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CONFERENCE Proceedings

CONTEMPORARY ISSUES AND SUSTAINABLE PRACTICES IN THE BUILT ENVIRONMENT

EDITORS:
Asimiyu M. JUNAID
Olatunde F. ADEDAYO
Richard A. JIMOH
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10th – 12th APRIL 2018
School of Environmental Technology,
Federal University of Technology, Minna, Niger State, Nigeria.

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FOREWORD

The organising committee of the 2nd School of Environmental Technology International Conference is pleased to welcome you to Federal University of Technology Minna, Niger State Nigeria.

The conference provides an international forum for researchers and professionals in the built and allied professions to address fundamental problems, challenges and prospects that affect the Built Environment as it relates to Contemporary Issues and Sustainable Practices in the Built Environment. The conference is a platform where recognised best practices, theories and concepts are shared and discussed amongst academics, practitioners and researchers. The scope and papers are quite broad but have been organised around the sub-themes listed below:

- Architectural Education and ICT
- Building Information Modeling
- Construction Ethics
- Energy efficiency and Conservation
- Environmental Conservation
- Facility Management
- Green Construction and Efficiency
- Health and Safety Issues
- Information Technology and Building Maintenance
- Information Technology and Construction
- Information Technology and Design
- Innovative Infrastructure Development
- Resilient Housing Development
- Smart Cities Development
- Social Integration in Cities
- Sustainable Building Materials Development
- Sustainable City Growth
- Sustainable Cost Management
- Sustainable Property Taxation
- Sustainable Architectural Design
- Sustainable Urban Transportation Systems
- Theory and Practices for Cost Effectiveness in Construction Industry
- Urban Ecology Management
- Urban Land Access
- Disasters, Resilient Cities and Business Continuity

We hope you enjoy your time at our conference, and that you have the opportunities to exchange ideas and share knowledge, as well as participate in productive discussions with the like-minded researchers and practitioners in the built environment and academia.

Local Organising Committee
School of Environmental Technology International Conference (SETIC) 2018
APRIL 2018

ACKNOWLEDGEMENTS

We have tried to build on the success of the maiden of SETIC held in 2016 which came with good feedbacks and memories. The success of the 2nd School of Environmental Technology International Conference holding at the Main Campus of the Federal University of Technology Minna, Nigeria is predicated on the support and goodwill from Vice-Chancellor of Federal University of Technology, Dean School of Environmental Technology and many other highly motivated people.

I sincerely wish to appreciate you for attending this Second edition of SETIC and to warmly welcome you to the city of Minna the capital of the *POWER STATE.* It is a great honour to have you in the beautiful campus of Federal University of Technology Minna, Nigeria. I am aware of the great sacrifices made by many of you to be present in this occasion and I will definitely not overlook the long distances some of you have had to cover to get to the conference venue. We genuinely appreciate all your efforts. It is our singular hope and desire that this 2nd edition of the conference (SETIC 2018) meets your expectations and gives you unquantifiable experience and tremendous developmental networking opportunities for a life fulfilling career.

We are grateful for the presence of the Vice Chancellor of the Federal University of Technology Minna Professor Abdullahi Bala whose leadership and distinguished academic career has served as inspiration and encouragement to many academics within and outside Nigeria. His desire to continue on the path of greatness for this Humble University of ours has seen the University become a destination for International conferences, Public lectures, Book Development, Presentations and Seminars that meet International standards. We are happy to have you as the Chief host to declare the conference open and deliver the welcome address.

We are grateful to the former Dean of School of Environmental Technology, Federal University of Technology Prof A.M. Junaid and the Ag. Dean of School of Environmental Technology Prof. S.N. Zubairu for providing the healthy platform, academic backing, management and guidance for the organisation of the conference. You increased the level of challenge from 2016 and provided the required resources, direction, energy and strategies for achieving its success, it is a great honour of having the opportunity to work closely with you and learning never to give up.

I wish to thank also all the special guests particularly leaders of the Industry, Built Environment and Academia.

A special thanks goes to the Bursar of Federal University of Technology, Mrs. Hajara Kuso for the timely responses to all our requests regarding the financial aspects of access to funds for the conference.

SETIC is beginning at the foundation this year and for this I wish to thank all those who have supported us through various forms of participation. Specifically I wish to thank the delegates and the partners for contributing significantly to the conferences. I wish to thank Prof. S.N. Zubairu Prof. A.M. Junaid, Prof. O. O. Morenikeji and Prof. Y.A Sanusi, who all genuinely and consistently monitored the progress of the conference preparations. My desire in 2016 was for SETIC to become a constant feature in the calendar of the University and global conference listings, am a happy person today seeing this desire fulfilled with the SETIC 2018 edition.

