

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

Samiullah^a and Eatzaz Ahmad^{b1}

Abstract

Analyzing quarterly data over the past three decades with the help of descriptive statistics and Impulse Response Analysis, this study explores the effectiveness and coordination between fiscal and monetary authorities in Pakistan. The two policies are considered to be coordinated if during the periods of high (low) growth and inflation rates, both the fiscal and monetary policies are contractionary (expansionary) and during the periods of high (low) growth rate and low (high) inflation rate, fiscal policy is contractionary (expansionary), while monetary policy is expansionary (contractionary). The study finds that the fiscal and monetary authorities have weak coordination in responding to the episodes of high and low GDP growth and inflation rates respectively. The monetary policy has been contractionary (expansionary) during most of the periods when inflation rate was high (low) but it has been more consistent in responding to the high inflation episodes than it was in responding to low inflation episodes. On the other hand, fiscal authority has been expansionary during most of the periods of low as well as high GDP growth rate. Finally, both the policies are found to be ineffective in influencing their intended targets whereas contractionary monetary policy is also found to adversely affect GDP growth rate.

Key Words: Monetary and Fiscal Policy Coordination and Effectiveness

JEL classifications: E52, E61, E62

^{1 a} Graduate student Quaid-i-Azam University Islamabad. [Email: samiullaheco@gmail.com](mailto:samiullaheco@gmail.com)

^b Professor, Iqra University Islamabad

1. Introduction

Monetary policy framework in Pakistan is governed by the State Bank of Pakistan (SBP) Act, which currently focuses on price stability with interest rate targeting. Fiscal policy is governed by various legislations including particularly Fiscal Responsibility and Debt Limitation Act (2005), which calls for a prudent counter-cyclical fiscal policy. While the major schools of macroeconomics, like Monetarists, New Classicals and New Keynesians, differ in their beliefs on the effectiveness of the two policies, there seems a general agreement that fiscal policy has more direct link to real output and monetary policy has more direct link to price level. Thus, while fiscal policy mainly focusses on minimizing output fluctuations and stimulating economic growth, monetary policy is primarily concerned with price stability. Fiscal policy is the exclusive domain of fiscal authority of the fiscal authority of the government, while monetary policy is the domain of the central bank. The debate over the roles of fiscal authority and central bank as well as their relationship began to gain popularity in the 1980s. It is understood that for effective macroeconomic management, coordination in the execution of fiscal and monetary policies is important.

However, for the realization of the goals of fiscal and monetary policies, it is necessary to avoid or to minimize panics in the financial markets, which is a strong argument in favor of central bank's independence. Sustaining low and steady inflation requires a genuine policy commitment to price stability, which will often be controversial. Markets can only ensure such credibility and pre-commitment if those providing such guarantees are free from constraints such as political pragmatism (Grilli et al. 1991; Fischer, 2015). The theoretical reasoning for this independence is that an independent central bank is a device to control the problem of time inconsistency of monetary policy: the concern that policymakers renege in the future on a policy promise made today. Supporters of the central bank's independence claim that it was the planning and effectiveness of the independent monetary policy that contained to a great extent the potentially enormous economic consequences of financial crises (Blancheton, 2016).

Conversely, coordination between fiscal and monetary policies could be promoted as an approach for resolving the possible conflicts or tensions between debt management and monetary policy. Various studies have emphasized that with effective coordination between the two institutions even without the loss of central bank's independence, policymakers can improve overall macroeconomic performance of a country (Goshit and Landi, 2014; Arby and Hanif, 2010).

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

The question of coordination between fiscal and monetary policies fundamentally entails balancing the objectives of the two policies. To achieve national economic goals, the coordinated policies can complement each other. In the countries like Pakistan, where all economic policies are expected to help promote economic developmental, cooperation is all the more important. Even if the central bank is independent and thus not obliged to consider the prevailing fiscal position, the need to balance the impact of expansionary fiscal policy on aggregate demand and inflation could induce it to tighten monetary policy by raising interest rates or decreasing credit in the financial system. The rise in interest rates is expected to curb inflation, draw short-term capital inflows, check pressure on currency and contribute to financial stability even though it might depress economic activity.

The extent to which monetary authority will go to control inflation is determined by how well fiscal and monetary policies are coordinated and implemented. Here the ideas of monetary and fiscal dominance become quite relevant (See Sargent and Wallace, 1981). Stagflation during the 1970s was initially triggered by oil price shocks but the trend dragged till the early 1980s because the inflationary trend was accompanied by discretionary monetary policy. Thus, in a discretionary regime of fiscal dominance, monetary authority can create additional money and cause more inflation than intended (Barro and Gordon, 1983).

Like in almost all other countries short-term economic management in Pakistan relies heavily on monetary and fiscal policies. The matter of policy coordination in Pakistan has been problematic and, hence, complicated because the central bank's role had included, in addition to inflation targeting, financial stability and financial inclusion; the objectives like promoting economic growth, reducing unemployment, and developing certain neglected sectors of the economy. If fiscal and monetary policies are not coordinated, the outcomes of the two policies may exert adverse impacts on each other's primary goals and damage reputation of both the monetary and fiscal authorities, that is, the Ministry of Finance and the SBP.

In recent years a few studies have addressed monetary and fiscal policy coordination in Pakistan. Hanif and Arby (2003) noted that monetary policy was traditionally subordinated to fiscal policy until the 1990s the SBP started to gain some independence and the need for policy coordination surfaced. In another study, Arby and Hanif (2010) observed that the policy coordination in Pakistan has been weak even after the 1990s, a conclusion confirmed by Andlib et al. (2012). However, two later studies, Shahid et al. (2016) and Aslam and Awan (2018) found evidence that the two policies are somewhat coordinated but monetary policy can become more effective if the SBP is given autonomy to execute monetary policy.

