An Examination of the Impact of Infrastructural Facilities on Commercial Property Values in Onitsha, Anambra State, Nigeria

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Abstract: The state of urban infrastructure is an important indicator of the status of any urban area. Apart from being a major pointer to environmental quality, infrastructure is a critical agent for socio-economic development of any area. The impact of infrastructural facilities in property market is very significant. Considerable importance is attached in today's world to property's facilities as it influences the use and value of the property. Many factors interplay to create property values. For commercial property, factors like accessibility, population, volume of trade patronage, adequate communication facilities, efficient transportation system and many other factors to be considered. Factors that negatively affect the value of real property, affects ownership's goal or target income. This study analyzed the infrastructural effects on commercial property value in Onitsha. The study focused extensively on the available infrastructural facilities in selected areas and the property rental values with a view to establishing an effect (differences) between infrastructural facilities and values of commercial properties in Onitsha. This study investigates the effect of infrastructural facilities on commercial property values in Onitsha, Anambra State, Nigeria. The research adopts both survey and case study methods using three different data collection instruments viz: structured questionnaire, personal interviews and observations. The sample size was determined using Taro Yamani's formula. The stratified random sampling technique was used to select the sample from the six selected areas in Onitsha, Anambra State, and questionnaires were employed to extract necessary information from 330 sample size using Taro Yamani's formula from study population of 1868. The data collected were subjected to descriptive and inferential statistical test. Tables, frequencies were used in the presentation of data. Regression Analysis, Weighted Mean, ANOVA, and Wilcoxon Signed Rank Test statistical techniques were applied appropriately in testing the hypotheses. The study revealed that there was no significant difference between facilities from one area to another; there was significant difference between mean shop rental value and mean office rental value, and that there was no statistically significant effect of facilities on rental values of commercial properties in the study area. The study concluded that facilities do not play a significant role in determining the values of commercial properties in Onitsha and that shops commands more rental value compared to offices in Onitsha. The study recommended among other things that state government should provide infrastructural facilities where they are lacking within the metropolis. This will bring evenly distributed development and commercial activities and consequently attract more investors to the city.

Indexed Terms- Commercial property, Infrastructural facilities, Real property, Rental value.

I. INTRODUCTION

Many scholars have attempted in varying ways to define or explain the meaning and concept of the term "infrastructure". Notwithstanding the fact that it is not the intention of this paper to explore or examine the myriad of definitions, the National Research Council of the United States of America captured to a very great extent the totality of the term as referring to "both specific functional modes – highways, streets, roads and bridges; mass transit; airport and airways; water supply and water resources; waste water management; solid waste treatment and disposal; electric power generation and transmission; telecommunication and hazardous waste management – and the combined system these modal elements comprise. According to Okoronkwo and Ezeh (2012) cited in Okorafor et al, (2017), infrastructures are not the things with which nature has endowed man, but the profitable conversion of these natural resources for the advancement of the society and benefit of man. Rainfall for instance is a natural gift from God. It is not an infrastructure. It becomes one when man technically conserves this gift and develops it to serve

as regular and functional water supply for agriculture, industries and for domestic uses. Infrastructural decay occasioned by the neglect has bedevil most of our towns and cities in Anambra State, Nigeria. The scenario is not perhaps totally different from what is tenable in other states of the federation. The term infrastructure refers to all the physical, social and economic elements needed to support the population, in addition to other municipal services which include sewer, water supply, natural gas and electric services, schools and police stations, roads, airports, etc. As society develops, the need to provide basic infrastructure for the wellbeing of their inhabitants arises. Most of the Infrastructure are capital intensive in the procurement and perhaps also in their maintenance, and these services are usually provided by the different levels of government in the federation although private sector participation is now gradually becoming noticeable due to the liberalization policy of some aspect of the national economy by the present administration. Infrastructural development refers to the bringing into existence of the basic amenities and services which must be in place for a particular activity or pursuit. However, no nation can boast of significant development or an enhanced economy without providing the basic Infrastructure for the citizens' well-being. In Nigeria, sale prices of properties vary for different suburbs due to their attributes. For people who live in urban areas or cities, infrastructure decisions may be influenced by the balancing of desires and the environments. Therefore, infrastructure is discussed as a key influence in explaining property price dynamics. Onitsha metropolitan area was chosen for the study to evaluate the effect of established infrastructure and location amenities on commercial property values. The adequacy of infrastructure helps to determine the level of success that a country achieves in terms of coping with population growth, reducing poverty, or improving environmental conditions (World Bank, 1994). One veritable parameter of assessment and indicator of status of any spatial, especially urban system is the state of infrastructure. The efficiency of any form of human activity system including an urban area largely depends on the provision of efficient infrastructural facilities and services (Babarinde 1998). Hence the significance of infrastructure in the proper functioning of an urban area cannot be dismissed. Apart from being a major

pointer of environmental quality, urban infrastructure is a critical socio-economic development of any urban area (Okusipe 1999). It places an important and indispensable role in the economic, social and environmental aspect of life of an urban setting. It has a pronounced impact on the quality of life. It is a back bone of any economy. Industry needs it to effectively and efficiently drive their production processes. It is evident that a myriad of factors such as the prevailing economic conditions, government legislation and policies, availability and state of infrastructural provision come into play to influence commercial landed property (values). In carrying out this study, all other factors were assumed constant while urban infrastructure was isolated and examined in relation to commercial property values.

