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The Statistical Analysis of The Expenditures and Income of Nigerians in Relation to Poverty

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Abstract- The research project the statistical analysis of the expenditures and income of Nigerians in relation to poverty. The importance of this study is mainly to identify major causes of excessive expenditures of Nigerians. Another cardinal significance of this study is to know if there is any statistical significant relationship between expenditures and income in relation to poverty level. Another major significance of this study is to determine if there is a relationship between the economies of Nigeria to how Nigerians spend in relation to their income. From the various studies as well as discussion mentioned earlier, it is apparent that there is enough reason to warrant a study that will examine these factors. So that we can recommend solutions on how the economy can be improved upon, on how Nigerians can save more and finally know the reasons for excessive spending in Nigeria. This is causal study. A casual study involves an investigation of what causes the other among different variables. Causality approach to this study is most preferred because the study will be investigating whether income and expenditure of respondents is connected to poverty. This study adopted both descriptive and explanatory research design. Findings from the study revealed that there is a significant relationship between income and expenditure and that there is a significant relationship between income and expenditure in relation to poverty.

I. INTRODUCTION

Income and expenditures are the foundation of any viable business or economy, as the economy of the nation is a direct replica of the economies of its citizens (Adams et al., 2010). The concept of expenditure and income in Nigeria has to be clearly understood. We all know that in a developing country like ours, there is need for a concrete study of how Nigerians expend majorly on their level of income in relation to their poverty level seeing that a vast majority of Nigerians live below the poverty line of less than one dollar per day (Okonkwo 2017). Aside knowing this, there is also need to understand the pattern of spending of the general Nigeria populace especially as regards their saving habit. The definition of income and expenditures encompasses different areas and types of transactions; as different professional disciplines see them in ways relevant to their specific situations (Adegoke, 2019). Understanding the different types, especially expenditures, enables companies, economies or families to record financial data more accurately with a view to reducing the poverty level in Nigeria.

Income has different definitions depending upon the specified area of business. General income is cash or an equivalent that results from wages or salaries, rent from land or a building or interest, dividends or profit from an investment (Mohammed 2015). Economists and statisticians view revenue as the maximum amount of money a person spends during any given period without becoming worse off. In economic terms, income is the real driver of the economy, whether at the family or national level, since buyers' demand for goods and services can only exist if buyers have income to spend.

Expenditure is cash or a cash equivalent paid in exchange for goods and services. An expense may also be a charge against available revenue, as in the case of an invoice awaiting payment (Agola and Awange, 2014). Revenue expenditure pays for goods and services that the family uses within a short time frame, such as one year or less. If a family or nation makes expenditure for fixed assets like machinery or large equipment that lasts for longer than one year, this qualifies as a capital expenditure (Akinsaya, 2024). Businesses, families, nations etc attempt to keep costs as low as possible without sacrificing revenue. This comes with accurate recording and controlling of income and expenditures.The aspiration of most developing countries is to achieve industrial development, economic growth, and higher living standards for the citizens, to this end, governments all over the world rely on economic development plans

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and programs in order to support, moderate or replace entirely the operation of market forces (Aigbokhan, 2020). One key instrument used to operationalize the economic development plans and programs of governments is the national budget (Anger 2010). The budget can be described as a plan document which contains the set of policies to be implemented by the government over the short term usually a year, but in some countries up to 5 years. Importantly, it contains an estimation of the expected income and expenditure of the public treasury over the budget period. In Nigeria, the budget is a key instrument for delivering economic stability and social reforms in the country (Bodenstein, 2015). It is usually linked to a medium to long-term development plan. While the long-term development plan containing projects for a period of time and this budget are broken into annual budgets. The period began with Nigeria in recession in 2020, followed by slow economic recovery, but the lingering effects of this downturn negatively impacted household welfare and increased poverty. It is also backed by the Appropriation Act (law) enacted by the National Assembly (Chaudhary &Ahmad, 2025). The current longterm vision plan of the country aims at attaining the position of one of the world`s 20 largest economies by GDP by 2020, but how visible is that plan in a country with a high rate of poverty (Chimobi, 2019). The period saw rising inflation, stagnant wages, and increased vulnerability, making a detailed statistical analysis of household finances crucial for policymakers to design targeted interventions and foster sustainable development. However, in some instances, government allocations to MDAs may not be adequately utilized or implemented and, as a result, the planned projects and programs may not be delivered. This has consequences for the expected social and economic impact that such projects were meant to provide economic needs which will probably have an impact on the poverty in Nigeria in order to address the above problem, the following questions have been articulated for this study (Chimobi, 2018). Nigeria's poverty levels remained high, with a significant portion of the population living below the national poverty line, and projections indicating a worsening situation by 2023-2024.

