Price Changes, Population Dynamics and Employment: Evidence from Nigeria

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ABSTRACT

In Nigeria, price increases and population growth play a significant role in deciding the rate of job growth. For the period 1980 to 2019, this study explores the effect of price shifts and population dynamics on employment in Nigeria. To evaluate the short-run and long-run relationship between price changes proxied by the consumer price index, population dynamics, and employment proxied by labor, the analysis used the autoregressive distributive lag (ARDL) model, an estimation technique. Consumer price index, foreign direct investment, population growth rate, and tax revenue are the regress variables in the model, whereas labor, a proxy for employment, is the dependent variable. Furthermore, the ADRL bound test confirmed that there really is no long run relationship between employment proxied by labor force, price changes proxied by consumer price index, foreign direct investment, population growth rate, and tax revenue, whereas the Augmented Dickey Fuller unit root test confirmed variables are stationary at level and at first difference. The study's results show that price increases, as measured by the consumer price index, have a positive yet marginal effect on employment in the short and long run. Also, population has a negative and negligible impact on jobs in the short and long term. Besides that, the report suggests that government adopt policies that will assist in reducing population growth rates in order to regulate labor supply and, as a result, decrease unemployment rates.

KEYWORDS: price changes, population dynamics, employment, system-ARDL

Introduction

Population structure gets an effect on a nation's economy and its capacity and provides social protection and access to medical care, education, accommodation, hygiene, water, food, and electricity, while demographic structure influences a nation's growth and policy changes. As per the International Community (UN) study World Population Prospects 2012 Revision, the global population has reached 7.8 billion people, with 5.8 billion (83%) living in developing countries. Besides that, it's also expected to reach 9.1 billion by 2050, with an increasing percentage of the population emerging from China and India together (Kale & Doguwa, 2017).

However, majority of this expansion will occur in the developing world, where even the population is expected to almost double from 835 million in 2009 to 1.7 billion by 2050. Given this, economists, demographers, and statisticians advocating the positive side to population growth say that population growth creates problems in the short run which include poverty,

famine, and unemployment. Yet, they also state that in the long run, it leads to new developments through advancement in technology that leaves countries better off than if the problems never occurred. Furthermore, on the positive side, there is a chain reaction of events caused by population growth. According to the neoclassical growth model, the population is beneficial to an economy because population growth correlates to technological advancement. The rising population promotes the need for some sort of technological change to meet the rising demands for certain goods and services. With the increased population, economies are blessed with a large labour force, making it cheaper as well, due to its immense availability. An increase in labour availability and a low cost for labour results in a huge rise in employment as businesses are more inclined to cheap labour. Low labour costs result in a shift of money usage from wages into advancement through technology (Coale & Hoover, 1958).

According to Friedberg and Hunt (1995), Population growth increases density and, together with rural-urban migration, creates higher urban agglomeration, which is critical for achieving sustained growth because large urban centers allow for innovation and increase economies of scale. Furthermore, companies can produce goods in larger numbers and more cheaply, serving a larger number of low-income customers. Also, countries have companies which have been benefitting from increasing population growth and density in targeting the large numbers of lower and lower-middle-income. Thus, this is made possible because with a large labour force they can serve a multi-million customer base. Basically, price changes on the other hand also play a significant role in determining the rate of growth of employment in Nigeria, since theories have proved that there exists a positive relationship between inflation and employment. This goes a long way in showing that as inflation increases, the rate of employment also increases. Furthermore, theories and previous studies about the relationship between inflation and unemployment have shown that there exists a negative relationship between these two variables (Srinivasan, 1988; Kelley & Schmidt, 1995; Mallik and Chowdhury, 2009; Lehman 1995; Loayza & Raddatz 2010. Today the question is not only the simple relationship but also the level of inflation that can affect unemployment.

