

Twin Deficits and Economic Growth in South Asian Countries

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Abstract

This paper investigates the effect of twin deficits in determining the economic growth of eight South Asian nations through a Panel Autoregressive Distributed Lag (ARDL) model. This analysis is done using data from eight countries between 2000 and 2023. The Pooled Mean Group (PMG) as well as the Mean Group (MG) estimators were both utilized at the start, and a Hausman test was carried out to determine which model would be more suitable, with the PMG being the better of the two. The results indicate that the budget deficit and current account deficit significantly and negatively impact the economic growth of South Asian countries in the long run. To be more precise, a one percent rise in the current account deficit is estimated to lower economic growth by approximately 11.98 percent, whereas a 1 percent increase in the budget deficit would lower growth by approximately 6 percent. Alternatively, the effect of exports is found to be highly positive and significant, and a 1 percent increase in exports results in a boost in the growth of the economy by about 33.7 percent. Inflation, however, does not seem to be influential in the long run. This finding is reflected in the short-run outcomes, as the error correction term is negative and significant, which implies that the process of adjusting to equilibrium is rapid, with almost 80.1 percent of the deviations being corrected in one year. In general, the findings indicate the relevance of addressing fiscal and external imbalances and encouraging export-led policies to facilitate sustainable economic growth in South Asia, and the research makes a contribution to the literature by presenting new evidence on the relevance of twin deficits in the dynamics of economic growth in the region.

Introduction

South Asian countries have had ongoing fiscal and external imbalances that have continued to define their macroeconomic performance. Budgetary deficits indicate chronic issues of lack of mobilization of tax revenue, excessive dependence on borrowing, and poor fiscal management. These economies have flunked miserably in terms of striking a balance between the imperative to incur large-scale government spending and the constraint of weak revenue bases. Pakistan has been facing fiscal instability since its independence because of its low industrial and tax bases, whereas India has been struggling with the issue of high welfare expenditures and government sector costs. In the same manner, Bangladesh has been struggling with low revenue collection and relies on foreign assistance, and Sri Lanka has been facing long-term problems of high state expenditure and debt repayment. These trends show that fiscal and external imbalances are not short-term but structural aspects of

macroeconomic policymaking in the region and point to the greater problem of realizing sustainable economic growth within institutional and structural constraints.

Twin Deficits and Macroeconomic Instability in Developing Economies: A South Asian Perspective

One of the most significant issues affecting macroeconomic stability is fiscal deficits, and in developing economies, the problem of fiscal imbalances is not only structural but also persistent. Continuous spending on the side of the state, which surpasses its income, brings down financial stability, besides showing a lack of integrity among the fiscal institutions. These escalating deficits translate into escalating inflationary pressures, escalating debt accumulation, and a narrower fiscal space to use to make development-oriented spending. Consistency of fiscal deficits in the South Asian economies is usually met by both domestic and external borrowing as well as expansionary monetary policies, which leads to increased inflationary pressures and, hence, macroeconomic imbalances. This tendency slowly drains the scarce financial resources of the country, which could be utilized in growth-promoting areas like infrastructure, health, education, and innovation, and focuses them on settling debt and useless spending. This behavior contributes to a dependency cycle in which the economy becomes more dependent on further borrowing, which means that the fiscal policy will be geared towards short-term crisis management, not long-term planning of South Asian economies, which are already prone to high rates of unemployment and limited accessibility to basic amenities.

When a government's total expenditures exceed its entire receipts for a specific fiscal period, there is a budget deficit (Anus et al., 2025). The quantity of public savings is negated by a budget deficit, which could impede a nation's economic development. Moreover, its financing ultimately leads to inflation and many social and economic issues. The financing of the budget deficit through money creation and borrowed money ultimately leads to macroeconomic instability. Public debt adds to the government's budget deficit because it necessitates borrowing from both national and international sources to cover it. Pakistan exhibits a positive link between the budget deficit and public debt (Zafar & Saleem, 2024).

The same has been experienced in the long-lasting fiscal imbalances of developing countries since the 1980s that result in high inflation rates, public debt surges, lower inflows to investments, and poor economic performance (Kanchori, 2020; Tan, 2006; Wallis, 2016). Following empirical research, it might mean that fiscal management is done poorly when big deficits are observed, which makes people question the effectiveness of the associated regimes and even overthrow leaders by means of democratic procedures (Brender & Drazen, 2008; Kanchori, 2020).

The effects of such unstable fiscal policies are global. Infrequent deficits cause an adverse effect on macroeconomic stability, inhibit long-term investment, and promote inequality in the form of inflationary funding and debt. Besides, the high exposure of the South Asian economies to external shocks, including the international oil price investment, price changes, and imbalances in trade prices, further complicates the management of the deficit and reduces the long-term fiscal viability. Therefore, the financial path of these nations reflects the long-term issue of the improvement of trade, the development of economic development, and fiscal restraint within the framework of structural and institutional limitations.

Budget deficit is one of the developments that has been the most widely discussed problems in the academic and policymaking circles since the 1970s (Bariisik & Baris, 2017). This has

been one of the main concerns in third-world policymaking countries since their budget deficits are likely to accumulate over time. Deficits, in spite of challenges facing governments that must grapple with the short-term macroeconomic problems caused by higher-level deficits, levels of inflation, escalated external debt, long-standing unemployment, balance of payment difficulties, and the emergence of parallel currency markets, are having a major impact on the way national economic policies are pursued. Furthermore, these challenges are usually complicated by major external shocks, which make it hard to respond with policies (Sabr, Ahmed, & Khan, 2021).

Constant fiscal deficits compel governments to become highly dependent on local and foreign debt to finance public expenditure, and the resulting dependence on debt accumulation becomes ever-growing. This kind of dependency is detrimental to fiscal discipline, and it limits the flexibility of policies and the assumptions of sustainable economic development. Fiscal deficits occurring over the long term have negative economic impacts on the economy, as they lead to misallocation of capital in the economy, with the resources of the population being diverted instead of being used to generate economic growth, as they are used to cover unproductive spending and debt repayment. Besides, the growing amount of debt enhances the costs of interest, which means that it puts an extra strain on the government budget and crowds out the investment by the individual. All these lead to macroeconomic instability, low economic efficiency, and slow long-term growth, which illustrates the pernicious effects of ongoing fiscal imbalances (Alesina, 2010; Alesina & Ardagna, 2009; Kalim & Hassan, 2013; Kumar et al., 2007).

The ripple effect of constant budget deficits distorts the macroeconomic equilibrium by impacting key financial indicators in a country. The more borrowing by the government to cover its fiscal needs, the bigger the pressure on the monetary system, which most of the time pushes the excess liquidity, leading to the upsurge in the rate of interest. The dynamics do not merely fuel inflationary trends, but they also push out the areas of private investment and therefore restrict growth in the economy in the long term. Therefore, fiscal imbalance emerges as a primary cause of macroeconomic instability in the developing and emerging economies.

Current account deficits and macroeconomic impacts are not simply of national concern but remain a global and regional phenomenon. Macroeconomic imbalances, which have a long-term negative impact on economic growth, manifest as significant and ongoing current account deficits. A persistent current account deficit indicates economic distortions; significant current account imbalances have led to unfavourable financial and economic distortions in the country's economy, which can occasionally result in difficult adjustment issues over time or even systemic problems in the future. In particular, it lowers foreign reserves, raises external debt, impairs export competitiveness, and triggers a currency crisis. Significant current account deficits increase the likelihood of a sudden reversal in the flow of capital into an economy, which speeds up the buildup of debt (Blanchard & Milesi-Ferretti, 2011; Lomulen, 2019).

Aydin and Esen (2016) advance this point of view by clarifying that a current account deficit simply shows that a given country is either investing or consuming more than it is saving or producing. These imbalances raise the demand of the foreign capitals and borrowing, particularly when there is difficulty in accessing the external finance. In such circumstances, the rate of economic growth becomes low, and macroeconomic strength is likely to be endangered. Therefore, when there exist large and sustained deficits, they usually serve as premonitions of an imbalanced economy and crises in the future.

