

Assessing the Relationship between Public Debt and Economic Growth

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Abstract: A significant and controversial topic in the literature of economics and microeconomics is the forecasting of government debt and its impact on economic growth. The purpose of this study is to examine the relationship between government debt and economic growth in both the short-run and long-run. For the purpose of this research study, panel data analyses such as POLS and FEM are used. There are three Asian countries included in this data set (Afghanistan, Iran, and Pakistan). The World Bank Development Indicators and IMF Economic Outlook data from 2000 to 2020 were utilized as a source of annual time series data. According to the study, government debt is positively correlated with economic growth over the long term. Variables do not appear to be related in the short run. Several projects and programs that are very high priority, well appraised and self-sustaining, that are estimated to positively impact economic growth in these countries should be financed with public debt.

Keywords: Government Debt; Economic Growth; Panel Data Analysis; Vector Error Correction Model; Panel Cointegration; Afghanistan; Iran; Pakistan.

INTRODUCTION

It is important for a country to have a healthy economy and low government debt. A country's general debt, on the other hand, indicates how that country's economic condition compares to that of its neighbors, both industrial and non-industrial. As a result of government expenditures and uncertain economic development, countries are forced to borrow from domestic sources, interim sources, and domestic banking systems. A number of undeveloped countries, including Iran, Afghanistan, and Pakistan, are not excluded from the application of this principle. Public debt has been an important factor in the development of many underdeveloped countries over the last few decades. Furthermore, these countries are experiencing a severe financial crisis and high inflation rates (Arman, Salahmanesh, & Shalyari, 2020).

Statistically speaking, developing countries have a very high public debt, which challenges that of countries such as Afghanistan, Iran, Pakistan and other third world countries, compared to highly developed countries. In spite of this, the comparability of countries enables them to remain at the forefront of economic, technological, and cultural advancements worldwide. Because Afghanistan, Iran and Pakistan are in approximate standards in terms of global economic

development, they have suffered from a number of problems, such as religious, cultural, economic, and civil war issues. It follows that if these problems were fueling economic growth, this would be beneficial since economic growth would be accelerated (Verheijen, Ahmadzai, & Hogg, 2022).

In general, external government debt refers to loans obtained by the government from the World Bank or other financial institutions for the purpose of interest or advancement. A government's internal debt is its debt to the central bank, its debt to banks in its region, its bond issue and its bond issue to companies. It is necessary to take into consideration the public debt and the number of debts of state-owned companies in addition to the public debt and economic growth in countries such as Afghanistan, Iran, and Pakistan in which the public debt is the lowest compared to the rest of the world because state-owned companies constitute a significant portion of the country's economy. Over the past decade, Iran's public debt has increased. As shown by data from 2009, the public debt of Iran was 50,329 million US dollars and the debt per person in 2009 was 688 dollars, ten years later, in 2019, the public debt of Iran reached 278,223 million US dollars, a 2227,894 million dollar increase over the previous ten years (Zamani & Majidi, 2021).

Furthermore, the public debt to GDP growth has been increasing in Afghanistan as well. Due to this political instability, several foreign economic companies reduced their activities and decreased GDP, thereby reducing Afghanistan's economic growth. From 2018 to 2021, however, domestic companies and a few regional projects contributed to an increase in GDP and economic growth. Afghan public debt in 2018 was 1,359 million dollars, which represents 7.4% of GDP, while in 2019 it was 1,157 million dollars, or 5.99% of GDP. The public debt in 2020 was 1,505.56 million US dollars, which is 7.6% of the national gross domestic product. From 2018 to 2020, the national debt increased by 10.78 percent and the national gross domestic product (GDP) increased by 7.96 percent (Bank, 2018). Considering the national debt of Pakistan, it is the same as that of Afghanistan and Iran. In 2000, the government debts of Iran and Pakistan were very similar in terms of fluctuation, with 9.87 for Iran and 9.89 for Pakistan (Hussain, Hussain, & Bilal, 2022).