Statement of the Problem

Generally, in Nigeria, spending without recourse to income has been a major problem. This problem has done more harm than good to our economy at large seeing that when expenditures are made without consideration to the income or amount earned it helps to increase the poverty level in Nigeria.Nigeria, being a developing country has had its fair share of criticism of being a country with a very high level of poverty with almost half of its citizens living on less than a US dollar per day. It is being said that Nigerians spend extravagantly, if this claim is anything to go by then the reason of our dwindling economy isn't farfetched.

Objectives

Determining the effect of income earned to expenditure in Nigeria from 2020-2025

Analyze the relationship between income and expenditures in Nigeria from 2020-2025

Identify the major causes of excessive expenditures of Nigerians in Nigeria from 2020-2025

II. RESEARCH METHODOLOGY

Research Design

This is causal study. A casual study involves an investigation of what causes the other among different variables. Causality approach to this study is most preferred because the study will be investigating whether income and expenditure of respondents is connected to poverty. This study adopted both descriptive and explanatory research design.

Data Collection Method

This study utilizes secondary data extracted from respondents used for the study. With the secondary data collected, returns on assets and equity for the relevant years were computed. Data collection methods are techniques and procedures for gathering information for research purposes. They can range from simple self-reported surveys to more complex quantitative or qualitative experiments. Some common data collection methods include surveys, interviews, observations, focus groups, experiments, and secondary data analysis. The data collected through these methods can then be analyzed to support or refute research hypotheses and draw conclusions about the study's subject matter. Data collection methods encompass a variety of techniques and tools for gathering quantitative and qualitative data. These methods are integral to the data collection and ensure accurate and comprehensive data acquisition.

Quantitative data collection methods involve systematic approaches, such as Numerical data, Surveys, polls and Statistical analysis To quantify phenomena and trends.

Data Collection Methods

1. Primary Data Collection Methods

Primary data is collected from first-hand experience and is not used in the past. The data gathered by primary data collection methods are highly accurate and specific to the research's motive.

Primary data collection methods can be divided into two categories: quantitative and qualitative.

Quantitative Methods: Quantitative techniques for market research and demand forecasting usually use statistical tools. In these techniques, demand is forecasted based on historical data. These methods of primary data collection are generally used to make long-term forecasts. Statistical analysis methods are highly reliable as subjectivity is minimal.

Qualitative Methods: Qualitative data collection methods are especially useful when historical data is unavailable or when numbers or mathematical calculations are unnecessary.

Qualitative research is closely associated with words, sounds, feelings, emotions, colors,and non-quantifiable elements. These techniques are based on experience, judgment, intuition, conjecture, emotion, etc.

Quantitative methods do not provide the motive behind participants' responses, often don't reach underrepresented populations, and require long periods of time to collect the data. Hence, it is best to combine quantitative methods with qualitative methods.

1. Surveys: Surveys collect data from the target audience and gather insights into their preferences, opinions, choices, and feedback related to their products and services. Most survey software offers a wide range of question types.
2. Polls: Polls comprise one single or multiple-choice question. They are useful when you need to get a quick pulse of the audience's sentiments. Because they are short, it is easier to get responses from people.
3. Interviews: In face-to-face interviews, the interviewer asks a series of questions to the interviewee in person and notes down responses. If it is not feasible to meet the person, the interviewer can go for a telephone interview.

