Fiscal Consolidation and, Current-Account Dynamics in South-Asian Countries

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PAPER INFO	ABSTRACT
	The study observes the effect of fiscal-policy shocks upon current-account balances and, contributed to provide an insight that how fiscal-policy shocks can influence current-account. For this purpose, Panel Structural Vector Autoregressive (PSVAR) model has been employed to investigate the influence of fiscal-policy shocks upon current-account considering the selected South-Asian Countries for the time period of 1984-2019. It provides an understanding that in what manner, fiscal shocks can determine the structure of current-account, and the effectiveness of output shocks, and, government shocks to manage the current account deficits. The main contribution of present study is considering South-Asia as an emerging-market characterized by massive deficits in current-account and, macroeconomic instability. The results suggest that expansionary fiscal shocks policy reduces the deficit in current account, which specify a divergence from twin-deficit approach.

1   Introduction

The relation among fiscal-policy and, current-account balance has attracted the policymakers and the economists over a long period of time, primarily, because persistent deficit in current-account and, fiscal-deficit can be extended beyond the country and can result in global financial instability and can ultimately cause economic crisis (Mendoza *et al.*, 2009). In most of the countries where exist substantial imbalances in current-account, raises the question that to what magnitude an adjustment in fiscal variables can help to resolve the issue of external imbalances (Abbas et al., 2011).

There are two strands of literature which explain the variations in the current-account balances. One of the possible links between government budget deficit, and, current-account deficit which has spurred several studies is the twin-deficit hypothesis. According to twin-deficit hypothesis, an increase in government spending, results in a rise in household's consumption which ultimately reduces the national savings. This reduction in savings induces the country to either borrow from abroad or to cut down the lending to balance this shortfall in saving. Therefore, a higher fiscal deficit is related with higher current-account deficit (Rafiq, 2010).

On the contrary, Ricardian hypothesis denies the twin-deficit approach claiming that budget-deficit may not have any impact on current-account deficit (Barro, 1989). However, the basic idea concerning the impact of fiscal deficit on current-account depends largely on kind of fiscal balance. Considering a temporary rise in government expenditure can result in an increase in both fiscal, and current-

account-deficit as in the case of twin-deficit, but a consistent rise in government expenditure may have no effect on current-account but the effect upon fiscal balance is based on the additional expenditure that is done either through taxes or financed by debt i.e., future tax resulting in worsening of fiscal balance. Therefore, fiscal deficit may or may not lead to deterioration of current-account will depend on the persistence and nature of fiscal shock.

Many of the existing studies on current account dynamics are mainly based on developed countries or a comparison between developing and developed economies (Calderon *et al.,*2007; Chinn and Prasad, 2003). However, some of the recent literature identifies that in an open economy depending on components of fiscal balance, output shocks, economy's income level and structure of the economy there exist an inverse relation among fiscal deficit, and, deficit in current-account that is against the twin-deficit theory (Rafiq,2010; Kim and Roubini, 2008). It is mainly because consumers in an open economy smooth their consumption either by borrowing or lending in international capital markets, which attracts short-term capital inflows which can be helpful to finance deficits. Therefore, it is vital to realize the determinants of current-account and, its evolution in economies with different income levels and openness.

Most of the studies that how fiscal policy can adjust the imbalance in current-account are based upon industrial and advanced economies (Sarsenbayev & Gagnon 2021; Cubeddu et al., 2019; Gagnon 2017, 2013; Chinn 2017; Bayoumi et al., 2015). These economies have different macroeconomic structures, which imply that policy implications based on the research in these economies might not be suitable for emerging or developing countries. Consequently, this study tries to fill the gap by analyzing the impact of government-spending shocks, and output shocks upon current-account in South-Asia. In South-Asian countries where exist large and persistent fiscal as well as current-account imbalances, the present study attempts to observe the magnitude that how fiscal-adjustment can assist to resolve external imbalances. Over the years, growth in South-Asia is driven by domestic demand which expands the imports which outstripped the exports resulting in widening of deficits in current account and currency depreciation. The government spending in South-Asia is on average is 11.1 percent and investment is 9.3 percent in past few years which contributed to higher growth resulting in not only strong domestic demand but also higher growth in imports ranging between 14.9 percent and 15.6 percent in 2017 and 2018 respectively[1]. South-Asian countries experienced consistent fiscal, and, current-account deficit. These deficits are characterized by large remittances inflow, rising oil prices, low investment, higher inflation and exchange-rate depreciation.

The present study analyzes impact of government-spending shocks, and output shocks upon current-account by using panel structural VAR model considering the selected South-Asian Countries for the time period of 1984-2019, that found the theoretically established restrictions on fiscal variables and current-account. For this purpose, impulse-response functions and, variance decomposition are employed to describe the impact of output shocks, and, fiscal policy shocks on current-account. The results deviate from the traditional twin-deficit hypothesis and specify that fiscal-policy shocks improve the current-account situation in South-Asian countries.

The section 2 includes the approaches used to define the current-account regarding fiscal policy and review the literature developments in context of fiscal policy, Section 3 of the study discusses the methodology and data. The section 4 discusses the estimated results and, in the last section 5 includes the conclusion.

2   Literature Review

From early 1980's, the issue of current-account attracts the interest of economists. Majority of the studies are being observed in the case of developed economies i.e., how different macro-economic

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[1] South-Asia Economic Focus 2019

and, structural variables can impact the behavior of current-account (Bernheim, 1988; Glick and Rogoff, 1995; Egwaikhide, 1999; Chinn & Prasad, 2003).

