

Impact of Infrastructure Condition on Residential Property Values in Kaduna Metropolis.



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Abstract

This paper assessed the impact of infrastructure condition on residential property values in Kaduna metropolis. Structured questionnaires were administered to 36 Estate Surveying firms within Barnawa and Narayi areas of Kaduna Metropolis. 2 Estate Surveyors were selected randomly from each of the 36 firms giving a sample size of 72, out of which 44 were retrieved and considered useful for the analysis giving a response rate of 61.1%. Their responses were analysed subjectively using descriptive statistical tools. The study revealed that rental trend for properties in Barnawa commanded higher rent than properties in Narayi. This can be attributed to better condition of infrastructure evident in Barnawa. Most critical factors influencing Infrastructure condition in Barnawa and Narayi are misappropriation of funds, Government policies and corruption with weighted mean scores of 3.00, 2.88, 2.77 respectively. Investors, property managers and tenants may benefit from the findings of this paper as they make better investment, management and occupational decisions. Also, the findings of this paper can enhance prudent management of funds by the Kaduna State government and its agencies. This paper is unique as it provides practical solutions to ensure better condition of infrastructure thereby enhancing return on investment.

KEYWORDS – *Impact, Infrastructure, Kaduna, Condition, Residential Property.*

1.0 INTRODUCTION

Urban infrastructure apart from being an indicator for measuring environmental quality is a catalyst for political, social and economic development as well as the backbone of any economy as all sectors need it to effectively function (Bichi, 2017). In his opinion, Bichi (2017) stated that infrastructure is a physical framework of facilities through which goods and services are provided to the public which covers a wide range of services such as telecommunication, sewage disposal, roads, energy, water supply, agricultural, medical, educational and other facilities etc. Most of these services have a direct effect on man's life from his health, safety and wellbeing. From the societal point of view, they form the bedrock of all socio-economic development in a country, and are a key indicator of a nation's developmental status as well as the

wellbeing of her citizens (Ajayi, Jimoh and Jimoh, 2014). Apart from the housing deficit and unstable property rentals facing Africa today, many African cities are faced with the challenge of poor management of the few available infrastructure facilities. In Nigeria for instance, the influx of rural dwellers to the urban centres in search of 'white collar' jobs has resulted in the increasing urban growth thereby putting much pressure on the few available urban Infrastructural facilities with the resultant consequences of overuse and deterioration of these facilities.

Many factors interplay to create property value, this could be economic, institutional, environmental and infrastructural factors (Bello and Bello, 2006). Olujimi (2010) opined that infrastructural facilities are likely factors that may affect rental value of residential properties in Nigeria since they are regarded as booster to the social well-

being of the city dwellers. Whereas Ibrahim (2011) revealed that the presence of facilities in a building cause high preference, keen competition for properties and thus, high rental values, while the absence of facilities results in low patronage, disincentive to people, attraction of poor tenants and consequently, low rental values. This has led to a public outcry in recent times towards investors over the fluctuating property rental values as a result of housing deficit, inadequate infrastructural facilities and the complete neglect of the few available ones by government and its agencies responsibility for infrastructure management and maintenance.

There have been divergent views on this subject of discourse over the years. While some research findings support the fact that infrastructure provision increases rental

value, others have revealed otherwise. For instance, Ankeli, Dabara, Gambo, Lawal, Agidi and Waziri .U, (2016) opined that where infrastructure are adequately provided and prudently managed, it often serves as a magnet to other productive and profitable land uses which fast track development and in turn leads to increased property rental values. On the other hand findings from Olujimi, (2010) have shown that a reasonable number of urban houses in most Nigerian cities have no basic infrastructural facilities but property rentals in these areas are on the increase. It is difficult to make blanket statements as findings seem to be peculiar to locations of study. There is therefore the need to ascertain the true position for Kaduna metropolis. This gap is what the study seeks to fill.

