



Impact of Central Business District Attributes on Land Use and Value in Niger and Nasarawa States, Nigeria

Farooq H. Gimba^a, Micheal T. Ajayi^b, Sekinat Abdulkareem^a, Jonathan U. Adama^a

^aDepartment of Estate Management and Valuation, Federal University of Technology, Minna.

^bDepartment of Estate Management and Valuation, Niger State Polytechnic, Zungeru.

farooqhnigerpoly@gmail.com

Abstract

The dynamics in central urban landscape is significantly stimulating land use and value in the adjoining residential neighbourhoods. However, identifying and extricating these geo-economic indices of the central districts which influences urban land use and value have been an unresolved challenge. This problem has made land use decision process shrouded with ineffectiveness, thereby undermining the impact that continues sprawling of economic activities has on residential property rental value within the fringe of central business districts. In this context, the study reviews literature relating to the subject of the study. This study examines the impact of central business district (CBD) attributes on land use and value in Karu and Suleja, urban centres in North-central Nigeria. The study employed conceptual framework approach to collect qualitative data via databases. The data collected were presented through a desktop review of concepts relating to the study. The findings reveal that characteristics such as extensive business services, peak land value intersection, high employment density, vertical building density, and concentrative traffic transfer significantly influence land use patterns and residential property values in fringe areas. Recommendations include strategic planning for commercial land use allocation to mitigate uncoordinated urban sprawl and harness residential property investment potentials.

Keywords: Adjourning Residential Neighbourhoods, Central Business District Attributes, Land Use Pattern, Urban Planning, Urban Fringe, Residential Property Values.

1. Introduction

The exponential growth of economic activities around the central business districts is global phenomenal occurring over time in cities of developing countries (Afolabi *et al.*, 2018). The physical and socioeconomic characteristics of central districts' activities have become a source of concern in land use decision process, as the urban land values in the adjoining residential neighbourhoods are greatly influenced (Gwamna *et al.*, 2016). Most often, owing to high intensity of land exploitation and uses, central business districts usually command peak land value intersection in urban centres (Yagang 2021; and Baadam *et al.*, 2024). In most Nigerian mega cities, the characteristics of central business districts are basically assessed by their functional services, physical layout and varying degrees of economic activities around the urban areas (Burdett, 2019 and Oduwaye, 2013). Nelson (2020), Since the central business districts represent the comprehensive gathering of urban population and distributing of land uses. The great variety of interdependent activities characterising the central districts account for about 70% of the urban function (Baadam *et al.*, 2024). As submitted by Mayaki (2017) and Yagang (2021), the fabrics of modern central business districts, are basically ranging from high employment density, peak land value intersection, vertical building density, extensive business services, as well as concentrative traffic transfer. The interplay of these components has significant impact on land use and value in the adjoining residential neighbourhoods (Baadam *et al.*, 2024).

As the urban population grows rapidly, there has been a general increase in the level of demand for land uses; of a particular note is the commercial land uses, resulting to economic activities sprawling on to the fringe of central business districts; having a sharp corresponding increase in rental value of residential property/land (Oduwaye, 2019 and Baadam *et al.*, 2024).

The rising pressure on demand for commercial land uses generally, is accompanied by specific form of land use changes; a particular note is the residential to commercial properties conversion, (Gwamna *et al.*, 2016; and Salihu *et al.*, (2020). Phenomenally, the numbers of residential land/building taken over by commercial uses are not proportionately replaced within the same fringe of the central districts. This disproportionate replacement of converted residential property has caused a shortfall in the overall housing stock, and consequently stimulating rental values of the existing housing stock (Adebayo *et al.*, 2020). This has been a case for most urban areas in North-

Central Nigeria. This paper therefore attempts to reviews the impact of central business districts' characteristics on residential land use and value in Karu and Suleja urban areas of North-Central Nigeria.

