THE IMPACT OF INFRASTRUCTURE AND TECHNOLOGY ON INDUSTRIALIZATION AND ECONOMIC GROWTH IN AKWA IBOM STATE, NIGERIA: A QUANTITATIVE ANALYSIS

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ABSTRACT

More often than not, people commonly speak or argue that the Nigerian economy has myriad of economic problems. This indicates that the macroeconomic volatility in Nigeria is widely seen. Even with her oil resources, industrialization has remained quite low since October 1960, despite all efforts. Examining industrialization and economic growth in Nigeria's Akwa Ibom State is the goal of this project. Two research hypotheses were put out in order to achieve the study's goals. The investigation was conducted using a survey design. The study's sample consisted of 500 respondents who lived in Akwa Ibom State's three senatorial districts of Uyo, Eket, and Ikot Ekpene. The hypotheses were tested using the chi-square statistical approach. Findings showed that significant relationship between physical infrastructure, technology and industrial/economic development in Akwa Ibom State, Nigeria. Technology has significant effect on economic development in Nigeria. The study's conclusions suggest that the government should create policies and plans that take into account both domestic and international economic rivalry. The government should provide sufficient finance for the industrial sector, promote the use of local raw materials and export them for both domestic and foreign markets, and supply more and sufficient skilled labor.

KEYWORDS: Macroeconomic, industrialization, resources, development, technology, economic, market

INTRODUCTION

Industrialization is a crucial aspect of economic policy in developing economies, as it is seen as an integral part of development and structural change. Economic analysts believe that industries play a vital role in a country's economic growth and development. Rapid industrialization has gained attention due to its impact on environmental, economic, and social activities (David, 2005), as industries consume materials and energy, transforming them into usable products and waste. Industrialization is associated with economic development, modernization, and national economic power (Bolaky, 2011). Also, Industrialization is a crucial aspect of long-term development, as it leads to structural transformation from primary production to industrialization (Aneta, 2006). In Nigeria, industrialization has been pursued since the early 1960s (Aneta, 2006), through various industrial development policies. Despite its low level, industrialization has had positive impacts on economic and social development, including a rise in GDP between 2008 and 2009 (Beckerman, 2007). Industrialization has also improved healthcare services through drug manufacturing and medical ancillaries. However, the issue of greenhouse gas from continuous gas flaring in the oil sector remains unresolved, despite various policies by the government (UNIDO, 2004). These issues are related to industrialization and economic development.

Nigeria, despite its vast oil wealth, has a high poverty rate, with 84.5% of the population living on less than two dollars a day. The country ranks 156 out of 179 countries in the United Nations Human Development Index (2011), a significant decrease from its 2004 ranking. The issue of poverty can be attributed to mono-economic practices and underutilization of resources, particularly in the manufacturing sector. To address poverty, industrialization and infrastructure development are crucial. These have proven to be pivotal to poverty eradication in Nigeria, as well as improving living conditions for the already poor. Adequate supply of infrastructure services is essential for economic development and poverty reduction. Industrialization is a panacea for employment creation and poverty

eradication, and the industrial sector must effectively generate income opportunities for the poor for economic growth.

STATEMENT OF THE PROBLEM

The Nigerian economy is often criticized for its numerous economic problems, including macroeconomic instability. Despite efforts to industrialize since October 1960, the level of industrialization remains low, despite oil wealth. The economy fluctuates due to the unstable Real Gross Domestic Product (RGDP). Other economic indicators, such as industrial output, foreign direct investment, interest rate, foreign exchange, and inflation rate, also show signs of ailing (Duru, 2012). Factors contributing to the failure of the Nigerian industrial sector include poor leadership, poor maintenance culture, insecurity, low technology level, policy instability, insufficient quality control, weak local raw materials supply base, skilled manpower shortage, low investment in research and development, a difficult business environment, and lack of funding and financial services. This research aims to examine the impact of industrialization on the development of the Nigerian economy, focusing on Akwa Ibom State.

Review of Related Literature

The Concept and Nature of Industrialization

Industrialization is a crucial factor in a nation's economic development, acting as a catalyst for structural transformation and diversification. It allows a country to fully utilize its factor endowment and reduce dependence on foreign supplies of finished goods or raw materials. Industrialization involves the deliberate and sustained application of appropriate technology, infrastructure, managerial expertise, and other resources to move the economy from a traditional low level of production to a more automated and efficient system of mass production of goods and services (Okafor, 2005). Nigeria's independence led to several transformations, with nationalist leaders gaining key positions in various offices, creating incentives and strategies to promote industrial development. They made import-substitution and industrialization a national priority through national development plans (1962-

1968, 1970-1974, 1975-1980). However, the first development plan encountered political differences and the emergence of military rule in 1966 affected the second and third development plans. The 1970s saw the first oil boom in Nigeria, leading to reconstruction and the 'Dutch' disease, where an economy heavily relies on oil for revenue and ignores other functioning sectors (Anyanwu et al, 1997).