The present study aims to explore the pattern of coordination between fiscal and monetary

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

policies over the past three decades. We consider policy coordination to be a situation when both the fiscal and monetary policies simultaneously adopt such policies that are consistent with their respective targets, that is, GDP growth and inflation rates. In addition to the conventional descriptive analytical tools employed by most of the past literature, the study also employs innovation accounting tools based on an estimated VAR model consisting of GDP growth rate, inflation rate, primary budget deficit, interest rate and the rate of change in exchange rate. Innovations in the variables are identified following the standard practice of Cholesky ordering. There are three main advantages of using this framework. First, it explains the pattern (lag structure) of fiscal and monetary policy responses to output and price shocks respectively. Second, the analysis explores whether and to what extent fiscal and monetary policies respond to price and output shocks respectively, that is, the shocks that do not fall in the primary policy domains of the two authorities. Third, the proposed framework also allows assessing the effectiveness of fiscal and monetary policy shocks in realizing their respective primary goals.

In the rest of the paper section 2 presents a brief review of literature. Section 3 describes the methodology, while section 4 explains data and results. Section 5 concludes the study.

2. Review of Literature

A brief account of the existing literature is presented here in three sub-sections comprising theoretical underpinnings and empirical evidence.

2.1 Theoretical Foundations

Although the concept of monetary policy independence based on a fixed rule was proposed by Friedman (1960), episodes of high inflation along with economic stagnation during the 1970s and early 1980s became a strong motivation for the broadening and deepening of financial strategy freedom around the world and making central banks more independent. The debate on rules versus discretion was intensified during the same period following Kydland and Prescott's (1977) article.

In his famous speech Fischer (2015) observed that the evidence and theory both suggest that lower and more stable inflation results from increased independence of central bank. In the absence of central bank's independence, the political pressure may boost-up output in the short run, but the economy would face the consequences in the long run in the form of long-waves of inflation. Furthermore, Fischer (2015) argued that while high inflation is no longer a pressing concern as it was in the 1980s and 1990s, monetary policy independence remains critical to foster desirable macroeconomic outcomes and financial stability. In another speech

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

Fischer (2017) maintained that an independent, sound and transparent monetary policy may increase confidence in the growth outlook and stability, which can reduce precautionary savings and stimulate investment.

When fiscal and monetary policy instruments are under the authority of a single policymaker who aims at mutually incompatible objectives, the conventional wisdom would suggest the adoption of an optimum policy mix. However, following the move towards the separation of powers between fiscal and monetary authorities, research has shifted to the study of fiscal and monetary policy interactions/coordination.

Friedman (1970) advised that the central bank should maintain strict discipline in growing the quantity of money. However, later in an interview Friedman (2000) said that even if the central bank had complete independence, it would only be autonomous if it did not have any conflicts with the government because in case of a conflict the bank would normally yield to fiscal authorities, which indicates one-sided coordination only.² Summers (2017) sharing his views about central bank's independence says that it is more difficult to coordinate autonomous entities than it is to coordinate entities that are politically connected. He noted that when an economy is in liquidity trap or on the verge of falling into the trap, fiscal and monetary cooperation becomes a more pressing issue. If monetary policy is unable to sterilize the effects of fiscal policy on demand, policy coordination becomes inevitable.

According to Laurens and Piedra (1998) there are three conceivable outcomes if fiscal and monetary policies are not coordinated. In the first scenario central bank is dominant and as a result, monetary authority may control monetary base irrespective of government's financial requirements. In the second scenario fiscal authority is dominant and as a result, it may set the magnitude of budget deficit without consulting the monetary authorities. Finally, in the third scenario, both the fiscal authority and central bank act independently and as a result fiscal and monetary authorities may make conflicting decisions concerning the amount of the budget deficit and monetary base expansion. The study concludes that coordination between the two policies would provide the best performance, because it would lead to the establishment of self-reinforcing debt management and monetary regimes.

2.2 Empirical Evidence

A reasonable amount of empirical literature has emerged to analyze the role of monetary and fiscal policies in combating inflation. Menguy (2011) used debt and inflation as the measures

² It appears that Friedman had economic argument in favor of central bank's independence but political-science argument against it as he believed that in a democracy it would be unwise to concentrate power in a group that is not subject to any form of direct democratic oversight.

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

of fiscal and monetary operations respectively to analyze conflict and coordination between fiscal and monetary policies in the Economic and Monetary Union (EMU) economies. The findings suggest that monetary authorities must avoid the temptation of softening monetary policy in response to the governments' financial challenges and restrict their focus on inflation and default risk. In a cross country study, Grilli et al. (1991) argued that inflation caused by public deficit is likely to be related to political rather than economic considerations, especially in electoral nations and in the short run. Therefore, the independence of central banks is crucial for keeping inflation rate low with little risk to economic efficiency. In another study for 72 countries Cukierman et al. (1992) observed that lower level of independence leads to increased potential inflation, which reduces the subsequent actual level of central bank's independence. On the other side, success in managing inflation tends to enhance central bank's independence. The cross-country study of developing countries, Alesina and Summers (1993) also found a significant negative association between the average inflation rate and the central bank's independence index.

Focusing on a set of small open economies, Worrell (2000) asserted that in small open economies institutional structures for low inflation policy must account for a variety of circumstances, including coordination of monetary and fiscal policies and public communication. The study suggested that the central banks should be autonomous but accountable to the public for their activities. Further, the study proposed that governments must also establish a reputation for fiscal prudence. Fiscal authorities, in collaboration with central banks, should inform public on economic trends and policies, and must read the public pulse to represent societal preferences about trade-offs between economic goals.

