



CENTRE FOR HUMAN SETTLEMENTS AND URBAN DEVELOPMENT
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA



BOOK READINGS

THEME:
**LAND POLICY
GOVERNANCE &
SUSTAINABLE
DEVELOPMENT
IN NIGERIA**

■ **EDITED BY** ■

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LAND POLICY GOVERNANCE AND SUSTAINABLE DEVELOPMENT IN NIGERIA

(A Book of Readings)

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Land Policy Governance and Sustainable Development in Nigeria: A Book of Readings
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Foreword

Most human activities take place on land. Given the finite nature of this natural resource, it is imperative that land policies put in place by governments and other relevant authorities provide for equitable access to and sustainable management of land resources. The theme of this book, “Land Policy Governance and Sustainable Development”, is therefore apt and well thought out to promote academic discourse (SDGs). Goal Number Eleven is to ‘make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable’.

The book explores the various elements of land governance with their contemporary challenges and include land access and management, urban growth and sprawl development, resilience and infrastructure. It also provides an insight into competing land uses in the face of urbanization and the nexus between urbanisation, poverty and security, as well as the implication of climate change on health and property values.

It is the general expectation that the issues covered in the fourteen chapters of the book will in no small measure be useful to policy makers, academics and students. It certainly should add to the body of knowledge for further research in the built environment.

One of the core mandates of the Centre for Human Settlements and Urban Development (CHSUD) is to provide capacity building in urban governance and urban development. This book of readings, is therefore, consistent with the Centre’s areas of focus and its publication is quite commendable. It is hoped that the Centre will continue to work towards knowledge generation, dissemination and application that would enhance sustainable human settlements and human development. I recommend this book to academics, students and other professionals within the built environment.

Professor Abdullahi Bala

Vice-Chancellor

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May, 2019

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We wish to state here that all views expressed in each chapter of this book are entirely those of the contributors of such chapters and does not represent that of the editors and that of CHSUD.

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THE EFFECT OF COASTAL ENVIRONMENT ON RESIDENTIAL PROPERTY VALUES: A REVIEW OF LITERATURE

By

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Abstract

In coastal environment, studies have revealed a wide range of structural, locational, neighbourhood and environmental attributes to account for their effects on property values. This study observed that the trends in studies on effects of different sectors of the coastline on coastal housing market have been largely progressive in continents like America, Asia and Europe but rather slow in Africa countries like Nigeria. In this review, an attempt is made to provide a common classification for housing attributes based on studies that employed hedonic pricing models and categorize findings from a number of coastal housing studies. The review also noted that measurable but varied price premium were paid for attributes such as beach nourishment, water views and clarity by buyers for proximate properties to the coastline. The paper therefore recommends more studies of effects of coastline features on property value particularly in developing countries like Nigeria so as to reveal the peculiarities in their coastal regions.

Key words: *Coastline, Housing Attributes, Coastal Amenity, Climate Change, House Price.*

1. Introduction

All the continents of the world are surrounded by water bodies such as oceans and sea. The Coastline is the meeting point of continent's land and the oceans while its members include the beaches, cliffs, caves, arch, headland and estuaries that line up at the end of the land (Encyclopaedia Britannica, 2009). The land mass stretching from the inland limit of tidal or ocean spray influence, to the outer of the continental shelf within 60 to 200 kilometres of the coastline, characterised by inter-connections amidst neighboring ecosystems and directly influenced by both the land based and human activities is define as the coastal area (Creel,

2003; Amosu, Bashorun, Babalola, Olowu, & Togunde, 2012).

Interestingly, proximity to the coastline, a coastal amenity and housing attribute is one of the driving forces of urban coastal dynamics. It impacts population, economic development, and the residential property value. The range of other attributes tested in hedonic price models has evolved significantly and varies across studies. Conversely, there are global issues concerning coastlines exacerbated by climate change in recent times (Bin, Poulter, Dumas, & Whitehead, 2009; United Nations Department of Economic & Social Affairs

[UNDESA], 2014; Jin, Hoagland, Au, & Qiu, 2015). Understanding tenants and/or homeowners housing welfare and the behaviour of the property market in coastal environment in this context is a primary concern for real estate experts, real estate investors and developers, coastal managers or urban planners, policy makers, and researchers.

