Influence of Residents' Socio-Economic Characteristics on Compliance to Control Regulations in Residential Zones; Case of Enugu, South-East, Nigeria

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Abstract

This study examines residents' socio-economic characteristics influence on their compliance to development control regulation in the Enugu metropolis *with a view to evolving policies for sustainable urban land use control and management in Enugu. The data were derived from a questionnaire survey of 400 developers and analyzed using descriptive and principal component analyses. A multi-stage sampling technique was employed in the study. The study area was clustered into three residential zones (traditional/ core, sub-urban and planned area). Then simple random sample techniques was used to select the neighborhoods from each of these zones: 2, 3 and 3 neighbourhoods were selected from traditional, sub urban and planned residential zones respectively. Multiple linear regressions were used to test the stated hypothesis. The results revealed statistically that age and educational attainment of the developers greatly influenced development control regulations compliance in the study area.. The understanding of the revelation will help the urban planners come up with remedial approaches which would ensure that their future planning activities are more inclusive, pro-poor and hence sustainable.*

Key words: Compliance, Socio-Economic, Regression, Developers

1. Introduction

One of the trending menaces to any community or society in the world is the occurrences of illegal and unplanned physical development. This has been pronounced and common in many emerging cities of developing countries of the world, Nigeria inclusive. Studies posited that most of dwellers in these parts of the world do not consider the essence of development control regulations and measures (Adedibu, 1995). Development control activities lead to interface between the developers and the control officers. One major effect of the interface between the officials of the development control department and developers relates to the issue of non-compliance by some private and public developers with development control regulations. This falls in line with the

studies of Ahmed and Dinye, (2011); Jimoh, Al-Hassan, Imimole and Ahmed (2017). The consequences of non-compliance with development control regulations by some private and public developers in most urban areas of developing countries lead to chaotic and disorderly growth of concerned cities; inadequate circulation systems; absence of community facilities; illegal development, development of incompatible uses; development of ecological unstable land; poor supply of urban land for various uses; problem of serviceability of urban land and all forms of contravention (Odekunle, Akindele and Adebajo 2019; Amanor et al, 2017)

In Enugu, there are fundamentally three documents that are legally used to guide and control the enforcement of the various development control regulations. The legal documents are the Nigeria Town and Country Planning Act of 1946 and the Town and Country Planning Law, Chapter 149 of the revised Enugu State Law, 2004. The 1992 Nigeria Urban and Regional Planning Decree of 19922 was further created to give a more efficient means of guiding development and this was established to confers powers on the local federal, state and federal government councils to establish planning authorities and prepare physical development plans at each level. Though some states in Nigeria have domesticated the 1992 Urban and Regional Panning Decree, Enugu State is yet to domesticate this Decree, and so depends on the two former legal documents to enforce and ensure spatial orderliness and sanitation in urban land use activities in Enugu. Despite the existence of good legal documents and the establishment of more physical planning agencies, Enugu Urban is still miles away from being a "world class city". This law is yielding little or no positive results in the physical urban landscape of Enugu. Evidence of environmental decay, incompatible physical development, increasing status of slums and squatters still thrive in Enugu, thereby placing a serious question mark on the effectiveness of the development control mechanism available in the city. In Enugu urban, physical developments are springing up at an alarming rate as a result of rapid urbanization in the city-centers. Enugu, originally designed as a planned city, is currently undergoing urban decay in its central centre and the expansion of unplanned construction in its surrounding suburbs. Consequently, the city exhibits a juxtaposition of magnificence and squalor, which can foster municipal crime and violence. People tend to reside on the outskirts of the city due to the tremendous increase in land value and landed property in the central areas of Enugu. However, these movements of people are characterized by: an unplanned development; lack of planning schemes; inadequate planning operational measures such as statutory setback and airspaces, access to the drainage system, accessibility to residences, ventilation, and lighting, safety, and privacy, amongst others. Enugu is the leading city of the southeastern geopolitical zone, a position it has held since the era of regional administrations in Nigeria. Therefore, it is a metropolis distinguished by a large population and high population density, covering a vast geographical area.

The need to appreciate the influence of the residents' demographic characteristics on their compliance to development control regulation would give a more robust and acceptance analysis (Daramola and Idowu, 2020) and this has been absent in the body of literature in Nigeria and in African sub-Sahara region at large. Previous studies that have been done in development control in Nigeria centered on the scope of compliance, effects of non-compliance and the categories of development non-compliance (Afon 2011, Jimoh et al, 2017, Agbonta & Olowoporoku, 2017 and Olowoporoku, 2017). None has focused on the influence of residents' socioeconomic factors on their compliance to development control regulation in Nigeria, let alone Enugu.

