EDUCATION, ENTREPRENEURSHIP AND ECONOMIC GROWTH IN NIGERIA: AN AUTOREGRESSIVE DISTRIBUTED LAG ANALYSIS

*[1]ADEBAYO Adekunle Ademayowa, [1]OLUWO Peter Olugbenga & [2]OLUWO Mathias Kolawole

[1]*Department of Economics Education, Lagos State University of Education,Oto –Ijanikin,*
[2]*Department of Educational Foundations, Federal College of Education (Special), Oyo. .*
*Corresponding Author: :mmaayowa@gmail.com

ABSTRACT

Education and entrepreneurship are twin engines that can power Nigeria's economic growth, as they fuel innovation, enhance skill sets, and create a dynamic workforce capable of tackling the challenges of a rapidly evolving global market. Therefore, this paper examines the effect of education and entrepreneurship on economic growth in Nigeria. The paper makes use of annual time series data over the period 1990 to 2023 and the data set was estimated using the Autoregressive Distributed Lag model. The result shows that entrepreneurship has no significant short run or long run effect on economic growth while education has significant effect on economic growth in the short run but the effect becomes weak in the long run. In order to improve the situation, it was recommended that efforts be made to address those constraints that might be hindering the relevance of entrepreneurship to the growth of the Nigerian economy such as infrastructural deficiency and paucity of capital while the education system should also be strengthened via curricula that emphasize practical entrepreneurial training, innovation and skill development.

Keywords: *Education, Entrepreneurship and Economic Growth.*

INTRODUCTION

Nigeria's economic growth is confronted by various challenges that continue to plague the nation. From security threats and corruption to widespread poverty, unemployment, and other macroeconomic problems, these issues have collectively hindered the country's ability to achieve sustained economic growth and development. Nigeria has witnessed an erratic growth pattern since the introduction of structural adjustment in the late 1980s. For example, in 1990, a period shortly after the introduction of

the Structural Adjustment Programme the Nigerian economy experienced a notable growth rate of 11.78%(Nwokebuife, Hui, Mintah, Ejiofor and Ofori, 2021). However, this momentum was short-lived, as by 1995, growth has plummeted to -0.07%. The economy managed to recover slightly reaching a growth rate of 5.02% by 2000, 6.44% in 2005 and 8.01% in 2010, but this was followed by another downturn, with growth dipping to 2.65% in 2015. The downward trend continued, culminating in a contraction of -1.79% in 2020, largely due to global and domestic shocks before recovering slightly with a modest growth rate of 3.25% in 2022 (World Bank, 2024). This erratic growth pattern highlights the complex and dynamic nature of Nigeria's economic landscape, underscoring the need for strategic interventions if sustainable development is to be achieved (Akinyemi, Oyebisi and Odot- Itoro, 2018; Abdul, 2018).

In the face of the economic challenges facing Nigeria, entrepreneurship emerges as a powerful catalyst for change. By sparking innovation and stimulating enterprise, entrepreneurship opens doors to job creation, wealth creation and inclusive growth (Ogbo and Nwachukwu, 2012). Entrepreneurs strengthen the economy by diversifying industries and reducing oil dependency, setting the stage for a more resilient and balanced economic landscape. Strategic investments in education, infrastructure and supportive policies can unleash the nation's entrepreneurial potential, positioning it as the driving force behind a more prosperous and equitable Nigeria. Through this, economic growth will be accelerated, competitiveness enhanced, and the economy will become more resilient to shocks (Ubong, 2017).

The World Economic Forum argues that education improves a country's productivity by increasing workforce efficiency, facilitating knowledge transfer, and promoting and assisting innovation (Grant, 2017). Beal (2012) shows that investment in education can amplify growth within a country by encouraging activities that develop competitive advantage, promote entrepreneurship, and increase specific labour inputs within the market. Such investments in education provide substantial benefits in the development and advancement of labour inputs and innovation within a country, both of which are essential factors in increasing economic growth (Agarwal, 2020). Globally, education can be key to determining the entrepreneurial landscape and providing individuals with the foundational knowledge and skills necessary for business innovation and success. Through structured learning, students gain critical thinking abilities,

financial literacy, and problem-solving skills that are essential for navigating the complexities of entrepreneurship. The integration of entrepreneurial studies into educational curricula at all levels further equip learners with the mindset and tools needed to identify opportunities, take calculated risks and develop viable business ventures.

