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The impact of fiscal deficit on economic growth: empirical evidence from Pakistan and Afghanistan

Qasrim Masheed[1] | Shamsul Haq Hassanzai[2] | Arif Ullah[3] | Zia Ur Rehman*[1]

1. Department of Economics, Woman University, Swabi, Khyber Pakhtunkhwa, Pakistan.
2. Faculty of Economics, Alfalah University, Jalalabad, Nangarhar, Afghanistan.
3. Department of Economics, Institute of Management Sciences, Peshawar, Pakistan.

*Corresponding Authors Email: ziamarwat1980@gmail.com | shams.hassanzai123@gmail.com

Abstract:

The economic crises of Pakistan and Afghanistan are linked to the high fiscal deficit in the past, which has affected economic growth. The research aims to investigate the effect of fiscal deficit on economic growth with the data from 1973 to 2022 in Pakistan and 2002 to 2022 in Afghanistan and the ARDL procedure to estimate the model. The study investigates whether the fiscal deficit improves economic growth and how much the deficit can be minimised to maintain economic stability in Pakistan and Afghanistan. This study found that, over a long period, the fiscal deficit adversely impacts GDP growth in Pakistan. Similarly, the national debt has an adverse effect on GDP growth in Afghanistan. Moreover, in the near run, the fiscal deficit has a negative effect on GDP growth in Pakistan. Similarly, the national debt has a negative effect on GDP growth in Afghanistan. Therefore, this study concluded that the fiscal deficit harms GDP growth and does not support the Keynesian theory regarding the deficit in Pakistan and Afghanistan. Thus, this study endorsed that the government should increase the revenue to cover expenditures to eradicate or lessen the fiscal deficit and debt.

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1. Introduction

The accomplishment of equitable and sustainable growth has been identified as a critical macroeconomic requirement for development. Economic growth is simply defined as a sustained quantitative increase in national production over time. It is quantified in terms of GDP by citizens and immigrants residing inside a country's physical region during a given period, often one year. Fiscal policy is a macroeconomic management technique that the government uses to regulate the economy through its income and spending portfolios. The revenue portfolio includes components such as tax income, trade surplus, foreign aid, and so on, whereas the expenditure portfolio includes both recurring and capital spending. A balanced budget is one in which the planned government expenditures and projected receipts for a fiscal year are equal. However, when discrepancies exist between the income and spending portfolios, the consequence is either a surplus budget or a deficit budget (Umaru & Gatawa, 2014).

Maji and Achegbulu (2012) define economic growth as the yearly percentage rise in GDP. Per capita income is calculated by averaging GDP across the whole population. In a situation when national output grows faster than population increase, more revenue is predicted to be available to individuals, raising people's overall living standards. In both developing and emerging countries, policymakers view GDP growth as the most important performance metric for decreasing unemployment, inequality, and poverty. Chimobi and Igwe (2010) defined a budget deficit as a fiscal period. In economic research, the terms budget deficit and fiscal deficit are often used interchangeably. This rationale may be related to the fact that the yearly budget captures the emphasis and character of a country's fiscal policies for a certain year. As a consequence, fiscal policy contraction produces a surplus budget, and fiscal growth (fiscal deficit) produces a deficit budget.

The implications of budget deficits on GDP growth have been the most contentious economic policy topic during the previous decade. Fiscal deficits have been a major source of concern for many industrialized countries, particularly the Eurozone. Even if short-term boosters were justifiable, especially in the aftermath of the 2008-2009 global financial crisis (GFC), they have resulted in persistent fiscal deficits, rising debt, and depleted fiscal buffers (Qehaja-Keka et al., 2023). Because of their solid fiscal structures, most wealthy countries confront less deficit budget issues than emerging ones. This may be linked to indefinite revenue, under-development, unproductive political authority, core inflation, and low income per capita, all of which define emerging economies. A budget deficit can be covered by printing money, depleting foreign currency reserves, and borrowing from both foreign and local markets. This has resulted in a prolonged budget imbalance, which has major implications for macroeconomic aggregates, notably national production. As a result of these implications, a considerable body of work has been written to investigate whether an economy with lengthy fiscal deficits and a constant excess of recurrent spending over capital investment is associated with persistent output enlargement or decline (Umaru & Gatawa, 2014).

The effect of the fiscal deficit (FD) on economic growth (GDP) has been discussed extensively in the literature but still, the effect of the FD on GDDPg remains controversial among researchers on both theoretical and empirical ground. According to Keynesian opinion appropriately timed deficits have helpful consequences and Ricardian view that deficit policy is a problem of irrelevance. While the Neoclassical exploration shacks dainty on the effects of the stable deficit. The utmost applicable visions of the economic outcome of the deficit are due to the neoclassical framework (Bernheim, 1989). Fischer (1993), lead a study and catches an adverse link between FD and GDPg. The effect of FD on GDPg was adversely highlighted by Navaratnam & Mayandy (2016). However, Taylor et al (2016) argued that the effect of FD on GDPg is positive. Some argue that economic growth and fiscal deficit have no association with each other (Bhoir & Dayre, 2015). In the Pakistani context, several studies show a link between FD and GDPg is inverse in magnitude (Fatima et al., 2011). Gupta et al. (2005) identified that economic growth and fiscal deficit were positively correlated with each other. Therefore, this study was conducted to inspect the effect of fiscal deficit on economic growth to minimize the gap.

The current Pakistan and Afghanistan economic crises are linked with the high fiscal deficit in the past, the government was paid the principal amount as well as its interest. Our large share of GDP is spent on payments to both external and domestic sources. This research will be beneficial for the Governments of Pakistan and Afghanistan to decide whether the fiscal deficit is good for the improvement of economic growth and how much to minimize the deficit to maintain economic stability in Pakistan. This research will also provide guidelines for other developing countries like Pakistan. Such an understanding or conclusion will assist policymakers in developing better fiscal policies to ensure economic stability. Therefore, this study analyses the impact of fiscal deficit on economic growth in the case of Afghanistan and Pakistan. The second section of the study contains a review of the literature, section third contain methodology, results, and discussion in section four and the conclusion at the end.