2.1 Concept of Infrastructure

Infrastructure is a broad concept that embraces public investment in physical assets and social services. Akinbamijo and Fasakin, (2006) defined infrastructure as the aggregate of all facilities that allows a city to function effectively. Though there seem to be similar opinions on the concept of infrastructure, there are however divergent views on the classification. Some school of thought argue that Infrastructure has two classifications while others classify it into

three. For instance some economic proponents classify infrastructure into physical (roads electricity, telecommunication, drainage system, etc.), social (education, health, recreation, housing etc.) and institutional infrastructure (co-operative society, post and telecommunication facilities and agricultural facilities). Others classify it into two namely physical and social infrastructure (Bichi, 2017).

2.2 Infrastructural and Economic Development.

Often the concept of infrastructural investment and economic development are considered one and the same variable. There are no major writers or analysts who reject the relationship between infrastructure and economic development (Udoka, 2013). It is evidently clear that there is a nexus between infrastructure provision and economic development as the former serves as a catalyst for the latter. Most drivers of the

economy of any nation or society most especially manufacturing industries depend largely on the availability of infrastructure such as electricity, water supply, roads, health care, education etc. The urge to increase public investments in urban infrastructure stems from the view that they are key determinants of long-term sustainable growth and the capacity of the poor to benefit from the growth process (Ogun, 2010). Thus availability of these infrastructure would

mean economic growth and prosperity and vice-versal.

2.5 Previous Studies

The nexus between infrastructure and property values has been widely studied in Nigeria here. For instance, Jimoh and Ige, (2017) examined Public Infrastructure versus Residential Property Rental Value in Lagos, Nigeria. Questionnaires were administered on residents across the low, medium and high residential neighbourhoods as well as registered Estate Surveyors and Valuers in Lagos State. Data was analysed using descriptive and inferential statistical tools. The study revealed that infrastructure provision has a population magnet attracting more people to settling in a particular neighbourhood. Regression analysis reveal that variations in low, medium and high density areas at 99.8%, 99.3% and 99.7% respectively are attributed to the effect of infrastructure quality on residential rental value. This study however failed to clearly delineate its scope as the entire Lagos is too broad for a study of such nature.

Dabara, Lawal, Adebawale, Ankeli and Gambo (2016) analyzed the impact of infrastructural facilities on the rental values of residential properties in Osogbo and Ede, Osun State Nigeria. Structured questionnaires were administered on household heads (lease occupiers/tenants) and practicing Estate Surveyors and Valuers in the study area. The random sampling technique was adopted for the household heads while a total enumeration survey was carried out on the Estate Surveyors and Valuers. The study indicated that there was a high positive correlation between the variables (0.905), implying that there is a strong positive relationship between rental values and availability/condition of housing infrastructural facilities. Only refuse dump and perimeter fencing were insignificant predictors of rental values. This study did not consider infrastructure alone but included

housing facilities which made the results unreliable.

Abubakar, Michael and Dauda (2015) evaluated the level of compliance of private estate developers in the provision of infrastructure in public private partnership housing estates in FCT, Abuja. They used a check list to sample 56 estates. Their findings revealed that 75% had paved access roads, 10.4% had water supply, 79.2% had drainages, 83.3% had streetlights, 0% had sewer lines, 95.83% had electricity, 14.6% had shopping facility and 29.2% had recreational parks provided by the developers. The study concluded that there is poor provision of water supply, sewer lines, shopping facility and recreational parks in public private partnership housing estates. This study only considered the availability of facilities and some infrastructure but did not consider their relationship with property rents.

Okorie, (2015) studied infrastructural facilities that influence the rental values of residential properties in Osogbo, Osun Nigeria. The study adopted the survey research design. Data were collected from a sample of 150 tenants and 15 practicing Estate Surveyors and Valuers in the study area. Descriptive statistics (frequency, percentages, weighted mean score) and inferential statistics (Spearman's rank correlation and multiple linear regression analysis) were used to examine the relationships between the criterion variable (rental values) and the predictor variables (infrastructural facilities). The study indicated that there is a high positive correlation between the variables (0.905), implying that there is a strong positive relationship between rental values and availability/condition of housing facilities. However, Out of the eight predictors, only refuse disposal facility does not significantly