Also, the structuralisms affirm that inflation has a positive effect on economic growth and employment, whereas monetarists see inflation as detrimental to economic growth and employment. Both views have their explanation for why inflation has a positive or a negative impact on economic growth and employment. For Instance, in neoclassical views, inflation increases economic growth by shifting the income distribution in favour of higher saving capitalists, growth, and employment, while Keynesians also said that inflation may increase growth by raising the rate of profit, thus increasing private investment, which can trigger growth employment in the economy. On the other hand, theories or empirical studies show why inflation is negatively related to economic growth and unemployment, although positive with employment. For example, Barro (1995) said that high inflation reduces the level of investment and a reduction in investment adversely affects economic growth. Gutierrez et al (2016) also explained why inflation and economic growth have a negative relationship as the growth rate is depended on the rate of return but the rate of return is decreased by inflation and hence economic growth is negatively related to inflation. Furthermore, previous studies and some recent studies have failed to beam searchlight on the impact of price changes and population on employment, rather most reviewed studies mostly focused on the impact of inflation on economic growth, while others focused on the effect of population on economic growth. However, this study tends

to look at the impact of price changes and population dynamics on employment in Nigeria, spanning from 1980 to 2019.

However, given because of the above submission, the following research questions required empirical answers:

i. Does the consumer price index significantly impact employment in Nigeria?

ii. Does population growth affect employment growth in Nigeria?

iii. What is the direction of causality between consumer price index, population dynamics, and employment in Nigeria?

The rest of this paper is organized as; section two deals with literature review while section three points out materials and methods. Section four highlights the results and outcomes while section five concludes the study.

Literature Review

Several studies in Nigeria looked at the impact of price rises, population dynamics, and employment. Bucci (2003), in his study, investigated the long-run relationship between population growth and per-capita income in Scotland over the period 1980 to 2000, focusing on human and physical capital as reproducible inputs, using a multiple regression approach. The study's empirical results confirm that population growth has a negative and significant effect on economic growth. Instead, if human and physical resources are mutually advantageous, the effect of demographic growth on real GDP per capita income would also be negligible.

Nwosu, Dike, and Okwara (2014) used annual time series data to investigate the relationship between population growth and economic growth in Nigeria between 1960 and 2008. For this analysis, OLS techniques were combined with a granger causality test. GDP and population growth were the two main variables in the model. The researchers discovered, among other aspects, that population growth has a substantial effect on economic growth during study period; they also discovered that there is a long-term sustainable correlation between economic growth and population increase.

Likewise, Olabiyi (2014) used the Vector Auto Regressive (VAR) system to examine the impact of population dynamics on Nigerian economy between 1980 and 2010. Child mortality rate, birth rate, trade openness, government spending, actual gross domestic product, and primary school enrollment are the variables of interest. The study was based on annual time series data drawn on variables of interest within the specified timeframe, and the researcher discovered that as fertility rates decreased, economic growth increased; additionally, the researcher discovered a positive relationship between infant mortality rate and economic growth.

Bloom, Canning, and Finlay (2015) used descriptive and inferential statistics and a fixed (dynamic) panel regression model to assess the relationship between aging populations and economic growth in Asia between 1960 and 2014. The research discovered a negative correlation between population aging and economic growth, as well as a positive relationship between economic growth and capital stock, trade openness, and other institutional variables in the regression model.

Between 1990 and 2014, Agwu (2015) investigated the factors that contributed to Nigeria's economic development. The Vector Error Correction Mechanism (VECM) was used to determine the short-run and long-run dynamics of economic growth in order to achieve the research aims. According to the long-run forecast, government spending and oil revenue enhanced economic growth, although interest rates and inflation had a negative effect.

Orumie (2016) used simple linear regression analysis to examine the impact of the unemployment rate and population growth rate on Nigeria's gross domestic product from 2000 to 2011. The study discovered that the unemployment rate is rising and that it is unaffected by education, age, or gender.

Aidi, Emecheta, and Ngwudiobu (2016), on the other hand, used recent data to examine the relationship between Nigerian population growth and economic growth. For the analysis, the researchers used the Granger-Causality technique and discovered that neither population growth nor economic growth Granger-Cause each other.

Adekola, Allen, Olawole, Akanbi, and Adewunmi (2016) examined if unemployment in Nigeria is primarily caused by changing demographics or if there are other underlying factors that come into play. The population and unemployment structures of three positively selected and densely populated countries in three continents; Nigeria, China, and the United States were compared. The findings indicate that demographic growth is not the only factor driving population growth; however, in Nigeria, both population and unemployment are increasing.

