Relationship between Inflation and Economic Growth in Nigeria: An ARDL Approach

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Abstract

The relationship between inflation and economic growth has been a considerable issue of discussion generating controversies in the economic literature. This study investigated the relationship between inflation and economic growth in Nigeria using ARDL bound test approach to co-integration (Autoregressive Distributed Lag Model) from 1986 to 2020. The result revealed the presence of a long run and short run relationship between inflation and growth in Nigeria, a percentage unit change in inflation has resulted to a 31 percent and 21.9 percent decrease on economic growth of Nigeria, this indicates that inflation has a negative impact on economic growth of Nigeria in the long run and the short run periods, in addition, Interest rate spread (IRS) has a negative effect on economic growth with a decrease of 14 percent in the long-run while maintaining a positive short-run effect of 33 percent. Furthermore, government consumption expenditure has positively affected economic growth by 0.02 percent in the long run, Population is significant but eventually decreased the GDP by 8.57 percent annually. Therefore, the study recommends the review of the existing national policies in order to achieve price stability in Nigeria. Other factors, such as government consumption expenditure, population, and the interest rate spread, should be considered when prescribing policies to reduce inflation in Nigeria.

Keywords: Autoregressive Distributed Lag Model, Economic Growth, Government Final Consumption Expenditure, Inflation and Interest Rate Spread.

Introduction

High and sustained output growth in conjunction with low inflation rate is the common objective of macroeconomic policy of any economy, Nigeria inclusive. Inflation and economic growth are two of the most important macroeconomic issues of concern. The relationship between the two prominent variables have been an issue of concern by monetary policy makers of both developed and developing states of the world. The general debate and controversies in this regard is so contentious that has emanated from lack of consensus among conceptual definitions, theoretical and empirical evidence (Chimobi, 2010). One of such controversy was on the concept of Inflation. For example, Milton Freidman (1963) argued that Inflation is always and everywhere a monetary phenomenon and can only reveal itself by rapid increase in the quantity of money than growth output. This school of thought believes that too much money in

circulation that does not correspond with the level of output lead to general increase in the price level thereby causing disequilibrium in the economy.

On the contrary, Keynes (1936) and Khan (2018) observed that more capital in the economy leads to a decrease in the prices of goods and services. They argued that, government expenditure would inevitably contribute to a rise in corporate activity and economic development due to the multiplier impact. This means that increased government spending would increase aggregate production and produce more revenue, potentially leading to an increase in economic growth.

The impact of inflation on Nigerian economic growth, in particular, have thus been a critical topic of considerable debate. This has piqued the interest of donor organisations, policymakers, and practitioners. According to the monthly report on global economic issues issued by the World Bank (2017). Nigeria's economy continues to face difficult economic growth as a result of persistently high downward pressure on domestic currencies. However, inflationary pressures in Nigeria have persisted, with the inflation rate rising from 5.38 percent in 2008 to 15.67 percent in 2017, the highest rate in a decade (WDI, 2017). In a number of studies in Nigeria and other developing countries, the pattern and dynamics of inflation generate controversies. For example, Akinsola and Odiambo (2017) argued that the effect of inflation on economic growth for a sample of OECD developed and developing countries is negative, and the impact varies from country to country and over time. This suggests that the effect was limited to country-specific characteristics while research of Gatawa, Abdulgafar, and Olarinde (2017); Obi, Yuni and Ihugba (2016) Obi, Denis, Olu and Idih, (2015) Sa'idu and Muhammad (2015), and Bayo (2012) discovered a positive relationship between economic growth and inflation. Others, however, have discovered that inflation is negatively linked to economic growth (Doguwa, 2010; Ahmed and Motaza, 2005; Erbaykal and okuyan, 2008). The problem with the preceding studies is that they omitted certain critical variables in deciding the relationship between inflation and economic growth in Nigeria. Interest rate spread (IRS), government consumption expenditure (GCX), and population are examples of such variables.

In particular, the interest rate spread (lending rate minus deposit rate percentage) is the difference between the interest rate charged by banks on loans to private sector customers and the interest rate paid by commercial or similar banks on demand, time, or savings deposits. If banks give subtle loans to private sector customers, this will boost investment, productivity, jobs, and income generation viability (WDI, 2017). General government final consumption expenditure (GCX) may influence economic growth because it includes all government current expenditures for the purchases of goods and services (including compensation of employees) (WDI, 2017).

