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Macroeconomic Stability and Optimal Policy Mix

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ABSTRACT

Public welfare and macroeconomic stability should be the main objectives of fiscal and monetary policy cooperation. Monetary and fiscal policy should be coordinated better to maintain sustainable economic development. To implement fiscal measures and monetary controls, a balanced budget is necessary. This study uses data from 1976 to 2022. A macroeconomic stability check uses real GDP, current account balance, exports, real effective exchange rate, broad money (M2), foreign exchange reserves, consumer price index (CPI), nominal exchange rate, government expenditures, and government tax revenue. The VAR models we use are Impulse Response Functions (IRFs) and Variance Decompositions (VDs). CMR feels a negative impact, TRY, whereas M2G, GY, and others feel a positive impact. Achieving output and price stability requires higher call money rates, more tax revenues, and reduced government spending. Output gaps should be negative.M2G and CABY are negatively correlated, whereas CABY and CMR are positively correlated. If there is a negative output gap, monetary aggregates and taxes conflict with price and production stability; however, policy should aim to increase the current account balance. We recommend strict fiscal and monetary policy measures to stabilize output and limit inflation whenever there is a positive output gap. In addition to strengthening trade and foreign exchange reserves, reduced government spending will stabilize exchange rates; however, increasing tax revenue will counteract these benefits by strengthening the current account.

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1. Introduction

Macroeconomic stability designates a country as less vulnerable to external shocks and keeps it on the right track to ensure long-term sustainable economic development. It behaves like a cushion against interest and currency fluxes in international markets. It is a necessary

but insufficient condition for economic growth. Meanwhile, unstable currency, uncontrolled inflation, and significant debt burdens cause economic crises. Both the IMF and the EU emphasize macroeconomic stability. In Maastricht, key indicators express output stability, unemployment at its natural rate, low inflation rate and price stability, interest rate and exchange rate stability, low budget deficit, sound current account balance, and foreign exchange reserves. The economy's output declines in recessions, while in good times, by contrast, the output goes up. Such ups and downs in output are called business cycles. Economists and policymakers are concerned that current output is how far from long-run potential output is, i.e., they are interested in whether output is increasing or decreasing but also consider its direction, whether it is above its potential or below. The difference between the actual output and its potential level determines the output gap. The maximum amount an economy can produce most efficiently, i.e., the potential output, is the output at total capacity. The output gap can be positive when the output is above the potential. The economy is experiencing high demand, which leads factories and workers to work more than their efficient capacity to satisfy that demand. Alternatively, it can be damaging when the economy works under capacity; neither is good. When a market produces less than it can at total capacity, there is a negative output gap due to weak demand. An output gap advocates that the economy, underutilizing, needs to work more efficiently or overwork its resources.

Lucas (1973) observed a trade-off between these two factors in his Study on output and inflation. Low inflation and stable prices benefit the economy; however, having unstable prices or a high inflation rate is detrimental. Long-term agreements and contracts are less valuable when a high inflation rate occurs. The increased volatility of inflation makes the market behavior uncertain and increases the risk premiums for investors. This, in turn, leads to a decrease in investment, which slows down economic growth. High inflation also reduces the purchasing power of consumers, leading to decreased consumer spending. This decrease in consumer spending can lead to a decrease in demand for goods and services, leading to a decrease in economic growth (Benigno, Chen, Otrok, Rebucci, & Young, 2023; Schnabel, 2022). Meanwhile,Muinga, Gathiaka, and Osoro (2023) examined that various tax rates are adjusted by average inflation. Hence, inflation volatility severely affects the government's tax revenues, individual liabilities, and budget deficits. The government's tax revenues, individual liabilities, and budget deficit are adversely affected by inflation volatility. While current inflation may be appropriately low, a consistently high interest rate implies higher inflation will arise. Low and stable interest rates stabilize the future expectations about inflation. As long as interest rates remain low and stable, the economy is probably stable (Coenen, Montes-Galdón, & Smets, 2023).

A stable economy facilitates the improvement of supply-side performance. With stable and low inflation, more investment improves productivity and non-price competition. Inflation control makes exports price competitive, and local businesses can compete with imports, resulting in current account balance improvement. Stability breeds more confidence in consumers, and businesses maintain spending in a circular flow. Output and price stability confirm that keeping the interest rate low and stable is vital in reducing the borrowing costs of individuals and businesses with loans and mortgages to repay. Both output and prices cause exchange rate variability and affect current account balance, trade, and foreign exchange reserves.

One of the concerns of fiscal and monetary authority is dealing with macroeconomic stability and economic growth. In economics, several macroeconomic policy instruments were developed to facilitate these authorities to pull off their goals, e.g., government expenditures and government revenues, including tax revenues, represent fiscal policy instruments and interest rate and money supply from the monetary side that are our concern. For decades, economists have been familiar with the participation of both policies in economic activities. Since the start of the twentieth century, monetary policy has gotten its position in economic discussion and analysis. In 1930, with the attack of the great depression, it was nowhere to be

found as a policy instrument. The Keynesian revolution turned attention towards fiscal discipline as a policy device to generate economic employment and output (Vaish, 2009). Accordingly, in the 1940s and 1950s, policymakers deemed monetary policy instruments relatively impotent (Gordon, 1981). In the second half of the twentieth century, however, belief in monetary policy retained its worth in literature through the attempts of Friedman and other monetarists. Keynesian-monetarist debate started, and once again, the relative potency of fiscal and monetary policy actions on the macroeconomic environment arrested the intentions of economists. In the past two decades, a favorable environment for monetary policy put fiscal policy in an inferior position in both developed and developing nations. However, fiscal prudence, along with debt sustainability, is considered by the government. Furthermore, they designed fiscal rules for macroeconomic stability (Blanchard, Dell Ariccia, & Mauro, 2010; Malmierca, 2022).

An optimal policy mix ensures macroeconomic stability and provides a better economic environment for growth and inflation perspectives. Keynesian-monetarist disputes around researchers have remained a hot issue, and they have shown their interest in estimating the comparative policy relevance in developing countries. However, disagreements about the relative potency of both fiscal and monetary policy still exist. Some are pro-Keynesians who warn about monetary policy's irrelevance and stress putting it back to a fiscal stance. At the same time, the rest believe in monetarists' view against government intervention and support monetary policy actions in determining output, inflation, and external balance. In Pakistan's case, previous studies mainly focused on internal balance stability in the context of the relative effectiveness of monetary and fiscal policy. There is a significant debate on the prudence of both policies on economic growth. We have found rare discussions on price and exchange rate stability, and studies have yet to catch our eyes on the relative potency of these policies on external balance position, especially for the Pakistan case. This is the first time anyone has considered policy effectiveness under external balance. The lack of open economy factors in the Study yielded invalid inferences. This Study captures a more relevant and accurate picture of the economy by considering open economy indicators.

The Study is also different from other studies conducted in Pakistan in that we are using Impulse Response functions (IRFs) and Variance Decompositions (VDs) in the Vector Autoregressive (VAR) model, i.e., not used earlier to check the relative effectiveness of both policies. Moreover, we are not only considering the impact of monetary and fiscal policy in our analysis but also investigating the relative impact of each instrument of both policies, for example, government expenditures and tax revenues from fiscal stance and call money rate and monetary growth rate from monetary side to check their impact on output stability, price stability, exchange rate stability and improvement in current account balance. We have estimated the real output gap to figure out output stability. However, previous studies on the relative effectiveness of these policies on economic growth used nominal or real GDP growth only. Furthermore, we have used the latest data set for this Study.

As such, this work offers a solid basis for comprehending the relationship between macroeconomic Stability and Optimal Policy. Furthermore, by examining the impact of these variables on the other macroeconomic indicators, the current Study offers a more comprehensive viewpoint. Discussion about policies and macroeconomics is still rare. The organized Study is as follows: Section two briefly explains a literature review. Further, in section three, there are discussions on methodology. Lastly, in the last section, the results and conclusion are discussed.

