Impact of Major Economic Variables on Economic Growth of Pakistan

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Abstract: The aim of this paper is to examine the impact of major economic variables *includes inflation rate*, *interest rate* and *exchange rate* on economic growth of Pakistan. The secondary data has been taken for the years from 1981 to 2013. The results from multiple linear regression model describe that both *inflation rate and interest rate spread negative impact on Pakistan's economic growth* while *exchange rate is found positively significant on the economy*. Therefore, all selected variables having less impact on economic growth of the country as compare to other factors that put a serious impact on Pakistan's economy conditions.

Keywords: economic growth; exchange rate volatility; interest rate; inflation; Pakistan

JEL Classification: A10; E430; O19

1. Introduction

Economic growth refers to an ability of an economy to increase its productive capacity through which it becomes more capable of producing additional units of goods and services. This economic growth is also seen as holly grain for economic policies. The growth or development of a country can be measured through various economic indicators such as Human Development Index (HDI), Total Factor Productivity (TFP) and Gross Domestic Product Growth Rate (GD) etc (Smyth, 1995). Over a long period of time, the unsustainable and low level of economic growth in developing countries is producing difficulties for policy makers, professionals and Government. The main causes of unsustainable growth includes (i) high inflation, (ii) rising foreign debt, (iii) currency exchange rate volatility (iv) consume more & save less (v) poor governance & policy implications, (vi) trade imbalancement , (vii) spend more earn less, (viii) energy & water shortages and (ix) political instability etc. Continuous increase in the rate of economic growth with the low level of inflation rate is one of the main objectives for policy makers to perform efficient role in economic policies formulation. The relationship

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between major macroeconomic variables such as GDP, CPI, PPI, Consumer Confidence Survey, Current Employment Statistics, Inflation, the Labor Market, currency exchange rate, and interest rate with GDP growth rate depends on the state of the economic development. High rate of growth rate without increase in the inflation is beneficial for good economic health of a country.

2. Effects of Major Economic Variables on Global Economy

It was anticipated earlier in the World Economic Repot from last few years that world economy would be weakened considerably in the years 2012-2013. The impact of economic woes in developed economies are falling over the developing economies which becomes a cause of lower demand for their exports, heightened volatility in capital flows and high prices of commodities. The overall world economy faced many ups and downs in growth for last few decades. Many developed economies have experienced financial crisis and continuously struggling to overcome the effects of such crises. According to the report economic growth has recorded 2.1 percent while the target for the growth was 2.4 percent. A growing developed economies especially in Europe countries experienced double-dip recession in 2012. (De Gregorio & Guidotti, 1995). Most of the developed economies are caught high unemployment, increase public debt, and continuous fluctuation in the rate of inflation.

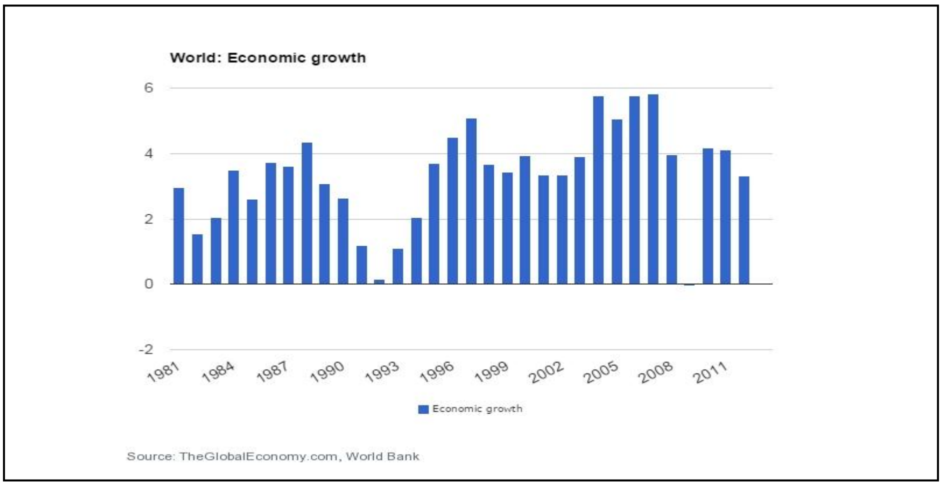

Figure 1. World GDP Growth Rate (1981-2013)

On the other side a large number of developing economies also suffer home-grown economic problems; however including China facing weak investment demand due to financing constraints. Most of the low income countries are facing adverse spillover impacts due to slowdown of both developed and middle-income countries (Galbis, 1995). Other aspects that are changing the case of world economic scenario are (i) high unemployment, (ii) inflation fadeout worldwide but still a concern in some developing countries, (iii) sharp slowdown of world trade, (iv) oil prices soften but risk premium remains, (v) rising food prices, (vi) continues exchange rate volatility and increase (vii) globalization. The nature and extent of impact for above factors varies country to country regarding to the economic environment while the economic obstacles for developed country are different from developing country (Hooper et al., 1989).