Generally, fiscal-policy and, the current-account are associated with following identities.

$$CA = X - M + TP \qquad (1)$$

$$CA = (S_p - I_p) + (S_g - I_g) \qquad (2)$$

Where, *CA* is current-account, *X* represents the export of goods & services, *M* indicates the import of goods and, services and, *TP* is the transfer-payments (which includes remittances, profits and, interest-receipts). However, S_p and I_p, indicate the private-savings and investment, furthermore, S_g, is the government-savings, and I_g, indicates investment respectively. Therefore $S_g - I_g$, equals to government saving-investment balance or in other words an indication of fiscal balance in case there are no government transfers to the private-sector. Broadly these two equations *(1)*, and, *(2)* explain the causal channels from fiscal policy may affect the current-account.

One of the channels, which the fiscal policy can influence the current-account is the increase in expenditure by government (either tax-financed or debt-financed) increased the demand for domestic goods compared to imported goods, that would lead to appreciation of real exchange-rate, and worsening of trade-balance emphasized by Mundell-Fleming Model.

The second channel through which the fiscal policy can affect current account focuses upon the inter-temporal response of private-agents to a given fiscal-policy action i.e., increasing the government spending through debt finance induces the private agents to increase savings and work efforts today. As the private agents can anticipate that to offset the fiscal deficit, government would raise the taxes in future which in result would decrease the present-value of future income resulting in lower consumption and increase in current labor supply respectively. This increase in labor supply increases the marginal product (MP) of capital leading to crowding-out of private investment and resulting in deterioration of current-account considering a rise in private savings do not offset the decrease in public-savings (Baxter, 1995).

The intertemporal approach, is based on proposition that the expectations concerning government spending, productivity growth, current and, future prices do influence the saving and, investment choices of a country (Obstfeld & Rogoff 1995; Lu 2012). The intertemporal approach indicates a direct relation among current-account deficit, and, government budget deficit i.e., a rise in government spending would worsen the current-account, that actually is the cause of twin-deficit hypothesis, that describes the relation among fiscal-balance, and, current-account balance (Feldstein, 1983).

According to Keynesian theory of twin deficit, an expansionary fiscal policy via tax cut would lead to a rise in public debt as well as increase in disposable income which ultimately increases the private savings. This reduction in tax will have a windfall gain in income but the magnitude of increase in consumption is larger as compared to the decrease in tax which ultimately reduce savings. During fiscal expansion, an increase in fiscal spending is either funded by domestic borrowing, or from foreign resources which may lead to a deficit in current-account as there is a capital inflow in an economy. This capital inflow increases the investment but at the same time widens the saving-investment gap, therefore, it entails that an expansion in fiscal spending would result in an extension of current-account deficit.

Interestingly, the projections of intertemporal approach and twin deficit hypothesis to current account are the same. According to both these theories any expansion or deterioration in fiscal deficit will worsen the current-account. Meanwhile, there are alternative approaches which suggest different relation between budget-deficit, and, current-account deficit. One of them is twin divergence theory by, Kim and Roubini (2008).

Even though there exists a great amount of literature about how fiscal-deficit, and, current-account deficit can be related, most of the studies indicate a direct and significant relation among budget-deficit and, current-account-deficit supporting the Keynesian twin-deficit hypothesis. (e.g., Calderon et al., *2002*; Salvator, 2006; Baharumshah and Lau, 2007; Beetsma et al., 2008; Lau et al., 2010; Abbas et al., 2011; and, Bluedorn & Leigh, 2011). In this regard, Salvator (2006) considering the G-7 countries found a strong relation between fiscal budget-deficit and, current-account deficit concluding that the twin-deficit holds for these countries. Baharumshah and Lau (2007) examines the quarterly time series data from 1976 to 2001 using cointegration technique to observe the relation among budget-deficit, and current-account-deficit in case of Thailand. The findings of this study specify presence of long-term relationship among interest-rate, exchange-rate, fiscal-deficit, and, current-account. Using the panel data of 14 European Union countries, Beetsma et al. (2007) detect the causes of movement in trade-balance and explore the impact of government spending shocks for trade-balances, and, budget balances. The findings are consistent with twin-deficit hypothesis. Another study while considering the seventeen OECD countries has been conducted by Bluedorn and Leigh (2011), they observe the impact of fiscal consolidation on current-account deficit using the data set of 1978-2009. The results support the Keynesian twin deficit hypotheses indicating that a decrease in budget deficit by 1 percent reduces the current account deficit by 0.6 percent in two years. Comparing the advanced and emerging economies Abbas *et al.,* (2011) analyze link among fiscal-policy, and, current-account balance for 88 countries using multiple regression techniques. The results indicate a strong association among fiscal balance and, current-account balance in developing economies compared to advanced economies. Furthermore, Miteza (2012) used the GMM technique to examine the casual association between fiscal deficit, and, current-account deficit for twenty OECD economies and identify that an increase in budget-deficit results in higher current account deficit respectively. In the same manner, Forte and Magazzino (2013) used the panel data of 1970- 2010 for thirty-three European countries and the results support the twin deficit hypotheses.

Recently, some new literature emerged which observed that in case of developed countries an expansionary fiscal shock would lead to an improved current-account balance or alternatively twin-divergence (Muller,2008; Kim and Roubini ,2008 and Rafiq ,2010). These studies demonstrate that in new open economy macroeconomics (NOEM), controlling fluctuations in business cycle, forecast that since the response of fiscal balance, and, current-account is endogenous to business cycles, the co-movement between fiscal-balance, and, current-account mainly occur because of output shocks instead of the fiscal shocks. During the pro-cyclical fiscal spending, a rise in output results in an increased government expenditure. Yet the response of current account to this raise in productivity leads to an expansion in exports that eventually improves the current-account balance, inducing an inverse relation between fiscal-balance, and, current-account balance. Therefore, a rise in fiscal deficit results in an improved current-account but it is possible only while considering if there are output shocks and budget deficit is endogenous (Kim and Roubini, 2008). These results entail that a decrease in fiscal spending may not result in an improved current account balance, therefore, as compared to early studies this notion is against the twin deficit hypotheses.

