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Political Determinants of Budget Deficit in Pakistan: An Empirical Investigation

Mumtaz Anwar¹ & Munazza Ahmad²

Abstract

This study is an attempt to check some political factors determining budget deficit in Pakistan. It examines the short and long-run relationship between the Budget deficit, democracy and cabinet size for Pakistan's economy. The bounds testing approach to co-integration and (ECM) error-correction models, developed within an autoregressive distributed lag (ARDL) framework is applied to annual data for the period 1976 to 2009 in order to investigate whether a long-run equilibrium relationship exists between the budget deficit and these factors. The result of the bounds test indicates that there exist long-run relationship between the budget deficit and political variables. The results provide strong evidence that large government size will significantly add to the budget deficit. The democracy can help in reducing budget deficit but shows a weaker influence in case of Pakistan for the sample period.

JEL Classification: H62, K42

Keywords: Budget Deficit, Democracy, ARDL, Pakistan.

I. INTRODUCTION

The major problem of developing economies is incidence of persistent deficit in their budget. Fiscal deficit and resulting rise in public debt seems a crucial issue. It may lead to inefficient allocation of resources. Resource allocation for the repayment of public debt will act as a constraint to production and will generate crowding-out effects. Deficit budget is held responsible' for high inflation, low growth, a current account deficit and private investment and consumption crowds out (Chaudhary and Abe 1999). In monetarist framework, deficits tend to be inflationary because when monetization takes place, it will lead to an increase in money supply and, ceteris paribus, increase in the rate of inflation in the long run (Gupta, 1991). Thus persistent fiscal deficit can hamper the economic growth and development of an economy.

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Pakistan is experiencing persistent budget deficit since independence, with the exception of few years. Our annual fiscal deficit has constantly been ranging around 6 percent of GDP since 1990. Although the growth remains impressive for few years but it was accompanied with fiscal deficit and rising public debt. Pakistan's budget deficit for the fiscal year that ended on June 30 2012 was 6.6 percent of gross domestic product, higher than last year's 5.3 percent of GDP. This deficit will be financed through local and foreign borrowing. State Bank of Pakistan already indicated a rise in external debt and liabilities (EDL). In year 2009-10 external debt was \$55.90 billion but in 2010-11 it raises to \$60.116 billion, shows an increase of \$4.2 billion. Pakistan is at third position after Sri-Lanka and Nepal as a foreign debt receiver.³

The extent of budget deficit and its consequences has been most debated issue in recent years due to the reason that Pakistan's economy has also been experiencing continuous political influence in all the sectors of the economy. Political instability and lack of democracy is customary in Pakistan. Unfortunately, Pakistan could never enjoy a stable political scenario, since independence. Pakistan economy has experienced military dictatorship for almost 33 years and mixed democracy for 30 years. Democratic regime could never complete its tenure. So question arises whether the political determinants can explain the causes of Pakistan's Budget deficit? Therefore, this study is an effort to evaluate critically the political factors responsible for Pakistan's persistent budget deficit; because economic variables alone may be insufficient in the determination of budget deficit. Therefore, this study would empirically analyze the political factors responsible in budget deficit.

The paper is organized as follows; in Section II literature related to budget deficit and its political factors has been reviewed. Section III is based on the methodology and model specification. Section IV carries empirical analysis of the model and econometric results. Finally, Section V presents conclusions and policy recommendations.

³ Sabir, I. "Pakistan Sinking in Debt". Daily Pakistan Today.

<http://www.pakistantoday.com.pk/2011/09/13/news/profit/pakistan-sinking-in-debt/> (13/9/2011)

II. BUDGET DEFICIT AN OUTCOME OF POLITICAL FACTORS

It has been realized that economic justifications alone may not enough to explain the budget deficit, so growing literature is found adding political and institutional factors responsible for budget deficit. Deficit could be the result of hidden intentions of the political leaders. Institutional and political environment strongly affect the fiscal management and operations. Also highly polarized and weaker governments observe larger deficits.

