Remittances Review
January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

Received: 5 December 2023, Accepted: 10 January 2024

DOI: https://doi.org/10.33282/rr.vx9il.75

Exploring Budget Deficit Volatility in Developing Countries: An Economic and Institutional Analysis

Abida Yousaf[1]
Humera Iram[2]
Surayya[3]
Nasir Hussain[4]

Abstract

This study provides an analysis of the budget deficit Volatility of a panel of 41 developing countries, which consists of 24 Asian developing countries and 17 Latin American countries. It examines the budget deficit's economic and institutional determinants, including per capita GDP, budget deficit, trade openness, inflation, unemployment, and institutional quality measures. The study utilizes the Pedroni Panel Cointegration technique and the Fully Modified Ordinary Least Squares (FMOLS) to estimate the budget deficit volatility of developing countries from 1991 to 2020. The findings of the study reveal that although institutional quality is an essential component in reducing budget deficit volatility, the coefficient of institutional quality is quantitatively more significant for Asian countries as compared to Latin American countries. Furthermore, the budget deficit, per capita GDP inflation rate, and trade openness have been proven to significantly and positively affect the budget deficit volatility in the case of both regions. A country's population negatively affects budget deficit volatility implies that population growth leads to more volatility. Results of the overall sample of 41 developing countries are pretty similar to the findings of each of the two regions except for the real per capita GDP, which appears statistically insignificant. The study recommends that budget deficit volatility can be stabilized in developing countries by improving institutional quality and price stability.

JEL classification: H20, H61, E60, C32

Keywords: Fiscal Policy, Budget deficits volatility, Openness, Inflation

[1] The Author is In-charage, Department of Economics and Finance, International Islamic university, Islamabad
[2] The Author is IPFP Fellow, Department of Business Studies, Air University School of Management Sciences
[3] The Author is In-charage, Department of Islamic banking and Finance, International Islamic university, Islamabad
[4] The author is CFO of Rockville group Islamabad.

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

1. Introduction

The nature and causes of persistent budget deficits remains as a key focus of macroeconomic policy reforms in developed and developing countries (Mawejje & Odhiambo, 2020). The budget deficit volatility (BDV) is negatively associated with long-term economic imbalances and harms future generations (Ngo & Nguyen, 2020). Researchers generally believed that higher and volatile budget deficits lead to inefficient utilization of resources, interest rate volatility, crowding out of private investment, higher inflation rates in the absence of an autonomous central bank, and long-run fiscal unsustainability (Agnello & Sausa, 2009).

Industrialization and economic growth are expected to reduce the problem of high budget deficits. However, countries witness volatility in budget deficits even during positive economic growth (Arif & Hussain, 2018). The initial understanding that considered budget deficits a macroeconomic phenomenon could not describe the causes of such deficits in progressive years of economic growth. Later on, with the emergence of political economics, researchers incorporated political factors in their analysis to explain the behavior of budget deficits (Atiya et al., 2009). Empirical studies provide evidence of the impact of political stability and democracy on BDV (Javid et al., 2011). Therefore, analyzing the determinants of BDV in the presence of institutional quality and economic variables is essential.

In retrospect, governments participate in economic activities through infrastructure investment, such as building roads and power plants and providing social services, including education and health facilities (Cameron, 1978). At the same time, governments also intervene to reduce the negative effects of external shocks and internal imbalances through fiscal policy and reinstate the private sector's confidence (Kandil, 2005). In order to finance these services, most governments rely on tax revenues, and inadequacy of tax revenues poses a severe constraint to conducive fiscal policy, particularly in developing countries. Consequently, many developing countries face the twin challenges of lower tax revenue collection and persistent increases in fiscal demand (Kim & Roubini, 2008). Moreover, its volatility and persistent budget deficits pose severe challenges to developing countries' macroeconomic stability (Ngo & Nguyen, 2020).

The high fiscal deficit volatility generates uncertainty regarding the magnitude and timings of the fiscal policies, which further causes inefficient economic decisions (Alt & Lessan, 2006). Similarly, fiscal deficit volatility affects the efficiency and quality of social services and creates economic distortions due to different measures adopted by the government to overcome

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

unexpected fluctuations in spending (Krogstrup S, Wyplosz, 2010). Finally, persistent fiscal deficit volatility also leads to higher interest rate volatility, discourages private investments, and increases the debt-to-GDP ratio (Arif & Hussain, 2018). Over the last three decades, researchers have devoted significant effort to examining the determinants of budget deficits. However, the issue of BDV is a relatively new dimension in the literature.

