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An Analysis of Fiscal Sustainability in Pakistan

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Abstract

This study attempts to investigate the fiscal sustainability of Pakistan empirically. The relationship among fiscal policy factors like the Primary Balance, Government interest-free spending, Government Revenue, and macroeconomic variables such as Gross Public Debt and GDP growth rate is analyzed by estimating fiscal reaction functions, Government expenditure adjustments, and Government revenue adjustments to debt. The results indicate that the fiscal policy adopted by the government of Pakistan is sustainable because there is a strong correlation between the primary balance percentage of GDP and the lag Debt percentage of GDP if there is rise in debt, the primary balance rises too. There is an adverse impact of government expenditure on primary balance. Results obtained from the multiple regression analysis show that adjustments to debt come from the expenditure side as it is highly significant compared to Government revenue adjustments that are insignificant. In this study, I also employed Markov Switching Vector Autoregressive (VAR) Model using quarterly data for the period of 19 years from 2000-2019 just to observe the behavior of macroeconomic variables toward debt, but the results are unsatisfactory in most of the variables as it doesn't indicate any relationship between the variables. It is concluded that the accumulation of Pakistan's debt could be handled by rationalizing government expenditure. However, Pakistan needs to implement conventional taxation policy measures and ensure proper utilization of tax revenue to its optimum level to lessen the debt burden on the economy. Along with that, the government also needs to work on its investment and export areas which will ultimately increase the government revenue and help the economy to overcome the long-standing issue of budget deficit.

Key Words: Fiscal Policy, Gross Public Debt, Primary Balance, Government Expenditure, Government Revenue, Economic Growth

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1 Introduction

Fiscal policy is an important tool used by the government to control its expenditure and revenue, as well as its methods of financing the deficit, to foster economic and social development that is compatible with long-term economic growth. Over recent years, there has been a great deal of research emphasis that highlighted the impacts of fiscal policy on economic growth around the World. This is attributable to the fact that mounting fiscal deficits and the consequent increase in public debt have become a global economic issue. Research by Ocran (2011) supports that fiscal policy plays a key role in fostering economic as well as social development by adopting a program that assures harmony between revenue, spending and debt. However, the degree to which fiscal policy encourages economic growth is debatable and remains a source of theoretical and empirical discussion, particularly in developing nations; given the continual rise in budget deficits in many economies around the globe and maintaining this equilibrium has now become a big economic challenge.

Fiscal sustainability is the capability of the government to ascertain its current spending level, taxes, and financing patterns, or whether it should be forced to make changes to meet its long-run budget deficit (Abdulnasser, 2002, as cited in Tshiswaka-Kashalala 2006, p. 02). To put it another way, fiscal sustainability is the government's capacity to adopt a consistent policy in response to shocks that can occur in the future. A sustainable fiscal policy is regarded as ensuring the maintenance of macroeconomic conditions, which supports sustainable economic development and enhances fiscal austerity measures to prevent socialist fiscal policies that result in an accumulation of public debt (Archibald & Greenidge, 2003).

The fiscal policy represents the government's attempts to control the country's economic path through necessary adjustments in government revenue as well as in government spending. By managing public expenditures and revenues, the Fiscal policy can eliminate income disparities, alleviate poverty, and create industrious employment opportunities, all of which ultimately contribute to inclusive economic growth. Sustainable

fiscal policy plays a crucial role in stimulating the economic growth of the country and thus it is considered a necessary tool for economic expansion. However, the long-term effectiveness of fiscal policy in boosting economic development and impacting debt sustainability is a contentious question that requires examination.

