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The Conduct of Monetary Policy in Pakistan

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Abstract

The conduct of monetary policy is not a frictionless combination of monetary operations as in the case of Keynesian demand for liquidity, nor as mechanical as under the New Keynesian Taylor Rule. Ignoring the issue of output gap and feedback from monetary aggregates can produce explosive results for targeting inflation. The issue of inflation is beyond the simple Taylor principle. Our results show a significant relationship between inflation and interest rate. The money supply turned out to be insignificant. There is significant evidence of the output gap in Pakistan and our results from Taylor's rule show that the State Bank of Pakistan preferred cyclical over an aggressive policy. There is no evidence of using the active interest rate rule to form future expectations. Using a combination of monetary aggregates and output gaps to control inflation is not insignificant either. In the long run, inflation converges to a steady state, but the conduct of the monetary policy calls for interest rate adjustment.

Key Words: Monetary Policy, Central Bank, Inflation, Discretionary and Rule Based Policies, Pakistan

JEL Codes: C32, E31, E 52

1 Introduction

The use of short-term interest rate to explain the deviations in output gap and inflation rate was an attempt to establish a direct link between the real and nominal side of the economy. Short term interest rate explains the movements in banking activity, which is the main pulse of the economy. In this formulation, money supply has only a passing role. According to Lucas (2007), these simplified narrations are good for short term analysis, but the real time monetary policy is far more complicated. There is need to incorporate trend and deviations of monetary aggregates into the system. These unified accounts can explain economic activity

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better than an unobserved potential output. Svensson & Woodford (2003), Orphanides (2003), Gerberding et al. (2005) and Wieland (2006) showed that persistent misperceptions in estimation of potential output makes Taylor rule type models inappropriate for real time forecasting. The COVID-19 pandemic and the global financial crisis presented two real challenges, but the rule-based policies failed to explain the deviations in the real macro-economic activity.

In the post COVID-19 recovery scenario, the inflation rate has increased sharply across the world and almost all central banks have adjusted the short-term interest rate to absorb the excess liquidity. During financial crisis, central banks were using unconventional monetary policy tools for enhancing economic growth. Scholars like Rudebusch (2018), Sharpe &Watts (2013), Glocker and Towbin (2012) and Walsh (2012) emphasized the use of unconventional monetary policy tools such as forward guidance, quantitative easing and changes in reserve requirement for achieving the optimal inflation rate rather than the use of short-term interest rate. The question is: What is the appropriate response to achieve macroeconomic stability? It was viewed that the conventional rules based monetary policy might be effective in minimizing the output gap but not so effective in dealing with a deteriorating economy or avoiding financial crisis.

New Keynesians believe that changes in money supply, though important, are determined off the stage and beyond the scope of monetary policy. This is a backward-looking rule that provides information on inflation and output dynamics. The riddle is how to deal with uncertainty, volatility, and expectations. Measuring potential output is another challenge. Rule based policy is a simple path to adjust short term interest rate but difficult to capture the speed of adjustments.

Our purpose is to compare and contrast the effectiveness of the Keynesian model which uses monetary aggregates with the New Keynesian model so as to outline a desirable policy rule for maximizing the welfare gain. Specifically, an interest rate rule (Taylor type) or setting a monetary aggregate would help in determining the price level which minimizes the output gap and attain stability. The Keynesian model is based on the usual money demand function and the New Keynesian model is based on

interest rate style models in which money demand function is determined by current prices and real output.

The credibility of central bank lies in outlining a policy that can maintain price stability without sacrificing output. The choice lies between monetary aggregates or interest rate. In the modern approach, central bank ignores the monetary base and sets nominal interest rate actively for the future inflation in response to current high inflation. Active interest rate policy can resolve the complex problem of business confidence and easing inflationary expectations again depends on the repo rate or reverse repo rates. Central bank cannot ignore the monetary base for fixing the short-term interest rate. Assuming that policy response is fixed as prescribed in rules-based policy, would result into systematic high interest rate.

In this context, our aim is to analyze the response of the State Bank of Pakistan (SBP) to controlling inflation. Recently, the inflation rate in Pakistan is hovering around 20%. Inflation has seen at least three peaks since the 1970s. Pakistan's inflation rate is cyclical in nature, always short-lived, but it brings about uncertainty and volatility which negatively affects investment decisions and output growth. The SBP is responsible for achieving the annual and medium-term inflation rate target set by the Government of Pakistan by giving signals about its monetary policy stance through changes in the target policy rate. The SBP target policy rate is an interest rate corridor established in 2015. It is a weighted average of SBP Reverse repo and SBP Repo facilities to provide or absorb the liquidity requirement. It is believed that changes in policy rate directly impacts the aggregate demand and encourages savings with a certain lag. Before 2009, the SBP used reverse repo rate for controlling inflation. Interest rate corridor has since been modified and now the SBP uses the target policy rate for signaling the stance of monetary policy. The stance and choice of anchor is almost the same, but now it is unambiguous.

