

## **Abstract**

*The importance of human capital as well as quality of institutions in the growth process cannot be overemphasized. This study investigated the relationship amongst institutions, human capital and economic growth in Nigeria from 1996 to 2018 using time series data. Autoregressive Distributed Lag (ARDL) model was used to analyze the data. The findings from the study revealed that there exist a positive and statistically significant relationship amongst institutions (political stability), human capital and economic growth in Nigeria at 5% level of significance in the short-run, while control of corruption is statistically not significant both in the short-run and in the long-run in its relationship with economic growth in Nigeria at 5% level of significance. The study recommends among others that government should increase its expenditure on education because of its strategic importance in economic growth; the current stability in the polity should be maintained since it is growth-enhancing and agencies responsible in the fight against corruption should be strengthened.*

**Keywords:** ARDL, Economic growth, Human capital, Institutions, Nigeria.

**JEL Classification:** O09, O11

## **INTRODUCTION**

The importance of human capital in economic growth in both developed and developing economies cannot be overemphasized. Also, human capital is important in a country's socio-economic development (Sankay, Ismail & Shaari, 2010). According to Osoba & Tella (2017), human capital contributes to economic growth. This is because skilled workers as well as the formation of human capital raise production and bring about economic growth. Unfortunately, between 1999 and 2003, an average of 5.84% of the budget was devoted to education against the 26% recommended by the United Nations. On the other hand, studies by Amassoma & Nwosa (2011) and Bosworth & Collins (2003) showed that human capital has no positive and significant impact on economic growth. The data for many developing economies, Nigeria inclusive, are consistent with the prediction of both the endogenous and exogenous growth models which suggested that a permanent change in a key variable like human capital can cause a permanent change in an economy's growth rate. In fact, economies like Japan, Taiwan, China, and a few Asian countries have shown the importance of human capital in economic growth.

However, studies using both cross-country data pooling and country-specific data have suggested that the quality of institution matters in achieving economic growth (Acemoglu & Robinson, 2008; Kaufman, Kraay & Mastruzzi 2009). For instance, good institutions create an environment that promotes economic activity, inventiveness, growth, and development, whereas bad institutions result in economic stagnation. Similarly, institutional quality in the form of control of corruption and political stability have also received the attention of scholars. Whereas Leff (1986) and Huntington (1968) emphasized that corruption eliminates administrative bottlenecks and promotes growth in the economy while Shuaib, Augustine & Frank (2016) and Ajie & Gbenga (2015) argued that corruption hinders economic growth.







To achieve the objective of the study, the mathematical model is re-written as follows:

$$LGDP_t = \beta_0 + \beta_1 LCCT + \beta_2 LPSt + \beta_3 LHKt + U_t \quad - \quad - \quad - \quad - \quad 6$$

Where the parameters,  $\beta_i = 1, 2$  and  $3$  are the coefficient of the explanatory variables,  $U_t$  stands for stochastic disturbance term. From a priori expectation, all the variables have positive sign since effective control of corruption, political stability and improved human capital contribute to economic growth.

**Technique of Estimation**

The data collected for this study was analyzed using Autoregressive Distributed Lag (ARDL) model. The model by Pesaran, et al. (2001) was used in testing the existence of cointegration when the series are of mixed order; I(0) and I(1). The ARDL unrestricted error correction model is as follows:

$$\Delta LGDP_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta ICC_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta LPSt_{t-i} - 1 + \sum_{i=1}^n \alpha_{3i} \Delta LHK_{t-i} + \beta_1 lCC_{t-1} + \beta_2 lPS_{t-1} + \beta_3 lHK_{t-1} + \lambda ECT_{t-1} + \varepsilon_{t-1} \quad - \quad - \quad - \quad - \quad 7$$

Where;

$\Delta$  represents the first difference operator,  $l$  represents log-transformation,  $\varepsilon_{1-t}$  is the residual,  $\alpha_0$  is the drift component,  $\alpha_1, \alpha_2$  and  $\alpha_3$  denote the short-run coefficient, the  $\beta$ s symbolize the long-run coefficient, and  $\lambda$  is the speed of adjustment parameter.