The way a country funds its current account deficit also has a key influence on the economic risk exposure. Aydin and Esen (2016) claim that deficits funded by sustainable sources, including foreign direct investment or long-term inflows of foreign exchange, are deemed as relatively less risky. All these types of capital tend to be more stable and less responsive to the short-term changes in the market. However, reliance on speculative capital movements and rapidly shifting financial inflows can pose serious risks to the stability of an economy. Not only do these volatile sources of finance increase the external debt, but they can also turn around and backfire in case the market sentiment changes.

Baharumshah et al (2005) point out that many economists believe that large and persistent current account deficits can create macroeconomic imbalances, which may slow down long-term economic growth. Frequently, a high deficit in the current account denotes greater macroeconomic challenges that may have an adverse bearing on the financial potential of a country. This is widely believed. It decreases the savings of the country; hence, others accuse the bad budgetary management by the government. The lack of long-term balance might result in the depletion of foreign reserves, increasing the external debt, unstable economies and exchange rates, and reduced competitiveness of the world.

The existence of significant and persistent current account deficits is viewed as an indicator of macroeconomic imbalances with a great effect on economic growth for a longer time. The current account deficit can be accredited to poor financial management by the government that reduces the national savings. Moreover, significant retaliatory and possibly retaliatory growths in the quantity of loans due to the relaxation of the financial restraint have also been reported (Blanchard and Milesi-Ferretti, 2011). A long-term and high current account deficit can result in a variety of unwanted results in a country: the reduction in its global reserves, the upsurge in the volume of external debt, the development of the instability of its economy and currency, and the loss of competitiveness in the world market (Tarawalie & Marah, 2022). Ndeistaings et al. (2013) explain that a large and persistent current account deficit may cause currency and economic crises, foreign debts, loss of national competitiveness, and loss of national reserves.

Current account' deficit makes the country incur high foreign debt. Due to the fact that it raises the level of external debt that the emerging economies have to incur, the rise in the current account deficit poses many risks. Such dangers can become so massive that they cause inflows of external resources to evade. This leads to economic instability in the developing country because it tries to finance its current account deficit (Karahana, 2020). Aydin and Esen (2016) state that at some threshold levels of current account deficits, they start impacting negatively on economic growth considerably. The research they conducted shows that macroeconomic vulnerability and poor performance in growth are related to large and permanent deficits. These results indicate that to a certain point, deficits become not merely indicators of imbalances but directly impair economic stability and growth.

Fischer (2003) cautions that when financial markets start doubting the sustainability of the debt levels of a country, then this may cause a domino effect that would lead to problems of making payments and currency crises. In this case, capital is likely to fly out of the country quickly, resulting in a sharp decline in the foreign exchange reserves and therefore financial instability. Fischer (1988) has pointed out that nations with large current account deficits who fail to produce enough surplus in other sectors become susceptible to devaluations of their currencies and general economic disasters.

The current account deficits of emerging nations are usually due to the fact that the local resources and technological capabilities are unable to underpin the amount of production

required to sustain growth. Consequently, this means that they are heavily dependent on external funding to bring in some of the necessities in the form of advanced technology, energy, and capital goods. This reliance rendered current account imbalances a repetitive challenge in most of such economies (Calderon et al., 2000; Yessymkhanova et al., 2025). Due to the high level of inflow of imports, many of the developing countries are characterized by a current account deficit and an import-based development (Telatar, 2007). Growth in the economy leads to an intensification in imports and current account imbalance since the manufacturing of export goods is dependent on imported capital goods, semi-products, and raw materials (Coskun, 2010; Yurdakul & Ucar, 2015).

Literature Review

Litrature Review on the Impact of Current Account Deficit on Economic Growth

Yessymkhanova et al. (2025) analyzed panel data consisting of the 1980 to 2023 period, with the main purpose of investigating the relationship of interdependence among current account deficits, economic growth, and oil prices in five underdeveloped economies of the world, i.e., Argentina, Indonesia, India, Mexico, and Turkey. The research began by evaluating variables' stationarity status, during which the unit root test was conducted, and the outcomes designated that when the first difference of the study's variables was taken, then these became stationary. They preferred the two well-known cointegration tests, namely the Pedroni and Kao tests, solely to check that cointegration exists among the model's variables, and they were able to determine, based on the findings of these tests, that the variables possess a long-run cointegration. Furthermore, the findings of the Dumitrescu-Hurlin causality test reported a one-way causal link showing that economic progress and development are important factors that affect current account deficits and oscillations of oil prices. The outcomes designate that oil price variation has a significant contribution to the current account balance. The findings show that variability in oil prices is one of the aspects that makes current account deficits wider. In a broader context, the paper points out that economic growth and unpredictability in energy prices are major contributors towards external imbalances in developing countries, and the dynamics of energy prices are a key development consideration in the performance of the external sector.

Mazhar et al. (2024) explored the implications of the triple deficit hypothesis by comparing how fiscal, current account, and trade deficits affect the economic growth of Pakistan between 1994 and 1995 and 2020 and 2021. To analyze the annual data, the researcher applied a detailed range and variety of econometric methods, including the Augmented Dickey-Fuller (ADF) test, which was implemented to conduct the analysis of unit root, and the famous Autoregressive Distributed Lag (ARDL) methodology adopted by him to determine the short- and long-term correlation and link. There was also additional diagnostic and robustness testing, including variance inflation factors (VIF), Lagrange multiplier (LM) tests, and normality tests, which were implemented to validate the reliability of the model. To bring out the further causal connections among the variables, the authors preferred to utilize the specific Granger causality test, whereas to trace out the dynamic interactions and parameters' stability, the impulse response functions and the Wald test were employed. Now, if we talk about the stationarity status of the variables, then the findings depict that the model's variables possess different integration orders because, out of all, some are noted to be already stationary at level $I(0)$, whereas some got stationary features when their first difference was taken, thus being $I(1)$. They adopted the ARDL method to identify the occurrence of a long-term association among the variables, and their findings confirmed variables possess a long-term connection and link. In addition, diagnostic tests suggest that

the model is properly stated, as it does not agonise from major econometric problems such as multicollinearity or serial correlation. The analysis of impulse responses also shows that the variables respond differently over time both positively and negatively to the shocks, indicating that their interactions are quite complex and that they have varying effects on economic growth in Pakistan. In conclusion, the outcomes indicate that variations in the fiscal deficit, current account deficit, and trade deficit significantly contribute to determining GDP growth in Pakistan. These effects are not uniform, as both positive and negative movements in the deficit contribute a lot in shaping economic growth throughout the study period.

Ullah (2021) inspected the influence of trade deficits on the Pakistani economy, and to achieve the objectives, they worked and analyzed the annual data spanning from 1980 to 2015. The paper concentrated on the famous variables, such as foreign direct investment (FDI), real exchange rates, employment rates, trade deficits, and inflation, as independent variables, while study's dependent variable was economic growth. The study applied the Augmented Dickey-Fuller (ADF) test to confirm the stationarity status of the variables. Subsequently, they used the Autoregressive Distributed Lag (ARDL) model to inspect both short-term and long-term connections among the variables. Their outputs confirm the subsistence of a cointegration and a strong long-term link among study's variables. Furthermore, the findings indicate that a trade deficit has a negative and significant bearing on economic growth in the short and long term. This means that long-term trade imbalances may harm the country's economy. The paper suggests that the policymakers should work on the fluctuations of the trade balance, accumulating the levels of production, and limiting the unemployment rate. It also observes the importance of the control of population growth, enhancement of literacy, a stabilized exchange rate regime, and control of the inflation rate so that economic performance can be sustainable.

In the article presented by Sanni et al. (2019), they tested the hypothesis of a connection between Nigeria's economic growth and the balance of the current account. To obtain authentic findings, they worked with annual data from the period 1970–2016. The authors adopted the ARDL bounds test methodology for their study to confirm long-run associations among the model's variables, which are mostly macroeconomic in nature and are the real exchange rate, current account balance, and real GDP growth of the country. The outcomes verified that the study's variables possess a long-run link. They found that the current account balance is positively exaggerated by economic progress, implying that the higher the economic performance, the better the position of a country in the external arena. On the contrary, the current account balance, which is the main independent variable, is inversely related to the real exchange rate, suggesting that currency depreciation has a tendency to undermine external balances.

