Impact of Money Supply (M2) on GDP of Pakistan

Iqra Ihsan[1] and Saleem Anjum[2]

[1] University of Lahore, Pakistan.

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Abstract

The main role of money supply (M2) on GDP of Pakistan is described. The excessive money supply (M2) by SBP (State Bank of Pakistan) to run the country entails to high rate of inflation if the indicators i.e. CPI, interest rate are not controlled within the prescribed limits. The more the money supply will be in the economy, the greater the inflation rate would be. No sooner, the indicators improves production in all sectors i.e. industry, agriculture, education, health and basic infrastructures increases, money supply would be lesser, inflation decreases and GDP increases accordingly. We have taken into consideration the data for 12 years (2000-2011) and analyzed this data by using the Regression Model. In this model we have taken three independent variables that are inflation rate, interest rate and CPI because money supply is affected both one of them and one dependent variable that is GDP. The CPI and interest rate have a significant impact on GDP and inflation rate has insignificant impact on GDP.

Index terms— money supply, inflation, GDP, interest rate, CPI.

1 Introduction

oney supply (M2) plays a significant role o GDP. We can define monetary policy for ascertaining the availability of money, supply of money and targeting the rate of interest for the promotion of economic growth in Pakistan.

Pakistan, being developing country, usually faces unemployment and unstable prices in its monetary policy, which is the management of expectations. Usually monetary policy consists on the relationship between the rate of interest in an economy that is the price of money can be borrowed and total supply of money. Both these are controlled by different tools to influence outcomes of inflation, economic growth, unemployment, interest rate and exchange rates with other currencies.

These main factors are set by the State Bank of Pakistan for vigilant control. This paper will focus on the significance of money supply (M2) on GDP. Undoubtedly GDP is affected by this money supply.

Money supply is the total amount of monetary assets available in an economy at a specific time. This can further be elaborated by including currency in circulations and demand deposits of financial institutions. Money supply (M2) in Pakistan is recorded, reported, analyzed and published by the State Bank of Pakistan. ear kistan. pin in its monetary Impact of Money Supply (M2) on GDP of Pakistan Authors : Lahore Business School, University of Lahore, Pakistan. E-mails : tenzey2009@hotmail.com, saleem.anjum@lbs.uol.edu.pk There are different measurements of money supply. All of them are widely used and the exact classifications depend on the country. M0 and M1, also called narrow money, normally include coins and notes in circulation and other money equivalents that are easily convertible into cash. M2 includes M1 plus shortterm time deposits in banks and 24-hour money market funds.

It can be described direct relation between money supply growths in long term price inflation. This is necessary for fast increase in the amount of money in the economy. a) Why Money Supply is Important? Since money used normally in all the economic transactions, it has powerful effect on economic activity. Thus increase in supply of money will result in decrease in interest rates and increase in investment. In this way when extra money is spread in the society the consumers feel richer and will spend more. Industries acknowledge enhancing by ordering more raw materials and increase their production. When the business will flourish, the demand of labor and capital goods will be increased. Stock market prices increase and firms issue more equity and debt. In this perspective, money supply continuous to expand. Prices begin to rise, if output growth meets capacity limits. People began to expect inflation, lenders demand higher interest rates consumer purchasing power decreases over the life of their loans. It may be noted that there are only four basic food items such as wheat flour, rice, fresh milk and vegetable ghee which subsidize 42.5 % to the overall increase in general price level. c) Pakistan GDP History Pakistan's tolerable economic growth rate since independence has been higher than the average growth rate of the world economy during the same period. Average annual real GDP growth rates were 6.8% in the 1960s, 4.8% in the 1970s, and 6.5% in the 1980s. Average annual growth fell to 4.6% in the 1990s with consequentially lower growth in the second half of that decade.