This study primarily examines residents' socio-economic characteristics influence on their compliance with the development control regulation in the Enugu metropolis. This study hypothesized that residents' socio-economic characteristics do not significantly influence their compliance with the development control regulation in Enugu urban. The study is valuable in revealing this in an emerging African city and makes a contribution to the growing and burgeoning international literature on settlement and city planning from the perspective of a developing country in sub-Saharan Africa and the global South

2. Case study area

The selected case study is Enugu, the capital of Enugu State and is located in the South-Eastern geopolitical region of the Federal Republic of Nigeria as shown in Figure 1. Enugu City is located between $06^0 21^0$N and 06^0 30^0 latitude and between longitude 07^0 26^0 E and 07^0 37^0 E. The land area of the city is estimated at about 72.8 square kilometers. Enugu Urban consists of three local government areas, namely: Enugu North, Enugu South and Enugu East as shown in Figure 2. Enugu is the foremost headquarter of the former south east region of Nigeria. It has 24 prominent residential neighbourhoods. Enugu urban registered a population of 62,764 in 1952; the 1991 Census shows the population count of Enugu to be 462, 514, accommodated in 28 residential patterns. This increased to 722,664 in 2006 and is estimated to be 1,414,785 in 2022. The spatial scope of this study is limited to the neighbourhood in the Enugu metropolis, Enugu south, Enugu north and Enugu East Local government areas.
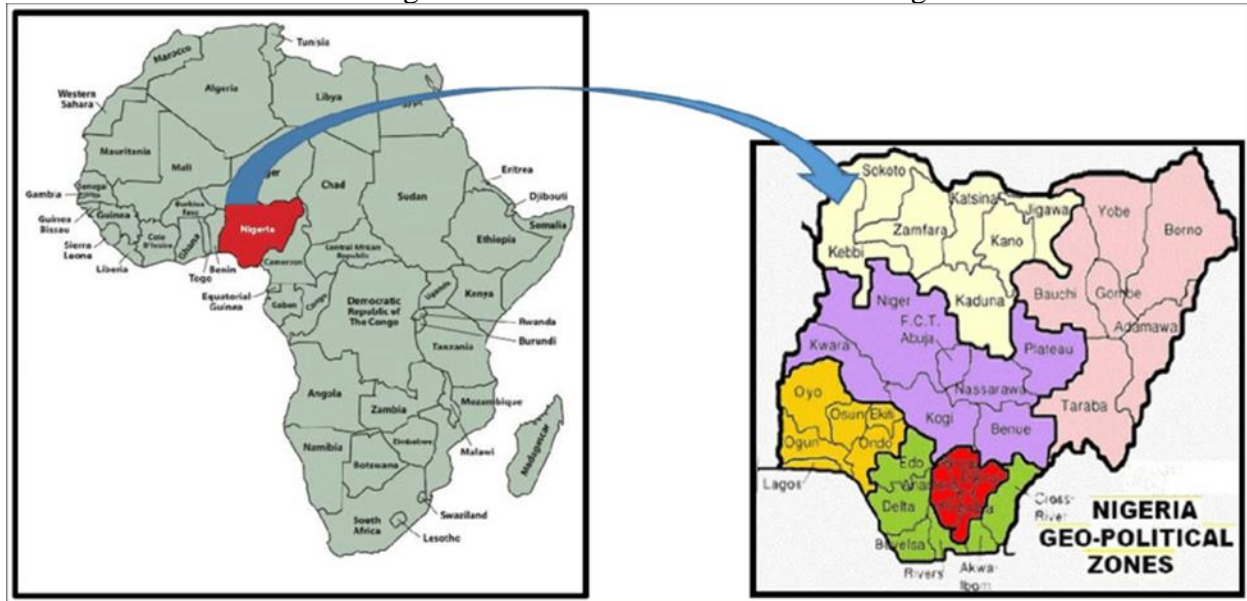

Figure 1: Map of Africa showing Nigeria

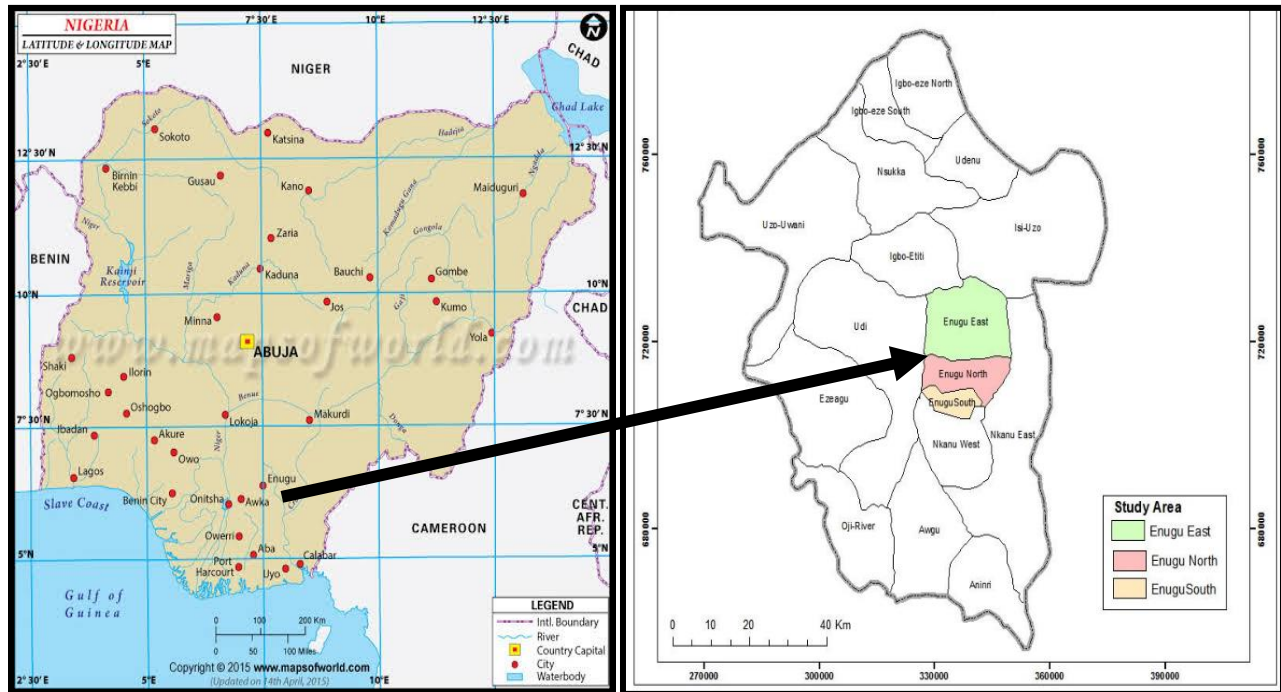Source: Ministry of Lands Survey, Enugu State, 2018.