In their study, Nyoni et al. (2017) examined how current account deficits impacted the growth of the Zimbabwean economy by analysing time-series data spanning between 1980 and 2013. They preferred to adopt the ordinary least squares (OLS) approach to test the study's hypothesis about the connection between external imbalances and a country's economic progress. The outcomes demonstrated the presence of a positive association between the study's key variables, which are the current account deficit and economic growth, and therefore, according to findings, a deficit has the potential to stimulate economic growth. The researchers also recognise that international business inflows, including external debt, foreign assistance, and direct investments, are important for enhancing economic growth in Zimbabwe.

In Akbas et al. (2013), the correlation between current account deficits, economic growth, foreign direct investment (FDI), and total credit was analyzed in G7 countries based on panel data between the years 1990 and 2011. The analysis was initiated with cross-sectional dependence testing and then panel unit root tests that found mixed stationarity of the variables. The study panel's cointegration test proved the presence of a long-run association. In addition, the causality test presented by Dumitrescu and Hurlin (2012) shows a one-way causal link of the current account deficit and foreign direct investment (FDI) with economic progress, as used by them to identify the direction of causality. Conversely, a bidirectional causal association exists between the current account deficit and total credit, indicating their mutual interaction. The results also designate that FDI has a one-way bearing on both the current account deficit and total credit. Overall, the findings indicate that there is close dependency among the external imbalances, investment flows, and credit dynamics of the G7 economies.

Litratue Review on the Impact of the Budget Deficit on Economic Growth

The article by Ahmad et al. (2025) investigated how budget deficits and economic growth can be linked in the chosen South Asian countries, such as Pakistan, India, Bangladesh, and Sri Lanka, during the years 2002 to 2021. They employed panel data techniques, starting to determine the variables' stationarity position through the adoption of unit root tests and then carrying on with other econometric analyses. The researchers used a diversity of econometric procedures, comprising the ARDL technique, error correction model (ECM), and Johansen's cointegration test, to analyze the short- and long-run dynamics. The model used GDP growth, budget deficit, exchange rate, inflation, investment, and interest rate as its variables to fully analyze the relationship amongst the variables and their relationships in the long-term equilibrium. The outcomes revealed that exchange rate depreciation and investment contributed positively to economic growth, whereas inflation and elevated interest rates had an adverse and negative impact on economic performance. Furthermore, the results were indicative of the fact that although sustainable budget deficits can spur short-run economic activity, chronic and high budget deficits have adverse impacts on long-run economic growth and macroeconomic stability, leading to increased debt levels and reduced investor confidence over time. The paper discusses the significance of fiscal prudence, taxation policies, effectiveness in the management of expenditures, and harmonizing governments' monetary and fiscal policies for sustainable and long-lasting South Asian countries' economic progress and development.

In their study, Usman et al. (2020) analysed the connection between fiscal deficits and economic growth in Pakistan based on annual data in a time-series analysis that was conducted between 1979 and 2019. Some of the main variables that were considered in the study were growth in GDP, fiscal deficit, government expenditure, inflation rate, exchange rate, and debt-to-GDP ratio, with data being collected through the World Bank, State Bank of Pakistan, and official government records. The research started with a trend analysis, then a unit root test, on the basis of which they came to know that among variables, no one has the status of stationarity, especially at the level. A further cointegration analysis established that the variables possess a stable long-run link. In order to capture the short-run changes as well as the long-run adjustments, they employed the Vector Error Correction Model (VECM). Empirical outcomes depict that the fiscal deficit, the government's expenditure, and inflation harm economic progress in the long term, whereas exchange rate movements and the debt-to-GDP ratio positively influence it. These findings indicate that an economic environment

characterized by macroeconomic stability and proper fiscal management is important for maintaining long-term economic performance.

Sabr et al. (2021) inspected both the short-run and long-run outcomes of budget deficits upon economic growth in Iraq by means of annual data coverage for the 1980-2018 period. The analysis has used the ARDL model for estimating these relationships. The outcomes indicated that the bearing of a budget deficit on economic development during the short run was positive, but there was a modest positive impact. Nonetheless, long-term and growing deficits were observed to have a very adverse effect over a longer period of time; fiscal imbalances in the long term can be degrading to sustainable economic development, as they may lead to increased borrowing costs, reduced public investment, and lower overall economic productivity.

Cifuentes-Faura et al. (2022) utilised data on the fiscal deficits of Spanish local governments from 2011 to 2020 to analyse the factors affecting fiscal deficits. The research was based on social, economic, and governmental factors, such as the GDP per capita, joblessness rate, population size, citizen involvement in political activities, and ideological trend of ruling political parties. The authors used quantile regression techniques, using both the moment and the mean group estimator, to measure the heterogeneous effect within the municipalities. Moreover, the Juodis et al. test was adopted to determine causality. The outcomes revealed that long-run economic growth helped to reduce fiscal deficits in most quantiles, and unemployment enlarged the fiscal deficits. The outcomes also indicated that higher involvement of citizens in political affairs and more right-wing political leadership were associated with greater fiscal deficits at the upper quantile, and these findings remained robust when the mean group evaluation method was applied.

Kurantın (2017) also evaluated the effect of budget deficits on Ghana's economic growth by working with and analyzing the panel data which covers the period from 1994 to 2014. Besides discussing the causes of fiscal deficits, the research also highlighted policy concerns regarding how to maintain growth in the context of a systematic deficit. The econometric analysis of key macroeconomic variables indicated that an increment in budget deficits has adverse impacts on economic growth and development patterns. The general conclusion further supported the fact that the fiscal position of Ghana, based on prevailing governance and socioeconomic conditions, is not in line with a sustainable growth trajectory, indicating that without significant policy reforms and improved fiscal management, the country may face long-term economic challenges.

Saleh and Harvie (2005) reviewed theoretical frameworks, empirical evidence, and econometric research studies on the interaction of budget deficits and macroeconomic variables in the setting of both advanced and developing nations' economies. The paper has examined the connection between government's budget deficits and the growth rate, interest rates, exchange rates, trade deficits, inflation, and other macroeconomic variables using cross-country evidence and time-series evidence. The outcomes depicted and portrayed that the economic bearings of budget deficits differ in relation to the mode of deficit financing and government expenditure composition. Specifically, the negative influence of public consumption expenditure was established on the economic growth, whereas that of public investment expenditure was positive but comparatively less significant. The review was also quite empirical in supporting the Keynesian hypothesis that increasing budget deficits conducive to current account imbalances and that the outcomes of the macroeconomic depend on deficit financing through taxation or monetary growth.

Data and Methodology

The present research paper explores how twin deficits impact eight South Asian countries' economic growth by analysing balanced panel data from 2000 to 2023. The secondary data is selected and sourced from the most reliable organisations, such as the World Bank's (WDI) World Development Indicators, the Asian Development Bank's (ADB), and official national economic reports and surveys of the countries. For the purpose of evaluating both the short-run and long-run dynamics across the countries and the period of time, the study prefers to adopt the PMG-ARDL approach. ARDL method and approach provides stable and consistent results (Shafique et al., 2021).

The Mean Group (MG) and Pooled Mean Group (PMG) estimators are used in the panel ARDL to estimate the model. A homogeneous structure in the long run between countries and a heterogeneous structure in the short run are assumed by the estimator of the PMG that was designed by Pesaran et al. (1999). The MG estimator, in contrast, allows for complete heterogeneity, which is to estimate different regressions using different countries and averaging the outcomes. In order to select the most suitable long-run estimator, the Hausman specification test will be performed in order to compare the Mean Group (MG) and Pooled Mean Group (PMG) estimators.

The PMG/MG-ARDL method best suits the panels of differing sizes, and it is also suitable for the research since the author is studying eight South Asian nations across 24 time periods. The panel ARDL approach presents a powerful model to study the twin-deficit theory and its impact on economic progress within the context of cross-country heterogeneity and mixed orders of integration.

One of the most important features of the panel ARDL method is that it allows variables that are integrated at various levels, i.e., $I(0)$ and $I(1)$, to be incorporated without any of them being $I(2)$. This can be specifically applied to the current study in a way that the variables that are being studied, such as current account deficit (CAD), budget deficit (BD), GDP, CPI, and exports (X), have varying integration properties across the countries. The panel ARDL model is therefore an effective model in the context that it is able to model long-run relationships and short-run adjustments without making restrictive assumptions on the data.