3. Effects of Major Economic Variables on South Asian Economy

The economy of South Asia in 1990s had grown at the level of 5.6%, which was faster than low income countries but slower than East Asian countries. The wide range of economic and political reforms have changed the economic scenario of South Asian countries while these economic reforms include (i) since 1991 political consensus has survived government changes in India, shift of power in Pakistan, Bangladesh, and Sri Lanka. (ii) Overall improvements have been seen in efficiency of resource allocation and utilization. But still most of South Asian countries are bearing obstacles towards their economic growth such as low growth in tax revenues, high expenditures on energy and security concerns, additional burden of food and limited fertilizer subsidies are the major problems that are affecting the economies of South Asian countries (Malik & Chaodhry, 2001). In the past two years economy of India which is almost three quarter of the South Asian region's growth was recorded as 9 percent in 2010 and 5.5 percent in 2012 slowest pace in 10 years due to large fiscal deficit, high inflation and political instability. In South Asian context India has an average inflation rate of 5 percent and Sri Lanka has higher inflation rate as compare to India which is 6 percent during the period of 2000-2013.

Political instability and security threats have considered stymie parts of South Asian economies. In Pakistan, causes of consumer price inflation include increase in oil prices and rise in demand of food commodities. Inflation rate declines after continuous increase from 6.3% in 2004 to 5.7% in 2007 and 5.5% 2008 due to strong improvement in macroeconomic fundamentals.

Table 1. Inflation Rate of Asian Countries (2000-2013) (Annual % Change in CPI)

Sl.	Country	Year													
		2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
	South Asia	**6.1**	**3.8**	**3.5**	**5.0**	**6.3**	**5.3**	**5.9**	**5.7**	**5.5**	**11.2**	**11.6**	**10.3**	**9.1**	**8.0**
1	Afghanistan	-	-	5.1	24.1	13.2	12.3	5.1	7.0	8.0	-8.3	.9	10.2	7.2	7.6
2	Bangladesh	2.8	1.9	2.8	4.4	5.8	6.5	7.2	7.2	8.0	5.4	8.1	10.7	6.2	7.5
3	Bhutan	-	3.4	2.9	2.1	3.6	4.8	4.9	5.2	5.0	4.4	7.0	8.8	10.9	7.0
4	India	7.1	3.7	3.4	5.4	6.4	4.4	5.4	5.0	5.0	10.9	12.0	8.5	7.7	6.9
5	Maldives	-1.2	0.7	0.9	-2.9	6.4	3.3	3.5	7.0	6.0	4.0	6.6	12.8	12.1	2.3
6	Nepal	3.5	2.4	2.9	4.8	4.0	4.5	8.0	6.4	5.0	11.1	9.3	9.3	9.5	9.0
7	Pakistan	3.6	4.4	3.5	3.1	4.6	9.3	7.9	7.8	6.5	13.7	13.9	12.2	10.1	9.0
8	Sri Lanka	1.5	12.1	10.2	2.6	7.9	10.6	9.5	14.5	10.0	.6	2.8	5.1	3.0	2.3

Source: South Asian Economic Report (SAER) 2013: Statistical Appendix, Page – 53

Another South Asian country that is counteracting continuous war situation against Taliban from past decades is Afghanistan. Due to security concern Afghanistan is suffering from economic shut down. In October 2007 china faces low demand of their exports that hit hardly to their economic condition. In 2000-2013 Bhutan has facing very low inflation rate as compare to other South Asian Countries and Bangladesh has no problem due to inflation because economy is facing moderate level of inflation during this period.