Figure 2. Map of Nigeria showing Enugu and that of Enugu State showing Enugu urban
Source: Ministry of Lands Survey, Enugu State, 2018.

3. Research methods

3.1 Research Design and Study Population

The study adopted survey research design. The population of the study comprised of developers who were used as surrogates for residents. These developers would have lived up to 5 years in Enugu urban. The number of developers in the metropolis stands as 643,878 according to the aggregated number of landlords in the Landlord Association register as at 2023. The collection of primary data was accomplished by conducting reconnaissance survey, measurements using measuring tapes and administering copies of questionnaire. The survey was conducted among the developers of Enugu Metropolis.

3.2 Sample size determination

The sample size was determined using Williams (1978) formula as was adopted by Kerlinger and Lee (2000). The formula is given as:

$$S = \frac{n}{1 + n/N}$$

Where:

S   =   Sample size

 n   =   The proportion of developers population that was sampled which was 2.5 percent. 2.5% was used because of its aptness in calculating proportions that relates to developers.

 N   =   the total number of developers

Therefore, the minimum sample size was determined as follows:

$$S \ = \ \frac{347,522}{1+ 2.5\%/347,522}$$

 S   =   399.9,   Approximately : 400

A sample size of four hundred was obtained as sample size for developers using Williams (1978) formula as was adopted by Kerlinger and Lee (2000)

3.3 Data collection instrument and variables investigated

The major instruments that was used in the survey are the questionnaire and the measuring tapes. The questionnaires were given to the developers who represent the residents. Only developers who have lived for more than 5 years were considered in the study. The questionnaire comprised of two parts. The first part of the questionnaire examined many socioeconomic aspects of residents, including gender, age, educational attainment, years of schooling, occupation, income level, household size, and period of residency in the neighbourhood. The second part was composed of structured and unstructured questions. The structured or closed questions were meant to tailor the respondents to specific answers that addressed the aim and the hypothesis of the study. For the study, the development control regulation yardstick standards selected are - Plot Coverage, Front Setback, Rear setback, Left Setback, Right setback, Building setback, Access road, Proper building material, Fence Height, Window size and Room size. Measuring tapes were used to get these values from the selected buildings

3.4 Data collection and analysis

The sample size for this investigation was determined via multi-stage sampling. In order to do this, the three primary phases were implemented. The following steps were undertaken:
1. The study area was identified and divided into separate residential zones that were uniform in nature.
2. Streets were identified and chosen from each of the residential zones.
3. Households were selected from the identified streets to produce the sample size for the survey. During the initial phase of the multi-stage sample process, Enugu Metropolis was divided into three separate and uniform residential zones using stratification. These locations were categorized based on their urban morphology, the age of the zones and the organization of the area which were classified as the traditional area, the sub urban and the planned residential zones as seen in table 3

The residential zones were stratified based on existing street maps and house enumeration numbers provided by the National Population Commission. The total number of streets in each zone was established during the preliminary survey. The preliminary study revealed the presence of 20 recognized residential neighbourhoods in Enugu. These neighbourhoods can be categorized as 4 for traditional area, 6 for sub urban area, and 10 for the planned residential zones.

After finishing the process of randomly selecting neighborhoods, the last step involved identifying the streets inside each of the chosen neighborhoods. Based on an initial assessment and data gathered from Google Earth, it was determined that there are a total of 433 streets in the designated residential areas across the three zones. The distribution revealed that there existed 109, 145, as well as 179 streets in the traditional, sub urban, and planned residential zones, correspondingly. Therefore, a selection was made of 10% of the total streets in each residential zone. A total of 44 streets were chosen throughout all residential areas. The distribution is as follows: eleven (11) streets in the traditional residential zone, fifteen (15) streets in the sub urban residential zone, and eighteen (18) streets in the planned residential zone. .A systematic sampling procedure was employed to select each 5th building on the chosen streets. Systematic sampling technique was used to select the houses/developers from each of the selected streets to be sampled. The 5th building was always selected, this was to ensure proper representativeness in the streets sampled. However, any building that the landlord or developer has not lived up to 5 years was not be sampled. Proportionate allocation strategy was used to get the sample size for each of the neighbourhoods using their various developers' numbers. Based on 2023 Landlord Association register for all the registered landlords in these neighbours, the sample frame was used. Note, the landlords are synonymous to the developers in this study. These slums were not considered in this study. Table 1 shows the various residential zones in Enugu urban as gazette by the town planning authority newsletter

Table 1: Residential zones and neighbourhoods in Enugu.