Imiosi, Amba, and Okon (2017) use the Ordinary least squares multiple regression empirical approach to examine the effect of unemployment on economic growth in Nigeria, using yearly secondary data on GDP, unemployment rate, minimum wage, working population, and population from 1980 to 2016. The findings show that unemployment, population, and working population get a major effect on the country's economic development, while the minimum wage rate has no significant effect.

From 1970 to 2016, Enejoh and Tsauni (2018) examine the effect of inflation and unemployment on Nigerian economic development. The ARDL model was used to perform dynamic error correction for the country and derive long and short run coefficients. Inflation has a positive insignificant effect on economic growth, while unemployment has a negative and insignificant impact on the economy in Nigeria in the long run, according to the findings. In the long run, exchange rates have an optimistic and important effect on the economy. Inflation has little impact on Nigeria's economic growth term.

Methodology

The procedure and methods used in the paper are described in this section, which is divided into two subsections. The first involves the use of data, while the second involves the estimation of an analytical model based on a priori expectations. The data for this study came from the World Development Indicators (WDI) and the CBN 2019 Statistical Bulletin. The data sample spans the years 1980 to 2019. Price changes were proxied for both the price consumer index (PCI), population (POP), foreign direct investment (FDI), jobs (LAB), and tax revenue were all needed as annual time series data for the analysis (TAXREV). In addition, to deflate the large magnitude

of the variables, the natural log of the variables was used. After that, it's time to start building the empirical analysis.

Empirical model

The thesis used Guerrini's adaptation of the Solow swan development model (2006). Solow's model treats saving rates, population growth, and technological advancement as exogenous variables. Capital and labour are two inputs which are already paid their total goods. The production function at time step t is given by considering a Cobb-Douglas functional form

$$y(t) = k(t)^{\alpha} A(t) L(t)^{1-\alpha} \quad 0 < \alpha < 1 \text{.....(1)}$$

The initial levels of capital, labor, and innovation are assumed to be constant. Labor and technological advancements are both increasing at a steady pace:

$$\dot{}(t) = nL(t) \text{.....(2)}$$

$$\dot{}(t) = gA(t) \text{.....(3)}$$

A dot over a variable denotes a derivative with respect to time, and n and g are exogenous parameters. Attributing equations (4) and (3) to the result that a variable's rate of growth equals the rate of change of its log reveals that the rates of change of the logs of L and A are constant and equal n and g, respectively. Consequently,

$$1nL(t) = \{1nL(0)\} + nt \text{.....(5)}$$

$$1nA(t) = \{1nA(0)\} + gt \text{.....(6)}$$

Where $L(0)$ and $A(0)$ are the values of L and A at time 0. exponentiating both sides of these equations gives us :

$$L(t) = L(0)e^{nt} \text{.....(7)}$$

$$A(t) = A(0)e^{nt} \text{.....(8)}$$

The number of effective units of labour, $A(t) L(t)$ grows at rate $n + g$.

The model assumes that a constant fraction of output s is invested. Defining k as the stock of capital per effective unit of labor, $k = K / AL$, and y as the level of output per effective unit of labor, $y = Y / AL$, the evolution of k is governed by

$$k(t) = sY(t) - (n + g - \partial)k(t) = sK(t)^{\alpha} - (n + g + \partial)k(t) \text{.....(9)}$$

Where ∂ is the rate of depreciation? Equation 8 implies that K converges to a steady state value which is defined by

$$sK^{\alpha} = (n + g + \partial)k \text{ or}$$

$$K = \left[\left(\frac{s}{n} + g + \partial\right)\right] 1/(1 - \alpha \text{.....(10)}$$

The steady state capital labor ratio is positively related to saving rates and negatively related to population growth rates. The Solow model's central prediction is all about the impact of saving and population growth on real income. We can find the steady state income per capita by substituting (9) into the output function (10) and taking logs:

$$1n\left[\frac{y(t)}{L(t)}\right] = 1n\, A(0) + g(t) + \alpha/1-\alpha\, 1n(s) - \alpha/1-\alpha\, 1n(n+g+\partial).....(11)$$

Since the model assumes marginal product variables, it forecasts not only the signs but also the magnitudes of the saving and population growth coefficients. An extract from equation (11) can be expressed as follows when relating the theoretical model to the study:

$$LAB = f(CPI, POP, FDI, TAXREV).....(12)$$

Where:

LAB is the labour input, which is a proxy for jobs, CPI is the consumer price index, which is a proxy for price increases, POP is the population increase, FDI is the foreign direct investment and $TAXREV$ is the government tax revenue.