The link between institutional quality and BDV comprises three components (Arif & Arif,2023). The primary element concentrates on the significance of institutions in ensuring the stability of economic policies that lead towards long-term economic growth. The second component deals with the costs of the fragility of macroeconomics. The institutions lead to economic adjustments to offset any possible adverse shocks. The third component postulates that sustainable economic growth requires an efficient macroeconomic setting along with sound economic policies. Factors like enforcing property rights play an essential role here. The rapidly growing economies of many developing countries face BDV (Angelo & Sousa, 2009). Therefore, when a deficit is involved, it is essential to examine its determinants to make policies for removing such deficits. The research investigates how economic conditions and institutional frameworks affect BDV including per capita GDP, budget deficit, trade openness, inflation, unemployment, and institutional quality measures for 41 developing countries, which consists of 24 Asian developing countries and 17 Latin American countries over the time period from 1991 to 2020. The study contributes to the current body of literature by specifically exploring the economic and institutional factors influencing BDV. The comparison of Asian and Latin American regions is vital since both regions have similar development and income levels (Aizenman et al., 2015). Historically, tax collection remains relatively lower in Asian and Latin American countries than in Europe and other developed nations. The poor tax system of developing countries can be well explained with the help of fragile economic structures and the quality of institutions because institutions' quality matters for accomplishing tax collection targets and reducing tax leakages in an economy [Auerbach et al. 2013]. Moreover, the presence of informal sectors and the dominance of the agriculture sector make tax collection more challenging in developing countries.

The study is structured as follows: The introduction section introduced the study's focus, aims, and scope of the study, the Literature Review Analysis synthesizes the existing body of research relevant to the study's topic, the analytical framework, and methodology section explains the

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

estimation techniques, data sources, and the framework used for analysis, the study's findings derived from the estimations are presented in the empirical results and model discussion section, the conclusion and policy recommendations section summarizes the key findings, highlights the study's significance, and provides policy recommendations or suggestions for future actions.

2. Theoretical and Empirical Literature Review

A vast literature empirically and theoretically investigated the determinants of budget deficits (Mawejje & Odhiambo, 2020; Arif & Hussain, 2018; Javid et al., 2011). However, researchers have no consensus about the determinants of budget deficits. The Ricardian equivalence theory postulates that there is no link between budget deficits and economic aggregates in the long run (Barro, 1989). According to this theory, today's consumer adjusts their spending in anticipation of high taxes in the future due to current budget deficits. The intergenerational link and altruism nullify the long-term impact of the budget deficit (Seater, 1993; Barro, 1990).

The Keynesian theory highlights the positive nexus between budget deficits and macroeconomic variables (Bernheim, 1989). The theory argues that a high budget deficit increases aggregate demand, investment, and growth. Pelagidis & Desli, 2004 examine the effect of a budget deficit on economic growth and state that a budget deficit encourages governments to use the unemployed economic resources. The low level of economic growth is the primary determinant of budget deficit in their study. Contrary to Keynesian theory, the Neoclassical theory shows the negative relationship between budget deficit and an economy's aggregates. Studies like Diamond, (1965) and Kim & Roubini, (2008) show that continuous-year budget deficits negatively affect private investment and deteriorate the capital-labor ratio.

The political budget hypothesis is relatively new in literature and relates the political cycle to the budget deficit. According to the hypothesis, the politicians are incentivized to run a budget deficit for their political interests. Roubini & Sachs's (1989) study was the pioneer empirical study describing the impact of political differences on budget deficits. The study used an equilibrium approach for the data from 1960 to 1985 for OECD countries and found that the political system is a significant determinant of budget deficits in these countries. Later on, four strands of empirical and theoretical literature have been established on the political budget hypothesis. First, consider that budget deficits arise because of opportunistic politicians and myopic voters who give less value to the future burden of today's budget deficit (Eslava, 2011). Second, politicians' preferences based on their interests lead to a budget deficit (Alt & Lessan,

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

2006). The third strand focused on the budget deficit due to the fight among politicians and politicians and different powerful societal groups (Krogstrup S, Wyplosz, 2010). Fourth, it highlights the importance of budget institutions that lead the budget process (Von, 2002).

The importance of budget deficits for an economy has attracted researchers for decades. However, the empirical studies mainly focused on the macroeconomic impacts of budget deficits compared to the determinants of the budget deficits. Woo's (2003) study aims to determine the differences in fiscal deficit among 57 developed and under-developing countries from 1970-1990. The results of Woo's study revealed that income inequalities, the size of the political cabinet, financial depth, and institutional structure are the major determinants of fiscal deficits. Angelo & Sousa (2009) examine the budget deficit's political, economic, and institutional determinants using the GMM approach of linear dynamic panel data of 125 countries. Study shows that political stability decreases BDV. At the same time, inflation and trade openness increase the BDV, especially for small open economies.

Lis & Nickel (2010) investigate the effect of extreme weather conditions on the budget deficit for three groups: the developing countries, the European Union, and the OECD countries group. The study assumed other macroeconomic, political, and institutional determinants of budget deficit as fixed and found that extreme weather events differently affect countries' budget deficits. The underlying weak institutional and political systems of developing countries make these countries' budget deficits more vulnerable to shocks in extreme weather conditions. De Haan et al. (2013) examine the political budget hypothesis for European Union countries using a panel fixed effect model for 1984-2003. The study finds that solid budgetary institutions reduce the size of budget deficits. At the same time, the size of the cabinet does not affect the budget deficit.

