

THE EFFECTS OF GOVERNMENT DEBTS ON ECONOMIC GROWTH OF AFGHANISTAN IN YEARS 2006-2019

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Abstract

According to the economic theories and all case studies conducted at the national and international level, government debt has been mentioned as one of the important and fundamental factors on economic growth. This study aims to examine the impact of external debt on economic growth in Afghanistan in a period of 2006-2019 with the objective of explaining the effects of government debt on the economic growth of Afghanistan using the ARDL method, to investigate the effect of government debt on the economic growth of Afghanistan. In the process of doing so, it assesses the empirical co-integration, long-run and short-run dynamics of the concerned variables for the mentioned period, applying the autoregressive distributed lag (ARDL) bounds testing approach to co-integration. The results show that government debt in the long term and also in the short term has positive and significant effects on Afghanistan's economic growth, such that in the long term, with a 1% increase in government debt, the GDP increases by 4.774081 %, but in the short term, with a 1% percent increase in government debt, the GDP increases by 1.080462 percent. the coefficient of the error correction model in this analyze is equal to -0.150633 and it shows that in case of any deviation from its long-term relationship in one period (each quarter), 15 % of this deviation is adjusted in the next period and towards the relationship a long-term equilibrium moves by itself.

Keywords: Government Debt, Economic Growth, Inflation Rate, Foreign Direct Investment, ARDL Method.

1. Introduction

One of the most important goals for the developing countries is to achieve high economic growth. But due to the lack of capital for domestic investment, developing countries are forced to borrow from foreign sources. Economic growth can be achieved by using external debt towards effective projects (Todaro & Smith, 2006). External debt means debt owed to holders of government securities such as treasury bills, bonds and securities. Governments generally borrow to pay other debts that are due to or to fill the gap between low revenues and high expenditures (Babu, Kiprop, & Kalio, 2015). Foreign debts have many advantages and disadvantages. Among its advantages, is the use of external debt to finance sustainable projects

that require capital which is not available through domestic sources. These applicable projects may be in the form of developing rural and urban areas, increasing tourism activities, investing in agriculture, mineral exploration, and improving transportation and communication infrastructure.

In addition, external debt may be used to invest in technology and purchase equipment to further support the production process. It helps developing countries to boost their production levels and thereby increase their economic growth. Additionally, foreign debt can be used as emergency revenue for governments in times of war or any other unplanned situation such as natural disasters where there may be a shortage of tax revenues (Weiss, 2007).

Another advantage of using foreign debt, especially when it is dominated by a foreign currency such as the dollar or euro, is its abundance compared to domestic currencies. As a result, the pressure on domestic financial resources is reduced and more investments are facilitated, and as a result the economy slowly recovers (Brkić, 2021). However, the interest required to service external debt is a major weakness. Governments try to raise the level of taxes or direct the use of revenues from productive projects to pay foreign debt, which negatively affects their economic growth (Lin & Sosin, 2001). Despite the fact that external debt is considered as a very important source of income for developing countries, the external debt burden may cause them great problems (Forgha, Mbella, & Ngangnchi, 2014). Another significant disadvantage of using foreign debt, especially when it is denominated in foreign currency and without coverage, is exposing the borrower to exchange rate fluctuations. When governments receive tax revenues in domestic currency while debt in foreign currency, this exposes the domestic currency to potential depreciation. One of the main reason for the depreciation of the domestic currency is when foreign investors liquidate their positions in government bonds or when lenders suddenly withdraw their debts, which puts downward pressure on the domestic currency. As a result, both the debt-to-GDP ratio and the value of interest (in domestic currency) increase, which negatively affects the budget balance and the economy as a whole. Furthermore, not only do governments that borrow in foreign currencies suffer from exchange rate fluctuations, but creditors also suffer by reducing the governments' ability to repay debts when the domestic currency depreciates.

As a result, if creditors are no longer interested in financing the government and a large amount of obligations are paid in a short period of time, a debt and currency crisis may occur (Brkić, 2021). Since there is a debate about how foreign debt affects the economic growth of countries, because it has benefits and costs, so this study aims to investigate the effect of the total foreign debt on the economic growth of Afghanistan for a period of 14 years from 2006 to 2019.