2.2 Case Studies of Developing Economies

Although quite a few studies are found that present analyze policy coordination for a specific country, we consider only a few studies for developing countries, especially focusing on Pakistan.

Focusing on a developing country Sri Lanka, Nishla and Musthafa (2020) investigated fiscal and monetary policy coordination and found that monetary and fiscal policies are not coordinated efficiently or effectively. The study results show that the coordination occurred in less than 20% of the 50 years considered in the analysis. The study suggests that government should pursue strategies to promote policy coordination by improving institutional and operational frameworks. In a similar study for Turkey, Sen and Kaya (2015) suggested the GDP growth rate can be enhanced if the two policies are used in coordination.

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

Goshit and Landi (2014) emphasized that in the presence of effective coordination between the fiscal and monetary authorities of Nigeria without the loss of autonomy of central bank policymakers can improve overall macroeconomic performance.

Policy coordination in Pakistan was not a matter of discussion until the early 1990s. Rather, Hanif and Arby (2003) noted that monetary policy was subordinated to fiscal policy, and it was during the 1990s when public debt and monetary management started to split and necessity for the policy coordination became apparent. The SBP formed a monetary and fiscal policy coordination board in 1994 through an amendment in the SBP Act, 1956. The board aimed at determining the level of government borrowing from commercial banks while taking the needs of private sector credit and liquidity expansion into account. The study, however, did not find a substantial change in the behavior of fiscal and monetary policies as reflected by interest rates, exchange rate, inflation rate and the growth rate of GDP.

In a later study Arby and Hanif (2010) observed that the policy coordination in Pakistan has been weak but better during military regimes, which may be a reason for macroeconomic stability and growth in these regimes. Andlib et al. (2012) confirmed the presence of weak policy coordination in Pakistan. Both these studies suggested that policy coordination is essential in order to achieve economic stability, especially in the presence of external shocks. Since the role of central bank in Pakistan also included the objectives like promoting economic growth and employment opportunities in addition to inflation targeting and financial stability, a strong policy coordination became all the more important.

Focusing on monetary policy, Shahid et al. (2016) observed that monetary policy is more successful when the SBP considers fiscal policy while developing its goals and formulating its monetary policy. More recently Aslam and Awan (2018) also observed that monetary policy in Pakistan is more effective if the SBP is given free hand to execute monetary policy but is in coordination with the fiscal authority.

To conclude, the literature seems to have a broad agreement that coordination between fiscal and monetary policies is required regardless of the level of economic development. However, depending on a country's specific environment and economic characteristics, coordination can take diverse shapes.

3. Methodological Framework

The concept of coordination does not necessitate the establishment of a formal institutional set up such as Pakistan's Monetary and Fiscal Policies Coordination Board (MFCB). It is a kind of unspoken coordination that could or could not be the result of official consultation

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

between the SBP and Ministry of Finance (Arby and Hanif, 2010).

To determine whether the fiscal and monetary policies are coordinated, we must first define both the goals and instruments of the two institutions that formulate the policies. For fiscal policy the target variable is the GDP growth rate, and the instrument is primary budget deficit as a percentage of GDP. We consider the episodes of high and low growth rate as the indicators that determine whether fiscal policy should be expansionary or contractionary. We consider inflation targeting as the prime objective of monetary policy and interest rate as its instrument. It is assumed that the SBP considers episodes of high and low inflation rates as the indicators to adopt contractionary or expansionary monetary policy respectively.

To explore different scenarios regarding the presence or absence of policy coordination, we consider four combinations of GDP growth and inflation rates depending on whether both the growth rate and inflation rate are high, both are low, or one of the two is low and the other one is high. The episodes of high and low inflation rate are identified respectively by the positive and negative deviations of observed inflation rate from its mean value over the entire period of analysis, which is about 9%. Incidentally, the same threshold had been used in some other context by Mubarik (2005) and Hussain and Malik (2011). Likewise, the episodes of high and low growth rate are represented by the positive and negative deviation of GDP growth rate from its mean value (4.3%).

Fiscal and monetary policies are considered to be coordinated if during the periods of high (low) growth and inflation rates, both the fiscal and monetary policies are contractionary (expansionary) and during the periods of high (low) growth rate and low (high) inflation rate, fiscal policy is contractionary (expansionary), while monetary policy is expansionary (contractionary). When the responses of fiscal and/or monetary policy to growth and inflation episodes deviate from this pattern, the two policies are not coordinated and there can be various patterns of the lack of coordination that we will discuss later in the results section.

For further analysis we estimate Impulse Response Functions (IRFs) based on a Structural VAR model. The IRFs will trace out responses of the policy variables to exogenous shocks in the target variables as well as responses of the target variables to exogenous shocks in the policy variables, all as functions of the lag between the shocks and the responses. Following the common practice the size of each shock is set equal to one standard deviation of the shock estimated from the sampled structural residuals.

Keeping in view the objective of this paper, the model specified here includes four endogenous variables, which include two target variables, output growth rate and inflation rate and two policy variables, primary budget deficit as a percentage of GDP and interest rate.

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

To account for open economy loop in the system we also include one control variable, the exchange rate. In addition to these five endogenous variables, oil price inflation rate is included as an exogenous variable to account for the cost push inflation and its effects on the economy. The choice of these variables is driven by the objectives of study and the practice followed in most of the previous empirical studies relying on VAR methodology such as Hussain and Malik (2011), Khieu (2014) and Afonso et al. (2019).

The variables are defined as follows.