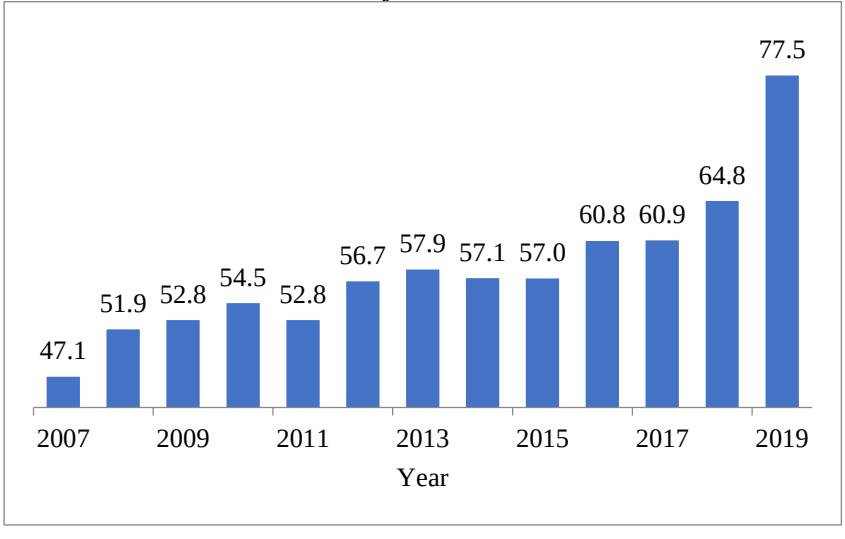
In the traditional economic model, if the federal government like to reduce taxes-revenue while maintaining its current level of spending, the result would be a rise in consumer spending and interest income. However, the Ricardian Equivalence Theorem (RET) states that the aforementioned macroeconomic effects do not follow the same shift in the country's fiscal policy (Ali et al., 2010). Precisely, a governmental tax cut (revenue adjustments) supported by a rise in the budget deficit will have no discernible effect on the economy as a whole (Saxton, 1999).

A major concern at the base of macroeconomic policy relates to the budget deficit. The adverse impact of budget deficit on the economy has prompted a slew of research aiming at creating a variety of macroeconomic reforms and stabilization policies throughout the world (Tshiswaka, 2006). Although budget deficits help in stimulating the economic growth in small emerging economies, Mankiw (2002) in his research found the opposite result in the case of some other emerging economies, which provides that budget deficits, notably in Central America and some countries in Africa, have been followed by soaring debt and inflation. Furthermore, in past few years, persistent budget deficits have resulted in public debt attaining its greatest level, even in advanced nations. Rising public debt has become a global challenge that places global economies under pressure, taking into account the relationship that exists among various levels of public debt and some macroeconomic variables (like investment, inflation, net income, foreign exchange rate, and gross household savings); and urges the question of sustainability of fiscal policy (Archibald & Greenidge, 2003).

The debt/GDP ratio in the case of Pakistan has kept on rising for over a decade, despite efforts by the government to

reduce it. As Akram (2011), argued that Pakistan throughout its history has been unable to amass sufficient earnings to adequately fund its budget. As a result of that, it has been struggling with the issue of budget deficits, and as a direct consequence, to fund its developmental projects, the government has been forced to depend on public debt, both domestically and internationally. Accordingly, Figure 1 shows Pakistan's gross debt as a percentage of the GDP from 2007 to 2019. In 2007, Pakistan's gross debt was recorded as 47.08% whereas, in 2019, it stood at 77.50%, up from 64.82% in contrast to the previous fiscal year i.e. 2018; as a result, the country's economic growth remained slow during this period.

Figure 1:
Pakistan's Annual Gross Debt % of GDP



The earlier empirical studies conducted by many scholars to figure out how fiscal policy affects economic growth in Pakistan, those researches mostly considered traditional fiscal variables like government spending and government revenue, however, the outcome of fiscal deficit, and public debt on economic growth was not taken into consideration. The preceding results from those studies about how fiscal policy affects economic growth are either indecisive or statistically inconsequential. As the previous studies lacked empirical investigation of fiscal variables conventionally, the methodology

followed by these studies was based on the statistical analysis tool-OLS regression; which is not the most rigorous approach to analyze time series data.

This study attempts to investigate the fiscal sustainability of Pakistan empirically for the period ranging from 2000 to 2019. A group of variables is considered in the study to investigate whether there is any significant relationship exists between fiscal policy variables (Primary Balance, Government non-interest expenditure, Government revenue) and macroeconomic variables (Gross Public Debt and GDP growth rate). I estimate fiscal reaction functions using various multiple linear regression to analyze the sustainability of Pakistan's fiscal policy. The Markov-Switching VARs also take into account the shocks of fiscal policy on economic growth in the context of Pakistan. The magnitude of the primary balance is considered next to maintain the public debt percentage to GDP ratio, followed by an evaluation of the various revenue and expenditure adjustments alternatives available to the government to accomplish the desired level of primary balance.