1.1 Contemporary Issues in Land Use and Value around CBD-Fringe of Urban Centres

Since commercial land use occupies the centrality of modern cities. This phenomenon is crucial in determining the shape, layout pattern and intensity of activities around the central business districts (Baadam *et al.*, 2024). However, the uneven distribution of commercial land uses around the central districts have been responsible for sprawling of economic activities on to the adjoining residential neighbourhoods in Nigerian mega cities; and consequently, resulted to indiscriminate and uncoordinated changes in land use (Baadam *et al.*, 2024; Mukherjee, 2024; and Markus *et al.*, 2020). As investigated by Sydney, (2012); an urban centre experiencing rapid economic growth faces continuous changes in residential to commercial land uses; and resulting to degradation of urban quality in diverse ways. These attendants' urban issues generated from the central districts is apparent in heavy traffic, serious pollution and excessive utilization of urban infrastructures (Yagang (2021).

Several studies have examined the causal factors responsible for residential land value increase in the fringe of the central areas; focusing more on the demand pressure on commercial land uses (Markus *et al.*, 2020). It has been proven in the work of Ooi and Lee (2016), that urban land values are modeled as a function of macroeconomic factors like demographic, national income, inflation rate, interest rate, and the overall housing portfolio in a given economy. From the supply side of land market, a number of studies have also examined the issue of land value variation as attributed to the dynamism around the central business districts fabrics, by focusing on the effect of limited land supply in urban centres on residential property development. Ooi and Lee (2014), reported that about 35% of escalation of residential land value in transition areas of London between 1970 and 1990 could be linked to land supply constraints. Adebayo (2009), similarly contend that a substantially, rapid increase in urban land value experienced in the metropolis of Lagos resulted from an under-allocation of land for commercial and residential property development.

An in-depth analysis of the dynamics in land use and value relating to functional attributes of central business districts has warranted for articulation of a logical thought as regards to the characteristics of central business district activities vary across cities; factors necessitating for commercial activities changing location from the central business districts to the adjoining residential neighbourhoods; encroachment of commercial land uses on to the residential areas contribute to variation in land value; and land use changes at different spatial scales in residential areas adjoining to the central business districts. Obviously, the characteristics of central business districts' activities and how it affects land uses at different spatial scales.

2. The Study Area

At both general and specific scales, the study focuses on the review of contemporary issues on central business districts characteristics as it affects land use and value in the adjoining residential neighbourhoods. Rental values of residential property are taken into consideration instead of sales values or capital values due to the fact that lettings are more frequent or regular than sales in most cities of Nigeria (Ajayi *et al.*, 2013; Oduwole and Eze, 2013); a particular regards to Karu urban in Nasarawa state and Suleja town in Niger state in North-central region of Nigeria. Geographically, North Central Nigeria otherwise known as the Middle-Belt Region, situating around the confluence of the River Niger and the River Benue. This region consists of the nation's capital city, Abuja and six other states such are Nasarawa, Niger, Benue, Kogi, Kwara, and Plateau States.