2. Literature Review

2.1. Theoretical reviews

2.1.1. Classical theories of debts

Classical writers were generally against government debt. They assumed that in perfect equilibrium, individuals and businesses will use resources correctly and effectively. While government debt at the cost of the private sector will provide resources for the government, while the private sector can use them more effectively. The neoclassical view is that public debt

puts capital stock on a lower path and thus reduces labor and employment (Singh, 2016). Adam Smith view is related to this view, and one of the arguments he makes in support of denying the right of the government to incur debt is that debt retards the natural progress of a nation toward wealth and prosperity, because it consumes the resources that productive purposes received in the private sector, diverted by the government to cover their unproductive costs, thus wasted without any hope of future reproduction. The effects of public debt in terms of capital accumulation (and thus long-term economic growth) are considered even more harmful than taxation, since public debt leads to reduced capacities by diverting a portion of the annual output previously earmarked for the maintenance of productive labor to unproductive labor. It leads to existing production (Smith, 1904).

2.1.2. Keynesian Theories of Debts

Keynesians, unlike the classics, look at debt from a positive point of view and encourage public debt. According to the Keynesians, public debts are not appropriate when the economy is in full employment, because any increase in debts causes the interest rate to rise and, as a result, has a negative impact on business. On the other hand, when a sector of the economy is in recession, the unemployment rate is increasing and business is slowing down, governments should attract these resources by increasing spending and start them in a flow. In this case, the use of government debt is considered as a balance wheel in the economy. In addition, government debt is considered an important means of financing the war. The Keynesian view is that public debt serves to increase employment, thereby reducing the unemployment rate and creating higher participation. Most Keynesians believe that if debts are taken from the inside, there is no concern about the size of these debts (Singh, 2016).

2.2. Empirical reviews

The impact of external debt can vary from developed countries to developing countries. Developed countries can use debt in value-added projects and thus avoid debt risks such as high debt costs (high interest rates), market fluctuations, unattractive countries for investment, using foreign debt. manage efficiently and productively and also control the value of the domestic currency, which in turn will have a positive effect on the economic growth of countries ((Presbitero, 2012). On the other hand, developing countries do not use foreign debt in a productive way, which in turn negatively affects their economic growth. This may happen especially when foreign debt is more than 90% of GDP. The adverse effect of foreign debt on the economic growth of countries can be attributed to the following: excess debt hypothesis, congestion effect, liquidity constraint hypothesis, direct effect of the hypothesis Debt, and Laffer curve theory of debt. The debt spillover hypothesis implies that the high cost of debt prevents countries from fully benefiting, from the value of debt and inhibits investment (Borensztein, 1990). Using debt discourages investors from investing because they expect to pay high tax rates on returns to offset the debt burden. Also, investors expect that debt may lead to devaluation of the domestic currency and high levels of inflation (Claessens, Detragiache, Kanbur, & Wickham, 1996). The second negative effect mentioned is the crowding-out effect, which means that governments are trying to repay debt, which in turn affects other government

functions, such as spending on public services such as education and health, which are essential for economic growth, it has a negative effect. The third effect is the liquidity constraint hypothesis, which means that countries need foreign currency to repay their debt, especially when the country's domestic currency is not used in international markets. Therefore, countries restrict imports and depreciate the domestic currency to encourage the flow of foreign exchange into the economy (Serieux & Yiagadeesen, 2001). Investment and savings do not have a negative effect, but a combination of production and investment productivity factors also affects. Investors are uncertain about investing when the level of debt is high and therefore allocate their investment to short-term projects rather than long-term ones, which in turn negatively affects economic growth (Pattillo C. , Poirson, Ricci, Kraay, & Rigobon, 2003). The fifth and final work is the Laffer debt curve theory, which suggests that foreign debt may help fill a gap in government budgets (deficits), But if it increases beyond a certain level, it creates a repayment burden that stifles economic growth (Pattillo, Poirson, & Ricci, 2002).