GY: Growth rate of real GDP

INF: Inflation rate based on CPI

PBD: Budget deficit as percentage of GDP

r: Policy rate of the SBP

GER: Growth rate of nominal exchange rate (rupees per US dollar)

GOP: Growth rate of brent crude oil price per barrel

The VAR model is given below, where p is the lag length to the determined empirically.

$$\begin{bmatrix} GY_t \\ inf_t \\ PBD_t \\ r_t \\ GER_t \end{bmatrix} = \begin{bmatrix} \alpha_0 \\ \beta_0 \\ \gamma_0 \\ \delta_0 \end{bmatrix} + \sum_{i=1}^p \begin{bmatrix} \alpha_{1i} & \alpha_{2i} & \alpha_{3i} & \alpha_{4i} & \alpha_{5i} \\ \beta_{1i} & \beta_{2i} & \beta_{3i} & \beta_{4i} & \beta_{5i} \\ \gamma_{1i} & \gamma_{2i} & \gamma_{3i} & \gamma_{4i} & \gamma_{5i} \\ \delta_{1i} & \delta_{2i} & \delta_{3i} & \delta_{4i} & \delta_{5i} \\ \theta_{1i} & \theta_{2i} & \theta_{3i} & \theta_{4i} & \theta_{5i} \end{bmatrix} \begin{bmatrix} GY_{t-i} \\ inf_{t-i} \\ PBD_{t-i} \\ r_{t-i} \\ GER_{t-i} \end{bmatrix} + \sum_{i=1}^p \begin{bmatrix} \alpha_{6i} \\ \beta_{6i} \\ \gamma_{6i} \\ \delta_{6i} \\ \theta_{6i} \end{bmatrix} [GOP_{t-i}] + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \\ \varepsilon_{4t} \\ \varepsilon_{5t} \end{bmatrix} \quad (1)$$

The corresponding Structural VAR model is given by:

$$\begin{bmatrix} GY_t \\ inf_t \\ PBD_t \\ r_t \\ GER_t \end{bmatrix} = \begin{bmatrix} a_0 \\ b_0 \\ c_0 \\ d_0 \\ e_0 \end{bmatrix} + \sum_{i=0}^p \begin{bmatrix} a_{1i} & a_{2i} & a_{3i} & a_{4i} & a_{5i} \\ b_{1i} & b_{2i} & b_{3i} & b_{4i} & b_{5i} \\ c_{1i} & c_{2i} & c_{3i} & c_{4i} & c_{5i} \\ d_{1i} & d_{2i} & d_{3i} & d_{4i} & d_{5i} \\ e_{1i} & e_{2i} & e_{3i} & e_{4i} & e_{5i} \end{bmatrix} \begin{bmatrix} GY_{t-i} \\ inf_{t-i} \\ PBD_{t-i} \\ r_{t-i} \\ GER_{t-i} \end{bmatrix} + \sum_{i=1}^p \begin{bmatrix} a_{6i} \\ b_{6i} \\ c_{6i} \\ d_{6i} \\ e_{6i} \end{bmatrix} [GOP_{t-i}] + \begin{bmatrix} u_{1t} \\ u_{2t} \\ u_{3t} \\ u_{4t} \\ u_{5t} \end{bmatrix} \quad (2)$$

Following the common practice, we first estimate the VAR model and impose the necessary identification restrictions to retrieve structural parameters and structural shocks needed for the estimation of IRFs. The identification restrictions are based on a specific recursive order in the instantaneous relationships between the variables. These restrictions, known as Cholesky restrictions or Cholesky ordering, are generally based on a prior knowledge of theory and empirical observation. Following some of the past studies (for example, Khieu, 2014), we choose the ordering: inflation rate, interest rate, primary budget deficit, GDP growth rate and growth rate of exchange rate. This ordering indicates that inflation rate is not instantaneously affected by any of the other four endogenous variables. This presumption is based on the observation that prices follow sticky expectations and are relatively less flexible

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

due to price contracts, menu costs and other such factors. It is further assumed that the interest rate may be instantaneously affected by the inflation rate, but it remains independent of the other two variables. This is so because SBP is somewhat independent and its monetary policy is instantaneously affected by changes in its main target, that is, inflation rate. The bank may respond to fiscal policy and GDP growth rate with some time lag.

We further assume that primary budget deficit depends contemporaneously on inflation rate, which directly results in an increase in the tax to GDP ratio as higher nominal income pushes the taxpayers into higher income brackets. The current value of primary budget deficit also potentially depends on current interest rate, which is an important factor influencing the extent of fiscal discipline. It is assumed that GDP growth rate is affected instantaneously by the above three variables, whereas the growth rate of exchange rate is instantaneously affected by all the endogenous variables.

4. Data and Results

For the policy coordination analysis, we rely on quarterly data covering the period of 125 quarters from 1991-4 to 2022-4. Data description along with data sources are summarized in Table 1. The total number of quarterly observations considered for the analysis is 125. Out of these in nine quarters when the policy rate remained constant, the monetary policy could not be classified as expansionary or contractionary. This leaves with 116 usable observations.

Table 1: Variables, Units and Sources

Variable	Unit	Source
GDP growth rate	Percentage	State Bank of Pakistan Website
Inflation rate	Percentage	State Bank of Pakistan Website
Primary budget deficit	Percentage of GDP	Pakistan Bureau of Statistics Website
Policy rate	Percentage	State Bank of Pakistan Website
Growth rate of exchange rate	Percentage	State Bank of Pakistan Website
Growth rate of oil price	Percentage	World Bank Website

Table 2, labelled as *Macroeconomic Environment and Policy Response Matrix*, provides information on the presence or absence of coordination during these 116 quarters. The main body of the matrix is partitioned into four blocks as indicated by the thick dividing lines and each block consists of four cells. In simple terms the 116 observations are classified into four

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

broad categories, each consisting of four sub-categories.