2. Literature Review

There are two policy propositions for achieving economic prosperity. Fiscal and monetary policy has a massive significance in macroeconomic policy frameworks (Ajisafe & Folorunso, 2002; Benigno et al., 2023). The relative policy importance for macroeconomic

stability has been debated for a long time. Economic history consists of many theories, one after another, contributing to this debate, backing their own view. The debate starts with Keynesian and monetarist propositions, and it goes on. Economists who favour the policy irrelevance proposition draw various assumptions to support their conflict of interest about the importance of monetary and fiscal policy. We have summarized the debate based on theoretical as well as empirical literature.

Classical economists considered monetary policy an imperative device for macroeconomic stability (Schnabel, 2022; Vaish, 2009). Consumption, Investment and savings are determined through interest rates from a classical point of view. Economic agents do not spend their whole income; they save some for future consumption. The higher the interest rate, the more they will save for future consumption (Hall, 1988). Thus, a higher interest rate drives the current consumption down. Savings that are supplied with loanable funds respond positively to interest rates. Firms' demand for loanable funds turns to Investment in the capital market, which has an opposite relationship with interest rates. The classical proposition of savings equal Investment at equilibrium, backed by the idea that natural market forces and the marginal product of capital jointly determine Investment, implies that interest rate-determined consumption and Investment provide room for the monetary authority to affect output.

A rise in money supply generates more money balances for households to spend more on goods and services crea, and excess demand causes disequilibrium in the goods market, yielding an upward swing in the price level. Thus, positive monetary shocks inflate prices (Barro & Gordon, 1983; Friedman, 1968). Moreover, the interest rate contributes to the price change (Fisher, 1930). Central to the classical proposition, aggregate demand only determines price level, an implicit proposition based on the quantity theory of money. The quantity theory of money shows a proportional association between money and nominal income, i.e. with constant real income, changes in nominal income are fully adjusted by prices (Walker, 1895). The economic explanation behind this proposition is that if excess money supply is generated, commodity demand adjustments cause a positive swing in the aggregate price level (Scarth, 2014). The modern version of the classical proposition is the fundamental business cycle theory.

Similarly, in fundamental business cycle theory, money solely determines price level (Scarth, 2014). However, monetary policy is still in the game by controlling swings in wages and prices in the classical system. Classical schools also consider wage rigidities to cause unemployment. Hence, to avoid fluctuations in propensities to save or investment outlook due to a change in wages and prices, based on money supply stability since the quantity of money determines price level and aggregate demand (Ackley, 1961). Classical economists argued about self-correcting mechanisms and opposed government intervention. Indeed, they favour leaving the economy alone, and equilibrium-driven market forces define their way. Government distortion slows the economy (Snowdon & Vane, 2005). The classical stance of state intervention causes distortions in the economic system and acknowledges the state's central role in holding legal structures and prolonging national defense.

The classical economic view was nice-looking before the greatest crisis of economic history in the 1930s, called the excellent depression. The crisis decades took a turn in economic thinking that altered the perspectives of economic agents as well as the economists' thinking that was influenced by the revolutionary book of Keynes, "The General Theory of Employment, Interest rate and Money" in 1936 enlightened ground-breaking idea of the economics behind why monetary policy fails to remedy depression and give way to fiscal stance such as government taxes and expenditures system as a policy tool against unemployment (Vaish, 2009).

Keynesians believe in nominal rigidities, i.e. prices and wages are not accessible to adjust, investment decisions are far away from savings decisions, and the marginal product of

capital and natural forces of thrift do not set interest rate; instead, it is considered as a monetary phenomenon in Keynesian proposition (Snowdon & Vane, 2005). The liquidity preference function constructed from Keynes's theory of liquidity preference proves that actual money demand is a function of income and interest rates. In the textbook Keynesian model, the monetary policy transmission mechanism is indirect in such a way that positive monetary shock drives the interest rate down to stimulate Investment and aggregate demand that heats prices (Taylor, 1995). Therefore, change in Investment finally determines the nominal output. The only way money can matter in the Keynesian economy is through the interest rate channel, and the interest sensitivity of money demand decides how effective it is. More interest-sensitive demand for money implies less effective monetary policy. In the demand side phenomenon, the Keynesian framework concentrates on factors of autonomous expenditures, such as government expenditures, taxes, and autonomous Investment (Asogu, 1998). Monetary determinants are ignored. As a result of Keynesian theory, government expenditures that contribute to economic growth are exogenous. According to Fatima and Iqbal (2003), fiscal dominance is related to economic growth. As Wagner (1890) argued, reverse causation among these variables implies that fiscal policy is also endogenous. Studies found monetary dominance and Wagner's proposition in Pakistan. Keynesian economics shed light on the dominance of aggregate demand in output and employment determination. Thus, Keynesians draw less attention to the importance of money in the economy. Instead, they believe more in fiscal stance for stimulating economic growth (Ansari, Gordon, & Akuamoah, 1997; Hussain & Niazi, 1992; Landreth & Agranoff, 1976).

In the 1950s, the monetarist school questioned Keynes's theory about monetary potency through empirical investigation. Monetarists support monetary policy dominance in output determination, and fiscal policy actions play a minor role in economic activity. However, the matter is that they are noninterventionists and believe in a rule-for monetary policy that effectively functions in a stable economic environment (Scarth, 2014). Monetary policy dominance exerts an influence on inflation (Scarth, 2014). In line with other monetarists, Milton Friedman showed that money does matter as evidence for the revival of monetary importance (Vaish, 2009). Ansari (1996) noted that monetarists used the St. Louis equation (i.e. biased towards fiscal phenomenon) to oppose fiscal dominance based on its crowding out and inflationary impacts.

Nowadays, the focus switches from government expenditures to public Investment. Complementary public Investment for private Investment exerts crowding in instead of crowding out. Furthermore, public expenditures in general and public Investment particularly stimulate the economy (Aschauer, 1990). Mundell (1962) opposes the monetarist view in a way that money plays an endogenous role in accommodating changes in economic growth. Other monetarists who follow rational expectations argue that monetary expansion causes inflation and output. Government spending is the source of structural views on inflation. The money supply increases when governments rely on deficit financing to meet their expenditure targets, causing inflation (Kirkpatrick & Nixson, 1976). From the literature, we conclude that both policies are essential in determining output and inflation; however, one is less effective, and the other is more.

Very few studies estimate the relative effectiveness of monetary and fiscal policy on Pakistan's economic growth, inflation and exchange rate. To date, by using the modified St-Louis single equation model has employed (Andersen & Jordan, 1968; Hussain, 1982; Masood & Ahmad, 1980; Saqib & Yasmin, 1987). They found relative monetary and fiscal potency on economic growth that causes the problem of endogeneity. Endogeneity makes the estimates severely biased (Goldfeld, Blinder, Kareken, & Poole, 1972; Senbet, 2011). Consider all the variables endogenous as the Vector-autoregressive (VAR) model does to resolve this issue (Senbet, 2011). To address this problem, Hussain and Niazi (1992) used the Granger and Sims causality test to measure the relative importance of both policy instruments on economic growth. The Granger and Sims test does not incorporate the optimal choice of lag length,

yielding invalid inferences about causality (Fatima & Iqbal, 2003). Fatima and Iqbal (2003) included export variables in their comparative policy analysis using Co-integration and Error-Correction-Mechanism (ECM) for five Asian countries, including Pakistan. In line with Fatima and Iqbal (2003); Hussain (2014) analyzed this comparison through Advanced Autoregressive-Distributed-Lag (ARDL) with Co-integration and ECM for five SAARC countries, including Pakistan.

Moreover, researcher applied ARDL to entail the above discussion for Pakistan. In causality testing, applying Co-integration first and then dealing with ECM or ARDL as a regressor create flaws in estimation for two crucial reasons (Ali, Irum, & Ali, 2008; Mahmood & Sial, 2011). First, after forecasting the Error-Correction term, it is used as an independent regressor that contributes to generate regressor bias, which means the standard deviation calculated in the next step does not remain valid. The next problem that can arise is having more than one Co-integration vector; their linear combinations are also Co-integrated vectors. Short-run and long-run dynamics of the system are estimated in research, particularly in the VAR model. The VAR model estimates the dynamic impacts of fiscal and monetary policy actions on growth to resolve endogeneity. VAR is least likely to suffer from omitted variable bias and avoid simultaneity (Senbet, 2011). It accounts for feedback from economy to policy variables (Kirkpatrick & Nixson, 1976).