Bwire et al. (2017) explore the foreign aid and fiscal deficit nexus in Rwanda. It uses the Cointegrated Vector Autoregressive (CVAR) model to analyze Quarterly data from 1990Q1 to 2015Q4. The study results show that foreign aid and fiscal deficit are cointegrated, and foreign aid significantly affects long-term fiscal balances. The anticipated foreign aid was also cointegrated with fiscal budget planning. Foreign aid increases tax efforts, decreases domestic borrowing, and increases domestic spending. The study revealed that foreign aid positively contributes to the fiscal balance of Rwanda. However, the unbalanced growth in tax collection

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

and the shortfall of foreign aid increases the budget deficit. The study recommends an efficient and transparent process of aid utilization.

Arif and Hussain, (2018) study was one of the prominent studies that focused on the BDV. This study investigates the fluctuation in fiscal deficits among South Asian and ASEAN countries, examining how economic, political, and institutional factors contribute to these changes. Using panel data covering the years from 1984 to 2016, both fixed effect and random effect models were employed to estimate the variability in fiscal budgeting. The study's findings show that external conflicts and military power do not significantly impact the fiscal deficit volatility of these countries. Whereas inflation and output growth significantly affect the volatility of trade deficit. Population growth and trade openness increases the volatility. The study's findings suggest that Institutional determinants have a more dominant impact on Asian and ASEAN countries.

Ezzat and Hosni (2019) examined 152 countries to understand the relationship between institutional quality, BDV` and economic growth. Using a fixed effect model, they analyzed how BDV, institutional quality, and budget deficit affect economic growth. Their findings suggest that while BDV tends to reduce economic growth, higher institutional quality contributes positively to growth. Additionally, the study highlighted that the impact of BDV on economic growth is dependent on the quality of institutions, indicating that BDV's effectiveness in fostering growth varies based on the strength of a country's institutional framework. Ngo and Nguyen (2020) conducted an analysis on the economic, political, and institutional determinants influencing fiscal deficit volatility specifically within three ASEAN countries: Thailand, Vietnam, and Indonesia. The study used two types of data panel and time series. For panel data, fixed and random effect models have been used for estimations, whereas the OLS estimation method has been used for time series data of each country. The study's empirical findings confirm that political instability and corruption are primary causes of BDV Further, the quality of institutional setup also plays a significant role in the instability of the budget deficit.

The literature review suggests that BDV has remained the topic of interest for researchers for the last three decades. Nevertheless, the exploration of factors influencing BDV is a relatively recent area of research. Furthermore, there is a dearth of well-established studies specifically concentrating on the determinants of BDV within developing countries. The weak institutional setup, low economic growth, and political instability make developing countries more vulnerable

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

to BDV. The primary objective of this study is to bridge the existing gap in literature by offering a comprehensive analysis of the economic and institutional determinants influencing BDV within developing countries across Asia and Latin America. The findings from this study aim to assist policymakers in understanding the underlying causes of persistent fiscal deficits observed in these nations over the years.

4. Analytical Framework

4.1. Econometric Model

The theoretical frameworks presented by AlesinaandPerotti(1995),Persson andTabellini(1997), Woo (2003), Henisz(2004) Agnelloand Ricardo (2009) and Nguyen (2020) are used in the present study to check the dynamics of BDV in context of developing countries. The following model can be specified for Asian developing countries and Latin American countries which captures the main determinants of the budget deficitvolatility from 1991 to 2020.

$$BDV_{it}=\beta_1 BDV_{it-1}+\beta_2 MECON_{it}+\beta_3 INST_{it}+\beta_4 C_{it}+v_{it}+\varepsilon_{it} \quad \text{.....(1)}$$

Where BDV_{it} is BDV for the country *i* in time period *t*, $MECON_{it}$ represents macroeconomic controlled variables namely real per capita GDP, budget deficit as percent of GDP, openness and inflation; institutional variables are represented by variable $INST_{it}$; C_{it} is a control variable shows specific demographic characteristics like population growth which has influence on country growth; country specific effects are denoted by v_i. $\beta_1, \beta_2, \beta_3 and \beta_4$ are the coefficients of the model to be estimated and ε_{it} represents error term.

BDV has also taken as lag form in the model in order to capture the existence of sluggishness of budgetary process. The difference of the economic development among developing regions of Asia and Latin America has been captured by using real GDP per capita. The major reason behind rapid change in taxation and government spending is high budget deficit that is why budget deficit as percent of GDP has been included in the model. To capture level of uncertainty and demographic characteristics between two regions inflation and total population has been included in the model.

4.2. Data Sources and Estimation Technique

This paper has used panel data to analyze the institutional and economic variables for developing countries of Asia and Latin America from 1991 to 2020. The study consists of 24 developing countries and it includes Bangladesh, Brunei, Cambodia, India, Hong Kong, Israel,

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

China, Jordan, Indonesia, Korea, Japan, Lao PDR, Malaysia, Macao, Mongolia, Maldives, Pakistan, Nepal, Singapore, Turkey Philippines, Vietnam and Sri Lanka. The number of Latin American countries included in sample is 17 which included Bolivia, El Salvador, Argentina, Costa Rica, Honduras, Peru, Guatemala, Nicaragua, Mexico, Colombia, Ecuador, Panama, Venezuela, Brazil, Uruguay, Chile and Paraguay. The selection of the countries from these two regions is subjected to the data availability.