Traditional/core	Sub Urban	Planned residential
Onu Ato	Achara Layout	New Haven
Asata	Amechi Awkunanaw	City Layout
Obiagu	Abakpa	G.R.A
Ogui	Emene	Independence Layout
	Jioto	Achara Layout
	Amorji/Ibegwa	New Haven
		Thinkers Corner
		Trans-Ekulu
		Uwani
		Trans Ekulu

Source: Researcher's field study, 2024.

Eight neighbourhoods were randomly chosen from the study area. 2 from the traditional area, 3 each from both the sub urban and the planned residential zones. The choice of these areas was because of their relatively high population, large number of residential building and the urban morphology of the area as well as neighborhood age. Thus, a total of eight neighbourhoods were selected in the study. Below is table 2 that shows selected neighbourhoods, and their residential zones

Table 2: Selected neighbourhoods and residential zones.

S/N	Traditional/core	Sub-urban zone	Planned area
1	Ogui	Abakpa	New Haven
2	Asata	Emene	G.R.A
3		Amechi Awkunanaw	Independence Layout

Based on 2023 Landlord Association registers for all the registered landlords in these neighbourhoods, their number were used to calculate the size. Note, the house owners are synonymous to the developers/ residents in this study. The table 3 shows the selected neighbourhoods and the number of developers.

Table 3: Sampled neighbourhoods and their population

NEIGHBOURHOODS	DENSITY	DEVELOPERS
Asata		30,887
Ogui	Traditional/Core	41,189
Subtotal		**72,076**
Abakpa		52,836
Emene	Sub-urban	33,022
Amechi Awkunanaw		27,491
Subtotal		**113,349**
Independence layout	Planned areas	28,733
G.R.A		31,049
New Haven		30, 272
Subtotal		**90, 054**
Total		**275, 479**

Source: 2023 Landlord register by the researcher.

The study using the proportionate allocation strategy ensured that the neighhourhoods with larger number of developers had more sample size. Table 4 showed the developers population and number of questionnaires that was administered:

Table 4 : The sampled neighbourhoods and the sample sizes

	Neighbourhoods	Developers/House owners	Sample Size
1	Abakpa	52,836	**88**
2	Asata	30,887	**44**
3	Ogui	41,189	**64**
4	Emene	33,022	**50**
5	New haven	30,272	**42**
6	Amechi Awkunanaw	27,491	**37**
7	Independence layout	28,733	**29**
8	G.R.A	31,049	**46**
TOTAL		**275, 479**	**400**

Source: Researchers' Survey, 2024.

The total number of questionnaires share were 400 for developers, In all, a total of 400 copies of questionnaires were distributed

2.5 Data Analysis

Two types of statistical tools were employed in this study, inferential and descriptive statistics. The descriptive statistics involves frequencies and percentages. For the inferential statistics, multiple linear regression was used. Data processing and analysis for this study were performed using the Statistical Products and Services Solutions (SPSS) 22 for windows for statistical analysis of the quantitative data. The multiple linear regression (MLR) model was used to analyze the influence of respondents' socio-economic characteristics on their compliance with the development control regulation in Enugu urban. Five socio-economic factors which include age, educational status, sex, income and residents' length of stay in the neighbourhood were used in this study as the exploratory/predictor variables which are also the independent variables. The dependent variable was each of the chosen development control regulation yardstick. For the purpose of this analysis, the variables with more than two categories were recoded into two categories and this made them dummy variables. This was done in line with the assumption of parametric statistics which supports only interval data or the dummy variables as independent variables for regression analysis. For instance, respondents who had educational qualifications lower than secondary school education were grouped as illiterates while those who attended secondary school and above were regarded as literates coded '0' and '1' respectively. All other exploratory variables were also coded as binary variables, either 0 or 1. For instance, sex is either Male or female. Variables like age and income were collected as continuous variables.

 The multiple linear regression model is mathematically expressed as follows:

$$Y = b + a_1X_1 + a_2X_2 + a_3X_3 + \ldots\ldots\ldots\ldots a_nX_n \quad\text{---} \quad \text{----} \quad = ==== ==== \text{ Equation 1}$$

Where Y   =   Dependent variable
   b   =   Constant of the regression
$X_1, X_2,\ldots\ldots X_n$ =   Independent variable
$a_1, a_2,\ldots\ldots a_n$ =   The co-efficient of the x_1
Hence: The formula of MLR as used in this study is given as:

$$ARC = a + b_1\,RLS + b_2\,AR + b_3\,HI + b_4\,S + b_5\,EA + e_1 \quad\text{---}\quad \text{-Equation 2}$$

Where;
ARC   =   (aggregated residents' compliance from PCA factor score)
 a   =   the constant of the regression equation or the y intercept
$b_{1 - 3}$ =   the coefficient of the corresponding x or slope associated with xi-xn
 RLS =   Residents' length of stay
AR   = Age of respondent
HI   = Household income
S   = Sex of respondent
EA   = Educational attainment
e_1 = the residual or standard error

