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Investigate the Impact of Monetary Policy on Economic Growth of Pakistan

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Abstract: *The study's main aim was to analyze the impact of monetary policy on Pakistan's economic growth (GDP). The data for the period 1975-2018 is used for the assessment. This study is based on debate among economists among the modern and classical economists, i.e. Keynesians believed that fiscal policy was more helpful to affect the GDP, while monetarists considered monetary policy (MP) as the best tool to tackle the economic crisis. This research employed Autoregressive Distributed Lag (ARDL) techniques to analyze the data. The findings revealed that the money supply (MS) has a helpful and significant impact on the GDP of Pakistan. However, the exchange rate (ER) has a harmful and substantial impact on the GDP of Pakistan during the short run (SR), and has an encouraging and substantial impact on GDP in the long run (LR). While capital formation (CF) and labour force (LF) have an encouraging and substantial effect on GDP. Therefore, the study concluded that monetary policy has a harmful and substantial impact on the GDP of the country because when the money supply increases, it causes a decrease in GDP in Pakistan. The study recommended that the State Bank of Pakistan should control and manage the money supply and try to avoid an increase in the money supply.*

Introduction

Monetary policy (later on MP) measures play a vital involvement in the GDP growth. The key aim of the MP main is to manage and control inflation rate and money supply of a country (Hameed, 2010). According Anjum (2013) research that as a developing country Pakistan faces many challenges like inflation, price instability and unemployment. Monetary policy uses different macro variables i.e. interest rate and MS as tool for the stability of economy. According to Akhtar (2006) that Pakistan has adopted modern monetary policies which show a great impact on the economic growth. Moreover, Akhtar (2007) also define that monetary policy of Pakistan in harmony with SBP Act has two main objectives i.e. economic growth and price stability. SBP achieve its goal by controlling and managing money supply and inflation control and stabilized by government. Folawewo and Osinubi (2006) defined that MP as a set of policies aimed at regulating the MS in an economy in accordance with the projected level of economic activity. Furthermore, Ogunjimi (1997) claimed that three main monetary policy decisions may be made: manipulating money in circulation, setting an interest rate benchmark, and

exercising control through a well-functioning credit market and banking system. Nkoro (2005) identified economic growth as a requirement for eliminating poverty and improving living conditions, as well as a priority based on its efficacy and growing role. The SBP was established in 1948 with a primary focus on stabilizing economic development through MP measures.

According to Galı et al. (2003), macroeconomists are now focusing on the endogenous component of MP, which influences nominal and real variable responses to various shocks. The present work makes a dual contribution to that research effort. The amount to which the Fed has attempted to stabilize prices in reaction to such shocks, as would be required by optimum policy in a system in which staggered price setting is the primary distortion to be remedied by the monetary authority. O.Adeniji (2017), showed that implication of MS and interest rate (later on InT) for the GDP growth is more effective, than government spending and taxation. However, policymakers must accept that MP is alone is not sufficient for economic growth of a country. Every country for the sake to achieve their macroeconomic objectively needs a balance monetary and fiscal policy measures.

The primary objective of MP is to achieve low inflation rate, unemployment and GDP. Central bank of the country control and manage the monetary policy. SBP brings many changes in monetary policy in Pakistan to keep pace with fast changing world. Monetary policy of Pakistan has two major objectives first price stability and secondly economic growth. SBP achieve their goals by controlling money supply and increasing reserve money (Hameed, 2010).

Monetary policy is crucial for regulating inflation and encouraging economic growth, particularly in emerging nations that have unique economic problems(Smith & Nabil, 2024). According to Keynes money does not affect economic growth. Government should apply fiscal policy for the stability of economy. While on other hand monetarists were of the view that government should employ monetary policy for stabilize economy because MS has strong effect on the GDP. As developing country Pakistan has limit reserves due to which government borrow money from SBP, which is the main cause to increase in money supply. According to Ayub (2015), monetary policy of Pakistan plays a vital role in price stability and GDP as interest rate, MS and inflation have strong effect on GDP. According to Wallilulah (2011), progressive changes in monetary policy in the past have significant impact on the economy of the country. As Khin (2014) found that MP tools have long run impact on GDP and also money supply has positive relationship with GDP. The effect of MP on GDP is still controversial. Numerous studies undertaken by various researchers have attempted to determine the influence of MP on economic development. However, these empirical research have not yielded a uniform conclusion (Abdulkadr et al., 2024). This research will be more beneficial and helpful for the State Bank and government of Pakistan in the implementation of MP in order to achieve the required level of growth and macroeconomic stability. This research will be also generalized for all developing countries in the world like Pakistan. This research analyses the impact of MP on GDP of Pakistan by considering the economic variables i.e. MS, ER, capital formation and labour force for the time period of 1975-2018. Monetary policy and fiscal policy have always been focal point in study of economic growth. My research will determine which of these policies is more impactful on the growth. Therefore, this study was conducted to check whether the monetary policy was influence economic growth in Pakistan or not.