This paper takes stock of the response of the SBP in controlling inflation. Is there any change in pre- and post-2009 response function of monetary policy in Pakistan? How effective is the monetary policy in achieving the objective of price stability? We attempt to show that due to the output gap, information related to money supply is important in controlling inflation. The paper

provides empirical evidence on the effectiveness of monetary policy for the period 1970-2022. First, we model the inflation-output gap and the discount rate using simple Taylor type rule. We find clear evidence of deviation from the actual discount rate. There is clear evidence that the SBP has used interest rate smoothing, but monetary policy is discretionary in nature. However, there is evidence of adjustments between inflation and interest rate. Our significant contribution is to introduce first difference broad money supply and market interest rate in determining the target inflation rate. Monetary policy before 2008 was using open market operations for changing its stance, but the SBP was using repo rate ceiling and floor rate for curtailing inflation after 2002. After 2008, the target policy rate was used to influence the banking activity. It works fairly well in transmitting the stance of the SBP and to ease out the inflationary expectations. That inflation in Pakistan is broad based depending on energy and food prices determined by external factors beyond the control of the SBP, is beside the point. However, these prices explain almost 40-50 percent variation in the headline inflation rate. The proposition that short term interest rate instantaneously affects the banking activity may be true, but due to low rate of financial inclusion, the repo rate directly affects the bank profits. Some cross check from capital markets has to be included. Monetary policy process in Pakistan is far more complicated than a simple policy rule would suggest.

In section II of this paper, we review the literature related to the debate on monetary policy and the underlying theory. Section III reviews monetary policy in Pakistan, with a focus on various policy options for controlling inflation. Section IV explains the methodology of this paper. In the words of Woodford (2003), there is no mention of money in controlling inflation. Further, this section explains the relevance of Taylor rule to the conduct of monetary policy in Pakistan. We combine the information on monetary aggregates into a Taylor rule and attempt to explain the misconceptions in monetary policy with respect to targeting interest rate or inflation. Section V gives the results, and the last section concludes the paper by discussing various policy options.

2 Theoretical Framework

Inflation makes portfolio selection complex by increasing risk and expected returns. People want to get rid of liquidity by preferring to hold more goods and services as compared to highly risky assets which earn high returns but are not liquid. Demand for money depends on price level, real incomes and interest rate or exchange rate. The proponents of discretionary monetary policy led by Keynes related 'sticky wages' with stabilization of output (Y). The opponents of discretionary policy led by Simon of Chicago School known as the Rules Party emphasized the price level targets. Talyor (1993) revived the debate of rules versus discretion and specified a simple rule which relates interest rate to inflation rate and output. It specifies that there is a tradeoff between output and inflation.

$$i = 1 + 1.5\pi + 0.5y \quad (1)$$

In Equation (1) i is the discount interest rate, π is the inflation rate and y is the output gap measured as a percentage difference between actual and potential GDP.

The disagreement between Friedman's 'Control Theory' (Friedman, 1973) and Taylor's prescription (Taylor, 1979) on the basis of 'Rational Expectations' brought out the capacity and knowledge of central bank in fine tuning the economy and demonstrated that the calculation of monetary aggregates is more complex than following a simple rule. According to Ball (1992), Cecchetti (1999) and Svensson and Woodford (2003), the reaction function of a monetary policy is very sensitive to the choice of anchor as it has to reduce the 'inflation panic'. Svensson (1997), Clarida et al. (1999) Clarida (2001)and King (1997; 2000) advocated interest rate based rules, but economists like Lucas (2007) did not give up the money supply rules for controlling inflation. Some economists suggested that credit rationing is more suitable in the case of developing economies, whereas others recommended the interest rate channel for controlling inflation and minimizing the output gap.

The New Keynesian Framework emphasized the role of nominal interest rate in place of monetary aggregates for controlling inflation as it affects real interest rate that adjusts aggregate demand because prices are rigid and cannot be adjusted instantaneously. In this way, it creates the output gap (Wieland, 2009). Changes in the output gap are responsible for inflation in

an economy. The larger the output gap (actual output lying above the potential output), the more is the inflationary pressure. Wieland (2006, 2009) and Orphanides (2003) used accelerationist Phillips curve to study the conduct of monetary policy.

$$\pi t = \lambda(yt - zt) + \pi t - 1 + ut \quad (2)$$

In Eq (2) πt is the current inflation rate, ($y_t - z_t$) is the log output gap, π_{t-1} is the lagged inflation rate, and u_t is a supply side shock

Using New Keynsian Framework, Clarida et al. (1999) incorporated steady-state inflation and inflationary expectations in the model.

$$\pi_t - \pi = \lambda(y_t - z_t) + \beta(\pi_{te} + 1 - \pi) + u_t \quad (3)$$

Where π is average inflation rate and πte+1 is expected inflation rate. Eq 1 are Keynesian (K) style models and equation 2 refers to New Keynesian (NK) style models.