Theoretical Foundation and Model Specification

The model draws on three complementary perspectives: the classical view of public debt, the neoclassical fiscal deficit and capital accumulation framework, and Thirlwall's Balance of Payments Constraint (BOPC) theory. From the fiscal side, persistent budget deficits may reduce national saving, increase borrowing, crowd out private investment, and constrain capital accumulation and long-run economic growth (Diamond, 1965; Mavodyo, 2023; Modigliani, 1961; Patel, 2022; Ricardo, 1817; Smith, 1776). From the external sector perspective, Thirlwall's BOPC theory suggests that persistent current account deficits can create foreign-exchange and external financing constraints, limiting an economy's capacity to sustain long-run growth (Chaudhry et al., 2026; Thirlwall, 1979, 2012). Accordingly, the model integrates both domestic fiscal imbalance, captured by the budget deficit, and external imbalance, captured by the current account deficit, to examine their combined implications for economic growth in South Asian countries.

Moreover, the following model is developed to test the impact of twin deficits on South Asian countries' economic growth. But to present a more detailed picture of the economic growth and the factors affecting it, the researcher plans to expand the model by including other macroeconomic independent variables in it, like inflation (CPI) and exports (X). The researcher has incorporated these variables because they have a vital contribution to determining the economic growth of South Asian economies. The model should be used to

analyse the extent to which the two categories of deficits are affecting economic growth in the area, as well as whether price levels and export activity contribute to the overall economic results.

The dependent variable in this model is the real Gross Domestic Product (GDP), which is a measure of the amount of economic growth in any economy. The independent variables are the current account deficit (CAD), the budget deficit (BD), the inflation in terms of the consumer price index (CPI), and the exports (X). Such variables are included to investigate the impression of the main macroeconomic indicators on the economy's growth. The model attempts to comprehend how changes in their association to real GDP lead to variations in the output and of the economy in the long run.

The simple functional form of the model is given as:

$$GDP = f(CAD, BD, CPI, X)$$

where:

- GDP (Real) Gross Domestic Product (constant prices),
- CAD denotes the current account deficit (% of GDP),
- BD represents the budget deficit (% of GDP),
- CPI represents Inflation, measured by the Consumer Price Index (annual %), and
- X denotes exports of goods and services (% of GDP).

The model seeks to define the net effect of fiscal and external imbalances (CAD and BD), inflation (CPI), and exports (X) on economic growth (GDP), which offers a clue to the interaction between the mentioned factors and the economic environment in South Asian nations.

3.3.2 Linear and Log-Linear Specifications

The linear form of the model is expressed as:

$$GDP = \beta_0 + \beta_1(CAD) + \beta_2(BD) + \beta_3(CPI) + \beta_4(X) + \varepsilon \quad (1)$$

The expected parameter signs are $\beta_1 < 0$, $\beta_2 < 0$, $\beta_3 < 0$, $\beta_4 > 0$. The coefficients to be estimated are β_1 to β_4 , while the error term is ε .

Natural logarithmic transformation is often applied to highly skewed data to reduce skewness and improve the distributional properties of variables (Benoit, 2011; Feng et al., 2014). A log-linear form was used below to remove skewness from the data and to improve its distributional properties:

$$\ln GDP = \beta_0 + \beta_1(\ln CAD) + \beta_2(\ln BD) + \beta_3(\ln CPI) + \beta_4(\ln X) + \varepsilon \quad (2)$$

The model was formulated next in the panel data form by taking the subscripts "it," such that i is the cross-section (countries) and t is the time dimension. The panel data model may thus be formulated as:

$$\ln GDP_{it} = \beta_0 + \beta_1(\ln CAD_{it}) + \beta_2(\ln BD_{it}) + \beta_3(\ln CPI_{it}) + \beta_4(\ln X_{it}) + \varepsilon_{it} \quad (3)$$

The model is estimated using a Panel Autoregressive Distributed Lag (ARDL) model in order to analyse both the short-run and long-run associations among the variables. The overall shape of the panel ARDL (p, q, q, q, q) model may be formulated as below:

$$GDP_{it} = \sum_{j=1}^p \lambda_{ij} GDP_{i,t-j} + \sum_{j=0}^q \delta_{1ij} CAD_{i,t-j} + \sum_{j=0}^q \delta_{2ij} BD_{i,t-j} + \sum_{j=0}^q \delta_{3ij} CPI_{i,t-j} + \sum_{j=0}^q \delta_{4ij} X_{i,t-j} + \varepsilon_{it} \quad (4)$$

The panel ARDL model has a parameterized version, which is as follows:

$$\begin{aligned} \Delta \ln GDP_{it} = & \phi_i \ln GDP_{i,t-1} + \beta_{1i} \ln CAD_{i,t-1} + \beta_{2i} \ln BD_{i,t-1} + \beta_{3i} \ln CPI_{i,t-1} + \beta_{4i} \ln X_{i,t-1} \\ & + \sum_{j=1}^{p-1} \lambda_{ij}^* \Delta \ln GDP_{i,t-j} \\ & + \sum_{j=0}^{q-1} \delta_{1ij}^* \Delta \ln CAD_{i,t-j} + \sum_{j=0}^{q-1} \delta_{2ij}^* \Delta \ln BD_{i,t-j} + \sum_{j=0}^{q-1} \delta_{3ij}^* \Delta \ln CPI_{i,t-j} + \sum_{j=0}^{q-1} \delta_{4ij}^* \Delta \ln X_{i,t-j} \\ & + \varepsilon_{it} \end{aligned} \quad (5)$$

Where in this case, Δ is the first difference operator, i is the cross-section (country), and t is the time.

The symbol and parameter ϕ_i denote and represent the error correction term, which is usually referred to as the coefficient of speed adjustment. It is used to show the rate at which the dependent variable (GDP) will go back to its long-run equilibrium in the presence of short-run disturbances. A negative statistically significant ϕ_i will offer support and evidence of cointegration among variables. Such a coefficient (ϕ_i) is supposed to be negative and statistically significant, meaning that any temporary deviation of the long-run equilibrium that is caused by a change in the current account deficit (CAD), budget deficit (BD), inflation (CPI) or exports (X) is rectified over time. The greater and higher the change in the absolute value of ϕ_i , the greater the speed with which the adjustment will take place, thereby letting the system be restored to its long-term equilibrium in less time.

The long-run coefficients of the explanatory variables are represented by parameters β_{1i} to β_{4i} , and the short-run dynamic responses of GDP to its own past values and to the changes of CAD, BD, and CPI in the short run are represented by λ_{ij}^* and δ_{ij}^* respectively. Finally, ε_{it} represents the error term, which characterizes and models unaccounted random shocks in the model.

In this specification, GDP_{it} denotes the gross domestic product of country i at time t , while CAD_{it} , BD_{it} , CPI_{it} and X_{it} represent the explanatory variables.

p and q are parameters that indicate the optimal lag lengths of the dependent and the independent variables, respectively. The coefficients λ_{ij} reflect and capture the influences of lagged GDP and δ_{kij} (for $k = 1, 2, 3, 4$) measure the short-run responses of the independent variables. The error term depicts random disturbances.

Error Correction Representation of the Panel ARDL Model

The above model in the form of error correction is as follows:

$$\begin{aligned} \Delta \ln GDP_{it} = & a_i + \sum_{j=1}^{p-1} \lambda_{ij}^* \Delta \ln GDP_{i,t-j} + \sum_{j=0}^{q-1} \delta_{1ij}^* \Delta \ln CAD_{i,t-j} + \sum_{j=0}^{q-1} \delta_{2ij}^* \Delta \ln BD_{i,t-j} \\ & + \sum_{j=0}^{q-1} \delta_{3ij}^* \Delta \ln CPI_{i,t-j} + \sum_{j=0}^{q-1} \delta_{4ij}^* \Delta \ln X_{i,t-j} + \phi_i ECM_{i,t-1} + \varepsilon_{it} \end{aligned} \quad (6)$$

In this context, $ECM_{i,t-1}$ represents the error correction term, which designates the long-run equilibrium association between the variables and is determined as follows:

$$ECM_{i,t-1} = \ln GDP_{i,t-1} - \beta_{1i} \ln CAD_{i,t-1} - \beta_{2i} \ln BD_{i,t-1} - \beta_{3i} \ln CPI_{i,t-1} - \beta_{4i} \ln X_{i,t-1} \quad (7)$$

The coefficient ϕ_i depicts the speed of the adjustment parameter and should be negative and statistically significant. When ϕ_i has a negative value and it is statistically significant, then the existence of a long-term equilibrium association is confirmed, which implies that any short-term deviation from the equilibrium path would be rectified in the long run.