Most of the studies observed, examined the link among fiscal-policy, and, current-account deficit is either based on developed countries or a comparison between developed and emerging countries. Like Schnab (2018) observed the effects of divergent fiscal-policy along with monetary policy on current-account in Europe. Altayligil and Çetrez, (2020) identified the impact of fiscal balances, real exchange-rate, growth rate and financial development generate deficits in current-account employing panel data of 97 countries. Afonso et al. (2020) observed the panel-data of 65 countries from 1985-2015 and confirmed twin-deficit hypothesis. The results indicate that government spending leads to increased deficit in current-account. Sarsenbayev and Gagnon (2021) observed that how fiscal policy and exchange-rate are the main variables that create imbalances in current-account. Afonso and Coelho (2021) identified a bilateral relation between fiscal balance and current account balances in Germany and Portugal. The results indicate that fiscal rule index has a negative effect on current-

account balances. Afonso and Opoku (2022) examine the relation between fiscal balances and current-account using a panel of 18 countries and the results indicate that improvement in fiscal balance improves the current account balances, however, government spending indicates a negative impact on current account.

In case of developing countries limited studies are being conducted which observed the causal association among fiscal policy, and, current-account (Egwaikhide 1999; Marinheiro 2008; Javid *et al.*, 2010; Chaoneka, 2013 and Sakyi and Opoku, 2016; Safdar et al. 2020). Egwaikhide (1999) suggested that budget discipline is essential to attain the external balance as the increased government expenditure results in deterioration of current account balance in Nigeria. Marinheiro (2008) tried to assess that if budget deficit can influence the current account balances and results indicate that in the case of Egypt worsening in trade balance leads to an increase in government expenditure. In case of Pakistan Javid *et al.* (2010) identified, an expansionary fiscal shock improved the current-account balance but worsening of exchange rate. The results indicate that investment declines but there is an increase in household-saving resulting in improvement of balances in current-account but deterioration of exchange-rate. Safdar et al. (2020) investigate the effect of fiscal spending on current-account in Pakistan and findings are in favor of twin-divergence i.e., shocks in fiscal spendings leading to improvement in current-account.

A scant study of literature observes and highlight the significance of government-spending shocks, and output shocks in order to identify association among fiscal-policy and, current-account. But there is a literature gap specifically in case of emerging and developing economies considering the contribution of output shocks. Few of the studies examine the impact of fiscal-policy upon current-account, for example, Jha (2010) focuses on sustainability of fiscal and, current-account deficits in South-Asian Countries, Mumtaz and Munir (2016) analyze the existence of twin deficit in selected South-Asian countries, Sahoo et al., (2016) examines the long-run sustainability of current-account imbalances in South-Asian economies. Still, there is a lack of investigation while considering the impact of output shocks and government spending shocks on current-account in South-Asia. Therefore, this study contributes to the current literature about interrelationship among fiscal-policy, and, current -account dynamics in South-Asia.

3   Methodology

The study pursues panel structural vector autoregressive (PSVAR), to identify that in what manner fiscal policy shocks can transmit to current-account. This model is based on the Kim and Roubini (2008), argued that the VAR model, enhance the effectiveness of model to control the endogeneity element of shocks.

The study considers the following ordering of variables for PSVAR;

X_t= (RGDP, GOVX, CAD, REER)

is a four by one column vector where RGDP is the real GDP calculated in constant prices and is incorporated to observe effect of output shocks or fluctuations in business-cycle. The above-mentioned scheme of variables has been used in literature. (Safdar et al., 2020; Javid et al., 2011; Rafiq 2010, and Kim & Roubini 2008). In the present study, GOVX is government expenditure shocks which is an indication of government expenditure on goods, services and investment, CA, is the current-account deficit as a ratio of GDP and REER is the real effective exchange rate is the real effective exchange-rate is a weighted average of currency relative to index adjusted for effects of inflation.

The simple var model for each cross-sectional unit 'i' can be written in functional form as:

$govx_{it} = f\left(rgdp_{it}, cad_{it}, reer_{it}, govx_{it-l}, rgdp_{it-l}, cad_{it-l}, reer_{it-l} \right) + e^{gov}_{it}$

$rgdp_{it} = f(govx_{it}, cad_{it}, reer_{it}, rgdp_{it-l}, govx_{it-l}, cad_{it-l}, reer_{it-l}) + e^{gdp}_{it}$

$cad_{it} = f (rgdp_{it}, govx_{it}, reer_{it}, cad_{It-l}, rgdp_{it-l}, govx_{it-l}, reer_{it-l}) + e^{ca}{}_{it}$

$reer_{it} = f(rgdp_{it}, govx_{it}, cad_{it}, reer_{it-l}, rgdp_{it-l}, govx_{it-l}, cad_{it-l}) + e^{reer}{}_{it}$

where i = 1, 2,…4, as four cross-sectional units are included in our model *l* represents the number of lags to be included in model. The difference between the simple VAR and the SVAR model is that the in simple VAR model contemporaneous relation does not exist among the variables but in case of SVAR model there exists a contemporaneous relation among the variables which is illustrated by matrix A in which there are coefficients for the variables with the current time period t. in vector form the SVAR panel model is represented as:

$AX_{it} = BX_{t\,t-1} + \varepsilon_{it}$

$\varepsilon_{it} \sim iid(0, \sum_{\varepsilon})$ for each 'i' With A = $\begin{vmatrix} 1 & \propto_{rgdp,gov} & \propto_{rgdp,ca} & \propto_{rgdp,reer} \\ \propto_{gov,rgdp} & 1 & \propto_{gov,ca} & \propto_{gov,reer} \\ \propto_{ca,rgdp} & \propto_{ca,gov} & 1 & \propto_{ca,reer} \\ \propto_{reer,rgdp} & \propto_{reer,gov} & \propto_{reer,ca} & 1 \end{vmatrix}$

Here X_{it} = (RGDP$_{it}$, GOVX$_{it}$, CAD$_{it}$, REER$_{it}$) is the vector of endogenous variables i.e., gross domestic product, government expenditure, current-account balance, and, real effective exchange-rate for each cross-sectional unit 'i'. Matrix A with 1 diagonal and non-zero elements otherwise show the contemporaneous relationship between the variables. Then at the later stage, during the process of identification restrictions can be imposed depending on the economic theory. Lastly, X_{it} represents the vector X_t with l^{th} number of lags, B signifies the respective matrix of coefficients, and, ε_{it} is the vector of error-terms with zero mean and constant variance and uncorrelated with each other for each unit of the cross section. These error terms are actually the structural shocks for their respective variables.

The present study estimates two different specifications which investigate the impact of fiscal policy on current-account. First, specification identifies output shocks and, second one observes the fiscal spending shocks and, helps to determine that which of the above-mentioned shock is responsible for the movement in current account. Therefore, the vector Y_t for each specification is mentioned as:

Specification 1: Y_t = {RGDP, GOVX, CAD, REER}

Specification 2: Y_t = {GOVX, RGDP, CAD, REER}

Where RGDP is the real domestic product, GOVX is government spending, CAD indicates current-account-deficit, and REER, specifies real effective exchange-rate.

This study uses the recursive model where identification of shocks is based on particular order of variables in system which is *{RGDP, GOVX, CAD, REER}* where *RGDP* is the real gross domestic product indicating key macro-variable, which shows general performance of an economy. It can be supposed that government budget-balance reacts simultaneously to change in output, yet do not respond to fluctuations in other variables. Therefore, it suggests that *RGDP*, ordered as first. Even though it will not likely to respond to other variables contemporaneously. Then, government spending is ordered second, next to the *RGDP* as the component of government revenue can be influenced from existing economic activity, Rafiq (2010), and Balanchard and Perotti (2002) are of the same view that the government spending should be ordered after the RGDP. According to Kim & Roubini (2008), controlling the *RGDP* is necessary in order to influence the currently endogenous response of the government budget- deficit towards existing economic activity. Then current-account deficit has been ordered in third place, after the *RGDP* and, government spending assuming that the real output growth is pre-determined regarding current account. However, real effective exchange-rate is ordered last after current account supposing that real exchange-rate is forward-looking-asset price that jumps in response to new information about supply or demand of real exchange activity

(Kim and Roubini, 2008 and Rafiq, 2010). Moreover, these restrictions are in line with intertemporal approach to current-account

The restrictions for the specification 1 are mentioned as:

$$\begin{bmatrix} \Delta RGDP_t \\ \Delta GOVX_t \\ \Delta CAD_t \\ \Delta REER_t \end{bmatrix} = \begin{bmatrix} B_{11}(L) & 0 & 0 & 0 \\ B_{21}(L) & B_{22}(L) & 0 & 0 \\ B_{31}(L) & B_{32}(L) & B_{33}(L) & 0 \\ B_{41}(L) & B_{42}(L) & B_{43}(L) & B_{44}(L) \end{bmatrix} \begin{bmatrix} U_{rgdp,t} \\ U_{govx,t} \\ U_{cad,t} \\ U_{reer,t} \end{bmatrix}$$

The study used the annual data on macroeconomic variables for the four selected South-Asian Countries namely; Bangladesh, India, Pakistan, and, Sri Lanka for the time period of 1984-2018. Rest of the South-Asian countries[2] are not included, as there share in total South-Asian GDP is hardly two percent[3]. The sources of macroeconomic data are World development Indicators *(WDI)* except for real effective exchange-rate which has been collected from International financial statistics *(IFS)*.

The current-account deficit *(CAD)*, variable is being estimated as the ratio of the current-account balance to gross domestic product *(GDP)* in per centage terms. Real gross domestic product *(RGDP)* is being estimated at constant prices of 2010. *RGDP* is incorporated to observe the effect of output-shocks and, is calculated in log terms. Government spending is measured as a ratio of gross domestic product *(GOVX)* indicates the government spending shocks, which indicate all the government spending on goods, services, investment and transfers. . Since in case of South-Asian Countries the fiscal position is generally in deficit, therefore, the present study uses the government spending to specify the fiscal deficit caused by excessive spending. . Real effective exchange-rate *(REER)* is a weighted average of currency relative to an index (or group of other major currencies) adjusted for inflation

4   Results and Discussion

As the objective of this study is to examine the effect of fiscal-policy upon current-account balances of South-Asian Countries. The descriptive statistics in table 4.1 shows, the maximum deficit in current-account is 5.3 per cent of GDP and on average deficit in current account is -2.09 per cent of GDP. However, the maximum government spending is 11.8 per cent of GDP while the maximum real GDP is 9.6 per cent respectively in South-Asian countries during 1984-2018. Yet, the average government spending is 4.9 per cent of GDP and average GDP growth is 5.2 per cent indicating the diminishing role of government in an economy. In case of real effective exchange-rate, the maximum REER is 2.3 per cent and the average real effective exchange-rate is 2 per cent.