2 Literature Review

This section reviews importance of sustainable fiscal policy essential for expansion of economic growth as it has now become interest to many researchers and policymaker globally both at the cross-country level and country-specific perspective. However, findings about the relationship between sustainability of fiscal policy and economic growth remained mixed and inconclusive.

Ahmed (2011) predicted that fiscal deficit represents the fiscal policy that determines the strategy of the Government to control the economic situation. Ahmad, while employing annual time series figures in his empirical study, he concluded that economic growth can be driven positively only if the variance of revenue and expenditure could be classified in such a way that non-tax revenue out of total revenue and development budget out of total budget taken as control variables to measure the intensity of economic growth. A similar study conducted by Kurniawan (2015) using annual data for the period 1990-2010, showed sustainable fiscal policy acts as a primary key prerequisite in

stabilizing the economy. If the economy is continuously experiencing shocks in the form of the budget deficit and debt accumulation, then fiscal policy is no more sustainable. The study also reveals that various adjustments in primary balance positively affect changes in debt, which implies that the debt to GDP ratio decreases due to persistent reduction in primary balance.

Research by Burger and Calitz (2019) supports that various adjustments to the primary balance which are required to stabilize the public debt/GDP ratio, followed by an assessment of the various revenue and expenditure adjustment options available to the government to achieve the required primary balance adjustment. He found that there is little scope to enhance revenue, and there is a need to control government non-interest expenditure.

Study by Tshiswaka-Kashalala (2006) supports that the sustainability of fiscal policy by using conventional fiscal deficit and adjustments in primary balance by using quarterly figures for 15 years (1990-2005). He found that government revenues and government non-interest expenditures have a negative relationship.

Chandia and Javid (2013) discovered a significant relationship among primary balance percentage of GDP ratio and debt percentage of GDP. He concluded that fiscal policy is considered sustainable if the debt growth does not exceed GDP growth.

Several theories have been put forward to explain the sustainability of fiscal policy, but only few earned credits. Bohn (1995, 1998, 2008) found significant results about fiscal imbalance in relation to public debt based on the basis of Model Based Sustainability (MBS) approach, he suggested that in order to reduce effect on excessive spending, measures are required to be taken by the policy makers to increase the revenues and cut the expenditure. A similar study was conducted by Ghatak and Sánchez-Fung (2007) based on MBS approach using time series data, to assess whether the fiscal policy of developing countries focused under study is sustainable. The results of his study

showed that fiscal policy adopted by some countries (sample) does not appear to be sustainable because the country's surplus budget was indifferent to that of GDP ratio. Another study by Mendoza and Ostry (2008) concluded that the panel data employed on industrial economies showed positive results when the MBS approach was applied, range of primary balance was significantly changed from 0.02 to 0.045, and there was a positive indication of sustainable fiscal policy based on Bohn's finding.

Many research studies were conducted in the past to assess the sustainability of fiscal policy using the traditional approach, tax revenue, government spending and public debt as key fiscal policy variables were measured in relation with intertemporal budget constraints (Trehan & Walsh, 1988, Hamilton & Flavin, 1985, Trehan & Walsh, 1991, Quintos, 1995, and Wilcox, 1989 as cited in Kurniawan, 2015, p.02). The approach mainly focused on the stationarity of debt whereas the consequences of other variables were not taken into account (Afonso, 2005). These studies were strongly criticized due to unreliable results and a limited test approach. For example, an analysis of Bohn (1995) showed that these studies relied on a small sample taken through time series data, the traditional approach used in these studies was adhoc in nature and unit root test performed on debt to GDP ratio was uncertain.

Fiscal sustainability is the essential component required to preserve economic growth and to prevent the economy from recession. It is a condition in which a government is capable of funding its fiscal deficit without causing a massive rise in the level of public debt over the course of a longer period of time (Adams, Ferrarini, & Park, 2010, Lau & Lee, 2018, Bui, 2020, Ngo & Nguyen, 2020, as cited in Lau & Lee, 2021, p. 01). When the condition of fiscal sustainability is satisfied, it is stated that the budget deficit is sustainable, and if it's not, then fiscal policy is no more sustainable.