Pakistani economy grew at adequately imposing rate of 6 percent per year through the first four decades of the nation's existence. In spite of rapid population growth during this period, per capita incomes doubled, inflation continuously low and poverty diminished from 46% down to 18% by late 1980s(Dr. Ishrat Husain). In the 1990s, economic growth dropped between 3% and 4%, poverty rose to 33%, inflation was in double digits and the foreign debt amounted to nearly the entire GDP of Pakistan as the governments of Benazir Bhutto (PPP) and Nawaz Sharif (PML) played musical chairs. Before Sharif was ejecting in 1999, the two parties had supervised over a decade of corruption and mismanagement. In 1999 Pakistan's total public debt as percentage of GDP was the highest in overall South Asia 99.3 percent of its GDP and 629 percent of its gross revenue. Internal Debt of Pakistan in 1999 was 45.6 per cent of GDP and 289.1 per cent of its gross revenue.

The adjustment of the money supply and interest rates by the State Bank of Pakistan, in order to control inflation and stabilize currency are confined. Monetary policy is one of the two ways the government can influence the economy. By encountering the effective cost of money, the Federal Bureau of Statistics can affect the amount of money that is spent by consumers and businesses.

After a comparatively peaceful but economically dormant decade of the 1990s, the year 1999 brought a bloodless revolution led by General Pervez Musharraf, introduced a growth cycle that led to more than doubling of the national GDP, and expressive expansion in Pakistan's urban middel class. The Zardari-Gilani government transmitted somewhat satisfactory economy on March 31, 2008. It transmitted foreign exchange reserves of $13.3 billion, exchange rate at Rs62.76 per US dollar, the KSE index at 15,125 with market capitalization at $74 billion, inflation at 20.6 per cent and the country's debt responsibility on a declining path. The government itself approved in the same document that "the macroeconomic situation depreciate significantly in **??**2007) **??**2008) and the first four months of (2008-2009) unsettled to adverse security developments, large exogenous price disturbance (oil and food), global financial agitation and policy stagnation during the political modulation to the new government"(MEFP, November 20, 2008)

A crisis of assurance intensified as investors and development partners started to walk away. The stock market decline, capital flight set in, foreign exchange reserves collapse and the Pakistani rupee lost one third of its value. In summary Pakistan's macroeconomic burden had grown unacceptable. It had no any other option but to return to the IMF for a bailout package.

While the country was moving rapidly towards the IMF, the Ministry of Finance had prepared the plan to bring $4 billion by June 30, 2008 through four transactions. These transactions were canceled on April 20, 2008. This cancellation spurs the balance of payment crisis and the rest became history.

The economy carries on remaining in intensive care unit and is almost breathing thanks to the injection

2 e) Interest Rate Implications

The function of monetary policy is to bring development and efficiency in the financial sector, developing a leading environment for economic growth. The SBP followed a tight monetary policy in past few years. There are different objectives of monetary policy that are inflation, government borrowing and interest rate. In Pakistan, rising inflation and interest rate are the most common circumstances. The rising in lending rates causes harm for economy and consumer. It is a fact that high lending rates are regularly joined with high inflation.

3 Decrease in Interest Rates

The decrease in interest rate is the best for the economic conditions. When consumer can sustain to borrow funds, they do not have to pay high interest rates on borrowed funds. There are some benefits from low interest rate that includes house loans, personal loans, credit cards, auto loans and increase in investment in stock market. Interest rate basically controls the economic growth. When the economy grows rapidly then it will involve in inflation. Price level increases and no one can afford the changes in real interest rate. Low interest rate will provide corporate level contingency to take new capital investment spending and increases the firm faith by make heavy investment in growing sector and producing heavy revenue.

4 Increase in Interest Rates

The increase in interest rate will increase the cost of resources. The increase in interest rate is just like opening the door of increasing non performing loans.