(Safwat, Salah, & El Sherif, 2001) has conducted research in his article entitled the effect of total external debt on the economic growth of Egypt (1980-2018). The purpose of this study is to investigate how the total foreign debt affects the economic growth of Egypt for a period of 39 years (1980-2018). Descriptive statistics, unit root test, Johansen's co-integration and vector error correction model (VECM) have been used in the methodology. The results show that total foreign debt has a long-term negative effect on Egypt's economic growth, while the results are insignificant in the short-term. (Deyand & Tareque , 2019) in the article entitled Foreign Debt and Growth: The Role of Sustainable Macroeconomic Policies in Bangladesh with the aim of investigating the impact of foreign debt on economic growth in Bangladesh in a macroeconomic macro scenario. In the process of doing so, it assesses the empirical co-integration and the long- and short-term dynamics of the relevant variables for the period 1980 to 2017, using an Autoregressive Distributed Lag (ARDL) test approach for co-integration. First, investigated the link between debt and GDP, and examines the impact of foreign debt on economic growth using a set of macroeconomic variables and high-risk variables of the country, and then analysis this link along with a newly formed macroeconomic policy variable component. The main analysis is that the results of the study show the negative effect of foreign debt on GDP growth, but the more positive effect of the macroeconomic policy index shows that this adverse effect of debt can be reduced or even neutralized by sound macroeconomic policies and appropriate human resources policies. (Lee & Petronella, 2015) in his master's thesis, has discussed the impact of external debt on economic growth in Zimbabwe for the period from 1980 to 2013 using time series data. Using vector error correction model (VECM), this work has shown a significant negative relationship between external debt and economic growth in Zimbabwe. The results show the existence of excessive debt effect in Zimbabwe. Based on the results of the model, there is a long-term relationship between economic growth (GDP) and external debt. At the error level of 5% and with the presence of other factors, 1% increase in foreign debt leads to a 39% decrease in economic growth (GDP). (Ejigayehu & persson , 2013) in his master's work under the title of the effect of foreign debts on economic growth; Analysis of panel data on the relationship between external debt and economic growth

has addressed the issue. This thesis examines whether external debt affects the economic growth of selected heavily indebted poor African countries through the debt-increasing and debt-reducing effect. In this work, it is done using the data of eight heavily indebted poor African countries between 1991 and 2010. The estimation results show that foreign debt affects economic growth instead of increasing debt. Furthermore, in an attempt to determine the history of debt service, this thesis has shown that selected countries do not pay more than 95% of their accumulated debt. (Ajuh & Oyeonu, 2021) has studied the effect of foreign debts on the economic growth of Nigeria. This article examines the impact of foreign debt on Nigeria's economic growth from 1985 to 2018 using the vector auto regression (VAR) approach. Empirical results have shown that both external debt stock and external debt service have a negative and significant effect on economic growth. These results implied that when the stock of external debt was changed by one unit, economic growth decreased by 0.495 units. On the other hand, when external debt service changes by one unit, economic growth has shown a decrease of 0.017 units. It concludes that the stock of external debt has been a hindrance to economic growth in Nigeria during the period under study. (Erni Panca, 2021) has researched the effect of foreign debt on Indonesia's economic growth in the article. This research examines the impact of foreign debt on economic growth. In this work, the data of Indonesia from 1981 to 2017 is used in the form of time series, and at the same time, the error correction model (ECM) based on the debt spillover theory is used in this research. The findings revealed that foreign debt has a negative and significant effect on economic growth in the short and long term. This paper has also shown that foreign direct investment (FDI) improves economic growth. Foreign debt that continues to increase sharply in the long-run can reduce economic growth, which may indicate an over-indebted economy. Therefore, it is essential for the government to ensure that the debt ratio remains below a certain limit. In addition, foreign debt should be prioritized for infrastructure development with a broad multiplier effect, and foreign direct investment should be prioritized for labor-intensive sectors.

(Wani & Kabir, 2016) in a research study on the relationship between public debt and economic growth; They have done a case study of Afghanistan. The purpose of this research was to determine the relationship between public debt and economic growth in Afghanistan. In this work, secondary data collected from various sources such as Ministry of Finance, Department of Treasury, Department of Debt, Web page of World Bank and Da Afghanistan Bank have been used. The studied period includes the financial periods of 2008-2012. The research results show that one unit change in commercial bank advances, keeping other factors constant, changes economic growth by -21.764, while one unit change in public debts, keeping other factors constant, changes economic growth by 265 /0 changes. This means that all independent variables have a negative effect on economic growth. It is also known that treasury bonds with foreign debt have the greatest impact on economic growth, followed by prepayments of commercial banks and finally government shares.

