Urbanization and Economic Growth in Enugu Metropolis Enugu State Nigeria: The Nexus

[1.]ILO, Godwin Obiora
Enail: obiilo@hotmail.com
[2.]Prof. Barr. Walter Ezeodili
Email: wakter.ezeodili@esut.edu.ng
[1,2.] Department of Public Administration
Faculty of Management Sciences
Enugu State University of Science and Technology (ESUT), Enugu

Abstract	Journal of Policy and Development Studies (JPDS)
The study appraised the Nexus between urbanization and economic growth of Enugu Metropolis, Enugu State, Nigeria. The specific objectives of the study were to: analyze how the expansion of urban areas contributed to growth in income levels in the state, assess the impact of urban infrastructure development on business growth in Enugu State and examine how the expansion of urban areas affected the productivity in the state. The study was guided by three research questions and hypotheses. This study was conducted using survey research design. The study employed secondary and primary sources of data. The population of the study was 968,300. Taro Yamane formula was used to determine the sample size of 400. The collected data was analyzed through the use of mean score. The Z-test analysis technique was applied in testing the hypotheses. The findings revealed that that expansion of urban areas has contributed to the growth of income levels in Enugu State, that urban infrastructure development has significant impact on business growth in Enugu State and that expansion of urban areas has a significant effect on productivity in Enugu State. The study concluded that the nexus between urbanization and economic growth in Enugu State is profoundly influential and mutually reinforcing. Urbanization has facilitated significant economic development through the expansion of infrastructure, which in turn has enhanced business operations and productivity. Improved roads, utilities, and commercial spaces have attracted investments, boosted local businesses, and created job opportunities, leading to higher income levels and overall economic growth. The study recommended that for improved Infrastructure Investment, government should invest in upgrading urban infrastructure, including transportation, utilities, and commercial spaces, to support business growth and improve productivity.	

1. Introduction

Urbanization plays a critical role in driving economic development by concentrating resources, labor, and capital in urban centers, fostering innovation, productivity, and economic growth. In Enugu State, Nigeria, urbanization has been a catalyst for economic transformation, stimulating growth in key sectors such as commerce, industry, and services. As people migrate from rural to urban areas, there is an increase in labor supply, which supports business expansion and enhances local markets (United Nations, 2022). Moreover, urban areas often benefit from improved infrastructure, such as transportation networks, utilities, and communication systems, which facilitate efficient economic activities (World Bank, 2023). Urbanization also leads to economies of scale and agglomeration, reducing costs for businesses and fostering competitive industries (McKinsey Global Institute, 2023). However, unchecked urban growth can strain existing infrastructure and exacerbate socio-economic inequalities, necessitating targeted policies to ensure inclusive and sustainable urban development (United Nations Development Programme, 2022).

Urbanization in Nigeria today is a dynamic process that significantly impacts the country's economic development. With over half of Nigeria's population living in urban areas, the country is experiencing one of the fastest urbanization rates in the world (World Bank, 2023). This rapid urban growth has fueled economic activities, particularly in sectors such as real estate, retail, manufacturing, and services, contributing to an estimated 60% of Nigeria's GDP (National Bureau of Statistics, 2023). However, the state of urbanization in Nigeria presents both opportunities and challenges. On the positive side, urban centers like Lagos, Abuja, and Port Harcourt have become economic hubs, attracting investments, generating employment, and driving technological innovation (UN-Habitat, 2022). These cities serve as gateways for trade, connecting Nigeria to global markets and enhancing its competitiveness in the global economy (African Development Bank, 2023). Conversely, rapid urbanization has also led to significant challenges, including inadequate infrastructure, housing shortages, traffic congestion, and environmental degradation. The proliferation of informal settlements and underdeveloped urban areas has exacerbated socio-economic inequalities and strained public services (United Nations, 2022). Addressing these challenges requires a holistic urban development strategy that includes improved urban planning, investments in infrastructure, and policies promoting inclusive growth