influence rental values. This study like Dabaraet'et al., (2016) did not consider infrastructure alone but included housing facilities which made the results unreliable. Bello, Adeniji and Arowosegbe, (2015) examined the contribution of urban infrastructural development to property values in Abeokuta. They adopted structured questionnaires administered on 15 registered firms of Estate Surveyors and Valuers, 5 members of Real Estate Developers Association of Nigeria in the metropolis and 150 randomly selected organized commercial properties in the commercial areas of the metropolis. Frequency table and percentages were used in analyzing the data collected. The study revealed that the effort of the present government in Ogun State has attracted many investors as a result of the deliberateness in providing infrastructure facilities in the State Capital and other towns. It also revealed that property values have increased tremendously and the efforts have also brought about a new look to the State Capital. The study however seems to be deficient in methodology as it did not clearly articulate how conclusions were arrived at. Orekan, (2015) studied the impact of infrastructural facilities on residential property growth in Ota, Ogun State with a view to having a deeper knowledge of residential property development growth in the study area. Structured questionnaires were distributed to registered Estate Surveying and Valuation firms in Ogun State. Also, personal in-depth interviews were conducted. Questionnaires were also administered to 89 randomly selected clients of the Estate Surveying and Valuation firms' management portfolio in the study area with a 74% retrieval rate. Data gathered were analyzed using frequency distribution tables and component bar charts. The study showed that the provisions of infrastructure like industries, educational institutions and roads were major contributors to property growth in

the study area. The study like Bello *et al.*, (2015) seems to be deficient in methodology as it also could not clearly articulate how conclusions were arrived at.

Ajayi, Jimoh and Jimoh, (2014), examined the effect of infrastructure on residential property value in Minna. The research adopted a mix of quantitative and qualitative method of research. The study adopted a purposive selection of 8 practicing Estate Surveyors within the study area and randomly distributed 400 questionnaires to the residents of Tunga and Bosso, Minna. The result indicates that with a minimum of 84%, tarred road is the predominant infrastructure in the selected areas while the regression analysis with the coefficient of determination of 49.3% indicates that time taken from the road is not a factor of consideration in selection of residential property. In essence, the type of road provided in the study area does not have any effect on residential property value. This study only considered infrastructure availability but not quality.

Ajibola, Awodiran and Salu-Kosoko, (2013) studied the effects of infrastructure on property values in Unity Estate in Lagos Metropolis. Questionnaire was administered on all the 510 households in the study area while 204 (40%) was retrieved and used for the study. Relative importance index was adopted in ranking the infrastructure in order of importance attached to them by the respondents. The study revealed that water (RII = 2.97), electricity (RII = 2.52) and roads (RII = 2.40) are ranked as the most important facilities required in the estate. The results of this study are limited to confined household; therefore, it cannot be a true representation of the entire market.

Olujimi and Bello, (2010) examined the available infrastructural facilities in residential properties in Akure, Nigeria and analyzed their influence in the determination of the rental values of the properties. Akure

was divided into four residential zones and 190 tenants were randomly selected for interview. 11 infrastructural facilities were identified as peculiar to residential properties in Akure. The study employed multiple regression models to determine the influence of the infrastructural facilities in the rental values of the property while the step-wise analysis revealed that wall-fence and installed burglary proof are significant determinants of rental values of residential properties in Akure. However, Pearson's Product Moment Correlation Coefficient matrix was used to verify the significant level of the independent variables. The study concluded that although other infrastructural facilities are also necessary but residential property developers should essentially ensure

the provision of these two infrastructural facilities in order to attract higher rental values. This study only focused on property related facilities but not urban infrastructure, thus results are unreliable.

Much seems to have been done on this subject in Nigeria, however, most of the studies focused on property related facilities rather than urban infrastructure. Also most of the studies are concentrated in South-Western Nigeria with little attention given to the Northern part of the country especially in Kaduna State. This study seeks to fill the gap by providing relevant information to all stakeholders in the residential property market within the study area.