The four cells in the upper-left block represent those quarters when monetary and fiscal policies were coordinated in the right direction. During these quarters fiscal policy remained contractionary (expansionary) when GDP growth rate was high (low) and monetary policy remained contractionary (expansionary) to counter high (low) inflation rate.

On the other hand, four cells in the lower-right block represent those quarters when both the fiscal and monetary authorities adopted such policies that operated contrary to their respective targets. That is, fiscal policy was expansionary (contractionary) despite observing high (low) GDP growth rate and monetary policy was expansionary (contractionary) despite the prevalence of high (low) inflation rate.

Table 2: Macroeconomic Environment and Policy Response Matrix

Growth Episode and Fiscal Policy	Inflation Episode and Monetary Policy				Total Cases
	High Inflation Contractionary Monetary Policy	Low Inflation Expansionary Monetary Policy	High Inflation Expansionary Monetary Policy	Low Inflation Contractionary Monetary Policy	
High Growth Contractionary Fiscal Policy	Cell-6 (6) 1992-1, 1992-2, 1994-1, 1995-4, 2007-4, 2021-4	Cell-7 (9) 1999-1, 1999-2, 1999-4, 2000-3, 2002-4, 2003-1, 2003-4, 2015-4, 2016-1	Cell-5 (1) 2021-2	Cell-8(6) 2005-3, 2007-2, 2007-3, 2018-1, 2018-2, 2021-3,	22
Low Growth Expansionary Fiscal Policy	Cell-10 (12) 1992-3, 1992-4, 1993-1, 1996-4, 1997-3, 2008-3, 2008-4, 2010-4, 2011-1, 2019-3, 2019-4, 2022-3	Cell-11 (11) 1998-4, 1999-3, 2000-2, 2000-4, 2001-4, 2002-1, 2002-2, 2002-3, 2013-2, 2013-3, 2016-3	Cell-9 (6) 1995-1, 1997-4, 2010-2, 2010-3, 2011-4, 2012-3	Cell-12 (5) 2014-1, 2018-3, 2018-4, 2019-1, 2019-2	34
High Growth Expansionary Fiscal Policy	Cell-2 (13) 1991-4, 1993-4, 1995-2, 1995-3, 1996-1, 1996-2, 2005-2, 2008-1, 2008-2, 2011-2, 2011-3, 2022-1, 2022-2	Cell-3 (10) 1998-1, 1998-2, 2003-2, 2003-3, 2015-2, 2015-3, 2016-4, 2017-1, 2017-2, 2021-1	Cell-1 (3) 1994-3, 2010-1, 2013-4	Cell-4 (6) 2005-4, 2006-1, 2006-2, 2006-3, 2006-4, 2007-1	32
Low Growth Contractionary Fiscal Policy	Cell-14 (8) 1993-3, 1996-3, 1997-1, 1997-2, 2009-1, 2009-2, 2009-3, 2020-1	Cell-15 (9) 1998-3, 2000-1, 2009-4, 2012-4, 2013-1, 2015-1, 2016-2, 2020-2, 2020-4	Cell-13 (4) 1994-4, 2012-1, 2012-2, 2020-3	Cell-16 (7) 1993-2, 2001-1, 2001-2, 2001-3, 2014-2, 2014-3, 2014-4	28

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

Total Cases	39	39	14	24	116
-------------	----	----	----	----	-----

The upper-right and lower-left blocks indicate the periods of lack of coordination when only one of the two policies was adopted in the right direction while the other one was operating counter intuitively. The upper-right block indicates that fiscal policy was operating in the right direction while monetary policy was operating in the wrong direction. On the other hand, the lower-left block indicates that fiscal policy was operating in the wrong direction while monetary policy was operating in the right direction.

For detailed analysis, consider first the strong coordination periods. For example, the first cell in the first row shows the six quarter when both GDP growth rate and inflation were high and both fiscal and monetary policies were contractionary. The second cell in the first row shows the nine quarters when GDP growth rate was high while inflation rate was low, and fiscal policy was contractionary while monetary policy was expansionary. In contrast, the first cell in the second row shows 12 quarters policy when GDP growth rate was low while inflation rate was high, and fiscal policy was expansionary while monetary policy was contractionary. The last cell in the first coordination block shows the 11 cells when both GDP growth rate and inflation were low and both fiscal and monetary policies were expansionary.

The entries in the other blocks can be read similarly. All-in-all the table shows that during 38 quarters or about one third of the period, fiscal and monetary policies remained coordinated and in line with the economic conditions. On the other hand, for 20 quarters both the policies have been operating contrary to the economic situation.

A notable observation is that monetary policy has been in the right direction, that is, consistent with its target, in 78 quarters or 67% of times. During 39 of the 53 quarters of high-inflation episodes, monetary policy remained rightly contractionary and during 39 of the 63 quarters of low-inflation episodes, it remained expansionary. In other words, monetary policy remained consistent with the high-inflation situation for 74% of times and with the low-inflation situation for 62% of times.

On the other hand, fiscal policy has not been as consistent with its target as monetary policy. In particular, it was in line with the growth target for 56 quarters or about 48% of times only. During the 54 quarters of high-growth episodes the fiscal policy remained contractionary for 22 quarters or 42% of times, and during the 62 quarters of low-growth episodes it remained expansionary for 32 quarters or about 52% of times.

The above results are consistent with two previous studies for Pakistan, namely Shahid et al. (2016) and Aslam and Awan (2018) but not with the other two studies, namely Arby and Hanif (2010) and Andlib et al. (2012). A plausible reason is that the first two studies use data

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

for the latest years that partially overlaps with the period of analysis employed in the present study, whereas the last two studies employ the relatively old data sets.