Urbanization is a significant global phenomenon characterized by the rapid growth of cities and towns, leading to profound socio-economic and environmental transformations. Enugu State, located in southeastern Nigeria, has experienced considerable urbanization over the past decades, driven by factors such as rural-urban migration, industrialization, and commercial activities. This transformation has had both positive and negative impacts on the state's economic development, infrastructure, and social dynamics. Urbanization in Enugu State, Nigeria, has significantly impacted its economic development. As a rapidly growing urban center in southeastern Nigeria, Enugu has experienced substantial growth in population and economic activities over the past two decades (National Population Commission, 2023). This urban expansion has contributed to the state's economic development by stimulating growth in key sectors such as trade, real estate, and services. Enugu's strategic location as a regional hub has attracted investments and businesses, enhancing its status as a commercial and administrative center (World Bank, 2023). However, the effects of urbanization in Enugu State are mixed. On one hand, it has facilitated economic diversification, increased job opportunities, and improved access to markets and services (National Bureau of Statistics, 2023). On the other hand, rapid urbanization has placed significant pressure on existing infrastructure, leading to

challenges such as inadequate housing, traffic congestion, and environmental degradation. The lack of comprehensive urban planning has resulted in the proliferation of informal settlements, creating socio-economic disparities and straining public services (UN-Habitat, 2022).

1.2 Statement of the Problem

Urbanization in Enugu State, Nigeria, presents a complex challenge to its economic development. While urbanization has driven economic growth by fostering industrial expansion, commerce, and services, it has also created significant challenges that hinder sustainable development. Rapid population growth in urban areas such as Enugu City and Nsukka has resulted in increased demand for infrastructure, housing, and social services, which the state struggles to adequately provide.

One of the key problems is the inadequacy of urban planning and management, leading to uncoordinated growth and the proliferation of informal settlements. These areas often lack basic amenities like clean water, sanitation, and electricity, contributing to poor living conditions and limiting the potential for economic productivity. Additionally, the strain on existing infrastructure has led to traffic congestion, environmental degradation, and increased costs for businesses and households, negatively impacting economic activities. Despite the benefits of urbanization, Enugu State faces several challenges that hinder its sustainable economic development. These challenges include inadequate urban planning, infrastructural deficits, environmental degradation, and social inequalities exacerbated by rapid population growth in urban centers. Understanding these challenges is crucial for formulating effective policies and strategies that can harness the potential benefits of urbanization while mitigating its negative impacts.

Furthermore, urbanization in Enugu State has exacerbated socio-economic inequalities, with a widening gap between the wealthy urban core and the marginalized peri-urban and rural areas. The challenge lies in effectively harnessing the benefits of urbanization while mitigating its adverse effects to ensure inclusive growth. Addressing these issues requires comprehensive policy interventions and investments in sustainable urban infrastructure.

1.3 Objectives of the Study

The broad objective of the study was to examine the Nexus of Urbanization and Economic Growth of Enugu Metropolis, Enugu State, Nigeria. The specific objectives were to:
1. analyze how the expansion of urban areas contributed to growth in income levels in the state.
2. assess the impact of urban infrastructure development on business growth in Enugu State:
3. examine how the expansion of urban areas affected the productivity in the state.

1.4 Research Questions

The following research questions were raised:

1. Has the expansion of urban areas contributed to growth income levels in Enugu State?
2. What is the impact of urban infrastructure development on business growth in Enugu State?
3. How has the expansion of urban areas affected productivity in Enugu State?

1.5 Hypotheses

Here are the null hypotheses based on the provided research questions:

1. The expansion of urban areas has not contributed to the growth of income levels in Enugu State.
2. Urban infrastructure development has no significant impact on business growth in Enugu State.
3. The expansion of urban areas has no significant effect on productivity in Enugu State.

2. Review of Related Literature

Conceptual Review

2.1.1 Urbanization

Urbanization is the movement of people from rural to urban areas. According to Arouri et al. (2014), urbanization and investment in human capital are shaping economic growth in Africa, to the extent that governments have prioritized budgets to economic sectors such as manufacturing and services. Urbanization unveils how rural agricultural populations emigrate to urban production facilities to take advantage of industries and service sectors that are in big cities (Sancar and Sancar, 2017). (Murakami et al., 2021) asserts that migration takes place due to the change in demand and supply of labour from the rural to the urban sector. This is per the theory of the dual-sector model by Arthur Lewis.

Urbanization is the process by which rural areas transform into urban areas, characterized by the migration of people from rural to urban settings, leading to the growth of cities and towns. It involves a shift in population distribution, economic activities, and land use patterns, driven by factors such as industrialization, employment opportunities, and improved living standards (World Bank, 2023). Urbanization often results in increased infrastructure development, access to services, and economic diversification, but it can also lead to challenges such as overcrowding, environmental degradation, and socio-economic inequalities (UN-Habitat, 2022). Urbanization is a global phenomenon that reflects changes in social, economic, and environmental dynamics, impacting both developed and developing countries. It is closely linked to economic development, as urban areas tend to be centers of innovation, commerce, and productivity (United Nations, 2022). However, sustainable urbanization requires effective urban planning and management to ensure that the benefits of urban growth are equitably shared and the negative consequences are mitigated (OECD, 2023).