Table 1: Descriptive Statistics of Logged Variables

Statistic	LGDP	LCAD	LBD	LCPI	LX
Mean	1.694	1.385	1.365	1.658	2.454
Median	1.786	1.310	1.592	1.731	2.503
Maximum	3.629	7.323	3.235	3.438	9.773
Minimum	-1.772	-2.386	-2.323	-2.303	0.542
Std. Dev.	0.616	1.410	1.025	0.773	0.860
Skewness	-0.963	0.253	-1.126	-1.547	2.910
Kurtosis	8.507	3.599	4.502	8.156	28.847
Jarque-Bera	272.303	4.922	58.634	289.242	5615.602
Probability	0.000	0.085	0.000	0.000	0.000
Observations	192	192	192	192	192

Source: Author's Calculations

Table 1 shows descriptive statistics of the logarithmically transformed variables employed in Model. The mean and the median of the variables are generally similar as indicated in the table and this implies that there are consistent values of central tendencies amongst the sample. The average of LGDP indicates some economic activity during the time of the study and the standard deviations indicate that there is enough variability to account dynamic relationships among the variables.

The only explanatory variables that display a higher dispersion are LCAD and LX, which indicate greater volatility in current account positions and export performance. Such a dispersion can be intuitively related to finance, with external variables of a sector generally changing more strongly in response to global and local shocks. In contrast, LCPI and LGDP exhibit relatively moderate variation.

The values of the skewness measures show asymmetry of a number of variables. The LGDP, LBD and LCPI represent negative skewness with LX being highly skewed positively representing that there are severe observations in the export performance. The values of kurtosis of LGDP and LCPI and especially LX are high in excess of three signalling the presence of leptokurtic distributions with heavy tails.

The results indicate that the Jarque-Bera test rejects the null hypothesis for all variables except LCAD, which is marginally non-normal. Although abnormalities are evident, they are common in macroeconomic panel data and do not affect the validity of the ARDLPMG estimation technique used in this research study.

All in all, the descriptive statistics demonstrate adequate variability of all variables and show no data anomalies. Especially, the summary statistics indicate no evidence of

multicollinearity in the first place, which is examined further in subsequent chapters using the correlation and the VIF diagnostics. These data characteristics form a strong basis for analysing the role of the current account deficit and budget deficit in the economic growth of the eight countries chosen in South Asia.

Multicollinearity Diagnostics

To verify the soundness and validity of the estimated regression findings, this study investigates the possibility of the presence of multicollinearity among the explanatory variables through pairwise correlation analysis and through the Variance Inflation Factor (VIF) test. Such diagnostic methods find extensive application in empirical econometric research to identify linear dependencies among regressors that can otherwise give biased estimates and false statistical inference (Cooper and Schindler, 2014).

Table 2: Pairwise Correlation Matrix of Log-Transformed Variables

Variables	ln_GDP	ln_CAD	ln_BD	ln_CPI	ln_X
ln_GDP	1.000				
ln_CAD	0.156	1.000			
ln_BD	0.088	0.139	1.000		
ln_CPI	-0.243	-0.130	-0.118	1.000	
ln_X	0.150	0.063	0.212	0.153	1.000

Source: Author's Calculations

Note: The table presents the Pearson correlation coefficient between the log-transformed variables. The correlation coefficients are all substantially less than the traditional 0.80 level, and this indicates that there is no severe multicollinearity among the explanatory variables.

Table 3: Variance Inflation Factor (VIF) Results (Model Two)

Variable	VIF	1 / VIF
ln_CPI	1.13	0.885
ln_X	1.12	0.891
ln_GDP	1.10	0.905
ln_BD	1.07	0.931
Mean VIF	1.11	

Source: Author's Calculations

Note: The values of all VIFs are significantly less than the critical value of 10 (and a less critical value of 5), which proves that the issue of multicollinearity is not a serious issue in the model.

Correlation analysis in Table 3 indicates that there are fragile linear relationships between the explanatory variables, with all of the correlation coefficients being small in absolute value. This is a clear indication that the model is in compliance with the multicollinearity condition and that the regressors are advantageous in providing different and independent information during the estimation process.

The VIF statistics for the model are also very low, ranging from 1.07 to 1.13, with a mean of 1.11. These low values of VIF, which are way below the recommended value of 5, directly affirm that there is no multicollinearity. This demonstrates that each explanatory variable has a unique contribution to the model and the regression findings are valid.

As our result depicts, there is no issue of multicollinearity, which is favorable for us because, according to Cooper and Schindler (2014), the absence of problematic multicollinearity ensures that the regression results are not spurious and that the estimated coefficients, test statistics, and overall model fit are reliable for meaningful economic interpretation.

Cross-Sectional Dependence Test

Before conducting panel unit root and cointegration tests, it is important to determine whether the cross-sectional dependence is present or not. This study, therefore, uses Pesaran's (2004) CD test and the Breusch-Pagan (1980) LM test for the purpose, both commonly applied in macro-panel analysis. It is relevant to consider cross-country dependence, since common shocks and spillovers may affect countries; otherwise, biased or inefficient estimates may be obtained, leading to incorrect conclusions about the relationships being studied.

Table 4: Residual Cross-Sectional Dependence Test Results

Model	Specification	BP LM (p-value)	Scaled LM (p-value)	Bias-Corrected LM (p-value)	Pesaran CD (p-value)	Decision
Model	lgdp = f(lcad, lbd, lcpi, ix)	40.91 (0.055)	1.72 (0.085)	1.55 (0.121)	-0.26 (0.797)	No CSD

Source: Author's Calculations

Note: BP LM is simply the Breusch-Pagan Lagrange Multiplier test; Scaled LM is simply the Pesaran scaled Lagrange Multiplier test; Bias-Corrected LM is simply the Pesaran scaled Lagrange Multiplier test, and Pesaran CD is simply the test of cross-sectional dependence proposed by Pesaran (2004).

Results Discussion

Table 4 depicts that in the model, the bias-corrected LM and Pesaran CD tests are more accurate with a panel of a relatively small number of cross-sections; they do not reject the null hypothesis at the 5 percent level, whereas some LM-type statistics suggest marginal significance at the 10 percent level.

On the whole, the findings can be used to unanimously confirm that there is no cross-sectional dependence in either model. This implies that unobserved common shocks or spillover effects across cross-sections are small and cannot be a concern when performing further econometric analysis.

Methodological Implication

As cross-sectional dependence is not present, the panel units can be regarded as cross-sectionally independent. The application of first-generation panel unit root tests is, therefore, suitable. Based on this, the study will follow the Levin-Lin-Chu (LLC), Im-Pesaran-Shin (IPS), and Fisher-type ADF and PP panel unit root tests before estimating the panel ARDLPMG models.

Unit Root Test

Unit root testing is also crucial in macroeconomic analysis to determine the stationarity position of variables and save us from spurious regressions, bogus and false inferences. Since macroeconomic time series are generally non-stationary (Mukhtar, 2010; Nelson and Plosser, 1982). We, therefore, prefer to conduct the unit root test for panel data for this purpose.

Rationale of the Panel Unit Root Test.

The panel nature of the data implies that panel unit root tests will be applied because they are more powerful and can also allow analysing cross-sectional heterogeneity when analysing multi-country data. The types of tests that are employed in this study are the Levin, Lin, and Chu (LLC), Im, Pesaran, and Shin (IPS), and Fisher-type Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests: LLC is based on the common unit root process, whereas IPS and Fisher tests can be used with heterogeneity. The null hypothesis is always a unit root in any case, and when it is rejected, the result implies that it is stationary.