Studies conducted within the Euro area have concluded that a high level of public debt has a negative impact on economic growth when it exceeds 70 or 80 percent (Checherita-Westphal & Rother, 2010). Based on the results of related studies in the literature, different conclusions can be drawn regarding the relationship between government debt and real GDP growth rate. According to Nickel et al., a reduction in government scales leads to a reduction in public wages, which increases real GDP growth. If public debt decreases, it implies that taking on debt helps governments grow economically while still paying off their debt (Nickel, Rother, & Zimmermann, 2010). This continuous point in the literature shows that governments with high debt have high long-term interest rates because countries with low GDP rates are more dependent on foreign and international aid. As a result of their study, Fink and Greiner concluded that there is a significant negative relationship between government debt and economic growth (Bökemeier & Greiner, 2013).

Several studies have indicated that there is a nonlinear or weak relationship between government debt and economic growth depending on the amount of GDP growth. A study of the relationship between government debt and economic growth is worthwhile. The literature suggests that government debt has a significant

impact on economic growth based on similar studies. This study, in contrast to previous studies, examines the critical threshold for public debt and its impact on economic growth in Afghanistan, Iran, and Pakistan. Accordingly, the purpose of this research study is to analyze the relationship between government debt and economic growth for three countries between 2000 and 2020; Afghanistan, Iran, and Pakistan. There are three hypotheses that challenge this objective: Firstly, can the differences in variability of government debt be explained by the variability of GDP growth? Is there a short/long run relationship between macroeconomic variables such as total government debt, domestic debt, external debt, imports, exports, and GDP? What is the direction of the relationship between macroeconomic variables and government debt, if any? The study is organized as follows, the theoretical and empirical literature is analyzed at the next section. The methodology and the data are explained at the third part then comes the evaluation of the empirical findings. Finally, the results of the study are discussed at the fifth section.

THEORETICAL AND EMPIRICAL LITERATURE

A theory concerning government debt and economic growth suggests that when debt increases in a country, GDP growth rate will also increase. Thus, the purpose of government borrowing is to create investment opportunities. Consequently, since the government is taking some action, there should be a positive effect on economic growth. Regardless, most studies have found that government debt and economic growth have a negative correlation or a non-linear relationship. In a large number of studies, the relationship between government debt and real GDP growth has been found to be non-linear. Several alternative channels have also been explored to explain the relationship between government debt and economic growth (Panizza & Presbitero, 2013). A significant increase in public debt has occurred since World War II. It has been used to improve the infrastructure of countries, and it is increasing in competition with technology and civilization. In this manner, the rate of public debt owed by countries to the World Bank and to some bordering countries increased (Bank, 2021).

The relationship between government debt and economic growth has been argued by four schools of thought (classical, Keynesian, Ricardian, and modern monetary theory). As a theory, these four schools of thought - which will be discussed in greater detail - made various arguments regarding the causal relationship between government debt and economic growth. According to the classical school of thought, public debt inhibits the economic growth of governments, as it reduces the process of budget order and restricts financial access to the private sector. According to the Keynesian school of thought in this theory, which is considered to be the single cause of growth, public expenditure financed through public debt has a multiplicity of effects on national income and financial production. A rise in government debt is believed to increase domestic economic activity and private investment as a result of the hypothesis law of increasing government activity. A rise in government debt is believed to increase domestic economic activity and private investment as a result of the hypothesis law of increasing government activity. Alternatively, Keynesian economic theorists believe that while public debt is derived from private investors' cash, it does not affect consumption and reinvests borrowed funds. The third aspect of this theory is that potential taxation enables debt repayment. As a third point, this theory asserts that potential taxation allows debt repayment. By purchasing government bonds, people increase their income. Economic growth is not affected by public debt. Public expenditures and revenues are assumed to change with changes in private savings in this hypothesis. The level of aggregate economic demand is the same regardless of whether the expenditures are financed through debt or tax increases (Hilton, 2021).

Public debt is money that the government invests in the economy and does not receive a return on investment. During this time, it is important to compare the budget of the government with that of the average family in monetary theory. Additionally, the theoretical literature indicates that debt levels are not always correlated with debt-related vulnerabilities. There are several characteristics of this sector, including maturity structure, financing method, and a few others. In spite of the fact that a large and long share of public debt may be a crisis of vulnerability for the government, the proceeds from public debt can also have significant economic implications. The

Eurozone sovereign crisis also combined elements of illiquidity and bankruptcy. As stated in the study, the government will be vulnerable to bad news, which will be amplified by creditors' reluctance to settle their claims. Economic growth and public debt have a negative relationship, which is often attributed to the poor performance of the recipient country. Investing and GDP per capita are negatively impacted by external government debt. Therefore, the excess debt has an adverse effect on the results. However, debt repayment is negatively related to GDP only over the short term. There is a negative and significant relationship between the government's internal debt and investment, which has a detrimental effect on private investments. Nevertheless, the government's domestic debt does not significantly impact GDP per capita. Additionally, investment has a positive and significant relationship with GDP per capita (Calderón & Fuentes, 2013).

