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OPEN MARKET OPERATION BY STATE BANK OF PAKISTAN AND ITS IMPACT ON ECONOMIC STABILITY

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ABSTRACT-*The objective of this research paper was to assess the impact of Open Market Operation (OMO) conducted by State Bank of Pakistan on economic stability during the period of 1998-2018. For this purpose, the data was collected from different sources. Gross Domestic Product (GDP) was taken as a dependent variable while Money Supply, Inflation, Unemployment, Interest rate and Quantity of Money were taken as independent variables. Different statistical techniques like Correlation Analysis Multiple Regression and ADF-Test were used to analyze the data. We found that Money Supply, inflation, unemployment, interest rate have significant impact on Gross Domestic Product (GDP). Therefore, measures should be taken to control quantity of money in order to decrease inflation, unemployment and interest rate.*

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1. INTRODUCTION:

The State Bank of Pakistan is responsible for formulation and execution of monetary policy of country. It is an establishment to create economic stability and generate employment in the country. It manages foreign exchange reserves of country and also works as agent of the Government to collect taxes. State bank utilizes Open Market Operation (OMO) as a tool to control financial system of the country. State bank examine the presentation and issues of economy. It is the duty of state bank to examine the interest rate which is paid by commercial banks.

Open market operation is a significant tool which is adopted by State bank to control money supply and interest rate. Open market activity is the most significant fiscal approach that influences credit allocation, financial base, and money supply in the economy. A country's economic stability is reflected by its Gross Domestic Product (GDP). Monetary policy is necessary as well as appropriate for economic stability. In Open market operation, State Bank of Pakistan sells treasury bills to banks to manage liquidity in the financial system.

Revenue and expenditures of the government play a pivotal role in the growth process whether it is developed or underdeveloped country. When expenditure level goes up in relation to the revenue it creates a situation named excessive expenditure which is very bad for the economy and also creates shock wave which hits the economy one after another; destabilize the economy, deficiency of funds, the rise of interest rate.While money supply is the total amount of the money in circulation and liquid instruments in a

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specific time period. Money supply is further break down in M1, M2 and M3. Consequently, Pakistan has to face many ups and down in the flow of all the factors, great fluctuation was observed after 2004 which declines the growth rate (Mir-Mohammad Tabar et al., 2018). It can be seen from the data given in table 1.

Table 1: Un-borrowed, Free, and Autonomous Reserve Ratios

Year	Un-borrowed Reserves	Net Free Reserves	Autonomous Reserves
1998	0.2414	0.0960	0.1396
1999	0.1434	0.0934	0.2354
2000	0.2311	0.1494	0.1543
2001	0.3011	0.1522	0.0680
2002	0.2588	0.1240	0.1177
2003	0.2632	0.1067	0.1407
2004	0.3842	0.0931	0.0042
2005	0.3271	0.1102	0.0264
2006	0.3792	0.0682	0.0412
2007	0.3965	0.1279	0.0042
2008	0.4057	0.1307	0.0133
2009	0.3989	0.1271	0.0270
2010	0.4989	0.1361	0.0200
2011	0.4192	0.0704	0.0680
2012	0.4315	0.0849	0.1177
2013	0.2961	0.059	0.1407
2014	0.3238	0.054	0.0042
2015	0.3481	0.0337	0.0264
2016	0.4033	0.1010	0.0412
2017	.02907	0.0956	0.0042
2018	0.2428	0.1067	0.0133

Source: Author's calculation

The SBP defines its net inter-state assets as the sum of the first and second parental periods minus certain components of other deposits (Mubarik and Riazuddin, 2005), currency valuation, etc. The definition makes it clear that

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SBP's foreign assets are fixed reserves. The discussion in previous section emphasized that controlling the expansion of domestic assets is forcing State Bank to compensate for changes, but not changes in its own external net assets (i.e. reserves) and to compensate for net foreign exchange fluctuations in the assets of foreign banks (as borrowed securities). Includes other government deposits, the country's net position in the Inter State Monetary Fund, etc., but not foreign bills (Helleiner, 2008).

1.1. Problem Statement:

Open market operation is an instrument of the State Bank of Pakistan to increase or decrease the money supply in the economy. In the past ten years, economic stability has continued to decline due to inflation. Pakistan today is plagued by problems such as inflation, unemployment and interest rates. As a result of this problem, Pakistan's impact on GDP and economic stability is gradually diminishing. In this research paper, we tried to examine the impact of the State Bank of Pakistan's open operations on economic stability.