To ensure data consistency, it is preferable to collect all required data from a single source. However, the required data cannot be collected from single source. Therefore, multi data sources are used in this paper. The data of economic variables namely budget deficit, GDP per capita, trade openness, population growth rate and inflation rate has been collected from World Development Indicators (WDI). Whereas, data on institutional quality variable have been sourced from the International Country Risk Guide (ICRG). To examine the overall institutional quality, five indicators from PRS have been used by following Knack and Keefer (1995). The variables under consideration encompass Rule of Law, Corruption, Bureaucratic Quality, Government Repudiation of Contracts, and Risk of Expropriation. The initial three variables are scaled within a range of 0 to 6, while the last two are scaled between 0 and 10. Higher values across these indexes signify superior institutional quality. To formulate the variable representing institutions, the values of all five indicators mentioned above are aggregated. This consolidation is based on the understanding that all facets of the institutional environment significantly contribute to ensuring the security of property rights.

The variable of per capita GDP has been constructed by using real GDP[5] divided by total population. Consumer price index (CPI) is used as proxy of inflation rate. Trade openness[6] has been measured by talking sum of export and imports and then dividing this sum with GDP. Trade openness shows how open is an economy at international level and more open economy means high share of trade in GDP. Ashra (2002) argued that it is difficult to use other proxies of trade openness as historical time series for most of these proxies is difficult to obtain. So, trade to GDP ratio has been included in the model. The series of BDV has been obtained by following below mentioned GARCH procedure.

$$BDV_{it} = \gamma_0 + \gamma_1 BDV_{it-1} + \mu_{it} \text{.....(2)}$$

[5] GDP has been made real by diving GDP at market prices with GDP deflator.
[6] Trade openness is measured as ratio and represents degree of openness of a country toward world trade.

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

$$\sigma_{it} = \alpha_0 + \alpha_1 \mu_{it-1}^2 + \alpha_2 \sigma_{it-1} \text{.....(3)}$$

The conditional variance equation as shown above consists of three terms namely the mean (α_0), the ARCH term represented by u_{t-1}^2 and it is measured as the lag of squared residual from the equation of mean and the GARCH term σ_{t-1}which forecasts the error variance of last period.

The study employs the Fully Modified OLS (FMOLS) Panel cointegration technique to estimate the panel models for both Asia and Latin America. This powerful test is presented by Pedroni (2001, 2004) and is used to investigate the direct condition of cointegration vector which is required to hold strong relation. Furthermore, employing this method enables us to test the null hypothesis in a more intuitive manner.

5. Results and Discussions

5.1. Panel Unit Root Test

Ensuring the stationarity of a series before employing cointegration techniques is imperative to avoid potentially misleading outcomes, particularly when confronted with mixed orders of integration. A panel unit root test involves assessing both individual root processes and common unit root processes. In the common unit root process, persistent parameters are assumed to remain consistent across different cross-sections, while in the individual root process, these parameters are presumed to exhibit independent variation across cross-sections. Typically, these tests are conducted concurrently, and decisions are made based on the aggregate test results. This study employs the unit root test developed by Im, Pesaran, and Shin (IPS) to independently evaluate the stationarity of each cross-section. Notably, the individual unit root test for panel data is considered statistically more robust contrary to the conventional panel unit root procedure (Levin et al., 2002). The IPS unit root test outcomes for the Asia and Latin America regions are given in tables 5.1 and 5.2, respectively.

The findings indicate that all series exhibit non-stationarity at the initial level. However, upon differencing the data once, they demonstrate stationarity. This implies the rejection of the null hypothesis, suggesting that the cross-section series are individually non-stationary for both the Asia and Latin America regions. Consequently, variables such as BDV, RPCGDP, LCPI, TO, POP, and INST are observed to follow a first-order integrated process (1(1)).

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

Table 5.1: Panel Unit Root Test for Asia (Individual Root-Im, Pesaran and Shin)

Variable	Level		First order difference	
	Constant	Constant & Trend	Constant	Constant & Trend
BDV	2.323	0.043	-9.621***	-8.312***
	(0.657)	(0.352)	(0.000)	(0.000)
LRPCGDP	0.0671	2.947	-8.261***	-8.384***
	(0.625)	(0.998)	(0.000)	(0.000)
LCPI	3.921	-0.653	-8.752***	-7.652***
	(0.397)	(0.761)	(0.000)	(0.000)
TO	6.952	-0.741	-1.525*	-5.172***
	(0.523)	(0.461)	(0.082)	(0.000)
LPOP	6.512	4.432	-5.135***	-6.142***
	(0.807)	(0.461)	(0.000)	(0.000)
LINST	1.671	3.571	-5.021***	-5.421***
	(0.563)	(0.9846)	(0.000)	(0.000)

Note: [1]***,**,* represent 1%, 5% and 10% levels of significance respectively.
[2] Values in Parenthesis are Probabilities.