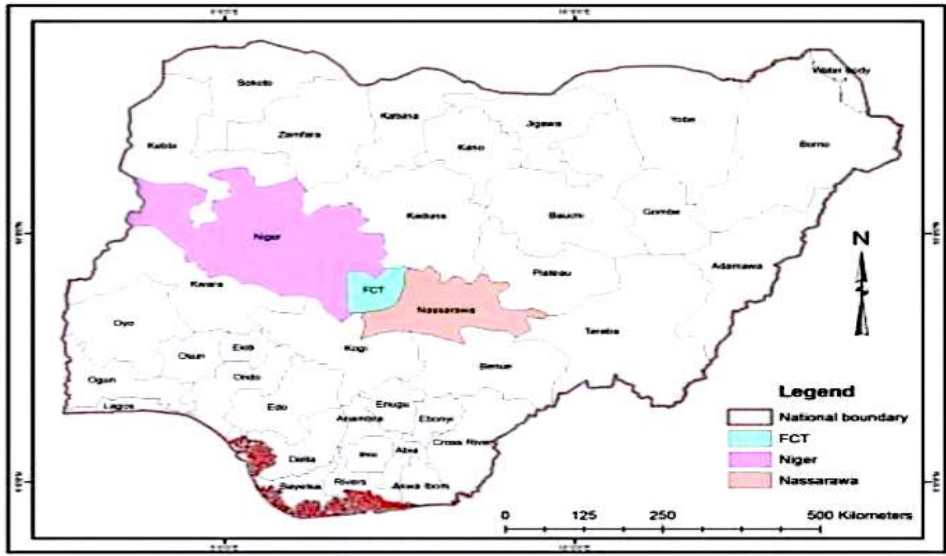


Figure 1.1: Map showing Land Mass Area in Niger and Nassarawa States of North-Central Region of Nigeria. Source: Niger State Ministry of Lands and Housing, (2015).

However, the description of the study area is strictly dwelt on Nasarawa and Niger states. The economically valuable minerals found in the zone are coal, tin and columbine, coal, limestone, iron, petroleum, tourmaline, tantalite, gold, marble, kaolin, bauxite, quartz, granite stones, kaolinite, barite, gypsum, feldspar, salt and gemstone.

Table 1.1: Some Demographic and Economic Indicators in Nasarawa State and Niger State of North Central Zone of Nigeria

States/FCT	A Land Mass Km	B Population (Million)	C GDP (\$Billion) 2007	D Per Capita (\$) 2007	E HDI 2018
Nasarawa	27,117	1.86	3.02	1,588	0.574
Niger	76,363	3.95	6.00	1,480	0.482

Sources: National Population Commission-National Census (2006); Canbac Global Income Distribution Database & Sub-national Human Development Index (2018).

Almost half of the developed areas are in the high density of the selected cities within the region. There are variant classes of informal sector activities in the region; the first class consists of farmers, hunters, etc. While commercial activities constitute the second larger activities and service/industrial activities. The sudden and enormous increase in the population and commercial activities in the region has led to an intensification of CBD-Activities (Ijaiya and Ijaiya, 2021).