4. Effects of Major Economic Variables on Pakistan Economy

After the independence the rate of economic growth of Pakistan is higher than the South Asian economic growth rate. But with the passage of time economic growth of Pakistan was affected by various issues including political instability, burden of foreign debt, poor exports and high imports, lack of implementation of the economic policies for many years (Khalid, 2005). Two wars with India first in 1965 on and second war in 1971 on Bangladesh independence brought Pakistan economy at recession stage. Therefore, 1970s, the economy saw the break-up of the country after a civil war, the nationalization of industries, high inflation, finance and education, flooding, a sharp hike in petroleum prices and recession in world market. The stifling of private initiative and entrepreneurship and the control over all key decision variables by the Government were a major setback to the economy causing huge uncertainty and loss of investor confidence.

The economy recovered in 1980s by adopting deregulation policy by the government and policy makers. Economic growth decelerated again in the 1990s with average trend GDP growth of 4.4percent per year and stagnant TFP. Political instability, frequent changes in government, weak governance, poor macroeconomic management and unfavorable external environment were more dominant than the favorable impact of economic policies of deregulation, liberalization and privatization introduced in 1991. These reforms and policies were pursued haltingly and sporadically.

The recent growth acceleration has also been accompanied by a similar increase in the investment ratio from 15.5 percent of GDP in 2001-02 to 20 percent in 2005-06. The recent growth acceleration has come largely from an increase in TFP. The contribution of TFP to growth in the last few years is similar or even somewhat higher than in the earlier growth periods.

5. Objectives of the Research

Following are the main objectives of the study.

1. to know the impact of major economic includes inflation rate, interest rate and exchange rate on economic growth of Pakistan.
2. to suggest significant policy implications for efficient economic growth.

Research Hypothesis

The paper carries following hypothesis:

H_1 = There is a significant impact of inflation on the economic growth.
H_2 = There is a significant impact of interest rate on the economic growth.
H_3 = There is a significant impact of currency exchange rate on the economy.

6. Literature Review

Muhammad et al. (2013) identified the nexus between interest rate and investment of the Pakistan for the span from (1964-2012). The study explored that investment was one of the main determinant of GDP that play an important role in boosting up the economy. Interest rate and investment were directly attached to each other, fluctuation in the rate of lending (interest rate) changes investment and saving pattern in the economy of Pakistan.

Ahmad (2013) found that high exchange rate is positively associated with growth rate. But in Pakistan imports balance is greater than exports balance due to the lack of advancement in exports goods. This difference between balance of payments and trade balance economy remains negative and results low growth rate.

Chaudhary et al (2012) investigated both the short run and long run relation of monetary policy, rate of inflation and growth rate in Pakistan during the period of 1972-2010. The investigation showed that credit disbursement to private sector leads to increase in the level of inflation that is harmful for the economy. When supply of money increases in the local market which not only increases the purchasing power of the people but also raises the demand for the goods and services against supply of goods and services.

Umaru and Zubairu (2012) investigated the effects of inflation rate fluctuation on the economic growth and development in Nigeria for period from (1970-2010). Most of the countries of the world used monetary policy as instrument to stable their consumer price index level. The study revealed that inflation possessed a positive impact on productivity and overall output level in the economy.

Badarand and Malawi (2010) concluded that interest rate fluctuations negatively attached with the investment sector in Jordan. Empirical analysis exploited that one percent increase in interest rate decrease the investment development by 0.44%. However income level has positively associated with the investment. Interest rate is associated with the investment while investment is associated with economic growth.

Khawaja and Din (2007) described that when interest increases it discourages the saving pattern and investment. The study also revealed that inelasticity of deposit supply has a major determinant of interest spread where there was no significant concentration that influence interest spread.

Qayyum (2006) examined the link between excessive money supply and inflation variability in Pakistan economy. A research stated that money supply affected the growth of economy which ultimately increased rate of inflation in the country. He concluded that inflation is monetary phenomenon and excessive money supply is important contributor to raise inflation in economy of Pakistan. In developing economies like Pakistan, this situation may occur because of loose monetary policy adopted by the policy makers.

Hussain (2005) concluded that was no definite level of inflation in the economy of Pakistan because 4 to 6 percent inflation rate is not harmful for the economy but at this level inflation encourages the overall productivity and investment returns. He further stated that a structural break level inflation rate was temporary harmful for economic stability in long run.

Levy-Yeyati and Sturzenegger (2002) conducted a de facto classification based study to investigate the link between exchange rate and economic growth on the sample data of all IMF reporting countries. Findings stated that there was a significant relationship found between currency exchange rate and growth and confirmed that de facto classification based consequences did not apply to those countries which have limited access to the capital market.