1.2 Objectives of Study:

1. To study the mechanism of Open Market Operation.

2. To analyze the practices of OMO adopted by State Bank of Pakistan.

3. To examine the impact of OMO on Money Supply in Pakistan.

4. To analyze the impact of OMO on the economy stability of Pakistan

1.3 Significance of Study:

This study is related to the open market operation conducted by central banks. The results of this study will be helpful to effectively manage open market operation to manage quantity of money and create economic stability

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in the economy. This study is also important for new researchers and academicians to understand the objectives and effects of open market operation on the stability of an economy. Thus, the scope of this study is wide.

2. REVIEW OF LITERATURE:

A brief sketch of previous studies is given in the below: -

Khatat (Khatat et al., 2018) examined the problems in implementing monetary policy. He focuses on important issues in countries where traditional banks and Islamic banks exist. In the context of monetary policy, he found that Islamic banking is a complex task. This is complicated not only by the heterogeneity of the country's monetary policy framework and financial system, but also by the need for the basic principles of Islamic financing and teaching.

Ito (2013), Ergec and Arslan (2013), Khattk (2016), Sukmana, Kassim (2010), Aysan, Disli, Duygun, Ozturk (2016) and Amassoma et al. (2011) found that the bank supply of OMO credits will diminish if banks can't make up for the withdrawal of stores. By controlling money supply, it tends to be accepted that banks have the choice of affecting loan fees at lower financing costs.

Chaudhary et al. (2012) analyzed the short and long run relationship between financial arrangement, monetary expansion growth rates in Pakistan over the period of 1972-2010. Their Study show that private advances have prompted higher expansion, which is harming to the economy because it generates inflation.

Fan et al. (2010) stated that Pakistani GDP was at 4.1% in June, 2014 and it increased to 6.5% in mid-2018, because of improved business environment and the growth of private investment.

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Umaru and Zubairu (2012) analyzed the impacts of money supply expansion on financial development in Nigeria (1970-2010). They said that most nations utilize money related approach as an apparatus to balance their budget and external trade. out the shopper value record.

Awan and Aslam (2018) stated that open market operation is an important tool to balance money supply in the economy and control quantity of money and interest rate to curb inflation rate. They argued that effective execution of monetary policy helps creation of conducive economic environment, expediting economic activity and generate employment in the country. It also facilitates to stabilize local currency vis-à-vis foreign currencies and control wild fluctuations in the local currency which affect domestic prices of goods and services.

3.RESEARCH METHODOLOGY:

3.1 Type of data:

We have used time series secondary data of twenty years from 1998 to 2018. The data was collected from Pakistan Economic Survey, State Bank of Pakistan, International monetary Funds, Pakistan Stock Exchange, World Development Indicators and Asian Development Bank.

3.2 Sample of study:

The sampling period of this study was twenty years from 1998 to 2018.

3.3. Selected variables:

The dependent variable of this study was Gross Domestic Product (GDP) while independent variables included inflation rate, unemployment rate, quantity of money and interest rate.

3.4 Econometric Model:

The econometric model of this study is shown in the general form of following equation: -

$$Y = b_0 + b_1M_1 + b_2INF_2 + b_3UE_3 + b_4RI_4 + b_5QM_5 + e$$

Where

Y	Real Gross Domestic Product (GDP)
M_1	Money Supply
INF_2	Inflation
UE_3	Unemployment
RI_4	Rate of Interest
QM_5	Quantity of Money
e	Error Term

3.5. Conceptual Model:

The conceptual model of this study that contains independent and dependent variables is shown in the Figure 1:-
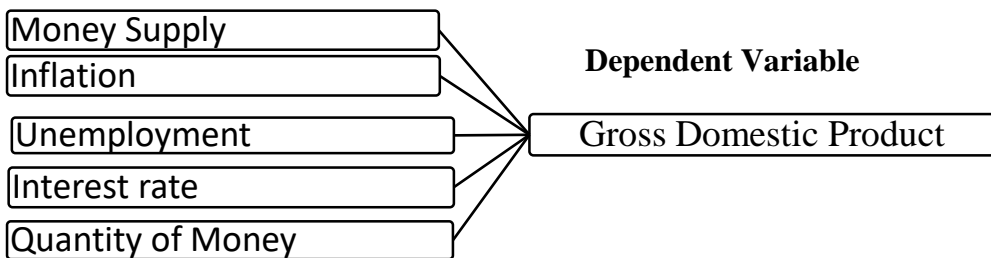
Independent Variables

Figure 1: Conceptual Framework

3.6 Hypothesis of study:

The following hypothesis developed on the basis of literature review:-

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H_0= Increase in interest rate, inflation, unemployment and quantity of money has no positive impact on GDP.