3. METHODOLOGY

The study covered 36 Estate Surveying and Valuation firms in Kaduna out of which 2 Estate Surveyors were randomly selected from each firm giving a total sample size of 72. Questionnaires were administered to the 72 Estate Surveyors while 44 were retrieved and considered useful for the analysis giving a response rate of 61.1%.

Data was collected through the simple random sampling and analysed using descriptive statistics. Annual rental values for one, two, three and four bedroom flats were collected over a 14year period

(between 2005-2018). Weighted mean score was used to rank significant factors. A four-point Likert scale was used to derive the means of the variables, after which the decomposed variables were re-grouped and measured uni-dimensionally thus: for scores between 1.00 and 1.49 points, the factor/variable were counted as non-existent, scores between 1.50 and 2.49 points, the factor/variable were acknowledged as present however in limited quantity, and scores between 2.50 and 4.00 points, the factor/variable were established to exist in sufficient quantity to impact the market significantly.

4.0 DATA PRESENTATION AND ANALYSIS

The data collected was analysed and results presented below as follows;

4.1 Academic Qualification.

Table 1: Academic Qualification of the Respondents

Qualification	Frequency	Percentage
ND	4	9.1
HND/B.sc	39	88.6
M.sc/MBA	1	2.3
Total	44	100.0

Source: Field Survey, 2018

Table 1 shows the frequency distribution of the respondents by educational qualification. 39(88.6%) of the respondents are HND/ B.Sc. holders, 4(9.1%) are ND holders and 1(2.3%) is an M.sc/MBA holder. From the

results, it can be seen that majority of the respondents are HND/ B.Sc. holders which implies a good level of reliability in their responses.

4.2 Years of Experience in Managing Properties

Table 2: Years of Experience in Managing Properties.

Year	Frequency	Percentage
1-5	15	34.1
6-10	22	50.0
11-15	3	6.8
16 above	4	9.1
Total	44	100.0

Source: Field Survey, 2018

Table 2 shows the frequency distribution of the respondents by years of their involvement in managing of properties within Barnawa and Narayi. Twenty-two of the respondents have been involved in managing of properties for 6- 10 years, fifteen of the respondents have been involved in managing of properties for less than 1-5 years, three of the respondents have been involved in managing

of properties for 11-15 years while four of the respondents have been involved in managing of properties for 16 years and above within Barnawa and Narayi. The majority of respondents involved in property management in the two locations fall within the range of 6-10 years indicating a reasonable level of experience and thus would provide more reliable responses.

4.3 Average Annual Rental Values in the study Areas Between 2005-2018.

The annual rental values of select residential properties (one, two, three and four bedroom flats) within the study locations were collected and their averages presented in figure 1 and 2 below.

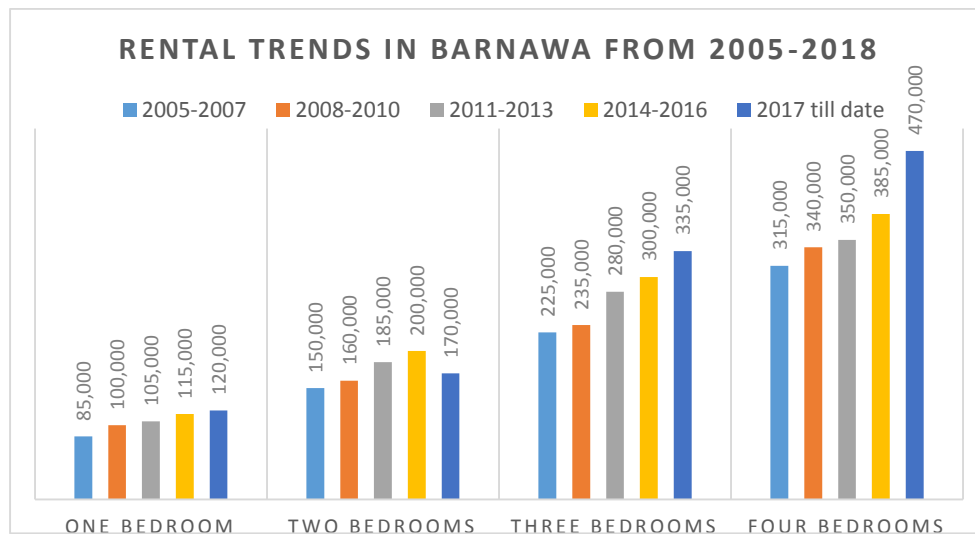


Figure 1: Average Annual Rental values in Barnawa between 2005-2018.