According to Jelilov, Aleshinloye, & Önder (2016), the link between education, entrepreneurship and

economic growth is fundamental to economic development. Education equips individuals with the knowledge, skills, and critical thinking necessary to innovate and create successful businesses. These entrepreneurial ventures, in turn, drive economic growth by generating employment, increasing productivity, and diversifying the economy beyond traditional industries (Kasseeah, 2016). By fostering a culture of entrepreneurship through education, Nigeria can harness the potential of its youth, reduce unemployment, and build a resilient economy that is capable of sustaining long-term growth and development. Ultimately, the effective interplay of education and entrepreneurship creates a robust foundation for sustained economic growth and development, positioning Nigeria to leverage its human capital for a prosperous future (Nwokebuife et al., 2021).

In the long term, the synergy between education and entrepreneurship is essential for Nigeria's sustainable economic development. By investing in education that promotes entrepreneurial skills, the country can develop a workforce that is adaptable, innovative, and capable of overcoming economic challenges. This approach not only diversifies the economy but also empowers individuals to become self- reliant, reducing poverty and fostering inclusive growth. As Nigeria continues to evolve, the role of education in promoting entrepreneurs will be crucial in ensuring that the nation's economic potential is fully realized (Olutuase, Brijlal, & Yan, 2020).

In view of the above, this paper considers the role of education and entrepreneurship instimulating economic growth in Nigeria. The paper consists of five sections with this background as Section 1. Section 2 focusses on the literature review, while section 3 presents the methodology for data collection and analysis. The results of the empirical analysis are presented in Section 4, and Section 5 presents the conclusion and recommendations. It is important to note that while there is a link between education and entrepreneurship through a structured programme broadly classified as entrepreneurship education, this study is not set out to assess the impact of such programme. Rather, it is an attempt to determine the individual contributions of education and entrepreneurship as distinct factors in the growth process.

LITERATURE REVIEW

Theoretical Review

There is a plethora of theories on entrepreneurship given its broad disciplinary relevance. However, different theoretical postulations focus on three major aspects of entrepreneurship namely: nature of opportunities, the nature of entrepreneurs, and the nature of decision-making framework within which an entrepreneur functions.

Within these three aspects two broad views stand out viz: the discovery view and the creation view. The discovery view lays emphasis on identification, existence and exploitation of opportunities and their reciprocal influence on individuals. It avers that opportunities have an objective component whose existence does not depend on whether individuals identify them or not; individuals are alert to the existence of opportunities and are unique with regard to ability to scan the environment and identify opportunities; and entrepreneurs are risk bearers because they can only discover and avail opportunities but not create them. The creation view on the other hand focuses on entrepreneurs as creator of enterprises. The theory argues that opportunities are subjective in nature (i.e. their existence is not independent of the actions of entrepreneurs); entrepreneurs create opportunities rather than discovering them; and entrepreneurs are uncertainty bearers rather than risk bearers.

Empirical Review

Education and Economic Growth

There is ample empirical evidence to the fact that education is positively related to economic growth and that the relationship is stronger for developing countries.

Omojimite (2010) examined the notion that formal education accelerates economic growth using Nigerian data for the period 1980-2005. They employed cointegration and Granger Causality to test the hypothesis of a growth strategy led by improvements in the education sector. The results showed that there is cointegration between public expenditures on education, primary school enrolment and economic growth. The results further revealed a unidirectional causality from public expenditures on education to economic growth. In addition, while there is bi-directional causality between public recurrent expenditures on education and economic growth, no causal relationship was established between capital expenditure on education and economic growth.

Lawal and Wahab (2011) considered the relation between education and economic growth in Nigeria using time series data between 1980 and 2008, and ordinary least squares regression technique. Proxies for education include expenditure on education and enrolment ratios disaggregated by educational levels. It was found that educational investments have direct and significant impact on economic growth in Nigeria.

Jelilov, Aleshinloye, and Önder (2016) analysed the impact of education on the economic growth of Nigeria for the period 1970 - 2016using Ordinary Least Squares (OLS) method. The variables used in the study included real GDP, capital expenditure on education, recurrent expenditure on education, primary school enrolment, and secondary school enrollment. The findings revealed a statistically significant relationship between GDP and all the variables used in the study except primary school enrolment.

Marquez-Ramos and Mourelle (2018) examined education as a channel for human capital improvement and economic growth using a nonlinear framework based on smooth transition specifications. They hypothesized the existence of a threshold for education, after which point the characteristics of economic growth change. The empirical analysis for Spain points to the existence of nonlinearities in the relationship between education and economic growth at country and regional levels, for both secondary and tertiary education.

