

# Fiscal Deficit and Economic Growth: An Analysis of Pakistan's Economy

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**Abstract**—Effective macroeconomic management is critical for growth-induced employment generation and poverty reduction. Within this perspective, private investment plays an important role in revitalizing the economy leading to improvement in the living standard of the masses. However, persistence of macroeconomic imbalances, which unfortunately is the hall mark of Pakistan's economy, has posed serious threat to economic growth and development. The current study, therefore, aims at verifying the impact of government fiscal deficit on investment and economic growth using time series of thirty years stretching between 1980 and 2009. We believe that fiscal profligacy has seriously undermined the growth objectives thereby adversely impacting physical and social infrastructure in the country.

**Index Terms**—Fiscal profligacy, growth, inflation, openness.

## I. INTRODUCTION

Effective macroeconomic management is directly seen to pave the way of growth-induced employment generation and poverty reduction. This study looks at the case of Pakistan, examining one particular aspects of its macroeconomic frame work, namely its fiscal policy stance. Bound by the reform programmer Pakistan's policymakers have adopted numerous fiscal austerity measures since 1999 to satisfy rigid IMF conditional ties. Consequently, low rates of inflation and control of the balance of payments have prevailed, whilst investment and GDP growth has remained stagnant over a prolonged period. Focusing on Pakistan's Fiscal deficit and the concurrent development in macro economy between 1999 and 2001 throughout the decade of the 1990s, major emphasis in Pakistan remained on fiscal reform as a part of the reform programs undertaken by the various government of Pakistan.

Since Pakistan is experiencing a very huge budget deficit in the current years, that is the reason its fiscal policy has a very important role in its economic performance. Furthermore, positive reforms regarding the fiscal matters may improve the economic performance and can break the continuity of the budget deficit, which Pakistan is experiencing. The reason behind the huge budget deficit is the hyper increase on the dependency of the country on the

external resources (in the forms of loans, and other aids). These loans are sought from the donors in order to service the debts, which ultimately further enhance the budget deficits and hence, the deficit goes up, year by year. Almost 9 % of the GDP of Pakistan was allocated for the debt servicing each year during the whole decade (e.g. 1990s), because the debt servicing was increased upto 50 %, astonishingly, as the rate was less than 1% during the 1960s. The external debt of the country was about 40% of its GNP during the year 1998 (i.e. around \$30 billion). Pakistan enjoyed a special place in the South Asian region for having the highest external debt to GNP ratio in the whole region, just equaling that of Sri Lanka's external debts to GNP ratio (having 40% of its GNP).

International Monetary Fund and World Bank formulated reform agenda in 1999. Pakistan, in order to get loan from these institutions, has agreed to follow the reform agenda. These reforms included the efforts to maintain stable prices of the commodities and decreasing the balance of payment's deficit. However, prior to the reform agenda there was no improvement change in the private investment and unemployment conditions in Pakistan; which resulted in the low GDP growth. The facts showed that there was an increase of 3.8 % in the unemployment level during the period 1980s to 2001. These 30 years observed almost 4 % inflation in the unemployment. It has been observed that the fiscal contraction (in term of money supply) has been obtained by reducing the allocation for the developmental activities and the expenditure thereon.

Pakistan's budget deficit in fiscal year 2003-4 was around 4% of GDP, reduced to 3.4 in the next year. The figure further reduced to 3.2% in FY 2005-6, but it raised upto 4.2% in FY 2006-7. The deficit touched the highest points of 7.3 % in the FY 2007-8, but slightly reduced to 4.7% of GDP in FY 2008-9 (Pakistan economic survey 2008).

## II. OBJECTIVE OF STUDY

The broad objectives of the study are:

1. Investigate the impact of fiscal deficit on the investment and GDP growth of Pakistan.
2. To test the hypothesis that the fiscal stability depends on interaction between public finance and other macro indicator of economy, which are differently influenced by different policies?

The second section of the paper comprises of review of the relevant literature, followed by theoretical framework. Methodology and data collection presented in fourth section. Data is analyzed in section five and paper is concluded in the last section. However, the last section also suggests some implications for future researches.

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## III. LITERATURE REVIEW

Aisen and Hauner (2008) found with the help of data from (1970-2006) of sixty advanced and states including emerging states, by using reduced form equation. Results of baseline showed that the coefficient is highly significant, as 1% increase in deficit increase the interest rate by 44 points. The result of overall countries showed that budget deficit have negative effect on interest rate during (1985-1994), but effect is positive after 1995. Over all conclusion divided into three portions firstly budget deficit have positive effect on interest rate, secondly this effect varied from country to country, and thirdly effect depend on interaction terms [1].