Total population between the ages of 15 to 64 is influential to economic growth, these are regarded as the working age bracket, by definition (WDI, 2017). Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.

Population increment could be translated to economic growth output through productive labour force, a productive labour force may positively leads to an increase in the productive capacity of production sector, both formal and informal sectors of the economy, population may leads to expansion of the aggregate demand, increase in the aggregate demand must aligned with increase in production, increase in production will increase the demand for and supply of labour which in turn will leads to an increase in the general level of income of individuals and the economy as whole (Musa, 2020). However, Malthusian theory of population is of the view that, unproductive increase in population will contribute nothing to the economic growth process rather than calamity such as shortage of food, hunger, war and diseases etc.

As a result of the omission of the previously mentioned variables, the study includes Interest rate spread (IRS), General government final consumption expenditure (GCEX), and Population as control variables to investigate the relationship between inflation and economic growth. Another issue with previous studies is that the majority of them are based on cross-country analysis with little attention paid to time series analysis. As a result, there is a need for research to incorporate these variables and extend the scope span to 2020 due to daily changes in economic structure and policies in determining the correct relationship between inflation and economic growth in Nigeria. In light of the above research issues, the following hypothesis was tested:

H_01: there is no significant impact relationship between inflation and economic growth in Nigeria.

H_02: There is no short run and long run relationship between inflation, interest rate spread, government capital expenditure, population and gross domestic products in Nigeria

Theoretical Framework

Various economic theories have evolved to understand the relationship between inflation and economic development. For the purpose of this study, the author will use monetarist theory as used by Sattaravo (2011). The monetarist theory is a basic theory that is closely connected with Milton Friedman's work. According to Milton Freidman (1963), inflation is often and everywhere a monetary phenomenon that can only be detected by a rapid rise in the quantity of money relative to the growth in production. This school of thought holds that having so much money in circulation that does not correspond to the amount of demand causes a general rise in the price level, creating economic disequilibrium. As a result, according to the theory, the most significant determinant of economic growth is a shift in the pattern of money supply. As a result, the business cycle's activity is inevitably related to the money supply. Inflation happens when the money supply grows faster than the pace of national income growth. The Quantity Theory of Money, which underpins monetarist theory, has two components: The Cambridge version's Cash Balance Approach and the Fisher version's Transaction Approach. According to Sattarov (2011), the Cash Balance Approach to Quantity Theory of Money is defined by the following relationship:

$$\pi = \delta R / M \dots\dots\dots\dots\dots\dots\dots\dots\dots 1$$

where: π = purchasing power of money; δ = The proportion of income people hold in the form of money; R = The volume of real income while M = The stock of supply of money in an economy. Equation 1 explains that the purchasing power of money (π) varies directly with δor R, and inversely with M. Since, π is the reciprocal of the general price level, which is π= 1/P, the equation (1) can be metamorphose as follows:

$$1/P \; = \; \delta \, R/\, M \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.2$$

$$or \; P \; = \; M/\delta \, R \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.3$$

$$such \; that, \frac{dP}{dM} = \frac{1}{\delta \, R} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.4$$

Thus, the growth in prices varies directly with money supply.

Turning to the Transaction Approach to the Quantity Theory of Money, it can be described by the following equation:

$$MV \; = \; PT \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.5$$

Where: M = Total supply of money; V = the velocity of circulation; P = the general price level while T = the total transactions in physical goods. According to this version, the causalities moves from left hand side to right hand side of equation (5), meaning that prices are directly affected by an increase in money supply. If T increases, P will remain relatively constant. However, if there is no corresponding increase in the quantity of goods and services produced, P will increase. In general, production, employment and price levels are affected by a change in money supply as pointed out by Sattarov (2011) based on equation 5.