H_1= Increase in interest rate, inflation, unemployment and quantity of Money has strong positive impact on GDP

3.7. Analytical Techniques:

The following analytical techniques are used in this study: -

i. Descriptive statistics.

ii. Correlation analysis

iii. ADF Test

iv. Regression Analysis

4. DATA ANALYSIS:

41. Trend analysis of variables:

We have studied the trend of selected variables and change among them during study period and it is highlighted in the following tables in descending order: -

4.1.1 GDP Growth Rates:

Table 2: Pakistan's GDP Growth during 1998-2018

Year	Annual GDP	GDP Growth (%)
2018	314,587M.$	5.6%
2017	304,568M.$	5.3%
2016	278,655M.$	4.7%
2015	270,555M.$	4.2%
2014	244,362M.$	4.2%
2013	231,217M.$	3.8%
2012	224,385M.$	3.9%

2011	213,587M.$	3.5%
2010	177,165M.$	2.5%
2009	167,874M.$	3.4%
2008	170,854M.$	5.1%
2007	152,363M.$	5.4%
2006	137,228M.$	5.7%
2005	118,482M.$	9.1%
2004	105,613M.$	7.4%
2003	89,728M.$	4.8%
2002	77,938M.$	3.2%
2001	77,932M.$	2.1%
2000	79,704M.$	3.8%
1999	82,515M.$	4.3%
1998	81,491M.$	3.6%

Source: https://countryeconomy.com/gdp/pakistan

The data in table 2 shows fluctuations in Pakistan GDP growth rates during 1998 and 2018. It was highest 9.1 percent in 2005 while it was lowest 3.2 percent in 2002.

4.1.2 GDP per capita:

Table 3: GDP Per Capita

Year	GDP per capita in US$	GDP P.C. Annual Growth in%pe
2018	1,565$	1.4%
2017	1,544$	7.3%
2016	1,440$	1.0%
2015	1,425$	8.6%
2014	1,312$	3.6%
2013	1,267$	1.0%
2012	1,254$	2.9%
2011	1,218$	18.1%

2010	1,032$	3.4%
2009	998$	-3.8%
2008	1,038$	7.7%
2007	963$	9.1%
2006	883$	13.7%
2005	777$	10.1%
2004	706$	15.4%
2003	611$	12.3%
2002	544$	-2.0%
2001	555$	-4.8%
2000	583$	-5.6%
1999	618$	-1.1%
1998	624$	-2.7%

Source: https://countryeconomy.com/gdp/pakistan

Pakistan's GDP per capita was US$ 624 in 1998 which was increased to US$ 1,565 in 2018. There is continuous growth in per capita GDP during study period.

4.1.3 Inflation Rate:

Table 4: Inflation Rate in Pakistan during (1998-2018)

YEAR	VALUE	CHANGE, %
2018	3.9	-5.38 %
2017	4.1	44.88 %
2016	2.9	-36.74 %
2015	4.5	-47.50 %
2014	8.6	17.12 %
2013	7.4	-33.11 %
2012	11.0	-19.44 %
2011	13.7	35.20 %
2010	10.1	-48.35 %
2009	19.6	62.99 %

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2008	12.0	54.45 %
2007	12.00	-20.38 %
2006	7.77	35.88 %
2005	7.92	-44.74 %
2004	9.28	-38.50 %
2003	4.57	22.12 %
2002	3.10	-29.11 %
2001	3.54	-25.44 %
2000	4.41	25.20 %
1999	3.58	-38.35 %
1998	5.74	52.99 %

Source: knoema.com/atlas/Pakistan/inflation-rate.

The data in the table 4 shows inflation rates in different years. It was highest 19.6 percent in 2009 while it was lowest 2.9 percent in 2016. The wild fluctuations in the inflation rates affected domestic prices and dearness, which also made the export goods dearer. This was the reason that Pakistan's exports remained stagnant.