Anusic (1993) used data of Republic of Croatia from (1991-1992) and explored that budget deficit is a priori harmful for the proper and smooth economic system, he gave the reference of Keynesian economic theory; the increase in budget deficit will cause to increase real interest rate, this increase will cause decrease in real investment. The impact of budget deficit on overall economy and for it smoothness is harmful, but it also depends on the internal condition and way of financing of any country. [2]

Ahmed *et al* (1998) stated that due to inefficient and unsuccessful revenue generation policies, Pakistan is facing highest fiscal deficit. They further argued that inherently structural problems in tax system of Pakistan are one of the biggest reasons of fiscal deficit.[3]

According to Al-Kheddar (1996) interest rates increases in short run due to budget deficit, but in long run there is not impact explored. He studied taking VAR model by selecting data of G-7 countries for the period 1964-1993. He also explored that the deficit negatively affects the trade balance. However the budget deficit has a positive and significant impact on the economic growth of the country. [4]

Glannaros and Kolluri (2010) applied the OLS technique on different models, i.e. fisher equations and the IS-LM general equilibrium model by using data set of five industrial countries from (1965-1985). They yielded three different results; firstly there is a negative relation between interest rate and inflation, secondly there is an indirect significant effect of budget deficit on interest rate, thirdly study did not find any clear relation between variables with the help of other exogenous variables [5].

Gulcan and Bilman (2005) used co-integration method and causality test and applied ADF, PP and RPSS unit root test to investigate the stationarity of the individual time series. They considered data of Turkey for the period 1960 to 2003 and proved there is a strong impact of budget deficit on the real exchange rate. The study shows that the role of the budget deficit to maintain the real exchange rate is very crucial. They suggested that government must focus to stable the budget because the trade balance is significantly affected by the real exchange rates.[6]

Huynh (2007) conducted his study while collecting data from the developing Asian Countries for the period of 1990 to 2006. He concluded that there is negative impact of the budget deficit on the GDP growth of the country while simply analyzing the trends in Vietnam.[7]

Lozano (2008) collected quarterly data of last 25 years (1983-2007) and using vector error correction (VEC) model explored a mixed relationship of inflation and money growths with fiscal deficit. [8]

Shojai (1999) concluded that deficit spending, financed by the central bank, can also lead to inefficiencies in financial markets and cause high inflation in the developing countries. At the same time budget deficits also distort real exchange rates and the interest rate, which in turn undermines the international competitiveness of the economy [9].

Vamvoukas *et al* (2008) explored, with the help of Keynesian preposition and Ricardian equivalence, the effect of budget deficit on interest rate and inflation rate, while using data of Greek economy from (1948-2001) by applying co-integration analysis, granger causality and impulse function (IRF) [10].

## IV. MODEL SPECIFICATION AND DATA COLLECTION

To investigate the relationship between fiscal deficit and macroeconomic indicators a single equation model is not enough, as there are direct and indirect effects of fiscal deficit on GDP. Therefore, a simultaneous equations model consisting two equations is used in this study to investigate the impact of fiscal deficit on macroeconomic indicators. A unique feature of simultaneous equations system is that the endogenous variables in one equation may appear as an explanatory variable in another equation of the system. Consequently, such endogenous explanatory variable becomes stochastic and usually correlated with disturbance term of the equation in which it appears as an explanatory variable. In such situations the classical method cannot be applied because the estimators thus obtained are not consistent, that is they do not converge to their true population values no matter how large the sample size they have. The two-stage least squares method (2-SLS) is used to estimate following simultaneous equation model. The number of observations covers 30 years period i.e. 1980 to 2009, and the data were collected from International Financial Statistics, Pakistan Economic Surveys and State Bank of Pakistan's annual reports. The following equation is used to estimate model.

Mathematical representation of the model is as follows:

$$Y = \alpha_0 + \alpha_1 INV + \alpha_2 EX + \alpha_3 IM + \alpha_4 FD + \alpha_5 AID + \varepsilon_1 \quad (1)$$

$$INV = \beta_0 + \beta_1 Y + \beta_2 RI + \beta_3 INF + \beta_4 FD + \beta_5 PG + \varepsilon_2 \quad (2)$$

The first equation measures the direct effect of fiscal deficit on economic growth. Where Y, INV, EX, IM, FD, AID and  $\varepsilon_1$  represent real GDP per capita (dependent variable), (independent variables) investment share of real GDP per capita, exports as a share of real GDP Per Capita, imports as a share of GDP, fiscal deficit, aid and error term, respectively; whereas  $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$  and  $\alpha_5$  denote respective parameters.