2. Literature review

The economic growth was highly impacted by the fiscal deficit. Many studies have been carried out in the same area but couldn't gain any outcome. The most important variable, which is dominant in economic growth, is the fiscal deficit. Different economists belonging to the literature were in search of identifying the transmission of economic growth and fiscal deficit. According to Keynes (1937), public expenditures are considered to be a vital factor of Aggregate Demand (AD) in economic growth. The fall in AD relates to the rise of expenditures, due to which AD raised and Economy and throughout the most recent Great Downturn of 2007-2009. Equivalence theory assumes that due to fiscal deficit economy of any country cannot be grown. If the government is keen to promote the economy of the country, they are trying to reduce the deficit as much as possible, and the influence on economic growth will positively be affected. The buyers and depositors will also be watching the suitability of an investment in the long and short run (Barro, 1989). The most authentic theory in the field of economic

development is “Rostow’s phases” which deliberates on the secret of the economic progress of developed countries (US and Western Europe) in different phases. The growth of economic development is based on five phases and each phase has different steps (The Age of High Mass Consumption). To improve the economic growth rate, the government must facilitate the investors to make progress in the private sector. The government's role in economic development is a vital one and it should create an atmosphere free from any kind of fear and encourage them to invest their capital for the betterment of Pakistan (Thirlwall, 2006).

Eisner and Pieper (1984) conducted research in the USA and OECD countries in which they identified the relation between economic growth & inflation, which highlighted its positive effect. Several studies, it has been highlighted the negative effect of fiscal deficit on GDPg. Furthermore, Barro (1990) did his research by designing a model of endogenous growth by including productive public outlay and public deficit and debt. In his research, he reported that there a steady low-growth and high-growth states resulting in stable growth paths. The results also showed that there may be a transition path towards GDPg to FD as stated in empirical literature. The model also represented that in the future, a lower balance resulted in growth due to a permanent deficit. But in the short run public debt is expected as an impact of fiscal deficit when starting from a low-growth steady state and when starting from a high-growth steady state, according to multiplicity, initially the economic growth increases.

Adam and Bevan (2001) took 45 developing-rank countries to determine the association between growth in the economy and fiscal deficit. The threshold effect found for the deficit was 1.5% GDP. Schclarek (2004), found that government external debt levels are related to elevated growth rates while for industrial countries gross government debt had no relation with economic growth. Gülcan and Bilman (2005), used a data set covering the era of 1960 to 2003 for Turkey and concluded that a deficit in the budget has a greater influence on the preserved of the actual rate of exchange. Furthermore, Gupta et al. (2005), considered 39 developing countries. They determine the association among economic growth, deficit, and governmental expenditure effect. Greater budgetary position was directly related to elevated economic growth. Tan (2006) studied in Malaysian economy during 1966-2003 and found that there is no link between FD and income. Similarly, Lozano-Espitia (2008), used data period 1866-1983 on account of the US. Through reduced structure conditions found no proof that government deficit, in the wake of controlling for the degree of by and large monetary movement. However, Claeys (2008) concluded that OECD aggregate debt has an important impact on the actual rate of interest in most of the countries and a total calculation after eliminating the effect of domestic debt. However, Brender and Drazen (2008) found that the more FD of the country would affect population of country negatively and the government failed to organize the funds led to the chance of re-election and change of government. Hence, the government fails to strengthen the growth in economy due lack of investors and citizens.

Roy and Berg (2009) used data covering the period from 1973 to 2004 on the U.S. economy and concluded that if there is an elevation in budget deficit the growth is decelerated. However,

the “twin” present account deficits, which our model shows incline to attend budget deficits increase growth. Therefore, the entire relationship between growth in the economy and deficit in the budget is indistinct. Moreover, Esso and Keho (2010) identified a pivotal relationship between growth in the economy and fiscal deficit in West African & Monetary Union countries. They found that among the three countries, there was no association between a deficit in budget and growth in the economy while it was found an adverse consequence of a deficit in the budget on growth in the economy. However, Adama et al. (2019) identified that Nigerian countries have a positive link between fiscal deficit and GDPg. Due to a rise in the fiscal deficit, a rise occurs in the GDP, therefore, it was concluded that the fiscal deficits have nothing to do with the economic growth. Similarly, Ali et al. (2010) also explored that the FD has a positive relation with GDPg.

Fatima et al. (2011) concluded that targets affirming the influence of government fiscal year deficit on resources and growth of the economy, utilizing a time arrangement of 30 years distending somewhere in the range of 1980 and 2009. Onwioduokit (2012) Observed the Monetary Zone countries of Western Africa and established the threshold level of deficit as 5% of GDP whereas 7% of GDP was the expected threshold level describing a deficit in budget after that point as destructive for growth. Similarly, Taylor et al (2012) determined an association among the economic growth, debt & fiscal deficit for the 1961 to 20 in the USA. It determined solid constructive influence on growth and an elevated essential deficit, in any event when interest rates in the financing cost are considered (Rahman, 2012). From Malaysia's perspective by utilized quarterly information from 2000-2011 discovered that there is no since a long time ago run connection between spending shortage and the financial development of Malaysia, solid with the Ricardian correspondence theory. Ojong et al (2013) conducted a study of Nigeria to watch the influence of deficit in financing on improvement in Nigeria and found a noteworthy connection between spending economic growth and deficit financing. However, Ahmad et al. (2013) in the time of 1971-2010 utilized the information in Pakistan. Anyway, the authors didn't discover the presence of a link between the GDPg and FD in this nation.

Shetta and Kamaly (2014) used data sets from 1947-1992 to explore the since quite a while, the link between US government's actual FD and genuine fixed amount of investment. His experimental outcomes determined that the actual fiscal deficit has swarming in actual investment; partner the Keynesians who battle for the expansionary impacts of the fiscal deficit, by drifting the degree of residential financial action, "swarm in" private investment. However, Onwioduokit and Bassey (2014), gauge the threshold level of FD for the Gambia at 6%. Hassan and Akhter (2014) found a relationship between FD and GDPg. Moreover, Bhoir and Dayre (2015) identified the influence of fiscal year deficit for the period 1991 to 2014 on the economic development of India and utilized the OLS strategy and found no government of India ought to in its place centre around human advancement pointers, such as education, wellbeing and foundation advancement to improve the effectiveness of SSC and GFCF that thus will accelerate GDPg. Aero and Ogundipe (2016) examine the impact of a budget deficit on growth in Nigeria and make a threshold of 5% of Gross Domestic Product. Comprehensive, the down-

to-business writing shows that the edge level of FD goes between 1.5-7.0% of GDP, contingent upon nation-definite features, for example, the -get-together and transparency. Navaratnam and Mayandy (2016) observed in some chosen South Asian nations, to be specific Pakistan, Sri Lanka, Bangladesh, and India to determine an influence of fiscal year deficit on economic development based on yearly information consisting of 1980-2014 and utilizing the econometric strategies for co-joining and Granger association model consider the positive connection between some specific factors. It was concluded a negative influence of FD on GDPg in the countries of South Asia and Nepal the impact was positive one.