Urbanisation, the growth and expansion of cities, has been recognised as a catalyst for economic progress. Urbanisation offers great potentials for an agglomeration of industries and economic of large scale production leading to economic growth and poverty reduction. The urbanisation-growth nexus can be appreciated from the fact that urban centres are the major source of finance as well as investment destination, attract higher investment in infrastructure and human capital due to concentration of higher institutions of learning that promote research and development which combined to drive the proliferation of industries. With increased investment more employment opportunities are created leading to more income, spending and growth (Alaci, et. al, 2012).

Expansion of urban areas

The expansion of urban areas refers to the growth and physical spread of cities and towns into previously rural or undeveloped regions. This process is driven by factors such as population growth, economic opportunities, and infrastructure development (World Bank, 2023). As urban areas expand, they often experience increased investments in housing, transportation, and

public services, which can enhance economic activities and improve living standards (OECD, 2023).

However, this expansion can also pose significant challenges, including loss of agricultural land, environmental degradation, and increased socio-economic disparities (UN-Habitat, 2022). Uncontrolled urban sprawl can strain existing infrastructure, reduce the efficiency of public services, and contribute to traffic congestion and pollution. Addressing these issues requires comprehensive urban planning and sustainable land-use policies to balance growth with environmental conservation and social equity (United Nations, 2022).

Urban infrastructure development

Urban infrastructure development involves the planning, construction, and maintenance of essential systems and facilities in urban areas, including transportation networks, water supply, sewage systems, and energy services. Effective infrastructure development is crucial for supporting urban growth, enhancing quality of life, and fostering economic activities (World Bank, 2023). Investments in infrastructure can stimulate economic development by improving connectivity, reducing travel time, and facilitating efficient delivery of goods and services (OECD, 2023).

However, rapid urbanization often challenges existing infrastructure, leading to congestion, inadequate services, and maintenance issues (UN-Habitat, 2022). To address these challenges, cities must prioritize sustainable and resilient infrastructure projects that anticipate future needs and environmental impacts (United Nations, 2022). Comprehensive planning and investment in modern infrastructure are essential for creating livable, competitive, and resilient urban environments.

Economic Growth

Economic growth refers to the increase in the market value of goods and services produced by an economy over time, typically measured by the rise in Gross Domestic Product (GDP). It reflects improvements in productivity, innovation, and efficiency within an economy, leading to higher income levels, employment rates, and overall standards of living (World Bank, 2023). Economic growth is driven by various factors, including technological advancements, investment in human capital, and favorable business environments (OECD, 2023).

Sustained economic growth contributes to poverty reduction and social development, but it can also present challenges such as environmental degradation and income inequality (United Nations, 2022). To achieve balanced growth, it is essential for policies to promote inclusive development and address disparities while fostering economic opportunities across all sectors (IMF, 2023). Effective governance and strategic investments play a crucial role in supporting long-term economic stability and growth.

Income levels

Income levels represent the amount of money individuals or households earn from various sources, including wages, investments, and government transfers. They are a critical indicator of economic well-being and living standards, reflecting the capacity to afford goods, services, and access to essential resources (World Bank, 2023). Higher income levels typically correlate with improved quality of life, better health outcomes, and increased opportunities for education and leisure (OECD, 2023).

Income inequality, however, can undermine economic stability and social cohesion, as disparities in income distribution can lead to unequal access to opportunities and resources (United Nations, 2022). Addressing income inequality requires targeted policies that promote fair wages, enhance educational and job opportunities, and ensure equitable economic growth

(IMF, 2023). Effective measures to boost income levels across different sectors and demographics are essential for fostering inclusive and sustainable economic development.

Productivity

Productivity measures the efficiency with which resources are used to produce goods and services, typically quantified as output per unit of input, such as labor or capital. High productivity is crucial for economic growth, as it enables businesses to produce more with fewer resources, leading to increased profitability and competitiveness (World Bank, 2023). Enhanced productivity often results from advancements in technology, improved skills, and better management practices (OECD, 2023).

Increased productivity contributes to higher income levels and living standards, but disparities in productivity growth can lead to economic inequalities and regional imbalances (IMF, 2023). Ensuring sustained productivity improvements requires investments in education, innovation, and infrastructure, as well as supportive policies that foster a conducive business environment (United Nations, 2022). Monitoring productivity trends helps policymakers and businesses adapt strategies to maintain economic dynamism and address potential challenges.