The study gap is the need for a comprehensive assessment of the impact of macroeconomic stability on economic growth. It also needs to analyse the impact of an optimal policy mix on macroeconomic stability. Additionally, no studies examine the long-term effects of macroeconomic stability on economic growth and development. This lack of research has prevented economists from fully understanding the relationship between macroeconomic stability and economic growth and has hindered the development of effective policy strategies. Therefore, further research is needed to explore the impact of macroeconomic stability and an optimal policy mix on economic growth and development.

In developed countries, empirical findings of debate vary from country to country (Senbet, 2011). Researchers of developing countries also participate in debates to enrich the literature to find the relative dominance of the two policies (Ansari, 1996). It is clear from the literature that the relative importance of both policies remains a puzzle. To what extent is macroeconomic stability achieved through prudent fiscal stances like promoting investment, controlling inflation, job creation, encouraging exports, maintaining exchange rate stability, and strengthening current account position? Likewise, monetary policy can participate in economic growth, inflation targeting, stabilizing currency and capturing foreign exchange inflows.

3. Data and Methodology

Governments formulate macroeconomic policies to encourage economic growth and employment, price stability, stable financial markets, and external balance conditions. Here, we will develop a theoretical framework to address the effectiveness of monetary and fiscal policies in achieving macroeconomic stability.

3.1. Theoretical Framework

Monetary authorities, most probably the central bank, conduct monetary policy with discretionary control of interest rate (directly or indirectly through money supply), credit and cost of credit to meet economic objectives such as sustainable economic growth, price stability or inflation control, exchange rate stability and healthy external balance position, e.g. favourable current account balance, competitive trade volume and stable foreign exchange reserves (Friedman, 1968; Leeper, Sims, Zha, Hall, & Bernanke, 1996). Adequate monetary policy determines economic prosperity and stable inflation through monetary transmission

(Taylor, 1995). Economic theory shows that monetary easing stimulates aggregate demand and hence output level by following transmission channels such as interest rate, income and wealth, actual cost of capital, exchange rate, credit and asset price channel (Bernanke & Gertler, 1995; Mishkin, 1996).

Taylor (1995) surveyed monetary transmission mechanisms, specifically on interest rate channels, and concluded that a rise in interest rates increases the cost of firms and households because of higher borrowing costs; thus, the demand for consumer durables and investment goods decreases. An interest rate hike slows down economic activities by reducing consumer spending as they attract more to save and have less incentive for borrowing. Hence, a decline in aggregate demand tends to lower inflation. Furthermore, low aggregate demand reduces import demand, and low prices encourage exports to jointly improve current account balance, trade balance and foreign exchange reserves.

Fiscal policy can alter aggregate demand by changing the capacity of the economy to produce goods and wealth distribution (Musgrave & Peacock, 1958). The government performs three primary functions to affect the economy: efficient resource allocation, effective and fair income distribution and macroeconomic stability. Government spending or taxes can change the magnitude and patterns of demand for goods in the short run. With time, this demand influences resource allocation decisions and the economy's productive capacity by affecting returns on factors of production, capital allocation, human capital development, and investments in research and development and technological change. Taxes determine net returns of labour employed, savings and investment; hence, both impact magnitude and productive capacity allocation.

In an open economy, when the exchange rate floats freely, a higher interest rate causes capital inflows that, as a result, appreciate the exchange rate and deteriorate the current account balance. An expansionary fiscal stance leads to a price hike that chokes off part of aggregate demand's rise in the short run. In an open economy with a flexible exchange rate, in particular, if the price changes with the exchange rate, exchange rate appreciation lowers prices, whereas, with a fixed exchange rate, a rise in price in response to exchange rate appreciation causes current account deterioration. Fiscal and monetary expansion aims to stimulate aggregate demand and output while tightening policies to control inflation and stabilize internal and external balance.

3.2. Data and Variables

We have chosen data of all variables for the period 1976-2022. Data on all variables used in our models were extracted from several sources: real GDP, current account balance, and exports and imports data are extracted from the source of the World Bank. The effective exchange rates and call money rate data are taken from International Financial Statistics (IFS). Data on Broad money (M2), foreign exchange reserves, consumer price index (CPI), nominal exchange rate, government expenditures, and government tax revenues is collected from sources of the State Bank of Pakistan (Hand Book of State Bank) and various issues of economic survey.

Now, we will describe the details of each variable, such as how we use these variables and what scale they follow in our study. To find output stability, we have estimated the output gap from accurate GDP data expressed in Billion rupees. The inflation rate is computed by taking the growth rate of the general CPI to check general price stability. The real effective exchange rate is in index form; hence, we have taken a natural log of that variable to convert it into a rate to check exchange rate stability in our study. Foreign exchange reserves and current account balance are expressed in billion dollars. We have converted these into a billion rupees by multiplying them with a nominal exchange rate. We have added imports and exports and taken the ratio to nominal GDP to calculate trade openness to find policy impact on trade

volume; all are expressed in billion rupees. The call money rate checks monetary policy impact on macroeconomic stability. Broad money in billion rupees is also a monetary instrument; we have computed the growth rate to find the impact of the monetary growth rate on macroeconomic variables. Government expenditures and tax revenues are in billion rupees expressed fiscal impact taken into nominal GDP ratio form. Net foreign direct investment (FDI) is the control variable in all models expressed in billion rupees. The current account balance is also in ratio to nominal

Table 1
Variable Description

Variable Name	Description	Symbol	Variable Source
Monetary growth rate	Money growth rate (m2 broad money)	m2g	WDI
Tax Revenue to gdp ratio	Measures a nation's tax revenues to its gross domestic product	Try	WDI
Government Expenditure to gdp ratio	Annual growth rate of real per capita gross domestic product	Gy	WDI
Real effective exchange rate	Real effective exchange rate	Lrer	SBP
Current account balance to gdp ratio	Current account balance	Caby	WDI
Call money rate	Call money rate used as interest rate	Cmr	SBP
Output gap	Output gap	Og	WDI
Inflation	Consumer price index	Cpi	WDI

3.3. Johansen Cointegration Test Result

Table 2
Johansen Cointegration Test Result

Hypothesized number of cointegrating equations	Eigenvalue	Trace Statistic	0.05 Critical Value	Probability
Unrestricted Cointegration Rank Test (Trace)				
r = 0	0.907008	236.7043	159.5297	0.0000***
r > 1	0.793439	158.3211	125.6154	0.0001**
r > 2	0.646068	106.2749	95.75366	0.0078**
r > 3	0.600626	71.99945	69.81889	0.0331
r > 4	0.469340	41.71014	47.85613	0.1670
r > 5	0.349693	20.80020	29.79707	0.3702
r > 6	0.174715	6.599931	15.49471	0.6246
r > 7	0.007939	0.263048	3.841466	0.6080
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized number of cointegrating equations	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Probability**
r = 0	0.907008	78.38312	52.36261	0.0000***
r > 1	0.793439	52.04620	46.23142	0.0108**
r > 2	0.646068	34.27549	40.07757	0.1948
r > 3	0.600626	30.28931	33.87687	0.1264
r > 4	0.469340	20.90994	27.58434	0.2817
r > 5	0.349693	14.20027	21.13162	0.3488
r > 6	0.174715	6.336883	14.26460	0.5704
r > 7	0.007939	0.263048	3.841466	0.6080

Note: * and ** denotes significance at the 1% and 5% levels respectively.**

As our variables are integrated in a mixed order, we use the Cointegration approach in our analysis. This study used the Johansen Cointegration technique to first determine if a relationship existed. According to Johansen cointegration test, the table below shows the results.