Irughe, Eregha and Edafe (2020) examined the impact of different levels of education on different components of growth in Nigeriafor the period 1970–2013. The Fully Modified Ordinary Least Square (OLS) and Dynamic OLS approaches were employed for the analysis. Education was captured by enrolment rates and completion rates at different levels of schooling. The result revealed that different levels of education have varying positive impacts on overall growth and each of the components of growth, but the magnitude of the impact from completion rates is much higher on overall growth.

Bar (2023) investigates the effects of education on economic growth in 89 low, middle, and high-income countries using an index of human capital developed by Penn World Table and economic growth data from the World Bank's World Development Indicators. The study specifies a growth

accounting empirical model to examine the effects of education on economic growth using Systems Generalized Method of Moments estimation technique and annual datacovering the periods from 2002 to 2020. The results show that education significantly enhances economic growth. On average, an increase in the education index by 0.1 increases the growth of real GDP per capita by 0.8 percentage points. The results also show that education does have higher returns for low- and middle-income countries compared to high-income countries.

Entrepreneurship and Economic Growth

The dominant conclusion from various studies examining the relationship between entrepreneurship and economic growth is that entrepreneurship may or may not have effect on economic growth depending on the types of entrepreneurshipinvolved and groups of economies concerned.

Stam and van Stel (2009) investigated the effect of entrepreneurship on economic growth at the country level using data from the Global Entrepreneurship Monitor. They empirically tested and compared the impact of entrepreneurial activity on GDP growth over a four-year period for a sample of 36 countries covering high income, transition and low-income countries and made a distinction between the effects of entrepreneurship in general and growth-oriented entrepreneurship in particular. The findings revealed that entrepreneurship does not have effect on economic growth in low-income countries, in contrast to transition and high-income countries where especially growth-oriented entrepreneurship contribute strongly to macroeconomic growth.

Dabrowski (2011) formally tested the impact of entrepreneurship on economic growth representing entrepreneurship by several proxies including business birth rate, self-employment rate, business investment and labour productivity growth while total factor productivity is used as a measure of economic growth. Panel data of 26 European countries repeatedly sampled over a period of 11 years is used to estimate a Random Effect model. The study found that entrepreneurship contributes to growth moderately but is not a dominant force shaping changes in total factor productivity growth.

Stoica, Roman and Rusu (2020) examined the potential effect of different types of entrepreneurship (early-stage entrepreneurship, opportunity- driven entrepreneurship, and necessity- driven entrepreneurship) on economic growth at national level for the period

2002–2018 for 22 European countries with a view to identifying whether the contribution of entrepreneurship to economic growth differs according to the stage of economic development. The results suggest that all three types of entrepreneurship have significant impact on economic growth for the entire sample of European countries but some types of entrepreneurship are more important than others. They found that opportunity-driven entrepreneurship and early-stage entrepreneurship would be key factors in stimulating economic growth across the sample of European countries, opportunity-driven entrepreneurship would have a greater impact in transition countries, while necessity-driven entrepreneurship would have a stronger influence in the innovation-driven countries.

Gautam and Lal (2021) investigated different facets of entrepreneurship and the relationship between the dynamics of entrepreneurship and economic growth in G-20 economies while controlling the impact of lower and higher income group economies. They used an econometric model that pooled the cross-section of countries with time-series data on each country over the study period of 2001–2016 depending upon the availability of the data set. Data was taken from Global Entrepreneurship Monitor (GEM) for entrepreneurial dynamics as well as the World Economic Forum and IMF World Economic Outlook database. They found a significant positive relationship between entrepreneurial activities with respect to GDP, GCI, respectively.

Kim, Castillejos-Petalcorin, Jinjarak, Park, Quising, and Tian (2022) performed cross-sectional analysis to examine the link between entrepreneurship and economic growth. They divide total early-stage entrepreneurship into opportunity-driven entrepreneurship versus necessity driven entrepreneurship, and advanced economies versus developing economies. They failed to find a positive link between aggregate entrepreneurship and economic growth and argued that this is consistent with the hugely heterogenous nature of entrepreneurial activity. They further noted that the empirical evidence points to the importance of distinguishing between different types of entrepreneurship and different groups of economies. For developing economies where manufacturing is relatively important, they find that opportunity-driven entrepreneurship is positively linked with growth.

Theoretical Framework

This study is anchored on the theory of creative destruction developed by Joseph Schumpeter in 1942. The theory emphasizes the role of innovation in driving economic growth and development. Schumpeter submitted that entrepreneurship is a process of discovering and initiating new products, new processes, and new business models that disrupt existing markets and create new opportunities. This disruptive innovation leads to creative destruction where outdated technologies and business practices are replaced by new and more efficient ones.