Theoretical Framework

Urban Economic Theory, primarily developed by **Alfred Marshall** in the late 19th century, focuses on the relationship between urbanization and economic growth. Urban Economic Theory focuses on understanding how the growth and development of urban areas influence economic outcomes. The theory's core tenets include: Businesses and services benefit from being located in close proximity, which enhances productivity and reduces costs through shared resources, knowledge, and labor pools (Marshall, 1890). Larger urban areas facilitate economies of scale, where increasing the size of operations reduces the average cost per unit of output (Marshall, 1890). Urban areas provide a diverse labor market, allowing firms to access a wide range of skills and reducing recruitment and training costs (Marshall, 1890). The concentration of firms and individuals in urban areas promotes innovation and technological advancements through the exchange of ideas and collaboration (Marshall, 1890). Marshall's foundational work laid the groundwork for understanding how urbanization drives economic development and efficiency.

This theory examines the relationship between urbanization and economic growth, highlighting how factors such as population density, infrastructure development, and land use patterns affect economic performance in urban settings (Glaeser, 2022). It also explores the role of agglomeration economies, where businesses and services benefit from being located in close proximity to each other, leading to increased productivity and economic efficiency (Krugman, 2023). In the context of Enugu State, Urban Economic Theory can help analyze how the expansion of urban areas contributes to or detracts from economic growth. It provides a framework for evaluating the impact of urban infrastructure, changes in land use, and population dynamics on the local economy, guiding policy recommendations for sustainable urban development and economic planning.

Empirical Review

Sarah et al (2023) examined the impact of Urbanization on Economic Growth in Gauteng Province, South Africa**.** This study looked at the history of Gauteng-primarily the economic position in conjunction to economic theories. This quantitative research investigated the relationship between economic growth and urbanization in the Gauteng Province. Granger

causality test were used to ascertain the relationship used in the research and the study focused on the period 1997-2020, using a quarterly data. From the study, it was established that there is a unidirectional causality running from economic growth and employment in Gauteng-meaning that an increase in economic growth enables more jobs to be created, leading to migration of people to the province. The paper also found no causal relationship between population and economic growth- meaning that population increase does not have any effect on economic growth. People seek to progress out of poverty, primarily to urban lifestyle to leverage socio-economic benefits- grow skills and knowledge by accessing public services such as education, infrastructure mainly available in urbanized areas.

Ahmed and Suleman (2018) examined the impact of urbanization on economic growth in Nigeria using annual data over the period 1980 to 2016 and employing bounds testing approach to cointegration. The empirical investigation started with unit root tests using both ADF and Phillips-Perron. The unit tests results showed that the order of integration of the series is mixed I(1) and I(2). The ARDL bound testing results indicated that a long run relationship exists between GDP, unemployment, population and fixed capital formation. Urbanization is found to have a positive and significant influence on GDP in the short but in the long run the impact is not significant. Also, Population growth appeared to be positive and strongly related to economic growth in the long run.

Mercandalli et al. (2019) conducted a study on migration concentrating on the patterns and drivers of rural migration in SSA. Their study aimed to understand the multifaceted and diverse drivers of rural migration in Africa over the last decades. They used secondary data from the United Nations Department of Economic and Social Affairs (UNDESA), microdata from Migration and Remittances Households Surveys (MRHS) and Rural Livelihoods Information System (RuLIS). The study was conducted using a cross-sectional survey on the following countries: Burkina Faso, Kenya, Nigeria, Senegal, South Africa, and Uganda. The study concluded that migration is not about the movement of labour from rural to urban areas or labour transfer from agriculture to other sectors.

Adebayo et al. (2021) did a study to re-assesses the Kuznets curve (EKC) hypothesis on China's urbanization and the effect of hydroelectricity using data from 1985 to 2019. The theory asserts that the increase in economic growth will result in the damage of the environment at an early stage of the country's development until to a level where there is a negative relationship between economic growth environmental damage (Adebayo et al., 2021). Further used autoregressive distributed lag (ARDL) to evaluate long-run co-integration protected by a structural break. The ARDL results indicated both urbanization and economic growth causes environmental degradation whereas hydroelectricity boosts the quality of the environment. The result from ARDL confirms the EKC hypothesis that China's economic growth will harm the environment.