Empirical Issues

Gatawa, Abdulgafar and Olarinde (2017) used time series data from 1973 to 2013 to analyse the effect of money supply, inflation, and interest rates on economic growth in Nigeria. They used the VAR Model and the Granger Causality test within an error correction system. The results show that large money supply has a positive relationship with economic growth, while inflation and interest rates have a negative impact on growth, especially in the long run, and the causality test showed that none of the explanatory variables granger causes economic growth. Obi, Denis, Yuni, and Okezie (2016), on the other hand, use two stage least square estimation to analyse a simultaneous equation model to investigate the relationship between inflation and economic growth in Nigeria. Given the positive relationship between inflation and growth and the negative relationship between growth and inflation, the study concludes that inflation is beneficial to growth but not significantly so, although growth is significantly beneficial to inflation. Furthermore, the results show that money supply and trade openness are important determinants of real GDP for all three estimation techniques considered. While real GDP, money supply, and interest rates are all important determinants of inflation,

Bawa, Abdulahi and Ibrahim (2016), on the other hand, used the bounds checking approach to cointegration to investigate the dynamics of the inflationary mechanism in Nigeria from 1981 to 2001. The findings revealed that past inflation and average rainfall appeared to be the primary determinants of the inflationary process in Nigeria during the study period. They also discovered clear evidence for the role of money supply in the inflation process, lending credence to the monetarist proposition's supremacy over inflation dynamics in Nigeria.

Furthermore, Olu and Idih (2015) studied the existence of the relationship between the inflation rate and the rate of economic growth in Nigeria between 1980 and 2013. Using Ordinary Least Squares, the results revealed that the inflation rate had a positive but non-significant relationship with the economic growth rate.

Furthermore, Idalu (2015) investigates the impact of inflation on Nigerian economic growth from 1970 to 2013 using simple correlations and deterministic models of analysis via a tri-variate vector autoregressive (VAR) model that incorporates the unemployment rate into the framework for analysis. The results show that in the long run, there is convergence among the variables, which takes around 5 years. The dynamics of the relationship within the framework indicate that there is a one-period temporary shock to consumer price level, indicating a slow positive short run contemporaneous effect on Nigeria's real GDP. Similarly, Sa'idu and Muhammad (2015) used the Ordinary Least Square technique and the Granger causality test to investigate the relationship between unemployment, inflation, and economic growth in Nigeria. The regression results show that the inflation coefficient is positive and statistically important, while unemployment is positive but has no impact on economic development. Following that, another study conducted by Bakare, Kareem, and Onyeikan (2014) using Granger Causality to investigate the effects of inflation on economic growth in Nigeria between 1986 and 2014 found that inflation had a positive impact on economic growth by promoting productivity and production levels, as well as the evolution of total factor productivity.

Similarly, Onwuliri ,Mba & Izuchukwu, (2013) used the OLS method to confirm a positive relationship between inflation and economic growth in Nigeria with a non-significant effect, and they concluded that for Nigeria to achieve sustainable economic growth, the level of inflation should be stabilised by the monetary authorities. Mbutor (2013) examined inflation and the role of money using the Chow test and discovered a positive relationship between inflation and money supply in Nigeria. Sola and Peter (2012) used Var to examine money supply and inflation in Nigeria, and the results show a unidirectional causality between money supply, inflation, and interest rate. In analysing the impact of inflation and economic growth in Nigeria, the approach used is ineffective. Similarly, Bayo (2012) used the same OLS approach and reported a positive relationship between inflation and economic growth in Nigeria, implying that as GDP rises, inflation rises as well, and that monetary policies aimed at tackling or regulating inflation rate in Nigeria have been ineffective.

In the same vein, Babatunde and Shu'aibu (2011), Omoke and Oruta (2011) used different methodological approaches in in evaluating and examining the impact of inflation on economic growth in Nigeria, the results revealed positive relationship between inflation and economic growth in Nigeria.

Furthermore, Omoke and Oruta (2015) conduct an empirical analysis to determine the existence (or not) of a relationship between inflation and economic growth in Nigeria. Using co-integration and the Granger causality test, the study discovered that the causality that runs from inflation to economic growth is an indicator of a relationship, indicating that inflation has a negative effect on growth.

In another Chimobi analysis (2010) used GDP and CPI time series data from 1970 to 2005, as well as the Johansen co-integration test and VAR-based Granger Causality tests, to assess the co-integrating and causal relationships between the variables under consideration. The findings indicate that there is a one-way causality that runs from inflation to economic development.

Material and Methods

Sources of Data

This study used secondary time series data on GDP, INFL, IRS, GCX and POP (population) sourced from world development Indicators data portal (2020) for the period of 1986 to 2019.