A Trace statistic indicates that there are six cointegrating equations at the 5% critical level, in contrast to the Max-Eigen statistic which reported five cointegrating equations. It is logical to conclude that the model contains a long-term equilibrium relationship if cointegrating equations are present.

3.4. Vector Autoregressive (VAR) Model

We estimate 16 Vector Autoregressive (VAR) models in our analysis, each comprising six variables. We analyze the relative prudence of fiscal and monetary policy on output gap stability, price stability and exchange rate stability in the first model by using instruments of both policies and foreign direct investment as control variables. Our first model is based on the following system of equation

$$OG_t = \beta_o + \sum \beta_{1_i} OG_{t-i} + \sum \beta_{2_i} GGCPI_{t-i} + \sum \beta_{3_i} LRER_{t-i} + \sum \beta_{4_i} CMR_{t-i} + \sum \beta_{5_i} GY_{t-i} + \sum \beta_{6_i} FDI_{t-i} + \varepsilon_t \quad (1)$$

$$GCPI_t = \alpha_o + \sum \alpha_{1_i} OG_{t-i} + \sum \alpha_{2_i} GGCPI_{t-i} + \sum \alpha_{3_i} LRER_{t-i} + \sum \alpha_{4_i} CMR_{t-i} + \sum \alpha_{5_i} GY_{t-i} + \sum \alpha_{6_i} FDI_{t-i} + \varepsilon_t \quad (2)$$

$$LRER_t = \gamma_o + \sum \gamma_{1_i} OG_{t-i} + \sum \gamma_{2_i} GGCPI_{t-i} + \sum \gamma_{3_i} LRER_{t-i} + \sum \gamma_{4_i} CMR_{t-i} + \sum \gamma_{5_i} GY_{t-i} + \sum \gamma_{6_i} FDI_{t-i} + \varepsilon_t \quad (3)$$

$$CMR_t = \delta_o + \sum \delta_{1_i} OG_{t-i} + \sum \delta_{2_i} GGCPI_{t-i} + \sum \delta_{3_i} LRER_{t-i} + \sum \delta_{4_i} CMR_{t-i} + \sum \delta_{5_i} GY_{t-i} + \sum \delta_{6_i} FDI_{t-i} + \varepsilon_t \quad (4)$$

$$GY_t = \theta_o + \sum \theta_{1_i} OG_{t-i} + \sum \theta_{2_i} GGCPI_{t-i} + \sum \theta_{3_i} LRER_{t-i} + \sum \theta_{4_i} CMR_{t-i} + \sum \theta_{5_i} GY_{t-i} + \sum \theta_{6_i} FDI_{t-i} + \varepsilon_t \quad (5)$$

In the following models, we replace the exchange rate with the current account balance to GDP ratio first and then GY with tax revenues to GDP ratio and at last, we replace the call money rate with the monetary growth rate.

3.5. Estimation Methodology

In time series analysis, the first thing is observing the stationarity of all variables. We used the Augmented Dickey-Fuller (ADF) test to conduct a unit root test. If we find a unit root in any variable, it means that the series is nonstationary. Hence, we take the difference of the series to make it stationary.

We determine the lag length in VAR through Schwarz Information Criteria (SIC). Hypothetical changes in policy instruments affecting output gap, inflation, exchange rate, trade volume, foreign exchange reserves and current account balance are estimated through impulse response functions (IRFs) and variance decompositions (VDs) from the VAR model expressed above. VAR allows all variables to interact with themselves and others without imposing theoretical structure on estimates (Sims, 1980). In VAR, IRFs show the effect of a one-time shock of policy variables on itself and all other variables over the forecast horizon. VDs decompose the effects of all variables on the dependent variable. Hence, VDs are helpful in checking which variable exerts a more significant impact than others.

Additionally, the VAR model is suitable for investigating the dynamic impact among variables (Sims, 1980). In the model setting, we analyze the response of standard errors by using Choleski decomposition at one standard deviation. Senbet (2011) used the same approach to examine the relative effectiveness of monetary and fiscal policy on nominal and

actual output for the USA. We extend this model for an open economy and incorporate the policy role in output stability, price stability, exchange rate stability and external balance position for Pakistan.

4. Results and Discussion

4.1. The Unit Root Test

In time series data, we start our analysis by testing the stationarity of each variable. The Augmented Dickey-Fuller (ADF) unit root test at the level and first difference with and without trend is represented in the table.

Table 3
ADF Unit Root Test

Variables	Test for Unit Root	Included in Test Equation	P-Statistics		Results
			ADF Test Statistics	Critical Values	
OG	Level	Intercept	-2.00	-3.62*	I(1)
		Trend and Intercept	-1.97	-3.53**	
	1st Difference	Intercept	-4.97	-3.62*	
GCPI	Level	Intercept	-2.80	-3.62*	I(1)
		Trend and Intercept	-2.74	-3.53**	
	1st Difference	Intercept	-7.21	-3.62*	
LRER	Level	Intercept	-2.12	-3.63*	I(1)
		Trend and Intercept	0.17	-3.54**	
	1st Difference	Intercept	-4.43	-3.64*	
CABY	Level	Intercept	-2.92	-3.61*	I(1)
		Trend and Intercept	-2.93	-3.53**	
	1st Difference	Intercept	-6.55	-3.62	
CMR	Level	Intercept	-2.25	-3.62*	I(1)
		Trend and Intercept	-2.25	-3.53**	
	1st Difference	Intercept	-5.66	-3.62*	
M2G	Level	Intercept	-4.27	-3.62*	I(1)
		Trend and Intercept	-4.31	-4.22*	
	1st Difference	Intercept	-8.84	-3.62*	
GY	Level	Intercept	-2.71	-3.61*	I(1)
		Trend and Intercept	-2.79	-3.53**	
	1st Difference	Intercept	-8.49	-3.62*	
TRY	Level	Intercept	-3.59	-3.61*	I(1)
		Trend and Intercept	-3.51	-3.53**	
	1st Difference	Intercept	-7.95	-3.62	

Results indicate that all variables have unit roots at a level while stationary at the first difference. In this section, using several instruments, we analyze the effectiveness of the monetary and fiscal policy actions on the actual output gap, inflation rate, current account balance, and exchange rate. The IRFs' and VDs' results are computed from the VAR model. In the model setting, we analyzed the response of standard errors by using Choleski decomposition at one standard deviation with the ordering of monetary policy variable CMR (or M2G) first, fiscal policy variables GY (or TRY) next, GCPI next, CABY (or LRER) next and then OG and FDIY at last as a control variable. Here, contemporaneously, the fiscal authorities take actions after observing monetary actions. The one lag length is selected through SCI lag length criteria for all mod

4.2. Impulse Responses of Output Gap

Figure 1 shows the response of OG against CMR, M2G, GY, and TRY through IRFs in VAR models for 10 periods of the forecast horizon. Standard errors are measured on a vertical axis plotted against the forecast time horizon. Results reveal that CMR hurts taming OG, while M2G

affects OG positively but with weaker intensity, as shown in Figure 1, One standard deviation positive shock of CMR causes a 3 per cent decline in OG, is significant up to the fourth period that decays over time, and in a quarter of the seventh period, it converges back to its initial value, while M2G explain a 2.5 per cent increase in OG that is significant in the first quarter of forecast horizon. It slowly converges to its initial value in the long run. It shows that an increase in the interest rate or reduction in monetary growth precedes a decrease in the actual output gap, suggesting that monetary authority is in the game to stabilize the output gap in the Pakistan economy. However, it must rely more on interest rates to get efficient outcomes (Carter, 1999; Senbet, 2011)