Kanjilal (2021) conducted a study on the relationship between urbanization and the development of the ICT sector in India. The paper analysed secondary time series data of urbanization using census data from 1951 to 2011. The variables from telephone density, mobile subscribers with internet and school with computers per 100 persons were used to analyse the development of information communication technology (ICT). In theory, it is anticipated that the ICT sector will expand due to the growth of urbanization. From the analysis, it was proven that economically developed and urbanized cities have a developed ICT sector. While the results for rural areas have low and undeveloped ICT sectors.

Greyling and Rossouw (2017) conducted their study on the relationship between population density and non-economic quality of life in the South African context. They used panel estimation techniques and data from 1996 to 2014, using income variables from eight metropolitan cities The results showed a significant and negative relationship between population density and non-economic quality of life. The results mean that high productivity and income does not necessarily mean better quality of life. Based on these results, they recommended that policy measures to boost urbanization should be discouraged if the aim is to develop the non-economic quality of life.

Abdullahi and Sani (2015) analyzed the relationship between urbanization and economic growth in the republic of China for the period between 1986-2013 using OLS method. The empirical results showed a significant positive relationship between urbanization and economic growth over the period. Furthermore, the granger causality results indicated a bidirectional causality exist between urbanization and economic growth.

Chamhuri et al. (2016) examined the consequences of rapid urbanisation and urban vulnerable group in Malaysia using data on urbanisation, household income, poverty, population at rural and urban levels. The finding shows that there was downward trend in urban poverty indices. The rate of poverty decreased from 25.5 percent to 1 percent in 2012 in urban areas. The finding also shows that average household monthly income in urban areas is almost twice that of rural families thus indicating high level of income inequality. The study also observed that although urbanisation increased to about 71 percent in 2010, the high concentration of people in urban areas created various problems including high cost of living, crime, environmental degradation, unemployment and poverty. The paper recommended that the poor should be located and appropriate policies and programs should be designed to tackle poverty.

Ceyhum and Cem (2014) investigate the relationship between the level of urbanization and the size of the informal economy using cross-country datasets. The empirical results indicated that there is an inverted-U relationship between informality and the level of urbanization, implying that the share of the informal sector grows in the early phases of urbanization but declines in the latter phases. Other factors identified to have affected the size of the informal sector are taxes, trade openness and institutional quality.

Gap in Empirical Review
Empirical studies on the nexus of urbanization and economic growth in Enugu State, Nigeria, reveal several gaps that warrant further investigation. Firstly, there is a lack of comprehensive analysis examining how specific aspects of urbanization—such as informal settlement expansion and infrastructure development—directly influence economic performance and income distribution in Enugu State. Most studies tend to focus broadly on urbanization without isolating these critical factors (World Bank, 2023). Secondly, existing research often overlooks the differential impacts of urbanization across various sectors of the economy, such as agriculture, manufacturing, and services. Understanding these sector-specific effects is crucial for tailoring effective policy interventions (OECD, 2023). Additionally, there is a need for longitudinal studies that track the long-term economic impacts of urbanization on Enugu State's economic growth, providing insights into how sustained urban expansion affects economic stability and development over time (UN-Habitat, 2022).

3. Methodology

Research Design

A survey research design was used to carry out this investigation. Because the variables in the study were based on numerical measurements and statistical procedures conducted among Enugu State inhabitants, the study adopted a quantitative methodology.

Area of the study

The state of Enugu hosted the study. Southeast Nigeria is home to the state of Enugu. The state borders the following states: Kogi State to the northwest, Anambra State to the west, Benue State to the northeast, Imo State and Abia State to the south. This study focused on the state of Enugu overall, and two local governments—Uzo-Uwani, Nsukka, Isi-Uzo, Nkanu-East, Ezeagu, and Awgu Local Governments—were chosen as samples from each of the three senatorial zones/districts in the state.

Sources of Data

For this study, data was gathered from two sources primary and secondary data.

Primary Data: The primary sources of data utilized in this work was the questionnaire.

Secondary Sources of data: Academic Journals, magazines, Seminars and workshop manuals, books and the internet.

Population of the study

The population of the study includes all the residents of Enugu Metropolis. The population of the Enugu metropolis according to National Population Commission project for 2016 was 968,300. The table below shows the population distribution for the study.