Table 5: Panel Unit Root Test Results for GDP, CPI, CAD, BD, X

(Balanced panel: 8 cross-sections, 2000–2023; lag = 1; individual effects; p-values in parentheses)

Variable	LLC (Level)	IPS (Level)	ADF– Fisher (Level)	PP– Fisher (Level)	LLC (First Diff.)	IPS (First Diff.)	ADF– Fisher (First Diff.)	PP– Fisher (First Diff.)	Order of Integration
GDP	–5.647 (0.000)	–4.881 (0.000)	53.896 (0.000)	82.968 (0.000)	—	—	—	—	I(0)
CPI	–2.128 (0.016)	–1.642 (0.050)	24.777 (0.073)	28.910 (0.024)	–8.057 (0.000)	–8.295 (0.000)	92.725 (0.000)	156.47 (0.000)	I(1)
CAD	–512.71 (0.000)	–182.40 (0.000)	299.21 (0.000)	68.680 (0.000)	—	—	—	—	I(0)
BD	–3.785 (0.000)	–2.863 (0.002)	36.801 (0.002)	47.004 (0.000)	—	—	—	—	I(0)
X	–4.370 (0.000)	–2.153 (0.015)	30.521 (0.015)	28.479 (0.027)	—	—	—	—	I(0)

Source: Author's Calculations

Notes

Statistical significance is measured at the level of 5% according to the reported p-values.

- I(0) represents stationarity at level, and I(1) denotes stationarity at first differencing.
- — indicates that one does not need to first differentiate the variable because the variable is already stationary at the level.

Probabilities are calculated using asymptotic normality, and the chi-square distribution is applied in Fisher tests, which are reported to be asymptotic.

Table 5 depicts the panel unit root analysis for GDP, CPI, CAD, BD, and X and also demonstrates a mixed integration pattern, confirming the suitability of the ARDL approach for subsequent econometric modeling. GDP, CAD, BD, and X are stationary at level (I(0)), with all panel tests rejecting the null hypothesis of a unit root, indicating that shocks to these variables are temporary. CPI exhibits non-stationarity at level, with the IPS and ADF–Fisher tests failing to reject the unit root null while the LLC and PP–Fisher tests suggest stationarity. After first differencing, CPI becomes stationary across all panel tests ($p = 0.000$), establishing it as I(1).

The overall absence of I(2) variables and the presence of both I(0) and I(1) series satisfy the preconditions for estimating a Panel ARDL–PMG model, which can accommodate mixed integration orders while providing consistent long-run and short-run estimates. These findings imply that while shocks to I(0) variables are transitory, shocks to I(1) variables have a more persistent impact that only dissipates after adjustment. Consequently, the Panel ARDL–PMG framework is appropriate for modeling both equilibrium relationships and short-term dynamics in this panel dataset.

Justification for the Adoption of the Panel ARDL (PMG) Approach

The mixed integration properties that the panel unit root tests have shown give a solid methodological rationale to the use of the Autoregressive Distributed Lag (ARDL) framework. The ARDL procedure is specifically so structured that it can accommodate variables whose orders of integration are such that none is an order two integrated variable. Given that all the variables, which are utilized in this study, are known to be either level-stationary $I(0)$ or first-differentiated stationary $I(1)$, the conditions that allow valid ARDL estimation are met completely. Since the p-value is less than 0.05, this further suggests that the PMG-ARDL model is suitable to be analyzed, as the $I(0)$ and $I(1)$ variables coexisted.

The Pooled Mean Group (PMG) estimator suggested by Pesaran et al. (1999) is especially suitable since the dataset is in the form of a panel. The PMG estimator can be used to assume heterogeneity in the short-run dynamics, error variances, and the speeds of adjustment, and it is used to assume homogeneity in long-run coefficients. This feature is quite important in cross-country macroeconomic analysis, where the two economies can react differently to the short-run shocks but are supposed to approach a shared long-run equilibrium association.

Moreover, the panel ARDL-PMG model allows drawing a clear line between the short-run adjustment dynamics and the long-run equilibrium impacts, as it uses both lagged differences and lagged levels of both variables. This characteristic enables the model to reflect time dynamics in estimating long-run elasticities in a coherent econometric framework, which is critical in the study of the link among variables and economic progress (Pesaran et al., 1999; Kettaf, 2025). Notably, the ARDL technique also allows a combination of $I(0)$ and $I(1)$ variables without having the limiting condition of applying the same order of integration to all the series (Chudik and Pesaran, 2015; Kettaf, 2025).

Lastly, the evidence of the absence of $I(2)$ variables within the model also guarantees the validity of long-run inference, as well as controls the probability of spurious regression findings. Combined, these methodological considerations will yield that the panel ARDL-PMG approach has a strong, versatile, and theoretically coherent framework to analyze long-run relationships as well as the short-run adjustment dynamics between the variables that have been utilized in this study.

The panel cointegration analysis is conducted to determine the level of connection among the variables that are investigated.

Panel Cointegration Analysis

To conduct an accurate analysis study, it is preferred to know about the existence of a long-run association if it exists among the variables. This study applies two residual-based panel cointegration tests: Pedroni (1999, 2004) and Kao (1999). The Pedroni test also takes into consideration cross-sectional heterogeneity, whereas the Kao test is a homogeneous cointegrating vector that offers complementary evidence. It is estimated based on annual panel data for eight cross-sectional units from 2000 to 2023, and the trend is not considered deterministic.

Table 6: Pedroni and Kao Panel Cointegration Tests

Panel A: Pedroni Residual Cointegration Test

Dimension	Test	Statistic	p-value
Between-dimension (Group statistics)	Panel PP-Statistic	-5.469	.000
	Panel ADF-Statistic	-3.205	.000



Within-dimension (Panel statistics)	Panel PP-Statistic	-4.245	.000
	Panel ADF-Statistic	-3.262	.000

Panel B: Kao Residual Cointegration Test

Test	Statistic	p-value
ADF-Statistic	-1.866	.031

Source: Author's Calculations

Note. The null hypothesis of no cointegration is rejected at the 5% significance level for all statistics in the model. The results provide strong evidence of a stable long-run association among the panel variables.

Table 6 shows the cointegration analysis, starting with the Pedroni cointegration test; the outcomes designate and show that there is a strong long-run connection between the variables. The Pedroni test results indicate that the Panel PP statistic ($-4.245, p < 0.05$) and the Panel ADF statistic ($-3.263, p < 0.05$) under the within-dimension framework are statistically significant. Moreover, the between-dimension statistics, i.e., the Group PP statistic ($-5.469, p < 0.05$) and the Group ADF statistic ($-3.205, p < 0.05$), also reject the null hypothesis that there is no cointegration. These findings approve the presence of a long-run equilibrium connection among economic growth, current account deficit, budget deficit, inflation, and exports in the eight South Asian countries.

The robustness of these results is further confirmed by the Kao residual cointegration test. the Kao test also rejects the null hypothesis of no cointegration at the 5 percent level (ADF = $-1.866, p < 0.05$), which shows the presence of a long-run association between the economic progress and the macroeconomic determinants of this relationship.

The combination of the evidence presented in both the Pedroni and Kao panel cointegration tests presents very solid and consistent information on the presence of long-run equilibrium relations among the variables of the Model. Though the diversion of short-run can be observed, the variables over time have a tendency to move in the same direction, thereby ensuring long-run stability in the panel.

Since the cointegration has been established to exist at the 5% level of significance, it is theoretically proper to take an econometric approach, which has the ability to model the long-run relations and short-run dynamics. In this respect, the research study uses the Autoregressive Distributed Lag-Pooled Mean Group (ARDL-PMG) estimator in the following analysis. The ARDL-PMG model is quite appropriate in dealing with panel data that are cointegrated in that it allows heterogeneous short-run changes across the cross-sections but is subject to homogeneity in the long-run coefficients, as forecasted by the theoretical form of the model.

Selection of Lag Length of the ARDL Model.

To evaluate the ARDL model, first the study tries to use an appropriate lag structure to eliminate biased estimates and obtain accurate short and long-run estimates. Lag length is determined using AIC, BIC, and HQ criteria, with AIC chosen as it provides the lowest value. The selected lag order (Table X) is then used to estimate the PMG-ARDL model.