3. Problem statement

Foreign debt is considered one of the main sources of financing in the form of capital in many

developing economies. Ayadi and Ayadi (2008) noted that developing countries are characterized by insufficient domestic capital formation due to the vicious cycle of low domestic savings, low investment, low productivity and low income. Domestic savings are not sufficient to finance investments that require large amounts of money. Therefore, to finance this deficit, many developing countries rely on foreign debt from developed countries, and it is usually through the Organization for Economic Co-operation and Development (OECD) debt, which comes from bilateral sources (government to government) and Multilateral means that the government provides to international financial institutions such as the World Bank and the African Development Bank. However, the experiences of Latin American countries, with the large debt crisis of the 1980s and the recent debt crisis in Greece, have led to concerns about the possibility of adverse external consequences. After the civil wars and the establishment of a new government at the beginning of the 21st century, Afghanistan has not been able to finance the infrastructure and development programs, so it has tried to use foreign debts in addition to the free aid of the international community to reach Act for the above purpose. Afghanistan has followed an upward trend in foreign debts, which in 2006, the amount of foreign debts was around 19 million US dollars and reached by 419 million dollars in 2019, While the domestic production in 2019 is shown as 21 billion dollars.

4. Data and Methodology

4.1. Data Source

The source of data for this study relies completely on secondary data. Annual data for this study was obtained from World Bank’s World Development Indicators (WDI) and Afghanistan Central Bank for the period of 2006-2019. We tested our variables for stationarity using the Augmented Dickey-Fuller (ADF) and Philips Perron unit root test. Based on the outcome, we employed Autoregressive distributed lag (ARDL) estimation technique in analyzing our model. We also subjected our data set to descriptive statistics and analysis.

4.2. Model specification

Autoregressive distributed lag (ARDL) “bound test” approach introduced by (Pesaran, Shin, & Smith, 2001) is used to analyze the long-run and short-run relationship between the external debt and growth in a multivariate framework. Appropriate modification of the orders of ARDL model is enough to simultaneously correct for residual serial correlation and problem of endogenous variables (Pesaran & Y, 1999). The econometric form of the first model relating to external debt and GDP, once stationarity or co-integration are verified:

$$RGDP_t = F (EX_t, FAID_t, FDI_t, INF_t, IR_t, TD_t) \dots\dots\dots 1$$

where all the variables are discussed above,

$RGDP_t$ = real Gross domestic product on period t, EX_t = Exchange rate in period t, $FAID_t$ = Foreign Aid in period t, FDI_t = Foreign direct Investment, INF_t = Inflation rate in period t, IR_t = interest Rate in period t, and TD_t = Total debts in period t.

Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are used for testing unit root properties of the variables under study.

In the ARDL co-integration technique, the existence of co-integration or possession of long-

run relationship among the variables is primarily determined. Then the short and long run parameters extraction is done in the second step. The bound test approach is mainly based on an estimate of the unrestricted error-correction model (UECM) by using OLS estimation procedure. The bound testing approach to co-integration involves investigating the presence of a long-run equilibrium relationship using the error-correction model (UECM) frameworks:

As mentioned in the last, for analyzing the long-run and short-run relationship among the variables, the long-run and short-run models are following:

Long-run model

$$\text{Log}(RGDP_t) = \beta_0 + \beta_1 \text{Log}(Ex_t) + \beta_2 \text{Log}(FAID_t) + \beta_3 \text{Log}(FDI_t) + \beta_4 INF_t + \beta_5 IR_t + \beta_6 \text{Log}(TD_t) + e_t \dots \dots \dots (2)$$

Short-run model

$$\text{Log}(RGDP_t) = + \sum_{i=1}^P \beta_i \Delta \text{Log}(EX_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(FAID_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(FDI_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(INF_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(IR_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(TD_{t-i}) + e_t \dots \dots \dots (3)$$