II. STATEMENT OF THE PROBLEM

The impact of infrastructural facilities in property market is very crucial. The fact remains that property units are fixed in location, they however differ in terms of their surroundings, neighborhood and the kind of community in which they are located. Considerable importance is attached in today's world to property's facilities as it influences the use and value of the property. Infrastructure and location has always been an important determinant of a property's value. Many factors interplay to create property values. For commercial property, factors like accessibility, population, volume of trade patronage, adequate communication facilities, efficient transportation system and many other factors to be considered. Infrastructure and location may also be with the surrounding activities, and when these relationships are negative to the economic and social well-being of the property, such a property is said to have "Infrastructure and location obsolescence" and hence commands low rental value. Factors that negatively affect the value of real property, affects ownership's goal or target income. They also cripple the investor's interest by discouraging subsequent investment. Since facilities and location is considered as factors that may likely affect the rental value of commercial properties, and because commercial activities are very significant in strengthening the economic basis in our urban areas, therefore, playing important role in the socioeconomic development. This might also be the reason why most of the

purposely built residential properties are being converted to commercial uses in our cities centers today. The primary objective of commercial properties is the derivation of financial gains, and, the demand for land is a reflection of the profitability or utility derivable from its use. The greater the benefit to be obtained from a particular use, the higher the rent that the user will be willing to pay for it. In Onitsha, there appear to be a wide range difference in the levels of rent passing on commercial properties in a particular areas and between different locations. Tenants are always faced with the fact that although, similar commercial properties commands different rental value within the same area, and also, when the properties are not situated in the same area or location, the rental value of same type of these commercial properties varies greatly. This study seeks to carry out an analysis of infrastructural effects on commercial property values in Onitsha. Onitsha is often seen as the urban city with the vilest infrastructure, inadequate storm drainage, and poor public water supply, garbage dumped on the road sides and non-existence or bad sewage system. The infrastructure of a city is a major determinant of the demand of commercial property. The infrastructure facilities in the study area affects the rate of commercial property demand in the area, this is because people will only buy or rent commercial property in areas were the infrastructure facilities development is sustainably available, this will help to enhance the economic and livability in the community. The impact between infrastructure and commercial property values has been the focus of many studies. Some of the earlier studies returned positive effect between infrastructure and commercial property values while others showed negative effect. Possible effect between infrastructure and commercial property values have therefore elicited the interest of the researcher in this direction. It is against this background that this study was conceived.

1. Aim and Objectives of Study

The aim of this study is to ascertain the impact of infrastructural facilities on commercial property values in Onitsha.

To achieve this, the following objectives shall be used:

- To identify the types and state of infrastructural facilities available to the commercial properties in Onitsha.
- To examine the adequacy of infrastructural facilities for commercial properties in Onitsha.
- To identify the regularity, effectiveness and functionality of infrastructural facilities in different areas on commercial properties in Onitsha.
- To analyze the rental values of shops and offices, as a result of infrastructural facilities in Onitsha as at the year (2018).
- To establish the effect of infrastructural facilities on commercial property values in Onitsha.

2. Statement of Hypothesis

For the purpose of verification and possible confirmation, the hypotheses are formulated and postulated as follows;

H_{O1}: There is no significant difference between the values of commercial properties of shops and offices in Onitsha.

H_{O2}: There is no significant effect of infrastructural facilities on the values of commercial properties in Onitsha.

H_{O3}: There is no significant difference between infrastructural facilities in different locations in Onitsha.

3. The Study Area

Onitsha and its environs lie in the North-Western part of Anambra State, in South-Eastern Nigerian. The location covered by the study is Onitsha metropolis. It is located between 06° 38' 34' N and longitude 06° 59' 30' E and latitude 06° 02' 56' N and longitude 06° 37' 30' E. The area is about 3,063 square kilometers. It serves as the gate way between the South-Eastern and South-Western part of Nigeria. The population figure of Onitsha north L.G.A according to 1991, 2006 and 2016 population census of Federal Republic of Nigeria is 121,157, 125,918 and 166,600. The metropolis since it was found in 1680, has been a center of commercial activities, an ecclesiastical center and an administrative center. Onitsha and its environs constitute one rapidly urbanizing region. The vegetation of the study area is a sub-climate of

the original rainforest, having been virtually cleared due to development. The area mean annual temperatures are between 22°c to 27.50°c and mean rainfall is between 1,500mm to 2,500mm. South West monsoon harmattan winds are experienced around January, February, March and November, December respectively.
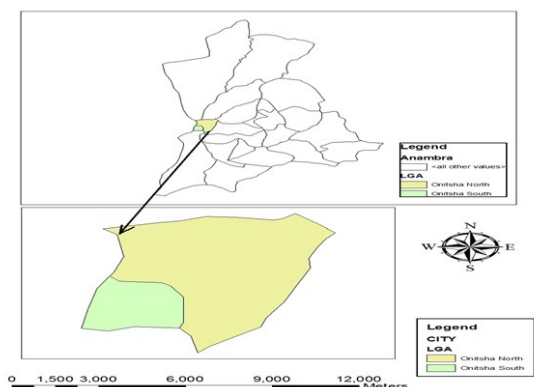

Fig1. Map of Anambra State, showing Onitsha.

SOURCE: Cartographic unit, Department of Surveying and Geo-informatics, Nnamdi Azikiwe University, Awka.
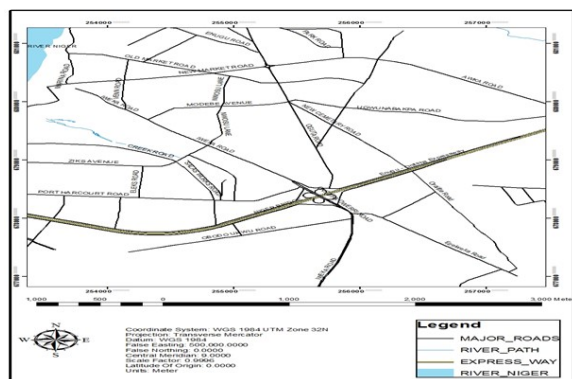

Fig 2. Map of Onitsha.
SOURCE; Cartographic unit, Department of Surveying and Geo-informatics, Nnamdi Azikiwe University, Awka.

III. LITERATURE REVIEW

1. Concept of Real Property.
Kalu (2000) asserted that Property has several connotations but is most frequently used with reference to real property. It is a term which English legal system has classified into two broad terms namely reality and chattels. While other possession such as cars, households, etc. have been classified as chattels. Land, buildings and appurtenances have been classified as reality or property. The dynamics of development and technology has added another class to the two above. The intellectual property has become so much of interest that a set of laws have been enacted to protect it. The intellectual property as the name suggests include those abstract interests possessed by a man but have been made available through documentation or invention. It includes published materials, patents, work of arts etc. According to Barlowe (1986) property is a complicated legal concept. It can be viewed as an object of possession. People also refer to their belongings including landed property as their property. Lean and Goodall (1977), is of the view that property include the concepts of right which can be held separately. From the above definitions, property does not only mean the object owned but it includes the bundles of rights and interest encompassed on land.