Mallik and Chaodhry (2001) examined a long-run positive relation with economy of the four Asian countries (Bangladesh, India, Pakistan and Sri Lanka). They found that a long run significant relationship exists between GDP growth rate and inflation rate for all above four countries. By using co-integration and error correction model they concluded that a moderate inflation rate put positive impact on the economy.

Faria and Carneiro (2001) analyzed a negative impact of the inflation on Brazilian economy under both short run and long run scenario. The study found permanent inflationary shocks on the economy while such shocks of inflation didn't threatened the economy in extreme. However permanent increase in inflation rate would be trouble for the health of Brazilian.

Bleaney and Fielding (1999) analyzed the causes and effects of exchange rate and inflation rate volatility on overall output of developing countries. They stated that if the currency exchange rate of developing country pegged over the currency exchange rate of developed countries the level of inflation can be control in developing countries. They also concluded that adoption of floating exchange rate by the developing economies had a very expensive cost near about 10 percent per year which is greater than typically developed economies.

Bruno and Easterly (1998) found that there was a temporary negative relationship found between inflation rate and economic growth. The sign of relation depends on the level of inflation rate. If level of inflation is high than it would be harmful to economy growth while the level of inflation is low it could encourage high productivity as well as increase in output level.

7. Research Methodology

The aim of this paper is to examine the impact of major macro-economic variables includes inflation rate, exchange rate and interest rate on economic health of Pakistan. A secondary data for the year 1981 to 2013 have been collected from various issues of Economic Survey of Pakistan, World Bank Reports, Federal Bureau of Statistics and other website. There are number of theories developed by various economists for the purpose of identifying the factors that influence the economic growth of the country. For this current study a multiple linear regression model has been designed to test the research hypothesis as following:

$$\mathbf{Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e}$$

$$\mathbf{GDP = \alpha + \beta_1 INFR + \beta_2 EXCHR + \beta_3 INTR + Error\ Term}$$

Where as

Y = Growth Rate

α = Constant

INFR = Inflation Rate

EXCHR = Exchange Rate

INTR = Interest Rate

e = Error Term

β_1, β_2 and β_3 are the coefficient of independent variables

There is numerous numbers of variables which put affect on the economic growth of Pakistan in various ways. Different variables have been taken by many researchers to find out the relation between those variables and economic growth. But this paper includes three independent variables Inflation rate, exchange rate and interest rate.

Economic Growth

GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources (World Bank Definition). Annual GDP growth rate has been taken as dependent variable.

Inflation Rate

Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used (World Bank Definition). Inflation rate has been taken as independent variable.

Interest Rate

An interest rate is the rate at which interest is paid by a borrower (debtor) for the use of money that they borrow from a lender (creditor). Interest rates are typically noted on an annual basis. An interest rate per year has been taken as independent variable.

Exchange Rate

The price of a unit of domestic currency is expressed in terms of the foreign currency. An exchange rate thus has two components, the domestic currency and a foreign currency, and can be quoted either directly or indirectly. An exchange rate has been taken as independent variable.

8. Results & Discussion

For the purpose of finding the quantitative predictions regarding dependent and independent variables, regression analysis method has been adopted that shows the individual significance of each independent variable and overall significance of the model. Following are the results of regression analysis:

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.648[a]	.420	.363	1.71013

a. Predictors: (Constant), Exchange Rate, Interest Rate, Inflation Rate

In the above model summary table the capital 'R' representing the coefficient of correlation. The coefficient of correlation 'R' determines the degree and direction of the variables which are associated with each other from the sample data. There is a range of coefficient of correlation which express the strength and direction of the correlation between the variables. This range includes '+1' and '-1'. If there is a strong positive linear relationship found between variables and the value of the 'R' would close to the '+1'. While the value of the 'R' will be closed to '-1' a negative linear relationship found between variables and if the value of 'R' will be zero which describes a weak relation between the variables.

The model summary table shows the value of $R^2$is found 0.42 that means 42% of economic growth of Pakistan are explained by the independent variables includes inflation rate, currency exchange rate, and interest rate. The value of 'R' is low because the economic growth is also depend on many other factors like political stability, government policies, government consumption, exports and imports of the country etc.

