STATISTICAL ANALYSIS OF FACTORS AFFECTING THE STANDARD OF LIVING IN NIGERIA

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Abstract

Despite the effort of the government to reduce or eradicate unemployment, they still lack strategies on how to generate employment. Hence, there is a need to conduct research on these factors that affect the standard of living and to find out between those factors which one have more impact on Nigeria's standard of living. The method of data analysis adopted in this study is multiple linear regression with poverty as the dependent variable Y, inflation and unemployment are the two independent variables. The analysis of variance (ANOVA) techniques was employed to examine the significant difference between the response and the explanatory variables. The data used for this research were gotten from the World Bank database which covers the period of 45 years (1976-2020). The coefficients of the regression are significant with a P-value of 0.0001. We observe that the value of the correlation coefficient is 0.837. This indicates that there is a strong positive association between poverty and the unemployment rate, with a significant p-value of 0.001<0.05. Based on these results, we concluded that for Nigerians to live above poverty and for the economy to grow, the government must take concrete steps in opening up the economy.

Keyword: ANOVA; Poverty; Unemployment; Inflation; Multiple Regression

INTRODUCTION

Poverty and inflation are experienced global phenomena that affect Nigerians at various depths, levels, times, and stages of life. With a population of approximately 214 million as of December 2021, it is the most populous black nation and the seventh most populous country in the world. Furthermore, Nigeria's population is equivalent to 2.64 percent of the total world population, according to Worldometer's elaboration of the most recent United Nations data. Yolande (2017) and Omoniyi (2018) discovered a positive correlation between inflation and poverty in their study using data from 1980 to 2013. They investigated the effects of poverty on Nigeria's economic growth and analyzed time-series data using an error correlation model. The Granger Causality approach was used to examine the relationship between average lifespan, economic growth, and inflation. However, the money invested was negligible. On the other hand, debt, unemployment, corruption, death rates, poverty, and human resource development, all had a negative effect on economic growth. The authors asserted that loans, corruption, poverty, human resource development, mortality rate, and unemployment decelerated economic growth while other variables accelerated it. They also suggest that government should develop good institutions and authentic poverty alleviation initiatives to

enhance Nigeria's economic growth. Between 1990 and 2015, Nazima (2018) investigated the relationship between food inflation and poverty. The author used the Autoregressive Lag Model to examine the short-run and long-run elasticities, concluding that there is a strong connection between poverty rates and food inflation in Pakistan, and also lawmakers can consider the supply of money as a policy instrument to combat poverty. Moreover, the findings suggest that tackling food inflation in the shorter term is inefficient; long-run regulations would be appropriate for stable equilibrium in Pakistan. Salimov (2020) investigated Inflation's impact on low-income families in Somaliland between 2008 and 2017. Moreover, the study discovered that Hargeisa's low-income families were negatively impacted by inflation in the areas of education and food. Low-income earners reduced the quantity/quality of their food to compensate for inflation. Poor families also pulled their children out of school because they couldn't afford the payments. Adegoriola et al. (2017) investigate the impact of the effects of inflation and unemployment on poverty rates in Nigeria between 1980 and 2014. They ran the unit root test on their work. These variables were discovered to be co-integrated at a 5% level of significance by using the Johansen test. The VAR model has been used to determine the simple association between the variables, and also the fourth lag was chosen using the lag selection method. The obtained result demonstrated the fraction of different variants in inflation, poverty, and unemployment rates that could be believed to be due to their respective lag values. The Granger causality test, been the most suitable model, was run and the results showed that inflation and poverty are bi-causal. The unemployment rate and poverty have a two-way causal relationship. The unemployment rate and the inflation rate have one-way causality. They proposed that, because unemployment is a major source of poverty in Nigeria, the government revisit the educational curriculum and include a practical vocational program in the educational system that produces graduates who are labor employers rather than unemployed workers. The government should also provide producers with incentives to increase domestic production, which will lower prices.

According to Bernanke (2018), Nigeria is the world's poorest country, ahead of India. Before Nigeria's independence (1960), the country's poverty rate was extremely low. Nigeria, on the other hand, rose from a low poverty level country to become one of the world's poorest countries today, 60 years after independence. Despite poverty-reduction measures initiated by successive administrations since 1980, Nigeria failed to meet the Millennium Development Goals (MDGs) poverty benchmarks by 2015. It didn't matter how hard military and democratic regimes fought to alleviate poverty. As a result, poverty remains a key hindrance to Nigeria's socioeconomic progress, despite different initiatives. It was pointless to try to decrease poverty no matter how hard successive administrations, both military and democratic, tried. Poverty is a key hindrance to Nigeria's socio-economic growth, despite different efforts. The Nigerian government, despite multiple interventions, has been unable to sustain progress in important sectors like agriculture, infrastructures, housing, education, health, and many more (Osabohien et al., 2021 and Rauf et al 2021).

