

Choices of Deficit Financing, Saving-Investment Gap and Inflation Nexus: Evidence from Pakistan

Muhammad Asghar¹, Imran Sharif Chaudhry², Sharafat Ali^{2*}

¹School of Economics, Bahauddin Zakariya University Multan, Punjab
Pakistan

²Bahauddin Zakariya University Multan, Layyah Campus, Punjab,
Pakistan

Abstract

The study is the analysis of possible consequences of various financing options at a disaggregated level on macroeconomic variables including savings-investment gap and the general price level to choose a less-lethal financing option. Financing from domestic sources causes an increase in the general price level except for National Saving Schemes (NSSs) and crowding out of private sector credit and investment. But external financing and deficit-financed by bonds appeared free from such costs. The government of Pakistan restricts printing of money to control the rate of inflation and may improve bonds and floating debt management to avoid crowding out effect. The study suggests bonds financing or external financing as compared to any other source as domestic financing is more distortionary as compared to external financing. Therefore, the study favors external financing because it appeared non-inflationary, satisfy the savings-investment gap, overcome the issue of crowding out, and bonds financing.

Keywords: deficit financing; inflation; savings-investment gap; crowding out; aggregation bias; Time Series; Pakistan

JEL Classification Codes: C22, E2, E31, E52, E62, H6, P45

Introduction

Fiscal stability is an integral component of growth and economic stability (Ali & Ahmad, 2020). It is a fundamental policy objective to manage fiscal deficits and their macroeconomic consequences (Asghar et al., 2020). It

* Corresponding Author: sharafat.ali.rana@gmail.com

requires a coherent and purposeful set of measures, especially in developing countries like Pakistan. Government finance deficits either from domestic or foreign sources. Each source has its macroeconomic impact on other macroeconomic variables. Fiscal deficits are inflationary in general (Ahmad & Adorned [2019](#)). However, there must be a mechanism that must explain why deficits are inflationary.

Seigniorage causes inflation and raises interest rate putting pressure on government outlays and further exacerbate debt (Faini, [1991](#); Easterly & Schmidt-Hebbel, [1993](#)). Borrowing from the banking and non-banking sector (bond-financed) squeezes credit available to the private sector and crowds out private investment and consumption (Roley, [1981](#)). Government spending financed by bonds rather than current taxation leads to crowding out of investment which causes the savings-investment gap and the current account deficit to rise (Gale & Orszag, [2003](#)). Higher interest rate causes crowding out of private investment and consumption expenditures which asserts inflationary pressure and interest payments raises further debts (Thapa, [2005](#)). Debt-financed deficits lead to a higher interest rate (Hubbard, [2012](#); Bwire, & Nampewo, [2014](#)).

Foreign borrowings and liabilities may cause current account deficits, the balance of payment problems, exchange rate volatility, and future debt burden (Vít, [2004](#)). The situations worsened further due to devaluation and foreign exchange crises (Rodríguez & Faini, [1991](#)). Deficit financing raises the real interest rate, causes crowding out of the private investment, attracts foreign inflows and net export deficit due to appreciation of domestic currency (Feldstein, [1974](#)). Most modes of financing are unfavourable to bring financial stability. The deficit financing is inflationary even in the presence of fragile financial markets and dependent central banks (Ishaq & Mohsin, [2015](#)).