Creative destruction can be applied to analyse the link among entrepreneurship, education and economic growth by emphasising how innovation and entrepreneurial activities disrupt established markets and economic structures, thereby fostering economic growth and development. Entrepreneurship driven by educated individuals often lead to the creation of new industries, the displacement of outdated business models, and the enhancement of productivity. As entrepreneurs introduce novel products and services, they challenge the status quo, leading to a dynamic reallocation of resources that can stimulate economic growth. This process of creative destruction highlights the importance of a well-educated populace capable of generating and implementing innovative ideas that propel the economy forward.

Education plays a critical role in this framework by equipping individuals with the knowledge, skills, and critical thinking abilities necessary for entrepreneurial success. As educated entrepreneurs emerge, they are more likely to engage in creative destruction, replacing inefficient systems with more effective solutions, thus contributing to the country's economic expansion. This cycle of innovation and growth underscores the need for policies that promote access to quality education and support entrepreneurial ventures, ensuring that the benefits of creative destruction are fully realised in driving economic progress.

METHODOLOGY

Data Types and Sources

The study made use of annual times series data on Entrepreneurship, Education and Economic Growth in Nigeria obtained from the World Development Indicator, 2023.

Model Specification

The functional form of the model estimated is:

where gdp is gross domestic product, educ is education, entr is entrepreneurship, infl is inflation and excr is exchange rate. Inflation rate and exchange rate are introduced as control variables to account for macroeconomic stability during the period of study

The econometric form of equation 1 can be stated as:

3.2 Model Specification

The functional form of the model estimated is:

$$gdp = f(educ, entr, infl, excr) \quad (1)$$

where gdp is gross domestic product, educ is education, entr is entrepreneurship, infl is inflation and excr is exchange rate. Inflation rate and exchange rate are introduced as control variables to account for macroeconomic stability during the period of study

The econometric form of equation 1 can be stated as:

$$gdp = \beta_0 + \beta_1 educ + \beta_2 entr + \beta_3 infl + \beta_4 excr + \varepsilon_t \quad (2)$$

The double log form of the model was specified as:

$$lngdp = \beta_0 + \beta_1 lneduc + \beta_2 lnentr + \beta_3 lninfl + \beta_4 lnexcr + \varepsilon_t \quad (3)$$

In equation 3, the *a priori* expectations of the coefficients are:

$\beta_1 > 0$, An increase in educational attainment will lead to increase in economic growth
$\beta_2 > 0$, An increase in entrepreneurship will lead to increase in economic growth
$\beta_3 < 0$, An increase in inflation rate will lead to decrease in economic growth
$\beta_4 < 0$, An increase in exchange rate will lead to decrease in economic growth

The Augmented Dicke y-Fuller (ADF) unit root test was used to detect whether the variables were stationary or not. Based on the model trans formation of equation3, the bound test was conducted to determine the existence of cointegration using the F test statistic. The ARDL model specification is presented in equation 4:

$$\Delta lngdp = \beta_0 + \beta_1 lneduc + \beta_2 lnentr + \beta_3 lninfl + \beta_4 lnexcr + \sum_{i=1}^{p} \gamma_1 \Delta lngdp_{t-1} + \sum_{i=1}^{p} \gamma_2 lneduc_{t-1} + \sum_{i=1}^{p} \gamma_3 lnentr_{t-1} + \sum_{i=1}^{p} \gamma_4 lninfl_{t-1} + \sum_{i=1}^{p} \gamma_5 lnexcr_{t-1} + \varepsilon_t \quad ...(4)$$

Using equation 4, the F statistic tested the joint significance of the coefficients at one period of lag. The null (H_0) and alternative (H_a) hypotheses were stated as shown below:

Variables of the Study

In this study, entrepreneurship was proxied by new business density (new registration per 1,000 people aged 15–64), education was proxied by school enrolment (% gross), inflation was measured by consumer prices (annual%), the exchange rate was proxied by the real effective exchange rate index (2010 = 100), and economic growth was proxied by real GDP growth (annual%) with inflation and the exchange rate being introduced as control variables. Thus, the variables of the study are as indicated below:

Variables	Measurements/Units	Sources
Economic Growth (*gdp*)	This is measured by real gross domestic product (*gdp*) growth (annual %)	World Development Indicator (WDI), 2023
Education (*educ*)	Education is captured by School enrollment, secondary (% gross)	World Development Indicator (WDI), 2023
Entrepreneurship (*entr*)	This is proxy by New business density (new registrations per 1,000 people ages 15-64)	World Development Indicator (WDI), 2023
Inflation (*infl*)	Measured by consumer prices (annual %)	World Development Indicator (WDI), 2023
Exchange Rate (*excr*)	This is measured Real effective exchange rate index (2010 = 100)	World Development Indicator (WDI), 2023

Data Analysis and Model Estimation Techniques

The formulated models were analysed using E-view statistical package version 12. The Augmented Dickey-Fuller (ADF) unit root test was employed to examine the stationarity properties of the variables involved. Based on the outcome of the unit root test, a cointegration analysis was carried out using the ARDL Bounds test approach to determine the short and long run relationship among the variables of the study.

4.0 RESULTS AND DISCUSSION

Table 2: Descriptive Statistics

	gdp	entr	educ	infl	excr
Mean	4.151769	0.657956	35.44028	18.40672	110.5861
Maximum	15.32916	1.160976	54.88297	72.83550	273.0096
Minimum	-2.035120	0.451025	23.54534	5.388008	49.77958
Kurtosis	3.560161	2.415074	1.618984	6.613580	6.343829
Jarque-Bera	2.188833	3.120947	2.712091	42.94407	33.17067
Probability	0.334735	0.210037	0.257678	0.000000	0.000000
Sum	137.0084	21.71255	1169.529	607.4218	3649.341
Sum Sq. Dev.	493.4482	1.730696	2937.305	8326.273	74986.32
Observations	33	33	33	33	33

Source: Author's Computation, 2024.

The descriptive statistics presented in Table 2 offer a summary of the key variables under study: growth rate (*gdp*), entrepreneurship (*entr*), education (*educ*), inflation (*infl*), and real exchange rate (*excr*). The mean values indicate the central tendency of each variable, with *gdp* averaging around 4.15% and *excr* at 110.59, suggesting moderate growth and currency value during the period. The standard deviations reveal the dispersion, showing that inflation and exchange rates are highly volatile, while education and entrepreneurship are more stable. Skewness and kurtosis measures highlight the distribution shape, with inflation and exchange rates showing significant rightward skewness and leptokurtic distributions, implying the presence of extreme values. The Jarque-Bera statistics suggest normality is not rejected for *gdp*, *entr*, and *educ*, but is rejected for *infl* and *excr*, indicating that the latter two variables do not follow a normal distribution.

Table 3: Correlation Matrix Result

	gdp	entr	educ	infl	rexr
gdp	1				
entr	-0.117529	1			
educ	0.031889	0.763305	1		
infl	-0.420718	-0.230043	-0.359635	1	
excr	-0.191591	0.054382	-0.014551	-0.027128	1

Source: Author's Computation, 2024.

Table 3 presents the correlation matrix, which shows the strength and direction of the relationships between the variables: growth rate (*gdp)*, entrepreneurship (*entr*), education (*educ*), inflation (*infl*), and real exchange rate (*excr*). The correlation between *gdp* and *entr* is slightly negative (- 0.118), indicating a weak inverse relationship. *educ* has a strong positive correlation with *entr* (0.763), suggesting that higher education levels are associated with greater entrepreneurship. However, *gdp* has a weak positive correlation with *educ* (0.032) and weak negative correlations with *infl* (- 0.421) and *excr* (-0.192), implying that higher inflation and exchange rates may be linked to lower growth rates. The correlations between the other variables are generally weak, indicating minimal linear relationships among them.

Table 4: Augmented Dickey Fuller Result

Series	Levels	First Difference	Decision
gdp	0.0095	0.0000	I (0)
entr	0.9855	0.0002	I (1)
educ	0.8743	0.0000	I (1)
infl	0.2103	0.0000	I (1)
excr	0.3552	0.0000	I (1)

Table 4 displays the Augmented Dickey-Fuller (ADF) test results, which assess the stationarity of the variables: growth rate (*gdp*), entrepreneurship (*entr*), education (*educ*), inflation (*infl*), and real exchange rate (excr). The p- values for the series at their levels indicate that only *gdp* is stationary at level (I (0)), as its p-value (0.0095) is below the 5% critical value. The other variables *entr, educ, infl*, and *excr* are non-stationary at levels, as their p- values exceed the 5% threshold. However, after taking the first difference, all these variables become stationary (I(1)), with p-values dropping to 0.0002 or below, indicating that differencing the data once renders them stationary.