Theoretical Background

Monetary policy has surpassed through many theories and models represented by many economists of different school of economics. The most well-known economists are Milton Friedman and John Maynard Keynes. Despite of difference of opinion and methods all of the economists have same objective economic stability (Wallilulah, 2011). According to Keynesian school of economics, there is no specific function of money supply in economic stability. As Keynes, there is indirect link between MS and GDP, this means that alteration in MS, will affect interest rate which eventually has an impact on GDP of the country. According to Keynes, Government should apply fiscal policy to stabilize the economy. As Keynes, Government plays a trivial role in the stability of the economy (Stein, 1981). On the contrary monetarists considered that Government plays a vital role in the economic stability. According to

monetarists, there is direct relationship between GDP and money supply. If money supply increases it will directly cause inflation to increase, this will cause the economic instability. As monetarists Government should apply MP in the country achieve economic stability (Wallilulah, 2011).

Friedman (1989), analyzed the past records of postwar U.S. monetary history, which revealed that monetary disturbances were the result of output fluctuations. Monetarists have tested whether these monetary changes have some real effects or not. He examined these tests and reached to three important conclusions. Firstly, the real effects of these monetary disturbances were strongly consistent. Secondly, the six shocks identify as postwar economic disturbances. And thirdly, evidence from the interwar era showed that monetary policy has great effects. Engen (1992), discussed that there were two point of views about fiscal policy (i) it suppressed the dynamic economic growth via the effects of taxation and unnecessary government expenditure (ii) government played a vital role in GDP. This research established a model to explore the impact of taxation and government expenditure on output growth using data from 107 countries for the time period of 1970-1985, while correcting for the most crucial issue of endogeneity in government policy. The results revealed that there was strong but negative effect of government expenditure and taxation on output growth. Chow (1993), empirically studied the role of capital formation to the GDP in different sector of economy employing the annual data from 1952 to 1980. The researcher was to study GDP since Solow's Classical of technological advancement. He explained the increase in output growth and in total capital formation in selected sectors due to the innovation and introduction of new technology. Easterly (1993), explained the statistical regularities fiscal policy variables, increase in development and growth rate. He utilized historical data, recent cross-sectional data and new established public investment series. The evidence showed that fiscal policy has strong impact on GDP of both developing and advanced countries. Moreover, fiscal policy was affected by the economic level, computed by its population rate. King (1999), emphasized the role of inflation in the GDP of an economy. Inflation was one of the real causes of decreasing real income and puts the economy in a dilemma. Considering such serious and unfavorable effects of inflation on economic growth, there was a report and consensus published by central bank that the inflation was the main aim of the MP.

Relevant Literature

Shamshad (2006), examined that in the past few years monetary policy played a pivotal role in achieving both objectives, i.e. economic growth and price stability. Monetary policy achieved its aim by targeting on the monetary policy aggregate in line with real GDP. Similarly, Williams (2007), examined the changing perspectives about the impact and role of MP, inflation as an effective tool of policy, role of MP in output stabilization in SR and factors effecting the implementation of stable policy in short-run. Moreover, inflation-targeting central banks were positively consistent in prevailing on a medium-run horizon. Although in case negative effect on inflation becomes uncertain. Moreover, central banks operate in unpredictable economy, though stabilization of policies was problematic. Similarly, Amarasekara (2008), employed the data from 1978-2005 considering the annual data for sample of 105 to analyze the effects of MP on GDP in Sri Lanka. The results revealed that during the contractionary MP the inflation does not reduce. Although, this shock also driven to exchange rate appreciation, which follows to increase in growth.