**Unit Root Test**

The augmented Dickey-Fuller (ADF) test proposed by Dickey & Fuller (1979) and Phillip-Perron (1988) were used to determine the order of integration of the series. In order to avoid estimating spurious regression, the stochastic properties of the series were tested. Therefore, ADF test is given as:

$$\Delta y_t = \alpha + \gamma y_{t-1} + \sum_1^n a_1 \Delta y_{t-1} + \varepsilon_t \quad - \quad - \quad - \quad - \quad 8$$

In equation 8, lagged first difference terms of the dependent variable is added in order to ensure no autocorrelation is contained in the residuals.

**RESULTS AND DISCUSSIONS**

**Table 1: Augmented Dickey Fuller Unit Root Test**

Series	Intercept without trend		Intercept with trend	
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> Difference
CC	-3.279894**	-5.49061***	-3.169341	-5.334327***
LGDP	- 3.888355***	-0.161971	0.392708	-2.595973
LHCD	- 11.37322***	-4.823276***	-1.969237	-5.107494***
PS	-2.249800	-11.73781***	-1.177308	-7.552047***

Note: \*\*\* and \*\* represent significance level at 1% and 5% respectively. The figures are the *t*-statistics for testing the null hypothesis that the series has unit root. The lag length is determined and fixed at 2 based on Schwarz (1987).

Source: Authors' Computation.

**Table 2: Phillip-Perron Unit Root Test**

Series	Intercept without trend		Intercept with trend	
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> Difference
CC	-2.388071	-5.378326***	-2.389539	-5.241983***
LGDP	-1.999234	-2.248283	1.152648	-3.626751**
LHCD	-2.527852	-4.890280***	-1.576515	-6.702575***
PS	-1.393421	-11.66282***	- 3.645835***	-39.40169***

Note: \*\*\* and \*\* represent significance level at 1% and 5% respectively. The figures are the *t*-statistics for testing the null hypothesis that the series has unit root. The lag length is determined and fixed at 2 based on Schwarz (1987).

Source: Authors' Computation

The results of the unit root test depicted in table 1 and table 2 showed that the series are integrated of mixed order; that is I(0) and I(1). This confirmed the relevance and justification for the use of the ARDL cointegration approach.

Table 3: Bound Cointegration Test

Model	F-Stat.	Sig. Level.	Critical Value	
			I(0)	I(1)
LGDP =F(CC, PS, LHCD)	8.282676***	10%	2.72	3.77
CC= F(LGDP, PS, LHCD)	0.854968	5%	3.23	4.35
PS= F(LGDP, CC, LHCD)	14.76330***	2.5%	3.69	4.89
LHCD= F(LGDP, CC, PS)	11.44071***	1%	4.29	5.61

Note: \*\*\* represent significance level at 1% level.

Source: Authors' Computation

The ARDL Bounds test in table 3 indicated long-run cointegration relationship among economic growth proxied by gross domestic product (GDP), institutional quality proxied by control of corruption, political stability (PS) and human capital (HK) in Nigeria from 1996 to 2018. Thus, the null hypothesis of no long-run relationships among the variables is rejected (shown in the first row of table 3).

Table 4: Long Run and Short Run Coefficients

Variables	Long Run Coefficients	Short Run Coefficients	
LHCD	3.549845*** (0.0106)	LHCD	0.553516*** (0.0052)
CC	0.080672 (0.4304)	CC	0.012579 (0.4261)
PS	-0.222706*** (0.0017)	PS	0.026984*** (0.0078)
CONSTANT	-1.649993 (0.01724)	CointEq(-1)	-0.155927*** (0.0000)
<b>Diagnostic Test</b>	<b>LM</b>	<b>JB</b>	<b>HET</b>
<b>Chi-Square</b>	0.9279	1.038458	0.6357
<b>P-value</b>	0.8779	0.594979	0.5454