In light of the theoretical context, the model for this study is based on Yelwa, David, and Omoniyi's work (2015). According to their research, the authors used the Philip's curve to analyze the relationship between economics, inflation, and unemployment. The Philip's curve notes that inflation and unemployment have an inverse relationship. The author's model is defined as follows:

$$RGDP = (UNEMP, INTR, GEXP, INF) \quad \text{.....(13)}$$

Where $(RGDP)$ is the real gross domestic product $(UNEMP)$ represents unemployment rate, $(INTR)$ is interest rate, $(GEXP)$ is government expenditure, and (INF) is inflation rate

The above equation is extended to incorporate the present variables for the study. The variables for the study are specified as:

$$LAB = f(CPI, POP, FDI, TAXREV) \quad \text{.....(14)}$$

Linearly, the model is estimated as:

$$LAB_t = \alpha_0 + \alpha_1 CPI_t + \alpha_2 POP_t + \alpha_3 FDI_t + \alpha_4 TAXREV_t + U_t \quad \text{.....(15)}$$

Where LAB is Labour Input which is proxy to employment, CPI is Consumer Price Index which proxy to price changes, POP is Population Growth. FDI is Foreign Direct Investment $TAXREV$ is Tax revenue, α_0 is the constant term α_1 to α_4 is the parameters estimates, U is the stochastic error term and t is the time period.

The above equation is further specified in $ARDL$ for as:

$$\begin{aligned}\Delta LAB_t = \alpha_0 &+ \sum_{i=1}^{p} \alpha_1 \Delta LAB_{t-1} + \sum_{i=0}^{p} \alpha_2 \Delta CPI_{t-1} + \sum_{i=0}^{p} \alpha_3 \Delta POP_{t-1} + \sum_{i=0}^{p} \alpha_4 \Delta FDI_{t-1} \\ &+ \sum_{i=0}^{p} \alpha_5 \Delta TAXREV_{t-1} + \alpha_6 \ln LAB_{t-1} + \alpha_7 \ln CPI_{t-1} + \alpha_8 \ln POP_{t-1} \\ &+ \alpha_9 \ln FDI_{t-1} + \alpha_{10} \ln TAXREV_{t-1} + \varepsilon_t \quad \text{.....(16)}\end{aligned}$$

Measurement and Data Sources

The data for this study's empirical research came primarily from the World Development Indicators (WDI) and the CBN's Statistical Bulletin 2019. This research is based on a thirty-nine-year period, from 1980 to 2019. The time was chosen to investigate the impact of market increases and demographic changes on jobs during and after the structural adjustment program.

Table 1: Measurement and Data Sources

Variable	Description	Source	Measurement
Labour Force	Proxied as employment	World Bank Development Indicators (WDI).	Labour force as a percentage of GDP
Price Changes	Proxied as consumer price index	Central Bank of Nigeria (CBN)	Consumer price index as a percentage of GDP
Population Growth	Population growth rate	World Bank Development Indicators (WDI).	Annual growth rate of population
Foreign Direct Investment	Net inflow of Foreign Direct Investment	World Bank Development Indicators (WDI).	Net inflow of FDI as percentage of GDP
Tax Revenue	Proxied as Government Tax Revenue	Central Bank of Nigeria (CBN)	Government Tax Revenue in Millions.

Empirical Results and Discussion

Descriptive Statistics of the Variables

The statistical inference in the analysis is shown in this part, which includes the average mean, median, skewness, and Kurtosis, which are estimated in the model. The research is summarized in the table below.

