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THE DETERMINANTS OF INFLATION AND ITS IMPACT ON ECONOMIC GROWTH: A CASE STUDY OF PAKISTAN (2002-2010)

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ABSTRACT

Attempt is made to identify the determinants of fresh inflation in Pakistan. Specific objectives are, to find out the relationship between inflation, Interest Rate and Money Supply; analyze policies of the State Bank of Pakistan and the tools it is using to control inflation. Literature Review shows that the expansionary economic policies of the government and of the central bank (State Bank of Pakistan – SBP), which on one hand resulted in remarkable economic performance, but on the other hand stirred a rise in the Consumer Price Index (CPI).Some experts make fiscal or monetary policies responsible for, while others blamed it as an imported inflation, administered prices or mismanagement and weak control of the government. Non-contrived convenient random sampling Method was used in survey to collect data from State Bank of Pakistan, National Bank of Pakistan and Statistical and planning division of Pakistan. An econometric framework was used to focuses on the detection of the main determinants of recent inflation trends. The analytical result indicated by applying Regression model method and SPSS tool on collected data from the July 2002 to Feb 2010, suggest that in the long-run inflation is not only related to Interest Rate but also with supply of money. Hence, the findings imply that the Interest rate has a greater impact on the inflation in Pakistan.

Keywords: Inflation, Pakistan, Determinants, interest rates, money supply.

INTRODUCTION

Inflation is a global observable fact in present day times. There is hardly any country in the world today which is not affected by the apparition of inflation. The inflation phenomenon has widely engrossed the attention of the economists, all over the world.

A simple definition of inflation is “an increase in prices and or decline in purchasing power. However over the years, the definition of inflation has undergone a change.” According to the Webster's "An increase in the amount of currency in circulation, resulting in a relatively sharp and sudden fall in its value and rise in prices: it may be caused by an increase in the volume of paper money issued or of gold mined, or a relative increase in expenditures as when the supply of goods fails to meet the demand.”

Causes of Inflation

The root cause of inflation is the imbalance between the total demand and total supply of goods and services in the economy which causes excess demand. The emergence of excess demand in the economy can be attributed to two main factors:-

1. Increase in demand for goods and services
2. Decrease in the supply of goods and services

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Factors Causing Increase in Demand

a. Increase in public and private expenditure
b. Increase in exports
c. Reduction in taxation
d. Repayment of past internal debts
e. Rapid growth of population Black money
f. Deficit Financing
g. Increase in consumer landing

Factors Causing Decrease in Supply

I. Shortages of supplies of factors of production
II. Industrial disputes
III. Natural calamities
IV. Operation of law of diminishing returns
V. Lopsided production
VI. Hoarding by consumers and traders

Stages of Inflation

Inflation passes through three stages. In the first stage the increase in price is slow and gradual. In this period it is easier to ensure the inflationary mount in the price of goods and services. But if it is not effectively monitored in the initial stage then it enters the second stage. In second stage inflation becomes a crucial factor for the government. The prices of goods and services start increasing much more rapidly. It is not possible to eradicate inflation completely but if the government takes efficient steps, it may be possible to avoid a further increase in price level. In the third stage, prices of goods and services show alarming increase and it becomes impossible for the government to control them.

Background

Since independence we have been facing many crises. Some has been tackled successfully and some still need to be resolved. The most important factor to which we still battling is the factor of inflation. The level of inflation in Pakistan has been persistently rising since Partition. The high levels of inflation reflect a volatile economy in which money does not hold its value for long. Many fiscal and monetary policies has been tried and implemented but none of them attain their objectives.

In 1990s, the liberalization policies picked up momentum. Frequent changes in the government, conflicting policies, nuclear explosion and other political and economic developments put upward stress on the prices. Average inflation rate increased to 9.6 per cent. Increase in wheat prices, government and private sector borrowings, exchange rate, depreciation and adaptive expectations were the main factors behind the increase in inflation rate.