Fiscal sustainability comprises of two essential components, budget deficit and government debt, which are characteristics shared by all nations. A budget deficit occurs whenever a government incurs more expenditures than the

revenue it receives in a certain time, excluding loans. Whenever a government operates recurring budget deficit, then it needs to borrow more funds to cover the cumulative deficits because of this Government debt may not support long-term growth, and the accumulation of debt may have a significant impact on the economy (Neto, 2020, as cited in Lau and Lee, 2021, p. 01). The government debt is the aggregated sum of this budget deficit at this moment. To be more precise, budget deficit and government debt are interrelated or closely connected. Fiscal deficits raise the level of government debt, which ultimately raises expected net deficits due to the requirement to service greater interest payments on debt. This boosts debt-service costs may increases budgetary outflows, which consequently increases the budget deficit, forming a possibly negative cycle whereby a fiscal policy becomes unsustainable. As a result, the evaluation of fiscal policy sustainability is most often based on the government's stability by estimating the inflows of total fiscal budget and debt position.

Usually, the term fiscal sustainability is related to two key principles, on one side it relates to solvency, while on the other side it refers to a government's capacity to maintain its budgetary position while being solvent, this condition was proposed by Domar (1944) whereby ratio of public debt is to meet predetermined value. A similar study on this conducted by Buiter (1985) and Blanchard (1990) in which they investigated that a sustainable public debt percentage exists if the ratio of public debt is possibly return to its starting level. Another study explained that sustainability occurs when magnitude of primary balances is the aggregate of public debt. To put it differently, the government should not maintain a negative budget deficit in order to be fiscally sustainable (Blanchard et al., 1990, as cited in Lau and Lee, 2021, p.02).

In the past, several techniques were used by the researchers to check fiscal sustainability. The first technique utilized the time-series characteristics of variables like government spending or government revenues, shocks in public debt, and interest payments (Hamilton & Flavin, 1986, Wilcox, 1989, , as cited in Lau and Lee, 2021, p. 02). Their analogy

comes from unit root analysis which shows that if economic variables are verified as stationary, in that case the government is capable of controlling its budget surplus in long term. While the second technique to assess the fiscal sustainability can be referred as the cointegration test (Hakkio & Rush, 1991, Haug, 1991, Quintos, 1995, as cited in Lau & Lee, 2021, p. 02). These tests determine whether fiscal policy variables reflect similar probability characteristics that are compatible with intertemporal budget constraints and fiscal sustainability. The third technique examines the fiscal behaviour of variables by comparing the reaction of primary balance percentage to public debt (Bohn, 1991, 1998, 2005, Chalk & Hemming, 2000, as cited in Lau & Lee, 2021, p. 02). These studies provide that the fiscal policy is sustainable, if response of primary balance to fluctuations in debt to GDP ratio is positive and it is less than unity.

To summarize the above literature, the researchers found mixed results in their empirical studies on the relationship between the fiscal policy and macro-economic variables. Furthermore, the analysis specific to Pakistan by applying multiple linear regression with stationary test using the most updated data has not yet been conducted. Therefore, it is worthwhile to examine how public debt affects fiscal policy sustainability in Pakistan.

3 Methodology and Data

3.1 Model Specification

The fiscal reaction function is presented as.

$$PB_t = \alpha_0 + \alpha_1 D_{t-1} + \alpha_2 G_t + \alpha_3\, GAP_t + \varepsilon_t \qquad (1)$$

Here, PB_t represents primary balance; G_t shows government expenditure; R_t shows government revenue; D_{t-1} is lagged value of debt-to-GDP ratio and GAP is the difference of actual and fitted GDP.

The research hypothesis for fiscal reaction function assumes that there is no relationship between primary balance, debt, government expenditure, GAP. Alternatively, the primary balance to GDP ratio and debt to GDP ratio have a positive

relationship while government expenditure and output gap have a negative relationship with primary balance.

Following equation presents the extended fiscal reaction function.

$$PB_t = \alpha_0 + \alpha_1 D_{t-1} + \alpha_2 G_t + \alpha_3 GAP_t + \alpha_3 PB_{t-1} + \varepsilon_t \quad (2)$$

Here, PB_t presents primary balance; G_t is government expenditure; D_{t-1} presents debt-to-GDP ratio; GAP shows the difference of actual and fitted GDP and PB_{t-1} denotes lag of primary balance.