The second equation measure indirect impact of fiscal deficit on GDP though investment as a share of real GDP per capita (dependent variable), (Independent variables) are real GDP per capita, real interest rate, inflation rate, fiscal deficit, population growth and error term, respectively; whereas,  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  denote respective parameters.

V. ESTIMATION AND RESULTS

Unit Root Test, Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) tests were used to check the stationarity of the data and result showed that all series strongly reject the unit root null hypothesis at 5 percent significance level.

TABLE I: RESULT OF UNIT ROOT TEST

Variables	Level		
	Lags	Intercept	Trend & intercept
Y	1	-2.25 (-4.17)	-3.25 (-4.52)
INV	1	-2.47 (-7.89)	-3.47 (-5.78)
EX	0	-2.178 (-6.47)	-3.52 (-6.03)
IM	0	-2.78 (-5.78)	-3.52 (-5.78)
FD	1	-2.93 (-8.45)	-3.52 (-8.78)
AID	1	-2.12 (-5.84)	-2.18 (-8.20)
RI	0	-2.41 (-6.21)	-3.45 (-6.78)
INF	1	-2.78 (-3.78)	-2.74 (-3.16)
PG	1	-2.93 (-7.45)	-3.52 (-6.69)

TABLE II: RESULT OF MODEL

Dependent variables	Growth in Real GDP per Capita Y (1)	INV as a share of real GDP per capita (2)
Constant		5.2569** (4.2589)
Y	5.7854** (3.2589)	0.7858* (2.1587)
INV		
EX	0.7818 ** (3.2578)	
IM	0.0789* (2.8957)	
FD	-0.7854** (-5.4988)	-0.4587** (-3.5897)
AID	-0.8954** (-4.1284)	
RI	0.5874 (2.2358)	-0.1245* (-2.8957)
INF		-0.8498* (-2.8974)
PG		0.2540** (4.2589)
Adjusted R <sup>2</sup>	0.8975	0.7415
D.W Stat	2.7895	2.0145

Note: \*, \*\* indicates rejection of the null hypothesis at 1% and 5%, levels of significance

The result of regression 1 showed direct impact of fiscal deficit on real GDP per capita. INV, EX and aid showed

positive and significant impacts on Y, i.e., higher INV leads to higher GDP per capita. Sandarajan and Thakur (1980) also showed that higher rate of physical capital leads to higher rate of economic growth. Similarly, the coefficient of EX also showed a positive and significant impact of exports on GDP [11]. Higher exports led to higher GDP, as the GDP increased with an increase in exports, because market size will expand and it led to greater division of labour and reduction in the cost of production. The inflow of foreign capital and investment helps the developing countries to produce value added goods. With the rise in demand of goods, the domestic resources are fully utilized; it leads in reduction of underemployment in the developing world.

The coefficients of IM and FD showing negative and significant impact on Y. Pakistan's imports are always greater than exports i.e., a trade deficit. Pakistan's main imports consisted textile machinery, electrical machinery, agricultural machinery, medicine product, iron, steel etc. Pakistan is experiencing trade deficit from last many years. This trade deficit led fiscal deficit to increase and it affected GDP adversely. The coefficient of FD also showing negative and significant impact on Y. Vit (1999) proved that budget deficit creates many hurdles in the economic growth e.g. high level of inflation, current account deficit, highly indebted economy and due to all these economic growth affects adversely [12].

In regression 2, dependent variable is INV. The results showed indirect impact of fiscal deficit on Y through INV. INV affects Y and PG positively and significantly. The other independent variables have negative and significant impact on INV which ultimately affects GDP per capita. Pakistan is facing high inflation rate from last many years and fiscal deficit is one of the reason of these problems. Result showed that a 1% increase in inflation led to decrease in investment by 84%, which indicates that there are adverse effects of inflation on Y. The fiscal deficit itself showed a negative and significant impact on INV. Lower INV will stimulate lower Y and it clearly showed that fiscal deficit not only affected Y directly but indirectly through INV. D. Watson stats in both regressions showed that the models are free from autocorrelation problem.