Iqbal et al. (2017) examine the Pakistani context to fix a threshold of fiscal deficit that may help as a level for policymakers planning to animate development by augmentation and initiate a balanced change autoregressive model to time-arrangement information for the period 1972-2014. They found that the FD has a harmful impact on GDPg when it exceeds 5.57 % of GDP. Overall, the FD has a negative impression on GDPg since it tends to surpass the threshold level. However, fiscal policy may be used to stimulate growth. Similarly, Hussain and Haque (2017), using VECM for BBS information and demonstrating a positive and noteworthy association between GDP growth rate and fiscal year deficit, support the Keynesian hypothesis, while, finding information determines that the impact of FD on GDP growth rate is slight however antagonistic and huge at the 5% level. Their results from the examination infer that there are co-incorporating association among exchange rate, FD and INF; there is negative effect of FD on GDPg. Onwioduokit and Inam (2018), covering an era from 1980 to 2010 utilizing the OLS and Engel Granger co-mix method and watched the connection between fiscal deficit & macroeconomic masses in the country of Nigeria. The outcome discovered an adverse however immaterial connection between fiscal year deficit and household items and on the pattern of causality, a bi-directional association expressed in fiscal year deficit and Gross Domestic Product just as public duty & joblessness in Nigeria too. Tung (2018) used Vietnam quarterly data from 2003-2016, and EECM. His findings clearly suggest that FD s GDPg. Lau and Yip (2019) present fresh data on the link between fiscal deficits and economic development in ASEAN nations before and after the Global Financial Crisis (GFC). They analyzed yearly data from 2001 to 2015. They discovered that budgetary deficits hampered growth in the pre-crisis period while promoting growth in the post-ccrisis time.

Bhari et al. (2020) inspect the link between Malaysia's FD and economic development using data from 1980-2017. Their findings show that, first, there is a long-run link between the FD and GDP, and second, on info flow, the FD precedes real GDP. Further investigation into the influence of the budget deficit on real GDP demonstrates that the Keynesian theory is applicable in Malaysia. Kryeziu and Hoxha (2021) used Eurozone data from 1995-2015 and employed an OLS to carry out the investigation and provide the findings. They show that increasing the deficit ratio to GDP has a beneficial influence on the GDPg. Similarly, Safdar et al. (2021) use the VEC approach to inspect the impact of trade deficit and foreign debt on Pakistan's economic performance between 1980 and 2017. According to the study, the trade imbalance has a statistically noteworthy and harmful impression on GDPg, as well as total

external debt. Moreover, the link between total external debt and GDP is adverse. Moreover, Soharwardi et al. (2022) utilized the ARDL model to estimate and analyze data from 1990 to 2020. They discovered that monetary and fiscal policy benefits Pakistan's economy. However, the study found that monetary policy is more effective in encouraging GDPg in Pakistan. However, Sadat et al. (2022) utilized Afghanistan's quarterly data from 2003 to 2017 and applied the ARDL bounds test for estimate. They show a positive and strong association between Afghanistan's FD and GDPg, which supports the Keynesian Hypothesis. However, Nazari et al. (2023) analyzed 12 OPEC member nations from 1997 to 2013, using the panel-ARDL model. They demonstrated that FD had a considerable negative impact on the economic development of OPEC member nations. Moreover, Qehaja-Keka et al. (2023) used STATA econometrics to examine how fiscal deficits impact economic growth rates in Eurozone countries. They utilized yearly data from Eurozone nations from 2001 to 2020, totaling 346 observations, using a random effect model. They discovered that the variables inflation and domestic lending to the private sector influence GDP growth and are significant. Furthermore, Meilisa et al. (2024) analyzed data from 1990 to 2022 using the ARDL model. Their empirical findings highlight the multiple effects of foreign debt and FDI on Indonesian economic growth. Moreover, AlShawabkeh and Warrad (2023) support the Keynesian perspective of Jordan's strong and positive association between current account deficit, saving, budget deficit, and trade openness from 1980 to 2020.

After the review of the literature, some empirical research yielded conflicting results, indicating that the FD had a positive or no negative impact on GDPg. Rahman (2012), analyzed the deficit issue in Malaysia, using quarterly data from 2000-2011. The results demonstrated that there is no link between Malaysia's FD and GDPg. Thirunavukkarasu and Achchuthan (2013), conducted research to determine the influence of budget deficits on economic development in Sri Lanka using data from 1970 to 2010. Ahmad (2013), tested the link between FD and GDPg using data from Pakistan from 1971 to 2007. The results suggested a favourable relationship; however, the data were inconsequential in the case of Pakistan. Pelagidis and Desli (2004), addressed the role of fiscal policy in promoting growth using European examples. Tung (2018), investigates the effect of FD on GDPg in Vietnam and concludes that FD has a harmful impact on GDPg. He concluded that a budget deficit may lead to better corporate profits, hence encouraging economic growth. The findings indicated evidence for a positive link between FD and GDPg. These findings also suggested that the dogmatic opposition to FD might be hazardous. The effect of FD on GDPg was discussed broadly in the different studies but the effect of the FD on GDPg remains controversial among the researchers. Some scholars argued that FD shad an adverse effect on GDPg like Tung (2018), Hassan and Akhter (2014), Navaratnam and Mayandy (2016), and Iqbal et al. (2017), while, others argued that the effect of FD on GDPg is positive such as Ahmad (2013), Kryeziu and Hoxha (2021), Qehaja-Keka et al. (2023), and Pelagidis and Desli (2004). Some argue that economic growth and fiscal deficit have no association with each other Nayab (2015), Rahman (2012), Thirunavukkarasu and Achchuthan (2013). The researchers assume that Fiscal deficit has a significant effect on the economic growth of Pakistan and Afghanistan.

3. Theoretical framework

Based on exact outcomes or the expository grounds there is no contention among market analysts in the case of financing of the government use by acquiring a fiscal budget is acceptable, terrible, or unbiased in relation to its genuine effects, for the most part on venture and development. There are three ways of thinking about the financial impacts of a budget deficit: Neoclassical, Keynesian, and Ricardian. Majority of logical view, the neo-old style see considers fiscal deficit negative to investment and growth, while the Keynesian model, sets up a key arrangement readiness. Scholars impacted by Ricardian correspondence state that fiscal deficits don't generally make a difference separated from improving modification to consumption or income stuns. While the neo-old style and Ricardian schools accentuate the since a long time ago, the Keynesian opinion highlights the short-run effects. A portion of income lack in fiscal year deficit prescribes a reduction in public saving or development for government in dis-saving. Neoclassical perspective would negatively influence improvement because to decline in savings is not attuned rising to a rise in private sector savings, in like manner realizing a decrease in the general rate for saving. Neo-old-style economist experts embrace business sectors clearly with the goal that the full work of assets is overseen. In this example, a budget deficit raises time utilization by moving expenses to the forthcoming ages. If financial assets are completely utilized, amplified utilization essentially suggests diminished reserve funds in a declining economy. In a progressive economy, actual loan costs & savings can stay unaffected, yet the decrease in public savings was subsidized by higher outer acquiring attended by a commitment of the nearby cash and fall in sends out. In the two cases, net national sparing declines and utilization increases attended by a course of action of fall in speculation and fares. The neo-old-style worldview embraces that utilization of every specific is resolved as answer for inter-temporal advancement issue obtaining & loaning was allowed on the market price of the premium. It embraces people in unsurprising living periods due to which every consumer goes to explicit age and term of life in sequential age's connection (Mohanty, 2012).