The second research hypothesis for the extended fiscal reaction function assumes that there is no relationship between primary balance, debt, government expenditure, GAP and lag of primary balance. The alternative hypothesis states that the primary balance to-GDP ratio, lag of primary balance and debt-to-GDP ratio have a positive relationship while government expenditure and output gap have a negative relationship with primary balance.

The government expenditure adjustment to debt is analyzed using following equation

$$G_t = \alpha_0 + \alpha_1 D_{t-1} + \alpha_2 GAP_t + \varepsilon_t \quad (3)$$

The extended adjustment function is analyzed for assumption that is no relationship between expenditure, debt, GAP. Alternatively, expenditure and debt to GDP ratio have a negative relationship while output gap has a positive relationship. A rise in the debt to GDP percentage reduces non-interest government expenditure and results in a higher GDP GAP.

The government revenue adjustment to debt is estimated from the following function.

$$R_t = \alpha_0 + \alpha_1 D_{t-1} + \alpha_2 GAP_t + \varepsilon_t \quad (4)$$

The revenue adjustment hypothesis states that there is no relationship between Revenue, debt, GAP. Alternatively, the revenue and debt to GDP ratio have a positive relationship while output gap has a negative relationship. This indicates that government revenue in each economy is determined by public debt and the difference between actual and projected GDP.

In this study, non interest expenditure is considered by subtracting interest payments from total expenditure because the primary balance represents the difference of non interest expenditure and revenue. Hence, to find out whether if there is any change in ratio of primary balance to GDP, as a reaction to changes in the ratio of debt to GDP. The results show that the government can make adjustments in the total non-interest expenditure or in the total revenue (or both) in response to an increase in debt to GDP ratio.

3.2 Data Sources

This study uses quarterly data from Pakistan for the period 2000-2019 obtained from the International Monetary Fund database, CEIC Database and World Bank Data. Primary Balance to GDP ratio is measured in percentage of GDP and refers to the ratio between primary balance i.e., difference of non interest expenditure and revenue and GDP. Debt to GDP ratio is measured in percentage of nominal GDP and refers to the ratio between debt and GDP. Non-interest expenditure is measured in amount USD and the value got from consolidated expenditure by subtracting interest payments. Government revenue is measured in amount USD and refers to the consolidated government revenue. GAP GDP is the difference between actual and projected GDP. The value of GAP is obtained by regressing GDP growth rate and to get the fitted values. Private consumption is measured in percentage and refers to the ratio between private consumption and nominal GDP. Real interest rate is measured in percentage and refers to the ratio between private consumption and nominal GDP. Tax Revenue is measured in amount USD and refers to the government tax revenue.

3.3 Data Analysis

In this study, data has been analyzed through STATA by applying multiple linear regression.

4 Empirical Results and Discussion

The econometric analysis in this study has been carried out through various regression models. The analysis begins with stationarity test while fiscal sustainability has been analysed through estimation of fiscal reaction function, extended fiscal reaction function, government expenditure adjustments to debt and government revenue adjustments to debt.

4.1 Unit Root Test

The augmented Dickey-Fuller (ADF) test has been applied to test the stationarity of variables. The result from this test indicates that the acceptance of unit root in all series, so the variables are made stationary by taking first difference. The results are as shown in the table below.

Table 1:
Unit Root Test for Series

Variables	Levels	First Difference
Debt	-0.371	-8.628*
Primary balance	-1.538	-8.680*
Expenditure	-1.403	-8.654*
Revenue	-2.449	-8.604*
Real interest rate	-2.694	-7.750*
GAP of GDP	-1.811	-8.622*

Note: * indicate the significance at 1% level, ** indicate the significance at 5% level and *** indicate the significance at 10% level respectively.

4.2 Fiscal Reaction Function

The results from fiscal reaction function shows that the primary balance to GDP ratio and debt to GDP ratio have a positive relationship while the government expenditure and output gap have a negative relationship with primary balance since an increase in government expenditure decreases primary balance, and an increase in output gap results in a decline in primary balance.