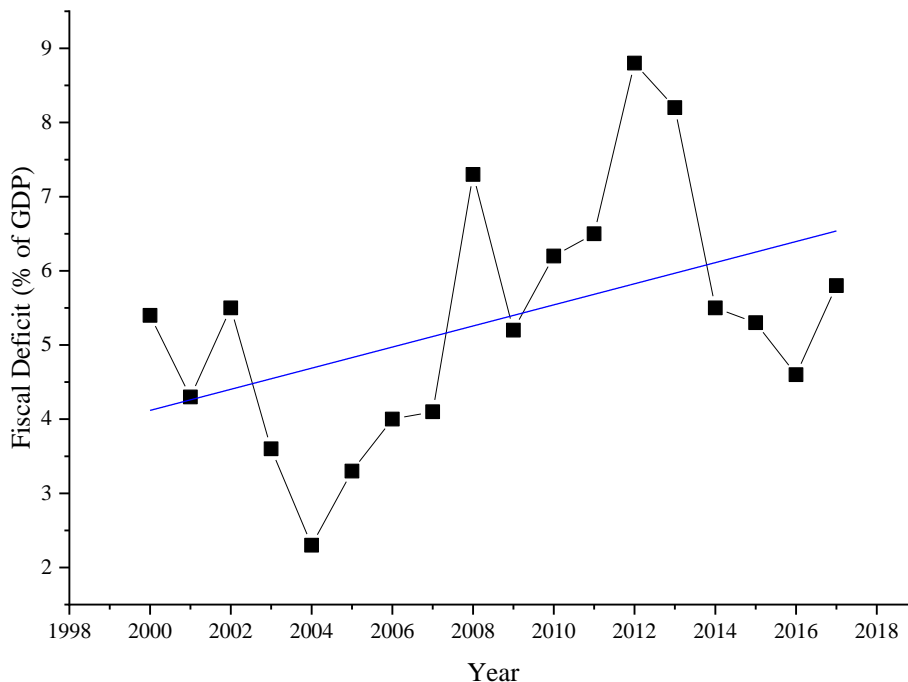
A rise in the general price level is considered an important policy issue when a major share of revenue is being spent on financing interest payments. Financing deficits by domestic banking sources raises the interest rate, lowers bond prices, causes crowding out of private and public sector investment, and put pressure on the general price level (Khan et al., [2008](#); Gaber, [2010](#)). Premchand ([1983](#)) also concluded that deficit financing from public sources causes crowding out of the private investment, and therefore

the government should avoid such actions. More obviously, the deficit financing is causing the general price level to rise possibly widening the saving-investment gap due to crowding out. The governments take comprehensive measures to manage the fiscal deficit. It is financing the deficits by various sources and corrections in case of any misalignment. It is imperative for the government to decide how much to finance through open market operations, domestic and foreign currency loans, the printing of money, exchange rate devaluation and savings and investment considering their macroeconomic consequences (Adam & Bevan, [2005](#)).

The present study contributes to understanding the cause and effect relationship between fiscal deficit financing choices and their impact on the saving-investment gap and inflation in Pakistan's economy. The study is vital to explain the missing mechanism between deficit financing and inflation. Moreover, the study uses the disaggregated data of various deficit financing choices to avoid aggregation bias. The rest of the paper discusses the overview of the fiscal deficit of Pakistan, theoretical underpinnings, model and methodology used, data issues, and empirical analysis accompanied by conclusion and policy implications.

Overview of the Fiscal Deficit of Pakistan

The fiscal deficit is the difference between total government revenue and total government expenditures for any given period. According to the debt criterion, it is the difference between debt at the end and the beginning of the period (Blejer & Cheasty, [1991](#)). Since its independence, Pakistan had been facing the issues related to fiscal mismanagement. The extent of the deficit was lesser during the green revolution period (the 1960's). However, during the early industrialization period, the Pakistan's economy faced consecutive deficits until 1990. Mainly, it was due to the shifting of foreign flows from grants to borrowings at tied terms and conditions coupled with the devaluation of Pakistan's currency in terms of US dollar during 1971-72.

Figure 1*Fiscal Deficit of Pakistan (MoF, 2018)*

The extent of fiscal deficit was much lower during the earlier years of the first decade of the 21st century due to the policies pursued during the Musharraf regime. Afterwards, it was started to rise tremendously. The trend line in Figure 1 shows increasing rising trend in fiscal deficit as a percentage of GDP since 2004-05. The fiscal deficit increased to 7.3 percent of GDP during 2007-08 due to policy inaction of the new government; soaring global oil prices, fall in tax revenue, and increase in government expenditures due to unnecessary subsidies (MOF, 2010). A further hike was observed during the last fiscal year of the Pakistan People's Party regime (2012-13) when the fiscal deficit reached the highest 8.8 percent of GDP. The fiscal deficit lowered in the earlier years of the PML (N) regime and reached 5.8 percent later.