So far, no information is added about monetary aggregates in these equations because money balances are determined on the basis of money demand function and central bank interest through open market operations can affect the money supply, not the money demand.

$$m_t - p_t = \gamma_0 Y_t - \gamma_i i_t + e_t \quad (4)$$

$$m_t - p_t = \gamma_0 Y_t - \gamma_i i_t + e_t \quad (5)$$

where γ0 is the income elasticity of money demand, γt is interest rate elasticity and et is money demand shock. mt in equation 3 is conditional on the values of real income and desired interest rate at a given price level.

$$\Delta p_t = \Delta m_t - \gamma_0 \Delta Y_t = \Delta \mu_t \quad (6)$$

Eq (5) is the first difference of equation 4. It will average out the money demand shocks to zero, and the nominal interest rate will converge to its steady-state level. Output will tend towards the potential level. The long run inflation is proportional to long run money growth and trend growth in velocity. Trend growth in velocity is equal to ($1-\gamma_0$) ΔY_t. Gerlach (2004) uses the following filter to find outgrowth rate in money supply as a rule for generating inflation to a specific estimation.

$$\Delta m_t^f = \Delta m_{t-1}^f + \omega(\Delta m_t - \Delta m_{t-1}^f) \quad (6a)$$

Adjusted money growth can be obtained as

$$u_t^f = \Delta m_t^f - \gamma_y \Delta y_t^f \quad (6b)$$

Where u_t^f is the adjusted money growth which can be filtered from growth rate in money supply and real output.

Beck and Wieland (2008) suggested the following formula for finding the long run relationship between money and inflation,

$$k = \frac{\mu^f + \pi^*}{\sigma^f} \quad (7a)$$

$$i = i^T + i^M \quad (7b)$$

where k is the deviation from the critical value, σ_f the standard deviation of the filtered and adjusted measure of money growth, μ_f is the average measure of money growth by the central bank and Л* is the target inflation rate. i is the interest rate in any time period t depending upon i_t which is Tylor type of interest rate and i^m is adjusted interest rate.

$$i_t^m = \begin{Bmatrix} i_{t-1}^m + \langle \propto \mu_f \rangle \langle \mu_t^f - \pi * \rangle \\ if\ K > K * critical \\ or\ K < -K * critical\ for\ N\ periods \\ i_{t-1}^m + 0\ else \end{Bmatrix} \quad (8)$$

If k is greater than or less than the critical value of k*, it shows the need for adjustment in interest rate in N periods. This will enable central bank to choose an optimal interest rate for N periods. The parameters N and k* are chosen such that a central bank implements the model-dependent optimal interest rate rule or potential output.

3 Overview of Monetary Policy in Pakistan

For long periods in the history of Pakistan, inflation was not a problem for policy makers and its performance was satisfactory. Except for the inflation shock in 1970s and recent upsurge in prices, the country enjoyed a tamed inflation rate. The SBP worked under the assumption of a unidirectional relationship between growth in money and growth of aggregate demand. There was no doctrine for regulating money supply; only a notion of 'safe limits' existed for monetary expansion. The SBP has changed its stance according to the nature and direction of fiscal policy, in relation to GDP growth and inflation rate in the economy. Monetary policy has never been a major issue in Pakistan; therefore, researchers never emphasized its role. In 1990s, Pakistan started a structural adjustment programme with the IMF. This programme included the restructuring of the

economy through a liberalized trading regime and autonomy of the central bank. This is the same time when monetary policy's effectiveness was gaining ground in the international scenario. Before 2008, Pakistan was actively using the reserve requirement for achieving the objective of macroeconomic stability in Pakistan. It was an implicit tax on the banks' profitability to finance public sector at the below market rate (Omer, 2019). After 2008, the SBP has not changed the reserve requirement and used the discount rate as the only policy choice to deal with inflation rate. According to Agha et.al. (2005), monetary tightening decreases aggregate demand and inflation. They prefer asset price channel over the exchange rate channel. At that time, scholars favoured interest rate as explicit channel. Later, Ahmed, & Pasha (2014), Rahman, Sarwar, & Khan (2016) and Saghir & Malik (2017) found an insignificant relationship between money supply and interest rate. Others find that the shortage of reserves to meet energy-dominant import bill renders exchange rate channel more effective in achieving price stability. Choudhri and Khan (2002) discovered a direct relationship between exchange rate domestic prices. Hyder and Shah (2004) also contradict the earlier studies. Tasneem and Waheed (2006) investigated the impact of monetary policy on sectoral output in Pakistan. According to them, finance and insurance proved more sensitive to shock from interest rate as compared to agriculture, construction and ownership of dwelling. These results are consistent even by inclusion of nominal exchange rate in the model.

Siddiqui and Waheed (1995) as well as Arby (2000) confirmed that that easy monetary policy leads to inflation. They suggested M2 (broad money supply) as an appropriate monetary aggregate to get accurate estimates of money supply in Pakistan. They concluded that monetary control was quite successful in reducing variability of quarterly growth rates of M2 and that long term inflation could be curtailed by controlling the growth of M2. Tahir & Tahir (2020, 2013) find a nexus between setting inflation target and fiscal deficit in Pakistan. They concluded that inflation target and rule-based policies can work with implementation of fiscal responsibility and debt limitation act.

The starting point of the analytical framework is the question as to how we can explain the rule of growth in money supply followed by the SBP. The first step was to estimate Taylor

rule to find out the nature and conduct of monetary policy. Taylor rule is fairly good in explaining the inflation rate, output gap and interest rate relationship.

$$r = C + C\pi\,\pi + Cy\,yt \quad (9)$$

We used Tchaidze, (2001) simple linear exposition of the Taylor rule for estimation of optimal response of the SBP.