The 1980s were a decade of comparatively low average inflation (7.2 per cent). Private sector borrowing, exchange rate depreciation and adaptive expectations were the main forces behind this growth in consumer prices. De-nationalization engorged the private sector and, as a result, private sector borrowing increased during the period.

Interest Rate is also considered as an important factor for inflation. Interest rate, if increasing can also put upward pressure on price level. Increase in prices of goods, such as petrol, raw material etc impacting on cost of production. Similarly, indirect taxes are also blamed as the main cause of inflation. The indirect taxes, such as sales tax and excise duties raise the prices of consumer goods. This creates inflationary pressure. On the other hand, direct taxes reduce the take-home income and have anti-inflationary effect. A substantial increase in support price of wheat is estimated to have an inflationary effect on consumer prices, particularly food prices.

In case of Pakistan, annual inflation was above 11 per cent in the 11 of the past 32 years. Not surprisingly, average real per capita income growth was 2.8 per cent in years having less than 11 per

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Vol. 3, No. 1, July 2012

cent inflation as compared to the years of high inflation with an average of 1.5 per cent (Economic Survey of Pakistan).

Statement of Problem

"To determine the extent to which devaluation of money is able to influence inflation rates in Pakistan through changes in price of goods."

Scope of Research Study

Our scope of study will be to highlight the different factors which specially cause high inflation and also find out the relationships of these factors within themselves. Our scope of work will also monitor the financial / economical reports issued time to time by the Federal Bank, other financial institutions and other federal departments. Our study will be focused at the various aspects of inflation in Pakistan from a local and global perspective.

Purpose of the study

The purpose of this paper is to extend the literature on the relationship between inflation, Interest Rate and Money Supply. However, the other main objectives of the research are to:

Present the scenario of inflation in Pakistan and highlight the figures in recent years. Study the measures that have been taken by the government to control inflation. Analyze policies of the State Bank of Pakistan and the tools it is using to control inflation. Give recommendations to control inflation.

Research Question

One of the challenges of the developing country is to maintain and stable the inflation rate. This research paper will examine, which factor has the major impact on high inflation rate in developing countries, especially in Pakistan.

LITERATURE REVIEW

Different schools of thought have presented their theories, which discuss the causes of inflation. Beginning from the quality theory of money (which stresses on potential of the buyer of a currency about its worth or purchasing power) and the quantity theory of money (which give equation of money supply and highlight the role of excess money supply in defining inflation), the focal point of the economic literature on inflation moved to the demand-pull and cost-push factors of inflation. This is true in Keynesian era where inflation was caused by either a rise in aggregate demand or a decline in aggregate supply. Inflation that was impelled by rise in aggregate demand was called 'demand-pull inflation' while supply were believed to cause 'cost-push inflation'. During the Keynesian era, fiscal policy was measured an important tool in controlling inflation (Bokil, Madhavi, and Axel Schimmelpfennig, 2005).

For Pakistan's economy, inflation can be terrible if it crosses the limit of 6 percent, and can be enormously destructive if it reaches the double digit level. Hence, it becomes more vital for policy makers to spot the real reason of inflation and design pro-active plans accordingly. To discover the causes of inflation, as a first step it seems essential to look into the theories of inflation and then watch what modern literature leads us to. (Sherani, Sakib, 2005)

In Pakistan, rise in the Interest rate, money supply, wheat support price have been responsible for inflation. As such, the question "Money or Wheat" is not merely academic, but has deep inference for economic policy. If inflation is a monetary phenomenon, it is the conscientiousness of the central bank and the fiscal authorities to attain price steadiness. If inflation is caused by increase in wheat support prices, it would emerge that the Ministry of Agriculture should play a vital role in controlling inflation.

In the study, (Agha and Khan 2006) observe the long-run correlation between inflation and fiscal indicators in Pakistan for the period 1973-2003. The observed results, using Johansen co integration

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Vol. 3, No. 1, July 2012

analysis, specify that in the long-run inflation is not only connected to fiscal inequity but also to the basis of fiscal deficit financing. The authors wrap up that inflation in Pakistan is strongly affected by government's bank borrowing for budgetary support and fiscal deficits.