Delegates to SETIC 2018 are from different academic and research institutions that are spread across different countries. This offers participants a wonderful opportunity for exchange of cultural, social and academic ideas during the conference periods. It is also an opportunity to create awareness about programmes and events at the participants' individual institutions. I encourage you all to make good use of the networking opportunities that are available.

In this 2nd edition we received 258 abstract submissions because we had a wide distribution outlet as compared to the 1st edition which is an indication of growth. Using a rapid review system we accepted a total of 209 abstracts and the authors were communicated on what issues they were to examine while developing the full papers based on their titles and aim of the paper. Two hundred (200) full papers were received and reviewed. We sent back the reviewed papers and reviewers comments forms to each of the prospective authors to assist

in the preparation of the revised papers. It was after this rigorous and time consuming process that we were able to accept 172 papers for presentation at the conference. It gives me great joy therefore to congratulate all the authors whose papers made it to the conference. It is my sincere believe that the presentation of the different ideas in your paper would go a long way in improving the knowledge of the participants and also generate meaningful discussions over the tea beaks, lunch and beyond.

I wish to express my utmost gratitude to each of the Seventy-three (73) reviewers for a wonderful job done well and for tolerating our deadlines and Oliver Twist syndrome. It is your dedication and expertise that has ensured that the conference is a success.

Special thanks to all our keynote speakers, Arc. Umaru Aliyu, (ficiArb, fnia, ppnia) (*President, Architects Registration Council of Nigeria (ARCON)*, Prof. Stella N. Zubairu (*Former Dean Postgraduate School, Federal University of Technology Minna*), Dr. Julius A. Fapohunda, (*Editor-in-Chief: International Journal of Sustainable Energy Development & Leader: Sustainable Building and Urban Growth Research Unit, Cape Peninsula University of Technology).*

It is important to appreciate the roles and efforts of the following people for their selfless and very significant contributions made towards the successful organization of the conference: Oyetola Stephen, Alonge Olubunmi, Lynda Odine, Adedokun John, Idowu Oqua, Bamidele Eunice and Muhina Lami (for being available to run around at very short notice),

The organisation of this conference would not have been this easy without dedicated individuals offering to serve. My heartfelt gratitude goes to Dr. Taibat Lawanson, Dr. R.A. Jimoh, Dr. L.O. Oyewobi, Dr. N.I. Popoola, Dr. Lekan Sanni, Dr. I.B. Muhammad, Dr. A.A. Shittu and Dr. A. Saka for their unflinching support all through the process.

It is our sincere hope that this conference will serve as a forum for the advancement of research in the urban sphere towards achieving a sustainable environment. It is our sincere believe that academics and professionals in practices will continually participate in this forum.

Worthy thanks goes to the members of the Local Organising Committee for the tireless effort. The success of the conference goes to these wonderful people. You have made SETIC 2018 to ROCK.

Once again I wish to thank you all for creating time out of your busy schedule to attend this conference. Please do enjoy your stay at Federal University of Technology Minna, and the city as a whole. Ensure that you make use of the different fora created throughout the conference to build new relationships for the future and strengthen existing relationships. I look forward to seeing you all in future.

Olatunde Folaranmi ADEDAYO
SETIC 2018 LOC Chairperson
APRIL 2018

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DECLARATION

PEER REVIEW AND SCIENTIFIC PUBLISHING POLICY STATEMENT

10th APRIL 2018

TO WHOM IT APRIL CONCERN

I wish to state that all the papers published in SETIC 2018 Conference Proceedings have passed through the peer review process which involved an initial review of abstracts, blind review of full papers by minimum of two referees, forwarding of reviewers' comments to authors, submission of revised papers by authors and subsequent evaluation of submitted papers by the Scientific Committee to determine content quality.

It is the policy of the School of Environmental Technology International Conference (SETIC) that for papers to be accepted for inclusion in the conference proceedings it must have undergone the blind review process and passed the academic integrity test. All papers are only published based on the recommendation of the reviewers and the Scientific Committee of SETIC

Names and individual affiliation of members of Review and Scientific Committee for SETIC Conference 2018 are published in the SETIC 2018 Conference Proceedings and made available on www.futminna.edu.ng

Olatunde Folaranmi ADEDAYO
Chairman SETIC 2018
Federal University of Technology, Minna, Nigeria

Papers in the SETIC 2018 Conference Proceedings are published on www.futminna.edu.ng.