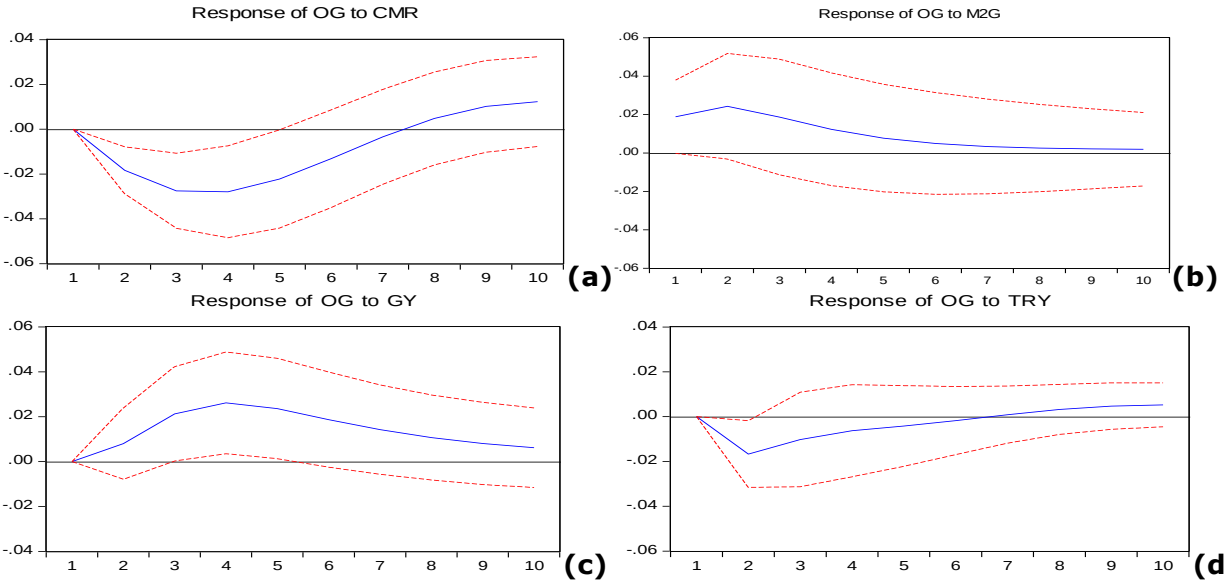

Figure 1: Impulse Responses for the VAR Model Real Output Gap with Monetary and Fiscal Policy Instruments.

When the output gap is above its potential level, a positive output gap exists, either because interest rate tightening or money contraction lowers the output gap and vice versa. As a rise in money supply drives the interest rate down, money expansion or interest rate loss sounds the same and vice versa. We can explain this relationship through the interest rate channel. An increase in interest rate lowers the investment demand and aggregate demand, determining the output level so that a fall in output decreases the output gap. Furthermore, interest rate hikes raise the cost of borrowing so that firms and individuals avoid borrowing and prefer to save more instead of indulging in economic activities that lower the output level. When we look at fiscal policy instruments, GY provides positive feedback to OG while TRY affect negatively, which is consistent with the studies (Ansari, 1996; Carter, 1999; Mutuku & Koech, 2014). A rise in government expenditures stimulates the output level due to an increase in aggregate demand from two perspectives: government demand and income-induced consumer expenditures. The government has to cut down its expenditures to lower the output gap. The positive shock of TRY is a 2 per cent fall in OG in the first two quarters of the forecast horizon. An increase in tax rate lowers disposable income and induces consumption reduction, further decreasing output and, ultimately, the output gap. Tax cuts should encourage growth in small businesses and increase consumer self-confidence, thereby boosting the economy (Walsh, MITCHELL, & Hennig-Thurau, 2001).

4.3. Impulse Responses of Inflation Rate

Similar to the output gap, we plot impulse responses of the inflation rate against all the policy instruments to examine the potency of fiscal and monetary actions on price stability.

Figure 2 shows that CMR and TRY are negatively associated with GCPI, while M2G and GY show a positive association. A positive shock of CMR caused a significant 81 per cent decrease in GCPI up to the fifth period and converged back to its initial value in the eighth quarter of the forecast horizon. Conversely, a positive shock of M2G stimulates GCPI at a 107 per cent level significantly in the first two quarters. It converges to its initial value at the end of the fifth period, meaning that loose interest rate policy and positive monetary growth exert a similar impact and vice versa. A rise in M2G or a fall in CMR also stimulates investment demand and aggregate demand. Positive feedback to aggregate demand creates inflationary pressure on the economy. Hence, we need to discourage aggregate demand by using tight monetary policy to stabilise the prices. Our findings are similar to the following studies (Chaudhari, Menon, Saldanha, Tewari, & Bhattacharya, 2015; Friedman & Meiselman, 1963; Hall, 1988; Qayyum, 2008; Schwartz, 1973). Now its turn to fiscal policy, a positive shock of GY creates a 48 per cent positive but insignificant change in GCPI for the third quarter. TRY shows a 70 per cent positive impact in the first quarter, and from the second to seventh quarter, it turns to a 40 per cent negative impact.

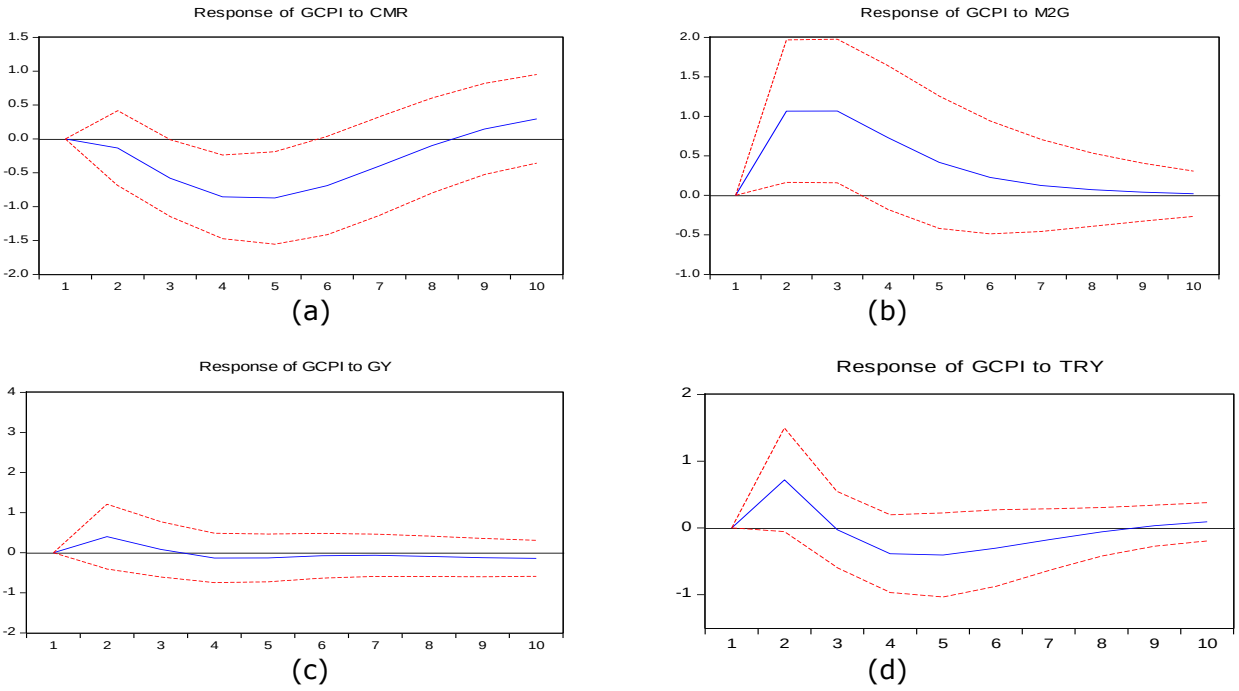

Figure 2: Impulse Responses for the VAR Model Inflation With Monetary and Fiscal Policy Instruments

In contrast with government expenditures, a reduction in tax rates causes a decline in tax revenues with a dual effect. At first, it provides less budget to fulfil government spending, which implies that the government will cut its expenditures or face large fiscal deficits, as pictured by the initial positive response of TRY. Secondly, a tax cut increases the disposable income of consumers, which raises both consumer spending and aggregate demand. Finally, positive demand side shock inflates the prices if the economy is already at total capacity or relatively close to it. Hence, an increment in government spending or tax cut all mechanics reach the same conclusion that is consistent with the literature (Ezirim, Muoghalu, & Elike, 2008; Friedman, 1968; Han, MacFarlane, Mulligan, Scafidi, & Davis, 2002; Haque & Montiel, 1991; Olayungbo, 2013). Findings suggest that inflation is most probably monetary phenomenon but up to some extend it is also state dependent.