Figure 1 above reveals that four and three bedroom flats have been experiencing hyper growth rate while one bedroom shows a mild increase but two bedroom reveals year 2014-2016 as peak period followed by a sharp decline from year 2017-2018.

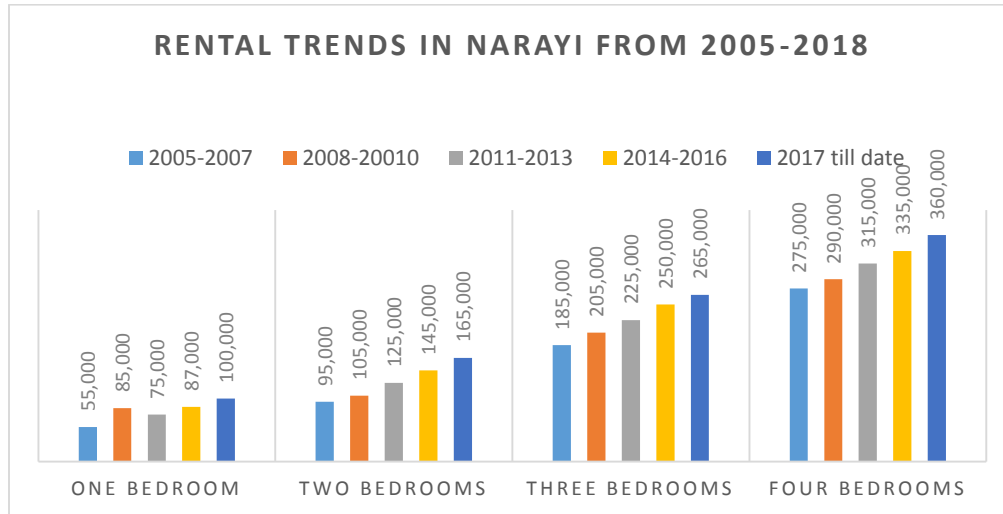


Figure 2: Average Annual Rental values in Narayi between 2005-2018.

Figure 2 above reveals a steady increase in rents for all property types except for one bedroom that fluctuated between year 2011-2013

The figure 1 and 2 above reveals that Barnawa property investment is commanding higher rent than Narayi property investment due to level of infrastructural condition

between both study areas. The ranges in rental values in both the study areas also indicate that some locations are more developed than others.

4.4 Condition of Basic Infrastructure in Barnawa and Narayi

This section presents results of responses on the condition of basic infrastructure in the both locations on an individual basis.

4.4.1 Condition of Roads in Barnawa and Narayi Areas of Kaduna Metropolis.

Table 3: Condition of Roads in Barnawa and Narayi

Barnawa			Narayi		
Response	Frequency	Percentage	Response	Frequency	Percentage
Very good	8	18.2	Very good	3	6.8
Good	31	70.5	Good	6	13.6
Fair	3	6.8	Fair	27	61.4
Poor	2	4.5	Poor	7	15.9
Very poor	-	-	Very poor	1	2.3
Total	44	100.0	Total	44	100.0

Source: Field Survey, 2018

Table 3 reveals that the highest response rate for Barnawa (70.5%) of opined that the quality of roads are in a good state, while highest response rate for Narayi (61.4%)

opined that the condition of roads are fair. This implies that in the overall Barnawa has better quality roads than Narayi (70.5% and 61.4%) respectively with a difference of about 9.1%.