Table 3.1 Population Distribution Table

Enugu Metropolis	Population	Percentage
Enugu East	374,100	39
Enugu North	326,900	34
Enugu South	267,300	27
Total	968,300	100

Source: National Population Commission project for 2016

Determination of Sample Size

The sample size was determined through the use of Taro Yamane formula (1967) formular:
The formula

$$n = \frac{N}{1 + Ne^2}$$

Where:

N = population
1 = constant

E = Degree of error (i.e 5% or 0.05)

The sample size is computed thus:

$$n = \frac{968,300}{1+968,300}(0.05)^2$$

$$n = \frac{968,300}{2420.75} = 400$$

Therefore, the sample size is 400

Sampling Technique

For the study on the Nexus of Urbanization and Economic Growth in Enugu State, Nigeria, a stratified random sampling technique were employed. The population was divided into strata based on key demographics such as urban areas, business sectors, and socioeconomic groups. From each stratum, random samples were drawn proportionally to ensure representation. This approach involved selecting 400 respondents, including residents, business owners, and policymakers, to capture a comprehensive view of urbanization's impact on economic growth across different sectors and demographics.

Method data collection

The instrument for the collection of data in this study was the questionnaire. The questionnaire is a valid instrument for data collection when data is to be collected based on opinion, perceptions, reactions and nuances. Therefore, in this study, Structured questionnaire in Likert scale format was used to collect primary data from respondents. The format of the questionnaire is as follows: Very High Extent (VHE); High Extent (HE); Undecided (U); Low Extent (LE); Very Low Extent (VLE).

Validation of the instrument

Face and content validity were carried out by giving them to two experts in measurement and evaluation at University of Nigeria Nsukka who were helpful in validating the content of the instrument.

Reliability of the Instrument

The researcher adopted test-retest reliability test. The researcher administered two different tests on a group at the same time and consistent result was obtained, showing reliability of the instrument. The internal reliability of all the independent variable measures that were used in the pilot study were 0.701.

Methods of Data Analysis

The analysis of the study was done using mean score. The Z-test technique was applied in test of hypothesis.

Decision Rule for Z-test

If the calculated Z-value is greater than the critical Z-value (i.e Zcal > Zcritical), reject the null hypothesis and accept the alternate hypothesis accordingly.

4. Data Presentation and Analysis

The data collected were presented and analyzed in this section. Four hundred (400) copies of questionnaire were distributed and three hundred and sixty copies of questionnaire were returned.

Table 1: How the expansion of urban areas contributed to growth income levels in Enugu State

s/n	Response	VHE	HE	U	LE	VLE	Total	Mean	Decision
1	Creation of new job opportunities in various sectors	160	100	20	40	40	360	3.8	Accepted
2	Increased private and public investment in infrastructure.	120	140	10	50	40	360	3.8	Accepted
3	Increased consumer spending due to higher disposable incomes.	100	130	10	70	50	360	3.4	Accepted
4	Enhanced utilities and services boosting business efficiency	130	100	10	60	60	360	3.5	Accepted

5	Rise in property values leading to increased wealth	140	120	20	40	40	360	3.8	Accepted
	Grand Mean							**3.66**	

Table 1 above shows the mean distribution of opinions of the respondents on how the expansion of urban areas contributed to growth income levels in Enugu State (based on tabulated acceptance mean rating of 3.0). With regards to items (1,2,3,4,5), the mean score of 3.8, 3.8, 3.4, 3.5 & 3.8 respectively and Grand Means of 3.66 showed that the respondents were firm in their conviction in the Creation of new job opportunities in various sectors.

Table 2: Impact of urban infrastructure development on business growth in Enugu State

s/n		VHE	HE	U	LE	VLE	Total	Mean	Decision
1	Improved roads facilitate easier customer and supplier access	130	120	10	40	60	360	3.6	Accepted
2	Improved internet infrastructure supports e-commerce.	120	140	10	50	40	360	3.1	Accepted
3	Stable electricity supply supports uninterrupted operations	140	130	15	45	30	360	3.7	Accepted
4	Better roads reduce transport costs and delivery times	150	100	10	60	40	360	3.7	Accepted
5	Rising property values attract investors.	130	130	10	50	40	360	3.4	Accepted
	Grand Mean							**3.5**	

Table 2 above shows the mean distribution of opinions of the respondents on the extent to which impact of urban infrastructure development on business growth in Enugu State (based on tabulated acceptance mean rating of 3.0). From the data above, it showed all items 1-5 were accepted to be true. Furthermore, the grand mean of 3.5 indicated that respondents are strongly affirmed that Rising property values attract investors.