4.4. Impulse Responses of External Balance

To determine the response of external balance against policy variable, we plot IRFs of current account balance, trade volume, foreign exchange reserves and exchange rates in separate VAR models. From the monetary side, CMR has a positive impact on CABY and a negative impact on TON, FXY, and LRER. In contrast, M2G has a negative relationship with CABY and FXY but is positively associated with TON and LRER, as shown in Figures 6.3 to 6.6. The positive shock of CMR shows a 58 per cent positive impact in the second to fifth quarter. Initially transmitted CMR shock is entirely decayed for its initial value in the seventh quarter of the forecast horizon. M2G shock transmits a 118 per cent negative change that is significant in the first three quarters and completely offset in the fifth period. A rise in the interest rate or fall in monetary growth shows a shadow effect. Increasing interest rates lowers aggregate demand and prices and makes exports cheaper, stimulating demand for exports and improving the current account balance. Moreover, in response to an increase in interest rate, consumer cut their spending, which will lower imports and, therefore, the current account balance will improve consistent with these studies (Bergin & Sheffrin, 2000; Bernhardsen, 2000; Schmitt-Grohé & Uribe, 2014; Taylor, Verhagen, Blaser, Akdis, & Akdis, 2006).

From a fiscal perspective, the results are fascinating. A positive shock of GY causes a 51 per cent positive impact significant in the first two quarters that last for the fourth quarter and a 27 per cent permanent negative effect onward. Government expenditures are financed by two resources: increasing taxes and government borrowings. Tax increases reduce consumer spending and imports, and declining aggregate demand and prices make exports relatively more attractive. Both improve current account balance, whether the increase in borrowings heats interest rates to discourage investment and aggregate demand cause improvement in current account balance. Furthermore, a rise in interest rate causes capital inflow that appreciates the exchange rate, making imports expensive and exports more attractive, improving the current account balance. A negative relation indicates a positive long-run aggregate demand effect on the current account's deterioration.

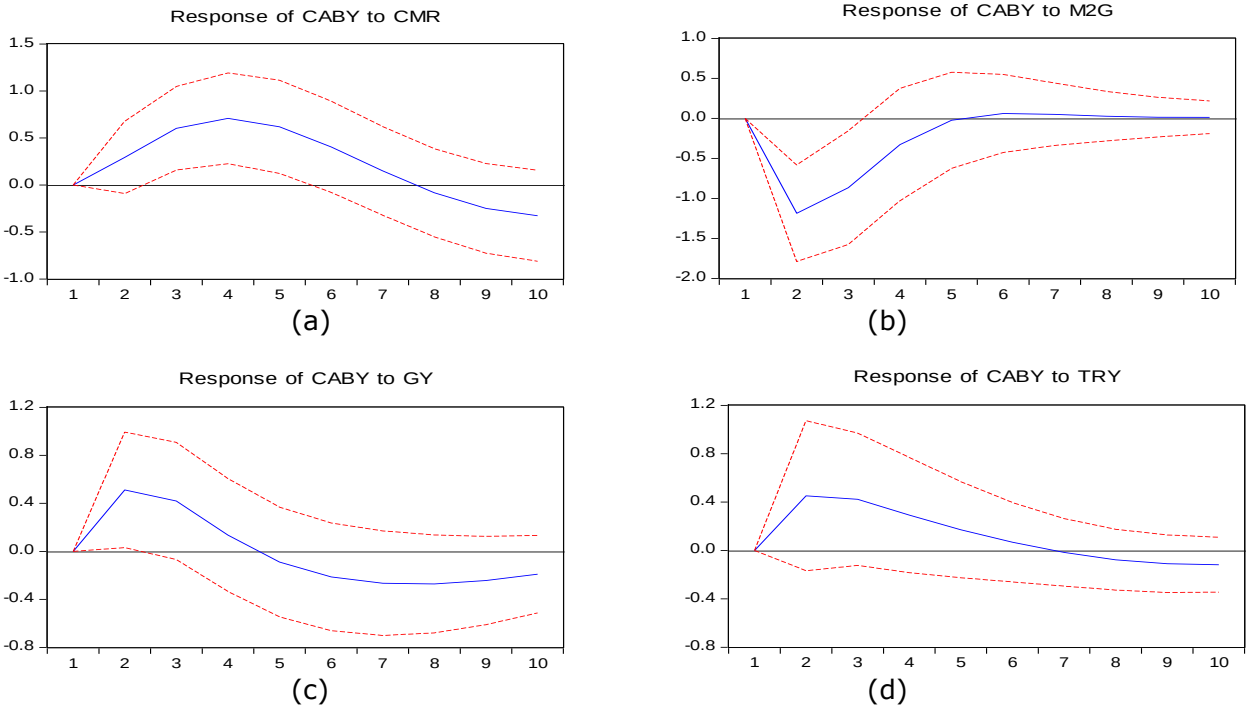

Figure 1: Impulse Responses for the VAR Model Current Account Balance with Monetary and Fiscal Policy Instruments

Try moves in same direction. A positive shock of TRY cause 45 percent improvement in CABY that is completely decayed in seventh consistent (Enders & Lee, 1990).

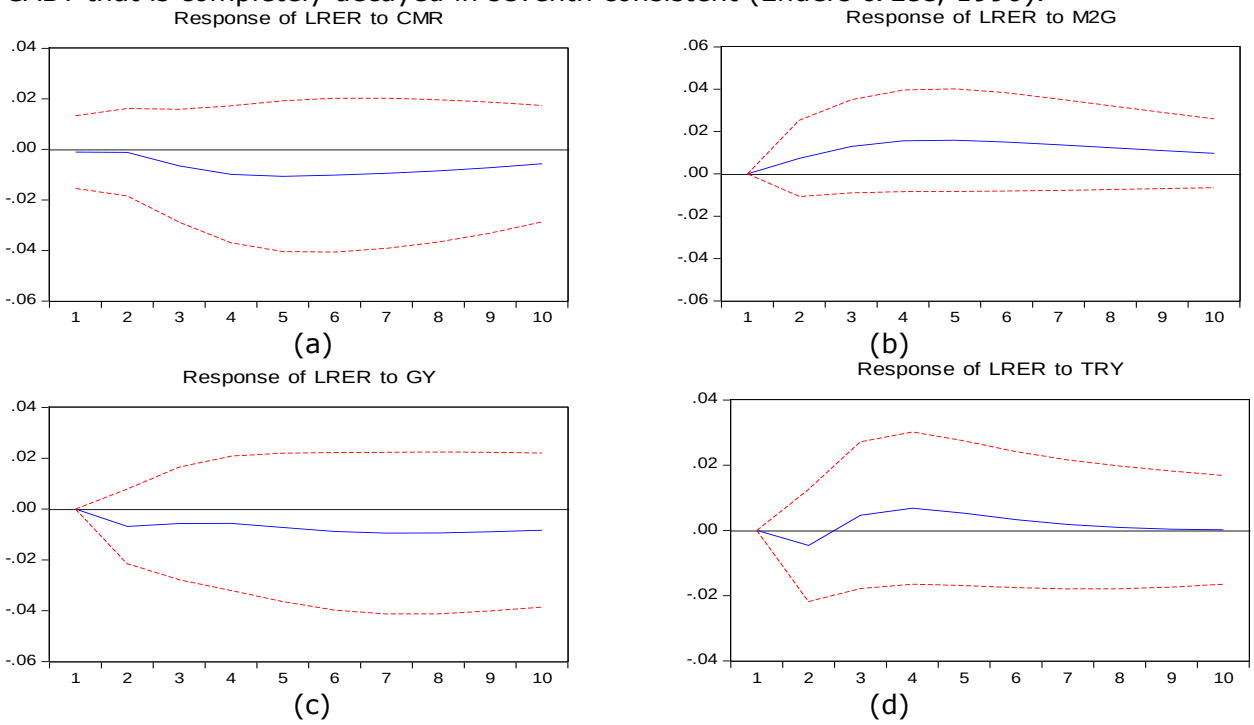

Figure 4: Impulse Responses for the VAR Model Real Effective Exchange Rate with Monetary and Fiscal Policy Instruments