Meanwhile, academic literature studying the relationship between different features of the coastline and residential property values are somewhat limited, although popular in developed countries in extant literatures of property value modelling (Bond, Seiler, & Seiler, 2002; Makinde, & Tokunboh, 2013). Other features aside climate change ancillary effects include water view, water clarity, beach width and coastal protection measures or policy interventions such as retreat, beach nourishment and hard structures. This review finds common housing attributes in literature and examines the different coastline features and their effects on residential property values. The remainder of this study is organised as follows. The next section reviews the global indices of coastal areas. Based on coastal real estate literature, section 3 attempts a common classification of housing attributes that have been utilized in the hedonic price models. Section 4 presents empirical studies on effects of coastline features on residential property values. In section 5, findings and recommendations are presented.

2. Global Indices of Coastal Areas

Since ancient times, coastal areas have been supporting or driving the activities of man (in terms of transportation channel and trade, recreation and tourism) and offer him both tangible and intangible benefits (such as provision of secured livelihoods and decent jobs, regional security beauty, calmness and aesthetic value and regulation of air quality)

across the world (Bin, Crawford, Kruse, & Landry, 2008; Fu, Song, Sun, & Peng, 2016; Parker & Oates, 2016; Alo, 2017). These coastal benefits have impacted on coastal populations and boost the economy of host countries of respective coastal environment. The coastal zone of the world comprises only 4% of the world's land area with huge populations across the countries of the world (Onyema, 2016). In the United Kingdom for instance, 23% of its total land area lies within 10 kilometres of the coast and 17 million people out of its total population of 65.6 million live within this coastal zone (Office for National Statistics, 2017). Since 1980, the 673 coastal counties in the United States have witnessed an increase of 33 million people and as at 2003, approximately 153 million people amounting to 53% of the total population lived in the nation's coastal fringe that makes up 17% of its contiguous land area (Gopalakrishnan, Smith, Slott, & Murray, 2009; Bin et al., 2009; Below, Beracha, & Skiba, 2015; Campbell, 2015). In Australia, over 80% of Australia's population live in Australian coastal zone (Voice, Harvey, & Walsh, 2006; Kirkpatrick, 2011).

In Asia, about 1,000 people arrive in China's large coastal cities each day; while up to 50% of the Bangladesh population lives in coastal areas and similar number lives in coastal areas in northern Africa (Creel, 2003). In West African countries, Senegal, housed about 4.5 million people which is 66.6% of its national population in Dakar coastal area (Amosu et al., 2012) and in Nigeria, about 30 million people, which is 21% of the national population live in coastal cities (Ekanade, Ayanlade, & Orimoogunje, 2008). These coastal populations around the globe have continued to increase despite recent issues of climate change (Walls, Magliocca & McConnell, 2018). As at today, more than 4 billion people which is more than half of the world's population live within 200 kilometres

to the coastline, while sixteen (16) out of the twenty-three (23) world mega cities are located in the world coastal belt (Creel, 2003; Doukakis, 2005; Xu, Peng, Xu, Xiao, & Benoit, 2009; Amosu et al., 2012; Boateng, 2012; Murali, Ankita, Amrita, & Vethamony, 2013).

Beyond population impact, Coastal areas have been contributing significantly to the economy of nations. In the developed economies such as the US, coastal areas contribute 37% of the country's employment and 42% of the national Gross Domestic Product (GDP) (Fu et al, 2016). Countries such as Ghana, Benin, Togo and Sierra Leone in Africa have most of the activities that form their major national economies in the coastal areas (Amosu et al., 2012). In Nigeria, the coastal areas account for 70% of national economic output (Van-Bentum, 2012). The coastal diverse benefits and alarming population growth are being capitalised upon by real estate market operators and or real estate developers resulting in worthwhile residential property investments in coastal areas. For example, in the United States, the value of coastal real estate has appreciated at an average of 7% per year over the last 50 years while a typical coastal property worth from 8% to 45% more than an otherwise comparable inland property within this same area (Bin et al., 2009).

