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Impact of Interest Rate and GDP Growth Rate on Inflation of Pakistan (Time Series Analysis From 2005-2014)

Dr. Mohammad Masiullah Jatoi*, Safia Khan**

Abstract: - *Inflation refers to the sustained increase in the aggregate or general price level in any economy; that fluctuates because of the different economic factors. In this study two independent variables (interest rate & GDP growth rate) and one dependent variable (inflation) is designed to examine their impact. The hypotheses regarding the impact were made to determine the significance between variables. This research work proved that there is significant impact of interest rate & GDP growth rate on inflation that's why both hypotheses cannot be rejected. Spss-18 has been used for the interpretation of results by applying the technique of Linear Regression. Inclusively statistical results recommended that interest rate & GDP growth rate is significantly related with the inflation rate.*

Keywords: *Interest rate, GDP growth rate, Inflation.*

1.0 Introduction

Since, it has been known to the humans that there is scarcity of resources; nations are finding more orderly ways to decide for their effective economic decisions, while keeping in view the principle of zero tolerance in negligence of thrift habits and investment opportunities. In order to make better and effective decisions and to know about how the economic mechanism functions as a whole; the subject of economics suggests several factors to be kept in consideration.

Rising of prices for commodities would surely be a problematic situation for an economy, as its cost would be to improve the income standards of the humans; less intake of foreign borrowing, infrastructure investment decline and others, the short run results might be good but in long-run it is not a good sign to prevail. While lower the inflation, would have somewhat better results in long-run criteria, whereby the consistency of budgeting system provides a clear cut map of defining a long term policy options in the economic zone, but in short-run it might not show good results. The extra money that you pay back when you borrow money or that you receive when you invest money is called interest. Keynes condemned the classical theories of interest on ground to interest rate is determined neither through savings nor by modifies in the investment directly.

** Professor, Department of Business Administration, Shah Abdul Latif University Khairpur, Sindh, Pakistan*
*** MS Scholar, Department of Business Administration, Shah Abdul Latif University Khairpur, Sindh, Pakistan*

He moralizes his has theory of interest recognized as “Liquidity Preference Theory of Interest”. He sustains to interest rate is determined via the supply and demand of money. On the demand side interest rate is administered through liquidity preference. On the supply side we have whole supply of money accessible in the economy.
The GDP growth rate is the change in a nation’s GDP from one period of time to the next. This is considered as the most essential measures of knowing the economic performance either well or poor. Let us examine periodically from 2005 to 2014 to see how the Inflation rate of our nation is surrounded by the inflammation of interest rate & GDP growth rate.

2.0 Literature Review

Leijonhufvud (1977), Howitt (1990), and Summers (1991); disputed the non-indexation of classified accounting systems deforms reserves decisions and the distribution of capital beneath elevated rate of inflation and, additionally, that inflation deflects talent left from actual productive activity into take away socially productive economic activity designed plainly to manage with or profit as of adjusts in the worth of money. These possible overheads of inflation are not easy to quantify, we are not conscious of one attempt to approximate their special effects on the trail of actual output.

Blanchard & Summers (1984); tinted the global scenery of interest rate raises, spotlighting on 6 large (OECD) economies. The majority of their scrutiny focused on short term rates, for the reason that of require of procedures of predictable inflation over extensive time horizons obligatory to build a determining of the long term actual bond rate. They formed an approximation of the predictable inflation rate beginning the forecast of an easy auto regressive model of real inflation and scrutinized modifies in four fundamental determinants: portfolio preferences, saving, the expected effectiveness of investment, and monetary policy. They accomplished that improved profitability and moves in the combine of fiscal monetary policy were the key factors at the back the increase in actual rates. Ford & Laxton (1990); one more study using the panel data, explained that an cumulative of (OECD) debt to GDP was a momentous determinant of short term actual interest rates in associate countries and so as to aggregate assess often removed the manipulate of own country debt. The outcome offered more support intended for the sight of an included world’s capital market. Benabou (1992), Head & Kumar (2005); the increase in price diffusion unpaid to inflation can moreover have actual effects by raising the sum of resources committed to investigate on the division of buyers, as highlighted in the look for theoretic literature. It will furthermore play a vital role in our structure, which highlights the injurious effect of increasing price diffusion on business breakdowns.