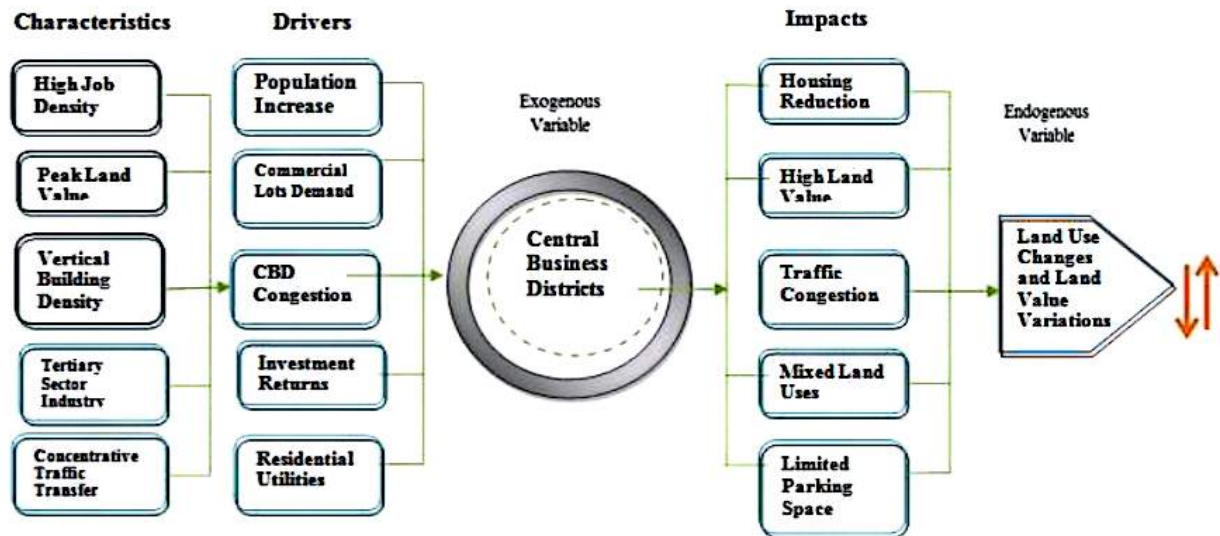
2.1 The Conceptual Clarification

The Central Business Districts remain the predominant and prevailing component of mega cities in Nigeria; offering strong radiating functions that shape the pattern and of land uses and property values (Adebayo *et al.*, 2020). This phenomenon may have high grade of positive or negative impacts on the adjoining residential neighbourhoods. Positive impact is when activities characterizing the central business districts tend to bring about coordinated land uses and thereby, enhances land/property values in the adjoining residential neighbourhoods. (Lyaruu and Sanga, 2023); while, the negative impact of the characteristics of central districts concurrently lies on the increase of economic activities and reduction in housing stock in closed distance residential areas (Daniel *et al.*, 2013).

The overall factors driving central business districts activities were obtained from relevant literature on spatial analysis of land use changes and it impact on land values across the Nigerian urban centres and the globe. It is pertinent to express that, literature on urban land use changes especially the spatial dimension of central business districts characteristics is not substantially available in Nigeria. This therefore, prompts this study to analyse previous studies that have been carried out relating to this research at a global perspective. This framework therefore, reviews a logical procedure of conceptualising the impact of central business district characteristics on land use and value (Adebayo *et al.*, 2020); thereby adopting from the Drivers -Trends-Impacts in analysing the

changes in land use as well as land value variation on the basis that central business district is a critical component of urban areas that determine the pace of the urban development (Saynajoki *et al.*, 2014).

The framework is diagrammatically represented as thus:



26. Figure 2.1: The Conceptual Review for the Study.

(Adapted from (Sydney, 2012, Tomisi *et al.*, 2016, Gwamna *et al.*, 2016; Burdett, 2019; and Mayaki, 2017; Yagang, 2021; and Lyaruu and Sanga, 2023).

2.2 Assessing the Drivers, Trends and Impacts of Central Business Districts Characteristics on the Adjourning Land Use and Value in Urban Centres

In most cities in Nigeria, the central urban land scape is basically assessed by their functional services provided which comprises of middle and high order economic activities (Burdett, 2019); the socio-physical compositions and layouts to include high employment density, peak land value intersection, vertical building density, concentrative traffic transfer, extensive business services and tertiary sector industry; as well as the varying degrees of economic activities interplay in spatial distribution of land uses ranging from financial activities, professional activities, educational engagements, retail activities, as well as art and cultural activities.

This study firstly, adopts the research frameworks by Sedney (2012), Tomisi *et al.*, (2016), Gwamna *et al.*, (2016) Burdett, (2019); Mayaki, (2017); Yagang, (2021); Lyaruu and Sanga, (2023). In their various studies, it was reviewed that the factors driving commercial activities from the central business districts to the adjourning residential neighbourhoods are mainly urban population growth, congestion in central areas, maximising investment returns, intra-urban migration effects, availability of residential infrastructural amenities, increase demand for commercial premises, changes in choice of location, accessibility, safety and security. The findings from previous researches relating to this study indicate that land use succession, has the propensity in resulting to variation in property values, other noticeable impacts are increase in residential properties rental values and reduction in housing stock (Sydney, 2012). Among several others could be: traffic congestion, residential facilities over stretch and mixed land uses (Adebayo, 2009).

Economic conditions play an essential role in shaping the spatial orderliness of cities with employments and fiscal frameworks as key economic indicators (Zhang and Gu, 2021). In a related vein, demographic variables emerges as crucial driver of activities of the central districts to the adjourning residential neighbourhoods which shapes the human settlement pattern by giving insights into locational preference of commercial uses (Shimizu, 2021). In urban land market and the composition of central districts significantly influences spatial distribution of landed properties and invariably determines property values (Yawaldi, 2012).