Ekone (2010), employed OLS and casual analysis to reveal the effects of MS on GDP of Nigeria using the data from 1980 to 2006. The findings revealed that interest have positive relationship with GDP. Babatunde and Shuaibu (2011), examined a MS model for Nigeria by analyzing the importance of link between MS, CF, inflation and GDP in long run. The study used the data from 1975 and 2008. The statistical analysis exhibited that there was encouraging link between MS and CF, while on the contrary inflation has negative relationship with economic growth. Furthermore, Taiwo (2011),empirically analyzed the effect of MP on GDP of Nigeria by applying econometric technique of OLS using data from 1981 to 2008 and found that MS was positively related to GDP. Similarly, Shabbir (2012), used micro data over a period of 2000-2010. Empirical evidence revealed that contractionary monetary policy degenerated the net worth of the firms and drive to slow down the cash flow, of which later affects GDP. They concluded that recession stays for longer period of time, which slows down the economic

growth.

Chaudhry et al. (2012) used the co-integration approach and the ECM to study the long-run and short-run links between monetary policy, inflation, and economic development in Pakistan from 1972 to 2010. They discovered that the monetary policy variable of call money was inconsequential in the short run but positively important in the long term. Onyeiwu (2012), examined the effects of MP on the GDP of Nigeria. For such purpose, the researcher applied OLS (Ordinary Least Square) for the analysis of the data between 1981-2008. The result revealed that MP presented by MS has a strong positive effect on GDP, but have a negative impact on the inflation rate. Malik (2013) investigates the impact of MP shocks is symmetric or not. The result demonstrations that response of output to monetary policy was asymmetrical. The results indicates that MP changes is fruitless in times of high GDP while responds strongly during low growth periods. The findings also indicates that GDP only shows response to the small MP shocks, while in case of big MP shocks the GDP shows no significant response. Furthermore, Jain-Chandra and Unsal (2014), inspected that the impact of MP mechanism in open economy could be decline if interest rate primarily driven by global factor and analyze as if it was true in case of new emerging Asian economies. Researcher applied dynamic factor model and SVAR model for data analysis. The findings showed that long-run interest rate in Asia for surely chiefly driven by global factors.

Cioran (2014), investigated the informal link between inflation rate and macroeconomic variables. MP main role was to control the inflation rate in order to achieve the required price level. He used regressive methods for the estimation of data. The results revealed that there was a direct link between the MP represented InT and inflation, which makes the interest rate as a strong and significant tool for the central bank for controlling inflation. Furthermore, Mustafa Kilinc (2014), tried to explore the MP shocks in Turkey during the direct inflation targeting period from 2006-2014 by applying structural VAR approach. He analyzed the impact of four shocks on Turkish economy. Positive interest rate shocks acknowledge the MS and reduced the inflation while encouraging risk premium shocks results in depreciation and a rise in inflation. A positive commodity price shock led to an increase in inflation in Turkey. Furthermore, Nawaz and Ahmed (2015), intended to explore a closed economy of the New Keynesian model by applying most effective econometric technique. The response of State Bank of Pakistan (SBP) to structural shocks have been assessed in reaction to unpredictable monetary shock. The SVAR model has been applied to estimate the structural parameters. The results revealed that the SBP should employ an unconventional and self-evident monetary policy.

Şen and Kaya (2015), included an empirical assessment of relative impact of MP on GDPP of the Turkey and used Structural Vector Autoregressive (SVAR) model for the over the time period of 2001-Q1 to 2014-Q2. The statistical findings revealed that both monetary and fiscal policies showed a strong effect on GDP. Moreover, interest rate and budget deficit were both important tools in effecting GDP. The study concluded that although relative effectiveness of monetary and fiscal may vary, but still both policies have great impact on GDP. Kandil (2015) analyzed the impact of monetary shifts on the GDP in advanced and developing countries by considering consumption, investment, and inflation as variables. He used the data for the assessment of the difference in the effects of MP on the GDP. The statistical analysis reveals that in developed countries, higher monetary fluctuations cause an increase in inflation but has no effect on GDP. While on the contrary in case of developing countries, monetary variability increases inflation but has a strong impact on GDP. Anowor (2016), investigated the statistical re-assessment of the effects of MP on the GDP of Nigeria applying the ECM approach. In this study researcher utilized data 1982-2013. The result was in full agreement that among other objectives monetary policy playing a vital role in achieving macroeconomic objectives and controlling GDP and price stability. Although the researcher also highlights the fact that fiscal policy was equally important by playing its role in the stabilization of GDP.