Table 2: Descriptive Statistics of the Variables

Variables	Mean	Median	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob	Obs
CPI	58.2068	28.6411	68.378	1.16938	3.270495	9.238419	0.009861	40
FDI	1.48405	1.12923	1.2899	1.40352	5.735264	25.60195	0.000003	40
LAB	0.04047	0.03444	0.0283	0.93044	3.397752	6.035173	0.048919	40
POP	35.7796	34.572	8.4740	0.14516	1.863408	2.293561	0.317658	40
TAXREV	22.9192	49.465	40.1350	2.4.0787	8.610761	91.12027	0.	40

Source: Author`s computation (2021)

The average mean of price shifts proxied by the consumer price index (CPI) is 58.2 percent in table 4.1, which is higher than the median value of 28,6 percent. This means that the average annual rate of price increases in the economy is 58.2 percent, which is extremely high. Similarly, the average mean of foreign direct investment is 1.48 percent, compared to a median value of 1.12 percent, implying that foreign direct investment in Nigeria increases at an annual rate of 1.48 percent.

Additionally, the average mean for labour input-based jobs is 4.0 percent, which is higher than the median estimate of 3.4 percent. This means that employment in Nigeria is increasing at a rate of 4.0 percent on an annual basis. Furthermore, the average population mean is 35 percent higher than the median value of 34.5, suggesting that Nigeria's population is growing at an above-

average rate of 35.7 percent. Similarly, the real tax revenue is 22.9 percent, which is smaller than the norm of 49.4 percent. This means that the government's rate of revenue generation is low in comparison to the economy's high prices for goods and services.

With the exception of jobs proxied by labour force, the standard deviation values for all variables are greater than 1.0, indicating that the model is sound. Furthermore, the likelihood value is less than one, while the Jarque-Bera figure for all variables is greater than one, indicating that their distribution levels are equal to zero but greater than one. Similarly, the skewness and kurtosis results show that all variables have skewness and kurtosis that can be obtained from a normal curve, meaning that a normal distribution should have skewness of zero or very close to zero, with the exception of price adjustments proxied by the consumer price index, foreign direct investment, and taxation.

The unit root test on the variables is presented in this section. To decide the best test and estimation model to use, the first step is to diagnose the stationary state of the variables.

Table 3: Unit Root Test (Augmented Dickey Fuller Test)

Variables	Level				First Difference			
	ADF Static	1%	5%	Level of Integration	ADF Static	1%	5%	Level of Integration
LAB	-1.1182	-3.6104	-2.9389	I(0)	-6.1348***	-3.6155	-2.9411	I(1)
CIP	-1.5490	-3.6267	-2.9458	I (0)	-4.2532**	-3.6329	-2.9484	I(1)
FDI	-4.1932***	-3.6104	-2.9389	I(0)	-8.1947***	-3.6155	-2.9411	I(1)
POP	-1.6021	-3.6155	-2.9411	I(0)	-4.8490**	-3.6155	-2.9411	I(1)
TAXREV	-1.7363	-3.6210	-2.9434	I(0)	-5.9128***	-3.6210	-2.9434	I(1)

Note: *** significant at 1%, ** significant at 5%, * significant at 10%, Mackinnon

The results of the Augmented Dickey Fuller (ADF) test show that only foreign direct investment is stationary at the level, while jobs proxied by labour input, price changes proxied by consumer price index, population growth, and tax revenue are not stationary at the level for a 5% level of significance, meaning that there is a unit root. Foreign direct investment, wages proxied by labor input, price shifts proxied by consumer price index, population rise, and tax revenue, on the other hand, are all acknowledged to be stationary at first difference for 1 percent relevant levels after first differencing. This indicates that the model's combined series have no unit-root at first difference, meaning that the series are mean-reverting and converge to their long-run equilibrium.

Estimation Techniques

In this analysis, the Autoregressive Distributive Lag (ARDL) bound testing model is used. This is because it concentrates on the short- and long-term relationship between price increases, population dynamics, and jobs, regardless of whether the variables are stationary at the level or at the first difference.

Table 4: ARDL Bounds Test; Null Hypothesis: No long-run relationship exits

Test Statistic	Value	k
F-statistic	0.815259	4
Critical Value Bounds		
Significance	**I(0) Bound**	**I(1) Bound**
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Author's Computation

Since the F-Statistic is less than the I (0) and I (1) bounds, the above bound testing result shows that there is no long-run equilibrium relationship between price shifts, population dynamics, and jobs in Nigeria. In this case, the analysis will use autoregressive distributive lag to estimate the short- and long-run significance.