VI. CONCLUSION AND RECOMMENDATION

This paper explained possible consequences of fiscal deficit which affects economic growth directly and indirectly. It is also concluded from above results that fiscal deficit affects economic growth of country very adversely. In case of Pakistan, country is facing this adverse situation of fiscal deficit from last many decades. There are many reasons behind this. First of all it is evident from economic history that process of revenue generation i.e. tax collection is very poor. The ratio of indirect tax is higher than direct tax and more than half population is not paying tax which is only source of revenue generation. The tax GDP ratio stood at around 11.5 % during last several years. It is mainly attributed to narrow tax base, inelastic tax system, complex tax laws, heavy reliance on foreign trade taxes, large tax exemptions and incentives. All these facts created situation of fiscal deficit.

Another reason of fiscal deficit is that if we look the

expenditure side of economy, defense and debt servicing are taking a very major share of the current revenue. Results also showed that there is persistent deficit in balance of payments which ultimately creates fiscal deficit. Pakistan financed budgetary gap through external borrowing. Domestic non bank borrowing and borrowing from banking systems. All these sources again creates fiscal deficit situation in country. Price instability and political instability are very important and common problem of Pakistan.

Government should take some remedy measures to overcome these problems which will be helpful to reduce fiscal deficit. As lender interest rate in Pakistan is very high that's why very few investors mostly invested and few employment opportunities are there, to increase the investment ratio in GDP government must decrease the interest rate that small investors can also invest, due to this government revenues increases. The Tax system of Pakistan needs to be improved to increase revenues. Government should increase the ratio of direct taxes, more taxes from rich and less from poor. There should be proper allocation of these revenues. Sustain trade balance is also key to remove fiscal deficit. Government officials like parliamentarians should reduce their expenditure as much as they can. More than 50% revenues utilized on these expenditures and it increase fiscal deficit.

This study is helpful for other researchers to validate this phenomenon in other countries. The model which was developed in this paper is also helpful to demonstrate same study in other economies. The variables which used in this study to highlight fiscal deficit problem, are also very useful in this context that policies makers can use these variables to remove fiscal deficit problem. For example it is proved that higher inflation affects investment adversely and GDP will be lower. Instability in prices people mostly hoarded those commodities which people demand more, it all creating distortion in the economy. There are also implications for the researchers to apply the model in the different period of time to validate the results of this study. The same study can be repeated with the budget surplus as a major variable in the model to check the impact of the budget surplus on the economic growth of the country.

## REFERENCES

- [1] A. Aisen and D. Hauner, "Budget Deficits and Interest Rates," IMF Working Paper, vol. 42, pp. 1-21, 2008.
- [2] Z. Anušić, "Budget Deficit and Inflation: Croatia in the years 1991 and 1992," *Ekonomski pregled, Zagreb*, vol. 7, no. 8, 1993.
- [3] H. Ahmad, and S. M. Millar, "Crowding-out and Crowding-in Effects of the Components of Government Expenditure," *Contemporary Economic Policy*, vol. 18, pp. 124-133, 2000.
- [4] S. I. Al-Khedair, "The Impact of the Budget Deficit on Key Macroeconomic variables in the Major Industrial Countries," PhD Dissertation, Florida Atlantic University, 1996.
- [5] Y. Gulcan and M. E. Bilman, "The Effects of Budget Deficit Reduction on Exchange Rate: Evidence from Turkey," *Discussion Paper Series 05/07, Dokuz Eylül University, Faculty of Business, Department of Economics*, revised 12 Dec 2005.
- [6] D. Giannaros and B. Kolluri, "The Impact of Budget Deficits on Real Interest Rates: An International Empirical Investigation," *International Economic Journal*, vol. 3, no. 2, pp. 17 -25, 1989.
- [7] N. D. Huynh, "Budget Deficit and Economic Growth in Developing Countries: The case of Vietnam," *Kansai Institute for Social and Economic Research (KISER)*, 2007.
- [8] I. Lozano, "Budget Deficit, Money Growth and Inflation: Evidence from the Colombian Case," *Borradores de Economia*, vol. 537, pp. 1-26, 2008.
- [9] S. Shojai (ed.), *Budget Deficits and Debt: A Global Perspective*, Praeger Publishers, USA, 1999.
- [10] G. A. Vamvoukas, "Short- and Long-Run Effects of Budget Deficits on Interest Rates," *Spoudai*, vol. 50, pp. 58-73, 2000.
- [11] V. Sundararajan and S. Thakur, "Public Investment, Crowding Out, and Growth: A Dynamic Model Applied to India and Korea," *IMF Staff Papers*, vol. 27, pp.814-55, 1980.
- [12] K. Vit, "The Possibilities of Budget Deficit Financing," *Ministry of Finance of the Czech Republic*, vol. 44, pp. 1-17, 2004.

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