Figure 2

Public Debt of Pakistan

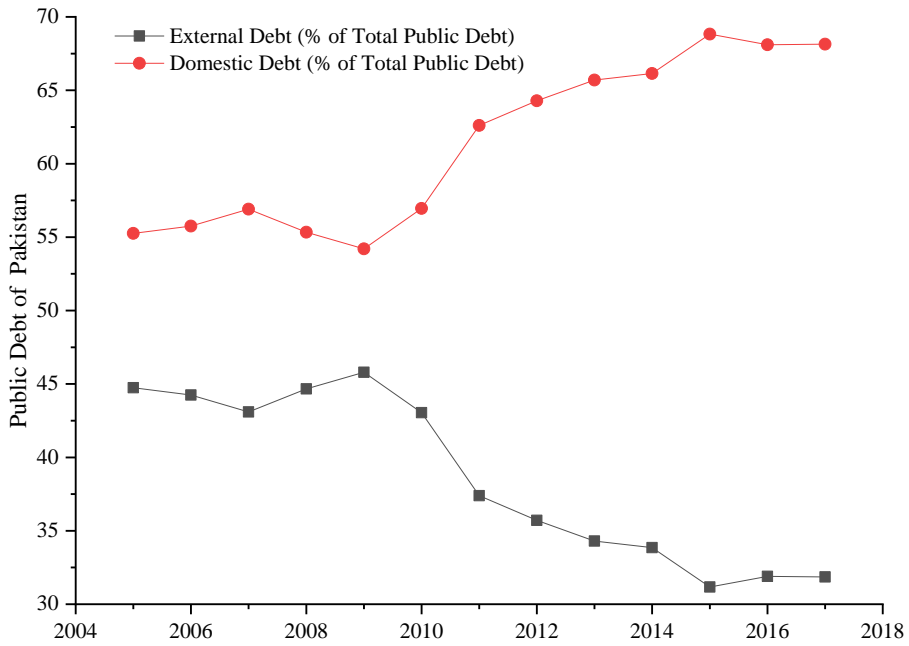
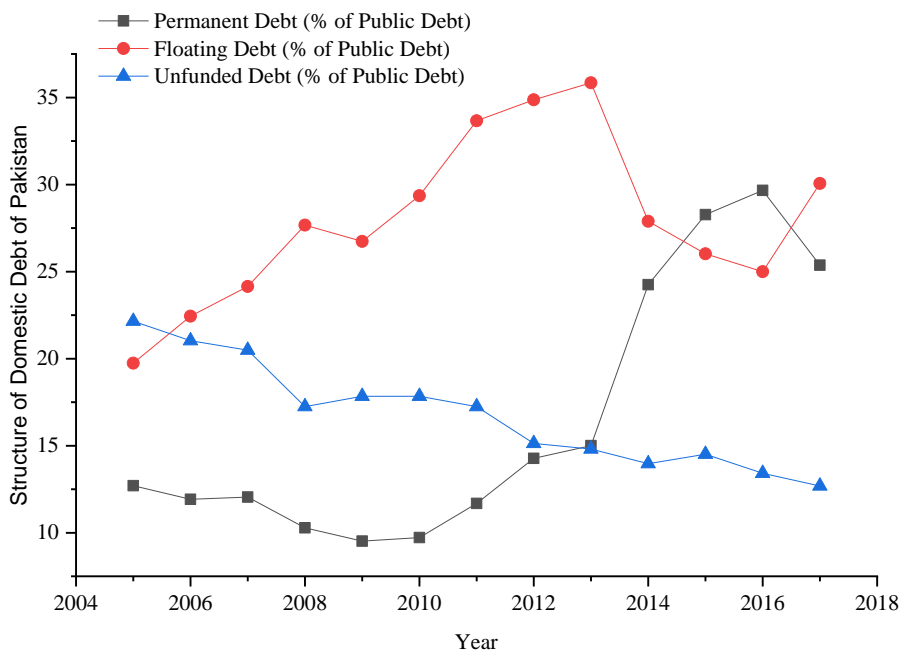


Figure 3

Structure of Domestic Debt of Pakistan (SBP, 2018)



Since the study is focused on debt dimensions of deficit financing in Pakistan, a financing point of view, it is necessary to discuss the overall position of public debt and its counterparts. Figure 2 and 3 explain the position of public debt from the fiscal year 2004 to 2017 and shows the increasing trend in domestic debt as compared to external debt. In the early year of the 21st century, the ratio was almost equal, but over time, Pakistan mainly relied on domestic debt which comprised about 68 percent of the total public debt. The composition of domestic public debt has changed during the last decade. The floating and permanent debt are increasing while unfunded debt is continuously decreasing. The change in debt structure may have severe economic consequences in the long run especially change in domestic debt structure directly affects savings-investment decisions and general price levels.