The Keynesian understanding of the circumstance of the nearness of some jobless resources predicts that and rise in self-administering government use, regardless of whether speculation or utilization, subsidized by acquiring would source yield to increment through a multiplier procedure. The Keynesian traditional system doesn't recognize elective employment and FD as between government utilization or venture use, nor does it recognize various wellsprings of subsidizing the fiscal deficit over adaptation or outside or inner acquiring. Truth be told, there is no express spending limitation in the investigation. The influence of the rise in financial cost should henceforth prolong the benefit of the investment. Keynesian debates, due to deficit saving and funds might be propelled, if loan costs rise, fundamentally as a result of the work of previously unutilized assets. Notwithstanding, at full business, shortfalls would prompt combining in the Keynesian perspective (Rangarajan & Srivastava, 2005). From the perspective of Ricardian, the fiscal deficit is nonpartisan and debated in economic development. Due to delays in plans the sum fiscal budget had suffered. The fiscal deficit is due to the future tax collection. An exceptionally prolonged period may very much spread out

outside their very own lives wherein the circumstance they spare with a dream to making unselfish removals to deal with the duty obligations of their up and coming generations (Blanchard & Giavazzi, 2002).

4. Methodology

This research used data f from 1973 to 2022 in Pakistan and 2002 to 2022 in Afghanistan. The data period is selected based on the availability of data. The data was collected from World Development Indicators (2024) and the World Data (2024). The data of GFCF and total revenue and expenditure are not available to calculate the fiscal deficit. Therefore, this study skips the GFCF in the case of Afghanistan and uses national debt (% of GDP) as an alternative for fiscal deficit. The prior studies consider that debt and fiscal deficit are approximately equal. Like, According to Bléjer et al. (1993) large taxes and transfers to the private sector, such as the central bank's absorption of a commercial bank's financial losses, the coverage of exchange risk guarantees, or large swings in real interest payments on domestic public debt, can frequently add several points of GDP to a fiscal deficit in the year in which they are imposed. The classic income-based approach of the deficit regards the payment of interest on public debt as an income effect that must be included in the calculation of the fiscal deficit. Similarly, this violates Keynesian theory but is consistent with Neoclassical theory, which states that FD cause a reduction in GDP. Nonetheless, the government must seek to keep the deficit under rheostat rather than stifle growth, and spending should be adjusted to avoid enormous fiscal deficits that lead to debt-financing and the crowding-out upset of private investment. If fiscal deficits grow unjustifiable, interest payments will rise, and the country may default. Therefore, the level of government spending should be set to sidestep massive fiscal deficits that lead to debt - financing (Hussain & Haque, 2017). Moreover, the government budget does not have to be balanced, and a fiscal deficit can be covered by printing money and/or debt. Furthermore, the long-term impacts may be moderately different, as the fiscal deficit would eventually increase the debt-stock or inflation rate, which will n influence growth. As a result, the bigger the domestic debt, the lower the growth-promoting levels of taxes and productive expenditure (Adam & Bevan, 2005).

4.1. Model specification

The neoclassical economist approach stated that fiscal deficits were believed to reduce GDP growth (Saleh & Harvie, 2005). Keynesian economies maintained that fiscal deficits had a beneficial influence on GDP growth, whereas the Neoclassical paradigm considered fiscal deficits to be detrimental to GDP growth. Meanwhile, the Ricardian-equivalence proposition says that the budget deficit is insignificant and confirms a neutral connection between these two variables (Barro, 1990). The budget deficit increases domestic output, leading to more investment and a crowding-in scenario in the economy (Bernheim, 1989). Increase in FD raises AD, which, boosts employment and production (Iqbal et al., 2017). According to the rational expectations school, the FD does not affect GDPg, and the rational agents regulate their

expenditure since they expect that taxation will rise to fund the deficit (Saleh & Harvie, 2005). To comprehend the importance of FD in the GDPg, we employ Mankiw et al (1992) growth model, which includes the fiscal deficit as an explanatory variable. This study uses the Cobb-Douglas-production function with CRS (constant returns to scale) over the whole economy, as shown below:

$$y_t = A_t K_t^{\alpha} H_t^{\beta} L_t^{\delta} FD_t^{\gamma} \mu_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

The model utilized in this investigation was adjusted as follows. Khan et al. (2022) and Rehman et al. (2020), among others, utilized the same model.

Model for Pakistan economy:

$$GDPg_t = \beta_0 + \beta_1 LFP_t + \beta_2 SSC_t + \beta_3 FD_t + \beta_4 IFDI_t + \beta_5 INF_t + \beta_6 GFCF_t + \mu_t \text{-} \ldots. (2)$$

Model for Afghanistan economy:

$$GDPg_t = \beta_0 + \beta_1 LFP_t + \beta_2 SSC_t + \beta_3 ND_t + \beta_4 IFDI_t + \beta_5 INF_t + \mu_t \text{-} \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Table 1: Description of variables

S.No.	Variable	Source	Symbol	Source
1.	GDP growth (annual %)	World Development Indicators (2024)	$GDPg_t$	Khan et al. (2022) and Rehman et al. (2020)
2.	Gross fixed capital formation (% of GDP)[a]	-do-	$GFCF_t$	Rehman et al. (2018), and Adhikary (2011)
3.	Labor force participation rate, total (% of total population ages 15+)	-do-	LFP_t	Rehman et al. (2021) and Aminullah et al. (2023)
4.	School enrolment, secondary (% gross)	-do-	SSC_t	Rehman et al. (2018), and Rehman et al. (2023)
5.	Fiscal Deficit (% of GDP)	-do-	FD_t	Navaratnam and Mayandy (2016) and Iqbal et al. (2017)
6.	FDI, net inflows (% of GDP)	-do-	$IFDI_t$	Almfraji and Almsafir (2014) and Pegkas (2015)
7.	Inflation, consumer prices (annual %)	-do-	INF_t	Barro (1995) and Uwakaeme (2015)
8.	National Debt (as % of GDP)	World Data (2024)	ND_t	Ajayi and Oke (2012) and Salmon (2021)

Note: [a] The data for GFCF and FD is not available for Afghanistan.
[b] This study used National debt as a proxy for fiscal debt in the case of Afghanistan.