Try shows a 10 per cent positive insignificant impact. A rise in CMR depreciates the exchange rate with a permanent 1 per cent change. Similarly, a positive shock of M2G causes a 1 per cent permanent exchange rate appreciation, implying that an increase in M2G and a fall in CMR cause exchange rate depreciation. This result is consistent with the uncovered interest parity approach, where a fall in local interest rate compared to the foreign interest rate induced by monetary expansion is related to capital outflows, which creates pressure on the exchange rate, i.e. depreciation. Moreover, Misati and Nyamongo (2011) rise in actual interest rates increases the par value of shilling by encouraging capital inflows. A positive shock of GY depreciating the exchange rate permanently at 1 per cent indicates that increased government expenditures heat the interest rate, causing exchange rate depreciation. While the impact of TRY is also 0.5 per cent negative, it converges in the second quarter.

4.5. Variance Decomposition of OG

The variance decomposition of OG concerning GY and TRY with CMR is shown in Tables 4 and 5. Table 4 shows that 83 per cent of variations in OG are described by itself, the remaining 38 per cent in the 10th quarter. CMR shows 12 per cent variations that reach 51 per cent in the 6th quarter. Conversely, GY explains minor variations in the short run, increasing slowly to 7 per cent over time in the 10th quarter, confirming monetary importance in output stability.

The findings are almost identical to when we introduced TRY with CMR in the model. CMR and TRY show 10- and 8-percent variations in the short run. The impact of TRY increases up to the 2nd period, attaining 18 per cent and declining to 13 per cent over the 10th period, while CMR reaches 47 per cent in the sixth quarter and continues down over time, pointing towards that monetary policy being more attractive as an output stabilizer.

First, we consider CMR a monetary instrument and replace fiscal instruments individually. However, the crux remains the same that monetary policy stance has more grip relative to fiscal policy in output stability both in the long and short run, consistent with previous studies (Andersen & Jordan, 1968; Friedman & Meiselman, 1963; Senbet, 2011). Now, we replace CMR with M2G and again analyze the relative efficacy of monetary policy concerning various fiscal instruments. Monetary dominance still exists in our findings, but policy variables play less of a role when M2G is a monetary policy instrument.

Table 4
Variance Decomposition

Period	S.E.	OG	CMR	GY
1	0.047687	83.56042	12.68820	1.932058
2	0.069894	69.92998	25.76466	0.922453
3	0.086134	56.99790	38.66524	0.778104
4	0.096887	48.64979	46.88491	1.474492
5	0.103012	43.87050	50.46876	2.651342
6	0.105998	41.46462	51.11847	4.001667
7	0.107460	40.45120	50.41763	5.297683
8	0.108525	39.99045	49.43316	6.314231
9	0.109628	39.53654	48.64988	6.924707
10	0.110752	38.93181	48.06880	7.168563

Table 5
Variance Decomposition

Period	S.E.	OG	CMR	TRY
1	0.044426	79.46960	10.43281	8.091281
2	0.073902	52.75793	23.15210	18.59117
3	0.090657	43.86185	33.98927	16.95598
4	0.100634	38.78622	41.35378	15.32650
5	0.106114	35.62416	45.53142	14.31295
6	0.108823	33.88212	47.23935	13.67534
7	0.110353	33.16209	47.19978	13.32688
8	0.111711	32.96759	46.22610	13.23894
9	0.113168	32.86905	45.05082	13.32446
10	0.114563	32.66684	44.08340	13.46263

Table 6
Variance Decomposition

Period	S.E.	OG	M2G	GY
1	0.059479	84.94000	7.492158	0.198286
2	0.084453	79.13942	10.30043	1.962807
3	0.099692	75.72526	11.58717	2.801791
4	0.108818	73.54939	12.40929	2.728728
5	0.114622	71.98534	12.87557	2.471577
6	0.118698	70.76751	13.07270	2.346547
7	0.121821	69.78367	13.11242	2.351299
8	0.124355	68.96771	13.08208	2.410002
9	0.126479	68.27004	13.03291	2.472681
10	0.128294	67.65470	12.98955	2.520640

Table 7
Variance Decomposition

Period	S.E.	M2G	MG	TRY
1	0.060429	92.51491	5.427752	1.807252
2	0.082142	83.89435	10.57910	2.218219
3	0.095491	78.74979	12.17619	2.302054
4	0.104011	75.46346	12.32868	2.395426
5	0.109759	73.04401	12.04930	2.567181
6	0.113900	71.11588	11.69015	2.802253
7	0.117062	69.53132	11.34997	3.060400
8	0.119580	68.21230	11.04891	3.306278
9	0.121643	67.10508	10.78730	3.521854
10	0.123364	66.16930	10.56168	3.703603

The findings prove the robustness of initial results where CMR is a monetary policy instrument. Consistent with the studies (Andersen & Jordan, 1968; Senbet, 2011)

4.5. Variance Decomposition of GCPI

Table 8 represents the impact of CMR on GCPI. GCPI is determined at 100 per cent by itself in the first quarter, but it tends to be 49 per cent in the 10th quarter. CMR shows a 4 per cent impact in the second period, leads to 27 per cent in the 7th quarter, and less than 0.1 per cent decays in the 10th quarter, while GY exert less than a 1 per cent impact on GCPI. It increases to 2 per cent in the 10th quarter, advocating monetary importance in both the short and long run.

Table 8
Variance Decomposition

Period	S.E.	GCPI	CMR	GY
1	2.502934	100.0000	0.000000	0.000000
2	2.793095	86.76975	4.026236	0.098758
3	3.134723	68.89497	10.85184	1.383061
4	3.448585	57.40020	18.27997	2.235008
5	3.664157	51.85352	24.14208	2.221050
6	3.790362	50.08440	27.05366	2.077143
7	3.859142	50.11881	27.47713	2.146398
8	3.902808	50.32531	26.92413	2.375510
9	3.941599	49.94971	26.63127	2.610706
10	3.979677	49.13466	26.95137	2.753654

Table 9
Variance Decomposition

Period	S.E.	GCPI	CMR	TRY
1	2.352793	100.000	0.000000	0.00000
2	2.695063	82.6234	2.345978	5.07429
3	3.071287	63.6389	8.126943	4.86257
4	3.465363	50.3538	13.91539	7.48491
5	3.724636	44.4672	17.99369	9.10228
6	3.851726	42.7292	20.15492	9.61001
7	3.901789	42.6818	20.80417	9.60484
8	3.925986	42.8369	20.67383	9.48759
9	3.951930	42.5801	20.45450	9.45044
10	3.983630	41.9796	20.48400	9.51563

In Table 8, GCPI shows 100 per cent variations by itself that tend to 41 per cent in the 10th quarter. CMR explains 2 per cent variations in the second period, and it rises to 20 per cent in the 6th quarter and onward, while TRY shows a 5 per cent impact and tends to 9 per cent in the fifth quarter and onward, indicating that in the short run-up to 2nd quarter, fiscal policy plays a more significant role while in long run monetary policy is more influential in price control. The overall judgment of our findings suggests that inflation or price instability is more supportive of the argument about the monetary phenomenon, i.e. is consistent with studies (see, for instance, Hossain (1990)), and monetary authorities could control these.