2. Concepts of Commercial Properties
Commercial properties are properties acquired for investment. Commercial properties follow the growth and movement of population. Brithon (1985) Opined that commercial properties include shops, offices, industries and warehouses. Olusegun (2006), expresses that commercial properties includes: office, parking lot, shops and stores, warehouses, petrol filling station, market and market stalls, hotels, and tourism, historic monuments, conference centers, cold storage and food preservation, restaurants and snack bars. The feature common to the above definitions is that all present the four major classes of commercial properties and these four major classes include:
a. Shops
b. Office properties
c. Industrial properties
d. Commercial warehouses.

- Shop: The activity centers where commodities are bought and sold.
- Office properties: These are activity centers per business transactions.

- Industrial properties: These are light factories which serve as manufacturing center or which is used for the process of manufacturing.
- Commercial warehouse: These are places where people house their wares or place where finished goods are stored.

There are several categories of property of which come under the general heading of commercial properties and the categories can in turn be subdivided into types within each category (Johnson, Davies, and Shapiro, 2000). As a start the main categories can be identified as;
a. Retail
b. Industrial
c. Warehouse Offices.

3. Concept of Infrastructure

- Infrastructure Development

The need for the development of infrastructure in any region cannot be overemphasized. This is because infrastructure is the gateway to economic, social and almost unmistakably wholesome political development. Notwithstanding, however, the development of infrastructure is costly. For instance, infrastructure funding in Africa for the first half of 2010 stood at US $3.04 billion. For the same period in 2011, the amount stood at US $4.435 billion. Ever since, there has been an upward trend. Project funding in 2010 increased significantly from 2009, reaching $21.7 billion, up from $18.9 billion. The scenario justifies the obvious need for the development of infrastructure in the region. According to the United Nations Environment Program (UNEP) and UN-Habitat, Africa is urbanizing at a rapid rate with urban centers growing faster than anywhere else in the world. African cities will grow by 25% by 2025 and 60% of the continent's population will be urbanized by 2050. It is clear from surveys conducted by Dealogic (2010), Okoronkwo and Ezeh (2012), Africa Investor (2011), that an enormous amount of people are moving out from rural areas into urban areas thus putting not only a necessity but also a demand for the provision of infrastructure between nodes as well as in the cities and ultimately the regions. It is very sad to discover however that out of one hundred (100) bankable infrastructure projects in Africa in 2010/2011,

Nigeria had only five (5) sharing one of the five – Main One Undersea Cable project- with Ghana. Of the remainder, two (2) were un-finalized one of which –Niger River Bridge, Delta Region or what is commonly known as the second Niger Bridge, is in the Southern Nigeria region. Namibia, one of the poor countries of Africa with a population as low as 45 million engaged in infrastructure development worth US $685.6 million as against Nigeria's US $320 million over the same period (2010/2011). Herein lay the problem. What is wrong? Obviously, there are challenges particularly as it concerns the Southern Nigeria Region. The Challenges to Infrastructures Development in Southern Nigeria Restated, infrastructure is the basic structure of services, installations, and facilities needed to support industrial, agricultural and other economic development in a region. Infrastructure is important for improving the quality of life of the people. Nubi (2002) describes infrastructure as the aggregates of all facilities that allow a city to function effectively. It is also seen as a wide range of economic and social facilities that help in creating an enabling environment for economic growth and quality of life. Neil (2004) also was of the opinion that infrastructure services have a bearing on economic growth. She explained further that adequate infrastructure reduces the cost of production which in turn affects the profitability level of output and employment, particularly in any small-scale business. He also stated that infrastructure refers to all basic inputs and requirements for the proper functioning of the economy. Infrastructure is simply the engine that is needed for proper functioning of a city. It can be put in place by private or public involvement with the aim of facilitating the effective functioning of the society. Obateru (2005) identified two categories of infrastructure namely:
- physical infrastructure
- social infrastructure.

- Infrastructure and Growth

The concentration of industries in urban centres has promoted growth within cities. The industrial development has also contributed to diversified industrial structure which results to expansion in cities. The existence of industries in any urban centre will create employment opportunities thus making

people to migrate from rural to such urban settings for employment opportunities. Urban areas are able to induce economic activities because they enjoy an advantage in the supply factors of production especially labor. With this, the market becomes broader as the supply of real property resources, more sub-division of function occurs and economics of scale emerges in the provision of basic public utilities and services. With the increase in supply of real property, more demand will be made on commercial properties and the higher the demand for accommodation, the higher the property value. Olujimi and Bello (2009) noted that the increasing demand for commercial property in our urban centres would continue to attract the real estate investors because of continuing property rent increases. This is supported by land economy theory which suggests that the balance of demand and supply is at equilibrium if for every new household exercising effective demand, there is an available house either for letting or purchase at a price that permits demand to stabilize supply. It should therefore be expected that when the demand for housing increases, the price or rent for such houses goes up and ultimately this encourages investors to undertake new developments. In line with this, cities develop as a result of the economic functions which necessitate the gathering of people and activities in any given area. The lifestyle in the urban area changes from an agrarian society to modern industrial economy. This is due to development in facilities, expansion of interregional commerce and the increased significance of service activities. Infrastructure like good road network, energy, water, hospitals, and educational facilities are drivers of economic growth. The quality of infrastructure available within any city has become increasingly important in attracting new investments. There is an ineffective administration structure to cater for the maintenance of our infrastructures at the urban centres, however, such problems could have been easily solved if other stake holders like private individuals, community-based organizations (CBO) and non-governmental organizations (NGO), apart from the government participate in the provision and management of urban infrastructure. It has thus become apparent that the provision and management of urban infrastructure cannot be left solely to government hence private sector participation is important. Infrastructure is the basic physical and organization structure needed for the operation of a society or enterprise or reproductive or services and facilities necessary for an economy to function. It can generally be defined as the set of interconnected structural elements that provide framework supporting an entire structure of development. It is an important term for judging a country, state or a regions development. The term typically refers to the technical structures that support a society such as roads, bridges water supply, sewers, electrical grids, telecommunications and so on and so forth and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain or enhance societal living conditions. Viewed functionally, infrastructure facilitates the production of goods and services, development of commercial properties and also the distribution of finished goods to the markets as well as basic social services such as schools and hospital, for example roads enables the transport of raw materials to a factory. In military parlance the term refers to the building and installations necessary for the support, redevelopment, operation of military force. Research by anthropologists shows the social importance and multiple ways that infrastructures shape human society and vice versa.