The philosophy of this study dwells on demand and supply forces; emphasizing that drivers of central district activities are between those that have a long-run impact and those with short term impact on land uses and values. Nigel and Williams (2019), illustrate the significant interrelationship that exists between central business districts characteristics and residential land uses; explaining that when the total quantity of residential lots in an urban area remain constant, and that there is a boom in the overall economy, the demand for housing would increase resulting to upward rise in land price. Land users in the low and moderate households have the tendency to move peripherals for relatively cheap lands (Gwamna *et al.*, 2016). In this scenario, it's obvious that urban gentrification is realistic through the lenses of central business district activities sprawling onto adjourning residential

neighborhoods; and consequently, results to shortfall in the overall housing stock in a given urban area (Sydney, 2012).

2.3 Land Use and its attendant determinants

Land is a platform of all man's activities to include economic, social and spiritual element for living and production (Lu and Guldmann, 2012; (Lu and Guldmann, 2012; Alam, 2014; and Alam, 2014). Wyatt and Subedi (2013), submits that land is the focal point of human engagements upon which food, water, air and other resources are found for life continuity. Land use in the urban areas is the basis of urban function, upon which basic and social needs like food, shelter, space and room to relax are obtained (Chiwuzie *et al.*, 2019). The use of land encompasses all the numerous uses in which land enable man to meet up with needs which may be for purposes of Shelter; Trade, Commerce and Industry; Agriculture and Leisure; and road network development ((Johnbosco and Nnaji, 2011). The concept of land entails modification of the natural environment in to the built environment by a way of integrating human activities through harnessing services provided by terrestrial ecosystem (Mothorpe and Wyman, (2021).

Badland *et al.*, (2023), established that the determinants of land use can be viewed from two perspectives: the economic determinants of land use are characterised by the forces of demand and supply; and the socially rooted determinants of land use include ecological processes with their physical context as well as organisational processes with their social structural context.

2.4 Land Value and its Influencing Factors

Shapiro *et al.* (2009), have opined that the value of a particular interest in landed property may be viewed as the amount of money which can be obtained for the interest at a particular time from persons able and willing to purchase it. Value is not intrinsic but results from estimates, made subjectively by able and willing purchasers, of the benefit or satisfaction they will derive from ownership of the interest. Several factors are therefore, attributed to influence urban land values, residential lands in particular. The major subthemes influencing residential land values to include demand and supply, location, economic atmospheres, public regulations, demographic size, geospatial features and financial mechanisms (Van Dijk *et al.*, 2022).

2.5 A Review of Empirical Studies on CBD-Characteristics and its impact on Land Use and Values in Cities

John and Ming (2013), in an empirical study of the America residential property market, titled: 'The evolution of Commercial Strip', reviewed the influence of an arterial commercial strip in an residential neighbourhood which reveals that automobile businesses were steadily trooping in to the district; and indicate a significant relationship between residential land converting to commercial land use; thereby resulted to variation in housing prices in close proximity to the central area of Chicago. Ooi and Lee (2014), in a study of the relationship between residential land value and housing market in Singapore, which reported that about 35% of escalation of residential land value in transition areas of London between 1970 and 1990 could be linked to land supply constraints. Adebayo (2009), in a similar direction, carried out a study on impact of urban Land use changes on property values in Metropolitan Lagos; and contend that a substantially, rapid increase in urban land value experienced in the metropolis of Lagos resulted from an under-allocation of land for commercial and residential property development.

Yi and Lee (2014), in their study of demand and supply of housing stock in China Republic, the findings of the study identified that the residential property rental values appreciation in the fringe of central business districts was one of the positive impacts of sprawling of commercial land uses to the residential areas. Brent and Gonas (2013), conducted an investigation on economic implications of planning regulations on the Lexington kentucky housing market in order to ascertain the future possible scenario in the land use changes as well as variations in property value that might occur in years ahead; and discovered that extension of commercial land uses onto the residential areas is critical in changing the structure of the housing environment.

3. Methodology

The study employed a longitudinal approach to collect qualitative data. The data collected were analysed with the aid of qualitative method of data analysis by a desktop review of concepts relating to the dynamics in central business districts as it influences urban land use and value.

This study engages secondary Source of data collection that is, archival data and extracts from the relevant planning offices. Other published materials were journals, conferences papers, related academic thesis and dissertations, consultancy reports and online sources.