4.2. Econometric techniques: Auto-Regressive Distributed Lag (ARDL) test

Unlike the other techniques, this study employed the ARDL techniques based on the behaviour of the data. The ARDL technique is superior then other techniques due to many qualities like acceptance of mixed order of integration, and automatically handles the issues of autocorrelation and endogeneity (Ahmad & Wajid, 2013).

Model for Pakistan economy in ARDL and ARDL-bound form:

$$GDPg_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} GDPg_{t-i} + \sum_{i=0}^{n} \beta_{2i} LFP_{t-i} + \sum_{i=0}^{n} \beta_{3i} SSC_{t-i} + \sum_{i=0}^{n} \beta_{4i} FD_{t-i} + \sum_{i=0}^{n} \beta_{5i} IFDI_{t-i} + \sum_{i=0}^{n} \beta_{6i} INF_{t-i} + \sum_{i=0}^{n} \beta_{7i} GFCF_{t-i} + \mu_t \quad \ldots (4)$$

$$\Delta GDPg_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta GDPg_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta LFP_{t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta SSC_{t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta FD_{t-i} + \sum_{i=0}^{n} \beta_{5i} \Delta IFDI_{t-i} + \sum_{i=0}^{n} \beta_{6i} \Delta INF_{t-i} + \sum_{i=0}^{n} \beta_{7i} \Delta GFCF_{t-i} + \gamma_1 LFP_t + \gamma_2 SSC_t + \gamma_3 FD_t + \gamma_4 IFDI_t + \gamma_5 INF_t + \gamma_6 GFCF_t + \mu_t \quad \ldots (5)$$

Model for Afghanistan economy in ARDL and ARDL-bound form:

$$GDPg_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} GDPg_{t-i} + \sum_{i=0}^{n} \beta_{2i} LFP_{t-i} + \sum_{i=0}^{n} \beta_{3i} SSC_{t-i} + \sum_{i=0}^{n} \beta_{4i} ND_{t-i} + \sum_{i=0}^{n} \beta_{5i} IFDI_{t-i} + \sum_{i=0}^{n} \beta_{6i} INF_{t-i} + \mu_t \quad \ldots (6)$$

$$\Delta GDPg_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta GDPg_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta LFP_{t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta SSC_{t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta ND_{t-i} + \sum_{i=0}^{n} \beta_{5i} \Delta IFDI_{t-i} + \sum_{i=0}^{n} \beta_{6i} \Delta INF_{t-i} + \gamma_1 LFP_t + \gamma_2 SSC_t + \gamma_3 ND_t + \gamma_4 IFDI_t + \gamma_5 INF_t + \mu_t \quad \ldots (7)$$

5. Results and discussion

5.1. Unite root test results

The ADF test that in the case of Pakistan, the GDPg, GFCF, LFP, FD, IFDI, and INF have a zero-degree-order integration (1(0)) while SSC has a 1st-degree-order integration (1(1)). Similarly, in the case of Afghanistan, the GDPg, LFP, ND, and INF were 1(0) while SSC, and

IFDI were 1(1). Therefore, the ADF test recommends using the ARDL model because the orders of integration of the variables are mixed.

Table 2: ADF test

Variables	Pakistan		Afghanistan	
	t-value (P-value)	Judgment	t-value (P-value)	Judgment
$GDPg_t$	-5.1815* (0.0001)	1(0)	-3.5728** (0.0164)	1(0)
$GFCF_t$	-2.6732*** (0.0859)	1(0)	----	
LFP_t	-6.0220* (0.0000)	1(0)	-2.7546*** (0.0846)	1(0)
SSC_t	-0.5330 (0.8755)	----	-2.2206 (0.2055)	
FD_t	-3.0853** (0.0343)	1(0)	----	
$IFDI_t$	-3.0770** (0.0351)	1(0)	-2.2145 (0.2075)	
INF_t	-3.3893** (0.0168)	1(0)	-4.7935* (0.0012)	1(0)
ND_t	----	---	-5.3864* (0.0003)	1(0)
$D(GDPg_t)$	----	---	----	
$D(GFCF_t)$	-5.3421* (0.0000)	1(1)	----	
$D(LFP_t)$	----	---	-3.3016** (0.0294)	1(1)
$D(SSC_t)$	-7.1269* (0.0000)	1(1)	-3.2917** (0.0300)	1(1)
$D(FD_t)$	----	----	----	
$D(IFDI_t)$	----	----	-5.1303* (0.0007)	1(1)
$D(INF_t)$	----	----	----	
$D(ND_t)$	----	----	----	

Note: *, **, & *** indicate the consequence level at 1,5, and 10%.

5.2. Regression results

In the long run, table 3 depicts the ARDL approach showing that in the case of Pakistan; the GFCF has an optimistic and noteworthy effect on GDPg. 1 % upsurge in capital formation will lead to an upsurge in the GDPg by 0.54 percent. The results are parallel with Rehman et al. (2018), Adhikary (2011), Rehman et al. (2020), and Khan et al. (2022), while, and opposite results were given by Nweke et al. (2017) that capital formation do not affect GDPg. Similarly, the LFP has also an optimistic and noteworthy effect on GDPg. 1 % increase in the labour force will lead to an increase in the GDPg by 0.14 percent. The results are parallel with Rehman et al. (2021) and Aminullah et al. (2023). Similarly, the SSC has also an optimistic and noteworthy effect on economic growth. A percent increase in school enrolment will lead to an

upsurge in the GDPg by 0.14 percent. The results are parallel with Rehman et al. (2018), and Rehman et al. (2023).

Furthermore, the fiscal deficit has a negative and noteworthy effect on GDPg. The prior studies give results, like, Nayab (2015) found that FD does not affect GDPg in the case of Pakistan, Rahman (2012) in the case of Malaysia, and Thirunavukkarasu and Achchuthan (2013) in the case of Sri Lankan. However, Ahmad (2013) found that there is a positive link between FD and GDPg in the case of Pakistan, Kryeziu and Hoxha (2021) in the case of Eurozone, Qehaja-Keka et al. (2023) in the case of Eurozone countries, and Pelagidis and Desli (2004) in case of some European countries. However, Tung (2018) concluded that FD had harmful effects on GDPg in the case of Vietnam, Hassan and Akhter (2014) in the case of Bangladesh, Navaratnam and Mayandy (2016) in case of the countries of South Asia and Nepal the impact was positive and Iqbal et al. (2017) in the case of Pakistan. 1 % upsurge in the fiscal deficit will decrease GDPg by 0.08%.