5 f) Problem of the Study

Is this menace of inflation badly affecting the economy of Pakistan? Why inflation is increased day by day and what are its adverse effects on economy? And is this inflation controllable and how? g) Objective of the Study The significant objective of money supply is taken 'inflation'. The excess money supply by SBP in the country would entail to the rising of prices of basic commodities. Purchase on high prices by the public would demand more supply by the industry. To produce more and to increase the productivity entrepreneurs would get required money on high interest rates. The more the growth of products in the markets would be, the decreasing in prices would result in minimizing the inflation rate. The pro-rata decrease in inflation would tantamount to increase in GDP rate. The Price, GDP, M1 and M2 all are stagnant at first difference level. GDP and Price are unified with both of M1 and M2. M1 and M2 both are important variables for attention. As per the monetarist anticipation, the inflation is purely a monetary experience. But in Nepal it is found that, for the analyzed data for 1980-2009, the price is not affected by money supply, but the money supply is caused by price level. Granger causality tests do not prescribe a clear cut independent causality flowing from money to prices. This may have been the effect of configuration of monetary policy that is based upon the current price level and setting the targets but not proficient to fulfill the monetary function.

6 ii. Ryan Barnes

The Federal Reserve presented data on the levels of M1 and M2 on weekly basis and has been collecting data on the money supply since the 1950s. In the less financially tangled world that consist then, the supply of money showed a very strong relationship to how much money was spent and it was therefore studied by economists for suggestions to the economic growth. Constitution passed in 1978 that ordered the Federal Reserve to set annual targets for money supply growth. At the time, there was a still high relationship between money supply growth and primarily economic growth as measured by gross domestic product (GDP).

7 iii. Sellin, Peter

The Keynesian economists indicate that change in the money supply will directly affect on the stock prices only if the change in the money supply develop probability about future monetary policy. According to these economists, positive money supply encounter that will lead the people to forecast the tightening monetary policy in the future. They instruct for funds in prediction of tightening of money supply in the future which will push up the current rate of interest. (1).

8 iv. Fernando Alvarez, Robert E. Lucas

The outstanding principle of this harmony are that the mechanisms of monetary policy ought to be the short term interest rate that policy should be focal point on the control of inflation and that inflation can be reduced by increasing short term interest rates. These recommendations are taken as given would seem to involve the exclusion of the quantity theory of money, the class of theories that intimate that inflation rates can be controlled by controlling the rate of growth of the money supply. Such a rejection is a difficult step to take because the regular demonstration that continue linking with monetary policy, inflation and interest rates and there is an excessive amount that consists almost perfectly of evidence that increases in average rates of money growth that are correlated with equal increases in average inflation rates and in interest rates. According the quantity theory, rapid money growth is distinguished Even if economists extensively accept that inflation has a negative effect on economic growth, in this study the researchers did not disclose this affect in data from the 1950s and the 1960s. Therefore, a popular view in the 1960s was that the effect of inflation on growth was not exceptionally important. This view flooded until the 1970s when many countries mainly in Latin Americans practiced hyperinflation. Various studies were concerned to finding the effects of inflation in high inflation countries. These studies often accepted that inflation had a significant negative effect on economic growth at least at adequately high levels of inflation.

Thus today, the prevailing view about the effects of inflation has changed impressively. It has been found that in developing countries as the inflation rate overtake a stipulate point; it affects the growth rate unfortunately. (3) vi. Liang, Fang and Huang, Weiya Federal Reserve has been playing a fundamental role in affecting the US economy classification through carry out monetary policies and targeting a sustain economy system, consciousness of economists is interested to follow the fed's policy management and association afterwards. The three main tools of the Fed in motivating the market are open market transaction, discount rate and resources fulfillments. The importance of the situation of Fed cannot be over highlight because of its not able to replace the responsibility for the management of accumulate demand by total spending as well as inflation. (4) vii. Feldstein, M. and Stock, J. H Feldstein and Stock (1994) deliberated the probability of using M2 to target the quarterly rate of growth of nominal GDP in their paper in 1994. The study manifested that the Federal Reserve could perhaps make use of M2 that diminishes both the long-term average inflation rate and the fluctuation of annual GDP growth rate. (5) viii. Fair R Fair (2001) likely the constructive rules that relating to interest rate and a set of economic variables and penetrate out that there was an organic change of policy convention of Fed between 1979 and 1982. By including the organic change component, the scriber was able to carry out stable coefficient projections. The laws formulated from the regression explained interest rate into an orderly changing index that influenced by other major economic instruments. (6)