Jiranyakul (2016), examined to find out the impact of MP shock on output and price level in Thailand during 2005 Q1 and 2016 Q2. The structural VAR methodology was applied to find the dynamics of MP shocks. To enlighten the accuracy of model specification, the limitations are enforced on the specified structural model of cointegrated variables to allow the level of variables to interrelated with each other

simultaneously. The empirical evidence of the structural model showed that shocks of MP drives cycles for both GDP and the rate of inflation. O.Adeniji (2017) shows the relative effect of monetary and fiscal policy on GDP in Africa with the help of using St. Louis equation and GMM within the time period of 1995-2016. He concludes that money supply has positive relationship with GDP, while on the other hand interest rate has negative effects on GDP. Government spending has negative effect on GDP per capita while taxation has positive effect on GDP. Aslam (2018) explored how inflation rates influence GDP in sub-Saharan African nations. The findings revealed that MS had a negative relationship with GDP, while CF to GDP. Chugunov et al. (2021) proposed an institutional method to studying the fiscal-monetary mix. Their findings revealed no beneficial benefits of general government spending on GDP in 19 emerging economies between 1995 and 2018. The impact of public outlay on GDP is determined by institutional quality, expenditure mix, and fiscal design. It is demonstrated that raising the percentage of productive spending has a favorable impact on stimulating the economy.

Abdulkadr et al. (2024) used ARDL with yearly data from 1993 to 2022. They discovered that, in the SR, deposit InT, reserve requirements, and open market operations all have encouraging and substantial influence on Ethiopia's GDP; conversely, MS has a harmful and substantial effect on Ethiopia's GDP. In the LR, MS has a encouraging and substantial influence on Ethiopia's GDP; nevertheless, deposit interest rates and necessary reserves have a adverse and substantial effect on Ethiopia's GDP. To summarize, contractionary MP was promising in the near term, but expansionary MP was beneficial to GDP in the long run. Smith and Nabil (2024) examine the impact of MP on inflation and economic development in developing nations from 2020-2022, offering insights into how various MP instruments influence major economic-outcomes. They use econometric techniques like multiple linear regression and VAR models. Their findings show that restrictive monetary policy efficiently manages inflation while having varying effects on SR GDP. Brazil and India endured huge economic downturns in 2020, but recovered substantially in succeeding years. Turkey's GDP was solid throughout the time, whereas Indonesia's recovery was sluggish. The study suggests that MP's efficacy in managing inflation and fostering GDP is heavily influenced by each country's unique economic circumstances.

Research Methodology

The nature of the research is quantitative and employs secondary time series data with the duration of the 1975-2018. The data has been collected from World Development Indicators (2020) for the investigation of either monetary policy effect economic growth or not.

Model Specification

This model is also used by Khin (2014), Wallilulah (2011), Manouchehr Nouri (2011), Ahmed (2011), Rehman et al. (2020a), Rehman et al. (2020b) and Masheed et al. (2024). As per the behaviour of the data this study used ARDL model for estimation.

In linear Form

$$GGDP_t = \beta_0 + \beta_1 MS_t + \beta_2 ER_t + \beta_3 CF_t + \beta_4 LF_t + \mu_t \ldots\ldots (1)$$

In ARDL Form

$$GGDP_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} GGDP_{t-i} + \sum_{i=0}^{n} \beta_{2i} MS_{t-i} + \sum_{i=0}^{n} \beta_{3i} CF_{t-i} + \sum_{i=0}^{n} \beta_{4i} ER_{t-i} + \sum_{i=0}^{n} \beta_{5i} LF_{t-i} + \mu_t \ldots\ldots (2)$$

ARDL- Bound Test

$$\Delta GGDP_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta GGDP_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta MS_{t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta CF_{t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta ER_{t-i} + \sum_{i=0}^{n} \beta_{5i} \Delta LF_{t-i} + \gamma_1 GGDP_{t-1} + \gamma_2 MS_{t-1} + \gamma_3 CF_{t-1} + \gamma_4 ER_{t-1} + \gamma_5 LF_{t-1} + \mu_t \ldots\ldots (3)$$

Table 1: Descriptions of Variables

S.no.	Variable	Symbol	Measurment
1	Growth Rate of Gross Domestic Product.	$GGDP_t$	Percentage
2	Money Supply	MS_t	Percentage
3	Exchange Rate	ER_t	Ratio
4	Capital Formation	CF_t	Percentage
5	Labour Force	LF_t	Percentage

Results and Discussion

Unite Root Tests Results

Table 2 presents ADF test results, which showed that the money supply series are stationary at level while, the rest of variables are stationery at first difference. Therefore, the integrated at dissimilar orders, recommends the use of ARDL for estimation.