The FDI inflow has an optimistic and noteworthy effect on economic growth. 1 % upsurge in the FDI inflow will increase economic growth by 0.51 percent. Our results are parallel with the findings of Ayanwale (2007), Almfraji and Almsafir (2014) and Pegkas (2015). However, the INF has an adverse and noteworthy effect on GDPg. A % upsurge in INF will decrease the GDPg by 0.18%. The same results were found by Barro (1995) and Uwakaeme (2015) found the undesirable effect of inflation on GDPg, while opposite results were given by Olu and Idih (2015), and Umaru and Zubairu (2012).

In the case of Afghanistan, the LFP has also a positive and noteworthy effect on GDPg. 1% upsurge in the labour force will lead to an increase in the GDPg by 0.24%. Similarly, school enrolment has also an optimistic and noteworthy effect on GDPg. A % upsurge in school enrolment will lead to an upsurge in the GDPg by 0.83%. Furthermore, the national debt has an adverse and noteworthy consequence on GDPg. A % increase in the national debt will decrease GDPg by 2.36%. Calderón and Fuentes (2013) found that public debt has an undesirable and robust influence on growth. similarly, Ajayi and Oke (2012) and Salmon (2021) reveal the adverse effect of debt on growth. The FDI inflow has an optimistic and noteworthy effect on economic growth. 1 % upsurge in the FDI inflow will upsurge economic growth by 1.42%. However, the INF has an adverse and noteworthy effect on GDPg. A % increase in INF will decrease the GDPg by 0.34%.

In the short run, table 3 depicts the ARDL approach showing that in the case of Pakistan; the GFCF has an optimistic effect on GDPg. 1% increase in GFCF upsurges the GDPg by 0.32%t. Similarly, the LFP has an encouraging and substantial effect on GDPg. A % increase in LFP increases the GDPg by 0.06%. However, the SSC has an insignificant effect on GDPg. However, the FD has an undesirable and noteworthy effect on GDPg. 1% upsurge in the fiscal deficit will decrease GDPg by 0.10 percent. However, the inflation rate and FDI inflow had an unimportant effect on GDPg. Similarly, in the short run, table 3 depicted the ARDL approach

showing that in the case of Afghanistan; the LFP and SSC have no effect on GDPg. However, the IFDI has a helpful effect on GDPg. A % upsurge in FDI inflow increase the GDPg by 1.01%. However, the inflation rate has adverse and noteworthy effects on GDPg. 1 increase in the fiscal deficit will drop GDPg by 0.51 percent. However, the national debt has an adverse effect on GDPg. A % increase in debt decreases the GDPg by 0.29 percent. The ARDL bound test shows that there is long-period co-integration among the variables in the case of both countries. Similarly, the speed of adjustment from near to long-period equilibrium is 53% in the case of Pakistan and 57% in the case of Afghanistan.

Table 3: ARDL results

Variable	Pakistan		Afghanistan	
	Coefficient	p-value	Coefficient	p-value
Long-run coefficients				
$GFCF_t$	0.5369* [0.1637] (3.2798)	0.0024	---	---
LFP_t	0.1442* [0.0302] (4.7741)	0.0000	0.2443*** [0.1128] (2.1663)	0.0531
SSC_t	0.1408* [0.0332] (-8.2759)	0.0002	0.8347** [0.3194] (2.6131)	0.0241
FD_t	-0.0868*** [0.0470] (1.8473)	0.0732	---	---
$IFDI_t$	0.5098** [0.2151] (2.3707)	0.0234	1.4226*** [0.7860] (-1.8101)	0.0977
INF_t	-01837** [0.0877] (-2.0947)	0.0435	-0.3407* [0.0838] (-4.0653)	0.0019
ND_t	---	---	-2.3550* [0.3063] (-7.6884)	0.0000
C	3.9648 [3.7591] (1.0547)	0.2988	75.335* [8.6491] (8.7102)	0.0000
F-bound test	7.9936*		10.2792*	
Short-run coefficients				
$D(GFCF_t)$	0.3159*** [0.1591] (1.9854)	0.0540	---	---
$D(LFP_t)$	0.0642** [0.0292] (2.1975)	0.0338	0.0781* [0.1185] (0.6588)	0.5224
$D(SSC_t)$	0.0189 [0.0670] (0.2829)	0.7787	0.0946* [0.0981] (0.9644)	0.3539
$D(FD_t)$	-0.1035*** [0.0554] (-1.8678)	0.0691	---	---

	0.0482		1.0068***	
$D(IFDI_t)$	[0.2820]	0.8652	[0.5053]	0.0696
	(0.1709)		(1.9926)	
	0.0063		-0.5085*	
$D(INF_t)$	[0.0606]	0.9179	[0.0191]	0.0000
	(0.1037)		(-26.6179)	
			-0.2878*	
$D(ND_t)$	----	----	[0.0853]	0.0055
			(-3.3753)	
	-0.5306*		0.5679*	
ECM_{t-1}	[0.0223]	0.0000	[0.0199]	0.0000
	(-23.7992)		(28.5076)	

Note: a) The inside in the square matrix [] is standard Error and the round matrix () is t-statistics values.
b) The Critical Values for the ARDL Bounds Test; 5% (lower 2.55 and upper 3.708) and 1% (lower 3.424 and upper 4.88) in the case of Pakistan and 5% (lower 2.91 and upper 4.193) and 1% (lower 4.134 and upper 5.761) in case of Afghanistan.
c) *, **, & *** indicate the significance level at 1%, 5%, and 10%.

5.3. Diagnostic tests results

The diagnostic tests upshots show that there is no auto-correlation, heteroskedasticity, and model correctly specified for both countries.

Table 5: Diagnostic test results

Test	Statistic	Pakistan		Afghanistan	
		Value	p-value	Value	p-value
Breusch-Godfrey Serial Correlation LM Test	F-statistic	2.1727	0.1105	1.0033	0.4042
Heteroskedasticity Test: Breusch-Pagan-Godfrey	F-statistic	1.0600	0.4207	0.8261	0.5973
Ramsey RESET Test	F-statistic	0.0523	0.8204	1.5414	0.2657

Figures 1 and 2 display the Jarque-Bera test results, which show that μ are normally distributed in both countries.