We corrected the results for white noise (stationary series). Potential GDP is measured by the Hordrick Prescott (HP) filters. The coefficients of the respective variables showed the aggressiveness of the central bank response in controlling inflation rate in a certain period.

The variables used in the paper are inflation rate, interest rate as discount rate, growth rate of broad money supply and real GDP growth rate. All the variables are measured on annual basis. There is quarterly data available for monetary variables but not for real GDP. We used output gap as a measure of welfare, so it is not feasible for us to use high frequency data. Data have been taken from International Financial Statistics 2022. Consumer Price Index (CPI) computed on yearly basis was taken as inflation rate. For computing the potential GDP, we used the HP filter for removing the transitory component and the output gap was measured as a percentage difference between actual and potential output.

We attempt to measure the errors in the output gap and then compare the Keynesian type of models which use monetary aggregates information for controlling inflation as compared to New Keynesian approach to controlling inflation.

We used unrestricted VAR model to measure the effect of monetary aggregates in determining prices and output. The data is first order stationary. Augmented Dickey Fuller Test was used to check Stationary. Lag length was selected using the Akaike information Criterion (AIC).Optimal lag length was 2. Simple Taylor rule and forward-looking equations were estimated by using double log regression model. All the results were robust, and model tested for endogeneity and Auto correlation. We have not estimated the short run and long run dynamics but estimated the feedback based on the estimated value of predicted variables. Standard errors of the computed model were used to estimate the loss function and volatility in the model.

4 Results and Discussion

For estimating the efficient and optimal policy, minimization of variances is crucial. We employed three possible techniques to assess the conduct of monetary policy in Pakistan. We used Taylor rule to find out the stance of monetary policy in Pakistan. We used a threshold model and unrestricted VAR to crosscheck the relationship between inflation and monetary aggregates. Table 1 reports that simple summary statistics such as Nominal GDP and Broad Money Supply had the highest variance. The growth in M2 is also more volatile as compared to inflation rate in Pakistan.

Table:1

Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Discount rate	53	10.36569	3.141425	5	20
GDP at current prices	53	9.76E+10	9.38E+10	6.38E+09	3.15E+11
GDP per capita	53	610.0048	406.3145	101.1647	1482.213
GDP growth rate	53	4.725244	2.447953	-0.9353895	11.35346
Growth in broad money supply	53	4.24E+12	6.65E+12	2.08E+10	2.59E+13
Inflation rate	53	8.86839	5.109687	2.529328	26.66303
Exchange rate	53	45.12686	36.8515	4.76	150.04
Broad money supply	53	45.95797	7.017699	33.99585	62.37815

Source: Author's Calculations

We started with a simple stationary test to estimate the simple linear Taylor rule and the unrestricted VAR. There is no autocorrelation found in the residual series and all the variables are first order stationary.

Table 2 give the results of three models. Based on the estimation of a linear Taylor rule for the yearly data for the 1970-2002 period, Model (1) found a positive output gap with respect to the interest rate. There is thus significant excess demand, with the economy functioning over the threshold. As excess aggregate demand may lead to higher future inflation, there is need to raise

the interest rate. One can conclude that the SBP is not doing enough for adjusting the inflation rate and has compromised its policy objective overgrowth. A positive output gap and higher inflation rate call for higher nominal interest rate target.

The size of the inflation coefficient is 0.26 in model 1. It indicates weak stance of monetary policy. The output gap is persistent in nature and indicates misperception in setting the targets. The overall R square is low at 0.298, implying that the SBP is not using aggressive policy for controlling prices. It was not active in reducing output gap, nor was it doing anything on the front of controlling inflation.

Table: 2

Feedback effect model and Taylor rule

Variables	**(1)** **Model 1**	**(2)** **Model 2**	**(3)** **Model 3**
Linf	0.266***		
	(0.0711)		
Gap	0.0987***		0.0794*
	(0.0329)		(0.0412)
Laginf			
Dgdp		-0.301*	
		(0.165)	
Dinf		-0.0638**	
		(0.0262)	
Lint		-0.0669**	
		(0.0294)	
Leadinf			0.114
			(0.0801)
Constant	-0.682	0.183**	0.101
	(0.827)	(0.0710)	(1.041)
Observations	51	50	50
R-squared	0.298	0.257	0.101