4.1.4 Unemployment:

The unemployment rate is defined as the percentage of unemployed workers in the total labor force. Workers are considered unemployed if they currently do not work, even though they are able and willing to do so. The total labor force consists of all employed and unemployed people within an economy. The unemployment rate of any country depends on its economic conditions. The unemployment Rate in Pakistan averaged 5.44 percent from 1998 until 2018, reaching an all-time high of 7.82% in 2002 and a record low of 5.2% in 2007 and 2008 as is shown in Table 5.

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Table 5: Unemployment rates in Pakistan during 1998-2018

Year	Unemployment rate	Percent Change
1998	5.89	-3.76%
1999	5.89	0.00%
2000	7.82	32.77%
2001	7.82	0.00%
2002	8.27	5.75%
2003	8.27	0.00%
2004	7.69	-7.01%
2005	7.69	0.00%
2006	6.2	-19.38%
2007	5.2	-16.13%
2008	5.2	0.00%
2009	5.46	5.00%
2010	5.55	1.65%
2011	5.95	7.21%
2012	5.95	0.00%
2013	5.975	0.42%
2014	6	0.42%
2015	5.9	-1.67%
2016	5.958	0.98%
2017	6.018	1.01%
2018	6.079	1.01%

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Table 6: Province-wise Unemployment Rates (%)

Years	Punjab	Sindh	KP	Baluchistan
1997-98	5.4	3.3	8.5	2.7
1999-00	5.3	4.2	8.6	2.5
2001-02	5.8	4.5	9.8	5.2
2003-04	7.4	6.0	12.9	8.2
2005-06	6.0	4.4	11.8	3.2
2006-07	5.5	3.4	9.5	2.6
2007-08	5.5	3.1	8.6	2.8
2008-09	5.9	3.3	8.5	2.9
2009-10	5.7	4.1	8.6	2.9
2010-11	6.1	5.1	8.1	3.0
2012-13	6.4	5.2	8.6	3.9
2013-14	6.4	4.2	8.4	4.0
2014-15	6.3	4.6	7.7	3.9
2016-17	6.7	5.5	8.4	3.7
2017-18	7.4	6.2	9.6	4.9

Source: Pakistan Bureau of Statistics 2019

The unemployment rate in Punjab, Sindh, KP and Baluchistan were 5.4%, 3.3%, 8.5% and 2.7% respectively in 1997-1998 which was increased to 7.4%, 6.2%, 9.6% and 4.9% in in Punjab, Sindh, KP and Baluchistan respectively. From 1998 to 2018, the unemployment rate in Pakistan was updated every year with an average growth rate of 5.55%. The unemployment rate reached high of 7.4% in 2003 and a low of 5.4% in 1998.

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4.1.5 Interest rate:

Figure 2: SBP's Interest Rate Corridor
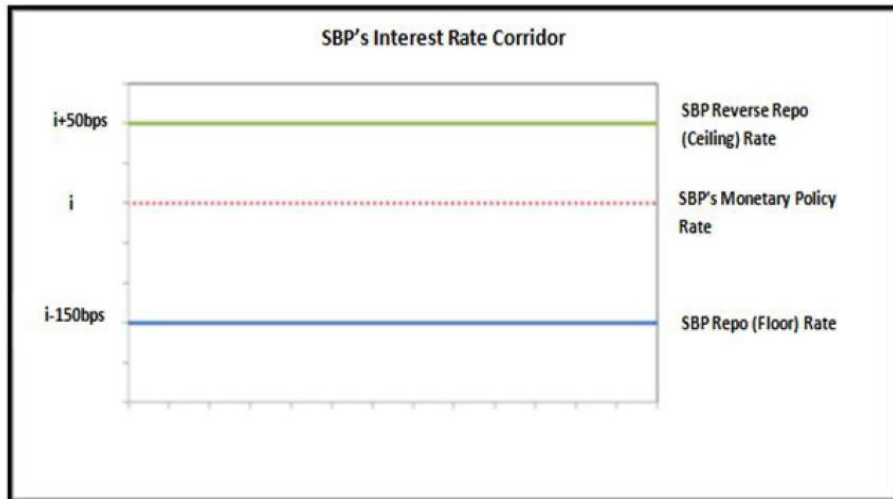
The target key rate of the SBP is a single key rate, which clearly shows that the key SBP interest rate is set between the minimum and maximum limits for the permanent SBP tariff corridor. Qualified counterparties can actively use these two fixed facilities. In the event of a liquidity shortage, normal banks, PDs and DFIs can use the SBP Reverse Repo rate to borrow funds from SBP daily (for justified guarantees) to cover their liquidity. The highest interest rate is currently 50 basis points above the target SBP base rate, the base rate. In the event of excessive liquidity, regularly scheduled banks and PDs can use SBP repayment instruments to deposit their remaining funds (for qualified collateral) with SBP overnight. The minimum interest rate is currently 50 bps and maximum 150bps below the target rate of the SBP, the key rate for monetary policy. In August 2009, SBP created an "Interest Corridor" (IRC) with "SBP Reverse Pension