Various empirical studies have examined the relationship between government debt and economic growth. Based on studies conducted on this topic, researchers have concluded that the rate of economic growth and government performance determine the level of government debt. Accordingly, the results of each study are dependent on the study period, country selection, and method of data calculation. This is due to the fact that debt period and debt level strongly influence the relationship between these variables. Generally, public debt is positively related to economic growth, as discussed previously. Conceptually, one can assume when a country's debt increases, it indicates the country's performance by increasing investment in infrastructure, industry, or social services, which represents economic progress. Therefore, government debt has a positive effect on GDP growth, which makes the relationship between government debt and economic growth positive in this instance. As compared to previous studies, it seems that the relationship between government debt and economic growth is more non-linear or negative (Bökemeier & Greiner, 2013).

Based on the analysis of the Euro area conducted by Stella Spilioti, she concluded that the impact of government debt on economic growth depends upon the average level of government debt (Spilioti, 2015). Government debt has been shown to enhance economic activity in previous studies,

producing a statistically significant and positive correlation with economic growth for a government that creates economic activation within the economic area of a country, which in turn will result in an increase in real GDP growth and a positive impact on economic growth.

In the following paragraphs, we will discuss five hypotheses related to government debt and economic growth empirically. There are five hypotheses regarding the causal relationship between government debt and economic growth. According to the first hypothesis, the level of government debt is determined by the pace of economic growth, and a causal relationship between government debt and real GDP growth exists in every country. In the second hypothesis, most empirical studies have found that high government debt reduces economic growth. Essentially, this hypothesis states that a large amount of high costs associated with private investments ultimately adversely affect economic growth. Occasionally, the feedback hypothesis is referred to as the third hypothesis. Economic growth and government debt are in conflict. Fourthly, an increase in public debt leads to an increase in economic growth. It should be noted that many empirical studies support the hypothesis that the growth of the economy is positively correlated with government debt. Last but not least, the fifth hypothesis rejects the fourth hypothesis and concludes that government debt is not causally related to economic growth. It has been termed the neutral or neutrality hypothesis of debt growth (Hilton, 2021).

A study of the Malaysian economy was conducted between 1991 and 2013. The study examined the extent to which government debt has contributed to Malaysia's economic growth. Based on the study's findings, economic growth is negative when measured by GDP per capita. This study highlights the relationship between government debt and economic growth indicators in order to improve economic management and facilitate better economic decisions. According to the results of this regression analysis, government consumption is negatively related to economic growth in the long run and reduces deficit growth. Overspending by the government will instead have a detrimental effect on economic growth (Lee & Ng, 2015).

Moreover, the regression results indicate that government consumption negatively affects economic growth. As a result, government consumption does not contribute to economic growth. It is instead excessive government consumption that will impede economic growth (Chudik, Mohaddes, Pesaran, & Raissi, 2017). By using interstate data over time, the VAR panel model is a useful econometric tool for analyzing dynamic interactions between government debt and economic growth, real GDP growth, and long-term interest rates. There has been a study of the causal relationship between government debt and economic growth. Based on the VAR model, it estimates the rate of real GDP and the total government debt and indicates the correlation between government debt and economic growth. Government debt growth is primarily responsible for economic growth. It is, however, not possible to identify different regression specifications and the causal relationship between debt and growth even for countries with high levels of debt. As 85% of the GDP is above the threshold of government debt which harms economic growth, every percentage point increase in the debt ratio results in a reduction of more than one percentage point in real GDP growth. Consequently, public debt is positively correlated with low levels of debt, while when the level of debt to GDP increases, the effect on GDP growth is negatively correlated (Jacobs, Ogawa, Sterken, & Tokutsu, 2020).