High public deficit volatility in last thirty years poses a major challenge for many developing countries. The issue has been analyzed by Agnello and Sousa (2009). The objective was to empirically analyze political, Institutional and economic sources of public deficit volatility. A large panel of 125 countries for the period of 1980-2006 was taken. Political instability, democracy, Government crises, cabinet changes etc are used to capture the effect of political and institutional factors, besides some economic and control variables. Results show that public deficit volatility is typically associated with higher level of political instability and less democracy. Due to higher inflation and higher degree of openness, public deficit volatility is more prominent in small countries, whereas rich countries are well characterized by stable deficits. Conclusion indicates that political and institutional variables are significantly related to deficit volatility.

Bayar and Smeets (2009) worked to derive economic as well as political and institutional determinants of budget deficit. Results reveal that the change in unemployment is significantly associated to budget deficits because it will raise the government expenditure. Higher real interest rate leads to higher deficits due to higher debt servicing cost, but this effect is weak. Higher GDP growth will lower the deficits due to increased tax revenues. A significant reduction in the deficits is observed in European countries after they have signed the Maastricht Treaty. So the affect of Maastricht treaty is strongest of all among the other institutional factors. Government fragmentation index and ideology index both proved to be weakly associated to budget deficit. Analysis of the election year impact reveals more deficits in the year of election and less otherwise due to opportunistic behavior of the government. Finally the stability of the government lowers the deficits but this effect is weak and insignificant.

Woo (2003) aims at empirical examination of the relationship between public sector balances with range of economic variables. Some socio political and institutional variables were also tested. Panel data 1970-1990 was used for 57 countries. Some countries are developed and others are not. Over 40 variables were tested to check their importance in explaining size of public deficit. Beside economic variables sociopolitical and institutional factors are assessed. Results indicate that instability in social and political structure, unequal income, large cabinet size are robustly indirectly linked with government surplus. Regime type and government weakness are not consistently associated with deficits. As far as institutions are concerned, budgetary and public institutions are important for fiscal stability in the economy.

Another important political aspect area is, to explore for the political budget cycle. Shi and Svensson (2006), checked for the presence of political budget cycle, taking 85 sample countries for the period 1975-1995, the intention was to scrutinize the relationship of elections and fiscal policy through incidence of elections and election year deficit. Findings reveal that in election year governments experience higher deficits. And there is variation in this trend in developed and developing countries, even though the incidence of pre-determined and post determined elections is taken into account. The politicians can get less personal gains due to strong institutions in the developed countries and also due to large share of informed voters speculations regarding fiscal policy can not be created. So due to these reasons political budget cycle size is different in two types of countries.

Pasten and Cover (2010) did an important contribution by explaining political factors and their contribution to public sector deficit. The objective was to explore the consequences of politics over the economic policies of developing countries. The data was taken from Chile for the period of 1833 to 1999. A new tax tilting parameter ' γ ' was introduced and findings indicated that government responds to political instability by tilting taxes to the future, this will weaken the governments fiscal condition by increasing current budget deficit. Using inter-temporal model of public finances it was found empirically that tax tilting parameter ' γ ' behaves in a manner consistent with the idea that political instability causes financial instability. Due to political instability government undertake 'myopic fiscal policy' to earn political support through delaying taxes or advancing spending. It will impose a positive trend on deficit process.

The literature related to budget deficit explanation through political factors carries another interesting addition by Falco-Gimeno and Jurado (2011). The aim was to highlight the role of opposition in fiscal management which is mostly neglected in political economy literature. Empirical hypothesis tests as well as theoretical arguments regarding opposition's trade off are discussed. The empirical tests focus on two main hypotheses i.e deficits are higher in minority governments or other wise. Data was taken for the overall period of 1976-2000 for twelve parliamentary OECD democracies. Annual budget deficit data as GDP percentage is regressed over two key independent variables i.e. Concentration in Opposition and type of Government. Some economic and control variables are also used in analysis. Concentration in opposition is used as the composition of three political variables. That is Herfindahl index (HI): The role of opposition in fiscal management and policies based on the hidden objectives and incentives of opposition is highlighted. Empirical results show that if the opposition is concentrated and the government is fragile, they will support for a budget with deficit, because their objective would be to weaken the government by running deficit. If the minority government is strong (such as single party government) opposition will not support the deficit budget just to avoid future debt burden, in such situation opposition will look more for future anticipation of their selection. If they anticipate their success in elections they will avoid deficit budget.