9 i) Research Scope/ Limitations

The scope of the study provides valuable insight to the factors that affecting the money supply (M2) movements and its impact on GDP of Pakistan.

o The study period is from 2000-2011 o The data is consisting of last 12 years of inflation, interest rate, CPI and GDP.

II.

10 Methodology a) Data Collection Technique

In this research, secondary data has been used. Secondary data is collected from the State bank of Pakistan and federal bureau statistics. In which there are four variables GDP, CPI, inflation and interest rate.

11 b) Sample Size

The study period consist of 12 years from (2000-2011).

12 c) Statistical Test

We use SPSS software to analyze the data by using Regression Model to find out the impact of money supply (M2) on the GDP of Pakistan.

13 d) Characteristics of Variables i. Dependent Variable

GDP is the dependent variable. GDP is the total market value of all final goods and services which produced in a country in a given year are equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports.

14 ii. Independent Variable Interest Rate

The amount charged, formulate as a percentage of principal, by a lender to a borrower for the use of assets.

15 CPI

It measures the level of prices in the economy. It comprise transport, food, medical, education, fuel, house rent etc.

16 Inflation Rate

The rate at which the ordinary level of prices for goods and services is rising and afterwards, purchasing power is falling.

17 e) Analytical Results

The data were analyzed by using Regression Model to find out the relationship between inflation rate, interest rate and CPI with the GDP of Pakistan.

(Table no: 1) The value of mean show the average values, standard deviation shows the variability in the values and N represents number of years in the model. weak correlation with the GDP of Pakistan. The correlation coefficients on main diagonal are always 1, because each variable have a perfect and positive relationship with itself. The significant level or P value is the probability of obtaining results as extreme. The significant level less (less than 0.05) except inflation rate that shows correlation is significant and variables are linearly related. The significant level of inflation rate is large or (greater than 0.05). This shows that there no significant correlation and variable are not linearly related with GDP.

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(Table no: 3) The table displays that variables are entered or removed from method. No variable has been removed from the method on the basis of not relationship with GDP.) This table displays R, R squared, adjusted R squared and the standard error. We measure the strength of two variables, if the value of R is very close to +1 than there is a strong correlation, if it is closed to -1 than there is negative or weak correlation. R is the multiple correlation coefficient, is the relationship between the independent variables and dependant variable. Here, we have large value of R 0.982. This indicates that there is strong relationship. R squared is the proportion of variation in the dependant variable explained by the independent variables. Adjusted R square has a range between 0 squared value is 0.964 or 96 percent. This indicates that 96 percent variation in the dependant variable explained through all independent variables and remaining 4% is un-explained. Large values indicate that the model is fit one according to data. Adjusted R squared attempts to correct R squared to more closely reflect the goodness of fit of the model. Here, standard error of the estimate is considerably lower as compare to the model, if standard error is less than the model is the best model. The independent variables are measures in percentages. The standardized coefficient is an attempt to make the coefficient more comparable. We will get un-standardized coefficients. The t statistics determine the relative importance of each variable in the model. Here, t value of constant below -2 and in independent variables i.e. inflation rate t-value also below -2, interest rate and CPI t-value is above +2.

20 f) Hypothesis Testing and Results

H : There is no significant relation between inflation rate and GDP. H1: There is a significant relation between inflation rate and GDP.

21 Result

The significant value of inflation rate is 0.086, which is greater than 0.05. We accept the null hypothesis. This means that the inflation rate has no significant relation with GDP of Pakistan.

H : There is no significant relation between Interest rate and GDP. H2: There is a significant relation between Interest rate and GDP.