Finally, as discussed earlier, public debt reduction is discussed in the context of financial program analysis, and the second segment discusses support-related effects on growth. As a result, the sharp decline in budgets and consumer and business confidence may significantly be diminished. Based on estimated results, the composition of the financial role adjustment plays a more significant role in reducing debt, reflecting the size of the cost amount. The first equilibrium and discrete results suggest that expenditures will change from zero to 10 and that debt will be reduced by more than 10%. However, statistically insignificant views and cost-based consolidations appear to be more likely, and their first result indicated that significant debt reduction is necessary in order to reduce government spending and reduce social benefits and income-based debt. In order to ease countries' burden of heavy public debt, domestic and public debt reductions are implemented. Additionally, the success of debt reduction is not affected by short-term fluctuations in the business cycle (Nickel et al., 2010).

GOVERNMENT BUDGET OF THE STUDIES COUNTRIES

According to **Figure 1**, Afghanistan, Iran, and Pakistan have relatively high government debt to GDP ratios. Various colors are used to indicate the amount of debt service based on exports of goods, services, and primary income of each country. Iran is represented by a blue line, Afghanistan by a yellow line, and Pakistan by a gray line. In the graph, the government of Iran, which is depicted with a blue line, shows that after 2000, the amount of public debt was 9.87 units of GDP, and then in 2003 it increased to 20.52 units by 2020. Compared to Afghanistan and Pakistan, the percentage of Iran's public debt has decreased. However, there is still more periodicity, which is generally

decreasing from 2000 to 2005 and almost constant from 2005 to 2011. There is a periodic increase between 2012 and 2020. Afghanistan's government debt shows an increase from 2008 to 2017, followed by a decrease until 2020. Since the year 2000, Pakistan's government debt has decreased by 0.86 percent, down from 9.89 percent of its total GDP in 2000. As for Pakistan's public debt, due to its severe economic and social problems, low tax rates, and twin deficits, the government must rely on foreign and domestic capital flows. In contrast to foreign funds, domestic funds can be readily obtained. In terms of government fiscal gaps, government debt is an excellent instrument if it is kept at a moderate level because high levels of government debt are detrimental to economic growth.

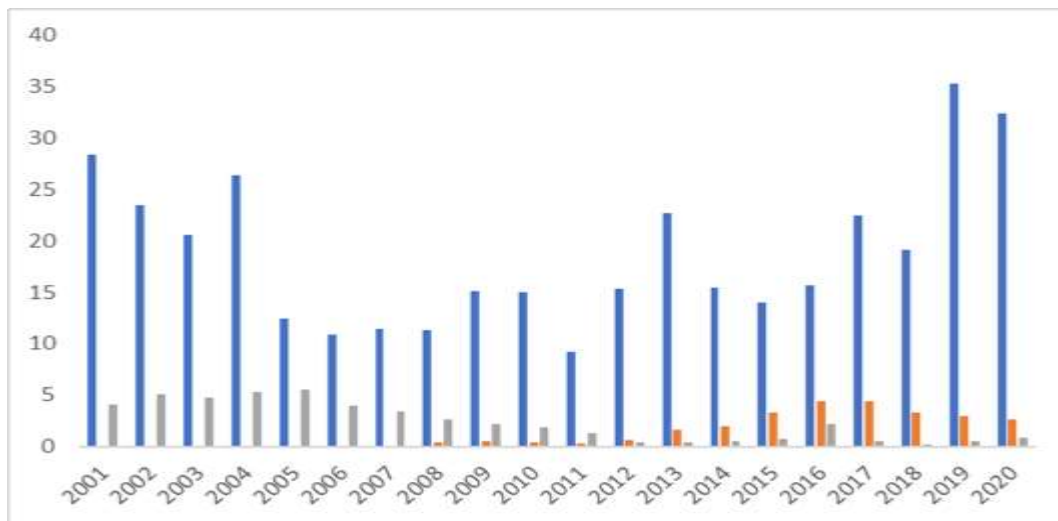


Figure 1: Government Debt to GDP of Iran, Pakistan and Afghanistan, (2000-2020), (%).

