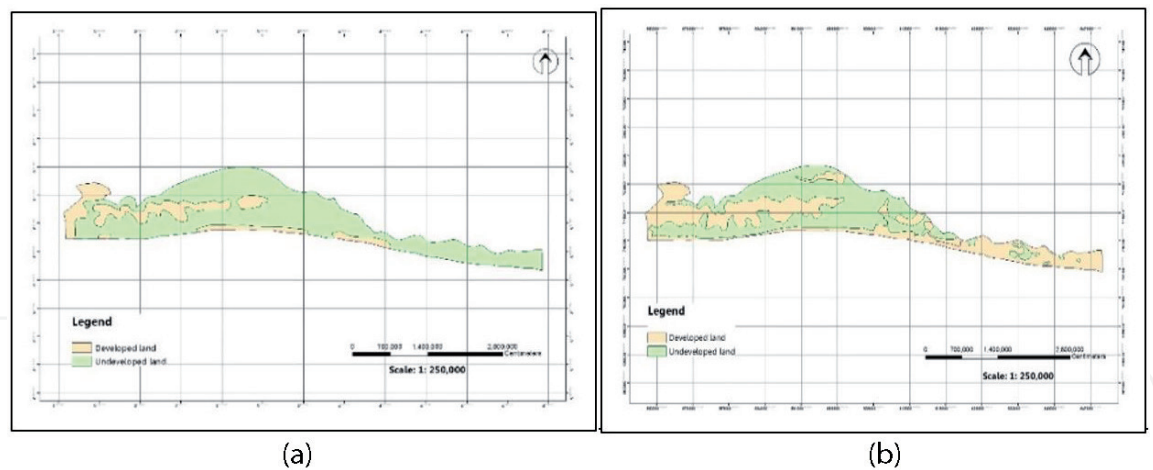


Figure 3.
(a) Extent of residential expansion in 2006. (b) Extent of residential expansion in 2016. Development trend in Ibeju-Lekki study area 2006–2016. Source: Field work (2017).

Land use	Pre-1980	1980–2000	2000	2002
Ikorodu				
Agricultural	—	18,236.94	17,268.72	21,084.94
Residential	622.23	8799.78	12,492.33	17, 972.62
Other land uses	36,321.19	9906.70	7182.36	7885.85
Ibeju-Lekki				
Agricultural	54,774.96	20,804.16	46,109.26	—
Residential	—	4049.27	6932.13	11,243.00
Other land uses	1830.06	31,751.60	3563.63	45,362.02

Source: Lagos State Ministry of Lands (2005).
*Other land uses: civic, commercial, business, conservation, water catchment, marshlands, fishing port, forest and wild palm trees, industrial, institutional, new ocean terminal, parks, open space, recreation and tourism, water body.

Table 1.
Pre-2006 agricultural and residential land use analysis in the study area.

and wild palm trees as shown by the analysis in **Table 1**. In Ikorodu, between years 1980 and 2000, agriculture became the major player in land use with gradual land conversion for residential purpose taking 8799.78 and 4049.27 hectares in Ikorodu and Ibeju-Lekki respectively. Residential land use continued to rise exponentially from 622.23 hectares in the year preceding 1980 to 17,972.62 hectares in 2002. Till date, agriculture and residential land uses have been the major forces behind the peri-urbanisation process in Ikorodu. The increase in residential land use in Ikorodu peri-urban is as a result of housing deficit in the neighbouring metropolitan area like Ikeja (the capital of the host state, Lagos). A gradual push into the peri-urban settlements by the saturation of core metropolitan Lagos due to rapid population growth and as a result of rural-urban drift led to residential development in all Lagos peri-urban settlements from year 1980.

The growth pattern in Ibeju-Lekki differs in terms of land use from that of Ikorodu. It has less land conversion. Also, residential land use in Ibeju-Lekki is not pronounced until 1980 when usage increased to 4049.27 hectares, and subsequently 6932.13 and 11,243.00 hectares in the year 2000 and year 2002 respectively. Peri-urbanisation in Ibeju-Lekki is a response to the development of the highways. Pioneering towns like Awoyaya and Abijo developed as a result of their closeness to the metropolitan centre of Lagos Island. Linear settlements grew along the

major highways while the growth of the inner periphery was in response to land speculation. With land reclassification and government acquisition of land for development, infrastructure limited was necessary thus aiding the opening of the inner periphery for mixed use development. Residential segregation and residents' socio-demography influenced the settlement patterns. Various types of settlements also grew in response topography, culture and political reasons.