Simultaneously short-run and Long-run relationship:

$$\text{Log}(RGDP_t) = \beta_0 + \beta_1 \text{Log}(Ex_t) + \beta_2 \text{Log}(FAID_t) + \beta_3 \text{Log}(FDI_t) + \beta_4 INF_t + \beta_5 IR_t + \beta_6 \text{Log}(TD_t) + \sum_{i=1}^P \beta_i \Delta \text{Log}(EX_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(FAID_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(FDI_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(INF_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(IR_{t-i}) + \sum_{i=1}^P \beta_i \Delta \text{Log}(TD_{t-i}) + e_t \dots \dots \dots (4)$$

In equation 4 P shows the auto regressive lag and Δ shows the first difference in the model, where the lag of variable it is selected automatically. Where in this study RGDP is considered as the dependent variable, Total debt as independent variable and other variable in the model are controlling variables.

4.3. Empirical Results

In this section, we present the empirical results from different methodologies. Table1 shows that some of the variables are non-stationary at levels, but become stationary after first differencing and the results are summarized below:

It can be inferred that both ADF and PP(Table1) test results reveal that some variables are non-stationary at a 5% level of significance, but they became stationary at first difference level at PP test where the RGDP is stationary at first deference in ADF test at 10% level of significant. Thus, all the variables are integrated of order one i.e. 1st deference.

Where both possibilities with Constant, as well as with Constant & Trend and Without Constant & Trend are considered.

Table 1:unit root test (ADF)

UNIT ROOT TEST TABLE (ADF)

variables	Level						First Difference					
	Constant		With Constant & Trend		Without Constant & Trend		Constant		With Constant & Trend		Without Constant & Trend	
	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability
LOG(RGDP)	-2.1631	0.2219	-1.2532	0.8811	1.7041	0.9772	-2.7768	0.0687	-7.657	0	-2.1728	0.0299
LOG(EX)	0.2726	0.974	-1.953	0.6134	1.8836	0.9847	-7.7057	0.000	-7.8824	0	-7.2801	0.000
LOG(FAID)	-2.2558	0.189	-2.7638	0.216	0.5442	0.8306	-7.255	0.000	-7.5652	0	-7.2801	0.000
LOG(FDI)	-2.5737	0.105	-2.7312	0.2287	0.8369	0.489	-7.2859	0.000	-7.2186	0	-7.2801	0.000
INF	-2.5356	0.1128	-2.6894	0.2449	1.9751	0.47	-7.2112	0.000	-7.1456	0	-7.2801	0.000
IR	-2.4771	0.126	-2.8244	0.1951	1.0747	0.523	-7.2133	0.000	-7.1476	0	-7.2801	0.000
LOG(TD)	-1.5492	0.52	-2.2803	0.36	0.6088	0.844	-5.8200	0.000	-5.0381	0.009	-6.2279	0.000

Source: Own Calculations

UNIT ROOT TEST TABLE (Philips Perron)

variables	Level			First Difference		
	Constant	With Constant & Trend	Without Constant & Trend	Constant	With Constant & Trend	Without Constant & Trend

	t- Stati stic	Pr ob	t- Stati stic	Pr ob	t- Stati stic	Pr ob	t- Stati stic	Pro b	t- Stati stic	Pro b	t- Stati stic	Pro b
LOG(	-	0.0	-	0.9	2.86	0.9	-	0.00	-	0.00	-	0.00
RGDP	3.55	09	0.51	79	26	98	8.41	000	20.6	01	7.28	000
)	76	9	95	7		7	34		614		01	
LOG(	0.40	0.9	-	0.6	2.00	0.9	-	0.00	-	0.00	-	0.00
EX)	53	81	1.89	44	06	88	7.71	000	7.97	000	7.28	000
		5	35	4		3	35		33		01	
LOG(	-	0.1	-	0.1	0.54	0.8	-	0.00	-	0.00	-	0.00
FAID)	2.25	89	2.85	84	42	30	7.25	000	7.57	000	7.28	000
	58	8	49	9		6	5		57		01	
LOG(	-	0.0	-	0.1	-	0.3	-	0.00	-	0.00	-	0.00
FDI)	2.63	91	2.87	78	0.84	47	7.28	000	7.21	000	7.28	000
	77	7	63		03	4	59		86		01	
INF	-	0.0	-	0.1	-	0.0	-	0.00	-	0.00	-	0.00
	2.70	79	2.90	69	2.07	37	7.21	000	7.14	000	7.28	000
	69	3	35	5	05	9	12		56		01	
IR	-	0.0	-	0.1	-	0.2	-	0.00	-	0.00	-	0.00
	2.65	89	3.01	37	1.09	46	7.21	000	7.14	000	7.28	000
	07	3	72		08	3	33		76		01	
LOG(	-	0	-	0.0	1.35	0.9	-	0.00	-	0.00	-	0.00
TD)	7.62		5.87	00	29	54	7.46	000	8.06	000	7.28	000
	92		1			2	29		12		01	