REVIEW PANEL

We wish to express our deepest and sincere gratitude to the following people in no particular order who provided comprehensive scientific reviews and made commendable suggestions towards improving the over 258 abstracts and 182 full papers submitted to SETIC 2018. They provided constructive comments to authors regarding their papers, it is necessary to state that there was no reported case of conflict of interest by any of the reviewers or the authors.

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THE CONTRIBUTORY EFFECT OF EXTERNALITIES TO THE VOID PERIODS FOR RESIDENTIAL BUILDINGS IN MINNA, NIGERIA

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A number of residential buildings have been observed to suffer longer void periods in recent times despite the increasing demand for residential accommodation across urban areas. Landlords and real estate investors are sometimes faced with the challenge of replacing tenants within the shortest possible time, thus being unable to adequately recoup the invested capital on residential properties developed in particular neighbourhoods. This study provides evidence on the contributory effect of externalities on the void period for residential buildings in Minna. The sample for the study constituted a total of 207 three bedroom bungalows which fell into void at any point between January 2014 and December 2016 – covering a three year period. Adequate data were provided for 144 of these dwellings which spread across nine neighbourhoods, representing 70% response rate. Data were sourced from practicing estate surveyors & valuers, and estate agents in the study area, as well as occupants of housing units that fell within the sample. The sourced data provided information on the void periods of sampled dwelling units as well as required information on selected externalities. Collated data were analysed using the optimally scaled categorical regression analysis. The regression model explained 51% of the total variation in the void period of residential buildings. Findings revealed that the void periods of residential buildings reduced with closer distances to shopping centers, recreation centers, major roads, and improved electricity supply. On the contrary, educational institutions, health care centers, refuse dumps, security and sources of water supply were found not to have significant contributions to the void period of three bedroom bungalows in the study area. The study recommended that real estate investors' should be mindful of externalities in an area before embarking on real estate developments in order to ensure satisfactory returns on their investment.

Keywords: externalities, electricity, residential buildings, shopping Centers, void period

INTRODUCTION

Residential property markets have received considerable attention worldwide, which may be attributed to the special role of shelter to man. Residential accommodation constitutes a basic necessity to man thus investment in residential properties is considered a major and highly profitable form of investment, as it seeks to address the growing housing demand of man. Over the years, considerable improvements in housing supply have been recorded across many urban areas. This is obviously in response to the growing demands for housing. However, despite the increasing demand for residential accommodation across urban areas, dwelling units have been observed to suffer unusually longer void periods. Also, In addition to providing descent accommodation for the teeming urban dwellers, residential real estate investors also desire timely optimum returns on their investments. It is therefore imperative that appropriate measures are taken to ensure that invested capital is profitably recouped. This can only be achieved when the void period is minimized and when the appropriate sales and/or rental values are realised from these properties. It is however important to note that appropriate values can only be realized in the absence of prolonged void periods (Ogunbajo, 2017).

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Ogunbajo, et al., (2018). **THE CONTRIBUTORY EFFECT OF EXTERNALITIES TO THE VOID PERIODS FOR RESIDENTIAL BUILDINGS IN MINNA, NIGERIA.** Contemporary Issues and Sustainable Practices in the Built Environment. School of Environmental Technology Conference, SETIC, 2018

Minna, the capital of Niger State have experienced rapid urbanization and expansion over the years, which have been attributed to the proximity of Minna to the Federal Capital City, and most recently, the insurgency in parts of northern Nigeria have further necessitated the influx of people into the town. The direct implication of this is an increased need for residential accommodation which further necessitated an increase in housing supply. However, a number of residential properties are left unoccupied and suffer longer void periods despite the rising need for residential accommodation. Landlords and real estate investors are sometimes faced with the challenge of replacing tenants within the shortest possible time, (in order to ensure the timely realization/recoupment of invested capital) on residential properties developed in particular neighbourhoods. These investors often do not have detailed understanding of the unique factors that determine these delays. This research therefore, performed a study of the Minna residential property market to determine the primary drivers of void periods with particular emphasis on the externalities in residential neighbourhoods. The research employed a contemporary analytical tool in order to provide evidence on the extent to which externalities contribute in determining the void periods of residential properties or otherwise. It identified externalities sustaining residential properties in the study area and established the proximities of these externalities to tenanted dwellings.