5.3 Residents’ perception of urban expansion in the study area

From the perception of the residents, different factors were driving urban expansion in Ikorodu and Ibeju-Lekki periphery as analysed in **Table 2**. The major factors driving urban expansion in Ikorodu are low cost of living 20.8%, land affordability 18.2%, employment 16.1%, improved urban quality 12.9%, workplace location, and property investment. Ikorodu is known to house various institutions both private and public thus creating a haven for employment. In terms of land affordability, in comparison to the excessive cost of land in Lagos urban centre, Ikorodu provide good workplace and residential location at affordable cost. Other less important drivers are road accessibility, secured land tenure, cost of transportation, education and closeness to kinsmen. Peri-urbanisation process is driven by different principal factors in Ibeju-Lekki. In this periphery, major causes of the expansion in the study area are land affordability 27.3%, workplace location 14.8%, improved urban quality 15% and property investment 14.2%. Also vital to the growth of Ibeju-Lekki are employment and closeness to kinsmen. Government-led and private developer-led housing developments in the study area are on the increase because of the improved urban quality in Ibeju-Lekki.

5.4 Impact of residential land use on the study area

Data from the National Population Commission [27] census analysed in **Table 3** shows a huge leap in housing development in both Ikorodu and Ibeju-Lekki local government areas from the year 2006. Ikorodu local government has witnessed a more residential land conversion than Ibeju-Lekki. Housing developments in Ikorodu was 52,819 units in 2006, and 89,609 units in 2016

Drivers of expansion	Ikorodu		Ibeju-Lekki	
	N = 379	%	N = 366	%
Land affordability	69	18.2	100	27.3
Low cost of living	79	20.8	29	7.9
Workplace location	43	11.3	54	14.8
Improved urban quality	49	12.9	55	15
Employment	61	16.1	29	7.9
Study	7	1.8	3	0.8
Good and accessible road network	3	0.8	2	0.5
Low cost of transportation	10	2.6	1	0.3
Secured land tenure	14	3.7	15	4.1
Property investment	38	10	52	14.2
Closeness to kinsmen	16	4.2	26	7.1

Table 2.
Drivers of expansion in the study areas.

	Ikorodu	Ibeju-Lekki
Year	Housing units	Housing units
2006	*52,819	*7701
2016	**89,609	**11,749

*Source: National population Commission [27].
**Source: Field survey (2017).

Table 3.
Residential land use in the study area between years 2006 and 2016.

as obtained in the surface counting of selected 18 peri-urban settlements in Ikorodu. In Ibeju-Lekki local government, as noted by the National population Commission [27], a total of 7701 housing units were acknowledged in 2006 while during the surface counting of residential developments aided by aerial photographs during the field work in September, 2016, 11,746 units of housing were noted in the selected 16 peri-urban settlements in Ibeju-Lekki. In comparison to the urban core, individuals have access to affordable lands for housing and economic-related developments in the peri-urban and this is a major pull factor for peri-urbanisation in both cases.

5.5 Commuting patterns in the study areas

In the expansion of periphery settlements, linkages play a huge role. This comes in terms of interconnectivity between metropolises and the rural areas. Good commuting encourages a pull of urban population to the city periphery for residential and industrial development. The commuting patterns of the respondents in the case studies as presented in **Table 4** shows 38.8% of Ikorodu residents commute daily to the city, 36.1% on a weekly basis and 25.1% as the need arises. This reflects good level of linkage between Ikorodu periphery and the surrounding urban areas. The commuting hour shows 31.1% of the residents spend less than 30 minutes for daily commuting to work, 30.6% spend about 1 hour, 13.5% show a commuting time of 1 hour, 30 minutes, 16.6% spend between 1 and 2 hours, 5.8% spend 3 hours and other unspecified commuting time is about 1.6%. Residents’ purpose of commuting to the city shows 54.4% of the respondents’ population commute to the city for work, 23.2% for groceries, 20.3% for supply of their medium scale businesses and 0.6% for other needs.

In Ibeju-Lekki, 34.2% of the respondents’ population travel to the urban centres daily, 33.3% commute to the city centre weekly and 31.4% travel as the needs arise. The highest commuting time to and from places of work daily in Ibeju-Lekki peri-urban is 3 hours while the least commuting time is 30 minutes. 35.2% spends an average of 60 minutes (1 hour) daily commuting, 24.6% spend 90 minutes, 15.6% spends less than 30 minutes, 14.2% spends almost 180 minutes (3 hours) while 10.4% spend an average of 120 minutes (2 hours) commuting daily. 42.6% of the respondents travel for work related purpose, 30.3% travel to either the city centre and neighbouring peri-urban for groceries while 27% travel to the city centre for supply of materials for their enterprises.

5.6 Impact of locational convenience on spatial expansion of the study area

Convenience is vital in the expansion of cities ‘periphery’. Factors like closeness to work, closeness to market or the central business district, and availability of public transport were considered in the study areas.

	Ikorodu		Ibeju-Lekki	
	N = 379	%	N = 366	%
Frequency of commuting				
Daily	147	39	125	34.2
Weekly	137	36	122	33.3
Others (specify)	95	25	116	31.7
Average time of commuting				
Less than 30 minutes	118	31	57	15.6
31–60 minutes (1 hour)	116	31	129	35.2
61–90 minutes (1 and half hours)	51	14	90	24.6
91–120 minutes (2 hours)	63	17	38	10.4
121–180 minutes (3 hours)	22	5.8	51	13.9
Unknown	9	2.4	1	0.3
Purpose of commuting				
Work	206	54	156	42.6
Groceries	88	23	111	30.3
Supply for business	77	20	99	27
Others	8	2.2	0	0

Source: Field survey (2017).