4. Results

4.1 *The socio-economic characteristics of the respondents*

The study considered some of the socio-economic characteristics of the respondents and the result was presented in Table 5 according to the various residential zone. The characteristics that was discussed were gender, educational attainment, age, income, and years of living in a place of residence. Previous studies identified these variables as the factors that could influence people's view of their compliance to planning regulations (Afon, 2011; Agbonta, and Olowoporoku, 2017; Daramola, and Olowoporoku, 2016; Olowoporoku, 2017). These variables are being considered for discussion because they are imperative in evaluating people's perception of physical planning regulations. The analysis was carried out across the three strata delineated for the purpose of the study as seen in table 5.

Table 5: Socio –economic characteristics of the respondents

Attributes	Traditional Frequency (%)	Sub urban Frequency (%)	planned Frequency (%)	Total Frequency (%)
Gender				
Male	84 (52.3%)	193 (98.4%)	110 (62.5%)	387 (77.7%)
Female	76 (47.7%)	3 (1.6%)	66(37.5%)	145 (22.3%)
Total	**160 (100.0%)**	**196 (100.0%)**	**176 (100.0%)**	**532 (100.0%)**
Age				
≤ 45	19 (11.9%)	22(11.1%)	33 (18.8%)	74 (12.4%)
≥ 45	141 (88.1%)	174 (88.9%)	143 (81.2%)	458 (87.6%)

Total	**160 (100.0%)**	**196 (100.0%)**	**176 (100.0%)**	**532 (100.0%)**
Educational Attainment				
Primary	53 (33.3%)	31 (15.8%)	22 (12.5%)	106 (21.4%)
Secondary	76 (47.6%)	59 (30.1%)	44(25.1%)	179 (35.5%)
Tertiary	31 (19.1%)	106 (54.1%)	110 (62.4%)	247 (43.1%)
Total	**160 (100.0%)**	**196 (100.0%)**	**176 (100.0%)**	**532 (100.0%)**
Average Monthly Income				
$\leq$ ₦60,000	122 (76.20%)	47 (23.80%)	11 (6.3%)	180 (21.48%)
$\geq$ ₦61,000	38 (23.80%)	139 (76.20%)	165 (93.7%)	352 (78.52%)
Total	**160 (100.0%)**	**196 (100.0%)**	**176 (100.0%)**	**532 (100.0%)**
Length of stay in the house				
6- 15 years	8 (4.7%)	15 (7.9%)	110 (62.6%)	133 (14.1%)
15 – 30 years	55 (31.2%)	147 (74.7%)	38 (23.8%)	240 (47.2%)
$\geq$ 30 years	114 (71.5%)	34 (17.4%)	11 (6.2%)	159 (34.7%)
Total	**160 (100%)**	**196 (100%)**	**176 (100%)**	**532 (100%)**

4.1.1 Age of respondents

The study examined the age of the respondents. Findings on age distribution revealed that the majority (87.6%) of the landlords were above 45 years while the remaining (12.4%) were below age 45 years. From table 5, it can be implied that most landlords in the city are more matured. The sub urban areas have the highest number of respondents above 45 years. (88.9%). This was followed by the traditional/core areas with 88.1% of the respondents above 45 years. As a result, respondents from the traditional, suburban and planned residential areas were of good age to give information on the subject matter and this will increase the internal validity of the study. This further implies that the participants are more of working age which are dependents ages and have source of income which are one of the independent variables used in the study. Also, these age groups are more educated and may likely be conversant with development control regulation.

4.1.2 Length of stay in the present Residence/Age of building

Findings revealed that the majority of the respondents (47.2%) lived for between 15 to 30 years a seen in table 5. In this traditional/core residential area, those that lived more than 30 years in the zone were 71.5%. Respondents who had stayed between 15 and 30 years were highest in the sub urban residential area. These represented 45.5% and 47.2% respectively. Residents whose lengths of stay were less than 15 years were the highest in the planned residential area. This represented 62.6% in the zone.

4.1.3 Educational Background of Respondents

Education is the backbone of any viable and progressive economy as well as healthy environment. If the educational level of the inhabitants is high, they will have good promising jobs and also take care of their environment. Table 5 shows that 106 respondents attained primary school representing 21.4%, 179 attained secondary school representing 179%, and 247 have education in the higher institute representing 43.1%. This shows that majority of respondents are literate and would give objective answers to the questions asked. Thus, increasing the internal validity of the study.

4.1.4 Marital Status of Respondents

Further analysis was done to show the marital status of the respondents within the study area. The study shows that the highest respondents were married people and they live there with their families in the study area. The single respondents have a total of 261 with 49 percent of the total respondents, married and divorced have 266 with 50 percent and 5 with 1 percent of the total respondents respectively.