Is inflation shocking for the economy? Not all the time. A sensible rate of inflation, around 3 to 6 percent for Pakistan (Khan 2005) is often viewed to have positive implication on the economy, since it persuade investment and production and permit growth in wages. When inflation reaches reasonable limits, it makes negative effect. It decreases the worth of money, which is the standard of exchange. This results in vagueness of the worth of gains and losses of borrowers and lenders. The increasing insecurity disheartens savings and investment.

According to the learning of (De Grauwe and Polan 2005), standard quantity theory of money relationships are tough to classify in countries with inflation of less than 10 percent.

(Sherani 2005) finds that rise in the wheat support price raise the CPI index (but not necessarily inflation). Sherani emphasizes that the high levels of inflation in 2005 resulted from a monetary projection that was build up by slack monetary conditions

Bernanke, Ben S highlighted that inflation is determined by developments and bottlenecks on the real side of the economy. Food prices, administered prices, wages, and import prices are vital sources of inflation (Bernanke, Ben S., 2005).

(Bokil and Schimmelpfennig 2005) discover broad money and private sector credit growth to be important indicators for inflation.

The famous Phillips Curve (Scheibe, J and D.Vines, 2005), advocate a positive relationship between inflation and the output gap, exchange rate and inflation expectations.

The price is a common empirical finding where a sudden tightening of monetary policy primarily leads to a rise rather than a decrease in the price level. This contradiction can be tackled by establishing different variables (e.g. Brissimiss and Magginas, 2004).

The study by (Catao and Terrones 2003) illustrate that there is a strong positive relationship between budget deficits and inflation between developing countries as well as countries with high inflation, but not between higher economies with low-inflation.

According to the research of Easterly and Fischer inflation arrive from increase in food prices, it hurts the poor more. Also, it restructures income from fixed income earners (for instance, pensioners) to owners of assets and earners of big and variable income, such as profits (Easterly and Fischer, 2001).

Vieira (2000) emphasized the affiliation between fiscal deficit and inflation in the case of six major European economies. The results give little support for the suggestion that budget deficit has been an significant contributing issue to inflation in the economies over the last 45 years

During the 1950s, the concern of falling money wages leads the Keynesian economists to examine new explanations. One such examination by A.W. Phillips resulted in the appearance of the Phillips Curve. This model was further customized by Lipsey (1960), Samuelson and Robert Solow (1960). The model highlights the idea of a 'trade-off' between inflation and unemployment. In other words, the model proposes a negative association between inflation and unemployment. Later stage, relations between inflation and growth were also considered (Barro 1995). The trade-off between inflation and growth is an important subject of debate in Pakistan also.

Schwartz (1973) tested the quantity theory of money. The model states that the past performance of money supply to yield ratio is the major determinant of present inflation. It highlights the function of monetary policy in opposition to fiscal policy in scheming inflation.

METHODOLOGY

The research methodology will be based on Quantitative and Qualitative Research. The data for this study were collected from State Bank of Pakistan, National Bank of Pakistan and Statistical and

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Vol. 3, No. 1, July 2012

planning division of Pakistan. The data which collected was analyzed through SPSS. In addition of data collection interviews were also conducted for information collection purpose.

MODEL

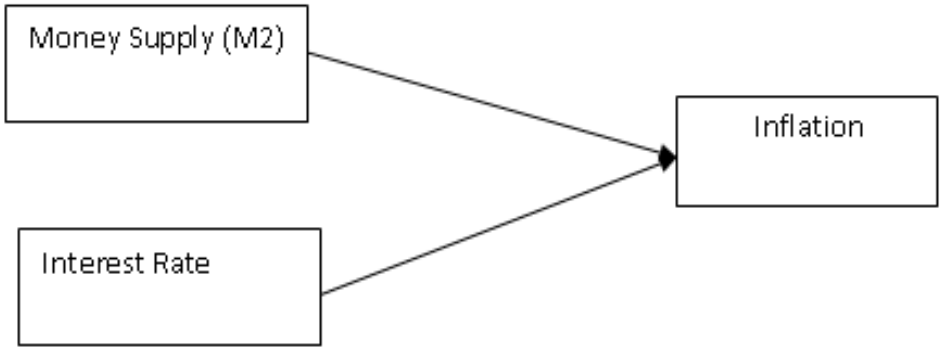

Figure 1: Model

Source: D.Vines, 2005

Regression Equation

Inflation = $\alpha + \beta 1$ (M2-Money Supply) + $\beta 2$ (Interest Rate)