This short review reveals that political and institutional factors seem to play important role in budget deficit of developing countries like Pakistan.

III. MODEL SPECIFICATION AND METHODOLOGY

To see the impact of political variables on budget deficit following model has been developed;

$$\text{LBD} = \beta_0 + \beta_1 \text{LGS} + \beta_2 \text{LPOLITY} + \beta_3 \text{LGDP} + e_{2t}$$

Where,

LBD represents Natural Log of Budget deficit.

LGS represents Natural log Government size as a measure of large cabinet expenditures.

LPOLITY represents Natural log of Polity as a measure of Democracy and State of Government.

LGDP represents Natural log of GDP used as a control variable.

Annual time series data of all the variables has been taken for 1976-2009 time period. ARDL approach to cointegration is used in this study because of the following two main reasons:

- 1) Results of F-Test (Bound Testing) are robust for small samples (*i.e.* 30 to 80 observations as is the case in this study).
- 2) All the variables are integrated of order one *ie.* I(1) , and none of the variable is I(2) or higher.

All these justify the application of ARDL model to determine the political factors of budget deficit in Pakistan.

IV. EMPIRICAL RESULTS AND ANALYSIS

Before proceeding with the econometric estimations, it is required to investigate the integration properties of the used variables in order to avoid the problem of spurious regression. Consequently, the variables for their stationary properties are examined by means of the conventional Augmented Dickey-Fuller (ADF) test while the optimal ADF specification is determined by means of Akaike Information Criterion (AIC), the Schwarz Bayesian Criterion (SBC). The tests for all the variables (BD, GS, Polity, and GDP) in levels as well as in first differences are presented in Tables 1 and 2.

TABLE 1
ADF unit root test in levels

VARIABLES	LEVELS	
	With Intercept	With Intercept & Trend
LGDP	0.374016 (0.9787)	-2.619623 (0.2746)
LBD	-2.265787 (0.1885)	-2.657300 (0.2595)
LGS	-1.795337 (0.3762)	-1.683912 (0.7358)
LPOLITY	-1.896560 (0.3298)	-2.147181 (0.5018)

Source: Authors estimates

TABLE 2
ADF unit root test in first differences

VARIABLES	FIRST DIFFERENCES	
	With Intercept	With Intercept & Trend
DLGDP	-4.9346 (0.0003)	-4.838540 (0.0025)
DLBD	-6.487382 (0.000)	-6.3926 (0.0000)
DLGS	-5.223980 (0.0002)	-5.335820 (0.0007)
DLPOLITY	-6.093225 (0.0000)	-5.923113 (0.0002)

*Figures in Parenthesis are p-values.

The results of the unit root in the table 1 and 2 at level and at first difference shows that all the variables are stationary at first difference or I(1). None of the variable is of I (2). In this situation ARDL or bounds testing approach proposed by Pesaran *et al.* can be used confidently. F statistics is used to check long run equilibrium relationship. Results of F statistics are reported in table 3.

TABLE 3
Bounds Testing Approach to Cointegration: Results of F-Test

F- Statistics	95% lower-Upper bound	90% lower-Upper bound	Outcome
F- 5.222	3.6200 – 4.9785	2.9555 – 4.1680	Cointegration

Note: Critical values have been obtained from Pearan & Pesaran

Bound test results shows that F-statistics exceeds the upper bounds of critical values at both 90% and 95% significance level. It also indicates that there is long run relationship between democracy, GS, and BD.

Now to assess the Model concerning the effects of democracy, government size on Budget deficit dynamic ARDL (1,1,1,0) model is estimated and reported in table 4.