Recent years have seen Afghanistan's government budget shift towards development expenditures. As a result of the increase in development spending in the last five years, infrastructure costs have increased significantly. It is estimated that the cost of health care per Afghan is around 8 dollars. As a result of growing development funding, health allocations have increased in recent years. There has been a decrease in education costs, especially for primary education. According to the budget, education accounted for 17% of the budget in 2018, a decrease of 12% from 2017. In the past five years, there has been a decrease of approximately 13% in the real cost of education per capita (<https://fred.stlouisfed.org/series/AFGNGDPXORPCHPT>).

The Iranian government's deficit increased as a result of contractionary fiscal policies following the Islamic Revolution. As of 1988, the government owed 2111.7 billion Rials. This budget increased from 3698.5 billion Rials in 1989 to 147431.15 billion Rials in 2006, after the government made efforts to compensate it in 1991. Despite the increase in oil revenues and the lack of proper utilization of the Petro-dollar, Iran's inflation began in 1961, and its upward trend was slow from the early 1950s. As well, after the revolution, the war, the decline in the exchange rate, and the decrease in production, the inflation rate reached a maximum of 49%, from 1% in 1965, as a result of a lack of proper policy implementation. Government hidden spending income and government budget deficits originated from state-owned companies after 1988. A

significant reduction in the government's budget was achieved in 1989. As a result of the fourfold increase in oil prices, the government took advantage of some of the additional oil revenue before the deadline for the settlement of foreign debt, but due to the rapid growth of government spending and the budget deficit, the government was forced to borrow foreign currency to finance itself (Zamani & Majidi, 2021).

Statistics have shown that Pakistan's economy has a low income and is a developing economy. In terms of its nominal GDP per capita, Pakistan has a GDP of 1,658 US dollars with a national GDP of 376 billion US dollars. The economy of Pakistan is semi-industrial and in the process of development. Pakistan's economic GDP crossed 1 trillion dollars in 2017. As a result, Pakistan's economy had a good chance of achieving high rates worldwide (Shakeel, 2019). There was a period of disappointing economic growth for Pakistan during the 1990s. Following the establishment of the Privatization Commission in 2000, Pakistan's GDP increased from \$62 billion in 2000 to \$152 billion in 2008, while the growth rate remained constant between 4 and 7 percent throughout the 2000s, and the inflation rate decreased from 11. In the 1990s, the percentage decreased to four units in 2001 and thereafter. Pakistan's GDP growth rate dropped from approximately 6% to 1.7% in 2006 and 2008 as a result of insecurity, terrorism and internal corruption, which all dealt new blows to economic growth. In Hull, the government faces high inflation of 20% in 2008 and 13% in 2009. As a result of the increase in the exchange rate and the price of oil, the government and the central bank were unable to prevent the increase in inflation through monetary policy. Inflation decreased from about 4% in 2013 to 8.2% in 2018, with GDP growth increasing from about 4% to 5.5% between

2013 and 2018. There was also a positive contribution to GDP growth from industries and infrastructure related to CPEC. In spite of this, the government has failed to invest in human capital, technology and industrial policies, resulting in a decline in exports that contributes to a low level of GDP (12 percent), the lowest in the region, and high levels of unemployment (Padda, 2020; Zohaib, 2020).

METHODOLOGY AND DATA

There is a direct relationship between government debt and economic growth, specifically whether more government debt damages economic growth and whether less government debt stimulates economic growth. In this study, in order to determine the relationship between variables such as total government debt, external debt, domestic debt, imports, exports, and economic growth, a panel model was used. Data for the period 2000 to 2020 is included in the study. Due to civil wars, political corruption, and problems with regional and international policies, it is challenging to obtain data on countries such as Afghanistan, Iran, and Pakistan. Additionally, these problems have resulted in the World Bank and other economic data sources failing to record the exact figures of economic events. The data is derived from the World Bank's database (WB), the Fred St. Louis branch of the Federal Reserve, Trading Economics (TE). In this model, the dependent variable is the real GDP growth (RGDPG), while explanatory variables include the total government debt (TGD), domestic debt (DDEBT), external debt (EDEBT), export (EXP) and import (IMP) as examples of how economic growth and government debt are related.