HYPOTHESIS

The study examines the following hypothesis:

a. H1. There is a positive and significant relationship between Money Supply and Inflation.
b. H0. There is a negative relationship between Money Supply and Inflation
c. H2. There is a positive and significant relationship between Interest Rate and Inflation.
d. H0. There is a negative relationship between Import price and Inflation.

RESULT ANALYSIS

Table 1: Descriptive Statistics

	Mean	Std. Deviation	N
INFLATIONRATE	9.5190	5.83555	92
INTERESTRATE	9.7772	2.30785	92
MONEYSUPPLY M2	3418.1968	1106.54504	92

According to statistical data the rating on dependent variable Inflation was with a mean of (9.5190). The rating of M2 was highest with a mean of (3418.1968), the rating of Interest rate was second highest with a mean of (9.7772).

The standard deviation of statistical data of "Interest Rate" was the least (2.30785), as compared to the other dimensions. This indicates that there is a high impact of Interest Rate on Inflation. The standard deviation of statistical data of M2 was the highest (1106.5450). This indicates that there is a low involvement of M2 on Inflation.

Table 2: Correlations

	INFLATIONRATE	INTERESTRATE	MONEYSUPPLY2
INFLATIONRATE	1	.802(**)	.724(**)
INTERESTRATE	.802(**)	1	.884(**)
MONEYSUPPLY2	.724(**)	.884(**)	1

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Vol. 3, No. 1, July 2012

The data was analyzed through SPSS (statistical package for social sciences) software by using correlation and regression. The correlation test indicates that the correlation between the variables. The correlation values show that there is a positive correlation of Inflation with Interest rate and M2. The dependent variable Inflation" has the strongest correlation with Interest Rate (0.802**), and with M2 (0.724**).

Table 3: Model Summary

Model	R	R Square	Adj R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.802(a)	.644	.636	3.52233	.644	80.386	2	89	.000

Predictors: (Constant), MONEYSUPPLY2, INTERESTRATE

Dependent Variable: INFLATIONRATE

The R value show Coefficient of Correlation is the numerical measure of strength of the linear relationship between two variables. The R value (.802) shows that there is positive correlation between the M2 Interest rates with Dependent Variable Inflation. The R Square show Coefficient of Determination defines the square of Coefficient of Correlation. The R Square values (.644) mean 64% reliable to be used for estimation of population. The Std. Error is important because they reflect how much sampling Fluctuation a statistic will show. The Std. Error value show that 3.52% Fluctuation of Sampling Mean. The R change shown that differences between R-value & Adjusted R square.

The F change show the combination of all variable, overall significances of the Model its mean one variable intercept on other variable and Observation of Independent Variable met its mean Autocorrelation is Present the F change value (80.386) the independent variable met the Dependent variable.

Table 4: Anova (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1994.678	2	997.339	80.386	.000(a)
	Residual	1104.207	89	12.407		
	Total	3098.885	91			

Predictors: (Constant), MONEYSUPPLY2, INTERESTRATE

Dependent Variable: INFLATIONRATE

The Sum of Square shows the total variability around the mean, the Sum of Square Residual mean the Sum of Squared Errors in Prediction and Sum of Square Regression mean the improvement in Prediction by using the predicted value of (Y) Dependent Variable over just using the mean of (X) Independent Variable. The degree of freedom means number of sample minus one. The F Test value (80.386) shows the combination of all variable, overall significances of the Model its mean independent variables Interest Rate and M2 on Dependent variable Inflation and Observation of Independent Variable met.