Externalities in relation to residential real estate refers to those external factors (i.e urban infrastructure /amenities and services) that are external to the building, but are integral to and supportive of a residential environment. Bello and Yacim (2014) described it as those components of the environment that makes dwellings habitable to man. According to Babarinde (1998), the efficiency of any urban area depends largely on the provision of efficient amenities and services, thus, the significance of these externalities in the proper functioning of an urban area cannot be over-emphasised. However, a review of existing literature has shown that the true relationship and interconnection between the availability of externalities and void periods has not been fully addressed and well documented.

LITERATURE REVIEW

Concept of Externalities

In its simplest form, externalities as those public works that are required for an economy to function. “Externalities” in relation to residential real estate is synonymous with the term “Urban Infrastructure”. Convery (1998) described it as the physical constructs provided by human endeavour which underpin the economic and social life of a community. It is a very significant determinant of the quality of life, thus plays an important role in creating comparative advantages. According to Srinivasu and Rao (2013), it has to do with the stock of basic facilities and capital equipment needed for the functioning of an area. They include the necessary services and attractions within the neighbourhood that makes life easy and comfortable for the inhabitants, and covers a wide range of infrastructural facilities which include electricity, good road network, telecommunication, street light, banks, fire service, pipe-borne water, drainage, health services, waste/refuse disposal, schools, parking spaces, transportation systems, educational services, markets, policing systems/security, recreational infrastructure and postal services (Saed, Kamariah, Mohammad & Johani, 2015). Externalities are usually provided by public authorities, private entrepreneurs, communities, or a combination of these. As observed by Cao and Zhao (2011), good quality amenities and ancillary facilities influence the progress of the society as a whole as well as the welfare of the citizens. The absence of these facilities will cause a city to lose its enterprise (Convery, 1998). They are vital elements of prosperity of any nation, hence, land has little potential for residential and other uses in the absence of externalities (Saed *et al*, 2015). They are also essential to achieve the development targets of any urban area, thus the provision and maintenance of externalities are absolutely necessary in any urban area if rapid economic growth is to be achieved and sustained.

The Concept of ‘Void period’ in Residential Buildings

Void period describes the period between tenancies when a property is unoccupied by tenants. The UK Housing Association Guide (2015) described a void as any property that is untenanted for a period of time, hence, void periods are simply those periods where a landlord does not have tenants paying rents. In other words, a void period is when a property is unoccupied with no rental income accruing to the landlord. According to Legal for Landlords - UK (2016), void periods are inevitable and will happen to most landlords during

the lifetime of their investment. However, during the lifetime of an investment, void periods can add up and become a significant loss for many landlords. Studies have shown that excessive or lengthy void periods can significantly impact on the viability of investments, thus in order to limit the risks on investment, property experts (Property Hawk, 2012 and the UK Housing Association Guide, 2015) recommended the following to minimize void periods:

i. Realistic rent: Every area has its ceiling rent. It is therefore essential that realistic rents are set for properties in accordance with what is obtainable in the particular areas where such buildings are situated. Hall (2009) believe that it is more cost effective to get a property rented quickly at a slightly lower rent than holding out for a higher rent and risking void period.
ii. Active marketing: Active marketing can also help to drastically minimize void periods.
iii. Good Tenants: Property agents should endeavour to get good tenants, and make further attempts to keep such tenants. Agents should not be careless in selecting tenants out of desperation.
iv. Building condition: Tenants' expectations of rental properties are constantly increasing, thus, for properties to attract and retain tenants, they should be in good and decorative and state of repair.
v. Offering incentives: For instance a discount for the first month's rent or including amenities can help clinch the deal for a potential tenant or help retain an existing one.

The notion of void periods has been a subject of discussion in many academic and professional circles. However, the extent to which externalities determine the void periods of residential properties lacks significant contributions from literature, hence the essence of this study.

METHODOLOGY

The population for the study constituted residential dwellings which fell into void at any time between January 2014 and December 2016 (3 years). Of all the house types in this category, only three bedroom bungalows were sampled due to ease of access and availability of data. A total of 207 three bedroom bungalows were sampled. Data on the void periods (measured in months) of the sampled buildings were generated from the records of estate surveyors & valuers and estate agents in Minna. Other important data were collated from completed questionnaire which were administered on household heads of the sampled houses. A ten (10) item structured questionnaire was employed to obtain primary data on the proximities of the houses to six externalities, viz: Shopping centers, Educational Institutions, Health care Centers, Recreation Centers, Major Roads and Refuse Dumps. Other externalities assessed are Neighbourhood security, Electricity Supply, and Sources of Water supply. A total of 144 questionnaire were well completed and subsequently used for analysis. These represent a 70% response rate.