Table 1: Descriptive Statistics

	DDEBT	EDEBT	EXP01	IMP	RGDPG	TGD
Mean	40.86068	30.17558	3.56E+10	3.72E+10	8.685989	32.73016
Median	22.15248	9.656864	2.49E+10	3.52E+10	8.661603	19.10000
Maximum	345.9775	345.9775	1.54E+11	9.62E+10	26.14053	88.00000
Minimum	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Std. Dev.	64.01338	64.53245	3.96E+10	3.08E+10	4.694824	28.65974
Skewness	3.251295	3.641852	1.133420	0.406710	0.842342	0.518721
Kurtosis	13.64770	15.49326	3.171701	1.795991	5.166579	1.729437
Observations	63	63	63	63	63	63

Source: Author's calculations, Eviews.

In the table above the descriptive statistics provided the number of observations, the mean, the standard deviation, the minimum and maximum, and the median. The mean of the domestic debt is the highest among the variables mentioned above.

To determine the best forecasting model for the data, the pooled ordinary least squares (POLS) and fixed effect models (FEM) will be tested in this part of the thesis study. A common regression model for panel data sets is the pooled ordinary least squares (POLS). A POLS model, however, maintains constant coefficients over time. Due to the fact that the coefficients of POLS remain the same throughout time and cross-section, it is also referred to as a constant coefficient model, which is frequently used to calculate performance of other models. Three steps were involved in the application of the panel data analysis: POLS and FEM testing. In the FEM (Fixed Effect Model), all individual differences were assumed to be

accounted for in the intercept. Using the least squares (OLS) estimator, the intercepts of each cross-section (countries in the study) are considered "fixed" parameters. Thus, the result of the fixed effect model differs completely from that of the vector error correction and combined OLS regression models (Ceasay & Moussa, 2022).

Here is the mathematical formula for the model:
 $RGDP = f(DDEBT, EDEBT, EXP, IMP, TGD)$

Based on the explanation above, the POLS model is estimated in logarithms as follows:

$$LRGDPG_{it} = \beta_0 + \beta_1 LDDEBT_{it} + \beta_2 LEDEBT_{it} + \beta_3 LEXP01_{it} + \beta_4 LIMP_{it} + \beta_5 LTGD_{it} + \varepsilon_{it}$$

The regressors are measured in log units at the beginning, which allows us to analyze the effects of initial explanatory variables on economic growth in the future. LIMP and LEXP01 are control variables.

Pooled OLS (POLS) Model

Table 2: Estimating Pooled OLS (POLS) Results

Variables name	coefficient	std.err	T-sta	p-vol
Constant	-5.730547	2.741089	-2.090609	0.0410
LTGD	0.1991	0.0848	2.3484	0.022*
LDDEBT	-0.0140	0.0531	-0.2646	0.7923
LEDEBT	0.1589	0.2274	0.6990	0.4874
LEXP01	-0.0041	0.0474	-0.0885	0.9313
LIMP	0.2869	0.1520	1.8874	0.0642
R-squared	0.706995			
Adjusted R-squared	0.681293			
Durbin-Watson stat	2.119008			
F-stat	27.5072			
P(F-stat)	0.00000			

Note: p-values shown in parentheses. * Indicate significant at 5% level. Source: Authors' own evaluation, EViews, using data from world bank database (<https://data.worldbank.org/>).

According to the explanation of the POLS results, TGD is significant at a level of five percent and has a positive coefficient sign, suggesting that each change in one percent of government debt has an effect of 0.19 percent on real GDP growth. Moreover, EXP01 has a p-value of 0.9313 which is not significant at the level, but its coefficient sign is negative and its effect is negative by 0.0014 per cent.

TGD is not significant based on its p-value (0.5981), but the coefficient sign is negative and is negatively affecting real GDP growth. Further information can be found in the R-squared value of 0.2827, adjusted R-squared value of 0.1631, F-stat value is 2.3647, P(F-stat) value is 0.0393, Durbin-Watson number is 2.0322, and the number of observations is 50. This model explained 50 percent of the observations and the remaining 50 percent did not conform to the variables in this

model, which is another explanatory variable estimating the effect of debt on real GDP growth of purposed countries, for which no data were available in the time series. In reference to the Durban Watson stat, we state that it is evident that there is a negative autocorrelation in this model since it exceeds 2, which is 2.0322. It should be noted that the R-squared and adjusted R-squared

values of that type indicate an improved suitability of that method.

For determining whether pooled least squares or fixed effect models are appropriate, we run the Redundant test where the null hypothesis is assumed (null hypothesis, H_0 =POLS is appropriate, H_1 =FEM/REM is appropriate).