- Characteristics of Infrastructure

The following features have been identified by Ominrin (2004) as the characteristic of infrastructure:

a. It requires large lump sum of investment; this perhaps justifies the reason why citizen usually look forward to their government for the provision of the facilities.
b. It enjoys considerable economics of scale, which result in monopolies
c. It has a high level of externalities both positive and negative.
d. It has intermediate in- put characteristic.
e. It possesses important network effect
f. It poses difficulties in cost recovery.

While this characteristic has generally remained true, the exact character trait will depend on whether it is urban, rural, inter urban infrastructure or operator of the facilities i.e. whether public or private central, state or local government agencies. Infrastructure facilities can be classified by hard and soft infrastructure (Segun, 2014).

- Gap in Literature

This study focused on examination of the impacts of infrastructural provision on commercial landed properties in Onitsha metropolis. In other to arrive at our research gap, criticism was based on only literature works related to impacts of infrastructural provision on landed properties. Abdulazeez and Muhammad (2017) did a study on the effects of Locational infrastructural facilities on commercial property value in Sokoto metropolis, Nigeria, using questionnaire to elicit necessary information from 279 respondents. Orekan (2015) examined the impact of facilities on residential property development in Ota, Ogun State Nigeria. Questionnaires were also administered to 89 randomly selected clients. Jimoh and Ige (2017), did a study on public infrastructure vs. residential property rental value in Lagos, Nigeria. Questionnaires were administered and the model summary for regression of the effect of infrastructures on property values further revealed 99.8%, 99.3% and 99.7% of the sampled variations in low, medium and high density areas respectively are attributed to the residential rental value. Udoka (2013), carried out a study on the imperatives of the provision of infrastructure and improved property values in Akwai Ibom State, Nigeria. 272 questionnaires were administered and in essence, the imperative of infrastructure provision on property value was concluded. Okafor, Okonkwo and Oladejo (2017), did a study on the infrastructure development and maintenance in the oil producing areas of southern Nigerian, its implications, options and challenges. It concluded that the development, improvement and maintenance of infrastructures would lead to revitalizing the national economy and launch Nigeria on a path of rapid economic development to achieve our often touted but much desired vision 20:20-20. Ajayi, Jimoh and Jimoh (2014), examined the effects of infrastructural development on residential property values in Minna, Nigeria. 400 questionnaires were distributed to the residents and it could be concluded that road network within the study areas was a consideration in the determining where occupants reside due to the nature of the roads in Tunga and Bosso. All these reviews were carried out, but none of these studies focused on examination of the impacts of infrastructural facilities on commercial properties in Onitsha, with respect to analyze the effects of infrastructural facilities on

commercial property values, difference between the values of commercial properties of shops and offices in Onitsha, difference between the facilities in different locations in Onitsha, which is the gap the study intends to breach.

IV. RESEARCH METHODOLOGY AND METHODS

Research design is the arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to research purpose with economy in procedures. The field survey design approached was employed for this study because it is amenable to situations where facts or data must be collected from respondents within the industry and data collected from a sample of the target population was used to predict certain characteristics of the population.

1. Sources of Data Collection
The study adopted primary source of data. Primary data were generated through the use of oral interviews, observations and questionnaires designed specifically for the study. The questions in the questionnaire are based on the key variables highlighted in the literature review and the research questions. Unformed oral interview was used to probe for more information where necessary. The commercial property occupiers both shops and offices in selected areas in Onitsha, Anambra State, Nigeria were interviewed.

2. Population of the Study
This research identified six study areas for investigation. These are the areas in Onitsha-Anambra State, Nigeria. Fourteen (14) commercial properties serves as plazas, with both shops and offices-Awka Road, New Market Road, Old Market Road, Oguta Road, Upper New Market Road and Ziks Avenue in Onitsha. This study covered all major areas serving the commercial axis in Onitsha, with shops and offices in a plaza.

3. Determination of Sample Size, Sampling Techniques and Questionnaire Distribution
The sample size of the study was determined using Taro Yamane's formulae; sample size of 330 was adopted to ensure uniform representation of the

groups in the sample and Sampling Pro Technique I.e. Random sampling technique was adopted in the distribution of questionnaires. 297 questionnaires were adequately filled and returned, which is presumed to be adequate for this study.

4. Validity of the Instrument and Reliability of Instrument.

This study was subjected to validity testing by subjecting the study to scrutiny by expert and the reliability test of the questionnaire was done using Cronbach's Alpha.

5. Method of Data Analysis

Descriptive statistical analysis was employed especially in the analysis of some of the objectives. Percentage techniques, frequency tables, and Statistical package of social sciences (SPSS v.23) were used in analysis of the data collected. The statistical tools used in hypotheses testing were Regression Analysis, ANOVA, and Wilcoxon Signed Rank Test with the aid of Statistical Package for Social Science (SPSS v.23). For the objectives there are parameters used in answering question. They are; VB: Very Bad, B: Bad, F: Fair, G: Good, VG: Very Good.

V. DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Table 1: Allocation of sample size and Questionnaires distribution.

location	shops	Offices	Total	Percentage %	Sample size	Questionnaires Returned
A	165	140	305	16	53	48
B	530	158	688	37	122	111
C	40	130	170	9	36	28
D	170	80	250	14	46	43
E	45	150	195	10	33	28
F	220	40	260	14	46	39
Total	1,170	698	1,868	100	330	297

Table 1 showed that 53 questionnaires were administered to respondents in Awka Road out of which 48 were dully filled and returned. Also in New Market Road, 122 questionnaires were administered and 111 were returned. 36 questionnaires were distributed at Old Market Road and 28 were retrieved. Oguta Road had 46 questionnaires and 43 were retrieved which is questionnaires for that location. Upper New Market Road received 33 questionnaires and 28 were returned and 46 questionnaires were distributed at Ziks Avenue and 39 were received. On the overall 297 of the administered questionnaires were retrieved and are used for analysis.