Table 5.2: Panel Unit Root Test for Latin America (Individual Root-Im, Pesaran and Shin)

Variable	Level		First order difference	
	Constant	Constant & Trend	Constant	Constant & Trend
BDV	5.541	0.465	-13.176***	-9.521***
	(0.812)	(0.587)	(0.000)	(0.000)
LRPCGDP	5.723	0.512	-16.960***	-11.732***
	(0.932)	(0.835)	(0.000)	(0.000)
LCPI	5.487	-0.723	-17.215***	-13.266***
	(0.808)	(0.438)	(0.000)	(0.000)
TO	7.606	3.180	-8.472***	-6.672***
	(0.927)	(0.670)	(0.000)	(0.000)
LPOP	5.210	4.805	-1.367*	-7.713***
	(0.653)	(0.743)	(0.051)	(0.000)
LINST	4.642	0.146	-13.587***	-9.335***
	(0.824)	(0.789)	(0.000)	(0.000)

Note: [1]***,**,* represent 1%, 5% and 10% levels of significance respectively.
[2] Values in Parenthesis are Probabilities.

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

5.2 Panel Cointegration Analysis

The Pedroni's residual cointegration test is used to estimate the cointegration relationship among all the variables of the study, who described the procedure of panel co-integration tests based on residuals. This test is designed for models that incorporate more than one independent variable and is especially effective in handling diverse or heterogeneous datasets. Residual-based tests operate with a null hypothesis indicating no integration. In panel integration, the first step of the panel cointegration test using residuals involves computing the hypothesis for the co-integrating regression. Null hypothesis of this cointegration test by Pedroni is derived from the regression but two types of hypothesis are constructed one is within dimensions and other is between dimensions. The Pedroni Panel Cointegration test has been applied for two models. One is for the Asian region and the second model is for the Latin American developing countries.

The findings from the Pedroni residual test for the Asia dataset are presented in table 5.3. Within the Pedroni test dimension, the results suggest the rejection of the null hypothesis of no cointegration.This finding is supported by the Panel rho-Statistic, along with statistics derived from the Panel Augmented Dickey Fuller (ADF) test and the Phillips and Perron (non-parametric) test indicating the presence of a long-run relationship among the variables studied in Asian countries. Moreover, the outcomes from the between dimension analysis also confirms the cointegration among all the variables of the study.

Table 5.3: The Pedroni Panel Cointegration Test for Asia

Test	Constant (trend)	Constant & Trend
Within-Dimension		
Panel (v-Stat.)	1.425 (0.163)	0.354 (0.501)
Panel (rho- Stat.)	-3.046*** (0.002)	-2.603*** (0.008)
Panel (PP- Stat.)	-4.625*** (0.000)	-4.613*** (0.000)
Panel (ADF- Stat.)	-1.510* (0.052)	-1.857** (0.046)
Between (Dimension)		
Group (rho- Stat.)	-0.613 (0.332)	0.723 (0.831)
Group (PP- Stat.)	-3.687*** (0.000)	-3.465*** (0.000)
Group (ADF- Stat.)	-1.357** (0.032)	-3.723*** (0.004)

Note: [1]***,**,* represent 1%, 5% and 10% levels of significance respectively.
[2] Values in Parenthesis are Probabilities.

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

Similarly, the Pedroni Panel Cointegration test conducted for Latin America also provides support for the existence of a cointegration relationship among the variables studied, as demonstrated in table 5.4.

Table 5.4: The Pedroni Panel Cointegration Test for the Latin America

Test	Constant, trend	Constant & Trend
Within Dimension		
Panel (v- Stat.)	2.623** (0.042)	4.227*** (0.000)
Panel (rho- Stat.)	-0.246 (0.452)	-0.864 (0.215)
Panel (PP- Stat.)	-1.749*** (0.010)	-3.722*** (0.000)
Panel (ADF- Stat.)	-1.721*** (0.006)	-2.882*** (0.000)
Between Dimension		
Group (rho- Stat.)	0.216 (0.392)	0.912 (0.630)
Group (PP- Stat.)	-3.612*** (0.002)	-4.173*** (0.000)
Group (ADF- Stat.)	-2.375*** (0.007)	-4.521*** (0.003)

Note: [1]***,**,* represent 1%, 5% and 10% levels of significance respectively.
[2] Values in Parenthesis are Probabilities.

4.3 Fully Modified OLS Analysis

This powerful test had been suggested by Pedroni (2001, 2004) and this test directly investigates the condition on the cointegration vector necessary for maintaining a robust relationship. The FMOLS panel cointegration test results for Asian and Latin American developing countries are reported in table 5.5 Results indicate that the lagged value of the BDV statistically significantly and positively affect the BDV in case of developing Asian and Latin American countries which indicates the fact that BDV is persistent in nature. The study of Agnello and Ricardo (2009)also

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

supports these results that the BDV is persistence in nature because changes in government spendings are linked with changes in government revenues. Nevertheless, once a government increases its spendings it becomes difficult to accommodate spending with revenues volatility which makes budget deficit persistent in nature. According to FatasandMhov (2010) the persistent nature of the BDV is linked with the political and institutional environment of a country and it is difficult to reverse the increase in government expenditures. Similarly, the findings of Javid et.al. (2011) also justify the positive association between the lag of deficit volatility with the BDV.