Table 5: Auto Regressive Distributed Lag ARDL bound test F-Bounds Test

Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.854118	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
1%		3.29	4.37	

Author's Computation, 2024

The F-Bounds test results presented in Table 5 assess the existence of a long- run relationship between the variables, testing the null hypothesis of no levels relationship. The calculated F-statistic value is 3.854118. To determine if this value is significant, it is compared against the critical bounds for different significance levels (10%, 5%, 2.5%, and 1%). At the 5%significance level, the F-statistic exceeds the upper bound critical value for I(1) (3.49), indicating that the null hypothesis can be rejected, suggesting the presence of a long-run equilibrium relationship among the variables. The comparison across the significance levels reinforces the conclusion that a long-run relationship likely exists in the model.

Critical Value at 5%				

Source: Author's Computation, 2024.

Table 6: ARDL Long Run Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-67.60592	22.58316	-2.993644	0.0151
gdp(-1)*	-0.728733	0.282479	-2.579778	0.0297
Dlog(entr)	5.009824	5.657453	0.885526	0.3989
D(educ)	0.408903	0.197952	2.065664	0.0688
D(infl)	-0.027346	0.057053	-0.479304	0.6432
D(excr)	0.026173	0.014247	1.837022	0.0994

Author's Computation, 2024

Table 6 presents the results of the ARDL Long Run Form and Bounds Test, highlighting the estimated long-run relationships between the dependent variable and the regressors. The constant term (C) has a significant negative coefficient (-67.60592) with a p-value of 0.0151, indicating asubstantial long-run impact. The lagged value of gdp(-1) also shows significance with a negative coefficient (-0.728733) and a p-value of 0.0297, suggesting a strong correction mechanism toward long-run equilibrium. While the coefficients for D(educ) and D(excr), which are the variables of interest, are positive and show some significance at the 10% level, the other variables—Dlog(entr) and D(infl)—do not exhibit significant effects, as indicated by their high p-values.

Table 7: ARDL Error Correction Regression ECM Regression

Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Dlog(entr)	5.009824	3.311882	1.512682	0.1647
D(educ)	0.408903	0.117776	3.471869	0.0070
D(infl)	-0.027346	0.032943	-0.830083	0.4280
D(excr)	0.026173	0.007229	3.620456	0.0056
CointEq(-1)*	-0.728733	0.121503	-5.997647	0.0002
R-squared	0.874759	Mean dependent var		0.510592
Adjusted R-squared	0.767410	S.D. dependent var		2.976474
S.E. of regression	1.435482	Akaike info criterion		3.867062
Sum squared resid	28.84853	Schwarz criterion		4.490984
Log likelihood	-39.20534	Hannan-Quinn criter.		4.052587
Durbin-Watson stat	2.067448			
*** p-value incompatible with t-Bounds distribution.**				

Author's Computation, 2024

Table 7 presents the results of the ARDL Error Correction Regression, focusing on the short-run dynamics and long-run relationship adjustments among the variables: entrepreneurship (*entr*), education (*educ*), inflation (*infl*), and real exchange rate (*excr*). The error correction term (CointEq(-1)) has a significant negative coefficient (-0.728733) with a p-value of 0.0002, confirming the presence of a stable long-run relationship and indicating that approximately 73% of any disequilibrium is corrected in the next period. The coefficients of the differenced variables show that *educ* (0.408903) and *excr* (0.026173) have statistically significant impacts on the dependent variable, while *entr* and *infl* do not. The R-squared value of 0.874759 suggests that about 87% of the variation in the dependent variable is explained by the model, indicating a good fit. The Durbin-Watson statistic (2.067448) is close to 2, suggesting no serious autocorrelation issues in the residuals.

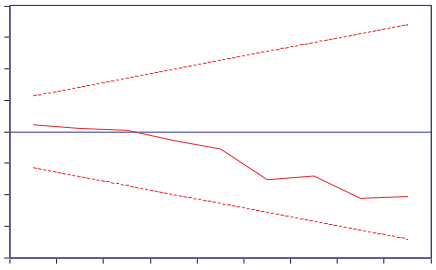
Table 8: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	**0.108127**	**Prob. F(17,9)**	**0.9999**
Obs*R-squared	4.579230	Prob. Chi-Square(17)	0.9987
Scaled explained SS	1.829286	Prob. Chi-Square(17)	1.0000
F-statistic	1.375007	Prob. F(2,7)	0.3136
Obs*R-squared	7.615411	Prob. Chi-Square(2)	0.0222