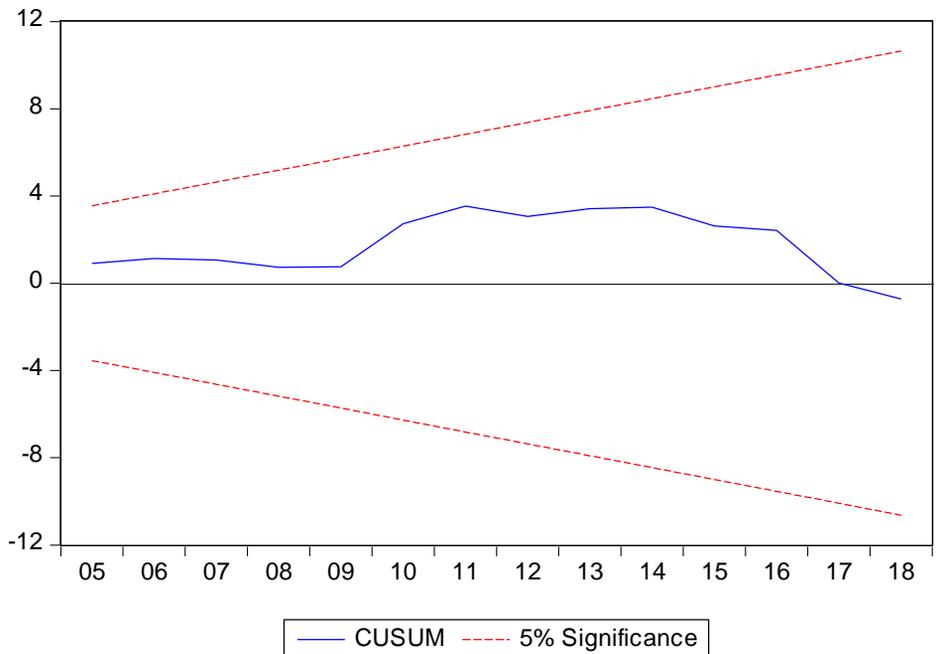
Note: \*\*\* denote statistical significance at the 1% level. The figures in parentheses are the T-statistics. Serial correlation was examined using Lagrange Multiplier test of residual (LM), functional form was based on Ramsey's RESET (RESET) test, normality test is based on skewness and kurtosis (JB) while Heteroscedasticity was based on squared residuals on squared fitted values (HET).

Source: Authors' Computation from output of Eviews version 9.

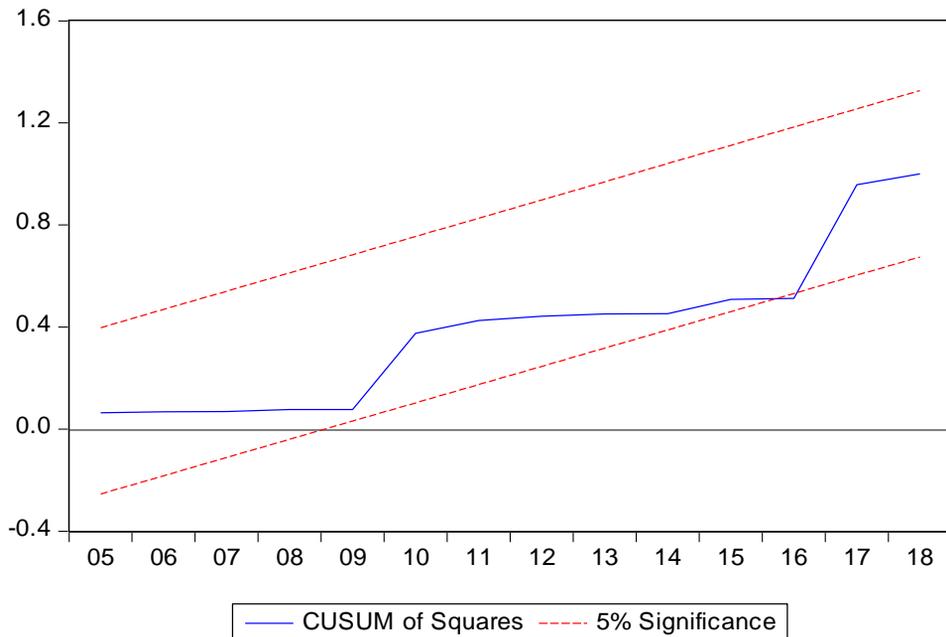
From table 4, there exist a positive and statistically significant relationship between human capital and economic growth both in the long-run and short-run at 5% level of significance, while political stability has positive and statistically significant impact on economic growth in the short-run but negatively and statistically significant impact on economic growth in the long-run at 5% level of significance. These suggest that human capital and institutions are important contributors to economic growth in Nigeria. The finding in this study is consistent with the findings of the studies by Sankay, et al. (2010); Mba, Mba, Ogbuabor & Ikpegbu (2013); Osoba & Tella (2017); Johnson (2011) and Dauda (2010) who established a positive and significant relationship among human capital and economic growth. However, the finding in this study is inconsistent with the findings of the studies by Easterly & Levine (2001); Temple (2001); Bosworth & Collins (2003); and Amassoma & Nwosa (2011) who found a negative relationship between human capital and economic growth. On the other hand, control of corruption is statistically not significant in influencing economic growth, both in the short-run and long-run. This is inconsistent with the findings by Zhuang, De Dios & Lagman-Martin (2010); Acemoglu & Robinson (2008) and Kaufman, et al. (2009) who found a positive and significant effect of institutional quality on economic growth.