Table- 7 Model Selection Criteria

Model Selection Criteria Table			
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Dependent Variable: LGDP					
Sample: 2000 - 2023					
Included observations: 192					
Model	LogL	AIC*	BIC	HQ	Specification
9	68.300253	0.758330	3.212873	1.754503	ARDL(3, 3, 3, 3, 3)
6	38.320148	1.019998	3.325781	1.955797	ARDL(2, 3, 3, 3, 3)
3	23.358432	1.102876	3.259899	1.978301	ARDL(1, 3, 3, 3, 3)
8	-4.035146	1.238514	3.098016	1.993190	ARDL(3, 2, 2, 2, 2)
5	-20.310237	1.337027	3.047769	2.031329	ARDL(2, 2, 2, 2, 2)
2	-31.338177	1.373074	2.935056	2.007002	ARDL(1, 2, 2, 2, 2)
1	-69.877685	1.450925	2.417866	1.843357	ARDL(1, 1, 1, 1, 1)
7	-56.009917	1.476309	2.740770	1.989489	ARDL(3, 1, 1, 1, 1)
4	-66.370146	1.504407	2.620108	1.957212	ARDL(2, 1, 1, 1, 1)

Source: Author's Calculations

LGDP is the dependent variable, the optimal lag length was again determined employing the Akaike Information Criterion (AIC) and is reported in Table 7. The ARDL (3,3,3,3,3) specification was the best of the specified models because it had the lowest AIC and highest log-likelihood of all possible specifications estimated. This means that it fits significantly better than more constrained lag structures.

The chosen model indicates that economic growth (LGDP) is stronger, more persistent, and has a longer adjustment time; therefore, three lags of both the dependent and independent variables are necessary to capture all the dynamics of economic progress and development. This observation is in line with the macroeconomic theory that argues that growth reactions to economic shocks do not usually take place immediately but gradually.

The longer lag lengths added in the model make it more effective in explaining the delayed effects and complicated intertemporal correlations of the variables. As a result, the ARDL (3, 3, 3, 3, 3) model is quite suitable and fit when examining short-run fluctuations as well as the long-run equilibrium connections influencing LGDP.

Table 8. Findings of the Pooled Mean Group (PMG) and Mean Group (MG)

Pooled Mean Group Estimates					Mean Group Estimates			
Long-run estimates								
Variables	Coefficient	Std. error	t-statistic	Prob.	Coefficient	Std. error	t-statistic	Prob.
LCAD	-0.119802	0.009960	-12.02871	0.0000	-0.074831	0.239101	-0.312968	0.7547
LBD	-0.060039	0.026221	-2.289697	0.0233	-0.161564	0.353121	-0.457532	0.6479
LCPI	-0.018696	0.028517	-0.655602	0.5130	0.368686	0.317702	1.160479	0.2476



LX	0.337362	0.034568	9.759459	0.0000	-0.083371	0.540511	-0.154246	0.8776
C	1.186734	0.064315	18.45188	0.0000	1.778423	1.411808	1.259677	0.2096
Short-run estimates								
$\Delta LGDP(-1)$	-0.006680	0.156654	-0.042643	0.9660	0.707970	0.726241	0.974842	0.3312
$\Delta LGDP(-2)$	-0.014516	0.208166	-0.069734	0.9445	-0.107070	0.209365	-0.511405	0.6098
$\Delta LCAD$	-0.014523	0.162456	-0.089395	0.9289	0.275889	0.436211	0.632466	0.5280
$\Delta LCAD(-1)$	-0.118361	0.202272	-0.585158	0.5593	0.159099	0.337517	0.471380	0.6380
$\Delta LCAD(-2)$	0.033992	0.072386	0.469594	0.6393	0.198477	0.234600	0.846025	0.3989
ΔLBD	-0.170815	0.157461	-1.084804	0.2797	0.147999	0.416246	0.355556	0.7227
$\Delta LBD(-1)$	0.032055	0.272869	0.117473	0.9066	0.415390	0.272454	1.524628	0.1294
$\Delta LCPI$	-0.183126	0.170224	-1.075796	0.2837	1.156775	1.131256	1.022558	0.3081
$\Delta LCPI(-1)$	0.017631	0.115319	0.152892	0.8787	1.196462	1.380141	0.866913	0.3873
$\Delta LCPI(-2)$	-0.279226	0.145262	-1.922227	0.0564	0.403414	0.827821	0.487320	0.6267
ΔLX	0.268246	0.583634	0.459613	0.6464	-5.379228	5.771961	-0.931958	0.3528
$\Delta LX(-1)$	-0.445067	0.643602	-0.691525	0.4903	-4.556607	3.891306	-1.170971	0.2434
$\Delta LX(-2)$	-0.046251	0.613195	-0.075427	0.9400	-0.865567	1.068817	-0.809837	0.4193
Error Correction Term								
ECT (COINTEQ)	-0.801113	0.341153	-2.348252	0.0201	-1.646520	0.759908	-2.166737	0.0318

Source: Author's Calculations

Hausman Test

In order to select the most suitable long-run estimator, the Hausman specification test was performed in order to compare the Mean Group (MG) and Pooled Mean Group (PMG) estimators.

Table 9: Hausman Test Results (MG vs PMG Estimators)

Test Component	Value
Chi-square Statistic	5.7156
Degrees of Freedom	5
P-value	0.3349
Significance Level	0.05
Decision	Fail to reject H_0

Source: Author's Calculations

The Hausman test results give a chi-square value of 5.7156 with a p-value of 0.3349 ($p > 0.05$), which depicts that the null hypothesis cannot be rejected. This suggests employing the PMG estimator, indicating no significant differences in long-run dynamics across South Asian countries. Therefore, PMG is the more efficient and appropriate method for analyzing the long-run effects of budget deficits and current account deficit on the economic growth of the region.

The results of the Hausman test suggest that the null hypothesis cannot be rejected, implying that the PMG estimator is more suitable for this analysis. Accordingly, the discussion that follows is based on the PMG results, while the MG estimates are presented only for comparison purposes.

Long-Run Results (PMG Estimates)

The paper focuses on the impact of budget and current account deficits on economic growth in South Asia. The results depicted in Table 8 and produced by the PMG estimator indicate that fiscal and external imbalances have a considerable impact on long-run progress in the region. The current account deficit (CAD) coefficient is found to be negative (-0.119802) with a statistical significance of 5 percent ($p < 0.05$), which indicates that a one percent upsurge in the current account deficit will result in an approximately 0.12 percent reduction in the economic growth of South Asian countries. Chronic external imbalances are a barrier to growth because they augment debt burdens, subject economies to shocks and undermine domestic investment, a phenomenon that is disastrous in South Asia because of both structural trade deficits and low foreign reserves. We find that our outcomes are consistent with prior research and literature such as Zafar (2020), Ahmad et al. (2021), and Aromi (2021) and across the studies that fiscal and current account deficits reductively affect long-term economic growth and progress.

Similarly, the coefficient of the budget deficit (BD) is also negative (-0.060039), and it is statistically significant at the 5% level ($p < 0.05$), meaning that increasing the fiscal deficit has a contractionary influence on long-run economic progress. This means that an upsurge in budget deficit by 1 percent could trim economic growth by approximately 0.06 percent in the long-run, constant fiscal misalignments discourage development by killing domestic investments, sabotaging fiscal sustainability and making macroeconomic disruptive effects more potent in South Asia due to low savings and high dependence on state borrowing. We find that studies by Adam and Bevan (2005), Fatima et al. (2012), Iqbal et al. (2017) and Sharma and Mittal (2019) all confirm that there is a limitation on the region's economic progress in the long term due to sustained budget deficits.

The coefficient of inflation (CPI) is negative (-0.018696); however, it is not statistically significant at the 5% level ($p = 0.5130$). The estimated p-value implies that the long-run effect of inflation on economic growth in South Asian countries is not statistically significant. Even though an increase in the rate of inflation by 1 per cent correlates with an approximate 0.019 percent drop in economic growth, the change is not empirically relevant to make a conclusive assertion.

The negative coefficient, however, is in line with the current empirical literature. The studies by Khan and Senhadji (2001), Bruno and Easterly (1998), Barro (1996), and Nguyen (2025) also conclude that inflation (CPI) has an adverse bearing on long-run economic growth, as it decreases the purchasing power and destabilises the macroeconomic environment. Likewise, Barro (1996) also proves that there is a negative link between inflation and growth, and Fisher (1930) points out that inflation has adverse impacts on the real interest rates and economic activity in general.

Conversely, the coefficient of exports (X) is positive (0.337362) and has a significant value at the 5% level ($p < 0.05$), meaning that a one percent increase in exports is associated with an approximately 0.34 percent increase in long-run economic growth. This underscores the need for export-led growth as regards high foreign exchange earnings, economies of scale, and productivity gains in South Asian economies. Our findings can be compared to other studies that are also confirmative of the positive and significant effect of exports on economic growth, such as Zafar (2020), Sarker (2024), Saleem et al. (2023), and Riaz et al. (2024). The constant term is large and positive, implying the existence of other underlying growth factors other than the variables that are used in the model.