4. Conclusion and Way Forward

The implication of this study is that there are raising expectations on further commercial land use sprawling on the adjoining residential areas, due to congestion in the central business districts; thereby, triggering rental values of

residential property. This is a signal for real estate investors in channeling their investment windows, being that residential property is prevailing in the real estate market in Nigeria. The concludes that extensive business services, peak land value intersection, high employment density, vertical building density, and concentrative traffic transfer among others are the top most characteristics of central districts influencing land use and value in the adjoining residential neighbourhoods of the study area.

The study therefore, recommends that emergence and development of central business districts should be remotely monitored and adequate space for commercial land uses along the access roads of residential areas be reasonably allotted in the planning schemes; in order that sprawling of economic activities into the adjoining residential areas could be controlled and thus, harnessing the potentials in residential property investment in the study areas.

References

- Adebayo, M.A. (2009), Impact of Urban Land Use Changes on Property Values in Metropolitan Lagos. *The Social Sciences*, 4(1), pp. 111-117.
- Adebayo A., Greenhaigh P. & Muldon S. K. (2020), Investigating Retail Space Performance through Spatial Configuration of Consumer Movement: A Comparison of York and Leeds'. 12th Space Syntax Symposium (SSS). Beijing China, July 2020.
- Afolabi A., Ojelabi, R., Tunji, O. P., Omuh, I. & Afolabi, A., (2018), Quantitative Analysis of Socio-Economic Drivers of Housing & Urban Development Projects in Megacities. *International Journal of Civil Engineering & Technology (IJCIT)*, 9(6), 1096-1106.
- Ajayi, M.A., Omole, F.K., Ogunleye, M.B. and Bako, A. (2013). Effect of Landscaping on Residential Property Values in Akure, Nigeria. *Scottish Journal of Arts, Social Sciences and Scientific Studies*, 16(1), pp. 83-93.
- Alam, J. (2014). *Determinants of Land Use Change in South-west Region of Bangladesh*. Khulna University, Bangladesh: B.S.S Thesis.
- Badland, H., Villanueva, K., Alderton, A., Davern, M., & Goldfeld, S. (2023). An urban neighbourhood framework for realising progress towards the New Urban Agenda for equitable early childhood development. *Children's Geographies*, 1–19.
- Baadam L. E., Aselemi A. E. & Kpalap E. M. (2024), Impacts of Central Business Districts on the Rental Values of Commercial Land Use Properties in Port Har Court City. *A Journal of Entrepreneurship & Business Studies. Academia Networks International of Management Research* 8 (5): 20-28.
- Burdett M. (2019). Economic Activity Characterising the Central Business Districts.
- Brent A. & Gonas D. (2013), *Overview of the commercial real estate industry*
- Chiwuzie, A., Dabara, D. I., Adenipekun, T. M., Prince, E. M., & Ajiboye, B. O. (2019). Tenant's demand for structural attributes in residential properties: The case of Ede, Nigeria. *Nigeria (August 11, 2019)*.
- Daniel B. & Obadiah B. (2013), The Emerging Central Business District in Lafia Town, Nigeria. And its Related Urban Planning Problem. *International Journal of Business and Economics Engineering. Vol:7, No:3, 2013*.
- Gwamna, E.S. & Wan Yusoff, W.Z (2016), *The Impact of Urban Land Use Changes on Residential Property Rental Values in Kaduna Metropolis, Nigeria*. *The Social Science*, 11(5), pgs. 7097-7106.
- Ijaiya, G.T. & Ijaiya, T.A., (2021), Economic Governance and Management in the North Central Zone of Nigeria. A Commotion Paper written ffor NEPAD/APRM State Focal Pensions in the North Central Geo-Political Zone of Niigeria, 2021.
- Johnbosco, E.U. & Nnaji, A.O. (2011). Influence of Landuse Patterns on Otamiri River, Owerri and Urban Quality of Life. *Pakistan Journal of Nutrition*, 10(11), pp. 1053-1057.
- Lu, J. & Guldmann, J.M. (2012), Landscape ecology, Land-use structure, and Population density: Case study of the Columbus Metropolitan Area. *Landscape and Urban Planning*, 105, pp. 74-85.
- Lyaruu C. & Sanga S. S. (2023), *The Spatial Dimmensions of Real Estate Markets: Analysis of Spatial Effects on Rental Values in the CBD Wards of Kisutu, Kivukoni and Mchafukoge in Dres Salaam*
- Markus T., Nazaruddin M. & Dwin N. A. (2020), An Analysis on the Factors which Influence the Development of Central Business District (CBD) Property Polonia, Medan.
- Mayaki, S. (2017), *Urbanisation and Housing Development in Nigeria: The Journey so far*.
- Mothorpe, C., & Wyman, D. (2021). What the Frack? The Impact of Seismic Activity on Residential Property Values. *Journal of Housing Research*, 30(1), 34–58. <https://doi.org/10.1080/10527001.2020.1827579>
- Mukherjee S. P. (2024), *Urban Geography*. Lecture Material, Department of Geography, University of Ranchi.
- Nelson H. (2020), Spatial Organisation of Retail Activities. JIBS Dissertation Series No. 136, 2020. Jonkoping University.
- Nigel D. & Williams B, (2019), Partnerships in urban property development, Wiley and Blackwell Limited, West Essex, London, UK.