4.1.5 Occupation of Respondents

The well-being of any household depends on their employment status and level of income. Table 5.5 showed that 193 respondents (35.5%) were civil /public servants, 85 (22.6%) were into business/trader, 30 and 51 (8.3% and 13.7%) were retirees and artisans respectively while 13 (3.8%) were involved in other occupations. This implies that majority of the respondents have sources of income which is one of the determinant of compliance to development control regulations

4.2 Relationship between developers' socio-economic factors and the percentage of compliance with by these developers to development control regulation in Enugu urban

The study assessed the nexus between the developers' socio-economic factors and the percentage level of compliance to the development control regulations in the study area. The values for the development control regulations were elicited from the measurement and calculations done by the researcher at the respondents' homes and compared with the standards that were stipulated by the Enugu State urban and Regional planning standards. In the case where the observed or calculated values from the homes of the respondents fall below the standard values, than, this will be remarked as non-compliance to the planning regulations.

4.2.1. Residents' Gender and compliance with development control regulation in Enugu urban

The study considered the link between the residents' Gender and compliance with development control regulation in Enugu urban. Table 6 gave a clearer presentation. Table 6 is a match of developers' gender with the percentage of compliance with development control regulation in Enugu urban.

Table 6: Gender and development control regulation compliance in Enugu urban

	Planning regulations	Male	Female
1	Plot Coverage	87	89
2	Front Setback	59	87
3	Rear setback	49	87
4	Left Setback	58	86
5	Right setback	39	87
6	Building setback	78	87
7	Access road	87	90
8	Proper building material	67	78
9	Fence Height	46	79
10	Window size	88	89
11	Room size	67	76

Source: Authors' Field Survey, 2024

It was revealed from the study that only 59% of the male respondents complied with the standard for the front setback of the building in the study area unlike the female developers that had as high as 87% compliance with the front setback standard. This situation of high noncompliance by male developers in the study area is seen in rear setback (51% non-compliance), Fence height (54% non-compliance),left setback (42% non-compliance), and even right setback (61% non-compliance) is worrisome. This situation is quite opposite of the situation from the female developers. However, the window size standards were maintained by both the male and female developers, same with the access to road. The standard for these two regulations seem to be complied with in the study area.

4.2.2 *Residents' age and compliance with development control regulation in Enugu urban*

The study considered the relationship between the residents' age and compliance with development control regulation in Enugu urban. Table 7 is a match of developers' age with the percentage of compliance with development control regulation in Enugu urban.

Table 7: Developers' age with the percentage of compliance

	Planning regulations	Less than 40 years	More than 40 Years
1	Plot Coverage	88	90
2	Front Setback	61	87
3	Rear setback	67	76
4	Left Setback	71	87
5	Right setback	54	76
6	Building setback	56	79
7	Access road	76	87
8	Proper building material	66	67

9	Fence Height	65	87
10	Window size	78	78
11	Room size	69	77

Source: Authors' Field Survey, 2024

The study showed that only 61% of the respondents that were less than 40 years complied with the standard for the front setback of the building in the study area unlike the developers that were more than 40 years that that had as high as 87% compliance with the front setback standard. This was further presented in Table 7. This situation of high non- compliance by younger developers in the study area is seen in rear setback (37% non-compliance), Fence height (35% non-compliance), left setback (29% non-compliance), and even right setback (46% non -compliance) is not wonderful. This situation is quite opposite of the situation from the developers that were above 40 years. However, the window size standard was maintained by both younger and older developers, same with the plot coverage. The standard for these two regulations seem to be complied with in the study area.

4.2.3. Residents' average monthly income and compliance with development control regulation in Enugu urban

The study considered the relationship between the residents' monthly income which was discussed in a dichotomous bracket of those that earn less than #60,000 and those that earn more than #60,000) and compliance with development control regulation in Enugu urban. This was further presented in Table 8. Table 8 is a match of developers' monthly income with the percentage of compliance with development control regulation in Enugu urban.

Table 8: Average monthly income and compliance with development control regulation

	Planning regulations	Less than #60,000	More than #60,000
1	Plot Coverage	87	80
2	Front Setback	65	76
3	Rear setback	59	77
4	Left Setback	53	68
5	Right setback	41	77
6	Building setback	67	79
7	Access road	77	97
8	Proper building material	60	68
9	Fence Height	65	69
10	Window size	80	80
11	Room size	77	76

Source: Authors' Field Survey, 2024

The study showed that only 65% of the respondents that earn were less than #60,000 complied with the standard for the front setback of the building in the study area unlike the developers that earn more than #60,000 that had as high as 76% compliance with the front setback standard. This situation of high non- compliance by developers that earn were less than #60,000 in the study area

is seen in rear setback (41% non-compliance), Fence height (35% non-compliance),left setback (47% non-compliance), and even right setback (49% non-compliance) is not wonderful. This situation is quite opposite of the situation from the developers that earn were more than #60,000. However, the window size standard was maintained by both those who earn high and low income developers, same with the plot coverage. The standard for these two regulations seem to be complied with in the study area.

4.2.4. Residents' educational qualification and compliance with development control regulation in Enugu urban

The study considered the relationship between the residents' educational qualification and compliance with development control regulation in Enugu urban. Table 9 is a match of developers' educational qualification with the percentage of compliance with development control regulation in Enugu urban.