The real per capita GDP coefficient is positive and statistically significant in case of Asia and Latin America. However, its value is higher for Asian developing countries (0.120) as compared to Latin American countries i.e. 0.07.This positive association between real GDP per capita and BDV indicate that countries with higher per capita income experience higher volatility in budget deficit. This result is consistent with the findings of Woo (2003) and FatasandMihov (2006, 2010). FatasandMihov (2010) argue that fiscal policy is volatile in nature as it is not formulated by benevolent government which always prefers maximization of the social welfare function which leads to accumulation of debt and mismanagement of fiscal policy. Moreover, Woo (2003) highlights positive nexus between real per capita GDP and BDV which is indicative of the fact that growing economies with more available resources are able to deal with fiscal policy more effectively.

Table 5.5.Panel FMOLS Test Results for Asia and Latin America

	Results for Asian Developing Countries	**Results for Latin American Developing Countries**	**Combined Results of Asia & Latin America regions**
Variables	**Coefficient (Prob.)**	**Coefficient (Prob.)**	**Coefficient (Prob.)**
BDV(-1)	0.122*** (0.004)	0.150*** (0.000)	0.141** (2.24)
LRPCGDP	0.120** (0.003)	0.071* (1.96)	0.082 (0.81)
LCPI	0.777***	0.906***	0.124**

	(0.00)	(0.000)	(1.99)
TO	0.432*** (0.000)	0.112*** (0.000)	0.031* (1.82)
LPOP	- 0.333*** (0.000)	-0.372*** (0.000)	-0.153*** (-4.37)
INST	-0.148*** (0.000)	-0.050*** (0.001)	-0.011** (1.77)
C	0.33 (1.79)*	0.27 (2.17)**	0.232** (-2.16)
Diagnostic Test			
R-squared	0.89	0.68	0.67
Adjusted R-squared	0.88	0.68	0.66

Note: [1]***,**,* represent 1%, 5% and 10% levels of significance respectively.
[2] Values in Parenthesis are Probabilities.

The LCPI, coefficient of inflation has positive sign for developing countries of Asia and Latin America but it is statistically insignificant. The purchasing power of government decreases with increase in inflation but government spendings from revenue to finance goods and services to masses which causes volatility in the budget deficit. These findings are also supported by Javid et. al. (2011) and Agnello and Ricardo (2009). However, empirically negative association between inflation and budget deficit for old and new members of European Union (EU) has also reported by Mara (2012). The reason behind this can be the existence of low inflation in EU member countries. The population and the BDV have negative association in case of Asian and Latin American developing countries. It means countries with larger populations can potentially reap more advantages from increasing returns to scale. A larger population enables governments to deliver public goods and services in a consistent manner, and it allows for the distribution of the costs of financing and spending across taxpayers. These conclusions are further reinforced by the works of Agnello and Ricardo (2009), Javid et al. (2011), and Mara (2012). Trade openness has positive impact on BDV. Trade openness has been included in model to capture the effects of external factors on BDV of Asia and Latin America developing countries. This finding implies that BDV increases with the trade openness in Asian and Latin American countries. These findings are also supported by Agnello and Ricardo (2009) and Javid et. al. (2011). External

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

factors play a crucial role as a significant source of fiscal instability, particularly in developing countries. Variations in export and import prices directly impact the public sector balance, primarily through alterations in import tariffs, taxes on exports, or profits generated from exports (Javid et al., 2011). The institutional variable is negative and statistically significant associated with BDV in countries under investigation. It shows that institutions are important and have an impact on BDV in developing countries of Asia and Latin America. These findings are also consistent with finding ofAgnello and Ricardo (2009) and javidet. al. (2011). Countries can reduce BDV and can get economic prosperity by improving institutional quality, maintaining political stability and democracy (Agnello& Ricardo, 2009).

Results of combined sample of the regions included in sample are reported in Table 5.5. GDP is statistically significant and positively associated with BDV implying that increase in economic growth is not helpful in reducing BDV of developing regions included in sample. The results of other variables are consistent with individual findings of developing countries of Asia and Latin America. In a nut shell, it can be concluded that institutional and economic measures play important role in determining the BDV in developing countries.

6. Conclusion and Policy Implications

The objective of this study is to investigate the institutional and economic factors contributing to the BDV in developing nations across Asia and Latin America by using panel data from 1991 to 2020. It is first empirical effort to analyze the determinants of BDV from perspective of developing countries. The Peroni-Panel Cointegration method and the panel FMOLS techniques is used to estimate the determinants if BDV of both regions. Three dynamic panel models have been estimated including separate models for Asian and Latin American developing countries and then we combined the data of all developing countries to analyze the dynamic behavior of BDV in these two regions.

Lag of BDV, GDP, trade openness and inflation, all have positive impact with the BDV in all three models. The positive relationship of inflation with BDV indicates that BDV increases with increase in inflation because higher inflation leads to economic uncertainty and causes fluctuations in the revenue of government. However, institutions and population both have negative association with BDV in sample countries. It can be concluded that by increasing size of population, BDV can be reduced and by improving quality of institutions, fiscal stability can be achieved in Asian and Latin American developing countries.