Table 2: unit root test (Philips Perron)

Source: Own Calculations

The unit root test based on the Phillips Perron test shows that The Gross Domestic Products (GDP) and the total foreign debt are at the significance level based on alpha 0.05 and other variables including exchange rate, foreign aid, foreign direct investment, inflation rate and the interest rate is significant with the first order difference, but based on the Augmentin Dickey-Fuller test, all the variables are significant with one difference. It should be noted that Afghanistan's Real GDP is stationary at the level 10% error with one-time difference. Considering the above results, it can be said that the ARDL method is suitable for analyzing research findings.

As our variables are integrated of order one, so it is needed to find whether the variables are co-integrated. To investigate the long-run relationship between external debt and GDP, the ARDL model to co-integration is applied. The existence of a co-integration of our main model [equation (1)] is confirmed by the bound test approach to co-integration(Table3).

Table 3: primary Estimation of the model

Selected Model: ARDL(4, 1, 0, 4, 4, 0, 1)		Dependent Variable		
RGDP				
Variable	coefficient	Std. Error	t-Statistic	Prob.*
LOG(RGDP(-1))	0.629249	0.096530	6.518670	0.0000
LOG(RGDP(-2))	-0.127606	0.127549	-1.000448	0.3257
LOG(RGDP(-3))	-0.085065	0.126513	-0.672381	0.5069
LOG(RGDP(-4))	0.432789	0.078631	5.504024	0.0000
LOG(EX)	-0.579004	0.065174	-8.883928	0.0000
LOG(EX(-1))	0.335762	0.060343	5.564276	0.0000
LOG(FAID)	-0.095395	0.025779	-3.700439	0.0009
LOG(FDI)	0.036317	0.003596	10.09890	0.0000
LOG(FDI(-1))	-0.021263	0.005019	-4.236110	0.0002
LOG(FDI(-2))	0.001556	0.005556	0.280101	0.7815
LOG(FDI(-3))	-0.003293	0.005463	-0.602807	0.5515
LOG(FDI(-4))	-0.013714	0.004066	-3.373111	0.0022
INF	0.015235	0.002263	6.730860	0.0000
INF(-1)	0.002503	0.000661	3.785574	0.0007
INF(-2)	-1.14E-06	0.000599	-0.001902	0.9985
INF(-3)	-0.000482	0.000579	-0.831367	0.4128
INF(-4)	0.002285	0.000421	5.427469	0.0000
IR	0.018628	0.002489	7.483585	0.0000
LOG(TD)	1.080462	0.105153	10.27510	0.0000
LOG(TD(-1))	-0.361326	0.039668	-9.108798	0.0000
C	-9.151002	0.953459	-9.597685	0.0000
<i>R-squared</i>		0.999879		
<i>Adjusted R-squared</i>		0.999793		
<i>F-statistic</i>		11608.91		
<i>Prob(F-statistic)</i>		0.000000		
<i>Durbin-Watson stat</i>		2.106115		

Source: Own calculation

The primary estimation of the model shows that there are long-run relationship between variables and represent in table 4. As shown in table 4, Among the variables included in the model, Real GDP, foreign aid and inflation rate variables have four lag, exchange rate and government debt variables have two lag, but foreign direct investment and interest rate variables do not have lag.