3. Hedonic Price Model and Operationalization of Housing Attributes in Coastal Areas

In this review, a number of coastal real estate literature that have utilized the hedonic price

models to investigate the relationship between house price and housing attributes were reviewed. Within the property price model, the buyer or home owner or renter relate the price of the property to its various attributes thus obtaining their marginal contributions or hedonic prices. As such, the rent or sale price is the dependent variable. Independent variables thus describe the property itself, for example number of bedrooms, distance to shopping center, and school in the property neighbourhood.

It is observed that review of housing attributes that are frequently used in coastal property hedonic price studies have received little attention. Almost two decades ago, Wilhelmsson (2000) suggested frequently used housing attributes in hedonic price models. Thus, it is necessary to explore which attributes are used most frequently in literature across different studies for coastal areas. With this review, common housing attributes employed in coastal property hedonic price studies will be captured. This in particular will guide future studies on choice of variables particularly in developing countries where academic literature studying the relationship between proximity to coastline and demand for residential properties are limited. As reported in Table 1, about 21 articles during the years 2001 to 2016 have been reviewed. The studies reviewed give credence to the theoretical findings that the fundamental determinants of residential housing prices are grouped into structural, location, neighbourhood and environmental attributes.

Table 1: Overview of Reviewed Studies

S/No	Study	Study Area/Continent	Sampled Residential properties	Journal/source
1	Parsons & Powel (2001)	Coastal Delaware/North America	266	Coastal Management
2	Bond et al. (2002)	Cuyahoga County/North America	190	Journal of Real Estate Research
3	Bourassa, Hoesli & Sun (2005)	New Zealand/Australian Countries	231,190	Journal of Real Estate Literature
4	Jim & Chen (2006)	China/Asia	652	Landscape and Urban Planning
5	Leung, Wong & Cheung (2007)	Hong Kong/Asia	220	International Real Estate Review
6	Bin et al. (2009)	North Carolina/North America	92,066	www.researchgate.net
7	Gopalakrishnan et al. (2009)	North Carolina/North America	1,662	Conference Paper
8	Mar-Iman, Hamidi & Liew (2009)	Malaysia/Asia	528	Malaysian Journal of Real Estate
9	Blackwell, Sheldon, Lansbury & Vaught (2010)	South Carolina/North America	88,967	The Review of Regional Studies
10	Udechukwu & Johnson (2010)	Nigeria/Africa	83	The Lagos Journal of Environmental Studies
11	Baranzini & Schaerer (2011)	Switzerland/Europe	12,932	Journal of Housing Economics
12	Conroy & Milosch (2011)	California/North America	9,755	J Real Estate Finan Econ
13	Gordon, Winkler, Barrett, & Zumpano (2013)	Alabama/North America	1,051	Journal of Real Estate Research
14	Hansen & Benson (2013)	Washington/North America	20,883	The Coastal Business Journal
15	Makinde & Tokunboh (2013)	Nigeria/Africa	145	Conference Paper
16	Atreya & Czajkowski (2014)	Texas/North America	35,586	Technical Report
17	Wyman, Hutchison & Tiwari (2014)	South Carolina/North America	589	Journal of Real Estate Research
18	Below et al. (2015)	North Carolina/North America	13,106	Journal of Real Estate Research
19	Walsh, Griffiths, Guignet & Klemick (2015)	Maryland/North America	200,000	Technical Report
20	Dumm, Sirmans & Smersh (2016)	Florida/North America	214,326	Journal of Real Estate Research
21	Fu et al. (2016)	Florida/North America	319,507	Ocean & Coastal Management

Following the review of the articles, 34 structural variables have been identified to have been employed in hedonic price studies. Table 2 presents these structural attributes and the number of times each of them appeared. The most common structural attributes included in hedonic price studies evidence from the 21 articles from 2001 to 2016 are home square footage, age of the house, number of bathrooms, number of bedrooms and lot size. The frequency of occurrence of these 5 variables range approximately between 50% and 80%. Averagely occurring common structural variables that appeared between 6 to 10 times include construction condition/quality, residential building type, multistory or number of floors and presence of garage. The category of the fairly appeared structural variables are those that appear 4 times and

they are presence of fire place, presence of air conditioning, floor level and swimming pool.