2. Secondary Data Collection Methods

Secondary data is data that has been used in the past. The researcher can obtain data from thedata sources, both internal and external, to the organizational data.

Internal sources of secondary data:

1. Organization's health and safety records
2. Mission and vision statements
3. Financial Statements
4. Magazines
5. Sales Report
6. CRM Software
7. Executive summaries
8. External sources of secondary data:
9. Government reports
10. Press releases
11. Business journals
12. Libraries
13. Internet.

Model Specification

The model for the study comprises of two constructs as described below:

$$POV = \alpha + \beta_1 INC + \beta_2\ EXP + E_i \qquad (3.1)$$

The Equation defines the regression equation to be used in this study, where income of respondents is the independent variable, expenditure is the independent variable while the poverty level of respondents serves as the dependent variable.

Method of Data Analysis

Data analysis has been defined as those techniques whereby the investigator extracts from the data, information that was apparent before and which would enable a summary description of the subject studies to be made.

In analyzing the data collected for the purpose of carrying out this research, the statistical tool known as the Pearson Product Moment Correlation (PPC) and the statistics were used. The use of sample percentage was also employed. Tables were used in presenting the

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data for the purpose of the simplicity and clarity. The Pearson Product Moment Correlation (PPC) technique can be expressed by the formula below:

$$r = \frac{n\sum XY - \sum XY}{\sqrt{[n\sum X^2 - (\sum X)^2]\,[n\sum Y^2 - (\sum Y)^2]}} \quad (3.2)$$

Where

X = independent factor

Y = dependent factor

III. RESULTS

The presentation and analysis of the result obtained from published annual reports of the bank under. The data gathered were presented according to the order in which they were arranged in the research questions, simple percentage and pie graphs were used to analyze the demographic information of the respondents while regression techniques were adopted to test the research hypothesis in 2023-2024.

INCOME(MONTHLY)	EXPENDITURE(MONTHLY)	POVERTY LEVEL
5,000	5,000	1
15,000	12,000	1
20,000	14,500	1
21,656	18,681	2
29,600	26,800	2
4,200	4,150	1
6,800	6,500	1
7,200	6,960	1
3,500	3,500	1
18,000	16,500	2
150,000	80,000	2
80,000	50,000	2
65,000	40,000	2

Source: field survey, march 2016.

Poverty level

1 represents poor

2 represents not poor

Table 1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.914[a]	.836	.803	.2304

a. Predictors: (Constant), Monthly Expenditure of Respondents, Monthly Income of Respondents

Interpretation

From table 4.1 above, we can see that the multiple correlation coefficient R=0.914, which implies that there is a strong correlation between income of respondents, expenditure of respondents in relation to their poverty level.

Table 2 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.681	.131		5.182	.000
MONTHLY INCOME OF RESPONDENTS	-5.224E-5	.000	-4.273	-4.431	.001
MONTHLY EXPENDITURE OF RESPONDENTS	3.140	.000	4.951	5.135	.000

a. Dependent Variable: Poverty Rank of Respondents

Interpretation

Based on table 2 above, it can be seen that the poverty level of respondents would decrease by 5.224E-6 for very increase in the income of respondents.

The poverty level of respondents would increase by 3.140 for every increase in the expenditure of respondents.

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Hypotheses to be Tested

Hypothesis 1

H_0: there is no significant relationship income and expenditure

H_1: there is a significant relationship income and expenditure

Level of significance: 0.05

Decision rule: reject the null hypothesis if the p-value is less than the level of significance, accept if otherwise

Table 3 Correlations

		MONTHLY INCOME OF RESPONDENTS	MONTHLY EXPENDITURE OF RESPONDENTS
MONTHLY INCOME OF RESPONDENTS	Pearson Correlation	1	.991**
	Sig. (2-tailed)		.000
	N	13	13
MONTHLY EXPENDITURE OF RESPONDENTS	Pearson Correlation	.991**	1
	Sig. (2-tailed)	.000	
	N	13	13

**. Correlation is significant at the 0.01 level (2-tailed).

Conclusion based on the correlation table above

Since the p-value 0.000 is less than the level of significance, we reject the null hypothesis and accept the alternative thereby concluding that there is a significant relationship income and expenditure.