22 Result

The significant value of interest rate is 0.000, which is less than 0.05. We reject the null hypothesis. This means that interest rate has a significant relation with GDP of Pakistan. H3: There is a significant relation between CPI and GDP.

23 Result

The significant value of CPI is 0.000, which is less than 0.05. We reject the null hypothesis. This means that CPI has a significant relation with GDP of Pakistan.

24 III.

25 Conclusion and Recommendations a) Conclusion

High rate of inflation has adversely affected the economy of Pakistan which is a result of excessive supply of money (M2) by SBP. This study reveals the impact of money supply (M2) on the GDP of Pakistan whereby we have seen inflation rate in double digits. We have taken three indicators that is interest rate, CPI and inflation rate because money supply is affected either one of them. By using regression model, it is proved that Interest rate and CPI have a significant relation with GDP of Pakistan but inflation has no significant relation with the GDP of Pakistan. Thus, money supply needs aggressive control to boost the economy.

26 b) Recommendations

o We have to maintain interest rate and consumer price index at appropriate level and have to bring the inflation rate up to (5%-6%). For this; SBP has to be given full autonomy to control the money supply (M2) as per financial assets available in Pakistan. As new democratic Government is to likely to take over power in couple of months an aggressive, strong and vigilant control on money supply (M2), interest rate and CPI for having a good GDP would be challenging steps to take force into.

o Interest free loans for youth and qualified personnel to establish business would minimize the unemployment through controlled money supply (M2).

o Health insurance, education for all, improvement in power sector, increase in foreign remittances, foreign direct investment and attractive foreign currency exchange rates are the few important areas where the new Government has to take decision and ensure its implementation. This all can be controlled through SBP by devising healthy money supply (M2) policy. [1]

Figure 1:

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Descriptive Statistics

	Mean	Std. Deviation	N
Pakistan GDP	1.1198E2	40.87688	12
Inflation rate	11.6350	6.89123	12
Interest rate	10.9000	2.60785	12
CPI	1.1863E2	42.24516	12

Figure 2: Table no

no

2

Correlations

		Pakistan GDP	Inflation rate	Interest rate	CPI
	Pakistan GDP	1.000	.422	.930	.965
Pearson Correlation	Inflation rate Interest rate	.422 .930	1.000 .627	.627 1.000	.451 .898
	CPI	.965	.451	.898	1.000
	Pakistan GDP	.	.086		.000
Sig. (1-tailed)	Inflation rate	.086	.	.015	.071
	Interest rate	.000	.015	.	.000
	CPI	.000	.071	.	

Figure 3: Table no :

no

Model	Variables Entered	Variables Removed	Method
1	CPI, inflation rate, interest rate a	.	Enter

a. All requested variables entered.

b. Dependent Variable: Pakistan GDP

(Table no: 4

Figure 4: Table no : 3 Variables Entered/Remo b

no

variables are explaining the strong variation in the dependent variable (GDP).
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Model 1 a. Predictors: (Constant), CPI, inflation rate,

Figure 5: Table no : 4 Model Summary

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Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zer
1 (Constant)	-30.503	14.175		-2.152	.064	
Inflation rate	-.938	.537	-.158	-1.745	.119	.422 -.525 -.116
Interest rate	7.980	2.883	.509	2.768	.024	.930 .6
CPI	.560	.155	.578	3.605	.007	.965 .7

a. Dependent Variable: Pakistan GDP
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Figure 6: Table no : 6 Coefficients a

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Figure 7: Table no :

no

Dimension	Model	Eigen value	Condition Index	(Constant)	Variance Proportions	Inflation rate	Interest
	1	3.797	1.000	.00	.01	.00	
1	2	.147	5.087	.04	.66	.00	
	3	. 052	8.543	.31	.05	.00	
	4	.005	28.863	.64	.28	1.00	

a. Dependent Variable: Pakistan GDP

Figure 8: Table no : 7 Collinearity Diagnostics a

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