4.4.2 Condition of Electricity in Barnawa and Narayi Areas of Kaduna Metropolis

Table 4: Condition of Electricity in Barnawa and Narayi.

Barnawa			Narayi		
Response	Frequency	Percentage	Response	Frequency	Percentage
very good	20	45.5	very good	5	11.4
Good	24	54.5	Good	11	25.0
Fair	-	-	Fair	24	54.5
Poor	-	-	Poor	3	6.8
Very poor	-	-	very poor	1	2.3
Total	44	100.0	Total	44	100.0

Source: Field Survey, 2018

Table 4 reveals that highest response rate for Barnawa (54.5%) opined that the condition of electricity is good and the remaining 45.5% opined that condition of electricity is very good. While highest response rate for Narayi (54.5%) opined that the condition of

electricity is fair. The implies that Barnawa has better condition of electricity as all the respondents adjudged electricity to be good as opposed to Narayi which had varying opinions.

4.4.3 Condition of Drainage Systems in Barnawa and Narayi Areas of Kaduna Metropolis

Table 5: Condition of Drainage Systems in Barnawa and Narayi.

Barnawa			Narayi		
Response	Frequency	Percentage	Response	Frequency	Percentage
very good	7	15.9	very good	3	6.8
Good	28	63.6	Good	4	9.1
Fair	7	15.9	Fair	19	43.2
Poor	2	4.5	Poor	13	29.5
Very poor	-	-	very poor	5	11.4
Total	44	100.0	Total	44	100.0

Source: Field Survey, 2018

Table 5 above reveals that highest response rate for Barnawa (63.6%) of the respondents are of the opinion that the condition of

drainage systems in Barnawa is good, while highest response rate for Narayi (43.2%) opined that the quality of drainage system is

fair. This implies that in the overall Barnawa has better quality drainage system than

Narayi (63.6% and 43.2%) respectively with a difference of about 20.4%

4.4.4 Quality of Water Supply in Barnawa and Narayi Areas of Kaduna Metropolis

Table 6: Quality of Water Supply in Barnawa and Narayi.

Barnawa			Narayi		
Response	Frequency	Percentage	Response	Frequency	Percentage
very good	13	29.5	very good	5	11.4
Good	26	59.1	Good	11	25.0
Fair	3	6.8	Fair	18	40.9
Poor	2	4.5	Poor	8	18.2
Very poor	-	-	very poor	2	4.5
Total	44	100.0	Total	44	100.0

Source: Field Survey, 2018

Table 6 above reveals that highest response rate for Barnawa (59.1%) opined that water supply in Barnawa is good, while the highest response rate for Narayi (40.9%) opined that

water supply in Narayi is fair. Overall results reveal that water supply in Barnawa is better than Narayi (59.1% and 40.9%) respectively, with a difference of about 18.2%.

4.4.5 Quality of Waste Disposal in Barnawa and Narayi Areas of Kaduna Metropolis

Table 7: Quality of Waste Disposal in Barnawa and Narayi.

Barnawa			Narayi		
Response	Frequency	Percentage	Response	Frequency	Percentage
very good	5	11.4	very good	5	11.4
Good	29	65.9	Good	11	25.0
Fair	10	22.7	Fair	18	40.9
Poor	-	-	Poor	8	18.2
Very Poor	-	-	very poor	2	4.5
Total	44	100.0	Total	44	100.0

Source: Field Survey, 2018

Table 7 above reveals that highest response rate for Barnawa (65.9%) opined that quality of waste disposal in Barnawa is good, while the highest percentage response rate for Narayi (45.5%) opined that quality of waste

disposal is fair. Overall results reveal that waste disposal in Barnawa is better than Narayi (65.9% and 45.5%) respectively, with a difference of about 20.4%.

4.4.6 Quality of Health Facilities in Barnawa and Narayi Areas of Kaduna Metropolis

Table 8: Quality of Health Facilities in Barnawa and Narayi.