Table 3: How the expansion of urban areas affected productivity in Enugu State

s/n	Response	VHE	HE	D	LE	VLE	Total	Mean	Decision
1	Improved infrastructure enhances operational efficiency	120	145	15	50	30	360	3.8	Accepted
2	Urban expansion fosters tech hubs and innovation centers	160	130	20	30	20	360	4.1	Accepted
3	Improved roads facilitate easier access to markets and suppliers	130	140	10	50	30	360	3.8	Accepted
4	Development of modern facilities enhances operational capabilities	150	120	10	55	25	360	3.9	Accepted
5	Upgraded tech infrastructure supports advanced business operations	120	150	10	50	30	360	3.8	Accepted
	Grand Mean							**3.88**	

Table 3 above shows the mean distribution of opinions of the respondents on how the expansion of urban areas affected productivity in Enugu State. All the mean responses were positive. The grand mean of 3.88 revealed that the respondents totally affirmed to the fact that Upgraded tech infrastructure supports advanced business operations

Test of Hypotheses
Z test was adopted for the study. Software Package for Social Science (SPSS Version 16.0 for Student Version) was used to test the hypotheses

Test of Hypothesis One

Ho: The expansion of urban areas has not contributed to the growth of income levels in Enugu State.

Table 4: Z-test on whether expansion of urban areas has not contributed to the growth of income levels in Enugu State.

		The expansion of urban areas has not contributed to the growth of income levels in Enugu State.
N		360
Normal Parameters	Mean	4.11
	Standard Deviation	2.137
Most Extreme	Absolute	.232
Most Extreme	Positive	.211
Difference	Negative	-.222
Kolmogorov-Smirnon Z		4.049
Asymp. Sig.(2-tailed)		.000

Source: Author's compilation SPSS Output
a. Test distribution is Normal
b. Calculated from data

Decision Rule: If the calculated Z-value is greater than the critical Z-value (i.e Zcal > Zcritical), reject the null hypothesis and accept the alternate hypothesis accordingly.

Result: With Kolmogorov-Smirnon Z – value of 4.096 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms that the assertion that the expansion of urban areas has contributed to the growth of income levels in Enugu State.

Decision: Furthermore, comparing the calculated Z- value of 4.096 against the critical Z- value of 1.96 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternate hypothesis was accepted which states that the expansion of urban areas has contributed to the growth of income levels in Enugu State.

Test of Hypothesis Two

Ho: Urban infrastructure development has no significant impact on business growth in Enugu State

Table 4.5: Z-test on whether Urban infrastructure development has no significant impact on business growth in Enugu State

		Urban infrastructure development has no significant impact on business growth in Enugu State
N		360
Normal Parameters	Mean	4.672
	Standard Deviation	1.217
Most Extreme	Absolute	.251
Most Extreme	Positive	.184
Difference	Negative	-.283
Kolmogorov-Smirnon Z		4.215
Asymp. Sig.(2-tailed)		.000

Source: Author's compilation SPSS Output
a. Test distribution is Normal
b. Calculated from data

Result: With Kolmogorov-Smirnon Z – value of 5.215 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents accepted that Urban infrastructure development has a significant impact on business growth in Enugu State

Decision: Furthermore, comparing the calculated Z- value of 4.215 against the critical Z- value of 1.96 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternate hypothesis was accepted which states that Urban infrastructure development has significant impact on business growth in Enugu State.

Test of Hypothesis Three

Ho: The expansion of urban areas has no significant effect on productivity in Enugu State.

Table 6: Z-test on whether the expansion of urban areas has no significant effect on productivity in Enugu State

		The expansion of urban areas has no significant effect on productivity in Enugu State
N		360
Normal Parameters	Mean	4.000
	Standard Deviation	1.078
Most Extreme	Absolute	.309
Most Extreme	Positive	.219
Difference	Negative	-.321
Kolmogorov-Smirnon Z		4.983
Asymp. Sig.(2-tailed)		.000

Source: Author's compilation SPSS Output

a. Test distribution is Normal

b. Calculated from data

Result: With Kolmogorov-Smirnon Z – value of 4.983 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that the expansion of urban areas has a significant effect on productivity in Enugu State.

Decision: Furthermore, comparing the calculated Z- value of 5.983 against the critical Z- value of 1.96 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternative hypothesis was accepted which states that the expansion of urban areas has a significant effect on productivity in Enugu State.

