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An Empirical Study of Pakistan's Economic Growth under Inflation

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Abstract
The purpose of this paper is to find out the inflationary impact on the growth of Pakistan's economy. There are two main objectives, firstly whether the inflation has positive or negative impact on the GDP growth and secondly, at which threshold level of inflation the growth of economy of Pakistan will be positively or negatively affected.
Keywords: Growth; Inflation; GDP

1. Introduction

The relationship between economic growth and rate of inflation has always been a major concern for the economists especially for developing countries such as Pakistan, Bangladesh and Sri Lanka. Achieving high growth in economic and financial sector with low inflation rate is the most important objective of macroeconomic policy makers (Khan and Senhadji, 2001). Growth in aggregate demand in economy increases the inflation rate which is called "demand-pull inflation, in contrast to that "cost pull inflation" is increased by supply shocks.

1.1 Growth and Inflation

The concept of inflation is always been debatable as some early economists depicted a negative relationship between inflation and growth (Fisher, 1993; Barro, 1995; Bullard and Keating, 1995; Faria and Carneiro, 2001) and others show from their research that it has a positive relationship (Lucas, 1973; Mallik and Chowdhury, 2001 and Gillman et al. 2002).However, recent studies have shown a non-linear relationship between two variables with an evident support that lower and steady inflation rate has a positive impact on economy while if the inflation rate is high then there will be negative impact.(Sarel, 1995; Bruno and Easterly, 1996; Hussain, 2005; Munir 2009).

1.1.1 Growth in Long Run

Asymmetric information in the credit market as well as in banking exhibits how increase in inflation rate negatively affects the financial growth performance in the long run. This problem can bring down the real rate of return on money and on assets as well. Till the threshold level, the economic growth has a positive relationship with inflation but when the inflation rate rises above the threshold level then, it shows a negative relationship with inflation rate in case of Pakistan the threshold level is 7 to 11 percent.

1.1.2 Effect of Inflation

Inflation has severe impacts on economy on the whole as the price inconsistency is directly related to it and invertors become indecisive about their investment decisions which can lead to slow economic growth. The balance of payment of economy also gets disturbed as exports are declined and companies incur higher cost due to inflation issue. Another important aspect of inflation is income disparity which widens the gap between poor and rich.

2. Literature review

Fischer (1993) suggested that inflation has an adverse effect on investment and economic growth. He further discussed that low rate of inflation and small fiscal deficits are unnecessary for the high growth rate in long run and high inflation rate is not likely good for consistent economic growth as well. Economists such as Ghosh and Philip(1998) covered most of the countries with IMF membership from 1960 to 1996, evidently proven that inflation less than 2-3 percent has a positive relation with economic growth, contrary to that high inflation rate has a negative relation with economic growth. Nell (2000) reported to have researched that single digit inflation is many ways favorable for the economy but double-digit inflation restricts and slows down the rate of growth.

Khan and Schimmelpfenning (2006), by developing an easier and simple inflation model examined the Pakistan's economy. The data was taken from January 1998 to June 2005 to find the relationship with inflation and private sector credit. The results shown that it has no effect in the short run but, in medium and long run it an adverse effect on the growth of economy. Further their results shown that 5 percent of inflation rate is to be maintained in order to achieve stable economic growth.

Barro (1995) find out the relationship between Inflation and economic growth by using sample of 100 countries. According to his finding there is negative relationship between Inflation and economic growth if some characteristics such as (education, fertility rate etc) remains constant. He concluded that if the average Inflation rate increases by 10% points per year, real per capita GDP growth rate will be decreased by 0.2 to 0.3% points.

Bruno and Easterly (1996) find out in the empirical analysis that, for an Inflation crisis 40% Inflation rate is

the threshold level. Below this threshold level there is inconclusive or inconsistent relationship between both Inflation and economic growth, in this case countries with very high Inflation rate are not included in the sample. Their empirical analysis also suggests that beyond this threshold level there is time-based negative relationship between Inflation and economic growth. Finally they analyzed that Continues Inflation does not causes permanent damage to economic growth, by reducing the Inflation countries can recover the pre-crisis growth rates in the economy.

Sarel (1995) mentions that Inflation rates started to increase after 1970s before this Inflation rate, most of the countries were not so much high.

Mallik and Chowdhury (2001) observes both short run dynamics and long run dynamics of the relationship between Inflation and growth rate of the economy on four South Asian economies Pakistan, Bangladesh, Sri Lanka and India. Two motivating results were drawn from the research. First, there is positive and statistically significant relationship of Inflation and economic growth among all four countries. Second, Sensitivity of Inflation to cause changes in growth rates is greater than sensitivity of growth to cause changes Inflation.