Hypothesis 2

H_0: there is no significant relationship income and expenditure in relation to poverty.

H_1: there is a significant relationship income and expenditure in relation to poverty.

Level of significance: 0.05

Decision rule: reject the null hypothesis if the p-value is less than the level of significance, accept if otherwise.

Table 4 Correlations

		MONTHLY INCOME OF RESPONDENTS	MONTHLY EXPENDITURE OF RESPONDENTS	POVERTY RANK OF RESPONDENTS
MONTHLY INCOME OF RESPONDENTS	Pearson Correlation	1	.991**	.634*
	Sig. (2-tailed)		.000	.020
	N	13	13	13
MONTHLY EXPENDITURE OF RESPONDENTS	Pearson Correlation	.991**	1	.716**
	Sig. (2-tailed)	.000		.006
	N	13	13	13
POVERTY RANK OF RESPONDENTS	Pearson Correlation	.634*	.716**	1
	Sig. (2-tailed)	.020	.006	
	N	13	13	13

**. Correlation is significant at 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Conclusion based on the correlation table above

Since the p-value 0.000 is less than the level of significance, we reject the null hypothesis and accept the alternative thereby concluding that there is a significant relationship income and expenditure in relation to poverty.

Discussions

The regression outputs show that the coefficient for total government expenditure is -0.083 indicating that for every additional money in the annual expenditure is followed by a slight decrease in the number of people under the national poverty level. The scatter plot fitted line graphically shows the same information. If you move left or right along the x-axis by an amount that represents annual change in total government expenditure, the fitted line rises or falls by 0.08% which in turn suggests that changes in the total government expenditure are associated with changes in the poverty trends. However, the total government expenditure data are from 1965 to 2014. The relationship is only valid within this data range. Result shows that total government expenditure has significantly negative effects on poverty such that 1 percent increase in total government expenditure leads to 0.08 percent decrease in poverty rate, at 1 percent level of significance. GDP growth rate also has a negative but mild insignificant effect on poverty, such that 1 percent increase in the GDP growth rate leads to 0.001 percent decline in poverty rate, at 1 percent level of significance. Result also shows that only GDP growth rate have insignificantly negative effects on poverty such that 50 percent increase in the GDP growth rate leads to about 0.04 percent decline in poverty, at 50 percent level of significance. Population has a strong positive effect on poverty, such that 1 percent increase in population leads to 2.84 percent increase in poverty rate, at 1 percent level of significance. Although the effect is statistically significant, government expenditure on transportation and communications has no negative effects on poverty. Expenditure on education shows a significantly negative impact on poverty such that 1 percent increase in education expenditure leads to 1.45 percent decrease in poverty rate, at almost 5 percent level of significance. Expenditures on also has significantly negative impact on poverty such that 1 percent increase in health expenditure leads to 1.61 percent decrease, at 1 percent level of significance and agriculture expenditure has significantly negative impact such that 1 percent increase in agriculture expenditure leads to about 0.97 percent decrease in poverty, at 5 percent level of significance

Conclusion

The study revealed that government expenditure had the most significant influence on poverty trends in Nigeria, showing a negative relationship that indicates poor fiscal management reduces its effectiveness in alleviating poverty. Population growth was found to have a strong positive effect on poverty—an increase of 1% in population leads to about a 2.8% rise in poverty levels. Conversely, economic growth showed a negative relationship, where a 1% increase in income growth reduces poverty by approximately 0.04%. This implies that while economic growth helps reduce poverty, unchecked population growth undermines these gains. To address this, Nigeria should ensure effective management of government budgets to enhance productive capacity and reduce poverty. Market prices must be properly regulated to prevent exploitation and improve citizens' purchasing power. Furthermore, improving governance, reducing bureaucratic inefficiencies, and ensuring transparent policy implementation will help minimize corruption and strengthen poverty reduction programs.

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