Table 4.
Commuting patterns in the study areas.

5.6.1 Availability of public transport

Good public transportation system exists in Ikorodu as shown in **Table 5** and **Figure 4**. Among the respondents, 83.9% have access to good transport system while 15.6% do not. In Ibeju-Lekki, 22.1% of household heads lack good public transportation due to their residential location in the inner periphery. This is translated to high cost of transportation for residents without personal vehicles in such areas as shown by observation during the field survey. However, 77.6% indicated good public transportation at their disposal.

5.6.2 Closeness to work

In Ikorodu, good accessibility to work is enhanced by the strategic locations of most institutions and the efficient distribution of government organisations around both primary and secondary roads. 72.8% of the respondents’ population were privileged to have good proximity to their works while 26.9% were not as presented in **Table 5**. In Ibeju-Lekki, a greater percentage of the respondents have good workplace location than in Ikorodu. 85.8% indicated locational benefits while 14.2% are were negatively affected by their residential location in relation to places of work. These findings gives strength to Alonso’s access trade off model which states that the choice of residential location in periphery settlements could offer an opportunity lost and opportunity cost. A trade-off exists between cheaper land in the peri-urban and the hours of commuting (**Figure 5**).

Variable	Ikorodu		Ibeju-Lekki	
	N = 379	%	N = 366	%
Availability of public transport				
Yes	318	83.9	284	77.6
No	59	15.6	81	22.1
Unknown	2	0.5	1	0.3
Closeness to work				
Yes	276	72.8	314	85.8
No	102	26.9	52	14.2
Unknown	1	0.3	0	0
Closeness to CBD				
Yes	273	72	315	86.1
No	104	27.4	51	13.9
Unknown	2	0.5	0	0

Source: Field survey (2017).

Table 5.
Analysis of locational convenience in the case studies.



Figure 4.
Road networks and transportation system in Ikorodu periphery. Source: Field survey (2017).



Figure 5.
Workplace locations in Ikorodu periphery. Source: Field survey (2017).

5.6.3 Closeness to the central business district

In Ikorodu periphery, 72.0%, a reasonable size of the respondents had residential location advantage by virtue of their proximity to the central business districts, but 27.4% were disadvantaged. 86.1% of respondents in Ibeju-Lekki periphery were

close to the central business district while 13.9% were not close to the central business district leading to increased commuting to the city.

6. Conclusion and recommendation

There have been phenomenal changes in land use and land cover of Nigerian peripheral interface. New towns outside the metropolises of developing countries undergo expansion due to population growth and housing deficits in the urban areas. The spatial transformation is mostly accompanied with encroachment into the surrounding agricultural land. The study areas in this study are experiencing conversion in land use but differ in pattern and extent. Findings show generally that the major factors influencing peri-urbanisation are land affordability, improved road network and the emergence of gated exclusive housing developments by private developers in the peri-urban areas.

There exist disparity in the peri-urbanisation process in the study areas and this could be attributed to many factors, among which are the level of the linkages, locational convenience (both for workplace and residential development), people's socio-demography and the government housing policy. The degree of establishment of each of these variables in the study areas determines the rapidity of the peri-urbanisation process. The wider land conversion experienced in Ikorodu is traceable to the presence of these variables in the periphery.

Availability of good transportation network is a motivation for living in the suburb. Locational benefit is a huge pull factor to the peripheral for residential developments. The commuting pattern shows the interdependencies between the periphery and urban centres, mostly for socio-economic purposes. This corroborates the findings of [1]. Most peri-urban residents work in the city centre while having residential location in the metropolitan fringe. Both locations however have good proximity to the Central Business District. Also the ability of housing providers to put locational convenience into consideration would promote balanced development.

Linkages show that the peri-urban cannot function in isolation. The first case study, Ikorodu has been subjected to rapid changes due to locational convenience and availability of public transportation. The frequency of commuting in Ikorodu is more than that of Ibeju-Lekki. Findings show work-related activities as the major reason for commuting to the urban centre in Ikorodu peri-urban. Commuting time from the peri-urban to the city centre for various activities is longer in Ibeju-Lekki than Ikorodu and this could be attributed to the nature of the settlements that are mostly dispersed.

Also improved infrastructure and concentrated development of institutions in Ikorodu are major contributors to the rapid expansion of the peri-urban interface. The peri-urbanisation process is usually slowed down where there is dearth of infrastructure and socio-economic institutions. It can be concluded that equality in infrastructure development will limit disparity in peri-urbanisation process. Prior studies by Binns et al. [11] and Lawanson et al. [1] have shown that Lagos as a rapidly urbanising region is not exempted from the peri-urbanisation phenomenon.

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