The outcomes of the most frequently, averagely and fairly occurring structural attributes suggest that these factors are likely to be affecting greatly residential property values either positively or negatively. From the literature review therefore and depending on the climatic conditions of the various geographical areas across the coastal belt, it is proposed that the choice of structural attributes to be included in hedonic models can come from these 13 structural variables. For instance in dry, tropical and temperate regions, variable such as “presence of fire place” may not be important and as such may not be important for inclusion in hedonic price models. Whereas such variable assumes an important role in cold and polar regions.

Table 2: Occurrence of Structural Variables in the Reviewed Studies

S/No	Structural Variables	Number of times each variable appears
<i>Variables that appear most</i>		
1	Home square footage	17
2	Age of the house	16
<i>Variables that appear between 11 to 15 times</i>		
3	Number of bathrooms	13
4	Number of bedrooms	13
5	Lot size	11
<i>Variables that appear between 6 to 10 times</i>		
6	Construction condition/quality	9
7	Residential bdg type	8
8	Multistory/No of floors	7
9	Presence of garage	6
<i>Variables that appear 4 times</i>		
10	Presence of fireplace	4
11	Presence of air conditioning	4
12	Floor level	4
13	Swimming pool	4
<i>Variables that appear thrice</i>		
14	Basement	3
15	Holding type (freehold/leasehold)	3
<i>Variables that appear twice</i>		
16	Roof style	2
17	Deck	2
18	Hardwood floor	2
19	Ownership type	2
20	External wall	2
<i>Variables that appear once</i>		
21	Number of baths/toilets	1
22	Carport square feet	1
23	Modernized	1
24	Lot position	1
25	Lucky floor level	1
26	Height of building	1
27	Patio square feet	1
28	Level of facilities/service	1
29	Size of bedroom	1
30	Size of living room	1
31	Size of kitchen	1
32	Domestic Quarters	1
33	Type of foundation	1
34	Window orientation	1

Location and neighbourhood attributes are also very important to the hedonic price studies in coastal areas. The typical variables of these classes of housing attributes used in hedonic price models is therefore a concern. Table 3 presents the attributes used to describe location and neighbourhood subsets of the hedonic price models in the empirical studies. Following the review of the 21 empirical studies, 14 location and 13 neighbourhood variables respectively were utilized in hedonic price models. It is observed for both categories, that location and neighbourhood were described by varied

range of attributes as each of the empirical studies operationalise the location and neighbourhood variables in different manners. As such, it is not feasible to have common classification of the attributes that are used frequently for hedonic price models in literature studying the relationship between house prices and housing attributes in coastal areas. This corroborate the opinion of Aluko (2011) that the choice of location and neighbourhood attributes to be included in any study is influenced by the prevailing environmental conditions and relative importance of the variables in the study area.

Table 3: Attributes describing location and neighbourhood in the reviewed studies