TABLE 4
ARDL Model Based on Schwarz Bayesian Criterion (SBC)
(Dependent Variable = LBD)

Regressor	Coefficients	T-Ratio
LBD (-1)	0.40440	2.6400
LGDP	1.2705	1.8293
LGDP (-1)	-1.3410	-1.9187
LGS	2.3173	5.1837
LGS (-1)	-1.4948	-3.8310
LPOLITY	0.037954	0.49490
Constant	-0.51602	-0.50903

Source: Authors estimates

a) Stability Test

Model stability is tested by cumulative sum of recursive residuals (CUSUM) and by plot of cumulative sum of squares of recursive residuals (CUSUM SQUARE) tests at 5% level of significance. It is portrayed by two straight lines. This stability test shows if there is any structural shock and it ensures the stable relationship between the variables.

FIGURE 1

Plot of Cumulative Sum of Recursive Residuals

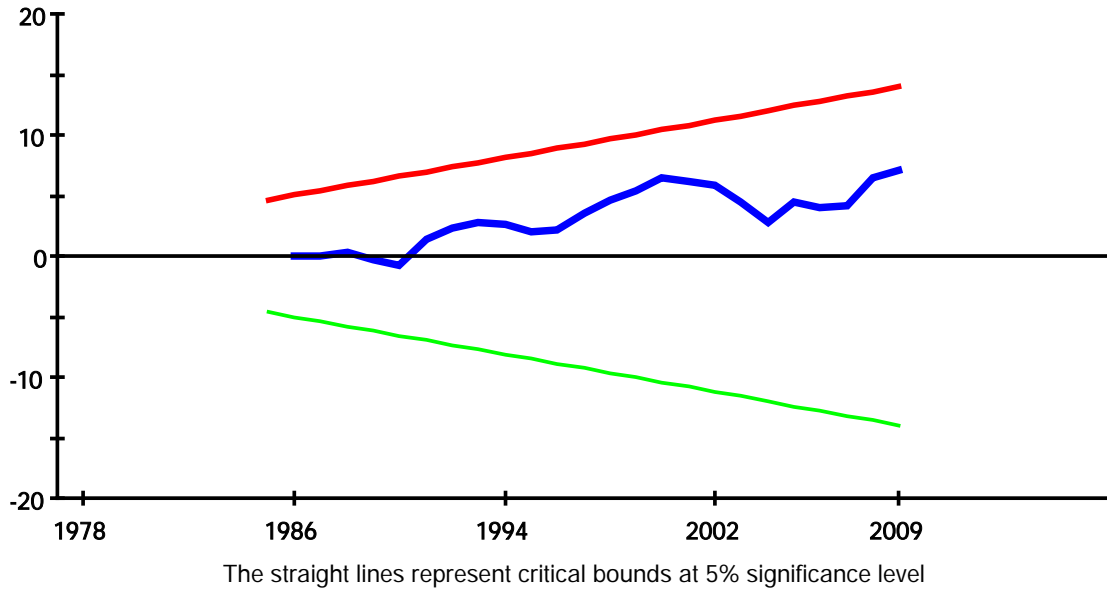
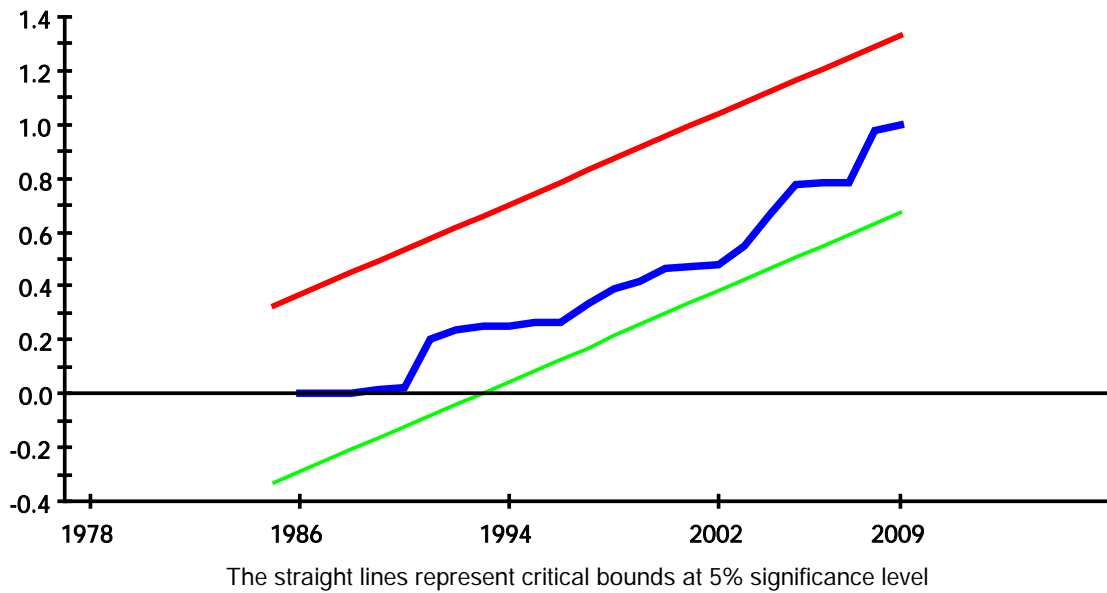