Table 3. Analysis of Variance(ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.655	3	21.218	7.255	.001[a]
	Residual	87.736	30	2.925		
	Total	151.391	33			

a. Predictors: (Constant), Real Currency Exchange Rate, Interest Rate, Inflation Rate
b. Dependent Variable: Gross Domestic Product
[Sig.: Significance]
[Df.: Degree of Freedom]

To find out the overall significance of the model has been undertaken by F-statistics shows the value 7.255 is found significant at 0.001. The ANOVA model further explains the relation between both dependent and independent variables. The overall results of the F-statistics describes the model is best fitted which strongly leads to define a strong and significant relation between selected economic variables (inflation rate, interest rate, exchange rate) with GDP.

Table 5. Results of Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	3.485	1.390		2.507	.018
	Inflation Rate	-.167	.090	-.303	-1.846	.075
	Interest Rate	-.266	.108	-.402	-2.461	.020
	Real Currency Exchange Rate	.024	.007	.467	3.279	.003

a. Dependent Variable: GDP Growth Rate

Source: Authors' Calculation

The value of constant is found 3.485 which describes that if all independent variables remain zero the economy of Pakistan will remain affected by other variables that have not taken into account. The t-value of inflation rate is found -1.846 which describes that inflation rate has significant impact on Gross Domestic Product growth of Pakistan. Therefore H_I is accepted. Coefficient of inflation rate is showing negative impact on economic growth. The value of coefficient of inflation rate is showing that if inflation rate would increase by 1%the growth rate would be declined by16.7%. This result describes the importance of the inflation in the Pakistan's economy that only 1% increase brings about 16.7% declines in the overall economic growth.

The t-value of exchange rate is found 3.27 which state the significant impact of exchange rate on economic growth of Pakistan. The result also revealed that exchange rate and economic growth is positively associated with each other because 1% changes in exchange rate brings2.4% changes in economy of Pakistan. Hence H_2 is accepted.

Similarly, t-value of the interest rate is calculated -2.46 showing its impact on economy of Pakistan. This value also concludes that H_3 is accepted. The result also revealed that 1% increase in interest rate will cause a decline of GDP growth by 26.6%. The result for interest rate impact on GDP of Pakistan is strong rather than inflation changes. Because inflation rate fluctuation also put impacts on interest rate.

9. Conclusion

The study focuses on the consequences of impacts that have been exerted by the selected variables inflation rate, exchange rate and interest rate on economic growth rate of Pakistan. There are number of macroeconomic variables that influence the growth performance of any country. The type of influence of these economic variables varies from country to country such as developed economies and developing economies. The developing economies like Pakistan suffering from various issues such as energy & water shortages, political instability, lack of policy implication, continuous increase in inflation, security concerns, burden of foreign debt, and misbalance between import and exports payments etc. The empirical results describes about the selected two independent variables includes inflation rate and interest rate are negatively correlated with the GDP growth of the Pakistan and at the high values of these variables putting worst impact on the growth rate of the economy of Pakistan. On the other hand coefficient of exchange rate showing positive impact on the growth rate of Pakistan. In this span the influence of inflation rate, interest rate and exchange rate are lesser as compare to other factors that put impact on Pakistan’s economy these factors includes political instability, security concerns, energy shortages, burden of foreign debts.

10. Policy Implications

The study suggests that the policy maker should take tight policies against reduction of inflation growth in the country by implementing the tools such as controlling money supply in the market through open market operation, setting up interest rate and setting of bank reserve requirement.

Government of Pakistan should take serious steps to control the inflation rate such as reducing imports & increasing exports, reducing government expenditures, give priority to agriculture sector, take serious consideration to food prices, increase & utilize energy resources with low production cost and remove security threats.

In the context of interest rate that includes very important instrument used by the State Bank of Pakistan. Interest rates play a pivotal role in controlling inflation rate in the economy by increasing or decreasing the level of interest rate. Continuous fluctuations in interest rate may decrease the confidence of investors due to uncertainty about return on investment. Therefore policy makers should take serious consideration about changing rate of interest rate while controlling inflation rate.

Interest rate should be stable to generate deposits in the banks therefore; people have the change to save money in the bank instead of investing anywhere else.

The result of the current study shows positive impact of the exchange rate on the economy of Pakistan. A strong exchange rate leads low cost of production with cheap imports and also helps to control inflation due to low prices of foreign goods and services. Therefore study suggests to the policy makers to maintain high exchange rate in order to boost up the economy of Pakistan.

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