Types of housing attributes	Attributes	References
Location attributes	Distance to the nearest subcenter	Bourassa et al. (2005); Blackwell et al. (2010)
	Distance to the CBD	Bourassa et al. (2005); Mar-Iman et al. (2009); Baranzini & Schaeerer (2011) and Dumm et al. (2016)
	Proximity to railway stations/distance to nearest railroad	Leung et al. (2007) and Atreya & Czajkowski (2014)
	Distance to nearest school (e.g primary school)	Baranzini & Schaeerer (2011) and Atreya & Czajkowski (2014)
	Distance to nearest public transport stops (bus route)	Baranzini & Schaeerer (2011) and Atreya & Czajkowski (2014)
	Distance to nearest park	Atreya & Czajkowski (2014)
	Distance to work	Makinde & Tokunboh (2013)
	Proximity to fitness centre	Dumm et al. (2016)
	Proximity to cemetery	Dumm et al. (2016)
	Proximity of recreation park	Dumm et al. (2016)
	Distance from house to downtown	Conroy & Milosch (2011)
	Distance to new town centre	Jim & Chen (2006)
	Distance from house to nearest freeway	Conroy & Milosch (2011)
	Proximity to golf course	Dumm et al. (2016)
Neighbourhood attributes	Neighborhood property is located	Parsons & Powel (2001); Bourassa et al. (2005); Leung et al. (2007); Mar-Iman et al. (2009); Blackwell et al. (2010); Udechukwu & Johnson (2010); Gordon et al. (2013); Hansen & Benson (2013) and Walsh et al. (2015)
	Neighbourhood maturity	Mar-Iman et al. (2009)
	Neighbourhood security	Makinde & Tokunboh (2013)
	Availability of quality school (elementary)	Conroy & Milosch (2011) and Makinde & Tokunboh (2013)
	Appearance of nearby improvements	Bourassa et al. (2005)
	Quality of landscaping in the neighborhood	Bourassa et al. (2005)
	Surface of urban parks	Baranzini & Schaeerer (2011)
	Condition of mobile home park	Dumm et al. (2016)
	Condition of road network	Makinde & Tokunboh (2013)
	Regularity of power supply	Makinde & Tokunboh (2013)
	Availability of recreational facilities	Makinde & Tokunboh (2013)
	Slope/elevation of land	Bourassa et al. (2005) and Bin et al. (2009)
	Exposure to traffic noise	Jim & Chen (2006)

Furthermore, the fundamental environmental variable in hedonic price models for coastal real estate studies from our review is variable describing distance of property to the coastline. Table 4 provides an overview of the attributes describing environmental externalities in the reviewed studies. As observed, water view and distance band about the coastline have been the major and frequently used variables in the hedonic price models to measure coastal amenity. Walsh et al. (2015) however noted that measuring proximity to the coastline using distance band has advantage over alternative specifications.

Other environmental amenities that were used include water clarity, beach width, distance of house from hill and views of green spaces, mountain and golf course. Conversely, there are global issues concerning coastlines exacerbated by climate change in recent times (Bin et al, 2009; UNDESA, 2014; Jin et al, 2015). Hence, studies such as Atreya and Czajkowski (2014) and Below et al. (2015) have used flood risk and erosion rate variables respectively to account for in estimation the effect of environmental disamenity on residential property value.

Table 4: Attributes describing environmental externalities in the reviewed studies

Environmental attributes	References
View variables (such as water, lake and ocean)	Bond et al. (2002); Bourassa et al. (2005); Udechukwu & Johnson (2010); Baranzini & Schaerer (2011); Hansen & Benson (2013); Makinde & Tokunboh (2013) and Wyman et al. (2014)
House distance to the beach/coast/shoreline/water/coastline/bay/ocean	Parsons & Powel (2001); Bourassa et al. (2005); Jim & Chen (2006); Leung et al. (2007); Bin et al. (2009); Gopalakrishnan et al. (2009); Conroy & Milosch (2011); Hansen & Benson (2013); Atreya & Czajkowski (2014); Wyman et al. (2014); Below et al. (2015); Walsh et al. (2015); Dumm et al. (2016) and Fu et al. (2016)
Water clarity	Walsh et al. (2015)
Beach Width	Gopalakrishnan et al. (2009)
Other view variables (such as green spaces, mountain and golf course)	Jim & Chen (2006) and Wyman et al. (2014)
Distance from hill	Leung et al. (2007)
Land erosion rate	Below et al. (2015)
Flood risk	Atreya & Czajkowski (2014)