Table 9: Educational qualification and compliance with development control regulation

	Planning regulations	Primary	Secondary	Tertiary
1	Plot Coverage	77	72	90
2	Front Setback	49	77	82
3	Rear setback	51	65	77
4	Left Setback	52	61	71
5	Right setback	48	71	74
6	Building setback	68	68	77
7	Access road	67	73	81
8	Proper building material	69	71	70
9	Fence Height	57	68	72
10	Window size	83	70	77
11	Room size	57	67	79

Source: Authors' Field Survey, 2024

Effort was made in the study to assess the nexus between the educational qualification of the developer and the percentage rate of compliance to development control regulation guideline in the study area. The study showed that developers in all the educational level had a relatively high percentage compliance to plot coverage in the study area. Those that attended primary educational had 77% compliance to plot coverage and those that a had secondary school and tertiary school attainment had 72% and 90% compliance respectively. This is a healthy development. The study further observed high non- compliance by developers that had only primary education in the study area as seen in rear setback (49% non-compliance), Fence height (53% non-compliance),left setback (47% non-compliance), and even right setback (52% non compliance). This was quite unhealthy and disturbing. This situation is quite opposite of the situation from the developers that had tertiary education in the study area. However, the window size standard was maintained by all the classes of educational attainment by the developers, same with the building set back. The

standard for these two regulations seem to be complied with in the study area by developers of different academic attainment.

4.2.5. Residents' length of residence in the house/age of the building and development control regulation compliance in Enugu urban

The study considered the relationship between the length of years the developer had lived in the area and the percentage compliance level with development control regulation in Enugu urban. Table 10 is a match of developers' length of stay in the house/age of the building with the percentage of compliance with development control regulation in Enugu urban.

Table 10: Residents' length of stay in the house/age of the building and compliance with development control regulation

	Planning regulations	Less than 15 years	Between 15 t0 30 years	More than 30 years
1	Plot Coverage	78	72	93
2	Front Setback	43	79	89
3	Rear setback	55	69	67
4	Left Setback	65	71	79
5	Right setback	68	78	75
6	Building setback	88	68	79
7	Access road	67	73	81
8	Properbuilding material	62	71	70
9	Fence Height	57	78	79
10	Window size	88	97	79
11	Room size	94	97	89

Source: Authors' Field Survey, 2024

Effort was made in the study to assess the relationship between the length of stay in the house/age of the building and the percentage rate of compliance to development control regulation guideline in the study area. The study showed that all developers irrespective of how long they had lived in the study area had a relatively high percentage compliance to plot coverage in the study area. Those that had lived less than 15 years had 78% compliance to plot coverage and those that a had lived between 15 to 30 years as well as those that lived above 30 years in Enugu urban had 72% and 93% compliance respectively. This is a healthy development. The study further observed high non-compliance by developers that had lived less than 15 years in the study area in front setback (497 non-compliance), Fence height (43% non-compliance), and rear setback (45% non -compliance). This was quite unhealthy and disturbing. However, the window size standard were maintained by all the classes developers no matter their length of stay in the area, same with the building set back. The standard for these two regulations seem to be complied with in the study area by developers of different length of occupation in the locality.

Recall that the study hypothesized that residents' socio-economic characteristics do not significantly influence their compliance with the development control regulation in Enugu urban.

The result of the hypothesis using the MLR showed that development control regulation significantly influenced by residents' socio-economic characteristics. Therefore the null hypothesis was rejected. See table 11

Table 11: Regression results showing influence of residents' socio economic characteristics on the development control regulation in Enugu urban

No	Development control regulation	Household socio economic factors	T value	P-sig	Remarks	R^2
1.	Plot Coverage	Age	2.003	0.046*	Significant	0.712
		Sex	0.401	0.688	Insignificant	
		Length of stay	2.232	0.026*	Significant	
		Education Attainment	2.536	0.012*	Significant	
		Monthly income	1.024	0.030*	significant	
2.	Front Setback	Age	0.446	0.656	Insignificant	0.77
		Sex	0.778	0.437	Insignificant	
		Length of stay	1.887	0.060	Insignificant	
		School completion	1.251	0.011*	significant	
		Monthly income	3.595	0.000*	Significant	
3.	Rear Setback	Age	0.120	0.904	Insignificant	0.37
		Sex	1.753	0.342	Insignificant	
		Length of stay	1.334	0.183	Insignificant	
		School completion	3.876	0.000*	Significant	
		Monthly income	0.325	0.745	Insignificant	
4.	Left Setback	Age	4.257	0.000*	Significant	0.88
		Sex	0.997	0.322	Insignificant	
		Length of stay	2.677	0.499	Insignificant	
		School completion	3.816	0.000*	Significant	
		Monthly income	3.447	0.001*	Significant	
5.	Right Setback	Age	2.211	0.027*	Significant	0.65
		Sex	0.637	0.525	Insignificant	
		Length of stay	0.259	0.795	Insignificant	
		School completion	1.198	0.032*	Significant	
		Monthly income	6.067	0.000*	Significant	
6	Building setback	Age	2.904	0.004*	Significant	0.71
		Sex	1.211	0.227	Insignificant	
		Length of stay	0.677	0.499	Insignificant	
		School completion	3.816	0.000*	Significant	
		Monthly income	3.447	0.001*	Significant	
7	Access road	Age	2.211	0.027*	Significant	0.77
		Sex	0.637	0.525	Insignificant	
		Length of stay	0.259	0.795	Insignificant	
		School completion	1.198	0.032*	Significant	