Autoregressive Distributive Lagged (ARDL) Co-Integration Analysis
Table 5: Autoregressive Distributive Lagged (ARDL) Estimation
Dependent Variable: Gross Domestic Product (GDP)

		Short-Run Co-efficient		
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(CPI)	0.240030	0.03249	0.335603	0.7394
D(POP)	-0.000752	0.00070	-1.068847	0.2931
D(FDI)	0.004008	0.00185	2.166600	0.0378
D(TAXREV)	0.001013	0.00311	0.014572	0.9885
CointEq(-1)	-0.306953	0.11687	-2.626296	0.0131
Long-Run Co-efficient				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CPI	0.23009	0.11030	0.32134	0.7500
POP	-0.00245	0.00255	-0.95858	0.3450
FDI	0.01305	0.00635	2.05381	0.0482
TAXREV	0.00230	0.00302	2.23348	0.0326
C	0.09297	0.06959	1.33594	0.1910

Source: Author's Computation

Since the F-Statistic is less than the I (0) and I (1) bounds, the above bound testing result shows that there is no long-run equilibrium relationship between price shifts, population dynamics, and jobs in Nigeria. In this case, the analysis will use autoregressive distributive lag to estimate the short- and long-run significance.

Furthermore, in the long run, price changes proxied by the consumer price index have a positive but negligible impact on jobs, implying that a percent rise in price changes proxied by the consumer price index would increase employment by 23.0%, a percent difference from the short-run outcome. Population, on the other hand, has a negative and negligible impact on jobs in the short and long term, meaning that a 1% change in population reduces employment by 0.07 and 0.2 percent, respectively.

This suggests that as the population's job rate declines, the economy will become more unemployed. Aside from that, foreign direct investment has a clear positive impact on wages, mostly in the short and long term, with a percent increase in foreign investment raising employment by 0.4 percent and 1.3 percent, respectively. This implies that as capital flows into the country through foreign direct investment, the net inflow will be channel into the actual or manufacturing industries, where the output of products necessitates the recruitment of labor.

Furthermore, tax revenue does have a positive effect on jobs in both the short and long run, but the short-run impact is negligible while the long-run impact is substantial, despite the fact that government tax revenue is slightly lower in both times. Finally, the error correction model's co-integration equation is negative and important, meaning that the speed of change from short disequilibrium to long run equilibrium is slower than average. In addition, the result indicates that approximately 30.6 percent of the deviation from equilibrium was resolved in a single cycle.

Post Estimation Results

Further diagnostic and stability tests were used to ensure the result's robustness. The diagnostic and consistency tests are listed and discussed in the table 6 below.

Heteroskedasticity Test (Breusch-Pagan Godfrey Test)			
F-statistic	2.00088	**Prob. F (7, 31)**	0.1870
Obs* R-squared	12.1370	**Prob. Chi-Squared (7)**	0.2961
Scaled explained SS	25.6492	**Prob. Chi-Squared (7)**	0.0236
Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.02175	**Prob. F (2, 29)**	0.9785
Obs* R-squared	0.05841	**Prob. Chi-Squared (2)**	0.9712
Pair Granger Causality Test			
Null Hypothesis	**Obs**	**F-statistic**	**Prob.**
LAB does not Granger cause CPI	38	0.3708	0.6930
CPI does not Granger cause LAB		1.5198	0.2337
POP does not Granger cause CPI	38	3.9669	0.0286
CPI does not Granger cause POP		7.1643	0.0026
POP does not Granger cause LAB	38	4.1732	0.0242
LAB does not Granger cause POP		0.1002	0.9049

Source: Author's Computation

We cannot dismiss the null hypothesis since the corresponding p-values for F-statistics and chi-square are 0.1870 and 0.2961, respectively, which are > 0.05, so we consider it against the alternative hypothesis and conclude that the residual is homoscedastic. Furthermore, since likelihood (F-Statistic) and probability (Chi-square) are both 0, the null hypothesis states that, there is no heterokedasticity should not be dismissed.