4. The Effects of Coastline on Residential Property Value

The effects of different aspects of coastline on property value have been extensively researched into in the developed countries. Two phases of research in the hedonic studies across the coastal areas of the world are observed following this review. The first phase concentrated on the sectors indicating effects of coastal amenities and or positive externalities on residential property value. These coastline sectors include coastal

protection measures of policy interventions, water clarity, beach width and water view. Studies on the capitalisation effects of coastal protection measures on house prices for example were conducted early by Parsons and Powel (2001), Kriesel and Friedman (2003) and Gopalakrishnan et al. (2009), among others. Each of these studies found beach nourishment to increase waterfront and non-waterfront property values more than other policy interventions. A study of Walsh et al. (2015) analysed 14 Maryland counties

and found positive impact of water clarity on waterfront property prices in ten of the counties, seven of which were statistically significant while the waterfront impact was insignificant in the four other counties. Gordon et al. (2013) concentrated on condominium sales along the Gulf coast of Alabama to account for value effect of positive externalities such as better views, increased privacy and noise reduction associated with their location. Their hedonic model estimated that units on higher floors earned price premium of over 12% than ground level units while corner units sell at a premium of 3% over interior units.

Studies have also shown that the price premium for water views vary by geographic area. Lake view in Cuyahoga County, Ohio was found on average to generate price premium of around 54% (Bond et al., 2002), proximity to water bodies raised housing price to 13.2% (Jim & Chen, 2006) in Guangzhou, China while maximal view of water in Geneva-Switzerland generate a rent premium up to 57% (Baranzini & Schaerer, 2011). In Nigeria, water (lagoon) views, on average, added N2.59million to sales prices of homes with view more than homes without view in Victoria Garden City, Lagos (Udechukwu & Johnson, 2010). A later study within the same area by Makinde and Tokunboh (2013) concluded that full view on average increased the housing price by 47.9%. A study of Conroy and Milosch (2011) suggested that proximity to the coast has a large and positive effect on the value of a house in San Diego County, California. From the review of these hedonic studies, one can conclude that measurable but varied price premium were paid for water views, water clarity and beach nourishment by buyers for proximate properties along the coastline.

Beyond studies that provided evidence on the value capitalization effect of coastal

amenities, Bourassa et al. (2005) contended that the implicit prices of the presence of a water view and other aesthetic externalities in coastal areas, given that their supply are limited should change with the residential real estate cycle. The authors examined how the implicit prices of the presence of a water view, the appearance of nearby improvements, and the quality of landscaping in the neighborhood change with the residential real estate cycle from 1986 to 1996 for the three largest urban areas in New Zealand and found that implicit prices of the aesthetic externalities move with the real estate cycle. In a later paper, Hansen and Benson (2013) basically replicate their findings using data from coastal city of Bellingham, Washington. Using sales data from South Carolina, Wyman et al. (2014) found that higher quality waterfront properties were relatively better protected in the real estate bust than lower quality interior properties. Like Bourassa et al. (2005) and Hansen and Benson (2013), Dumm et al. (2016) concluded that the price performance of value of view of specific waterfront property types change across the phases of real estate economic cycle using sales data from the Tampa Bay, Florida housing market.

The second phase of research in the coastal housing market is driven by the issue of climate change related threats. There are global climate change issues concerning coastlines which have some attendant spatial features with array of effects upon any development along the axis (Kalaugher, 2007; Bin et al, 2009; Urama & Ozor, 2010; UNDESA, 2014; Jin et al, 2015). So, researches have now begin to explore the effects of coastal disamenities and or negative externalities associated with the coastline on house prices. However, we observed that while some studies have focused on the future economic costs of sea level rise to communities on a larger scale, others

estimated the pecuniary advantage or disadvantage derived by buyers of residential properties in proximity to the coastline.

Further, four counties in North Carolina were studied by Bin et al. (2009) and the conclusion drawn revealed that the potential impact of sea level rise scenario of 81cm on coastal real estate by 2080 is estimated at about \$1.2 billion. While Fu et al. (2016) in a spatial hedonic approach indicated that inundation of 3-foot (91.44cm) sea level rise could cost Hillsborough and Pinellas County, Florida over 300 and 900 million dollars respectively for the real estate market alone by 2050. In Nigeria, Agboola, and Ayanlade (2016) estimated the varying proportions of total land area of Eti-Osa local government area of Lagos State that will be submerged under different sea level rise scenarios. The future distortions in the housing and land market on larger scales in the absence of policy interventions of government were estimated in these studies.