Model specification

Following Romer (1990) inflation is considered as independent factor of production. The primary model illustrating the relationship between economic growth and inflation is defined in the Cobb Douglas output equation, which is adjusted by including IRS, GCX, and POP in the inflation function. The Cobb Douglass production function is as follow:

$$Q = f(A. L^{\alpha} \ K^{\beta-1}) \qquad\qquad (6)$$

The modified functional model is as follows:

$$GDP_t = f(INFL_t, IRS_t, GCX_t, POP_t) \qquad\qquad (7)$$

Then the mathematical model:

$$GDP_t = \alpha_0 + \alpha_1 INFL_t + \alpha_2 IRS_t + \alpha_3 GCX_t + \alpha_4 POP_t \qquad (8)$$

Followed by the econometric model as:

$$GDP_t = \alpha_0 + \alpha_1 INFL_t + \alpha_2 \ IRS_t + \ \alpha_3 GCX_t + \alpha_4 POP + \mu_t \qquad (9)$$

Where; GDP= represents Gross Domestic product (per capita) INFL = Gross Domestic product implicit price deflator proxy for inflation, IRS = Interest rate spread, GCX = Government Consumption expenditure and   POP = Population. α_0 is the constant term and t stands for time,

α_1, α_2 α_3 and α_4 = are parameters measuring level of the change on the dependent variables $U_t =$ random Error term a time.   A priori expectations: $\alpha_{1 <1}$, $\alpha_{2 >1}$, $\alpha_{3 >1}$ and $\alpha_{4 >1}$

The estimation ARDL model is as follows:

$$\Delta GDP = C_0 + \delta_1 GDP_{t-1} + \delta_2\ INFL_{t-1} + \delta_3\ IRS_{t-1} + \delta_4\ lnGCX_{t-1} + \delta_4\ POP_{t-1} +$$
$$\sum_{i=1}^{p} \pi_1 \Delta GDP_{t-i} + \sum_{i=0}^{q} \vartheta_j\ \Delta INFL_{t-j} + \sum_{i=0}^{q} \rho_m \Delta IRS_{t-m} + \sum_{i=0}^{q} \rho_W \Delta POP_{t-W} +$$
$$\sum_{i=0}^{q} \theta_z \Delta lnGCX_{t-z} - \mathcal{K}ECT_{t-1} + \mu_{t-1} \qquad (10)$$

Where: the coefficients πi, ϑj, ρ_m, ρ_W and θ_z representthe short-run dynamics of the model, the coefficients δi represent the long-run multipliers corresponding to long-run relationships,C_0 is the drift, ECT_{t-1} *is the short run adjustment speed to longrun equilibrium,* μt is the white noise error term.

Result of the Findings

The prerequisite unit root test was undertaken, it exhibits the permissibility of ARDL bound test usage regardless of the order of integration of the variables .The outcome of the F bound test establishes the existence of long run co-integration among the variables at 5% under the upper and the lower bounds segment, this is because, the F bound test statistics exceeds the 5% level of significance, this is a clear indication of the long run relationship that exist among the variables, this would be shown in the subsequent tables after the unit root table.

Table 1: The unit Root Result

Variables	*First Difference*		*Order of*	*Remarks*
	ADF Stat.	*PP Stat.*	*Integ.*	
LGDP	*-3.64*	*-3.654*	*I(1)*	*Stationary*
	[-2.951]**	*[-2.951]***		
INFL	*-5.416*	*-9.063*	*I(1)*	*Stationary*
	[-2.951]**	*[-2.951]***		
IRS	*-6.101*	*-10.712*	*I(1)*	*Stationary*
	[-2.94]**	*[-2.951]***		
GCX	*-5.192*	*-5.201*	*I(1)*	*Stationary*
	[-2.957]**	*[-2.957]***		
POP	*-4.950*	*-2.887*	*I(1)*	*Stationary*
	[-2.968]**	*[-2.957]***		

Source: Authors computation using eviews 10.