FIGURE 2

Plot of Cumulative Sum of Squares of Recursive Residuals



b) Long Run Relationship

Results of long run coefficients are derived using ARDL approach. Results are presented in Table 5.

TABLE 5
Estimated Long-run Coefficients Using the ARDL Approach and SBC
(Dependent Variable = LBD)

Regressor	Coefficients	T-Ratio [Prob]
LGDP	-0.11844	-2.9752 [0.006]
LGS	1.3809	2.5756 [0.016]
LPOLITY	0.063724	0.48133 [0.634]
Constant	-0.86639	-0.51092 [0.614]

Source: Authors estimates

The results of Estimated Long-run Coefficients Using the ARDL Approach indicate that the coefficient of government size is highly statistically significant with positive sign. This implies that large size of cabinet and excessive administrative expenditures increases the budget deficit in the long run. POLITY as a measure of democracy has a positive sign in ARDL results indicating that lack of democracy will raise budget deficit in long run but its impact is not statistically significant. A reason seems to be the lack of transparency and weaker institutional quality which never reflect pure democracy. Among these three variables government size as a measure of large cabinet size is highly statistically significant.

c) Error Correction Model

Now Error Correction Model (ECM) of ARDL (1,1,1,0) for budget deficit is estimated to examine short run dynamics of the variables. ECM specification of model for ARDL model is presented in Table 6.

TABLE 6
ECM Representation for Selected ARDL Model Based on SBC
(Dependent Variable = LBD)

Regressor	Coefficients	Standard Error	T-Ratio [Prob]
Δ LGDP	1.2705	0.69452	1.8293 [0.078]
Δ LGS	2.3173	0.44704	5.1837 [0.000]

Δ POLITY	0.037954	0.07669	0.49490 [0.625]
ECM (-1)	-0.59560	0.15318	-3.8881 [0.001]
Diagnostic Tests	R-Squared 0.86252		
	F-Stat. 26.1400 [.000]		
	Serial Correlation (LM) 0.63628 [.425]		
	Heteroscedasticity (LM) .9660 [.326]		
	Normality (LM) 1.2071 [.547]		

Note: Probability values are in []

Source: Authors estimates

ECM coefficient should be statistically significant with negative sign. The coefficient value shows the speed of adjustment. Here the ECM coefficient is -0.59560, which means 59.6% deviations from equilibrium can be adjusted in long run with in one year. The negative sign of coefficient indicates convergence in short run model. ECM coefficient is relatively lower and indicates that short run dynamics of budget deficit gradually adjusts to long run equilibrium. The result of ECM confirms the positive and significant impact of large cabinet size on budget deficit in the short run as well.