Figure 2: Coefficients (a)

	Unstandardized Coefficients		Coefficients	T	Sig.	Co linearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-10.026	1.688		-5.94	.000		
INT RATE	1.868	.342	.739	5.46	.000	.218	4.579
M 2	.000	.001	.071	.525	.601	.218	4.579

Dependent Variable: INFLATIONRATE

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Vol. 3, No. 1, July 2012

Inflation= α + b1 (Interest Rate) + b2 (M2)

α = -10.026

b1 = 0.739

b2 = 0.071

Standardized Coefficients are the coefficient that you would obtain if the Predictors and the outcomes variable were standardized prior the analysis and the Comparing the size of the coefficient across variable. The t value of Independent Variables Interest Rate (5.457) where as the t-value of M2 (0.525).

According to the rules if t value is greater that 2 (t>2.5) than null hypothesis will be rejected and alternate hypothesis will be accepted and vice versa.

CONCLUSION

The empirical results offered in this paper demonstrate that monetary factors determine inflation in Pakistan. Broad money growth and Interest rate are the important variables that elucidate inflation developments. A long-run relationship subsists between the CPI and independent variables. The answer to the question "Money or Interest Rate?" is "Interest Rate."

Pakistan's growth record since the 1970s highlights that high and constant inflation is injurious to growth. Periods of high inflation have matched with low growth hex, while elevated growth episodes tend to be linked with a low inflation environment. In the light of empirical porch beyond which inflation troubles growth and financial development, an opposite inflation rate for Pakistan is 5 percent.

The overarching intention of the SBP should be price stability. The SBP should focus its attention and policies to keep inflation close to its target of 5 percent. In principle, the SBP could also target an exchange rate level as a nominal to achieve macroeconomic stability. However, this entails adopting the country's monetary policy and may acquiesce a suboptimal rate of inflation. In addition, the exchange rate would no longer be available to counterbalance the impact of peripheral shocks on the domestic economy. The SBP is fully competent of implementing its own sovereign monetary policy steady with the needs of the domestic economy. Maintaining price steadiness will ultimately be the finest policy contribution to constant growth that the SBP can make. While there may not be an exchange between inflation and growth in the short-run, it certainly subsists in the medium- and long-run.

Price stability can be approximated by different metrics. While headline inflation is better understand by the public, it is often bickering that monetary policy should be more concerned with core inflation. Given the instability of some mechanism of the CPI, in particular food prices and energy prices, core inflation (approximated as nonfood, non-energy or the SBP's trimmed mean definition) is a better measure of underlying inflation trends than headline inflation. Headline inflation is better tacit by the public and affects households immediately. Taken together, core inflation is the exact target for monetary policy, in exacting over the medium-term, but the SBP also needs to remain have a watchful eye on headline inflation.

Inflation is a hydra header monster. Taking a single step cannot control it. However, if monetary and fiscal measures are intelligently synchronized, it can greatly assist in scheming the continuous process of increasing prices. The main anti inflationary procedures both short and long terms are: Interest Rate and money supply; the Interest Rate and money supply should be kept within reasonable limits.

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Vol. 3, No. 1, July 2012

RECOMMENDATION

The control of inflation has become one of the principal objectives of government economic policies. Inflation cannot be controlled by taking a single measure. The Monetary and Fiscal measures are wisely coordinated in order to control the consistent increase of prices. To control the inflation rate the following has to apply individually or in combination of the factors:

a. It should have a stern monitoring on the prices of crucial commodities in the country.
b. It should take instant steps in altering the import and export duties and maintain the accessibility of goods in reasonable prices.
c. The budgetary deficit should be kept at low level. The deficit should be achieved by disciplined strategy of demand management.
d. Domestic production should be encouraged.
e. Investment should be given inclination in consumer goods instead of luxuries.
f. A strong monitoring system should be well organized.
g. The government should curtail expenditures in the short run.
h. The complete system of Direct and Indirect tax should be re assessed.

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Vol. 3, No. 1, July 2012

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