ARDL F-Bounds Testing for Co-integration

Some dependent variables, particularly financial variables, are influenced not only by the predictor variables but also by their previous period values in time series econometrics. The one to propose using econometric modelling to solve this problem were Pesaran, Shin, and Smith (2001). Therefore, this study employs the bounds testing approach to cointegration, which is based on Simon's Autoregressive Distributed Lag (ARDL) model system (2021), Daramola and Muhammad

(2021). The model works well because it ignores the order of integration, i.e. I(0), I(1), or a combination of the two or same order of integration is appropriate, as such hence the variables used in the research were found to be in the same order I(1) as reveals by the unit root test conducted earlier, ARDL bound test approach were employed.

Table 2 Bounds F-test for co-integration

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.546997	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Authors computation using eviews 10

The table above is showing that the order of integration of the series is I(1), This reveals that the variables used in the research are all stationary at first difference order, therefore this justifies the use of ARDL F bounds testing to cointegration , the F-statistics values are greater than the upper and lower bounds respectively at 5% level of significance, from the table 2 above, we conclude the existence of long run relationship among the variables , meaning that there is cointegration.

Table 3 ARDL F Bound Test For the Long Run and Short Run Results (1,4,1,0,0)

	PANEL A:	**Long run Cointegration estimates**		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	-0.315447	0.069062	-4.567611	0.0002
IRS	-0.137334	0.438735	-0.313022	0.7577
GCXP	0.002338	0.005811	0.402317	0.6919
POP	-8.570208	2.700208	-3.151182	0.0053
C	21.13805	5.296956	3.990603	0.0008

	PANEL B		**Short Run Coefficient estimates**	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF)	-0.214677	0.040197	-5.340663	0.0000
D(INF(-1))	0.247808	0.043721	5.667881	0.0000
D(INF(-2))	0.054758	0.038224	1.432575	0.1682
D(INF(-3))	0.138046	0.038944	3.544689	0.0022
D(IRS)	0.329064	0.278463	1.181714	0.2519
ECM(-1)*	-0.935289	0.159323	-5.870388	0.0000
R-squared	0.705708	Mean dependent var		0.010971
Adjusted R-squared	0.644397	S.D. dependent var		4.271106
Durbin-Watson stat	2.263019			

SOURCE; Authors Computation Using eviews 10 (2020)

Table 4. The Diagnostic Tests.

Test	Prob. chi-Square	p-values
LM statistic.	0.759	0.483
Jarque Bera Normality test.	0.1673	0.919
Heteroscedasticity	0.753 , 0.9775	0.839

Source: Authors Computation Using Eviews 10(2020)

The diagnostic tests in Table 2 revealed that the data fits the model very well since the individual p-values for LM test, Jaque Bera statistics and Heteroscedasticity are all greater than 0.05 therefore, there is no evidence of post diagnostic issues from the checks presented above. According to the coefficient of R^2, 70.5% of the variation in GDP is explained by the explanatory variables.

Panel A of table 3 presented the long run coefficients of ARDL are: -0.31.5%, -0.13%, 0.002% and -8.5; for inflation, interest rate spread, government consumption expenditure and population respectively. According to the long run ARDL results, percentage increase in inflation and interest rate spread will decrease GDP by 0.31.5% and 0.13.2% respectively after adjustment. This further indicates that high level of inflation and interest rate spread is a threat to Nigeria's economic growth process. As discussed above, the findings agree with cost push theory and disagree with Fisher model under monetarist theory. The findings also in line with Omoke and Oruta (2010) but with deviation from the work findings of Bakare, kareem and Olayinka (2014), Babatunde and Shuaibu (2011), Mbutor (2013) and Ebere, Emehma, Okechuku and IZuchukwu (2013). Similarly, GDP decrease by 8 billion from a million increase in population in the country after adjustment. This showed that unproductive population is not blessing to the country's growth process and hence continuing increase of the population will retard the growth, and this depict the case of Malthusian theory of population in the country. Conversely, GDP increase by 0.02% from a percentage

increase in government consumption expenditure in Nigeria after adjustment. However, it is important to emphasize at this juncture that, IRS and GCXP are not statistically significant but inflation and population are highly statistically significant. Lastly, results showed that inflation is negatively related to output in Nigeria.