Pakistan had a large cabinet size (up to 90 members), its huge expenditures proved to be significantly responsible for deficit budget. Lack democracy has positive affect on budget deficit but this impact is not significant even in short run. Insignificant and weak effect of democracy is due to the reason that budget deficit is basically the revenue expenditure gap. It does not directly affected by democracy situation in a country. Its weak impact is also justified for Pakistan because data time period under analysis consist of 20 years of military dictatorship and 10 to 12 years of democratic government. This democratic regime also does not reflect pure democracy with sound institutions. Hence weak institutional quality, less democratic regime and lack of transparent data availability are the main reasons behind the insignificant effect of democracy on budget deficit.

V. CONCLUSIONS AND POLICY RECOMMENDATIONS

This study investigates the determinants of budget deficit by developing an econometric model that would relate budget deficit in Pakistan to some political factors of the economy.

Based on the ARDL method, it can be observed that the value of F-statistic exceeds the upper bound of the critical value bounds and consequently the tests suggest that there exist long-run equilibrium relationships between the budget deficit and each one of the examined determinants, i.e. POLITY representing democracy, and government size with long-run causality running towards budget deficit using log of GDP as a control variable. Results reveal that Pakistan's large cabinet size has positive and significant effect on budget deficit. Composite index of 'civil liberties' and 'political rights' i.e. POLITY which measures Democracy also has long run equilibrium relationship with budget deficit but its impact is not significant.

Following policy implications may be drawn from the study conducted;

- Fiscal strictness should be imposed by curtailing all unnecessary expenditures of the government. The total expenditure was Rs. 1874 billion in year 2007-08 which has increased to Rs. 3259 billion in 2010-11. This continuous increase in expenditure is unjustified at all if we look at miserable performances of the various government departments. Reduction in cabinet size is the first step towards this. Austerity measures should be adopted by all at all levels.
- The top eight public sector organizations alone incur annual losses of more than 250 billion rupees, an amount higher than Pakistan's development budget. These loss incurring Public sector enterprises should be privatized or their expenditures should be controlled, except an improved, rationalized and updated program is launched.
- Pakistan continuously relies on foreign and domestic loaning to finance deficit. This will contribute to budget deficit of the country again as \$10.3 billion reserved for debt servicing in year 2010-11. Means Pakistan is raising debt to repay debt, while its positive impact on overall economy is not registered. So reliance on foreign financing should be avoided through generating domestic resources.
- Economy's overall growth and development in the form of improvement in GDP growth will definitely leaves positive economic affects. It also helps in reducing the fiscal deficit. Political stability, maintenance of rule of law, transparency, general security etc will encourage domestic and foreign investors. Improved

business conditions, solution to the current energy crises are important in improving productivity and growth in the economy.

Summing up, there are other factors as well which might be important in determining the budget deficit or which may have an impact on budget deficit as well but are not considered in the present research.

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Appendix A: Definition of Variables and Data Sources

Variable Name	Definition and Description	Source
Government Size (GS)	To see the effect of large cabinet and its rising expenditures government size has been used as proxy. It is constructed by taking the current expenditure as a percentage of GDP. This variable has been used by William Di Pietro (2009) in his study 'Government Size, Government Effectiveness, and National Savings Rates'.	Handbook of Statistics of Pakistan Economy 2010, State Bank of Pakistan. Economic Survey of Pakistan various issues.
Polity	Polity index is used to represent democracy. Its scale ranges from 0-10 where 0 is indicates least democracy and 10 most democratic. It's an average of 'political rights' and 'civil liberties'.	Freedom House Quality of Government Data Set Code Book.
Gross Domestic Product (GDP)	GDP in the log form is used as a control variable.	The World Bank, World Development Indicators, 2010.
Budget Deficit (BD)	Annual deficit in the government budget as a percentage of GDP	Handbook of Statistics of Pakistan Economy 2010, State Bank of Pakistan. Economic Survey of Pakistan various issues

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