Table 4.1

Descriptive statistics for Selected South-Asian Countries (1984-2018)

Variables	Mean	Std. Dev	Min	Max
CAD	-2.0901	2.5094	-9.5431	5.3300
GOV Exp	4.9735	3.1238	-4.9437	11.8758
RGDP	5.2459	1.8877	-1.5454	9.6277
REER	2.0405	0.0818	1.8978	2.3027

Source: Author's own calculations.

For all variables, table 4.2 indicates the panel unit-root test. The results imply that all variables under consideration have unit-root i.e., null hypothesis (H₀) cannot be rejected at 5 per cent significance

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[2] Afghanistan, Bhutan, Maldives and Nepal.

[3] Measured through International monetary Fund (IMF) official GDP figures for South-Asian countries.

level. However, the null hypothesis (H_o), can be rejected when LLC-test is applied for all variables at 1st-difference.

Table 4.2

Panel-Unit Root Test

Variables	Level (Intercept)	1ST-Difference
CAD	-1.2386	-6.4428
GOVX	0.4702	-4.8475
RGDP	-2.814	-7.5007
REER	-1.0827	-2.8764

While estimating the VAR models, one of the important criterions is to select the appropriate lag length selection. Lag length selection is considered as an important condition in estimation of VAR models. Therefore, to find the appropriate lag length all the five tests are being observed which are; Likelihood Ratio (LR) test, the Final Prediction Error (FPE) test, Akaike Information Criterion (AIC) test and Hannan-Quinn Information Criterion (HQ) test.

Table 4.3

Lag-length Selection

Model	Lag length	LR	FPE	AIC	SC	HQ
RGDP, Gov-exp, CAD, REER	2	39.7597*	1.42e-15*	-22.8457*	-21.3606*	-22.2422*
Gov exp, RGDP, CAD, REER	2	37.8336*	0.00001*	-22.8259*	-21.3108*	-22.2103*

*indicates the optimal lag-length using the criterion.

The results stated in table 4.3, indicates that appropriate lag-length is 2 which is required to examine the effect of fiscal policy shocks on the current-account deficits of South-Asian Countries.

To proceed with the analysis, the choice of model depends not only on the stationarity of the data i.e., the variables are stationary but also to perform certain diagnostic test to check the stability of models. For that purpose, three diagnostic tests are observed and, the results are mentioned in table 4.4. The results specify that both models are not serially correlated and multivariate normal.

Table 4.4

Diagnostic Test

	White Test (cross)	Normality Test	LM Test
Model 1	0.225	0.305	0.478
Model 2	0.233	0.437	0.145

White test;	H_0: no heteroscedasticity exists.
LM test;	H_0: residuals are multivariate normal
Normality test;	H_0 : no serial autocorrelation

Fiscal policy shocks effect upon current account can be observed, in 4.1 figure indicating variables response to the shocks. In row1, first column demonstrating the output shock response to a per cent change in itself i.e., own shocks. The second column specifies, impact of govt. spending shock. However, the third column mentions the effect of shock in current-account deficit and lastly, fourth column displays the effect of real effective exchange-rate shock respectively.
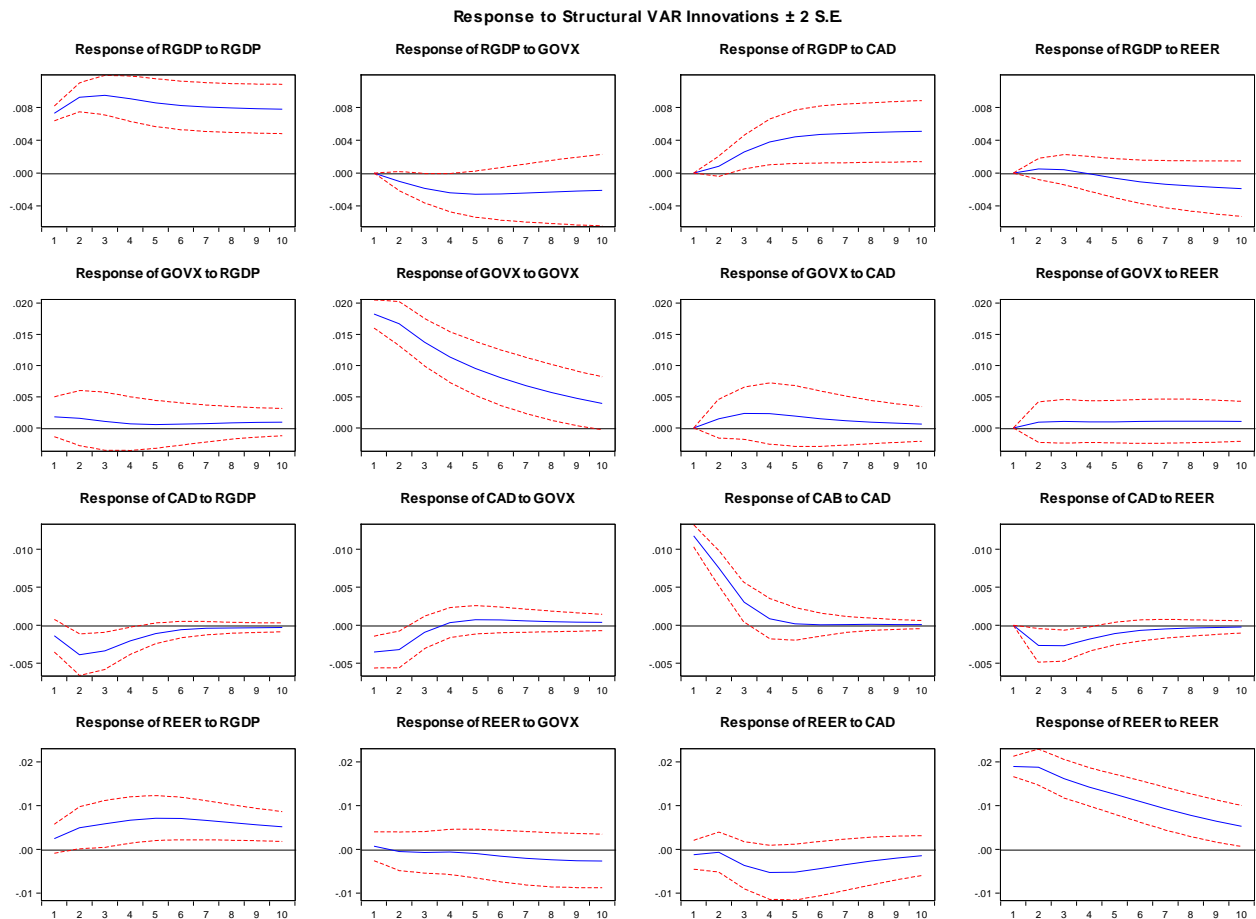