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

The policy implications derived from the study are straightforward and explicit. Firstly, the governments of the developing countries Particularly Asian and Latin American countries should introduce inflation reducing policies to tackle the issue of BDV. For this purpose, monetary rule and fiscal discipline based policies can be introduced in developing countries. Secondly, improvements in the institutional quality measures such as law and order, political stability, reduction in corruption and improvement in transparency will make vital contributions towards the better fiscal management and accomplishment of the long term economic prosperity of developing countries.

References

Afonso, A. and Furceri, D. (2010), "Government Size, Composition, Volatility and Economic Growth", *European Journal of Political Economy,* 26(4): 517-32.

Afonso, A. and Jalles, J.T. (2012), "Fiscal Volatility, Financial Crises and Growth", Applied Economics Letters, 19(18):1821-26.

Afonso, A., andJ alles, J. T. (2013). Do fiscal rules matter for growth?. Applied Economics Letters, 20(1), 34-40.

Agnello, L. and Ricardo M. S. (2009), *The Determinants of Public Deficit Volatility* , Working Paper No 1042, European Central Bank.

Alesina, A. and Perotti, R. R. (1995), "The Political Economy of Budget Deficits", *IMF Staff Papers,* 42:1-31.

Alt, J. E., & Lassen, D. D. (2006). Fiscal transparency, political parties, and debt in OECD countries. *European economic review*, *50*(6), 1403-1439.

Angelo L, Sousa R (2009) The determinant of public deficit volatility. Working paper series, No. 1042. *European Central Bank,* Frankfurt.

Anwar, M. and Munazza A. (2012), *Political Determinants of Budget Deficit in Pakistan: An Empirical Investigation*", Research Paper No.135, Hamburg Institute of International Economics, Germany.

Arellano, M. and S. Bond (1991), "Some Tests for Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations*", Review of Economic Studies,* 58(2):277-97.

Arif, A., & Arif, U. (2023). Institutional Approach to the Budget Deficit: An Empirical Analysis. *SAGE Open*, *13*(2).

January, 2024 Volume: 9, No: 1, pp. 1562-1581
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)
Arif, A., & Hussain, M. (2018). Economic, political and institutional determinants of budget deficits volatility: a panel data analysis.

Ashra, S. (2002), *Inflation and Openness: A Case Study of Selected DevelopingEconomies*, Working Paper No 84, Indian Council of Research on International Economic Relations (ICRIER).

Auerbach, A. and Y. Gorodnichenko, (2013). "Output Spillovers from Fiscal Policy", *American Economic Review Papers and Proceedings*, vol. 103(3): 141-46.

Auerbach, A. J., Chetty, R., Feldstein, M., &Saez, E. (Eds.), 2013, *Handbook of public economics* (Vol. 5). Newnes.

Barro, R. J. (1990). Government spending in a simple model of endogeneous growth. *Journal of political economy*, 98(5, Part 2), S103-S125.

Bayar, A. H. (2001), "Entry and Exit Dynamics of Excessive Deficits in the European

Bayar, A. H. and Smeets, B. (2009), "*Economic, Political and Institutional Determinants*

Bernheim, B. D. (1989). A neoclassical perspective on budget deficits. *Journal of Economic Perspectives*, *3*(2), 55-72.

Bwire, T., Lloyd, T., & Morrissey, O. (2017). Fiscal reforms and the fiscal effects of aid in Uganda. *The Journal of Development Studies*, *53*(7), 1019-1036.

Cameron, D. R. (1978). The expansion of the public economy: A comparative analysis. *American political science review*, *72*(04), 1243-1261.

Carmignani, F., E. Colombo and P. Tirelli (2007), *Public Expenditure and Growth Volatility: Do Globalisation and Institutions Matter?*,Bicocca Working Paper Series, No. 116.

Castro, V. (2007), "*The Causes of Excessive Deficits in the European Union",* the Warwick Economics Research Paper Series No. 805, Department of Economics, University of Warwick.

Chong, A. and Calderon, C. (2000), "Causality and Feedback between Institutional Measures and Economic Growth", *Economics and Politics*, 12: 69– 82.

Clarke, R.G.G. (2001), *How the Quality of Institutions Affects Technological Deepening in Developing Countries*, World Bank Policy Research Working Paper No. 2603.

De Haan, J., Jong-A-Pin, R., & Mierau, J. O. (2013). Do budgetary institutions mitigate the common pool problem? New empirical evidence for the EU. *Public Choice*, *156*, 423-441.

Determinants of Budget Deficits Volatility in Selected Asian Countries", *the Pakistan Development Review*, 50(4):649-62.

Diamond, P. A. (1955). National Debt and Neoclassical Economic Growth. *American ECOnomic Review*, 1125-5O.

Eslava, M. (2011). The political economy of fiscal deficits: a survey. *Journal of Economic Surveys*, *25*(4), 645-673.

Ezzat, S., & Hosni, R. A. N. A. (2019). Budget Deficit Volatility, Institutional Quality and Macroeconomic Performance. *International Journal of Euro-Mediterranean Studies*, *12*(2), 21-40.