Proximity of dwelling units to externalities was measured using ordinal variables on a three point scale. Respondents were simply required to tick one of the three options, viz: far, fairly close, and very close. This scale of measurement was derived in accordance with the duration or time taken (in minutes) by an average adult to walk from his/her dwelling unit to the nearest of each of the externalities under consideration. Precisely, a walking distance of 0 – 15 minutes was categorized as very close, 16 – 30 minutes as fairly close, and a walking distance of more than 30 minutes was categorised as far. Similarly, security of the neighbourhoods and sources of water supply were also measured on a three point scale, while the quality of electricity was measured in terms of the number of hours of supply per day from the public mains. The impacts of these externalities on the void periods of residential buildings in the study area was established by regressing the nine externalities (independent variables) against void periods (the dependent variable) using the optimally scaled categorical regression analysis (CATREG).

RESULTS AND DISCUSSION

Assessment of the identified externalities

Nine (9) externalities were identified to sustain residential buildings in the study area and were assessed as follows:

Table1: Assessment of the identified externalities

Externality	Measurement scale	Frequency	Percentage
Shopping centers	Far	59	41%
	Fairly close	49	34%
	Very close	36	25%
	Total	144	100%
Educational Institutions	Far	36	25%
	Fairly close	72	50%
	Very close	36	25%
	Total	144	100%
Health care centers	Far	74	52%
	Fairly close	48	33%
	Very close	22	15%
	Total	144	100%
Recreation Centers	Far	107	74%
	Fairly close	25	17%
	Very close	12	8%
	Total	144	100%
Major roads	Far	32	22%
	Fairly close	50	35%
	Very close	62	43%
	Total	144	100%
Refuse dumps	Far	62	43%
	Fairly close	59	41%
	Very close	23	16%
	Total	144	100%
Neighbourhood security	Not secured	19	13%
	Fairly secured	54	38%
	Very secured	71	49%
	Total	144	100%
Sources of Water supply	Bad	15	10%
	Fair	59	41%
	Good	70	49%
	Total	144	100%
Electricity Supply	0 - 6 hours / day	24	17%
	7 - 12 hours / day	82	57%
	13 - 18 hours / day	38	26%
	19 - 24 hours / day	0	0%
	Total	144	100%

Table 1 showed residents' description of the relative distances of their individual dwelling units to shopping centers, educational institutions, health care centers, recreation ceters, major roads and refuse dumps. It further showed residents' assessment of security within their respective neighbourhoods, sources of water supply, as well as electricity supply.

Measuring the effect of externalities on the void period of residential buildings

The model summary in table 2 showed a R^2 value of 0.510 which implied that externalities explain 51% of the variability in the void periods of the sampled residential dwellings. Other factors which were unaccounted for in the model can be said to be responsible for the remaining 49%. Table 2 also showed a high multiple correlation coefficient (R = 0.714) which translates to a good predictability of the dependent variable (void period of residential buildings) from the independent variables (externalities).

Table 2: Model Summary

	Multiple R	R Square	Adjusted R Square
Standardized Data	.714	.510	.490

The F ratio in table 3 tested whether the overall regression model is a good fit for the data. The table showed that, F (12, 131) = 11.360 and p (0.000) < 0.05. Since the p-value (0.000) is less than the alpha level, it is an indication that the regression is a good fit for the data. The results in the table implied that externalities can significantly predict the void periods dwelling units in the study area.

Table 3: ANOVA test for statistical significance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	73.433	12	6.119	11.360	.000
Residual	70.567	131	.539		
Total	144.000	143			

The standardized beta coefficients in tables 4 explained that the independent variables measured and tested with the regression analysis proved significant in determining the void period of the dwelling units. The probability that these attributes influenced void period purely by chance is less that 5%. Table 4 showed that the externalities which made significant contributions to the void periods of residential houses in the study area are shopping centers, recreation centers, major roads, and electricity supply. These were identified by their p-values which were less than 0.05. The table showed the standardized beta coefficients which aided a comparison of the strength of the effect of each externality to the void period of the sampled dwelling units. The standardized beta coefficients in the table revealed that shopping centers made the strongest significant contribution to explaining void periods in the study area. It recorded the highest beta coefficient (0.312). This was followed by recreation centers, which had a beta coefficient of 0.300, and electricity supply (b = 0.260).