Khan and Senhadji (2001) for developing and industrial countries, separately analyzed growth and Inflation relationships. Threshold effect was re-examined by using the technique developed by (Hansen, 1999 to 2000).Data set of 140 countries was used. The results suggested beyond threshold there is negative relationship between both Inflation and economic growth that is growth rate is negatively affected by Inflation. Inflation has no effect on growth rate below threshold.

Mubarik (2005) by using an annual data set from period between 1973 to 2000 estimates threshold level for Pakistan. His model suggested that above 9% Inflation rate is unfavorable for economic growth rate of Pakistan. It means that below 9% rate of inflation is favorable for economic growth.

Hussain (2005) by using the annual data from 1997 to 2005 suggests the threshold level of Inflation. According to him if Inflation exceeds from 4-6% it will adversely affects the growth rate. This threshold level is in contrast with the threshold level of inflation given by Mubarik (2005).

Ahmed and Mortaza (2005) with the help of co-integration and error correction models find out the link between Inflation and economic growth. This study is performed in the context of Bangladesh. According to their findings the relationship between Inflation and economic growth is statistically significant long term negative.

Equation: EQ01 Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: GDP
Method: Least Squares
Date: 12/06/15 Time: 17:56
Sample (adjusted): 1970 2008
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-566.0706	239.5649	-2.362911	0.0237
CPI	94.77699	8.254787	11.48146	0.0000
EXPORT	-31.17868	10.12365	-3.079786	0.0040

R-squared	0.945620	Mean dependent var	2044.524
Adjusted R-squared	0.942599	S.D. dependent var	2640.304
S.E. of regression	632.5788	Akaike info criterion	15.81129
Sum squared resid	14405614	Schwarz criterion	15.93926
Log likelihood	-305.3202	Hannan-Quinn criter.	15.85720
F-statistic	313.0032	Durbin-Watson stat	0.268506
Prob(F-statistic)	0.000000		

3. Data and Methodology:

I have collected data from the secondary sources. I used the IFS Software to get the data as well as the source of Pakistan Economy survey. I used the data of 4 decades to see the impact of inflation on the economic growth (GDP). To analyze the data I used E-Views software and found out the results. For estimation purpose of the model OLS (ordinary Least

Square) technique is used to analyze the relationship between the rate of inflation and growth rate. The variables that are used in the model are namely Consumer Price Index, Gross Domestic Products and Volume of Exports.

$C=\beta_{\circ}+\beta_1 CPI+\beta_2 EXPORT+\mu$

The data shows significant finding between the consumer price index, gross domestic products and volume of exports.

3.1. R-Squared

R-Squared is significant when it is greater than 0.5and near to 1 and here I find out that r-squared is 0.94 means results are significant and the model is well defined by R-Square.

3.2 Adjusted R-Squared
Adjusted R-Squared is also defining the model with same trend of R-Square. Here I find out that Adjusted is also 0.94 means the results are significant and the model is also well defined by the Adjusted R-Square.

3.3 F-Statics
F-Statistics define the whole model and value is defining the model is acceptable that is 313.003.

3.4 Probability
Probability shows significance when it should be less than 0.05 means less than 5% here it shows that all three variables have probability less than 0.05 means the results shows the significance.

3.5 T-Statistics
T-statics shows the significance when greater than 2 here it shows that all three variables have t-statistics greater than 2 means the results sow the significance and the model is well defined.

3.6 Durbin Watson Statistics
In Durbin Watson statistics 0 and nearby shows the "positive autocorrelation", 2 and nearby shows "No Auto-correlation" and 4 and nearby shows the "negative Autocorrelation". Here I find the Durbin Watson 0.26 means near to 0, so the Durbin Watson is positively auto-correlated.

4. Conclusion and Recommendation
The paper is concerned with the findings of inflationary situation of Pakistan with the growth of the economy (GDP).The second objective is to find the threshold level of inflation at which Pakistan economy would be effected. The paper is to address the problem whether the relationship between the variables is negative or positive. The data that has been taken for this paper is time series data from the period of 1970 to 2009 consisting of variables Gross Domestic Product, Consumer price index and volume of exports. I have performed simple statistical analysis and regression by using Ordinary Least square technique to find out the results.

The results are significantly evident that relationship exists between the variables and inflation is destructive for the growth of the GDP. The increase in the price of commodities and services adversely affect the economic conditions and slows down the overall economy so government and state bank of Pakistan must lower the inflationary impact in order to boost the economic conditions. Another finding of the paper is to address the threshold level that is in range of 7% to 9% so inflation below this point will be favorable for the economic growth while if the inflation is beyond this level then the economic growth will decline.

The paper recommends that in order to bring down the inflation rate, Pakistan's Government should take measures to maintain the inflation rate below 7%. This can be achieved through effective monetary policy by controlling the money supply in the economy. Government should decrease its unnecessary expenditures and by eliminating the corruption. By taking these steps price stability can be achieved and it will certainly help the economy of Pakistan to grow.

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