Table 2: Types of Commercial Properties Respondents occupy

Type of Property	Awka Rd		New Mkt R		Old Mkt R		Oguta Rd		UNMR		Ziks Ave	
	F	%	F	%	F	%	F	%	F	%	F	%
Shop	32	66.7	74	66.7	8	28.6	36	83.7	9	32.1	31	79.5
Office	16	33.3	37	33.3	20	71.4	7	16.3	19	67.9	8	20.5
Total	48	100	111	100	28	100	43	100	28	100	39	100

We can see that table 2 has types of commercial properties that the respondents occupy. It can be seen that 66.7 percent of the respondents in Awka Road and New Market Road each occupy shops, while 33.3 percent occupy offices. 28.6 percent of those staying at Old Market Road occupy shops and 71.4 percent of them occupy offices. 83.7 percent of the occupants in Oguta Road stay in shops while 16.3 percent stay

in offices. Then for the respondents in Upper New Market Road and Ziks Avenue, we have that 32.1 percent and 79.5 percent respectively occupy shops; while those who occupy offices are 67.9 percent and 20.5 percent respectively.

Throughout the work, there are two sets of Likert scale used; some are on 2–point scales while some are on 5–point scales; their usage, applications and explanations were given in the tables they are applied.

Table 3: Types of Infrastructural Facilities Available in Onitsha

S/No	Infrastructure	Awka Road	New Market Road	Old Market Road	Oguta Road	Upper New Market Road	Ziks Avenue
1	Road	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000
2	Water Supply	1.9375	2.0000	1.9643	2.0000	2.0000	1.9487
3	Electricity Supply	2.0000	2.0000	1.9643	2.0000	2.0000	2.0000
4	Waste disposal	2.0000	2.0000	1.9286	2.0000	2.0000	1.8974
5	Drainage	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000
6	Security	1.9792	2.0000	2.0000	2.0000	2.0000	2.0000
7	Vehicle Parking Space	1.9583	2.0000	1.9286	1.1628	2.0000	1.0513

Two likert scales were used to confirm the availabilities of the various infrastructures in the study locations within Onitsha; the results are contained in table 11. The likert scales are Not Available (NA=1) and Available (A=2). The likert scale mean cut of point is as follows:

$$\frac{1+2}{2} = \frac{3}{2} = 1.50.$$

With the mean value of 1.50, any infrastructure with mean response, greater than or equal to 1.50, is deemed available in that location while any whose mean response is less than 1.50 is deemed not available in that location. This mean cut off point also applies to other places with 2–point likert scales. From the table, it will be seen that the mean responses of the respondents in Awka Road, New Market Road, Old Market Road and Upper New
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Market Road are all greater than 1.50 for the availabilities of the entire seven infrastructures; but in Oguta Road and Ziks Avenue, six infrastructures have their mean values to be greater than 1.50 while "Vehicle Parking Space" has its mean to be less than 1.50 in the two locations. From the above explanations and the information in the table, it means that all the locations have the following infrastructures:
a. Road,
b. Water supply,
c. Electricity supply,
d. Waste disposal,
e. Drainage, and
f. Security.

Only four locations have Vehicle Parking Spaces and two locations do not have same, as already explained

Table 4: State of Infrastructural Facilities Available in Onitsha

S/No	Item	Awka Road	New Market Road	Old Market Road	Oguta Road	Upper New Market Road	Ziks Avenue
1	The state of infrastructure in the Commercial Property in Onitsha	3.3542 (G)	2.8468 (F)	4.1071 (VG)	2.9302 (F)	4.6071 (VG)	1.3846 (B)

The results presented in table 4 are for the state of infrastructural facilities, they are based on 5–point likert scale of Very Bad (VB=0.00–1.00), Bad (B=1.01–2.00), Fair (F=2.01–3.00), Good (G=3.01–4.00) and Very Good (VG=4.01–5.00).

Table 5: Adequacy of Infrastructural Facilities

S/No	Item	Awka Road	New Market Road	Old Market Road	Oguta Road	Upper New Market Road	Ziks Avenue
1	The adequacy of infrastructural facilities in Commercial Property in Onitsha	1.1458 (NA)	1.0631 (NA)	1.5714 (A)	1.0698 (NA)	1.2500 (NA)	1.0000 (NA)

The adequacy of the properties was cast on a 2–point likert scale of Not Adequate (NA=1) and Adequate (A=2). As already shown under Objective One, the mean cut off point for the likert scale is 1.50; values greater than or equal to 1.50 signify adequate while otherwise signifies not adequate. As contained in table 5, the infrastructural facilities in Awka Road, New Market Road, Oguta Road, Upper New Market Road and Ziks Avenue are not adequate while the facilities are adequate in Old Market Road.

Table 6: Variation in regularity, effectiveness and functionality of the facilities in different locations

Road						
Location	VB (1)	B (2)	F (3)	G (4)	VG (5)	Mean
Awka Road	0	0	5	9	34	4.6042
New Market Road	0	34	77	0	0	2.6937
Old Market Road	0	0	0	3	25	4.8929
Oguta Road	0	10	22	9	2	3.0698
Upper New Market Road	0	4	10	8	6	3.5714
Ziks Avenue	23	9	7	0	0	1.5897
Electricity Supply						
Awka Road	0	6	33	9	0	3.0625
New Market Road	4	20	65	22	0	2.9459
Old Market Road	1	17	9	1	0	2.3571
Oguta Road	3	25	15	0	0	2.2791
Upper New Market Road	0	15	11	2	0	2.5357
Ziks Avenue	0	8	27	4	0	2.8974
Waste disposal						
Awka Road	0	1	2	11	34	4.6250
New Market Road	0	0	4	34	73	4.6216
Old Market Road	0	0	0	6	22	4.8757
Oguta Road	0	9	26	8	0	2.9767
Upper New Market Road	0	2	0	12	14	4.4286
Ziks Avenue	3	22	14	0	0	2.2821
Water Supply						
Awka Road	0	1	4	35	8	4.0417
New Market Road	0	3	14	79	15	3.9550
Old Market Road	3	10	15	0	0	2.4286
Oguta Road	0	12	31	0	0	4.0465
Upper New Market Road	0	0	0	24	4	4.1429
Ziks Avenue	6	17	16	0	0	2.2564
Drainage						
Awka Road	0	0	5	8	35	4.6250