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

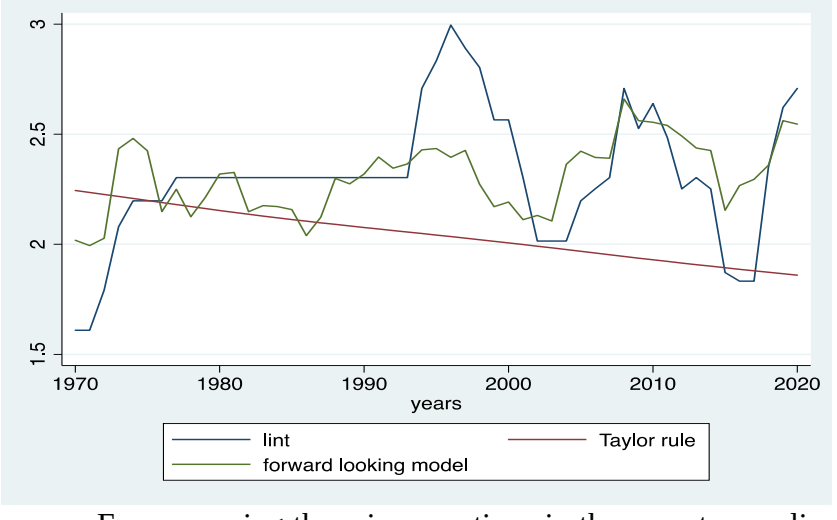
In Model 2, we used differenced growth rate in place of output gap for avoiding the miscalculations in output gap. We assumed that difference output is a better proxy as compared to measuring potential output and then output gap. We used first difference inflation rate and interest rate to see the link between current interest rate and the differenced model. Again, it verifies that misperceptions are there in determination of policy rate. In

Model (3) we used the output gap and lagged inflation and lead inflation rate to judge the policy signals. Lead inflation rate is insignificant. It means that the current interest rate is not working effectively for forming the expectation.

In figure 1, we plotted the predicted values of simple Taylor rule and a model with forward looking model with feedback from monetary aggregates. It is obvious that SBP is not using feedback from monetary aggregates while determining the policy target rate.

Figure:1

Relationship between logged interest rate and predicted values



For measuring the misperceptions in the monetary policy for using monetary aggregates as an anchor for controlling inflation and minimizing the output gap, we assume that the SBP changes the money supply on the basis of potential output estimates. This change in money supply affects the output by change through the open market operations. It does not change the investment rate effectively and hence not much change in output level. Money does not provide an effective link in changing the composition of investment in Pakistan. But the efforts at controlling inflation rate decrease the output gap and demand for money balances.

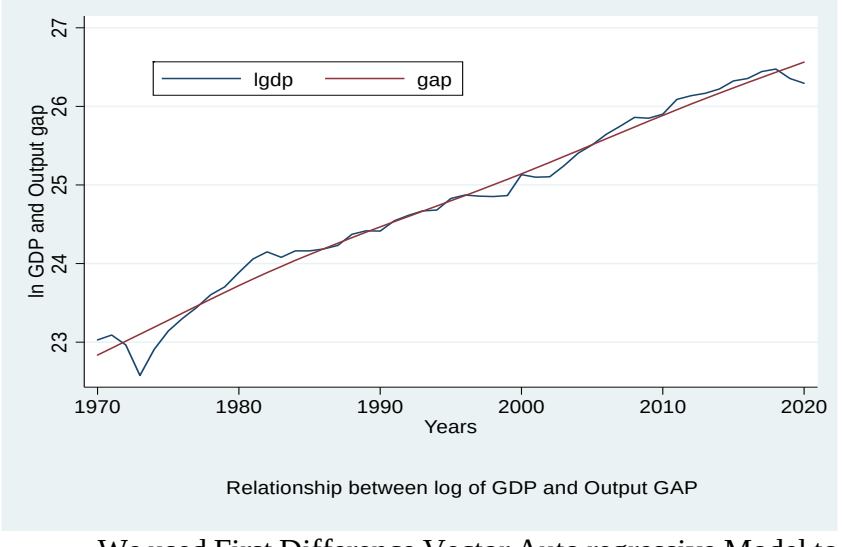
We plotted the actual GDP growth rate and potential GDP growth rate. This shows the persistent nature of the gap between the actual output and potential output. The historical data illustrates the misperceptions about the output. In Figure 1, money, output gap and differenced inflation rate are depicted for

period 1980-81 to 2010-11. It clearly illustrates differenced inflation converging to the steady state but the incorporation of monetary aggregates with output gap does not explain the gap between average growth in money supply and inflation in Pakistan.

Following the methodology of Orphanides et al. (2000), we quantify the degree of persistence in output gap by estimating a stochastic process between 1970-71 and 2020-21 in Figure 2.

Figure:2

Relationship between actual and potential output



We used First Difference Vector Auto regressive Model to measure the misperceptions in the implementation of monetary policy. This equation provides an insight into the gap between inflationary expectations and the impact of monetary aggregates on inflation. All the estimates are statistically insignificant. We then used the smoothed series for computing the output money gap given in equation (2a) above. This equation assumes that interest rate adjustments converge to zero in the long run and any difference between money demand and output generates inflation. Table 3 gives the results.

Table:3

Unrestricted VAR Models

Variables	**(1)** **Dinf**	**(2)** **dm2**	**(3)** **Dgdp**
L.dinf	-0.169	-0.00534	0.0516
	(0.148)	(0.0227)	(0.0396)
L2.dinf	0.157	0.0565***	-0.0292

	(0.142)	(0.0217)	(0.0378)
L.dm2	1.545	0.328**	0.134
	(0.988)	(0.151)	(0.264)
L2.dm2	2.165**	-0.191	-0.171
	(0.852)	(0.130)	(0.228)
L.dgdp	-0.672	0.322***	0.230
	(0.596)	(0.0911)	(0.159)
L2.dgdp	-0.245	0.158	-0.278
	(0.702)	(0.107)	(0.188)
Constant	0.0589	-0.0293**	0.0731***
	(0.0793)	(0.0121)	(0.0212)
Observations	48	48	48

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The coefficient on the output gap is positive but very low, indicating that the target rate has to be higher than the actual rate. The coefficient of inflation rate is negative, which is as per the expected sign for a monetary policy rule. Broad money supply has the expected sign but is not significantly different from zero.