Table 2:
Fiscal Reaction Function for Primary Balance

Primary Balance	
Variable	**Coefficient**
L.Debt	0.137***
	(0.000)
Expenditure Net	-0.0000196**
	(0.002)
GAP	-0.408***
	(0.000)
Constant	-0.330
	(0.078)
R-Squared	0.628

Note: p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

Furthermore, the results also indicates that coefficient on debt-to-GDP ratio is positive and p-value is smaller than 0.001. Therefore, we can reject the null hypothesis. Assuming that OLS assumptions are satisfied, so it can be concluded that more debt has a statistically significant effect on the ratio of debt to GDP. In particular, increase in debt increases the primary balance to GDP ratio by 0.137.

This probably means that government of Pakistan has made adjustments on the revenue or spending side by reducing the spending or increasing the revenue to make the primary balance positive. As with the increase in debt, the government needs to adjust the primary balance, a study by Burger and Calitz (2019), confirmed that various adjustments to the primary balance are required to stabilize the public debt/GDP ratio. It is also in line with the study of Kurniawan (2015) who also found that various adjustments in primary balance positively respond to the changes in debt, which implies that the debt to GDP ratio decreases as a result of the persistent reduction in primary balance.

Coefficient of non-interest expenditure is estimated at -.0000196 which is statistically significant at 5% (and even smaller) level. Therefore, it is concluded that expenditure has a negative effect on primary balance. In particular, it reduces the primary balance by 0.0000196. Coefficient of GAP of GDP is estimated at -.4077963 which is statistically significant at 1% level. Thus, we can conclude that GAP has a negative effect on

primary balance. In particular, it reduces primary balance to GDP ratio by 0.4077963.

4.3 Extended Reaction Function

The equation for extended fiscal reaction functions is estimated with Ordinary Least Square, and the results indicate same relationship as from the fiscal reaction function; positive relationship between debt and primary balance, negative relationship between expenditure and primary balance and GAP GDP and primary balance. However, level of significance is reduced to 10% and for GAP variable it is statistically insignificant.

Table 3:
Extended Reaction Function for Primary Balance

Primary Balance	
Variable	**Coefficient**
L.Debt	0.0239
	(0.076)
Expenditure Net	-0.00000338
	(0.051)
GAP	-0.0377
	(0.500)
L.Primary Balance	0.875***
	(0.000)
Constant	-0.330
	(0.078)
R-Squared	0.926

Note: p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

The lag value of coefficient for lag primary balance-to-GDP ratio is positive and statistically significant at 1% level. Therefore, we can conclude that increase in primary balance to GDP ratio of last year increase the primary balance to GDP ratio of this year by 0.875, since primary balance in particular period depends on the primary balance correspond to previous period.

4.4 Government Expenditure Adjustments to Debt

The results from expenditure adjustments to debt indicates that coefficient on lag debt-to-GDP ratio is negative and p-value is smaller than 0.001. Therefore, we can reject the null hypothesis. Assuming that OLS assumptions are satisfied, which means that increases in debt has a significant effect on the

non interest expenditure. In particular, increase in debt-to-GDP ratio decreases the amount of non interest expenditure by 1823.4. Coefficient of GAP is estimated at 4729.2 which are statistically significant at 5% level. Therefore, we can conclude that GAP of GDP has a negative effect on non-interest expenditure. In particular, it decreases the non interest expenditure by 4729.2.

Table 4:
Expenditure Adjustment to Debt

Expenditure Net	
Variable	**Coefficient**
L.Debt	-1823.4***
	(0.000)
GAP	4729.2*
	(0.020)
Constant	38300.6***
	(0.000)
R-Squared	0.204

Note: p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

Moreover, the results indicate that the Government of Pakistan has decreased its expenditure when the debt in the past was too high in order to stabilize the primary balance into positive in the current period. The findings further corroborate the concept of intertemporal budget limitation, as the value of the coefficient showed to be extremely influential in making changes, and It stipulates that revenues could be achieved and elevated, however the number of techniques or pathways are restricted since boosting revenue through raising tax rates is not considered socially acceptable. Furthermore, the government has an important part in budgetary modifications, particularly on the side of spending.