New Market Road	3	16	85	7	0	2.8649
Old Market Road	0	0	0	2	26	4.9286
Oguta Road	0	0	3	35	5	4.7209
Upper New Market Road	0	9	11	7	1	3.0000
Ziks Avenue	0	3	14	22	0	3.4872
Security						
Awka Road	3	4	5	33	3	3.6042
New Market Road	0	0	0	12	99	4.8919
Old Market Road	0	1	4	20	3	3.8929
Oguta Road	0	0	3	6	34	2.9535
Upper New Market Road	0	0	2	15	11	4.3214
Ziks Avenue	0	0	3	31	6	4.0513
Vehicle Parking Space						
Awka Road	0	1	34	12	1	3.2708
New Market Road	0	0	13	90	8	3.9550
Old Market Road	0	3	19	6	0	3.1071
Oguta Road	0	0	3	6	34	2.9535
Upper New Market Road	10	0	18	0	0	2.6429
Ziks Avenue	28	9	2	0	0	1.3333

The results presented in table are for the regularity, effectiveness and functionality of infrastructural facilities, they are based on 5–point likert scale of Very Bad (VB=0.00–1.00), Bad (B=1.01–2.00), Fair (F=2.01–3.00), Good (G=3.01–4.00) and Very Good (VG=4.01–5.00). The weighted mean for each facility in various locations were collated and the summary are presented in table below.

Road (R): among the roads in the study area, Old Market road is the best with weighted mean score of 4.8929, followed by Awka road with weighted mean score of 4.6042 while, Upper new market road with weighted mean score of 3.5714 comes third and, Oguta road take the rear with 3.0698 weighted mean score. New market road has weighted mean score of 2.6937 and Ziks avenue with weighted mean score of 1.5897, which is considered very bad.

Electricity(E): Regularity of electricity (power supply) was revealed to be at its best along Awka road and New market road with 3.0625 and 2.9459 weighted mean score respectively. Ziks avenue and Upper new market road recorded fair regularity of electricity supply with weighted mean scores of 2.8974 and 2.5357, while Old market road and Oguta road recorded the least power supply with weighted mean score of 2.3571 and 2.2791 respectively.

Waste disposal: Old market road, Awka road, New market road and Upper new market road has most effective waste disposal with weighted mean scores of 4.7857, 4.6250, 4.6216 and 4.4286 respectively, while, Oguta road and Ziks avenue, brought up the rear with weighted means scores of 2.9769 and 2.2821 respectively.

Water (W): On water availability, it can be seen that Upper new market road and Awka road enjoys water availability more than any other location in the study area with a weighted mean of 4.1429 and 4.0417, which is closely followed by the New market road and Oguta road with 3.9550 and 2.7209 weighted mean score respectively. While Old market road and Ziks avenue roads takes the rear with 2.4286 and 2.2564 weighted mean scores respectively.

Drainage (D): Old market road and Awka road enjoys better drainage system as revealed in table 2, the two locations have weighted mean scores of 4.9286 and 4.6250 respectively, while, Oguta roads, Ziks avenue and Upper new market road has weighted mean scores of 4.0465, 3.4872 and 3.0000 respectively, and New market road takes the rear with 2.8649 weighted mean score.

Security (S): New market road, Oguta road, Upper new market road and Ziks avenue is the most secured location as shown in the analysis, with weighted

mean score of 4.8919, 4.7209, 4.3214 and 4.0513 respectively, follow by Old market road and Awka road with 3.8929 and 3.6042 weighted mean scores respectively as revealed in table 14.

Parking space (P): new market roads recorded weighted mean score 4.9550, followed by Awka road, Old market road, Oguta road and Upper new market road has weighted mean of 3.2708, 3.1071, 2.9535, 2.6429 and Ziks avenue recorded weighted mean score of 1.3333, which is considered very bad.

Table 7: Average weighted mean of location facilities

Location	Road	Elect.	Waste	Water	Drain	Security	Vehicle.P	Mean
A	4.6042	3.0625	4.6250	4.0417	4.6250	3.6042	3.2708	3.9762
B	2.6937	2.9459	4.6216	3.9550	2.8649	4.8919	3.9550	3.7040
C	4.8929	2.3571	4.7857	2.4286	4.9286	3.8929	3.1071	3.7704
D	3.0698	2.2791	2.9767	2.7209	4.0465	4.7209	2.9535	3.2525
E	3.5714	2.5357	4.4286	4.1429	3.0000	4.3214	2.6429	3.5204
F	1.5897	2.8974	2.2821	2.2564	3.4872	4.0513	1.3333	2.5568

On the average, table 7 revealed that, Awka road has the highest average weighted mean score of 3.9762 therefore the best locational facilities, followed by Old market road with average weighted mean score of 3.7704 while, new market road has an average weighted mean score of 3.7040. Upper new market road followed suit with average mean score of 3.5204, followed by Oguta with average weighted

mean of 3.2525, while Ziks avenue has the least average weighted mean score of 2.5568. These were further subjected to statistical test to ascertain whether there is variation between the locational facilities, One-way ANOVA for the difference between the facilities in different locations in Onitsha, as presented in table 16 and 17.

Table 8: Analyses of the rental values of shops and offices, as a result of infrastructural facilities in Onitsha as at the year (2018)

Name	Location	Name of plazas	Rental value of shops (p.a)	Rental value of offices (p.a)
		Pacific complex	180,000	120,000
Awka rd	A	St Joseph	150,000	96,000
		Millennium	180,000	120,000
			510,000	336,000
		Digital world	264,000	100,000
New mrk rd	B	Our lords	300,000	120,000
		E.I, Ejison	250,000	120,000
			814,000	340,000
		Etelson	144,000	96,000
Old mrk rd	C	St peters	160,000	120,000
			304,000	216,000
Oguta rd	D	Achike	144,000	100,000
		Nwanyibuife	300,000	120,000

		Aluminium	360,000	144,000
			804,000	364,000
		Ejison	180,000	120,000
Upper new mrk	E	Kamo	144,000	100,000
			324,000	220,000
Ziks avenue	F	New world	120,000	60,000
			120,000	60,000

Variations in the mean rental values of commercial properties in different location

Mean rental values of commercial properties (offices and shops) in the locations under study were also collated and presented in table.