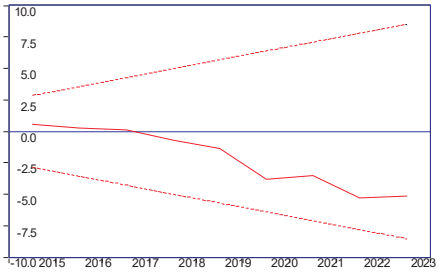
Author's Computation, 2024

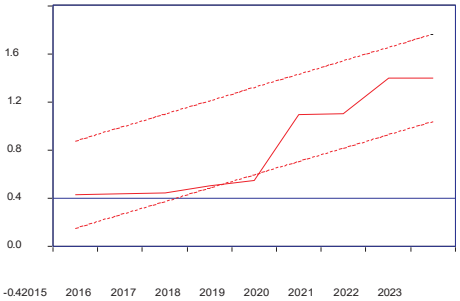
Table 8 provides the results of the Ramsey RESET Test, which is used to check for model specification errors by testing whether higher-order terms in the regression have any explanatory power. The t-statistic (0.699437) and F-statistic (0.489212) both have associated p-values of 0.5041, indicating that they are not statistically significant at conventional levels. This implies that there is no evidence to reject the null hypothesis of correct model specification, suggesting that the model is appropriately specified without omitted variable bias. The F-test summary further supports this conclusion by showing that the difference between the restricted and unrestricted sum of squared residuals (SSR) is minimal, reinforcing that adding additional terms does not significantly improve the model. Fig. 1 which highlights the model stability shows that the line

The structural stability of the model as revealed by the CUSUM test and the CUSUM squares shows both lie within the 5% level of significance as shown in Figure 1.



performance of the education sector while addressing those constraints limiting the impact of entrepreneurship on the economy.In this regard the following recommendations are pertinent:





1. Curricula reform should be implemented in the education system to enhance the entrepreneurial landscape. In this regard, it is recommended that entrepreneurship should be integrated into the curriculum at all levels. The curriculum should emphasize practical and context-specific training that meets the needs of the Nigerian economy.

2. The government should focus on creating an environment that supports entrepreneurial activities. This involves reducing bureaucratic barriers, providing better access to financing, and

3. The government should design policies that simultaneously promote both educational reforms and entrepreneurial initiatives so as to exploit the inter connectivity between them.

Fig.1: Structural Stability of the Model

The findings of this study shows that entrepreneurship has no significant short run or long run effect on economic growth while education has significant effect on economic growth in the short run but the effect becomes weak in the long run. The finding on education aligns with most of the previous studies which reported that education constitutes an important source of human capital development which impacts positively on growth (Lawal and Wahab, 2011; Jelilov, Aleshinloye and Onder, 2016; Bar, 2023) although the relationship may be subject to non-linearities (Marquez-Ramos and Mourelle (2018). The findings with regard to entrepreneurship is also in line with extant literature which suggest that due to the heterogenous nature of entrepreneurship, it may not have effect on growth in developing countries except for opportunity driven entrepreneurship (Stam and van Stel, 2009; Kim et al. 2022).

CONCLUSION AND RECOMMENDATIONS

The findings of this study highlight the importance of government and stakeholder involvement in funding education as a means of prompting economic growth in Nigeria. To achieve long-term growth, it is essential that the government implement strategies that not only address immediate economic challenges but also create a foundation for continuous good investing in infrastructure that enables businesses to thrive.

REFERENCES

Abdul, O. E. (2018). Entrepreneurial skills and growth of small and medium enterprises (SMEs): A comparative analysis of Nigerian entrepreneurs and minority entrepreneurs in the UK. *International Journal of Academic Research in Business and Social Sciences, 8*(5), 27–46. https://doi.org/10.6007/IJARBSS/v8-i5/1234

Agarwal, S., Ramadani, V., Gerguri-Rashiti, S., Agrawal, V. and Dixit, J.K. (2020), Inclusivity of entrepreneurship education on entrepreneurial attitude among young community: evidence from India, *Journal of Enterprising Communities: People and Places in the Global Economy*, *14* (2), 299-319. https://doi.org/10.1108/JEC-03-2020-

Akinyemi, A., Oyebisi, O., & Odot-Itoro, E. (2018). Entrepreneurship, unemployment and economic growth in Nigeria. *Covenant Journal of Entrepreneurship, 1*(1), 30–46. https://journals.covenantuniversity.edu.ng/index.php/cjoese/article/download/838/563

Bah I. A. (2023) The relationship between education and economic growth: A cross-country analysis. *Research, Society and Development*, 12 (5), DOI: https://doi.org/10.33448/rsd-v12i5.40522

Beal, D. (2012). The role of education in Economic Development – Douglas Beal – WISE Spotlight [Video]. Wise Channel. https://bit.ly/3exwKOP

Dabkowski, A. P. (2011). Entrepreneurship and Economic Growth: An Investigation into the Relationship between Entrepreneurship and Total Factor Productivity Growth in the EU, CASE Network Studies and Analyses 427, CASE-Center for Social and Economic Research.