4.5 Government Revenue Adjustments to Debt

The effect of revenue on debt sustainability is investigated to analyze fiscal adjustments. The results show that coefficient on lag debt-to-GDP ratio is positive but p-value is greater than 0.05 even at 10% level. Therefore, we failed to reject the null hypothesis. Thus, it can be concluded that debt is not affected by the adjustments in revenue.

Public debt and the production gap are regressed along with the revenue-to-GDP ratio although, results show a positive relationship but are statistically insignificant.

Table 5:
Government Revenue Adjustment to Debt

Consolidated Government Revenue	
Variable	**Coefficient**
L.Debt	9.900
	(0.987)
GAP	-162.1
	(0.950)
Constant	15486.5
	(0.077)
R-Squared	0.204

Note: p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

4.6 Impulse Response Functions using Vector Autoregressive (VAR) Model

The Vector Autoregressive (VAR) model is used to predict the impact caused by fluctuations in government expenditure on the proportion of debt to GDP and other macroeconomic factors such as interest rate and private consumption. Two statistical models for VAR are tested in this study; the one incorporates government expenditure, private consumption, interest rates, and debt while the other model involves revenues rather than government spending whereas all other factors remain constant. The VAR's latency using the Akaike information criterion (AIC) and the Schwartz Bayesian criterion (SBC), two were chosen. Due to the likelihood of different outcomes in various scenarios shown by VAR approach, the first model substitutes debt and employs tax.

Table 6:
Results of Impulse Response Function Using VAR for Govt. Spending

Variable	**Coefficient**
Expenditure Net	
Expenditure $Net_{(t-1)}$	-0.226
	(0.118)
Expenditure $Net_{(t-2)}$	-0.498**
	(0.002)
Private $Consumption_{(t-1)}$	5344.8
	(0.274)
Private $Consumption_{(t-2)}$	6097.4

	(0.178)
Real Interest Rate$_{(t-1)}$	657.3
	(0.709)
Real Interest Rate$_{(t-2)}$	370.5
	(0.835)
Debt$_{(t-1)}$	3784.2
	(0.286)
Debt$_{(t-2)}$	-2635.4
	(0.450)
Constant	-217713.3***
	(0.000)
Private Consumption	
Expenditure Net$_{(t-1)}$	0.00000653
	(0.158)
Expenditure Net$_{(t-2)}$	0.00000495
	(0.324)
Private Consumption$_{(t-1)}$	0.720***
	(0.000)
Private Consumption$_{(t-2)}$	-0.0941
	(0.515)
Real Interest Rate$_{(t-1)}$	-0.0153
	(0.787)
Real Interest Rate$_{(t-2)}$	0.00785
	(0.890)
Debt$_{(t-1)}$	0.124
	(0.275)
Debt$_{(t-2)}$	-0.145
	(0.194)
Constant	7.619***
	(0.000)
Real Interest Rate	
Expenditure Net$_{(t-1)}$	0.00000219
	(0.872)
Expenditure Net$_{(t-2)}$	-0.00000250
	(0.865)
Private Consumption$_{(t-1)}$	0.0282
	(0.951)
Private Consumption$_{(t-2)}$	0.0592
	(0.889)
Real Interest Rate$_{(t-1)}$	0.830***
	(0.000)
Real Interest Rate$_{(t-2)}$	-0.179
	(0.284)
Debt$_{(t-1)}$	-0.0140
	(0.966)
Debt$_{(t-2)}$	0.0404
	(0.902)
Constant	-1.964

	(0.736)

Note: p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

The results from both models are statistically significant for some of the macroeconomic variables which are regressed on lag 1 or lag 2 but the same is statistically insignificant on the other lag, which indicates that there is a need for further investigation to ascertain the impact of the fiscal shock caused by government spending and revenue to macroeconomic variables.