***Table 2:* ADF Test Results**

S.No	Variables	ADF Test Value (P-value)		Decisions
		At Level	At 1st Difference	
1	$GGDP_t$	-4.234427 (0.0017)	-----	Stationary at level
2	EX_t	---------	-4.180541 (0.0020)	Stationary at 1st difference
3	CF_t	---------	-6.629158 (0.0000)	-do-
4	LF_t	---------	-3.078309 (0.0361)	-do-
5	**MS_t**	-3987566 (0.0034)	--------	Stationary at level

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

Regression Results

Table 3 presents the ARDL results in the LR, the exchange rate has a positive impact on GDP. This means that 1 unite depreciated in the exchange rate will increase the GDP by 0.23%. Similarly, the MS has positive and substantial effect on GDP. This means that 1% increase in the MS will increase in GGDP by 0.29%. Some scholar found that MP has positive impact on economic growth like (Babatunde & Shuaibu, 2011; Chugunov et al., 2021; Smith & Nabil, 2024), while on the other hand negative money supply has strong effect on the economic growth like (Abdulkadr et al., 2024). However, Chaudhry et al. (2012) discovered that the MP was inconsequential in the SR but certainly important in the LR. However, the CF has encouraging and significant effect on growth rate of GDP. This means that 1% upsurge in the CF will increase in GGDP by 0.69%. According to Ugochukwu (2013) that capital stock plays an important role in increasing output growth and developing economy. Similarly, the LF has optimistic and substantial effect on GDP. This means that 1% upsurge in the LF will increase in GGDP by 0.24%. According to Hanushek (1995) that encouraging improvement in labour force will cause an increase economic growth. Furthermore, there exists LR stability among the variables included in the model.

In the SR, the exchange rate has a harmful impact on GDP. This means that 1 unite depreciated in the exchange rate will upsurge the GDP by 0.03%. However, the MS has positive and substantial effect on GDP. This means that 1% increase in the MS will increase in GGDP by 0.35%. Similarly, the CF has encouraging and substantial effect on GDP. 1% increase in the CF will increase in GGDP by 0.35%. Similarly, the labour force has helpful and substantial effect on GDP. 1% increase in the LF will increase in GGDP by 0.17%. Furthermore, there is 33% speed of adjustment from short to long term equilibrium.

Table 3: Auto Regressive Distributed Lag Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Term Results				
EX_t	0.228421*	0.078213	2.920511	0.0062
MS_t	0.290572*	0.056484	5.144322	0.0000
CF_t	0.693385*	0.218210	3.177601	0.0032
LF_t	0.235639*	0.073094	3.223801	0.0028
C	-10.15823***	5.051154	-2.011071	0.0523
Short Term Results				
$D(CF_t)$	0.351453*	0.102850	3.417137	0.0016
$D(EX_t)$	-0.028643*	0.007136	-4.013770	0.0003

$D(LF_t)$	0.169920*	0.059054	2.877368	0.0066
$D(MS_t)$	0.346143*	0.064595	5.358662	0.0000
ECM_{t-1}	-0.333448**	0.160455	-2.078140	0.0447
ARDL Bounds Test				
H_0: No long-run interactions exist				
Test Statistic		Value		k
F-statistic		6.037831		4
Critical Value Bounds				
Significance		I0 Bound		I1 Bound
10%		2.45		3.52
5%		2.86		4.01
2.5%		3.25		4.49
1%		3.74		5.06

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

Conclusions and Recommendations

The main aim of the study was to analyze the impact of monetary policy on economic growth of Pakistan. The annual time series for period 1975-2018 is used. This study is based on debate among economists that Keynesian believe that fiscal policy was more helpful to influence for the economic growth while monetarists considered monetary policy as a best tool to tackle with economic crisis. This research employed Autoregressive Distributed Lag (ARDL) to analysis of the data. The findings revealed that money supply and exchange rate have negative and significant while capital formation and labour force have positive and significant in the short run. Money supply has positive and significant while exchange rate has negative and significant effect on growth rate of GDP in the long run. Capital formation and Labour force have positive and significant impact in long run on GDP growth. So, the study concluded that monetary policy has negative and significant impact on GDP of the country because when money supply increases GDP of the country Pakistan decreases. This study remanded that SBP should control and manage money supply and try to avoid an increase money supply. Furthermore, Government should increase their reserve and search other sources to finance the projects instead increase money supply. Policymakers in developing nations must address structural difficulties and customize monetary policy frameworks to their own economic circumstances. Future study should expand the analysis over longer time periods and incorporate more factors to gain a more thorough picture.

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