Fritsch, M., & Wyrwich, M. (2017). The effect of entrepreneurship on economic development: An empirical analysis using regional entrepreneurship culture. *Journal of Economic Geography, 17*(1), 157–189. https://doi.org/10.1093/jeg/lbv049

Gautam, S., & Lal, M. (2021). Entrepreneurship and Economic Growth: Evidence from G-20 Economies. *Journal of East-West Business*, *27*(2), 140–159. https://doi.org/10.1080/10669868.2020.1859427

Irughe, R. I., Eregha, P. B., & Edafe, J. (2020). Education and economic growth: Empirical evidence from Nigeria. AERC Research Paper 407. African Economic Research Consortium, Nairobi. ISBN 978- 9966-61-102-4.

Jelilov, G., Aleshinloye, M. F., & Önder, S. (2016). Education as a key to economic growth and development in Nigeria. *The International Journal of Social Sciences and Humanities Invention, 3*(2), 1862–1868. http://valleyinternational.net/index.php/our- jou/theijssh

Kasseeah, H. (2016). Investigating the impact of entrepreneurship on economic development: A regional analysis. *Journal of Small Business and Enterprise Development, 23*(3), 896–916. https://doi.org/10.1108/JSBED-09-2015-0130

Kim, Jungsuk & Castillejos-Petalcorin, Cynthia & Jinjarak, Yothin & Park, Donghyun & Quising, Pilipinas & Tian, Shu, 2022. Entrepreneurship and Economic Growth: A Cross-Sectional Analysis Perspective, ADB Economics Working Paper Series 672, Asian Development Bank.

Nwokebuife, O. J., Hui, H. J., Mintah, C., Ejiofor, N. S., & Ofori, K. E. (2021). The impact of creativity and innovation on entrepreneurship development: Evidence from Nigeria. *Open Journal of Business and Management, 9*(4), 1720–1737. https://doi.org/10.4236/ojbm.2021.94095

Lawal A. & Wahab T. I. (2011). Education and economic growth: The Nigerian experience. *Journal of Emerging Trends in Econ. Manage. Sci*. *2*(3), 225-231.

Marquez-Ramos L. & Mourelle E. 2019. Education and economic growth: an empirical analysis of nonlinearities, *Applied Economic Analysis*, *27*(79), 21-45.

Ogbo, A., & Nwachukwu, A. C. (2012). The role of entrepreneurship in economic development: The Nigerian perspective. *European Journal of Business and Management, 4*(8), 95–105. http://iiste.org/Journals/index.php/EJBM/article/view/1937/1917

Olutuase, S. O., Brijlal, P., & Yan, B. (2020). Model for stimulating entrepreneurial skills through entrepreneurship education in an African context. *Journal of Small Business & Entrepreneurship.* https://doi.org/10.1080/08276331.2020.1786645

Omojimite, BU. (2010). Education and economic growth in Nigeria: A granger causality analysis. *African Research Review*. *4*. 10.4314/afrrev.v4i3.60158.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326. https://doi.org/10.1002/jae.616

Schumpeter, J.A. (1942) *Capitalism, Socialism, and Democracy*. Harper and Brothers, New York London.

Stam, E., & van Stel, A. (2009). Types of Entrepreneurship and Economic Growth. *Research paper* 2009/47, UNUWider, Helsinki.

Stoica O., Roman A. & Rusu V.D. (2020). The nexus between entrepreneurship and economic growth: A comparative analysis on groups of countries, *Sustainability*, *12*(3), 1-19.

Ubong, B. (2017). Entrepreneurship education in Nigeria: Issues, challenges, and strategies. *Nigerian Journal of Business Education (NIGJBED), 4*(1).

World Bank. (2024). *Global economic prospects and the developing countries*. Washington.

World Economic Forum (2023) Why quality Education is the foundation of entrepreneurship and economic growth. https://www.weforum.org/agenda/2023/07/why-quality- education-is-the-foundation-of-entrepreneurship-and-economic- growth/