Table 9: Mean rental values of commercial properties in different location.

location	Shop (mean #/ p.a)	Office (mean #/ p.a)	Average mean rental values (#/ p.a)
A	170,000	112,000	141,000
B	271,333	113,333	192,333
C	152,000	108,000	130,000
D	268,000	121,333	194,667
E	162,000	110,000	136,000
F	120,000	60,000	90,000
	1,143,333	624,666	

Table 9 revealed the average of the two mean rental values (office and shop) for each location. A noticeable inter-zonal variation in rental values can be observed. Along Awka road the mean rental for office and shop are N112, 000 p.a and N170, 000 p.a respectively, while the average of the two is N141, 000 p.a.This is followed by New market road with an average mean rental value at N192, 333 p.a. Old market road has N130, 000 p.a as their average mean rental value, while Oguta road with the average mean rental value at N194, 667 p.a. The table also revealed that Upper new market road has the average mean rental value of N136, 000 p.a. Ziks avenue with N90, 000 as average mean rental value. This implies that the cheapest parts of the city to operate a commercial activity is Ziks avenue, followed by

Old market road and Upper new market road. The average mean rental value here is about N90,000 p.a, N130,000 p.a and N136,000 p.a compared with N194,667 p.a and N192,333 p.a along Oguta road and New market road. An attempt was made to show whether there is statistical difference between the mean office rental values and mean shops rental value using Wilcoxon signed ranks test (table 12).

Effect of infrastructural facilities on rental value

Effort was made to account for the observed variations in the rental values. The average weighted mean (AWM) scores of the locational facilities and the average mean (AM) rental values were extracted and tabulated in table 10.

Table 10: Locational facilities (AWM) score and mean rental values of shops and offices.
Locational facilities (AWM) score and mean rental values of shops and offices

Location	Facilities score (AWM)	Average Mean rental values of shops and offices (#/ p.a)
A	3.9762	141,000
B	3.7040	192,333
C	3.7704	130,000
D	3.2525	194,667
E	3.5204	136,000
F	2.5568	90,000

The effect of infrastructural facilities on commercial property values was checked using simple linear regression; the overall average weighted mean of the available facilities was used to fit a predictive model with the Rental Values of the properties (₦/P.A). The results are presented in table 13, table 14 and table 15. Table 13 contains the regression, table 14 has the ANOVA result while table 15 has the regression coefficients of the result.

TEST OF HYPOTHESES USING STATISTICAL PACKAGE FOR SOCIAL SCIENCE (SPSS, 23)

Decision rule: We accept the null hypothesis when the probability value is greater than the alpha value, otherwise we reject it.

Hypothesis I
$H0$: There is no significant difference between the values of commercial properties of shops and offices in Onitsha.

$H1$: There is significant difference between the values of commercial properties of shops and offices in Onitsha.

Wilcoxon Signed Ranks Test for the Difference between the mean rental values of shops and offices

Table 11: Ranks

		N	Mean Rank	Sum of Ranks
Mean office rental value - Mean shop rental value	Negative Ranks	5[a]	3.40	17.00
	Positive Ranks	1[b]	4.00	4.00
	Ties	0[c]		
	Total	6		

a. Mean office rental value < Mean shop rental value

b. Mean office rental value > Mean shop rental value

c. Mean office rental value = Mean shop rental value

Table 12: Test Statistics

	Mean office rental value - Mean shop rental value
Z	-1.363[a]
Asymp. Sig. (2-tailed)	.037

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

From table 12, we can see that the p–value is 0.037, less than 0.05. This shows that the mean shop rental value of 4.00 is greater than the mean office rental value, which is 3.40. These results suggest that shops commands more rental value compare to offices.
Hypothesis II

$H0$: There is no significant difference between the effect of infrastructural facilities on the values of commercial properties in Onitsha.
$H1$: There is significant difference between the effect of infrastructural facilities on the values of commercial properties in Onitsha.

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.430[a]	.185	-.019	40439.495

a. Predictors: (Constant), Facilities (AWM)

From table 13, it can be seen that the R for the regression is 0.430; that is, the (effect) between facilities on mean rental values is about 43.0 percent.

The value is a weak positive effect. Table 21 will tell whether the effect is significant or not.

Table 14: ANOVA table for the Regression

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.480E9	1	1.480E9	.905	.395[a]
	Residual	6.541E9	4	1.635E9		
	Total	8.022E9	5			

a. Predictors: (Constant), Facilities (AWM)

b. Dependent Variable: Rental Value (₦/P.A)

From table 14, we can see that the p–value of the regression analysis is 0.395, greater than 0.05. This implies that the regression result is not good; that is the

Model generated is not adequate to be used for any further research or prediction. Also the p–value shows that the regression is not significant.

Table 15: Coefficients of the regression result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29777.798	124663.320		.239	.823
	Facilities (AWM)	33942.398	35677.629	.430	.951	.395

a. Dependent Variable: Rental Value (N/P.A)

Since the ANOVA result shows that the model is not adequate (that is, non–significant), there won't be need to write the model generated from the result.
Hypothesis III

$H0$: There is no significant difference between the facilities in different locations in Onitsha.
$H1$: There is significant difference between the facilities in different locations in Onitsha.

One-way ANOVA for the difference between the facilities in different locations in Onitsha

Table 16:Test of Homogeneity of Variances

Observations from different locations

Levene Statistic	df1	df2	Sig.
.868	5	36	.512

Table 16 contains the result of test of homogeneity of variance for the Analysis of variance; this is a condition for ANOVA. From the table, it can be seen that the p – value is 0.512, greater than 0.05; this shows that the variances of the groups are equal. With the variances being equal, ANOVA can comfortably be conducted on the set of data.

Table 17: ANOVA result for Hypothesis Three

Observations from different locations

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.994	5	1.799	2.220	.073
Within Groups	29.171	36	.810		
Total	38.165	41			

From table 17, it can be seen that the p – value of the result is 0.073, that is a value greater than 0.05. This implies that there is no significant difference between the facilities in different locations in Onitsha, that is, the facilities in all the locations are significantly the same.