Fixed Effect Model (FEM)

Table 3: Fixed Effect Model (FEM) Estimation

Variables Name	coefficient	std.err	T-sta	p-val
Constant	7.337607	7.211238	1.017524	0.3147
LTGD	-0.437666	0.823992	-0.531153	0.5981
LDDEBT	0.528517	0.986912	0.535526	0.5951
LEDEBT	0.304396	0.181233	1.679586	0.1005
LIMP	-0.035792	0.284724	-0.125708	0.9006
LEXP01	-0.228222	0.146112	-1.561970	0.1258
R-squared	0.2827			
Adjusted R-squared	0.1631			
Durbin-Watson stat	2.0322			
F-stat	2.3647			
P(F-stat)	0.0393			

Source: Author's own calculation, EViews

Table 4: Testing the best model (POLS or FEM)

Redundant Fixed Effect Test				
Effects Test		statistic	d.f	prob.
Cross-Section F		0.345124	(2,42)	0.7101
Cross-Section Chi-Square		0.815044	2	0.6653
Panel Least Square				
Variable	coefficient	std. Error	t-statistic	prob.
C	4.692287	2.354272	1.993095	0.0525
LTGD	-1.010508	0.418350	-2.415462	0.0199
LDDEBT	1.185409	0.490738	2.415563	0.0199
LEDEBT	0.182003	0.093414	1.948337	0.0578
LIMP	0.023023	0.188205	0.122328	0.9032
LEXP01	-0.177322	0.128218	-1.382973	0.1737
R-squared	Adjusted R-squared	F-stat	P(F-stat)	Durbin-Watson stat
0.2709	0.1880	3.2699	0.0134	1.9930

Scores: Author's own calculations, EViews.

Accordingly, the appropriate POLS model is as follows:

$$RGDPG = -5.730547 + 0.1991 * TGD - 0.0140 * DDEBT + 0.1589 * EDEBT - 0.0041 * EXP01 + 0.2869 * IMP + \epsilon$$

CONCLUSION AND RECOMMENDATIONS

The purpose of this study is to empirically examine the relationship between government debt and economic growth, its impact on real GDP growth in Asian countries of Afghanistan, Iran, and Pakistan between 2000 and 2020. Statistical results indicate that government debt is positively correlated with real GDP growth in the long run, while it is negatively correlated in the short run, which suggests that public debt has contributed to economic growth in these three countries. Government debt is bidirectionally correlated with economic growth in the short run, i.e. public debt causes economic growth and vice versa. To compensate for the deficit, excess foreign capital is utilized for economic growth in all countries. For example, Japan's public debt amounted to 230% of GDP in 2020, and its economic growth has been sluggish in recent years. Debt ceilings are determined differently in each of these countries based on a variety of requirements. Developed countries use foreign debt to stabilize their economies; in developing countries, foreign debt is used to meet the basic needs of the government; however, the political and economic instability of these countries also contributes to the instability of their economies. Since the results of the research indicate that public debt positively impacts the economic growth of countries, governments should

pay attention to the size of their debts and determine and finance them in accordance with the country's economic capacity. It is imperative that governments maintain financial discipline and adopt appropriate financial and monetary policies in order to achieve economic growth. For example, governments should establish policies that limit budget deficits and public debt growth, and that ensure that public debt is used efficiently to finance public investment projects, such as infrastructure, education, and health care. These debts are intended to stimulate economic growth and develop the money and capital markets. Furthermore, in order to strengthen the existing literature in this field, studies should be conducted to determine the effect of public debt on economic growth in developing and developed countries and compare them with each other, as well as how economic policies influence the threshold level at which types of debt affect economic growth. Lastly, Afghanistan, Iran, and Pakistan should use public debt to finance high-priority projects and programs that are well-evaluated and self-sustainable, and that contribute to economic growth, even though public debt contributes to economic growth. For instance, in Afghanistan, the Kabul Bank used public debt to finance infrastructure projects, but due to mismanagement, the bank collapsed, resulting in a huge public debt burden. Therefore, public debt should be wisely managed to ensure that its potential for growth is not undermined.