Figure 1: Normality test results-Pakistan

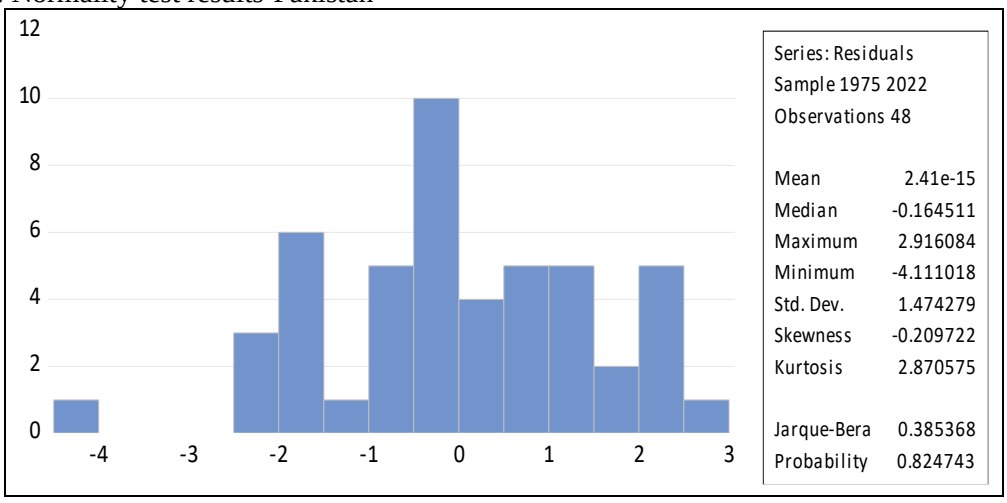
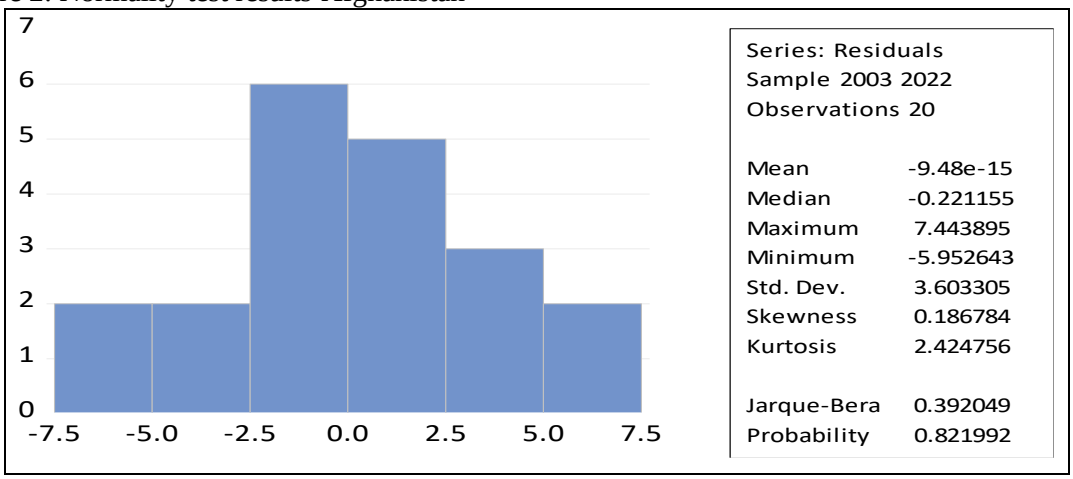


Figure 2: Normality test results-Afghanistan



The data in Figures 1 to 2 show that the models are stable for both countries, i.e., Pakistan and Afghanistan.