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Rate, Key Rate, Maximum Rate and SBP Pension Rate". Figure 3 shows fluctuations in interest rate, monetary growth, money supply and inflation rate

Figure 3: Overview of the Interest Rate, Growth Rate, Money Supply and Inflation rate.
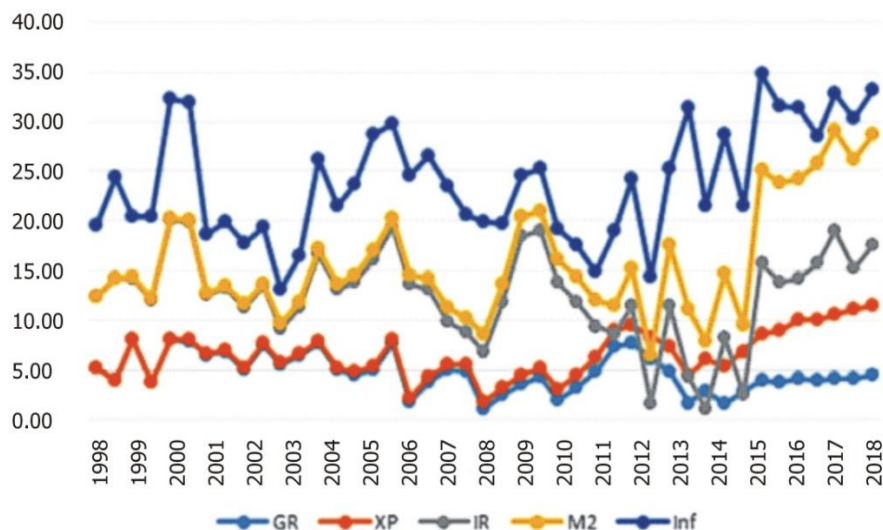
Source: Economic Survey of Pakistan 2019

Figure 3 shows overall picture of the macro variables that can increase the growth rate. The results clearly define the operational or long-term goals of Pakistan's monetary policy for the period 1998-2018 and separate different monetary regimes that the SBP follows.

4.2 Econometric Analysis:

Econometric Model of this research is designed as under;

$$Y = b_0 + b_1 M_1 + b_2 INF_2 + b_3 UE_3 + b_4 RI_4 + b_5 QM_5 + e$$

Where

Y	Real Gross Domestic Product (GDP)
M_1	Money Supply
INF_2	Inflation

UE_3	Unemployment
RI_4	Rate of Interest
QM_5	Quantity of Money
e	Error Term

Where **RI_4** = Real Interest Rate/Discount Rate (percent).

INF_2 = Unemployment Rate (percent)

UE_3 = Unemployment Rate (percent)

QM_5 = Quantity of Money

e = Random error or disturbance term

M_1 = Previous year money supply M2 in Million Rupees consists Mo, Scheduled Bank's Demand Deposits, Scheduled Bank's Time Deposits and residents Foreign Currency Deposits

Y = Real GDP Output Growth Rate(fc) in percent at constant prices 1999-00

4.2.1 Descriptive statistics:

Table 7: Results of descriptive statistics

	GDP	INF	IR	E	M2
Mean	0.044627	0.091741	0.136364	6.997727	0.154059
Maximum	0.0896	0.2003	0.2	17.7	0.293
Minimum	0.0036	0.031	0.08	1.05	0.0431
Std. Dev.	0.020915	0.042826	0.030945	5.916112	0.055302
observations	20	20	20	20	20

Source: Authors' Calculations Using E-Views software

Table 7 shows the descriptive statistics of this study. It is shown that GDP has lowest mean value of 0.04 with 0.02 value of S.D while E has the maximum

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mean value of 6.99 with 5.91 of S.D. The averages of INF (Inflation), IR (Interest Rate), M2 (Money Supply), and E (Employment) are 0.09, 0.13, 0.15 respectively.

4.2.2 Correlation Analysis:

The results of correlation analysis are shown in Table 8.