On the other hand, Panel B of table 3 shows the ECM short run estimation results, the coefficient of the error correction has a negative expected sign and is statistically significant which satisfies the theoretical expectation that inflation converges to its long run equilibrium point after the short run disequibrium by 93.5% annually. This is indeed a high speed of adjustment. According to the results of short run dynamic equation, the Gross Domestic Product of Nigeria decrease by 0.21.4% from a percentage increase in inflation rate while increase by 32.9% from a percentage increase in IRS in the short run. With respect to the coefficient of inflation, findings of Doguwa (2010) and Erbaykal and Okuyan (2008) presented an agreeing findings with this study which showed that inflation is negatively related to GDP. Contrary to inflation, interest rate spread is also positively related to GDP.

Conclusion

Autoregressive Distributed lag model is used to analyse the relationship between inflation and economic growth in Nigeria. The nature of the relationship and effect of inflation and the population on economic growth of Nigeria is negative in the short run while maintaining statistical relevance accordingly. More so, Government Consumption Expenditure and Interest rate spread are statistically is insignificant. In the long run, Inflation is statistically significant to Nigeria economic growth in almost periods current period and the preceding periods (,1 and 3), this is also in line with some supporting literatures and relevant economic theories mention earlier. The results also showed that the speed of adjustment in dealing with Short run and long run deviation is very high and certain to return inflation, interest rate spread, Government consumption expenditure and population to long run association with the GDP. Lastly, all the hypotheses have been rejected because of the evidence of significant impact between inflation and economic growth and the existence of short and long run relationship between the control and controlled variables.

Recommendations

Based on the findings, the study made the following recommendations:

i. Combine monetary and fiscal measures should be strengthened to bring back inflation on or below the tolerable acceptable level of inflation in the country. This is in order to benefit from the positive influence of inflation on the economic growth of a country.

ii. Government and other stakeholders should improve their effort in improving the labour force to become productive viable through population advantages in the country. This could be achieved through focusing on the efficient strategies such as improving the quality of education, training and research as well as post schooling experience and many more.

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Years	Gdp	inf	lrs	gcxp	Pop
1986	-2.50994	5.717151	0.724167	2.135637	85766399
1987	0.525849	11.29032	0.874167	2.090982	88048032
1988	4.546948	54.51122	3.666667	2.048155	90395271
1989	-0.70885	50.46669	5.766667	2.007048	92788027
1990	8.930678	7.3644	5.516667	1.967558	95212450
1991	-2.16447	13.00697	5.125	1.059521	97667632
1992	2.025823	44.58884	6.716667	2.876441	100161710
1993	-4.45708	57.16525	8.408333	2.894572	102700753
1994	-4.23282	57.03171	7.391667	1.427395	105293700
1995	-2.53005	72.8355	6.7025	-0.05851	107948335
1996	1.634581	29.26829	6.7775	2.894012	110668794
1997	0.406833	8.529874	10.62583	1.729373	113457663
1998	0.0572	9.996378	8.075833	1.699974	116319759
1999	-1.89573	6.618373	7.479167	1.671558	119260063
2000	2.419142	6.933292	9.583333	1.644076	122283850
2001	3.290568	18.87365	8.1825	-12.0786	125394046
2002	12.45747	12.87658	8.100833	5.779098	128596076
2003	4.657786	14.03178	6.496667	-23.9262	131900631
2004	6.4896	14.99803	5.482494	565.5388	135320422
2005	3.721624	17.86349	7.415833	10.46888	138865016
2006	3.326217	8.225222	7.141667	35.75064	142538308
2007	3.82207	5.388008	6.650833	90.75034	146339977
2008	3.972514	11.58108	3.268333	4.426677	150269623
2009	5.197959	12.55496	6.0325	-8.07509	154324933
2010	5.158545	13.7202	11.06417	17.84247	158503197
2011	2.525324	10.84003	10.3275	4.573578	162805071
2012	1.472867	12.21778	8.386667	-1.98196	167228767
2013	3.853731	8.475827	8.7775	-10.2574	171765769
2014	3.513963	8.062486	7.210833	-7.01454	176404902
2015	-0.0293	9.009387	7.700833	-11.8973	181137448
2016	-4.16841	15.67534	9.372815	-15.116	185960289
2017	-1.78883	16.52354	7.998847	-7.98878	190873311
2018	-0.67972	12.09473	7.203185	33.1644	195874740
2019	-0.37972	11.39679	6.47607	15.03587	200963599
2020	-0.38161	11.39681	6.47601	-15.1167	200963599

Source: WDI 2021.