Ragan (1998); on the pragmatic side, there is almost no robust proof on relationship stuck between inflation and actual outcomes. The journalism on the sound effects of tendency inflation on the growth rates of productivity and has produced modest indication of an important impact, excluding in intense circumstances. Zafar & Murtaza (1998); verify a statistically affirmative relationship stuck between macro aspects for the growth of economy of the Pakistan’s economy. They discover that budget shortfall negatively influences the Gross Domestic Production of the Pakistan’s economy and at same moment it manipulates positively the economy’s inflation.

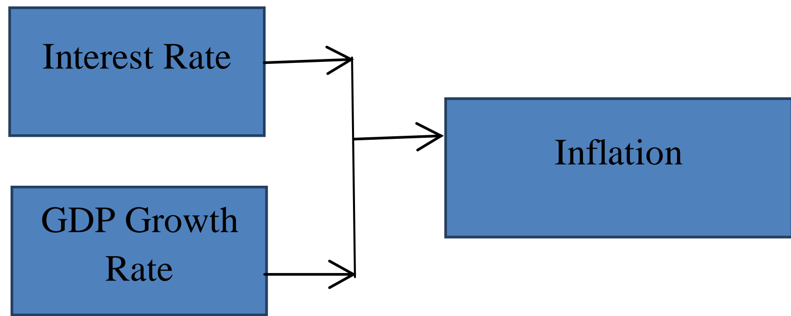
Feldstein (1999); has falls out that dropping inflation commencing 2percent toward 0 would move up productivity by 4 to 6 percentage peaks for the reason that of the non-indexation of principal income taxation. Though, this upshot appears more similar to a dilemma to be packed with by tax establishment than private bankers.
Vanish (1999);according to inflation is continued increase in the common price level taken as regards through elevated rate of increase in the total money supply. Inflation appears in economy on description of the raise in money returns of assured segments of economy lacking any consequent raise in their output, generous rise to a raise in the collective demand for services and goods which can't be gathered at the present prices by total existing supply of services and goods in economy.

Malik & Chowdhury (2001);performed co-integration study of the inflation on the economic growth used for 4 South Asian countries (Pakistan, Bangladesh, Srilanka, and India) and details two attractive points. First, economic growth and inflation are absolutely related. Second, the sympathy of the inflation to adjust in growth rate is bigger than that to amends in inflation rate. One latest analysis recommends s that nearby is an entrance intensity of inflation in correlation between inflation and output growth. Hamilton (2001); inflation has been commonly described while an economic circumstances where raise in money supply is more rapidly than the modern manufacture of latest services and goods in similar economy. Sellin & Peter (2001); the Keynesian economist indicates that amend in money supply will instantly influence on stock prices barely if the amend in money supply increase probability about potential monetary policy. According to those economists, optimistic money supply bump into that will guide people to predict the tapering monetary policy in future. They teach for finances in expect of tightening of the money supply in future which will move forward the recent rates of interest. Ryan (2001); the Federal Reserve offered data on the ranks of (M1 and M2) on weekly base it has been assembling data on money supply since 1950s. In the fewer financially scrambled world that be composed then, the money supply proved a very muscular relationship to how greatly money was exhausted it was consequently studied by economist for ideas to economic growth. Constitution approved in 1978 with the purpose of structured Federal Reserve toward set annual objectives for the growth of money supply. At the point in time, there was still high link between growth of money supply and growth of primarily economy as calculated by (GDP) gross domestic product.