5. Discussion of Results

In the test of hypothesis one, the result showed that the calculated Z- value of 4.215 was above the critical Z-value of 1.96 (2-tailed test at 95% level of confidence). Thus, the alternate hypothesis was accepted which states that expansion of urban areas has contributed to the growth of income levels in Enugu State. The expansion of urban areas in Enugu State has significantly contributed to the growth of income levels. Enhanced infrastructure, including improved roads and public transport, has facilitated better access to markets and employment opportunities, driving up income levels. The development of commercial and industrial zones has attracted new businesses, increasing job availability and, consequently, local incomes. Additionally, the growth of real estate and housing has stimulated economic activity, further boosting income through increased property values and rental income. Improved utilities and services have also supported business operations, enhancing productivity and income generation. Overall, urban expansion has created a more dynamic and lucrative economic environment, leading to higher income levels for residents.

In the test of hypothesis Two, the result showed that the calculated Z- value of 4.096 was above the critical Z- value of 1.96 (2-tailed test at 95% level of confidence). The alternate hypothesis was accepted which states that Urban infrastructure development has significant impact on business growth in Enugu State. Urban infrastructure development has profoundly impacted business growth in Enugu State. Improved roads and transportation networks have streamlined logistics, reducing delivery times and costs, thus boosting business efficiency. Enhanced utilities, such as reliable electricity and water supply, have minimized operational disruptions and supported consistent production processes. The development of commercial spaces and business districts has created environments conducive to enterprise expansion, attracting both local and international investors. Furthermore, better public services and amenities have improved the overall business climate, making Enugu State a more attractive location for new ventures. This comprehensive infrastructure development has not only facilitated business operations but also stimulated economic activity and growth across various sectors.

In the test of hypothesis three, the result showed that the calculated Z- value of 4.983 was above the critical Z- value of 1.96 (2-tailed test at 95% level of confidence). The alternate hypothesis was accepted which states that the expansion of urban areas has a significant effect on productivity in Enugu State. The expansion of urban areas in Enugu State has had a significant impact on productivity. Enhanced infrastructure, including improved roads and transport systems, has facilitated more efficient movement of goods and services, reducing delays and operational costs. The development of modern utilities and facilities has minimized downtime and supported uninterrupted business operations. Additionally, the growth of commercial and industrial zones has provided businesses with better resources and spaces, boosting operational efficiency. Improved access to services and amenities has also contributed to a more productive workforce by enhancing the quality of life and reducing commuting time. Overall, urban expansion has created a more conducive environment for higher productivity levels across various sectors in Enugu State.

5.1 Summary of Findings

The following were findings from the study

i.   That expansion of urban areas has contributed to the growth of income levels in Enugu State. This implies that enhanced infrastructure, including improved roads and public transport, has facilitated better access to markets and employment opportunities, driving up income levels.

ii. Urban infrastructure development has significant impact on business growth in Enugu State. This suggests that Urban infrastructure development has profoundly impacted business growth in Enugu State.

iii. Expansion of urban areas has a significant effect on productivity in Enugu State. This goes to show that the development of modern utilities and facilities has minimized downtime and supported uninterrupted business operations.

5.2 Conclusion

The study concluded that the nexus between urbanization and economic growth in Enugu State is profoundly influential and mutually reinforcing. Urbanization has facilitated significant economic development through the expansion of infrastructure, which in turn has enhanced business operations and productivity. Improved roads, utilities, and commercial spaces have attracted investments, boosted local businesses, and created job opportunities, leading to higher income levels and overall economic growth. The development of urban areas has also driven innovation and improved access to services, contributing to a more dynamic economic environment. However, the study also highlights the need for balanced urban planning to ensure sustainable growth and address potential challenges such as congestion and resource strain. Overall, the expansion of urban areas in Enugu State has been a key driver of economic progress, offering substantial benefits for both businesses and residents.

5.3 Recommendations

The following recommendations are made for the study:

i.   For improved Infrastructure Investment, government should invest in upgrading urban infrastructure, including transportation, utilities, and commercial spaces, to support business growth and improve productivity. Enhanced infrastructure will attract more investments, reduce operational costs, and stimulate economic activity across various sectors.

ii. Sustainable Urban Planning, government should implement sustainable urban planning practices to manage rapid urbanization effectively. Focus on balancing development with

environmental and social considerations to mitigate congestion, ensure efficient resource use, and promote long-term economic and community well-being.

iii. Support for Innovation Foster an environment that encourages innovation by investing in technology and educational facilities. Support research and development initiatives to drive economic growth, enhance business competitiveness, and create new job opportunities in emerging sectors.

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