Figure 4.1
Impulse Response Functions-Output Shocks.

The results indicate that the one SD shock in real GDP has a very small impact on government spending about 0.01 percentage point. The real GDP reactions turns positive and insignificant during the first year and it continues to stay insignificant throughout the considered time period. Similarly, the response of the positive output-shock on the current-account deficit is significant which means that the current account worsens over the time and ultimately resulting in the worsening of real effective exchange-rate. The results indicate that the positive output shock continue to increase the current account deficit till the year seven and after that it continue to be at the higher level. This consistent deficit in current-account is in line with the traditional theories of current-account that specify a raise in output leads to a higher demand for foreign goods in an economy resulting in worsening of current account. On the other side, according to recent current-account theories, an output shock can be considered like a productivity-shock that may expand the investment and

thereby deterioration of current-account. Yet, these effects can create counter-cyclical behavior in current-account as proposed by Kim and Roubini (2008), Backus *et al.*, (1994), and Mendoza (1991).

In the same manner, in row 2 column 1, while observing the effects of positive government expenditure shock on real GDP is insignificant throughout the considered time period but in case of current-account deficit as well. Interestingly, impact of current-account shocks on the government spending are initially negative but from the period 3 onwards become positive. These results are consistent with Kim (2001) who argued that the changes in current-account could be described as a short-term income absorption effect but in long-run due to expenditure-switching effect which depend on the traditional sticky-price model and, the interaction of saving-investment suggested by the inter-temporal model. Lastly, a positive terms government spending shock to the real effective exchange-rate leads in an improved balances current-account, and it is persistent with expenditure-switching effect.

The above-mentioned findings of impulse-response function specify the total effects of the shocks. Furthermore, variance decomposition is employed to evaluate the contribution made by each variable in SVAR, results are mentioned in table 4.5. In this table, the first block indicates the variance decomposition of overall response due to output shock, where column 1, 2, 3 and, 4 indicating the contributions of output, government spending, current-account-deficit, and, real effective exchange-rate to the fluctuations of real GDP towards shocks. Similarly, block 2 specify the aggregate response of government spending, block 3 indicate the over-all current -account deficit response, finally, the block 4 shows the aggregate real effective exchange rate response.

Table 4.5

Structural Variance Decomposition-Output

VD of Output	Output	Gov. Exp.	CA Def	REER
1	98.1027	0.8112	0.9744	0.1060
3	94.2283	2.2770	3.3896	0.1049
6	80.8175	7.2463	11.5665	0.3692
9	70.8663	10.5755	16.7725	1.7855
VD of Gov. Exp.	Output	Gov. Exp.	CA Def	REER
1	0.5421	98.5851	0.3722	0.7570
3	0.7151	96.8028	0.5440	1.9379
6	1.2131	92.6384	1.8131	4.4522
9	3.0703	89.6700	2.0045	5.2267
VD of CA Def	Output	Gov. Exp.	CA Def	REER
1	1.5916	9.7902	86.6180	0.0000
3	10.4801	11.8733	76.8684	0.7780
6	13.1099	11.2286	74.0678	1.5935
9	14.2311	11.2622	72.8544	1.6521
VD of REER	Output	Gov. Exp.	CA Def	REER
1	0.6225	0.3431	0.6286	98.4056
3	2.8442	0.5418	1.8610	94.7528

6	4.2304	0.5702	1.4108	93.7884
9	5.6300	0.5005	1.0828	92.7859

According to variance decomposition mentioned in table 4.5, first block of column 2, indicate that govt. spending shock has smaller impact on the GDP where the contribution of government spending is about 8 percent and at the longer horizon the contribution of the government spending to the output even though increases to 10 percent but relatively smaller when compared to the contribution of current account deficit. Conversely, contribution made by the shock in current-account deficit to the changes in output is 9 percent initially and then continue to increase over the longer horizon, which shows that in South-Asian Countries output appear to be influence mostly with current-account deficit relative to government spending shocks, indicating a dire need to manage the current account balances to attain macro-economic stability. Moreover, the contribution of real effective exchange-rate (REER) shock to the variations in output is 1 percent in the beginning and continue to increase in longer horizon. Nevertheless, the contribution of REER to output remains smaller. Although, the contribution of current account to variances in government spending is 0.37 percent shown in column 3 of second block. However, in longer horizon the contribution from current-account deficit gradually increases to 2 percent, which indicates the significance of fiscal shocks to determine external balance. Similarly, the contribution of output shocks gradually increases as well from 0.54 percent to 3.07 percent. in the longer horizon (second block, column1).