Fernando, Rober, & Warren (2001);the marvelous rule of this agreement is that the methods of the monetary policy have to be short- term interest rates that the policy should be crucial point on the supremacy of inflation, that inflation may be abridged by rising short- term interest rate. These suggestions are taken while known would appear to engage the elimination of quantity theory of money, these theories that near the inflation rate can be proscribed by scheming the money's rat growth. Such a refusal is a complicated step to acquire because the customary exhibition that continue connecting with inflation, monetary policy, and interest rate there is a too much amount that be proposes almost rightly of proof that raises in average rate of the growth of money that are interrelated with equal raises in average rates of inflation and in rates of interest. Due to the quantity theory, speedy growth of money is well-known attribute of monetary satisfaction; it is interrelated with high rates of interest as well as with high rates of inflations.

Karanassou, Sala, & Snower (2003); empirically scrutinized the long-run trade off stuck between unemployment and inflation by use (Panel Data Study) in favor of European countries. They empirically originate that long-run trade off stuck between unemployment and inflation does stay alive in casing of the European countries. Gokal & Hanif (2004); analysis several dissimilar economic theories to develop compromise on the growth and inflation relationship used for the Fiji's economy. Their results prove that a fragile negative relationship survives between growth and inflation, while adjust in production gap tolerates significant bearing. The causality stuck between two variables run one-way from gross domestic production growth toward inflation.
Shamim & Murtaza (2005); investigated the connection between economic growth and inflation in the background of Bangladesh. The empirical proof expresses that there subsists statistically important long run negative link between economic growth and inflation for country as specified by statistically important long run negative link between real GDP and CPI.

3.0 Research Model



4.0 Research Hypothesis

H1: Interest rate is positively related with inflation.
H2: GDP growth rate is positively related with inflation.

Data set (2005-2014)

Year	Inflation rate	Interest rate	GDP Growth Rate
2005	9.08%	9.00%	8.96%
2006	7.91%	9.50%	5.82%
2007	7.58%	10.00%	5.54%
2008	20.15%	15.00%	4.99%
2009	13.94%	12.50%	0.36%
2010	13.85%	14.00%	2.58%
2011	11.97%	12.00%	3.62%
2012	9.73%	10.00%	3.84%
2013	7.68%	10.00%	3.70%
2014	7.23%	9.50%	4.14%

Sources: *State Bank of Pakistan *Ministry of Finance

5.1 Methodology

5.1.1 Data Collection Method:

Secondary data collection method was used for the collection of data regarding overall inflation, interest rate and GDP growth rate, from state bank of Pakistan and entered in the SPSS 18 for applying linear regression to check the inter relationship between the variables mentioned above to predict the GDP growth rate and interest rate.

5.1.2 Diagnostic Test:

$I = \alpha + IR\beta + GDP\beta + \mu$

6.0 Results and Discussions:

6.1 Regression Analysis:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.951[a]	.905	.878	1.44230

a. Predictors: (Constant), GDP Growth Rate, Interest Rate
b. Dependent Variable: Inflation Rate

ANOVA(Table 2)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138.570	2	69.285	33.306	.000[a]
	Residual	14.562	7	2.080		
	Total	153.131	9			

a. Predictors: (Constant), GDP Growth Rate, Interest Rate
c. Dependent Variable: Inflation Rate

The Adjusted R Square indicates the overall fitness of the model and the rest is error term. In this study, the value of adjusted r square in (Table 1) is about 0.878,which shows 87.8% contribution of independent variables (Interest rate and GDP growth rate) to the dependent variable (Inflation).The error term is about 12.2% and the research model is fit at the significance level of 0.000 in (Table 2).

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-13.272	3.596		-3.690	.008
	Interest Rate	2.029	.262	1.031	7.730	.000
	GDP Growth Rate	.359	.244	.196	1.467	.186

a. Dependent Variable: Inflation Rate

In (Table 3), value of Beta indicates that there is direct relationship between dependent (inflation) and independent (interest & GDP growth rate) variables.

7.0 Conclusions

This study explores the impact of interest rate and GDP growth rate on inflation of Pakistan from 2005 to 2014.Pakistan’s economy is facing economic challenges day by day that are why the economic performance is unstable. Inflation has both the positive and also negative effect on economy. This research work is carried out to examine the fluctuation in inflation rate because of interest & GDP growth rate. The results suggested that both independent variables have significant or direct relationship with the dependent variable inflation rate which can be controlled by prudent policies.

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