In Carteret County of North Carolina, Bin and Kruse (2006) have shown that properties located within a flood zone and vulnerable to wave action are associated with higher property values than those within a flood zone that are not prone to wave action. Atreya and Czajkowski (2014) also found that homes in high risk coastal areas, on average sell for more than homes in moderate to minimal flood risk areas in Galveston County, Texas. The outcome of the standard hedonic regression method, used by Below et al. (2015) for the Dare County, North Carolina led to the conclusion that buyers do not factor erosion risk into the purchase price of property, unless the property is either very close to an eroding beach or is located in a rapidly eroding area.

The preponderances of findings of these studies suggest that substantial price

premiums are derived by buyers of residential properties in close proximity to the coastline despite the climate related threats along this axis. However, these studies are from the percept of the buyers of residential properties while most of the studies are carried out in developed countries. Meanwhile, studies such as Aliyu (2010) and Acheampong and Anokye (2013) argued that drawing housing related information from tenants other than homeowners or buyers will assist to better understand housing issues. Understanding the pecuniary advantage or disadvantage derived by both buyers and renters of residential properties along the coastline particularly in developing countries where scanty of such studies exist, we observed from our review will also be opportunities for researchers for further studies in coastal housing market.

5. Findings and Recommendations

This review revealed commonly employed structural attributes within the bandwidth of residential location choice literature. With this review, the most typically used structural attributes in hedonic price studies in coastal housing market from 2001 to 2016 are home square footage, age of the house, number of bathrooms, number of bedrooms and lot size. Although silent on type of housing market, the earlier review of 28 hedonic price studies from 1990 to 1995 by Wilhelmsson (2000) established that living area, number of bathrooms, age, garage and lot size are the most common used structural attributes. The outcome of this review suggest that for coastal housing market analysis, the variable “presence of garage” has fallen out of choice for inclusion in hedonic price models in recent time while the variable “number of bedrooms” assumes a prominent role. Consequently, based on the occurrence of structural variables in the reviewed studies and depending on the climatic condition of a coastal area, 13 structural variables are recommended as important for inclusion in

property hedonic price models. These variables are home square footage, age of the house, number of bathrooms, number of bedrooms, lot size, construction condition/quality, residential building type, multistory or number of floors and presence of garage. Others are presence of fire place, presence of air conditioning, floor level and swimming pool.

Moreover, we found that each of the empirical studies reviewed operationalise both location and neighbourhood variables in different manners. However, based on our literature review, the following classification of location variables is suggested to guide future studies on the choice of variables most especially in developing countries where there is limited studies on the relationship between proximity to coastline and demand for residential properties:

1. Distance variables indicating accessibility from houses to places of employment such as distance to the central business district (CBD), distance to the nearest subcenter, distance to work, distance to new town center and distance to downtown.
2. Distance variables describing accessibility to the various means of transportation including proximity to railway stations/nearest railroad, distance to nearest public transport stops or bus route, distance to nearest park and distance from house to nearest freeway.
3. Distance variables showing accessibility to social and public services such as proximities to fitness center, recreation park, golf course and cemetery.

On the other hand, the following classifications are proposed for neighbourhood variables:

1. Layout of neighbourhood including the various neighbourhoods within the study area housing the properties sampled and neighbourhood maturity (whether developed or less developed). Others are appearance of nearby improvements, quality of neighbourhood landscaping, surface of urban parks and land elevation.
2. Neighbourhood security.
3. Neighbourhood amenities including availability and quality of social and public facilities such as school, mobile home park, road network, power supply and recreational facilities.
4. Neighbourhood disamenities such as exposure to traffic noise.

Finally, it appears from our review that the desires for proximity to the coastline by buyers of residential properties are strong and outweigh the negative externalities associated with the coastline. The conclusion of each of the studies on the relationship between coastline features and residential property values call for more studies from the percept of property buyers and renters particularly in developing countries like Nigeria to reflect the peculiarities of their regions.

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