- Oduwole, H.K. and Eze, H.T. (2013). A Hedonic Pricing Model on Factors that Influence Residential Apartment Rent in Abuja Satellite Towns. *Mathematical Theory and Modelling*, 3(12), pp. 65-73.
- Oduwaye, A.O. (2019), Correlations of Urban Land Value Determinants in Lagos Metropolis, Nigeria. *Journal of Human Ecology*, 17(3), pp.183-189.
- Oduwaye L. (2013), *Urban Planning Implications of Changing Land Use Structure of Metropolitan Lagos, Nigeria*.
- Ooi T. L. and Lee S. (2016), Price Discovery between Residential Land & Housing Markets. *Journal of Housing Research; volume 15 issue2*.
- Saynajoki E., Inkeri V., Heinonen J. & Junnila S. (2014), How Central Business District Developments Facilitate Environmental Sustainability. A Multiple Case Study in Finland.
- Shapiro, E., Davies, K. & Mackmin, D. (2009). *Modern Methods of Valuation*. 10th edition. London: Estates Gazette.
- Shimizu, C. (2021). Demographics, Property Prices, and Credit Conditions: Analysis Based on Panel Data from 17 Countries Over a Half-Century. *Available at SSRN 3875963*.
- Sydney A. (2012), An Analysis of Residential to Commercial Land Use Changes in Lusaka City (A Research Thesis of the Department of Real Estate Studies, Copper Belt University).
- Tomisi A. Oluwatosin F. & Samson A. (2016), Determinants and effects of change in use on property rental value. A case study of Ibara/Oke-iiwo area, Abeokuta, Ogun State, Nigeria.
- Van Dijk, D. W., Geltner, D. M., & van de Minne, A. M. (2022). The dynamics of liquidity in commercial property markets: Revisiting supply and demand indexes in real estate. *The Journal of Real Estate Finance and Economics*, 64(3), 327-360.
- Wyatt, P. & Subedi, G. (2013). An Investigation into the Relationship between Land Administration and Development of Economic. *RICS Research Report*, June.
- Yagang S. (2021), Development and Characteristics of Central Business District under the Philosophy of Health. *International Conference on Green Buildings and Sustainable Cities; Dalian University of Technology, School of Architecture & Fine Art, Dalian116023, China*.
- Yawaldi I. (2012), The relationship between Land Price and Distance to Central Business Districts in Bekasi.
- Yi, C. & Lee, S. (2014). An empirical analysis of the characteristics of Residential location choice in the rapidly changing Korean housing market. *Cities*, 39, pp. 156-163.
- Zhang, Y., & Gu, H. (2021). Impact on Property Market from Economic Policy Uncertainty and Its Spillover. *Journal of Physics: Conference Series*, 1944(1), 012045.