Fatas, A. and Ilian, M. (2003), "The Case for Restricting Fiscal Policy Discretion," *the Quarterly Journal of Economics,* 118(4): 1419-47.

Fatas, A. and Mihov, I. (2006). "The Macroeconomics E¤ects of Fiscal Rules in the US States", *Journal of Public Economics,* 90, 101-117.

Furceri, D. (2007), "Is Government Expenditure Volatility Harmful for Growth? A Cross-Country Analysis", *Fiscal Studies*, 28 (1):103-20.

Hagen, J. V. (2002). Fiscal rules, fiscal institutions and fiscal performance. *The Economic and Social Review*, *33*(3), 263-284.

Hall, Robert E. and Charles I. Jones (1999), "Why Do Some Countries Produce So Much More Output per Worker than Others?", *Quarterly Journal of Economics*, 114(1): 83-116.

Harris, R. D., andTzavalis, E. (1999). "Inference for unit roots in dynamic panels where the time dimension is fixed", *Journal of econometrics,91*(2): 201-226.

Henisz, W. J. (2004) Political Institutions and Volatility. *Economics and Politics* 16, 1–27.

Javid, A. Y., Arif, U., & Arif, A. (2011). Economic, political and institutional determinants of budget deficits volatility in selected Asian countries. *The Pakistan Development Review*, 649-662.

Javid, A., Unaima, A. & Asma, A. (2011), "Economic ,Political and Institutional

Kandil, M. (2005), `On the e_ects of government spending shocks in developing countries', Oxford Development Studies 33(2), 269 { 304.

Kim, S., & Roubini, N. (2008). Twin deficit or twin divergence? Fiscal policy, current account, and real exchange rate in the US. *Journal of international Economics*, *74*(2), 362-383.

Knack, Stephen and Keefer Philip (1995), "Institutions and Economic Performance: Cross Country Tests Using Alternative Institutional Indicators", *Economic and Politics*, 7(3):207-27.

Kouassy, O. and Bouabre B. (1993), *The Determinants of Fiscal Deficit and Fiscal Adjustment in Cote d'Ivoire,* Research Paper No.15, African Economic Research Consortium, Nairobi, Kenya.

Krogstrup, S., & Wyplosz, C. (2010). A common pool theory of supranational deficit ceilings. *European Economic Review*, *54*(2), 269-278.

Law, S. Hook (2009), "Trade Openness, Capital Flows and Financial Development in Developing Economies",*International Economic Journal,* 23(3): 409–26.

Levin, A., Lin, C. F., & Chu, C. S. J. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of econometrics*, *108*(1), 1-24.

Levin, A., Lin, C. F., and Chu, C. S. J. (2002). "Unit root tests in panel data: asymptotic and finite-sample properties", *Journal of econometrics*, *108*(1): 1-24.

Lis, E. M., & Nickel, C. (2010). The impact of extreme weather events on budget balances. *International Tax and Public Finance*, *17*, 378-399.

Mara, Eugenia-Ramona (2012), *Determinants of Fiscal Budget Volatility in Old versus New EU Member States*, Working Paper 31, Department of Economics,Technical University of Lisbon,Portugal.

Mawejje, J., & Odhiambo, N. M. (2020). The determinants of fiscal deficits: a survey of literature. *International Review of Economics*, *67*, 403-417.

Ngo, M. N., & Nguyen, L. D. (2020). The role of economics, politics and institutions on budget deficit in ASEAN countries. *The Journal of Asian Finance, Economics and Business (JAFEB)*, *7*(9), 251-261.

of Budget Deficits in the European Union", CESifo Working Paper Series No. 2611.

Pelagidis, T., & Desli, E. (2004). Deficits, growth, and the current slowdown: what role for fiscal policy?. *Journal of Post Keynesian Economics*, *26*(3), 461-469.

Persson, T. and G. Tabellini (1997) Political Economy and Macroeconomic Policy. (NBER Working Paper No. 6329).

Persson, T. and G. Tabellini (1997), *Political Economy and Macroeconomic Policy,* Working Paper No. 6329, National Bureau of Economic Research.

Pesaran, M. H., and Shin, Y. (1996). "Cointegration and speed of convergence to equilibrium", *Journal of econometrics*, 71(1): 117-143.

Roubini, N. and Sachs, J. (1989), "Political and Economic Determinants of Budget Deficits in the Industrial Democracies", *European Economic Review*, 33: 903-38.

Roubini, N., & Sachs, J. (1989). Government spending and budget deficits in the industrial countries. *Economic policy*, *4*(8), 99-132.

Seater, J. J. (1993). Ricardian equivalence. *Journal of economic literature*, *31*(1), 142-190.

Union",*Public Finance and Management*, 1(1): 92-112.

Varvarigos, D. (2010), "Inflation, Volatile Public Spending, and Endogenously Sustained Growth",*Journal of Economic Dynamics and Control*, 34: 1893–1906.

Woo, J. (2003), "Economic, Political, and Institutional Determinants of Public Deficit", *Journal of public Economic*, 87:385-426.