Research Question

a. What is the effect of physical infrastructure on industrial and economic development in Nigeria?

b. Does low level of technology have any effect on the industrial and economic development in Nigeria?

Sampling and Sampling Technique

The population of this study is 3,920,208. (NPC. 2006). The sample size is five hundred and fifty (550).The respondents were selected using simple random sampling technique and randomly selected from the three (3) senatorial districts making up Akwa Ibom State. The sampling consisted of two hundred and seventy (270) respondents from Uyo senatorial district, one hundred and twenty-five (125) respondents from Eket senatorial district and one hundred and fifty-five (155) respondents from Ikot Ekpene senatorial district, all in Akwa Ibom State.

Source of Data Collection

The data for this study were collected from both primary and secondary data. The primary data were obtained with the use of questionnaires while the secondary data covers books, journals, periodicals, magazines and newspapers, etc. consulted during this study.

Method of Data Analysis

The data raised in this study were presented and were analyzed using simple percentage (%) and similarly, the chi- square (x^2) was also adopted to enhance drawing of inferences and also to establish whether there is relationship between variables. This analytical tools analyze and test the relationship of the interactions of dependent and independent variables. The data were collapsed into two basic group for easier statistical measures.

DATA PRESENTATION ANALYSIS AND DISCUSSION OF FINDINGS

Data Presentation and Analysis

A total of five hundred and fifty (550) copies questionnaires were administered, out of these, a total of five hundred (500) copies were returned from the three senatorial districts in Akwa Ibom state. Table 1 gives details of the returned questionnaires.

Questionnaires allocations and returns.

Senatorial Districts	Questionnaires Allocations	Questionnaires Returns	Percentage Returns (%)
Uyo	300	275	55
Eket	100	95	19
Ikot Ekpene	150	130	26
Total	**550**	**500**	**100**

Source: Field Survey, 2023

The Table above shows that 550 questionnaires were administered to three Senatorial Districts in Akwa Ibom State were Uyo senatorial District returned 275 which represented by 55% and Eket senatorial District returned 95% which is represented by 19% and 130% questionnaire were returned in Ikot Ekpene Senatorial District which is represented by 26%. Therefore, the researcher will be constrained to analyze the views of only five hundred (500) respondents who correctly completed and returned their questionnaires.

Senatorial Districts of Respondents

Variables	Frequency	Percentage (%)
Uyo Senatorial District	250	50%
Eket Senatorial District	100	20%
Ikot Ekpene Senatorial District	150	30%
Total	**500**	**100%**

Source: Field Survey, 2023

From Table above, respondents from Uyo Senatorial District are represented by 50%, respondents from Eket Senatorial District and Ikot Ekpene Senatorial Districts are both represented by percentage 20%. And 30% respondents respectively.

Responses based on the current physical infrastructure and industrial/economic development in Nigeria.

Senatorial District	Very High	High	Low	Very Low	Total
Uyo Senatorial District	80	70	60	40	250
Eket Senatorial District	50	25	15	10	100
Ikot Ekpene Senatorial District	70	35	25	20	150
Total	**200**	**130**	**100**	**70**	**500**

Obtaining the expected frequencies – $\frac{\text{Row total x column total}}{\text{Grand total}}$

$= \frac{RT \times CT}{GT}$

(a) $\frac{250 \times 200}{500} = 100$ (b) $\frac{250 \times 130}{500} = 65$ (c) $\frac{250 \times 100}{500} = 50$

(d) $\frac{250 \times 70}{500} = 35$ (e) $\frac{100 \times 70}{500} = 40$ (f) $\frac{100 \times 200}{500} = 26$

(g) $\frac{100 \times 100}{500} = 20$ (h) $\frac{100 \times 70}{500} = 14$ (i) $\frac{150 \times 200}{500} = 30$

(j) $\frac{150 \times 130}{500} = 39$ (k) $\frac{150 \times 100}{500} = 30$ (l) $\frac{150 \times 70}{500} = 21$

$$\sum x^2 = \frac{(f_o - f_e)^2}{f_e}$$

Cell	f_o	f_e	$f_o - f_e$	$(f_o - f_e)^2$	$\frac{(f_o - f_e)^2}{f_e}$
a	80	100	-20	400	4
b	50	20	-15	225	3.46
c	70	50	20	400	8
d	70	35	35	1,225	35
e	25	40	-15	225	5.63
f	35	26	9	81	3.12
g	60	20	40	1600	80
h	15	14	1	1	0.07
i	25	30	-5	25	0.83
j	40	39	1	1	0.03
k	10	30	-20	400	13.33
l	20	21	-1	1	0.05
				Σx^2 = 123.52	

Chi – square (x^2) calculated value = 123.52

Degree of freedom = D/F = (no. of rows – 1) (no. of columns – 1)

= (r – 1) (c -1)

= (4-1) (3 -1)

4 x 2 = 8

The level of significant = 0.05

Decision

Since the calculated value of 123.52 is greater than the table value of 12.59 at 0.05 level of significance and 6 degree of freedom.