For econometric analysis we start with determination of the order of integration of the six variables used in the VAR model. The results of unit root test in Table 3 shows that four of the six variables are stationary or integrated of order zero, which are directly carried into VAR model in the level form. The remaining two variables are non-stationary and integrated of order one, therefore they are carried into the VAR model in the first difference form.

We estimate the VAR model initially by setting lag length equal to eight and apply various lag length criteria for choosing the optimal lag length. Since most of these criteria obtain optimal values at lag 4, the model is re-estimated with the lag length of 4. At this stage we apply Wald test for lag exclusion on each lag one by one. This leads to the final selection of lags 1, 2 and 4. This lag selection is also supported by the results of LM test of serial correlation at lags one to eight in residuals of the estimated model as the respective test statistics at various lags turn out to be insignificant.

Table 3: Results of Unit Root (ADF) Test

Variables	Test Statistic at Level	Test Statistic at First Difference	Order of Integration
GDP growth rate	-4.30**		Zero
Inflation rate	-1.50	-4.39**	One
Primary budget deficit	-3.94**		Zero
Policy rate	-2.42	-6.06**	One
Growth rate of exchange rate	-3.08*		Zero
Growth rate of oil price	-6.93**		Zero

Note: The statistics significant at 1% and 5% levels are indicated by * and ** respectively.

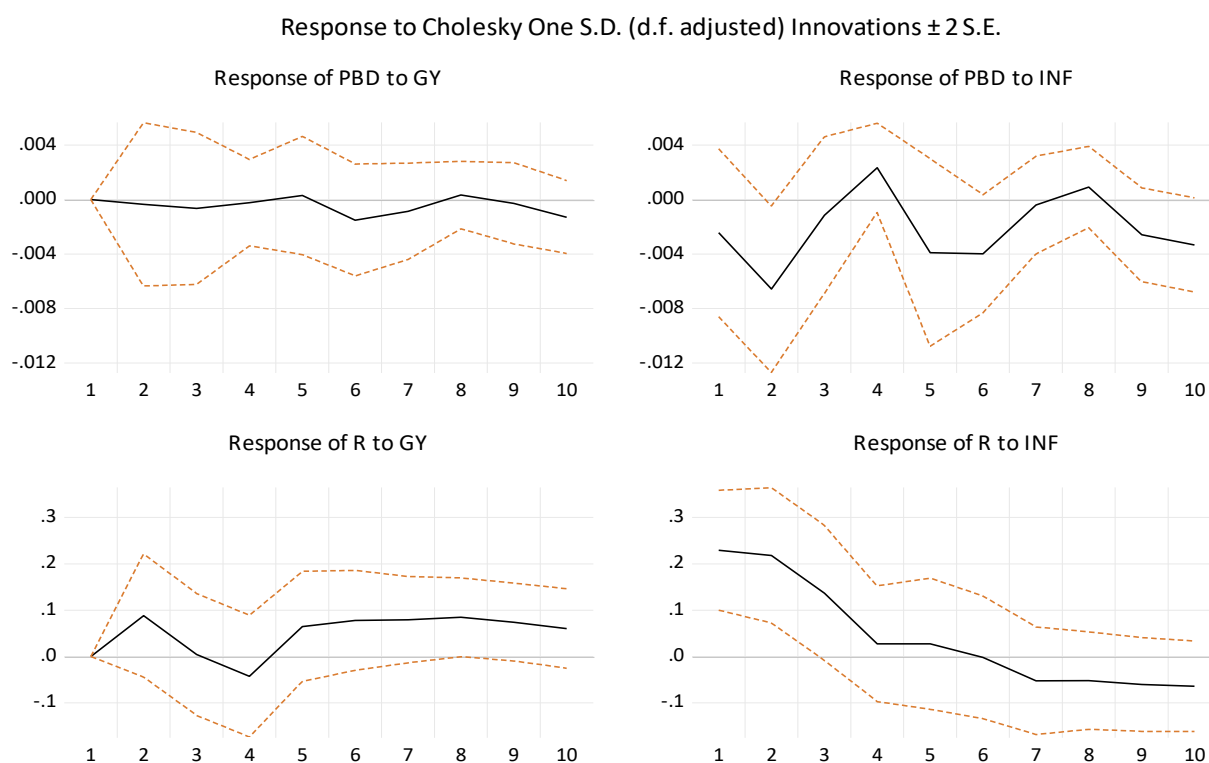
For impulse response analysis we focus on the two target variables, GDP growth rate and inflation rate, and the two policy variables, primary budget deficit and the policy rate. Our concern here is to analyze how the policy variables respond to exogenous shocks in the target variables and how the target variables respond to exogenous shocks in the policy variables. These responses are estimated in terms of IRFs derived from the finally estimated VAR model. Figures 1 and 2 present the results.

The first graph in Figure 1 shows that the response of fiscal policy to the exogenous GDP-growth shocks is statistically insignificant at all the lags. This result is consistent with

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

our findings on policy coordination according to which fiscal policy responds to growth episodes in the right direction only about 48% of times. The second graph in the figure shows that the response of fiscal policy to the exogenous inflation shocks is also statistically insignificant. This result is also consistent with the data in Table 2 according to which fiscal policy has been counter-inflationary in a little less than half (44%) of the times though in the coordination analysis the relationship of fiscal policy with inflation rate was not focused in discussion.