Figure: 3
Misperceptions in monetary policy

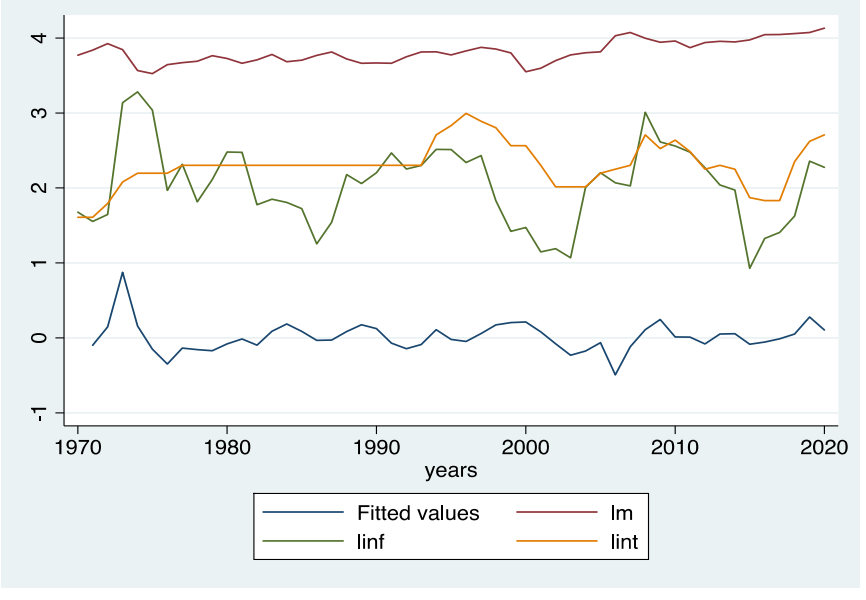


Figure 3 depicts the need for adjustment in interest rate for controlling inflation. Following the rule given by Beck and Wieland (2008), k is always < k* in Pakistan. In this panel, k is the indicator of interest rate adjustment, and it is the critical value of adjusted inflation target which is above the smoothed long run

series of inflation. Evidently, this calls for interest rate adjustments in Pakistan.

5 Pakistan Steel Mill (PSM): A Case Study for Privatization

The focus of industrial policy during the 1950s and 1960s was on consumer goods rather than the capital goods industry in Pakistan. The establishment of the steel industry is important for economic development and achieving self-reliance because dependence on imports might be a setback for a country with a limited industrial base (Asim and Zaki, 2013). So, the Pakistan Steel Mill (PSM) was established in 1968. Later in 1971, a Techno Finance MOU for installing iron and steel plants was signed between Pakistan and Russia (former USSR), facilitating a 180 Million Rubble loan at gold parity. The foundation stone of the largest industrial complex and only integrated crude steel producer of Pakistan was laid down in 1973 by former Prime minister Zulfiqar Ali Bhutto. The plant's operating capacity was 1.1 million metric tons per annum at that time. Designers have suggested that a million MT per annum capacity is sub economical, which needs to be enhanced to 2 million MT per annum, but it remained unimplemented. The initial budgetary cost of Pakistan Steel Mills was Rs. 13 billion2.The average annual capacity utilization of PSM in 1983 was 3% which rose to 95% in 1990, except for a slight decline in the early 1990s. This sub economical PSMC earned operating profit for 23 years from 1985 to 2008 and a net profit for 13 years. But it started to decline after 1995.

In the 2000s decade, the ANCU of PSMC was 85% which declined to 20% in 2016 when the operation was halted. Before 2016 Pakistan Steel Mills Corporation (PSMC) was operational, with its facilities spread over 19,088 acres. (Asim and Zaki, 2013). The construction inputs of the PSM involved the use of 1.29 million cubic meters of concrete, 5.70 million cubic meters of earthwork, which is second in the country after Tarbela Dam, 330,000 tons of machinery, steel structures and other electrical equipment, etc. Its unloading and conveyor system at Port Qasim is the third largest in the world, and its industrial water reservoir

[2] http://www.paksteel.com.pk/organ_our_history.html

with a capacity of 110 million gallons per day is the largest in Asia; the 2.5-km long seawater channel connects the seawater circulation system to the plant site with a consumption of 216 million gallons of seawater per day (Pakistan Steel, 2012; Asim and Zaki, 2013). PSM continued to generate its operating profit from 1985 to 2007, which amounted to Rs. 3159 million in 2006-07 as per the financial details available in various financial reports of PSM till 2014.