Barnawa			Narayi		
Response	Frequency	Percentage	Response	Frequency	Percentage
very good	10	22.7	very good	3	6.8
Good	26	59.1	Good	9	20.5
Fair	6	13.6	Fair	11	25.0
Poor	2	4.5	Poor	13	29.5
Very poor	-	-	very poor	8	18.2
Total	44	100.0	Total	44	100.0

Source: Field Survey, 2018

Table 8 above reveals that highest response rate for Barnawa (59.1%) opined that condition of health facilities in Barnawa are good, while highest response rate for Narayi (29.5%) opined that the condition of health facilities in Narayi is poor. This implies that in the overall Barnawa has better condition health facilities than Narayi (59.1% and 20.5%) respectively with a difference of about 38.6%.

The analysis of infrastructure condition as presented above for the both locations reveal that Barnawa surpasses Narayi in all infrastructure types. This explains subjectively the reason for higher rental values in Barnawa as people will tend to pay more in locations where they can have access to better infrastructure facilities.

4.5 Factors Influencing Infrastructural Condition

Results of responses from Estate Surveyors and Valuers within the study locations are presented in the table below.

Table 9: Factors Influencing Infrastructural Condition in Barnawa and Narayi.

Factors	Mean	Standard Deviation	Ranking
Misappropriation of funds	3.00	4.47	1 st
Government policies	2.88	4.77	2 nd
Corruption	2.77	5.08	3 rd
Political instability	2.45	3.32	4 th
Technological innovation	2.27	2.77	5 th
Ethnic composition	2.20	3.05	6 th
Religious affiliation	2.18	3.28	7 th
Dearth of visionary leaders	2.16	3.57	8 th
High construction cost	2.14	3.06	9 th
Social class	2.14	3.09	9 th
Urban population growth	2.11	3.07	11 th
Regulatory quality	1.98	3.27	12 th
Direct foreign investment	1.89	3.37	13 th
Health and safety factors	1.82	3.47	14 th
Statutory provision	1.77	3.68	16 th

National income	1.77	3.59	16 th
High tax rate	1.70	4.01	18 th
Insufficient funds	1.70	4.42	18 th
Demand and supply	1.45	4.74	20 th

Source: Field Survey, 2018

Table 9 reveals the ranking on opinion of the respondents on their level of agreement with the factors that influences infrastructural provision in Barnawa and Narayi by using weighted mean score. The results of the respondents revealed that the five (5) most critical factors that influence infrastructural provision in Barnawa and Narayi are misappropriation of funds, Governments policies and corruption with weighted mean scores of 3.00, 2.88, 2.77 respectively. On the other hand the least critical factors that influence infrastructural provision in Barnawa and Narayi are high tax rate, insufficient funds

Conclusion

This study examined the factors influencing infrastructure provision in Barnawa and Narayi metropolis of Kaduna. An analysis of rental trend reveal that properties in Barnawa command higher rents than properties in Narayi. This can be attributed to better condition of infrastructure provided within the location. The findings agree with Dabaraet'et al., 2016; Nwosu, 2016; Orekan, 2015 and Olujimi and Bello, 2009. The most critical factors influencing infrastructure provision included misappropriation of

and demand and supply with weighted mean scores of 1.70, 1.70 and 1.45 respectively. Critical factors revealed points to the fact that Nigeria as a nation has been bedevilled by elements of bad leadership. The poor state of infrastructure in Kaduna and Nigeria by extension can be attributed greatly to corrupt leaders who either loot funds meant for infrastructure or divert them for other projects. The study recommends that government reviews its infrastructure policy to focus on low brow areas. This will improve rental returns and increase property values within the State.

funds, government policies and corruption with weighted mean scores of 3.00, 2.88, 2.77 respectively. While least critical factors are high tax rate, insufficient funds and demand and supply with weighted mean scores of 1.70, 1.70 and 1.45 respectively. This is evident in the poor quality infrastructure in Narayi particularly which has affected rental values within the location. The study recommends that government strengthen it's polices to increase funding for infrastructure as well as scrutinize it's spending on infrastructure to ensure projects are executed as stipulated in the terms of contract.

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