Table 10
Variance Decomposition

Period	S.E.	GCPI	M2G	GY
1	2.633996	92.36043	4.092255	3.547313
2	3.148654	70.02652	20.04452	3.894189
3	3.486038	57.21726	24.23950	4.775927
4	3.733978	50.27587	23.82551	7.640742
5	3.877677	46.84797	23.18032	8.920150
6	3.956011	45.17918	22.73272	9.134222
7	3.997427	44.42216	22.39695	9.129992
8	4.018871	44.10638	22.16647	9.149513
9	4.031944	43.92104	22.03519	9.213667
10	4.043054	43.72226	21.96333	9.304872

Table 11
Variance Decomposition

Period	S.E.	GCPI	M2G	TRY
1	2.546044	93.02854	5.054168	1.917288
2	3.204131	66.16776	23.26150	4.831873
3	3.573339	53.52505	29.03611	5.614017
4	3.785389	49.50331	28.76358	5.581733
5	3.914450	47.41582	27.57276	5.790183
6	3.994861	45.97420	26.68399	6.364308
7	4.040990	45.15561	26.16243	6.976989
8	4.064529	44.81068	25.88031	7.314466
9	4.077310	44.68437	25.71837	7.389200
10	4.087055	44.58770	25.61082	7.361417

Furthermore, findings of models using M2G as a monetary instrument confirm the robustness of previous results where CMR as a monetary instrument implies a dominant monetary role in determining inflation.

4.6. Variance Decomposition of CABY

Tables 12 to 17 represent the variance decomposition of CABY about CMR, M2G, GY, and TRY. Table 6.9 shows that 73 per cent role in CABY is self-determining, declining to 44 per cent in the 10th quarter. CMR explain a 1 per cent change in CABY in the second quarter that turns to 7 per cent in the next quarter and leans towards 19 per cent in the 10th period. At the same time, GY explores a 4 per cent change in the second quarter, turning to 6 per cent in the next period and reaching 8 per cent after a slight decrease in the 10th period, infers fiscal prudence in 2nd quarter and the long run, CABY is more effectively determined through monetary stance.

Likewise, results remain the same with models incorporating TRY for fiscal stance, as shown in Table 11.

Table 12
Variance Decomposition

Period	S.E.	CABY	CMR	GY
1	1.934170	73.15231	0.000000	0.000000
2	2.271407	65.77887	1.723882	4.363381
3	2.488168	57.36096	7.881584	6.097935
4	2.614717	52.20511	15.18349	5.734332
5	2.693159	49.26615	19.21464	5.526288
6	2.753578	47.62524	19.73271	5.873273
7	2.802863	46.72803	19.06927	6.530632
8	2.842672	46.07273	18.84496	7.222532
9	2.873865	45.42468	19.24572	7.756800
10	2.896715	44.81711	19.78704	8.063838

Table 13
Variance Decomposition

Period	S.E.	CABY	CMR	TRY
1	2.001253	72.03713	0.000000	0.000000
2	2.398596	62.76226	3.838484	5.209192
3	2.624161	54.47923	9.633642	8.219697
4	2.748486	49.73127	14.32247	9.200716
5	2.814548	47.61292	16.80431	9.318497
6	2.851459	47.04956	17.46134	9.153184
7	2.878450	47.06657	17.25694	8.990680
8	2.904539	47.03295	16.98350	8.944002
9	2.930123	46.76408	16.94727	9.000485
10	2.951892	46.36456	17.08299	9.093149

In Tables 14 and 15, we compare the efficiency of fiscal instruments with M2G in variance decomposition analysis. In all cases, monetary policy remains dominant, produces more or less similar results, and proves the robustness of results.

Table 14
Variance Decomposition

Period	S.E.	CABY	M2G	GY
1	1.529417	80.50330	0.000000	0.000000
2	2.232806	42.12091	25.50050	10.27186
3	2.722917	28.32377	27.66140	18.30120
4	2.913988	25.02996	27.09600	20.45932
5	2.971278	24.31196	26.89055	20.39365
6	2.990265	24.08923	26.84017	20.14950
7	2.998749	23.97114	26.81037	20.05239
8	3.003824	23.89257	26.77335	20.00648
9	3.007609	23.83263	26.72976	19.96891
10	3.010661	23.78433	26.68721	19.93680

Table 15
Variance Decomposition

Period	S.E.	CABY	M2G	TRY
1	1.682240	84.69027	0.358066	1.560292
2	2.358119	55.12139	29.25057	0.806751
3	2.725338	42.36039	34.63857	0.845179
4	2.855636	38.61041	34.08442	0.913944
5	2.903570	37.34793	33.34905	0.884194
6	2.930604	36.66559	32.86543	0.932968
7	2.951033	36.16530	32.51913	1.038093
8	2.967400	35.77953	32.24557	1.135179
9	2.980357	35.48934	32.01617	1.210277
10	2.990619	35.27194	31.82352	1.270181

5. Conclusion

One of the concerns of fiscal and monetary authority is dealing with macroeconomic stability and economic growth. In economics, several macroeconomic policy instruments were developed to facilitate these authorities to pull off their goals, e.g. government expenditures and tax revenues represent fiscal policy instruments and interest rate and monetary growth rate from the monetary side. First, the study aims to understand better the links between monetary and fiscal policies and macroeconomic stability indicators and to determine the relative effectiveness of both policies in general and policy instruments in particular on macroeconomic stability to employ optimal policy options.

Our study used Johansen Cointegration test, Impulse Response functions (IRFs) and Variance Decomposition (VDs) in the Vector Autoregressive (VAR) model to meet the objectives mentioned above. Our impulse response analysis findings indicate that CMR and

TRY's impact on the output gap and inflation rate is negative. At the same time, M2G and GY exert a positive impact, suggesting that when a positive output gap exists, we should increase the call money rate and generate tax revenues, along with a reduction in monetary growth rate, cut in government expenditures to attain output and price stability and reverse should apply when output gap is negative. CMR, GY, and TRY exert a positive impact on CABY. At the same time, M2G shows a negative association, implying that monetary aggregates and tax revenues conflict with price and output stability if the policy objective is to improve the current account balance. However, there is no issue with output stability if a negative output gap exists. If the output gap is positive, then for government expenditures, all three objectives are on the same page. However, there needs to be more clarity in achieving output stability and improving the current account balance.

Variance decomposition analysis shows that monetary instruments' interest rate and monetary growth rate along fiscal instruments are more important in the long run and short run for output and price stability; monetary instruments are more efficient in the short and long run. Similarly, monetary aggregates are more potent in the short and long run for better current account positions. Furthermore, policy conflicts suggest that monetary instruments are helpful for output and price stability, whereas fiscal instruments are essential for exchange rate stability; hence, using both instruments is an optimal policy combination for macroeconomic stability.

The findings suggest that if a positive output gap exists, the government should use tight monetary and fiscal policy to stabilize the output and control inflation. A cut in government expenditures will also improve exchange rate stability, whereas an increase in tax revenues will offset this effect and improve the current account position. However, if a negative output gap exists, loose policies should apply to stable output as the negative output gap is less inflationary, and the reverse will happen with government expenditures and tax revenues. In this case, a cut in tax revenues will worsen the current account position and improve the exchange rate, offset by increased government expenditures.

The study also provided insight into the potential benefits of macroeconomic stability over economic volatility. Furthermore, it proposed policy actions that can help achieve macroeconomic stability. Finally, it highlighted the potential risks of implementing these policies. The study concluded that macroeconomic stability should be a priority for policy makers. It also proposed targeted policy interventions to mitigate potential risks. Finally, it suggested that more research is needed to better understand the impact of macroeconomic stability. The study also argued that the government should take a proactive approach to macroeconomic stability. It suggested that the government should invest in education, infrastructure, and other sectors to promote economic growth. Finally, it recommended that the government should create a macroeconomic stabilization fund to provide additional resources in times of crisis.

Authors' Contribution

Muhammad Junaid Nasrullah: initiated the core idea of performed data analysis and drafting
Ghulam Saghir: provided guidance for data analysis, reviewed, supervised
Muhammad shahid Iqbal: reviewed and revised overall quality and writeup of the manuscript
Phool Hussain: provided guidelines for empirical analysis

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t the research, authorship and/or publication of this article.

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