Short-Run Dynamics and Error Correction

The short run dynamics is analyzed using the error correction framework. The error correction term (ECT) of the cointegrating equation is negative (-0.801113) and statistically significant at the 5% level ($p < 0.05$). The estimated p-value is 0.0201, indicating the presence of a stable long-run association and cointegration among the variables. The size of the ECT coefficient shows that about 80.1 percent of short-run disequilibrium to long-run economic growth is adjusted in the first year and thus indicates a fast and efficient process of adjustment.

In general, the model indicates that twin deficits, both budget and current account deficits, have a substantial negative effect on long-run economic growth in South Asia through the accumulation of debt burdens, undermining macroeconomic stability, and resulting in less efficient investments, which confirms that long-term imbalances limit growth. On the other hand, exports and export-led growth are justified by a positive and significant effect, and inflation is unconstrained in the long run due to a negative but non-significant effect. It is found that the significant error correction coefficient shows that there is a long-run stable link and a fast shift to the equilibrium. The implication of these findings is that South Asia needs to explore the concept of sustainable growth, which will require careful fiscal policy, enhanced external balance, and aggressive export-oriented strategies to resolve imbalances in the long term.

Table 10. Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

Test Statistics	Value
F(1,7)	1.764
F-statistics	(1,7)
Prob > F	0.2258

Source: Author's Calculations

To test the hypothesis about the fact that the panel data models are contaminated by serial correlation, the Wooldridge test of first-order autocorrelation was used. The test is usually employed in the panel data research to evaluate the correlation of the error terms with time among cross-sectional units. According to the null hypothesis of the test, the first-order autocorrelation does not exist.

Table 10 depicts that in the model, the gross domestic product is projected by using the current account deficit, budget deficit, consumer price index, and exports; the Wooldridge test fails to reject the null hypothesis ($F = 1.764$, $p = 0.226$) as well. This means that the error

terms in the second model neither have time dependence nor are correlated with time, and there is no autocorrelation of the first order.

On the whole, the outcomes of the Wooldridge tests show that there is no cause of concern with respect to autocorrelation in the model. Thus, the error terms are not dependent over time, and, therefore, the estimations of the coefficients do not influence the regression findings, making the statistical conclusion that can be made on the result of the regression analysis.

Table 11. Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Test component	Value
Null hypothesis (H_0)	Constant Variance
Variables	Fitted values of logGDP
Chi-square statistics $\chi^2(1)$	0.55
Prob > χ^2	Put value
Decision	Fail to reject H_0

Source: Author's Calculations

To determine whether the second model is afflicted with heteroskedasticity, the Breusch-Pagan/Cook-Weisberg test was run by log-transforming the variables. The null hypothesis of the test makes the assumption that the error term is constant in its variance, whereas the alternative hypothesis assumes that the error term is heteroskedastic.

In Table 11, the chi-square test indicates a statistic of 0.55 and a p-value of 0.4574. The null hypothesis of homoskedasticity cannot be rejected because the p-value is significantly greater than the standard 5 percent significant value. The result is a pointer that the heteroskedasticity is not observed at the 5 percent level in the second model.

Based on this, the findings indicate that error term variance is the same in all observations and there is no issue of heteroskedasticity in this model. Thus, it can be assumed that the estimated coefficients are trustworthy with regard to the assumption of homoskedasticity at the 5 percent significance level.

Conclusion

This paper inspects the effect of twin deficits, namely budget deficits (BD) and current account deficits (CAD), on the economic growth (GDP) of South Asian countries in the sample through the Panel ARDL technique. The empirical observations define the negative impact of fiscal and external imbalance on the economic growth within the region. According to the long-run approximations of the Pooled Mean Group (PMG) model, an increment in the current account deficit by 1 percent will cause a significant decline of approximately 0.12 percent in economic growth, whereas an increment in the budget deficit by 1 percent will cause a decline of approximately 0.06 percent in the GDP. These outcomes highlight the adverse effect of long-term fiscal and external imbalance, generally in emerging and particularly in South Asian countries' economies that have feeble foreign exchange reserves and high foreign debt.

On the other hand, the link and correlation between exports (X) and economic growth is a positive and significant one. A one percent advance in exports will result in a significant increase of approximately 0.34 percent in economic growth. This underscores the significance of export-led growth policies towards improving the economic performance of

South Asian states. However, inflation (CPI) does not indicate a significant long-term impression on economic progress, which implies that although inflation can influence the economy, it does not have a strong influence on the economy in the long term compared to the twin deficits and exports.

According to the short-run dynamics, which are dictated by the error correction term (ECT), the variations from the long-run equilibrium are resolved fast, and 80.1 per cent of disequilibrium is corrected within a year. This quick adaptation obviously confirms the long-run relationship.

This study adds value to the twin-deficit hypothesis and its ramifications to the economic growth in South Asia, which is unequivocal in that the management of the fiscal and external deficits, as well as the encouragement of export growth, is key to achieving the sustainable economic growth of the area.

Policy Implications

1. Fiscal Discipline and Budget Deficit Management: Due to the adverse effect of budget deficits on long-run economic growth, it is important that policymakers adopt policies that emphasize fiscal discipline. Poor fiscal balances will also be alleviated by reducing the budget deficit by increasing tax revenues, reducing and minimizing unnecessary expenditure, and regulating the borrowing of the populace to reduce the contractionary bearing of fiscal imbalances on economic growth.

2. Addressing Current Account Deficits: The negative sign of the link between the current account deficit and the economic growth indicates the importance of correcting external imbalance. Increasing domestic savings and reducing government fiscal deficits can effectively reduce and mitigate chronic current account deficits, which adversely impact economic growth. The policymakers are recommended to work on improving the competitiveness of exports, minimize the dependence on imports, and also improve the foreign exchange reserves in order to minimize the adverse effects of the chronic current account deficits.

3. Export-Led Growth Strategies: The significant impact and contribution of exports on economic growth highlights the importance of export-oriented growth policies. The South Asian nations have to improve trade facilitation, diversify the export products, ensure better quality of their products, and explore new markets to increase the foreign exchange earnings and propel the economy.

4. Inflation Control: Although inflation did not lead to any major long-run bearing on economic growth in this study, low and stable inflation is considered to be one of the reasons why a conducive environment can be created for the investment and consumption of goods. Central banks in the region should still focus on policies that would control inflation by sound monetary policy as well as price stability.

5. Promoting Export Diversification and Value Addition: South Asian countries need to work on diversifying the export base and shifting towards value-added products. This may include the investment in technology, innovation, and infrastructure that will render the exports more competitive in the global markets. Such diversification of exports will make the region less dependent on the external shocks, and it will be in a position to maintain growth in the long term.

6. Enhancing external financial stability: To minimize the exposure of the South Asian economies to external shocks, there is a need to enhance external financial stability. This might be done by putting in place measures that will attract more foreign direct investment

(FDI), expand the ease of doing business, and develop a capital market to lessen reliance on external borrowing.

7. Long-Term Structural Reforms: Long-term growth will need structural reforms to increase fiscal management, external imbalances, and competitiveness of exports. These reforms must aim at improving domestic savings and productivity, enhancing industrial capacity, and improving the business environment, making the economy more resilient to any economic changes across the globe.

8. Regional Economic Cooperation: Since the economies of South Asia are highly interdependent, regional economic cooperation, in the form of trade agreements, infrastructure connectivity, and cross-border investment projects, can be used to alleviate the negative impacts of fiscal and external imbalance. The collaboration may result in better economic integration and stability in the region, which may translate into an increase in the growth rates and lower susceptibility to external shocks.

To sum up, the paper has underscored the importance of fiscal deficit management, imbalances in the current account, and stimulation of export-led growth as critical factors in ensuring sustainable economic development in South Asia. The article successfully points out that government's budget deficit and current account deficit adversely impact the economic growth of South Asian nations. Policymakers need to consider the enhancement of fiscal and trade policies, the diversification of exports, and the improvement of external financial stability in building long-term economic progress and growth and resilience in the region.

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