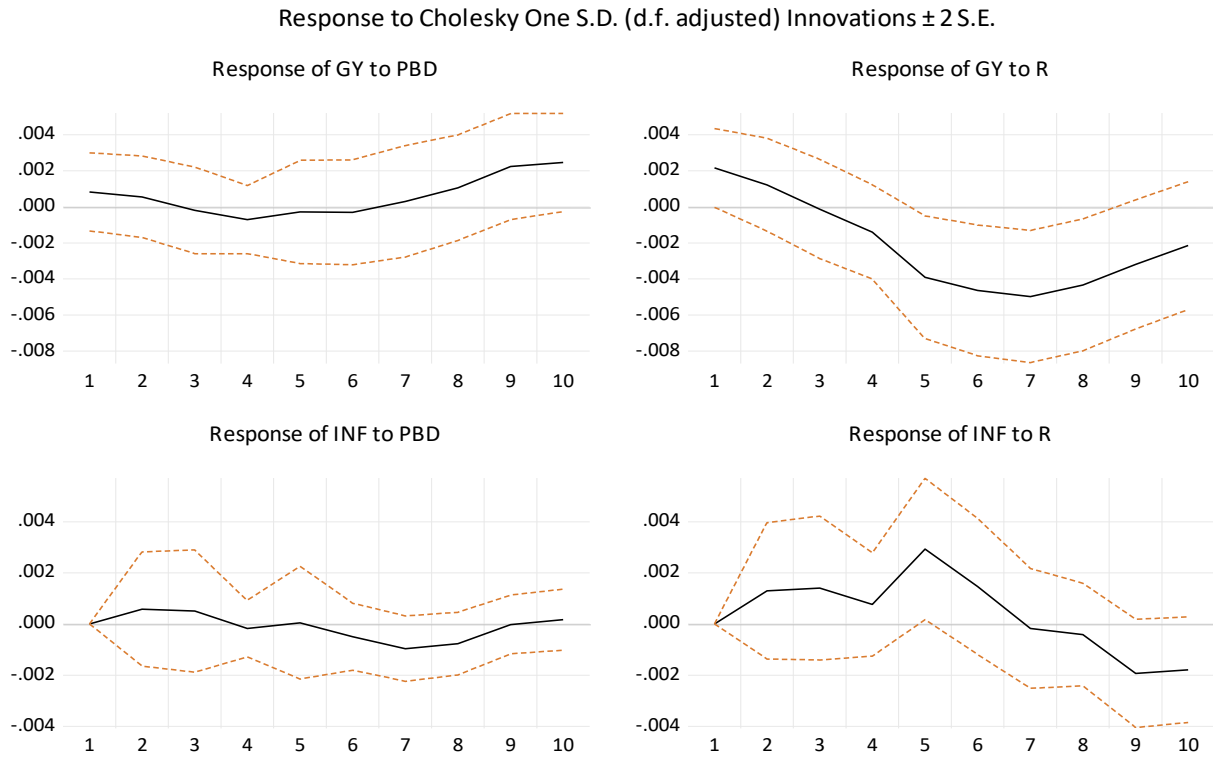
Figure 1: Responses to Policy Variables to Economic Shocks



The two graphs on the left side of Figure 2 show that neither GDP growth rate, nor inflation rate respond to the exogenous fiscal policy shocks. Thus, we can conclude that fiscal policy in Pakistan neither responds to economic shocks, nor it is effective in influencing GDP growth rate or inflation rate.

Coming to monetary policy, we observe from the lower part of Figure 1 that monetary policy significantly responds to the exogenous inflation shocks but not to the exogenous growth shocks. In particular, to counter the positive (negative) inflationary shocks in any quarter the policy rate is significantly increased (decreased) in the next two consecutive quarters. The direction of these impulse responses is consistent with our earlier conclusion that monetary policy has been quite proactive (about 67% of times) to counter the inflationary pressures.

Figure 2: Responses of Economic Variables to Policy Shocks



However, as the two graphs on the right side of Figure 2 show, the inflation rate does not respond to the exogenous monetary policy shocks whereas the impulse response of GDP growth rate to the positive monetary policy shocks turns significantly negative with the lag of two years (from the 5th to the 8th quarters). In other words, contractionary monetary policy not only fails to control inflation rate, it also adversely affects the GDP growth.

5. Conclusion

This study analyzes the pattern of coordination between fiscal and monetary policies as well as the relationships between the two policies and their targets in Pakistan. Fiscal and monetary variables are represented by primary budget deficit and the policy rate respectively, while the target variables are the GDP growth rate and the CPI inflation rate. The coordination analysis is based on descriptive statistics, while the relationships between the two policies and the two targets are explored through Impulse Response Functions derived from an estimated VAR model. The study relies on quarterly data over the past three decades.

The study finds that fiscal and monetary policies remained coordinated in line with the prevailing economic conditions for about one third of the study period. It is further observed that the direction of monetary policy has mostly remained consistent with its target, that is the inflation rate, especially during the periods of high inflation rate. On the other hand, fiscal

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

policy has quite often remained inconsistent with its target, especially during the periods of high GDP growth rates.

We conclude that policy coordination between the fiscal and monetary authorities in Pakistan has been weak and the fiscal policy has been off its target more often than the monetary policy. Furthermore, monetary authority appears more proactive in its policy when confronted with high inflation rates, while it has been cautious when dealing with low inflation rates. On the other hand, fiscal policy appears more proactive in dealing with low-growth situations as compared to high-growth situations. In other words, monetary authority in Pakistan has been more active in controlling inflation, while fiscal authority has been more concerned with low growth. This is a reasonably acceptable performance given the tight fiscal space available due to high debt servicing costs and low tax elasticity and tax-to-GDP ratio.

These conclusions are confirmed by the patterns of impulse responses in the two policy variables to the exogenous economic shocks. However, when it comes to effectiveness of the two policies, the impulse response analysis shows that fiscal policy in Pakistan neither responds to economic shocks, nor it is effective in influencing GDP growth rate or inflation rate. Monetary policy also appears ineffective in influencing its target. In particular, contractionary monetary policy not only fails to control inflation rate, it also adversely affects the growth performance.