REFERENCES

- [1] Arman, A., Salahmanesh, A., & Shalyari, F. (2020). Investigating the Threshold Effect of Public Debt on Economic Growth Using Threshold Regression Model: Evidence from Selected Countries. *Planning and Budgeting*, 25(1), 29-51. <https://doi.org/10.29252/jpbud.25.1.29>
- [2] Bank, W. (2018). World development report 2019: The changing nature of work: The World Bank. <https://doi.org/10.1596/978-1-4648-1328-3>
- [3] Bökemeier, B., & Greiner, A. (2013). On the relation between public debt and economic growth: An empirical investigation. <https://doi.org/10.17811/ebl.4.4.2015.137-150>
- [4] Calderón, C., & Fuentes, J. R. (2013). Government debt and economic growth. https://doi.org/10.1787/eco_outlook-v2013-2-graph63-en
- [5] Ceesay, E. K., & Moussa, Y. M. (2022). Pooled ordinary least-square, fixed effects and random effects modelling in a panel data regression analysis: a consideration of international commodity price and economic growth indicators in 35 Sub-Saharan African countries. *International Journal of Technology Transfer and Commercialisation*, 19(1), 23-44. <https://doi.org/10.1504/ijtcc.2022.123075>
- [6] Checherita-Westphal, C. D., & Rother, P. (2010). The impact of high and growing government debt on economic growth: an empirical investigation for the euro area. <https://doi.org/10.2139/ssrn.1659559>
- [7] Chudik, A., Mohaddes, K., Pesaran, M. H., & Raissi, M. (2017). Is there a debt-threshold effect on output growth? *Review of Economics and Statistics*, 99(1), 135-150. https://doi.org/10.1162/rest_a_00593
- [8] Hilton, S. K. (2021). Public debt and economic growth: contemporary evidence from a developing economy. *Asian Journal of Economics and Banking*, 5(2), 173-193. <https://doi.org/10.1108/ajeb-11-2020-0096>

- [9] Hussain, I., Hussain, J., & Bilal, H. (2022). An analysis of the success of fiscal adjustment in reducing public debt: Evidence from Pakistan. *Plos one*, 17(6), e0269536. <https://doi.org/10.1371/journal.pone.0269536>
- [10] Jacobs, J., Ogawa, K., Sterken, E., & Tokutsu, I. (2020). Public debt, economic growth and the real interest rate: A panel VAR Approach to EU and OECD countries. *Applied Economics*, 52(12), 1377-1394. <https://doi.org/10.1080/00036846.2019.1673301>
- [11] Lee, S.-P., & Ng, Y.-L. (2015). Public debt and economic growth in Malaysia. *Asian Economic and Financial Review*, 5(1), 119-126. <https://doi.org/10.18488/journal.aefr/2015.5.1/102.1.119.126>
- [12] Nickel, C., Rother, P., & Zimmermann, L. (2010). Major public debt reductions: Lessons from the past, lessons for the future. <https://doi.org/10.2139/ssrn.1666843>
- [13] Padda, I. U. H. (2020). Estimating the optimal level of public debt for economic growth: An evidence from Pakistan. Ashfaq, M., & Padda, I.(2020). Estimating the Optimal Level of Public Debt for Economic Growth: An Evidence from Pakistan. *Quest Journal of Management and Social Sciences*, 1(2), 222-232. <https://doi.org/10.3126/qjmss.v1i2.27441>
- [14] Shakeel, M. (2019). Electricity conservation dynamics with GDP and exports in Pakistan. *Walia journal*, 35(1), 39-44.
- [15] Spilioti, S. (2015). The relationship between the government debt and GDP growth: evidence of the Euro area countries. *Investment management and financial innovations*(12,№ 1 (contin. 1)), 174-178. [https://doi.org/10.21511/imfi.15\(1\).2018.32](https://doi.org/10.21511/imfi.15(1).2018.32)
- [16] Verheijen, T., Ahmadzai, A., & Hogg, R. (2022). ‘Through the Looking Glass’: Lessons from the World Bank Afghanistan Portfolio for FCV Engagement.
- [17] Zamani, R., & Majidi, M. (2021). Optimum and Threshold Rates of Government Debt in Iran. *Economic Growth and Development Research*, 11(43), 124-103. <https://doi.org/10.1111/1467-8268.12282>
- [18] Zohaib, M. (2020). Public Debt and Economic Growth: An Empirical Evidence from Pakistan.

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