The variance decompositions of current-account i.e., block 3, specify that current-account is mostly influenced with its own shocks and, it has a contribution of 86 percent during first year, however, that contribution continue to reduce during the extended horizons to 73.8 percent as the effect of government spending shocks and output shocks on the current-account becomes more effective. The contribution of fiscal policy is 9.7 percent in the first year and continue to increase at the longer horizons, similarly, the contribution of output shocks gradually increases from 1.5 percent in the first period and then continue to increase in longer horizons to about 13 percent it specifies that current-account is largely influenced by fiscal shocks as well as from output shocks. Hence indicating that current-account deficit is largely affected due to expansionary fiscal shock. The significance of fiscal shocks to determine current-account dynamics suggest that the steps taken to control the current-account deficit by reducing the fiscal expenditures may not help to attain the required results as suggested by the twin-deficit hypothesis. It proposes that the reduction in government expenditure unintentionally can result in the deterioration of current-account deficit. Consequently, the results are in line with the findings of Kim and Roubini (2008), and, Rafiq (2010), who suggested the twin-divergence rather than twin-deficit. Although, the impulse response functions are insignificant, so the results are re-visited by using the government spending shocks in next section to observe the effects on current account balances.

In the present study, government spending shocks are used to observe if the inverse relation among fiscal expansion and, current-account deficit exist or not. Since it is stated that the government spending and output fluctuations are the main drivers of current account dynamics. The impulse response functions are shown in figure 4.2 where the fiscal shocks are indicated as shock 1, however, shock 2, 3 and, 4 are the real-GDP, current-account-deficit, and, real effective exchange-rate respectively. Government spending shock response is shown in Row 1, row 2, shows the response of real gross domestic product, current-account deficit response is indicated through row 3, and row 4, shows the response of real effective exchange-rate. However, the columns: 1,2,3, and, 4 indicate government spending shocks, output shocks, current-account-deficit shocks, & real effective-exchange-rate shocks respectively.

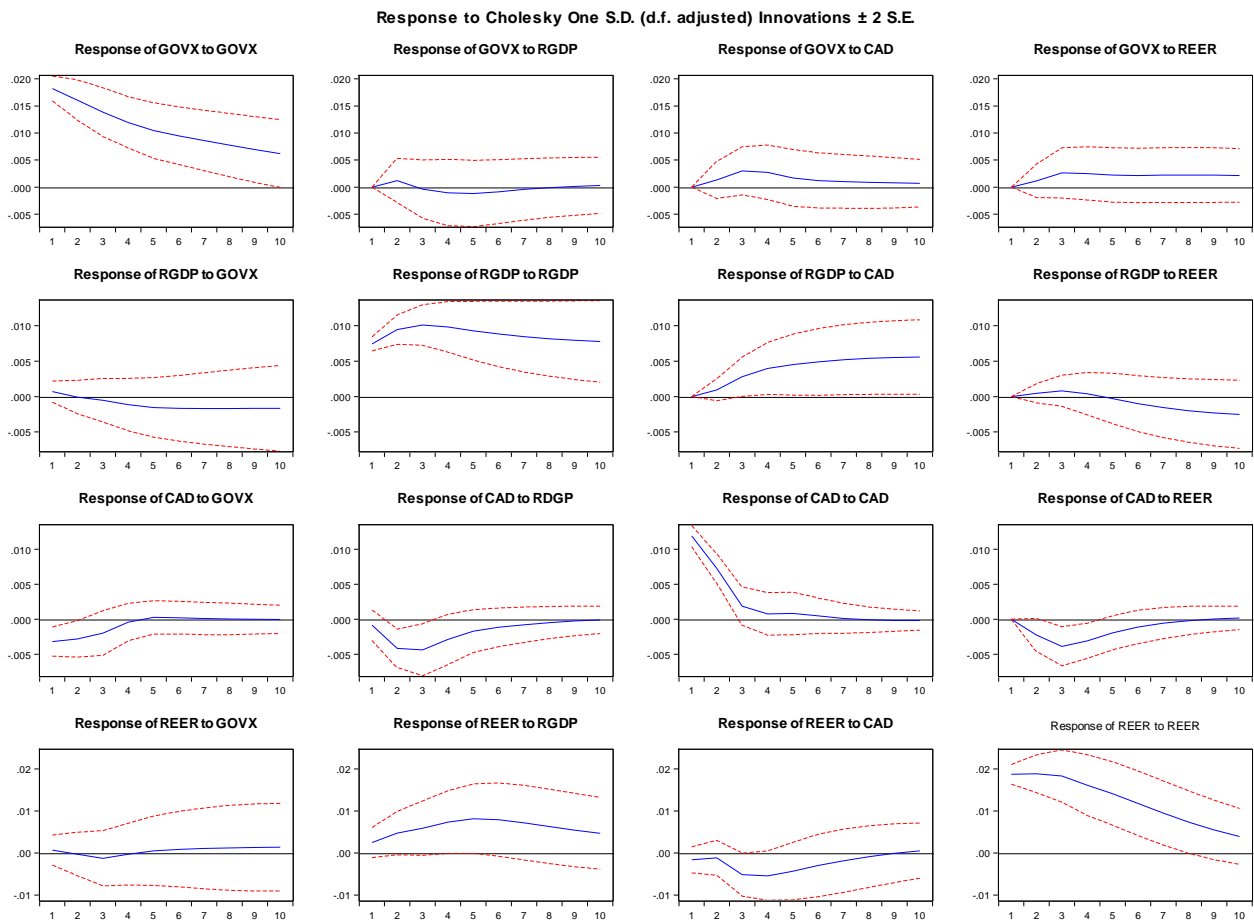**Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.**