Table4: Bond Test Results

Country	F-Statistic Value	K	Significance Level	Bound Critical Values	
				1(0)	1(1)
Afghanistan	29.50833	6	10%	2.12	3.23
			5%	2.45	3.61
			2.5%	2.75	3.99
			1%	3.15	4.43

Source: Own calculation

The co-integration test in Table4 ensured the presence of a long-run relationship between the variables and the results are presented in Table 4. The computed F-statistic of the above two models' equations exceeded the upper bounds at a 1% level of significance. As per the rule, the higher F-statistic value supports the rejection of the null hypothesis that confirms the long-run relationship between the variables which implies that the variables will move together. Then the co-integration results lead us to argue that external debt and GDP have a long-run association.

Table5: Estimated Long-Run Coefficients and Adjustment Coefficients

Model: ARDL(4, 1, 0, 4, 4, 0, 1)

Dependent Variable RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob
LOG(EX)	-1.614793	0.248233	-6.505145	0.0000
LOG(FAID)	-0.633295	0.138495	-4.572687	0.0001
LOG(FDI)	-0.002634	0.015908	-0.165571	0.8697
INF	0.129716	0.012554	10.33294	0.0000
IR	0.123662	0.012141	10.18527	0.0000
LOG(TD)	4.774081	0.324450	14.71437	0.0000

Source: Own Calculation

The Schwarz Criterion lag length criterion statistic indicates that ARDL (4, 1, 0, 4, 4, 0, 1) model are the best two lag orders combination and the estimation results are reported in table 5.

From the of Table 4, it can be written that the coefficient of total debt is statistically significant and positive in the long run. Which is similar to Keynesian theory of debts.

Table 6: Estimated Short-Run Coefficients and Error Correction Model

Model: ARDL(4, 1, 0, 4, 4, 0, 1)				
Dependent Variable RGDP				
Variable	Coefficient	Std.	t-	Prob

		Error	Statistic.	
C	-9.151002	0.578302	-15.82392	0.0000
DLOG(RGDP(-1))	-0.220118	0.078015	-2.821492	0.0087
DLOG(RGDP(-2))	-0.347724	0.070853	-4.907692	0.0000
DLOG(RGDP(-3))	-0.432789	0.054954	-7.875492	0.0000
DLOG(EX)	-0.579004	0.042095	-13.75476	0.0000
DLOG(FDI)	0.036317	0.002339	15.52764	0.0000
DLOG(FDI(-1))	0.015451	0.003513	4.397670	0.0001
DLOG(FDI(-2))	0.017007	0.003181	5.345981	0.0000
DLOG(FDI(-3))	0.013714	0.002933	4.675427	0.0001
D(INF)	0.015235	0.001007	15.12996	0.0000
D(INF(-1))	-0.001802	0.000326	-5.524594	0.0000
D(INF(-2))	-0.001803	0.000333	-5.416053	0.0000
D(INF(-3))	-0.002285	0.000275	-8.313444	0.0000
DLOG(TD)	1.080462	0.064360	16.78780	0.0000
CointEq(-1)*	-0.150633	0.009511	-15.83732	0.0000
R-squared	0.975129			
Adjusted R-squared	0.964888			
F-statistic	95.21915			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	2.106115			

Source: Own Calculation

The results obtained in table (6) show a positive and significant relationship between government debt and economic growth in Afghanistan. Also, the relationship between economic growth and foreign direct investment and inflation rate is positive and significant in the short term, but the relationship between the exchange rate and economic growth is negative and significant in the short term. The letter D indicates the difference and CointEq (-1) * is used as an error correction sentence. The coefficient of the error correction sentence is equal to -0.150633 and it shows that in case of any deviation from its long-term relationship in one period (each quarter), 15 percent of this deviation is adjusted in the next period and moves by itself towards the long-term equilibrium relationship.