Figure 3: CUSUM test results-Pakistan

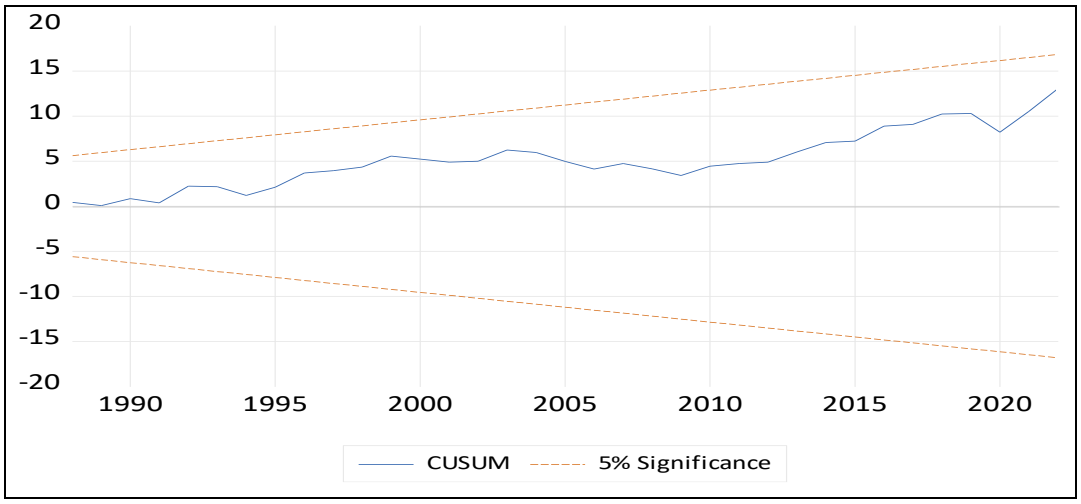


Figure 4: CUSUM of Squares test results-Pakistan

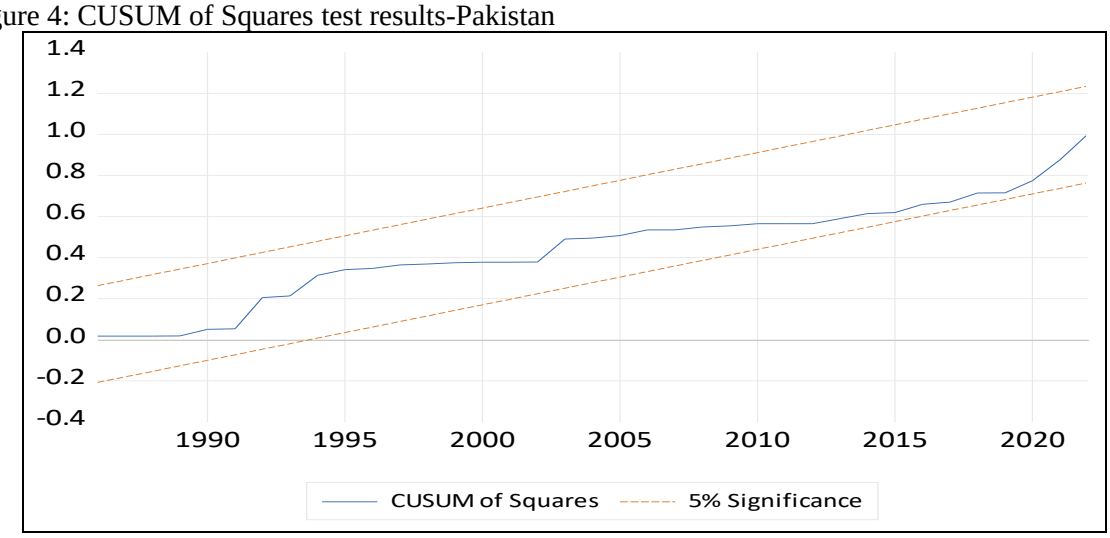


Figure 5: CUSUM test results-Afghanistan

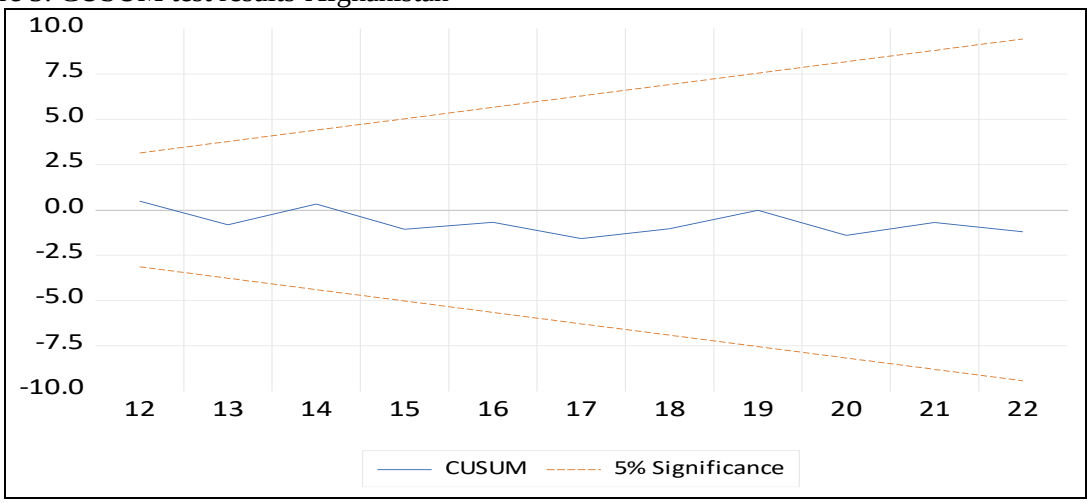
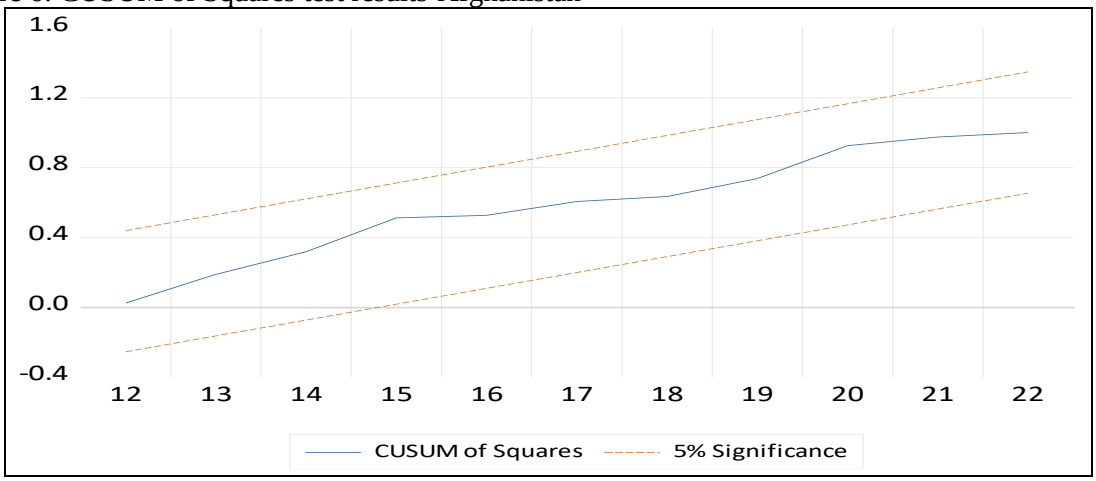


Figure 6: CUSUM of Squares test results-Afghanistan



6. Conclusion and recommendations

The effect of fiscal deficit on economic growth has been discussed widely in the literature but still, the effect of the fiscal deficit on economic growth remains controversial among researchers. The main aim of the research was to investigate the effect of fiscal deficit on the economic growth of Pakistan and Afghanistan. This research used secondary data f from 1973 to 2022 in Pakistan and from 2002 to 2022 in Afghanistan. This study employed ARDL techniques to estimate the model. This study found that the GFCF, FDI inflow, labour force participation, and school enrolment are positive, while the fiscal deficit and inflation GDP growth in the case of Pakistan in the long term. Similarly, labour force participation, FDI inflow, and school enrolment have also been positive, while the national debt and inflation rate had a negative effect on GDP growth in the case of Afghanistan in the long term. Moreover, the GFCF and LFP been positive, while, the school enrolment, inflation rate, and FDI inflow are insignificant, while, and the fiscal deficit has a negative effect on GDP growth in the case of Pakistan in the near run. Similarly, labour force participation and school enrolment are insignificant, while the FDI inflow is positive, and the inflation rate and national debt have a

negative effect on GDP growth in the case of Afghanistan in the near run. Therefore, this study concluded that the fiscal deficit is too harmful for economic growth and does not support the Keynesian theory in the case of Pakistan and Afghanistan.

Therefore, this study recommended that the government must increase the revenue to cover the expenditure to eliminate or lessen the fiscal deficit. The government may also encourage the labour force in the form of incentives that they may utilize their potential for the betterment of the economy. The government may provide a feasible environment to the traders for financing the capital without any fear and hesitation. As a policy recommendation, the fiscal deficit generated by tight fiscal policy should be countercyclical to flatten the business cycle and so enhance Pakistan's macroeconomic performance. As a result, the report proposes that the government evaluate its spending patterns to favour the productive sector since this will help the economy strive for greatness. Furthermore, the government should reduce its borrowing and look within for methods to produce money. Finally, if the government intends to run a budget deficit, it should only do so during a recession or when unemployment is high. Moreover, the study used is limited to only countries due nonavailability of data. However, researchers may investigate similar topics in different countries and regions.

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ORCID iD

Shamsul Haq Hassanzai https://orcid.org/0009-0004-5276-8641

Arif Ullah https://orcid.org/0009-0003-7726-4688

Zia Ur Rehman https://orcid.org/0000-0003-4791-6158

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