Figure 4.2
Impulse Response Functions-Government Spending

The results indicate that due to an expansionary government spending shocks i.e., one SD shock in government spending has a 0.23 percentage impact on current account deficit. The improvement continued till period 5 and then continue to decline and insignificant throughout the considered time period. However, observing the effect of government spending shock on real effective exchange-rate shows that the real exchange-rate depreciates persistently but the results are insignificant. In the same manner, the effect current-account deficit shock decreases government spending by 0.06% in the period 5 as well as in period 6, however the results are significant. These results indicate that no matter in what manner the fiscal variable is mentioned, expansionary fiscal shock would result in an improved position of current-account. These results are consistent with the study of Obstfeld and Rogoff (1995) and, Betts and Deverueux (2000 a) who argued that a rise in government spending is linked with an improvement of current-account. An increase in government-spending leads to a rise in output during short-run, as the output depends on domestic demand so the current-account tend to improve as the individual's smooth consumption and over the time net output reduces. Moreover, an increase in government spending would result in depreciation of real exchange-rate because a fiscal expansion leads to a rise in real interest-rate resulting in a reduction in private consumption, and thereby depreciate the real exchange rate (Kim and Roubini 2008).

Table 4.6

Structural Variance Decomposition-Government Spending

VD of Gov. Ex	Gov. Exp.	Output	CAD	REER
1	98.8008	1.0697	0.0755	0.7570
3	96.3777	2.1402	0.5440	0.9381
6	90.4059	5.4030	2.6388	1.5522
9	87.0805	7.6385	3.6041	1.7267
VD of Output	Gov. Exp.	Output	CAD	REER
1	0.2888	99.7141	0.0000	0.0000
3	1.2241	95.2812	3.3896	0.1049
6	5.2170	82.8471	11.5665	0.3692
9	8.1735	73.2683	16.7725	1.7855
VD of CAD	Gov. Exp.	Output	CAD	REER
1	10.1883	1.1935	88.6180	0.0000
3	12.9187	9.4347	76.8684	0.7780
6	12.3003	12.0383	74.0678	1.5935
9	12.3171	12.1762	73.8544	1.6521
VD of REER	Gov. Exp.	Output	CAD	REER
1	0.3933	0.5723	0.6286	98.4056
3	0.6784	2.7075	1.8610	94.7528
6	0.7375	4.5558	1.2682	94.4383
9	0.6770	5.4541	1.0828	92.7859

Table 4.6, shows the variance decomposition indicating the effect of government spending shocks in model. It shows that output is affected by the variation in government spending which is about 1percent and in the longer horizon the contribution of output increases to about 7% of variation in government spending (table 3.5, column 2 of block 1). This indicates the deviation between fiscal expanse and current-account. It is evident that a significant variation in government spending is explained by the output shocks as indicated in figure 4.2.

While observing the results, even though the impulse response functions indicate that an increasing output shock leads to a decrease in government spending, but in this case impulse response functions are insignificant. However, the current account is more affected by the output shocks (as 14 percent in period 9) compared to government spending shocks (12 percent in period 9). Still, the impact of fiscal policy shocks on current-account exists and, continue to increase during longer-horizons indicating that the output-shocks generate divergence among government expanse and current-account balance (Makanza *et al.*, 2015).

5   Conclusion and Policy Implications

The increasing macroeconomic imbalance and growing deficits in current account among developing countries results in continues debate about global current account imbalances. Generally, it is assumed that developing countries suffered from twin-deficit hypothesis Mumtaz and Munir (2016), Shastri (2019). Even though, the literature identifies that current-account performance rely mostly on the macroeconomic situation of the countries, therefore, the approach to manage with fiscal deficits and external imbalances must be tailored according to the economy's conditions. Regardless of this, still there exist limited studies which investigate the drivers of current-account among developing countries, as well as the effect of macroeconomic policies on the current-account balances to manage the external imbalances.

The present study analyzes impact of government-spending shocks, and output shocks upon current-account by using panel structural VAR model considering the selected South-Asian Countries for the time period of 1984-2019. For this purpose, impulse-response functions and, variance decomposition are employed to explain the effects of output shocks, and, fiscal policy shocks on current-account.

The study identifies that the expansionary fiscal-policy shocks indicate improvement in current-account, however, current-account deficit shocks deteriorate the fiscal situation in case of South-Asian Countries. These results do not support the twin-deficit hypothesis and thereby provide a new insight to the relation between fiscal policy and external balances.

These findings are similar to the findings in developed countries Kim and Roubini (2008), and. Rafiq (2010) yet the extent of the results is relatively smaller in case of developing countries as the developing countries have weaker business cycle compared to developed countries. However, we consider this result with caution as these are significant only for short-run. These findings suggest that there is a need to improve the private savings as the household savings are more responsive to fiscal shocks compared to government savings. Furthermore, fiscal discipline accompanied with suitable export promotion policy while focusing on to reduce imports by increasing the domestic production are necessary to mitigate the deficits in current account. The policy implications that come to the fore as a result of empirical analysis are: Fiscal discipline must be based on effective control of public-spending by reducing non-productive expanses as well as an enhancement of tax-collection system. Suitable export promotion policy while focusing on to reduce imports by increasing the domestic production are necessary to mitigate the deficits in the current account.

The novelty of these findings indicates that in what manner fiscal policy can influence the current-account balances in South-Asian Countries. While considering these results, future studies can be extended by considering the impact of optimal-fiscal policy which may lead to sustainable current-account as well as by considering the fiscal-policy from revenue aspect and its impact on current account.

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