Table 7: Diagnostics test

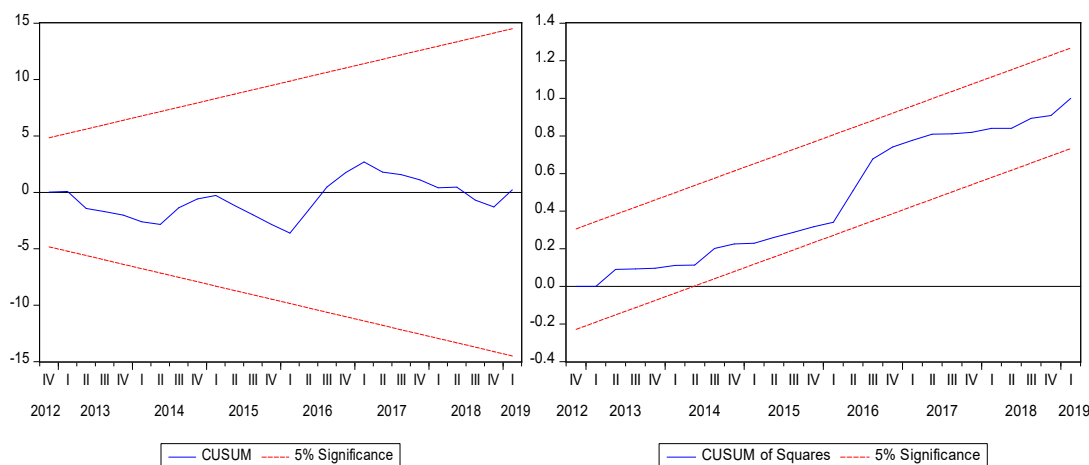
<i>Diagnostics Tests</i>	<i>Prob</i>
<i>Normality Test</i>	0.776924
<i>Breusch–Godfrey Serial Correlation Test</i>	0.501
<i>Heteroscedasticity Test: ARCH</i>	0.9437

Source: Own Calculation



A series of diagnostic tests were conducted on the ARDL models (Table 7) and the models are found to be robust against residual correlation and the autoregressive conditional heteroscedasticity (ARCH) test confirms the homoscedasticity of the residuals. At the same time, normality test ensured that estimated residuals are normal and the CUSUM and CUSUM of sq. tests of both models also confirmed the correct functional form of the models (Figures 1).

Figure 1: CUSUM and CUSUM square



Source: Own Calculation

5. Finding and Conclusions

The foremost focus of this study is to analyze the impact of external debt on the economic growth of Afghanistan. Earlier different studies have explored the impact of external debt on growth in different countries in different directions. However, there is barely any study that concentrates on the context of debt-growth relationships. The ARDL approach to co-integration is used for the empirical estimation of external debt growth for Afghanistan over the period of 2006-2019. The composition of external debt is taken in to account to investigate the debt growth nexus as well. The unit root test is discussed based on the Phillips-Peron test and the Augmented Dickey-Fuller test. The results of the unit root test show that according to the Philips-Perron test, except for the variables of Real GDP and government debt, which are at the level of significance, the other variables have been first-differenced, but based on the Augmented Dickey-Fuller test, all the variables included The model is defined with first difference. F-Bound test was used to obtain the long-term equilibrium relationship and the existence of the long-term equilibrium relationship was reported. The results show that there is a positive and meaningful relationship between government debt and Afghanistan's economic growth in the long and short term, which means that with the increase in government debt, Afghanistan's economic growth has increased. That is, in the long term, with a one percent increase in government debt, the real GDP increases by 4.774081 percent, but in the short term,

with a one percent increase in government debt, the real GDP increases by 1.080462 percent. The result of the study is according to the Keynesian theory, where they argued that government debt will accelerate GDP growth while taking action for productive project and infrastructure sector. In this study, the coefficient of the error correction model is equal to -0.150633 and it shows that in case of any deviation from its long-term relationship in one period (each quarter), 15 percent of this deviation is adjusted in the next period, and towards the relationship a long-term equilibrium moves by itself. Considering the results obtained in this research, the suggestion recommended from the point of view of policy and studies, where the Afghanistan is a country whose internal resources cannot cover the government's expenses, and on the other hand, government debt in the short term and also in the long term has positive and significant effects on the economic growth of Afghanistan. It is suggested that the Afghan government manage It is better for the government to make serious efforts to borrow and promote it in a targeted manner, and in this direction, efforts should be made on expansionary financial policies that encourage foreign debts, so as to increase the ratio of debt to real gross domestic product.

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