Precisely, results in table 4 clearly indicated that shopping centers, recreation centers, major roads and electricity supply impacted negatively on void periods. In essence, one standard deviation increase in the proximity to shopping centers (ie, closer proximities) yields 0.312 standard deviation decrease in void period, while one standard deviation increase in the proximity to recreation centers and major roads (closer proximities) yields 0.300 and 0.226 SD decrease(respectively) in the void period of this category of houses. Also, one standard deviation increase in the electricity supply (improved service delivery) yields 0.260 standard deviation decrease in the void period of three bedroom houses.

Table 4: Beta Coefficients of the independent variables

	Standardized Coefficients				
		Bootstrap (1000) Estimate of Std.			
	Beta	Error	Df	F	Sig.
Shopping complexes	-.312	.078	2	16.215	.000
Educational Institutions	-.229	.179	1	1.624	.205
Health care Centers	-.086	.112	2	.583	.560
Recreation Centers	-.300	.099	1	9.062	.003
Major Roads	-.226	.105	1	4.644	.033
Refuse Dumps	-.195	.144	2	1.831	.164
Security of the Neighbourhood	-.150	.119	1	1.571	.212
Electricity supply	-.260	.092	1	8.053	.005
Water supply	-.037	.158	1	.056	.813

A comparison of the zero-order correlation coefficients in table 5 further revealed that the identified externalities had separate and distinct degrees of relationship with the void periods of residential buildings. In this regard, negative correlation coefficients implied that the respective externality had negative relationships with void periods, while positive correlation coefficients implied positive relationships with void periods. Negative relationships translated to a decrease in void period with closer proximity to the externalities, while positive relationships translated to an increase in void periods with closer proximity to the concerned externality.

Results in table 5 revealed significant negative relationships between void periods and shopping centers, recreation centers, and major roads. These are evidenced by their zero-order correlation coefficients which are -0.321, -0.364, and -0.219 respectively. It also revealed a significant negative relationship with electricity supply. The negative correlation recorded in these cases implied that the void periods of houses reduced with closer distances to shopping centers, recreation centers, and major roads. Void periods also reduced with improved electricity supply. Electricity supply recorded a zero-order correlation of -0.427. The table further revealed that, out of all the externalities that had significant impacts on the void periods of houses in the study area, electricity supply and recreation centers were the most important. They had the highest importance indexes of 0.218, and 0.214 respectively. The least important is major roads, which had the lowest importance index of 0.088. These findings corroborate the work of McPeake (2015) which identified low demand, resulting from a variety of neighbourhood factors as having profound impacts on the void periods of residential buildings.

Table 5: Zero-order Correlation and Importance Index for the relationship between externalities and the void period of residential buildings

Independent Variables	Zero-Order Correlations	Importance index
Shoping complexes*	-.321	.196
Educational Institutions	-.258	.116
Health care Centers	.125	-.021
Recreation Centers*	-.364	.214
Major Roads*	-.219	.088
Refuse Dumps	-.382	.146
Security of the Neighbourhood	-.168	.049
Electricity supply*	-.427	.218
Water supply	-.182	.013

*Variables with significant impact on the void period of three bedroom houses
Data Analysis, 2017

Other determinant factors of void period

Based on the consensus opinion of estate surveyors & valuers in the study area, other essential factors which also determine the void periods of residential buildings in the study area relates to the condition of the physical components of the house, the size of the dwelling unit, the age of the building as well as the number of toilets. Others are rental values, the demand for a particular house type, as well as individuals' tastes and preferences.

CONCLUSION

This research is an attempt to examine the influence of the quality and proximity to externalities on the void periods of residential buildings in Minna, Nigeria. The study provided empirical evidence on the extent to which void periods are influenced positively and/or negatively by the identified externalities. Issues raised herein indicate that the impact of externalities on void period could be positive and/or negative. Findings further indicate that these externalities have varying degrees of impacts on the void periods of residential buildings. In this study, void periods were modelled as functions of externalities such as shopping centers, educational institutions, health care centers, recreation centers, major roads, refuse dumps, security, electricity, and water supply. The results as indicated by the optimally scalled categorical regression analysis revealed that the identified externalities made significant and distinct degrees of contribution to the void periods of the dwelling units. It is therefore essential that real estate investors' should be mindful of externalities in an area before embarking on real estate developments in order to ensure satisfactory returns on their investment. It is also recommended that concerned Authorities should ensure the efficient allocation of positive externalities across neighbourhoods and the elimination of negative externalities from residential areas if the void periods are to be minimized, and the invested capital is to be profitably recouped.

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