When this largest national and strategic importance organization was operating on optimum capacity, the decision to privatize was taken in 2006. At the time of privatization, the value of assets owned by PSM was more than Rs 100 billion, including 4546 acres of land (the price estimate of land was Rs. 27 billion). Apart from this land, a steel plant in Thatta district, water supply plants having the capacity to supply 110 million gallons per day, an oxygen plant, a thermal power plant that has the capacity to produce 165MW, 14 locomotives of 800 horsepower each, and 72 km railway line along with more than 100 railway wagons were the assets owned by PSMC. At that time, the total value of these assets was estimated around 100 billion Rupees, while PSM was being sold for 21.68 billion Rupees3. The Supreme Court of Pakistan took suo-moto notice under Article 184(3) of the Constitution of Pakistan and constituted a bench of nine judges. The process to privatize the Pakistan Steel Mill established by the Government of Pakistan was a landmark and a major case (Wattan Party and others vs. Federation of Pakistan and others) became a case of general public importance in 2006. The larger bench constituted by the SCP declared the submission of the $362 million bid for the privatization of PSM as null and void. The honorable court concluded that the actions of certain functionaries are against the rules and laws; thus, the Letter of Acceptance (issued on 31st March 2006) doesn't meet the standards required for the privatization of PSM and declares it null and void. The Privatization Commission of Pakistan and Arif Habib Group (Partner of consortium found the highest bidder in the privatization of PSM) filed a review petition in the Supreme Court later. But the Privatization Commission withdrew its review petition in 2013, while the Supreme Court disposed of the Arif

[3] https://www.thenews.com.pk/print/756391-privatizing-pakistan-steel

Habib Group petition in July 2013. It was restored in March 2018 again by the Supreme Court and is still pending final disposal.

After assuming power, the PTI government has reinitiated the case of PSM for privatization as part of the fast-forwarding process of privatization conditioned with a new loan program from the IMF. In the 7th meeting of the Privatization Board, which was held on 12th November 2019, the Board approved the appointment of Financial Advisor for PSM. On 20th September 2020, the Privatization Commission Board approved the transaction structure to revive the Pakistan Steel Mills Corporation (PSMC) agreed in principle. The financial Adviser was asked to move ahead with procedural follow-up processes4. Accordingly, the government plans to revive the PSM before privatization. In this regard, the average annual capacity would be increased to 6 million tons, which seems a difficult task as the operation of the PSM has been closed since 2016.

6 Implications of Privatizing the Pakistan Steel Mill (PSM)

The option to privatize a big steel giant has been considered by almost every successive government which came to power since the late 1990s. But considering the serious economic and political implications has always been a hindrance for every government which came to power during the last three decades. Despite the inability of governments to privatize the PSM, one of the largest organizations that have contributed economically and strategically and whether privatization could revive PSM or not must be looked into. What would the economic, social, and strategic implications of privatization of PSM be? The argument that privatization might help improve the performance seems to lack evidence as the experience in Pakistan doesn't prove that change of ownership from public to private enhances the performance of firms. Pakistan's privatization experience for the last three decades shows that privatization has not improved the performance of SOEs, whether it is the Karachi Electric Supply Corporation or others. There has been a considerable deterioration of performance after privatization. Previously, the malaise may have been on account of inefficiency but may now be explained

[4] http://privatisation.gov.pk

through abuse of market power, board room corruption resulting in fantastic salaries to higher management and laying off laborers and linemen as a cost-saving measure5. Considering the recent experience, it is not sure that the privatization of PSM will improve efficiency. Moreover, it is also important to determine which factors would improve the efficiency of the PSM after privatization that is not possible if PSM is in the public sector? In the 2005 privatization attempt, private buyers seemed to be interested in assets worth billions of rupees rather than improving efficiency, reducing PSM losses.

Apart from the economic contribution of PSM, which is one of the unique projects of the engineering industry in Pakistan, its strategic aspect is also a very important consideration while deciding to privatize. Before its closure, PSM was the sole producer of iron and steel that could meet the domestic demand from almost all industries, including defense manufacturing, power generation, construction of dams, roads, railway tracks, and other communication networks. Privatization of PSM to foreign companies and individuals could increase the dependency for raw materials for the industries mentioned above on foreign companies. The plight of employees who served PSM for decades is a grave concern, as, after privatization, their livelihood would be at stake. Around 4,544 employees, including divisional and assistant managers, were sacked in November 2020. The PSM has been one of the largest employers as the big giant had more than 30,000 employees when it was operating at optimal capacity. At the time of shutdown in 2016, around 9000 employees were working, out of which 4,544 were removed during privatization6. Ironically, the government will have to recruit the employees to run and revive PSM. After the forced retirement of around 5000 employees, there might be a serious shortage of skilled workforce. Without hiring new employees, the running of PSM even below optimal capacity is not possible. After privatization, the fate of the employees would be decided by private companies, which would be least interested in accommodating these employees as their primary goal would be profit maximization. So, with hindsight,

[5] See for details, Wizarat, S., 2020. Privatizations of Strategic Pakistani Assets. *The Consul,* pp.9-11.

[6] https://www.thenews.com.pk/print/750164-pakistan-steel-lays-off-4-544-employees

we can conclude that privatization cannot revive the PSM. Privatization will have serious implications on handing over this strategic asset to a foreign private company, assets owned by the PSM, and thousands of workers' livelihood.