The Breusch-Godfrey Correlation Lagrange Multiplier test yields significant probability values of 0.9785 and 0.9712 for F-statistics and observed R-Squared, respectively, to accept the null hypothesis that the residuals produced by the autoregressive model have no autocorrelation. As a result, we can conclude that the test is true since the estimated series contains serial correlation

Also, table 6 shows that there is no causality between employment as measured by labour input and price increases as measured by the consumer price index. Bidirectional causality, on the other hand, runs from population to market increases, implying that as the population grows, so will the price of goods and services. Furthermore, the findings show that there is unidirectional causality between population and jobs, as measured by labour input, implying that population growth can trigger employment but employment cannot cause population, implying that when one is adequately engaged, the rate of population decreases.

Discussion of Findings

The study's empirical findings confirmed that only foreign direct investment is stationary at level in the Augmented Dickey Fuller (ADF) test, whereas employment proxied by labour input, price changes proxied by consumer price index, population growth, and tax revenue are not stationary at level for a 5% level of significance, implying that there is a unit root. All of the variables of interest, including the control variables, were stationary after the first difference for 1% significant levels. This means that the model's combined series have no unit-root at first difference, meaning that they are mean reverting and will eventually reach their long-run equilibrium. Similarly, the results of bound testing show that there is no long-run equilibrium relationship between price shifts, population dynamics, and employment in Nigeria, indicating that the analysis can use autoregressive distributive lag to estimate short- and long-run significance.

The ARDL result confirms that price shifts proxied by the consumer price index have a favorable but negligible effect on jobs in the short and long run. This means that a 4% rise in the consumer price index will increase jobs by 24.0 and 23.0%, respectively, even though the increase will have no significant effect on employment. In the same way, population has a negative and negligible impact on jobs in the short and long term, meaning that a percent change in population reduces employment by 0.07 percent and 0.2 percent, respectively. This suggests that as the population's job rate falls, the economy is more likely to experience unemployment. Furthermore, foreign direct investment has a positive and important effect on jobs in both the short and long term, with a percent improvement in foreign direct investment increasing employment by 0.4 and 1.3 percent, respectively. More specifically, tax revenue has a positive short- and long-term effect on jobs, but the short-term impact is minor while the long-term impact is substantial. Although the government's tax revenue is slightly lower in both times. The co-integration signify that the coefficient is negative and also significant implying the speed of adjustment from the short-run disequilibrium to the long-run equilibrium, meaning that about 30.6% percent of deviation from equilibrium was corrected within one period. The granger causality confirmed that there is

bidirectional causality running from population to price changes, indicating that increase in the rate of population will cause price of goods and services to increase. On the other hand, no causality exists between employment proxied with labour input and price changes proxied with consumer price index.

Conclusion

For the period 1980 to 2019, this study explores the effect of price shifts and population dynamics on jobs in Nigeria. Price changes and population growth, it is widely assumed, are the major determining factors that propel or repel in Nigeria, with the government developing and implementing policies that can help increase jobs generation in the region. However, tax revenue has not played a significant role in fostering jobs in Nigeria, owing to a rise in the consumer price index, which is related to price shifts in the economy. The absence of autocorrelation and heteroscedasticity in the model is also shown by the result. Finally, the granger causality test reveals that there is no causality between jobs as measured by labour input and price shifts as measured by the consumer price index.

Recommendations

The following policy recommendations are based on the findings: The Nigerian government should embark on sensitization crusades and programs to educate the Nigerian populace about the importance of controlling fertility rates in order to monitor population growth in Nigeria. The government should adopt policies that will help to slow population growth, thereby controlling labour supply and lowering unemployment rates. In addition, the government should promote industrialization policies and the inflow of foreign direct investment into the country in order to provide job opportunities for the unemployed. The Nigerian government should also invest more in infrastructure, as this will provide the required conducive environment for various economic activities. Similarly, both the government and the private sector can work harder to invest in education and skill-building programs. This would increase labour efficiency, which will have a beneficial effect on productivity. To draw more domestic and foreign investors, the government should implement more economically friendly policies. This would go a long way toward increasing job prospects and improving efficiency. Policies supportive of directly reducing fertility rates should also be created, with attempts required to ensure enforcement at the same time.

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