The following findings were made from the Analysis;
1. There is significant difference between the values of commercial properties of shops and offices in Onitsha.
$(-value = 0.037 < 0.05, confident\ interval; 0.05)$

2. There is no significant difference between the effect of infrastructural facilities on the values of commercial properties in Onitsha.
$(-value = 0.395 > 0.05, confident\ interval; 0.05)$

3. There is no significant difference between the facilities in different locations in Onitsha.
$(-value = 0.073 > 0.05, confident\ interval; 0.05)$

Hypothesis 1 shows that there is significant difference between the mean values of commercial properties of shops and offices; that is shops and offices are being occupied but the mean shop rental value of 4.00 is greater than the mean office rental value, which is 3.40. These results suggest that shops commands more rental value compare to offices. With the interpretation, the null hypothesis is rejected and the alternative accepted.

Hypothesis 2 shows that there is no significant difference between the effect of infrastructural facilities on the values of commercial properties in Onitsha. From table 14, we can see that the p–value of the regression analysis is 0.395, greater than 0.05. This implies that the regression result is not good; that is the model generated is not adequate to be used for any further research or prediction. Also the p–value shows that the regression is not significant.

Hypothesis 3 shows that there is no significant difference between the facilities in different locations in Onitsha. From table 17, it can be seen that the p – value of the result is 0.073, that is a value greater than 0.05. This implies that there is no significant difference between the facilities in different locations in Onitsha, that is, the facilities in all the locations are significantly the same.

VI. CONCLUSION

From the findings, there is variation in availability/functionality of facilities in different areas and in rental value, though, that of rental value is not statistically significant. This means that the rental values of shops and offices in different areas of Onitsha do not depends on infrastructural facilities or simply say that the infrastructural facilities in Onitsha, do not affect the rental values of shops and offices in different areas or locations in Onitsha. The statistical test conducted corroborated that there is weak positive statistically significant effect of facilities on commercial property value. Therefore, facilities are necessary but do not play a significant role in determining values of commercial properties in Onitsha. The results of the study have provided some insight in the impact of infrastructure, especially the weak positive side, as the aim of infrastructural facilities is to boast economic growth, adequate consideration should be made by the state government on how to provide all the necessary facilities needed in the state.

VII. RECOMMENDATION

Provision of infrastructural facilities is a primary function of all governments throughout the universe. Where urban infrastructure is adequately provided and efficiently managed, productive and profitable land uses are usually attracted towards such area. Therefore, both the state and the local government authorities have a major role to play, since the cost of providing it is beyond individual. Provision of these infrastructural facilities where they are lacking will bring evenly distributed development and commercial activities, and attracts more investors to the city.

REFERENCES

[1] Abdulazeez, H.O., & Muhammad, A. N. (2017). Effects of locational infrastructural facilities on commercial property value in Sokoto, Nigeria. International Journal of Advanced Research and Publication, 1(5), 2456-9992.

[2] Ajayi, M.T.A., Jimoh, O.L., & Jimoh, R.A. (2014). Effects of infrastructural development on residential property values in Minna. Ethiopian Journal of Environmental Studies and Management, 7(4), 452-459.

[3] Ajibola, M. O., Awodiran, O. O., & Salu-Kosoko, O. (2013). Effects of infrastructure on property values in unity estate, Lagos, Nigeria. International Journal of Economy, Management and Social Sciences, 2(2), 451-471.

[4] Babarinde, J.A. (1998). Analysis of industrial relocation in relation to housing and infrastructural services in metropolitan Lagos. The Lagos journal of Environmental Studies, 2(1), 97-108.

[5] Barlowe, R. (1986). Land resources economics. New Jersey; Prentice-Hall Inc.

[6] Britton, W. (1989). Modern Methods of Valuation of Land, Houses and Buildings, 8th (ed), Estate Gazette Limited, London; 1-726.

[7] Johnson, T., Davies, K., & Shapiro, E. (2005), Modern Methods of Valuation of Land, Houses and Buildings. Estate Gazette, London.

[8] Jimoh, I.S. (2013). Public infrastructure vs. residential property rental values in Lagos, Nigeria. Journal of Sustainable Development Studies, 4(1), 17-33.

[9] Kalu, I.U. (2001). Property valuation and appraisal, Bori Publication, Owerri.

[10] Lean, W. & Goodall, B. (1977). Aspect of land Economics, London; The Estate Gazette Ltd. London, 135-141.

[11] Neil, D, (1998). A hedonic price model of office rents. Journal of Property Valuation and Investment, 16(3), 297-312.

[12] Nubi, T.O. (2002). Procuring, managing and financing urban infrastructure towards integrated approach. Presented at the - National Working on Land Management and Property Tax Reform in Nigeria, Organized by Estate Management Department of UNILAG, Akoka.

[13] Obateru, O.I. (2003). Land subdivision basics. Visionary Publication Nigeria, Ibadan, Nigeria.

[14] Okorafor, G.F., Okoronkwo, C., & Oladejo, E. (2017). Infrastructure development and maintenance in the oil producing areas of southern Nigeria; Implication, options and challenges. International Journal of Scientific

Research in Technology, Applied Sciences and Health Studies: August, 2017, 2(1), 2579-1036.

[15] Okusipe, M.O. (1999). Environmental quality and urban planning: A case of metropolitan, Lagos, Nigeria. The Lagos Journal of Environmental Studies, 1(1), 1561-1722.

[16] Olujimi, A., & Bello, M.O. (2009). Effects of infrastructural facilities on the rental values of residential property. Journal of Environmental Sciences 5(40): 332-341.

[17] Olusegun, G. K. (2003). Principles and Practice of Property Valuation, General Principles. Climax Communications Limited, Lagos.

[18] Ominrin, M.M. (2004). Guideline for the effective management of public infrastructure in Nigeria. Journal of Estate Surveyors and valuers, 22(1), 15-21.

[19] Orekan, A.A. (2015). The impact of infrastructural facilities on residential property development in Ota, Ogun State, Nigeria. Covenant Journal of Research in the Built Environment, 3(2).

[20] Segun, A. (2014). The impact of the provision of infrastructure on commercial landed properties in Awka, Anambra State (Project). Nnamdi Azikiwe University, Awka, Nigeria.

[21] Udoka, I.S. (2013). The imperatives of the provision of infrastructure and improved property values in Nigeria. Mediterranean Journal of Social Sciences, 4(15), 566-578.

[22] World Bank. (1994). Infrastructure for development. World development report; executive summary, Washington, D.C.