PSM is a strategic organization whose closure would have serious implications. In an earlier study, Wizarat (2020) has recommended that the Government should learn to pursue different goals simultaneously, rather than seeking some (privatization) at the expense of others (strategic, health, etc.). She says privatizations policy will have to distinguish between strategic and non-strategic sectors; for the non-strategic sectors, GOP may resort to full or partial privatization, but strategic sectors should not be privatized. She recommends that the Government of Pakistan start with strategic restructuring sectors instead of privatizing them and refrain from teaming up with big foreign companies, as this will create misgivings in the public's minds about government motives. Being one of the largest organizations with economic, strategic, and livelihood aspects, the restructuring of PSM rather than privatization would be the most appropriate solution.

7 Conclusion

Pakistan witnessed high inflation in the 1970s and now in early 2020s. In between, it has been at manageable levels. a tamed inflation rate. For the most part, the SBP worked on the notion of keeping ‘safe limits’, without adhering to a doctrinaire approach to regulating money supply. Monetary policy was thus not a major issue. It all started with the arrival of the IMF in the 1990s, with the SBP autonomy becoming an issue.

Central banks have a monopoly in the creation of the monetary base. It seems logical that the central bank has to control inflation via the use of monetary aggregates. It uses open market operations without changing the nominal interest rate. A rigidity or inactiveness results into changes in aggregate demand by changing the real interest rate. Discretion in effect means no policy: the central bank just responds with all its financial powers and instruments to whatever may come in its way (Svensson, 1997). No harm doing this, but there is a time lag involved in reacting to a situation. Any hasty action like expansion or contraction of liquidity may generate an unending inflationary

spiral and no one can rectify or control it. As opposed to discretion, monetary policy can follow a rule. A few simple instructions save from the shocks that can impact the entire economy.

Proponents of rule based policies find monetary aggregates completely irrelevant in controlling inflation. The central bank has to use interest rate in such a way that people use it for forming expectations about the future prices. By adjusting interest rates in response to inflation, the central bank does not stabilize future inflation (Cochrane, 2007). But those who believe in monetary aggregates claim that rules based policy works best under the policy regime which has no measurement errors (biases in measuring output gap). Our knowledge of the monetary variables is not without errors, so a policy prescription which uses monetary aggregates works better than the one which completely ignores the errors in policy making. New Keynesians advocate that the timing and intensity of the shocks might vary but the nature of the shocks was more or less the same (Woodford, 1998). This means that information related to monetary aggregates may vary but nature remains the same such that it creates no policy bias. Hence this is not useful information for controlling inflation.

In the case of a developing economy like Pakistan, where markets are not functioning fully, less information is available to the central bank on the nature of shocks and variability, inflation lies low in the priorities, central bank is obliged to finance government borrowing and less sophisticated models for monitoring the effectiveness of monetary policy implementation create misperceptions.

Our results showed that there is need to outline an aggressive monetary policy for controlling inflation in Pakistan in the form of a Taylor rule with some feedback from monetary aggregates in the response function of SBP. The evidence shows that in Pakistan, monetary targets failed to achieve the objective of price stability and there is need for using interest rate adjustments as an anchor, which not only pins down the expectations of individuals between consumption and investment but also circumvents the capital mobility in the light of changing financial circumstances. A combination of money supply and interest rate lending channel may be adopted for better working of the policy. It seems no single policy can work better in isolation.

This paper also explored the question whether individuals are forming expectations on the basis of forward looking models. Expectations are the source of volatility and there is need to inform the people about the commitments and the plans of central bank. There is a need to minimize the asymmetrical information between private sector and the government. Increased interest rate not only compensates value losses of the depositors but also fills the vacuum that emerges because of increased aggregate demand. Now the question is: Can we leave the central bank to finance government's fiscal deficit and because of market distortions cause losses to the investors and depositors in the form of creeping inflation.

Our results confirm that monetary aggregates are not appropriate for signaling the household. If the central bank adopts the forward looking model it would increase the credibility of monetary policy. The central bank needs to adopt a conservative approach to modeling inflation. We can further conclude that inflation is time varying in nature and it needs interest rate adjustment. The central bank with appropriate signals can help people to form their expectations. This will reduce uncertainty and lead to low inflation. Such policy credibility will enable the central bank to minimize the loss function of output and maximize welfare by 'doing anything' by keeping a close eye on inflation (discretion in action for controlling inflation).

In sum, the conduct of monetary policy is neither a smooth Keynesian monetary operation, nor a mechanical application of the New Keynesian Taylor Rule. The output gap and feedback from monetary aggregates are both important in dealing with inflation. In the case of Pakistan, this paper shows a significant relationship between inflation and interest rate and an insignificant relationship with money supply. The evidence about the output gap is significant. The results from Taylor rule lead us to conclude that the SBP preferred cyclical over an aggressive policy. We did not find any evidence of the use of an active interest rate rule for the formation of expectations about the future. We also found that combining monetary aggregates and output gap to control inflation was not insignificant. Moving from the short run to the long run, inflation seems converge to the steady

state but the conduct of monetary policy requires interest rate adjustment.

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