Thus, therefore lead us to reject the null hypothesis (H0) and accept the alternative Hypothesis (H1). There is significant relationship between physical infrastructure and industrial as well as economic development in Nigeria.

Relationship between effect of low level technology and industrial/ economic development in Nigeria.

Senatorial Districts	Very High	High	Low	Very Low	Total
Uyo Senatorial District	100	60	50	40	250
Eket Senatorial District	25	50	10	15	100
Ikot Ekpene Senatorial District	75	30	15	30	150
TOTAL	**200**	**140**	**75**	**85**	**500**

Obtaining the expected frequencies = $\frac{\text{Row total x column total}}{\text{Grand total}}$ = $\frac{\text{RT x CT}}{\text{GT}}$

(a) $\frac{250 \times 200}{500} = 100$ (b). $\frac{250 \times 140}{500} = 70$ (c) $\frac{250 \times 75}{500} = 37.5$

(d) $\frac{250 \times 85}{500} = 42.5$ (e) $\frac{100 \times 200}{500} = 40$ (f) $\frac{100 \times 140}{500} = 28$

(g) $\frac{100 \times 75}{500} = 15$ (h) $\frac{100 \times 85}{500} = 40$ (i) $\frac{150 \times 200}{500} = 28$

(j) $\frac{150 \times 140}{500} = 42$ (k) $\frac{150 \times 75}{500} = 22.5$ (l) $\frac{150 \times 85}{500} = 25.5$

$$\sum x^2 = \frac{(f_o - f_e)^2}{f_e}$$

Cell	f_o	f_e	$f_o - f_e$	$(f_o - f_e)^2$	$\frac{(f_o - f_e)^2}{f_e}$
A	100	100	0	0	0
B	25	75	-50	2,500	35,71
C	75	37.5	37.5	1,406.25	37.5
D	60	42.5	17.5	306.25	7.21
E	50	40	10	100	2.5
F	30	28	2	4	0.14
G	50	15	35	1,225	81.67
H	10	17	-7	49	2.88
I	15	60	-45	20.25	33.75
J	40	42	-2	4	0.01
K	15	22.5	-7.5	56.25	2.5
L	30	25.5	4.5	20.25	0.79
				$\Sigma x^2 = 202.13$	

The degree of freedom is computed as:

D/F = (r – 1) (c – 1)

= (3 -1) (4 – 1)

= 2 x 3 = 6

The level of significance = 0.05

Decision

Since the calculated value of 202.13 is greater than the table value of 12.59 at 0.05 level of significance and 6 degree of freedom.

Thus, therefore lead to rejection the null hypothesis (H0) accept the alternative hypothesis (H1).

Therefore is significant relationship between technology and industrial/economic development in Nigeria.

Findings on research hypothesis one, there is significant relationship between physical infrastructure and industrial as well as economic development in Nigeria. From the result of the analysis of table 7, it is shown that 70 of the total respondents agreed that physical infrastructure has effect on industrial and economic development in Nigeria is very low, 130 of the total respondents agreed that its effect is low, 110 of the total respondents agreed that it effect high while the total of 200 respondents said its effect is very high.

Findings on research hypothesis two, there is significant relationship between technology and industrial as well as economic development in Nigeria. From the result of the analysis of table 8, it is shown that 85 of the total respondents agreed that technology has effect on industrial and economic development in Nigeria is very low, 75 of the total respondents agreed that its effect is low, 140 of the total respondents agreed that it effect high while the total of 200 respondents said its effect is very high.

Summary of Findings

Industrialization is crucial for the Nigerian economy, as it is essential for the growth of the economy. This study found a significant correlation between physical infrastructure and industrial and economic development in Nigeria. The absence of physical infrastructure can hinder industrialization and economic growth. Low levels of technology also pose a barrier to industrialization and economic development. High technology levels can lead to better outcomes. Huge financial allocation positively impacts industrial and economic development in Nigeria. In the past, low government financial injections led to poor or non-implementation plans, resulting in decreased economic development rates. Investment stimulates economic development. Industrialization creates employment opportunities, boosts Nigeria's GDP, increases the government's revenue base, and increases citizens' per capita income. Industrialization complements government efforts in infrastructure provision and maintenance, as many local and foreign industries have

contributed to the provision and maintenance of physical infrastructure such as roads, schools, hospitals, bridges, and markets.

Conclusion

Industrialization is a crucial factor in a nation's economic development, often a central policy objective in developing economies. It accelerates structural transformation and diversification, allowing a country to fully utilize its factor endowments and reduce dependence on foreign supplies. However, Nigeria's industrialization has failed due to failed policies and reforms, as well as poor macro-economic management, which has contributed to the unfavorable performance of the sector. Therefore, it is essential for Nigeria to address these issues to ensure its economic growth and sustainability.

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