Table 7:
Results of Impulse Response Function Using VAR for Govt. Revenue

Variable	**Coefficient**
Consolidated Government Revenue	
Consolidated Govt. Revenue $_{(t-1)}$	-0.142
	(0.219)
Consolidated Govt. Revenue $_{(t-2)}$	-0.348**
	(0.004)
Private Consumption$_{(t-1)}$	2766.3
	(0.598)
Private Consumption$_{(t-2)}$	4424.5
	(0.379)
Real Interest Rate$_{(t-1)}$	2137.6
	(0.283)
Real Interest Rate$_{(t-2)}$	1697.1
	(0.398)
Debt$_{(t-1)}$	4552.5*
	(0.048)
Debt$_{(t-2)}$	-3644.2
	(0.135)
Constant	-134038.2*
	(0.021)
Private Consumption	
Consolidated Govt. Revenue $_{(t-1)}$	0.00000468
	(0.084)
Consolidated Govt. Revenue $_{(t-2)}$	0.00000394
	(0.167)
Private Consumption$_{(t-1)}$	0.773***
	(0.000)
Private Consumption$_{(t-2)}$	-0.0587
	(0.619)
Real Interest Rate$_{(t-1)}$	-0.00596
	(0.898)
Real Interest Rate$_{(t-2)}$	0.0219
	(0.642)
Debt$_{(t-1)}$	0.0643

	(0.234)
$Debt_{(t-2)}$	-0.0754
	(0.187)
Constant	5.760***
	(0.000)
Real Interest Rate	
Expenditure $Net_{(t-1)}$	0.00000564
	(0.441)
Expenditure $Net_{(t-2)}$	0.00000479
	(0.534)
Private $Consumption_{(t-1)}$	0.0212
	(0.949)
Private $Consumption_{(t-2)}$	-0.0256
	(0.936)
Real Interest $Rate_{(t-1)}$	0.856***
	(0.000)
Real Interest $Rate_{(t-2)}$	-0.144
	(0.259)
$Debt_{(t-1)}$	0.0201
	(0.890)
$Debt_{(t-2)}$	-0.00303
	(0.984)
Constant	-0.128
	(0.972)
Debt	
Expenditure $Net_{(t-1)}$	-0.00000479
	(0.421)
Expenditure $Net_{(t-2)}$	-0.0000168**
	(0.007)
Private $Consumption_{(t-1)}$	0.474
	(0.080)
Private $Consumption_{(t-2)}$	0.173
	(0.504)
Real Interest $Rate_{(t-1)}$	0.0477
	(0.642)
Real Interest $Rate_{(t-2)}$	-0.00174
	(0.987)
$Debt_{(t-1)}$	0.785***
	(0.000)
$Debt_{(t-2)}$	0.212
	(0.092)
Constant	-12.52***
	(0.000)

Note: p-values in parentheses * $p<0.05$, ** $p<0.01$, *** $p<0.001$

5 Conclusion and Policy Implications

From the results of the study, it can be concluded that fiscal policy of Pakistan is sustainable as there is a correlation between the primary balance-to-GDP ratio and lag Debt-to-GDP ratio; and also from the results of stationary test shows that variables like primary balance, debt, government spending, government revenues, real interest rate, GAP of GDP are stationary in the first difference as argued by Hamilton & Flavin, 1986, Wilcox, 1989, Trehan & Walsh, 1991 that if the unit root analysis test shows that economic variables are verified as stationary, in that case the government is capable of controlling its budget surplus in long term (as cited in Lau and Lee, 2021, p. 02). Government spending has an adverse influence on primary balance, a finding that's consistent with Bohn's (1998) hypothesis which predicts changes in government expenditures should have a negative or positive affect on surpluses and deficits. Following that, it was determined which element of fiscal policy is reacting against the growth of debt in order to keep debt sustainable. The findings suggest that modifications are made on the spending side as results from revenue are insignificant and results from expenditure are highly significant. So, it is concluded that the government plays an important part in budgetary adjustments by focusing on spending.

Most developing nations, including Pakistan, are grappling with a growing debt load and a widening budget deficit, making debt sustainability an increasingly pressing issue. To what extent the government's fiscal policies are contributing to or detracting from its solvency is shown by the sustainability. Therefore, adopting fiscal policies in a manner that intertemporal budget constraints are fulfilled or not is essential for long-term fiscal sustainability. The accumulating debt can be controlled via rationalizing of non-development government expenditure. However, the Government of Pakistan needs to implement conventional taxation policy measures in order to enhance its revenue and lessen the debt burden on the economy. Along with that, the government also needs to work on its investment and exports which will ultimately increase the government revenue

and help the economy to overcome the long-standing issue of budget deficit.

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