Table 8: Results of Correlation Analysis

	GDP	INF	IR	E	M2
GDP	1.0000				
INF	-0.0509	1.0000			
IR	-0.2047	0.4082	1.0000		
ER	-0.0123	0.1010	-0.6472	1.0000	
M2	0.3467	-0.0592	0.1002	-0.0104	1.0000

Source: Authors' Calculations made by E-Views software

Table 8 shows correlation between variables. The correlation between dependent and independent variables are found negative as the value is -0.0509, 0.2047, -0.0123 and -0.0592. The outcomes show that M2 is positively correlated with GDP while as INF, IR and E is negatively correlated with GDP.

4.2.3 Multiple Regression Analysis:

The Ordinary Least square method was used to draw the results, which are shown in Table 9.

Dependent Variable: GDP

Method: Least Squares

Sample (adjusted): 1998 2018.

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Table 9: Results of ADF-Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
QM	0.09004	0.0863	1.0433	0.3123
INF	0.15178	0.14292	-1.06204	0.304
IR	-0.4548	0.24882	-1.8277	0.0863
E	-0.0018	0.00143	-1.2482	0.2299
M2	0.16567	0.08889	1.86376	0.0808
R-squared	0.55149			
F-statistic	1.23493			
Prob(F-statistic)	0.33844			

The result in Table 9 show that interest rates has a negative and significant impact on GDP growth rate. The values -1.06204, -1.8277 and -1.2482 show that rise in interest rates, inflation and unemployment had a significant negative impact on GDP. The money supply has positive effect on GDP because they have positive values 1.0433 and 1.86376.Therefore, H_0 is accepted while H_1 is rejected. The value of the square R is 0.551, which means about 55% variation in output is explained by the independent variables. The F-test is often used for the empirical analysis of monetary policy issues. This method undoubtedly has the advantage of avoiding a full specification of the economic structure model. However, when assessing the impact of monetary policy measures, basic identification problems need to be resolved. Policy measures are an endogenous reaction to current economic developments and must be separated from foreign

policy measures. Only if the latter is identified as a dynamic analysis of the F-Test system can reliable information about the currency transfer mechanism be generated.

5. FINDINGS OF THE STUDY:

The main findings of the study are described in the following: -

The results of our study show that there is significant relationship between M1, M1 and M2 and the central bank (State Bank of Pakistan) can control money supply through these instruments. Similarly, Central banks can influence inflation and GDP growth through interest rates. However, the impact of monetary policy on unemployment, poverty reduction and job creation is not evident. Low interest rate and inflation rates expedite economic activity and purchasing power of the consumers and in turn enhances profitability of business firms due to higher sale. High inflation and high interest rates both have negative impact on job creation and unemployment rate. Excessive money supply also creates inflation and reduces value of currency vis-à-vis foreign currencies.

6.CONCLUSION:

In past the researchers assessed the negative effects of interest rates on economic growth and at the same time its positive effects on unemployment and inflation rate. It means that austerity policies have failed to stimulate economic growth, reduce unemployment or inflation. On the other hand, the impact of broad money M2t, growth rate of GDP, unemployment and the CPI is very weak, almost zero. Cut in interest rate reduces unemployment and boosts the country's growth rate. We can conclude that open market operation is an effective tool to balance money supply and to remove liquidity crunch from

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money market. Similarly, interest rate is an effective tool to control inflation and to end deflation.

7. POLICY RECOMMENDATIONS:

The recommendations of this study are given below:-

- The State Bank of Pakistan should use monetary policy to lower unemployment as the cost of unemployment is higher than inflation.

- The growth must be stimulated by higher savings or consumer spending, but saving is more effective than consumer spending. The government should take measures to increase the country's savings.

- The import of luxury goods should be banned as it involves heavy foreign exchange which is not good for a country like Pakistan.

- The quantity of money should be managed through open market operation and its volume should not be increased on large scale as it produces inflation and reducing value of currency.

- The interest rate should be reduced in order to reduce cost of production of goods and services.

- Concessionary loans must be provided to farmers to enable them to produce food items at low price.

- Interest free loans should be provided to educated youth so that they Can start their own businesses. It will not only promote entrepreneurship but also reduce unemployment substantially.

- Inflation rate should be kept under control in order to save poor segment of the society from its negative effects.

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CONTRIBUTION OF AUTHORS AND CONFLICT OF INTEREST

This research work was carried out in collaboration between two authors.

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Both authors read the manuscript carefully and declared no conflict of interest with any person or institution.