However, a unit change in human capital leads to an increase in GDP by 0.6% in the short-run and about 3.5% in the long-run. Also, a unit change in effective control of corruption will lead to an increase in economic growth by approximately 0.1% both in the short-run and in the long-run. Similarly, a unit change in political stability increases economic growth by 0.03% in the short-run but reduces economic growth by -0.2% in the long-run. This implies that in the long-run, political stability does not conform with the a priori expectation of a positive impact of political stability on economic growth. The value of Error Correction Term of -0.155927 showed that disequilibrium in the short-run adjusted back to equilibrium in the long-run at an average speed of approximately 16%.

The results from Breusch-Godfrey test for serial correlation and from Breusch-Pagan-Godfrey test for heteroskedasticity revealed that there is no problem of serial correlation and heteroskedasticity respectively (see table 4). Similarly, the CUSUM of recursive residuals and CUSUM of squares presented in Figures 1 and 2 show that the data are stable during the period under study since the statistics is confined within the 5% critical bounds of parameter stability.

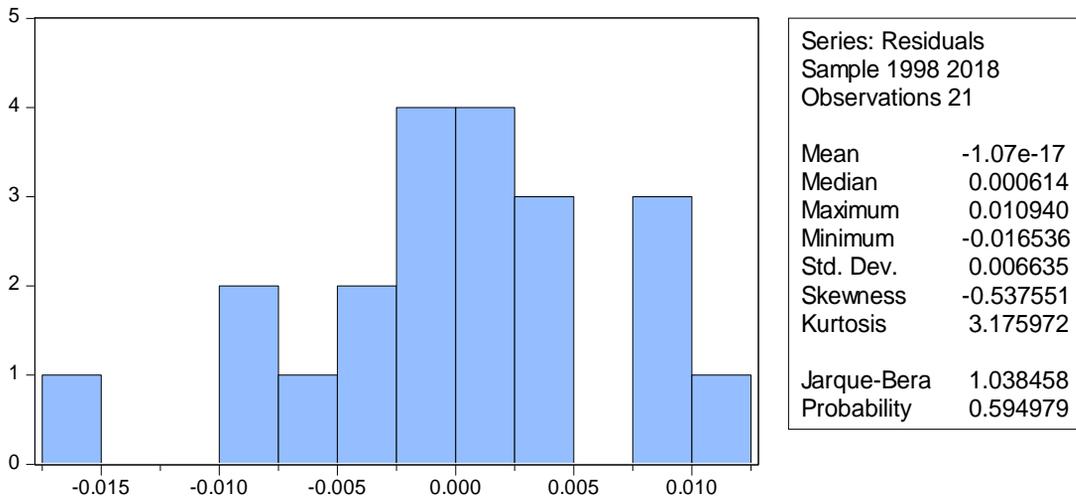


**Figure 1: CUSUM TEST**



**Figure 2: CUSUM OF SQUARE TEST**

Finally, result from Jarque-Bera normality test indicated that the data are normally distributed within the period under study (see figure 3).



**Figure 3: JARQUE-BERA NORMALITY TEST**

### Conclusion and Recommendations

This study investigated the relationship among institutions, human capital and economic growth in Nigeria from 1996 to 2018 using time series data. Autoregressive Distributed Lag (ARDL) model was used to analyze the data. The findings from the study indicated that there exist a positive and statistically significant relationship among institutions (political stability), human capital and economic growth at 5% level of significance in the short-run, while control of corruption has no significant impact on economic growth both in the short-run and long-run at 5% level of significance. Therefore, this study concludes that increased investment in human capital development is a viable option in achieving economic growth in the long-run. On the basis of this, the study recommends that government should increase its expenditure on human capital development because of its strategic importance in economic growth. This can be done by increasing public spending on health and education. Also, the current stability in the polity should be maintained since it is growth-enhancing, and the fight against corruption should be intensified.

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