Gagarawa and Mehrotra (2017) considered the impact of inflation on the Public Primary School Teachers' standard of living in Jigawa State, Nigeria. A survey was conducted, and the data were gathered using the method of a structured questionnaire. The Inflation had a significant

and negative effect on the respondents' standard of living, eroding their income, increasing their daily expenditure, and forcing them to take on additional income-generating works to maintain an average standard of living.

The Methodology

The method of data analysis adopted in this study is multiple linear regression with poverty as the dependent variable Y, inflation and unemployment are the two independent variables X_1, and X_2. The linear regression equation will be fitted using MINITAB. The linear multiple regression equation is given by:

$$Y_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon_i \qquad (1)$$

Where Y_i is the predicted/dependent variable (poverty), β_0 is the value of Y when both X_1 and X_2 are zero, β_1 and β_2 are also the coefficients of regression representing the change in Y in comparison to a one-unit change in X_{1i} and X_{2i}, respectively, ε_i is the random error or (residual) term in the model.

The analysis of variance (ANOVA) techniques will be employed to examine the significant difference between the predictor and the explanatory variables.

RESULTS

Hypothesis Testing for the overall model

H_0: $\beta_i=0$ (the overall model does not fit the data)

H_1: $\beta_i \neq 0$ (the overall model fit the data)

Level of significance

$\alpha = 0.05$

Test statistic

$F = \frac{MSR}{MSE}$

Decision Criteria

Reject H_0 if p-value < 0.05 otherwise, fail to reject

TABLE 1: The Analysis of Variance Table

Model	Sum of the Squares	Degrees of Freedom	Mean Sum of Square	F	Sig.	R-Square
Regression	4457.466	2	2228.733	16.335	.001	0.700
Residual	1910.199	14	136.443			

Total	6367.665	16				

Interpretation of the result

With p-value = 0.001<0.05, we reject H_0 and therefore conclude that the overall model fits the data. This implies that the overall model is significant. The fitted model is given by:

Poverty rate = -34.735+9.069 (unemployment rate) + 0.812(inflation rate) (2)

Moreover, the contributions of the independent variables to the standard of living were checked below. Table 2 presents the results for the Unemployment and Inflation against the Poverty rates.

Hypothesis Testing for the contribution of Inflation alone

H0: $\beta_2 = 0$ (inflation is not contributing to poverty)

H1: $\beta_2 \neq 0$ (inflation contributes to poverty)

Level of significance

$\alpha = 0.05$

Test statistic

$F = \frac{MSR}{MSE}$

Decision Criteria

Reject H_0 if p-value < 0.05

Interpretation of the result

With p-value = 0.022<0.05, we reject H_0 and therefore conclude that $\beta_1 \neq 0$ (i.e Inflation contributes to poverty).

Hypothesis Testing for the contribution of Unemployment alone

H0: $\beta_1 = 0$(unemployment is not contributing to poverty)

H1: $\beta_1 \neq 0$ (unemployment contributes to poverty)

Level of significance

$\alpha = 0.05$

Test statistic

$F = \frac{MSR}{MSE}$

Decision Criteria

Reject H_0 if p-value < 0.05

Interpretation of the result

With p-value = 0.001<0.05, we reject H_0 and therefore conclude that $\beta_1 \neq 0$ (i.e unemployment contributes to poverty).

TABLE 2: Testing the significance of the Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-34.735	17.402		-1.996	.066
unemployment rate	9.069	1.587	.926	5.714	.001
inflation rate	.812	.315	.419	2.581	.022

Interpretation of Regression Equation

Equation 2 can be interpreted thus, the value of the poverty rate is -34.735 when the output of unemployment and inflation output is 0. Also, the coefficient of unemployment output (9.069) indicates that a change in the unemployment rate will lead to a 9.069 change in the poverty rate. Also, a unit change in the inflation rate will lead to a 0.812 change in the poverty rate.

Conclusion

With p-value = 0.001<0.05, we reject H_0 and therefore conclude that $\beta_1 \neq 0$ (i.e unemployment contributes to poverty). The 2 factors (Unemployment and Inflation) jointly and independently contribute to the poverty rates, thus affecting the standard of living of Nigerians. Therefore, we concluded that for Nigerians to live above poverty and for the economy to grow and be included among the list of developed countries, the government must take concrete steps in opening up the economy thereby attracting foreign investors, this will bring more jobs for the unemployed members of the population and control the rapid fluctuation of inflation in Nigeria. However, as indicated in Table 1, the R-square value is 0.700% indicating that the overall model can predict/forecast the poverty rate of Nigerians for the subsequent years with 70% accuracy.

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