In summary we conclude that monetary authority in Pakistan has been performing its tasks more in line with economic logic than fiscal authority. There are two plausible reasons for this observation. First, the SBP gained functional autonomy over the years, though it has not been completely independent of government. Second, the SBP has improved its performance through a long process of structural reforms, rigorous training, and adherence of work ethics.

On the other hand, fiscal authority is under the direct control of federal and provincial governments and is severely constrained by pressures from influential lobbies and the public at large. The attempts to give autonomy to tax collection authorities have been half-hearted and mostly unsuccessful. On the spending-side decisions are greatly influenced by political considerations. Although these influences are not all undesirable, it is nevertheless important to strike a balance between democratic and pure economic considerations. For better fiscal discipline perhaps some form of national consensus is desirable that spells out the vision of fiscal policy and its long-term goals.

References

- Afonso, A., Alves, J., and Balhote, R. (2019). Interactions between monetary and fiscal policies. *Journal of applied Economics*, 22(1), 132-151.
- Alesina, A. and Summers, L. H. (May,1993). Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence. *Journal of Money, Credit and Banking*, 25(2), 151-162.
- Andlib, Z., Khan, A. and Padda I. U. H. (2012). The Coordination of Fiscal and Monetary Policies in Pakistan: An Empirical Analysis 1980–2011. *The Pakistan Development Review*, 51(4), 695-704.
- Arby, M. F. and Hanif, M. N. (2010). Monetary and fiscal policies coordination-Pakistan's experience. *SBP Research Bulletin*, 6(1), 3-13.
- Aslam, M. and Awan, A. G. (2018). Impact of Monetary Policy on Economic Growth: Evidence from Pakistan. *Global Journal of Management, Social Sciences and Humanities*, 4(1), 89-109.
- Barro, R. J. and Gordon, D. B. (1983). Rules, Discretion and Reputation in a Model of Monetary Policy. *Journal of Monetary Economics*, 12(1), 101-121.
- Blancheton, B. (2016). Central Bank Independence in a Historical Perspective. Myth, lessons and a New Model. *Economic Modelling*, 52, 101-107.
- Cukierman, A., Web, S. B. and Neyapti, B. (1992). Measuring the Independence of Central Banks and its effect on Policy Outcomes. *The World Bank Economic Review*, 6(3), 353-398.
- Fischer, S. (2015). The 2015 Herbert Stein Memorial Lecture, National Economists Club, Washington D.C., November 4, 2015.
- Fischer, S. (2017). Interview of Stanley Fischer organized by Council on Foreign Relations, July 31, 2017.
- Friedman, M. (1960). *A Program for Monetary Stability*, New York: Fordham University Press.
- Friedman, M. (1970). A Theoretical Framework for Monetary Analysis. *Journal of Political Economy*, 78 (2), 193-238.
- Friedman, M. (2000). Interview of Milton Friedman Conducted by Robert L. Hetzel, Federal Reserve Bank of St Louis.
- Grilli, V., Masciandaro, D. and Tabellini, G. (1991). Political and Monetary Institutions and Public Financial Policies in Industrial Countries. *Economic policy*, 6(13), 341-392.
- Goshit, G. G. and Landi, J. H. (2014). Monetary and Fiscal Policy Interactions and Limitations: The Need for Policy Coordination for Macroeconomic Outcomes in Nigeria. *Lwati: A Journal of Contemporary Research*, 11(3), 56-72.
- Hanif, M. N. and Arby, M. F. (2003). Monetary and Fiscal Policy Coordination. *The Journal of National Institute of Management*, 41-72.
- Hussain, S., and Malik, S. (2011). Inflation and Economic Growth: Evidence from Pakistan. *International Journal of Economics and Finance*, 3(5), 262-276.
- Khieu, H. (2014). Budget Deficit, Money Growth and Inflation: Empirical Evidence from

Coordination and Effectiveness of Fiscal and Monetary Policies in Pakistan

- Vietnam. *Fulbright Review of Economics and Policy*, 1(1) 61-78.
- Kydland, F. E. and Prescott, E. C. (1977). "Rules Rather than Discretion: Inconsistency of Optimal Plans", *Journal of Political Economy*, 85(3), 373-492.
- Laurens, B. and De La Piedra, E. G. (1998). *Coordination of Monetary and Fiscal Policies*, IMF Working Paper, WP/98/25.
- Menguy, S. (2011). Monetary and Fiscal Policy in the EMU: Conflict or Coordination?, *Journal of Economic Integration*, 26(2), 361-385.
- Mubarik, Y. A. (2005). Inflation and growth: An Estimate of the Threshold Level of Inflation in Pakistan. *SBP-Research Bulletin*, 1(1), 35-44
- Nishla, M. N. F. and Musthafa, A. M. M. (2020). The Fiscal and the Monetary Policy Coordination in Sri Lanka: An Empirical Study from 1960 to 2018, *Test Engineering and Management*, 83, 7456-7463
- Sargent, T. J. and Wallace, N. (1981). Some Unpleasant Monetarist Arithmetic. *Federal Reserve Bank of Minneapolis Quarterly Review*, 5(3), 1-17.
- Sen, H. and Kaya, A. (2015). *The Relative Effectiveness of Monetary and Fiscal Policies on Growth: What Does Long-Run SVAR Model Tell Us?*. MPRA Paper 65903
- Shahid, M., Qayyum, A. and Malik, W. S. (2016). Fiscal and Monetary Policy Interactions in Pakistan Using a Dynamic Stochastic General Equilibrium Framework, *Research Journal Social Science*, 6(1), 1-29.
- Summers (2017). Interview in 2017 Financial Markets Conference (available on YouTube).
- Worrell, D. (2000). *Monetary and Fiscal Coordination in Small Open Economies*, IMF Working Paper, WP/00/56.