		Monthly income	6.067	0.000*	Significant	
8.	Proper building material	Age	4.257	0.000*	Significant	0.88
		Sex	0.997	0.322	Insignificant	
		Length of stay	2.677	0.499	Insignificant	
		School completion	3.816	0.000*	Significant	
		Monthly income	3.447	0.001*	Significant	
9.	Fence Height	Age	2.211	0.027*	Significant	0.65
		Sex	0.637	0.525	Insignificant	
		Length of stay	0.259	0.795	Insignificant	
		School completion	1.198	0.032*	Significant	
		Monthly income	6.067	0.000*	Significant	
10	Window size	Age	2.904	0.004*	Significant	0.71
		Sex	1.211	0.227	Insignificant	
		Length of stay	0.677	0.499	Insignificant	
		School completion	3.816	0.000*	Significant	
		Monthly income	3.447	0.001*	Significant	
11	Room size	Age	2.211	0.027*	Significant	0.77
		Sex	0.637	0.525	Insignificant	
		Length of stay	0.259	0.795	Insignificant	
		School completion	1.198	0.032*	Significant	
		Monthly income	6.067	0.000*	Significant	

Source: Regression result

5. Discussion of Findings

The study was aimed at examining residents' socio-economic characteristics influence on compliance with development control regulations in Enugu urban with a view to evolving policies for sustainable urban land use control and management in Enugu. This study has some striking revelations. The study noted that residents' socio-economic characteristics influenced developers' compliance to the development control regulations in Enugu urban. While succinctly presenting and analyzing the relationship between developers' socio-economic characteristics and the compliance to various development control regulation in Enugu urban, the study showed that age and educational attainment of the developers greatly influenced development control regulations compliance in the study area. This finding was in agreement with the previous studies by (Oduwaye, 2009; Jimoh et al, 2017, Ubani et al, 2023) where they submitted that educational qualifications and age has positive relationship with compliance to physical development guidelines in the urban areas. Works of Bogoro & Samson (2014) also posited that developers of higher educations are poised to adhere to planning instruction as they know the environment, psychological and sanitary implication of healthy and aesthetically pleasant environment. The study by Olowoporoku et al, (2017) further collaborate with the findings of the study that age has a strong link with the compliance to development control guidelines as they equally observed in their study that elderly developers tend to give heed to planning laws as they observed in the study in Ado-Ekiti, Nigeria. Furthermore, the relationship between monthly income and compliance to

rear setbacks, front setbacks and fence height was seen to be insignificant from the study. This also was in line with the study done by Oladiti et al, (2019); Omollo (2020); Daramola, & Olowoporoku, (2016) where they posted that one's economy is not linked with the setback he\she observed in the house from the property line. They asserted that other factors like the developers' decision on what to do with the outdoor space as well as the areas of the plots affects the offsets. On the contrary, previous finding by Afon, (2011) and Bello et al, (2016) supported that income has strong significant influence on the compliant to development control guidelines like setbacks of buildings. In their study, they posited that developers' income variation tend to influence the parking space allotment in the house. However, this study in Enugu urban is unique in the sense that the study is not solely based on income stratification, rather on level of development of the area (traditional, suburban and planned environment). In general, it was observed that various guidelines were influenced by different demographic factors but only age and educational socio-economics factors that had significant influence the cut across the compliance to all the selected guidelines in the study.

6. **Conclusions**

The research investigated residents' socio-economic characteristics influences on developers' compliance to the development control regulations in Enugu urban.. The outcome of this research has some importance practical implications and recommendations. Firstly, the study determined statistically that age and educational attainment of the developers greatly influenced development control regulations compliance in the study area. However, development control cannot achieve its aim unless developers adhere to planning standards and regulations in the development plans guiding the city. The importance of development control regulations in physical planning cannot be over-emphasized. In fact, its benefits are widespread and can only be comprehended and appreciated if fully adopted in the course of planning and implementation of physical development plans in the area. In addition, the greatest form of effective control is achieved through a team of professionals, and government support of facility and equipment for day to day planning and monitoring activities. These officials however, must be committed and avoid bias and corruption in their work.

Planning regulations should reflect different socio economic status. This is evident as the study shows that there are some significant relationship between developers' socio economic characteristics and compliance to planning regulation. There is need for modification of standards to march the level of maturity of development of these residential zones. The need to domesticate the Enugu State Urban and Regional Planning law cannot therefore be overemphasized. It provides for the preparation of different types of plans at different levels..

Furthermore, the findings also imply that to evolve any robust and sustainable policy that will involve the citizens to comply to planning regulations in cities of Nigeria, urban planners and other development agencies need to also pay attention to the eight variables that were empirically determined in this study. Again, planners are encouraged to actively seek avenues to connect with locals more and engage in advocacy as it is an important aspect of planning. There is need for constant promotion of awareness and sensitization programmes on development control laws and regulations in the State. Government should carry out public enlightenment campaign on

the important of taking planning permits and approval of their building plans before development starts.

Future research should focus on identifying numerous other socio economic factors that could affect compliance to planning regulation other than the ones used in this study. This will give more robust result. Another area for future research is a comparison of the results of this study with other studies in the context of developing countries

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