The study entails fundamental considerations involved in government financing, particularly choices among printing of money, domestic debt

(bonds or unfunded debt), and external debt to affect the general price level and savings-investment gap possibly to overcome the aggregation bias.

Theoretical Framework, Research Methodology, and Sources of Data

Theoretical Underpinnings and the Model(s)

The macroeconomic effects of the public deficit can be analyzed in two contexts. First is the Ricardian Equivalence Approach and the other is the Traditional View. According to the Ricardian view, the public deficit does not have any impact in the long run (Barro, [1974](#)). It is so due to no effect of budget deficit on investment and current account and other real variables. The Ricardian theorem postulate that any reduction in taxes or government expenditures results in the equivalent increase in savings and do not affect the real economy due to offsetting future tax burden. Rational economic agents increase the current rate of savings.

The absence of borrowing constraint and neutrality of tax system situations are unlikely to found in practice as presupposed in Ricardian equivalence theory. Many empirical studies including (Haque & Montiel, [1989](#); Veidyanathan, 1993) denied the relevance of the Ricardian theorem in the case of developing countries. However, the traditional view claims the balance of payments crises, exchange rate fluctuations, rise in the general price level, stagnant economic growth, and fall in saving and investment. The study follows the traditional approach to pin down the consequences of deficit financing from various sources on the price level and savings-investment gap.

Apart from external sources, debt can be financed by issuing newly created money (known as seigniorage in macroeconomic literature) (Easterly & Schmidt-Hebbel, [1993](#)) and domestic debt.

$$FD_t = \frac{M_t + DD_t}{\text{Domestic Financing}} + \frac{ED_t}{\text{External financing}} \quad (1)$$

Where, M_t , DD_t and ED_t in equation (1) are representing newly created money, domestic debt, and external debt respectively. The disaggregated analysis of debt financing needs to be analysed further. In the case of Pakistan, the deficit-financed by domestic sources are Permanent Debt

(PD), Floating Debt (DF), and Unfunded Debt (UD). The disaggregated form of equation (1) can be written as:

$$FD_t = M_t + PD_t + DF_t + UD_t + ED_t \quad (2)$$

Excessive financing from any source will cause fiscal imbalance. For instance, the printing of money will cause inflation, excessive domestic borrowings will lead to crowding out impact on private investment and consumption due to higher interest rate. Excessive use of foreign reserves will cause balance of payments crises, and foreign borrowing leads to severe debt crisis (Fischer & Easterly, 1990). The source, which reduces inflation and mitigates crowding out of investment will be beneficial for the performance of the economy.

The deficit entirely financed by domestic sources either the central bank or private banks would result in inflation and crowding out of the private investment (Easterly, 1989). The domestic financing that may directly affect the private savings-investment gap are Borrowing from SBP (BSBP), Borrowing from Private Sector Banks Deposits (BPSBD) (seignior age and floating debt), deficit-financed by bonds and long-term securities called Permanent Debt (PD), deficit-financed by national savings scheme called Unfunded Debt (UD) and external financing; External Debt (ED). Writing the equation (3) for the private savings-investment gap as:

$$(S_{pvt} - I_{pvt})_t = \mu + \alpha BSBP_t + \beta BPSBD_t + \gamma PD_t + \lambda UD_t + \delta ED_t + u_t \quad (3)$$

Among domestic sources, seigniorage is an important source for the generation of revenue. It is measured by absolute change in M1 minus change in foreign reserves. The deficit-financed by seigniorage and borrowing from the banking sector causes higher inflation and exacerbates the current account deficit (Ramangkura et al., 1991). Faini (1991) also concluded that deficit financed by the printing of money is inflationary. Writing the equation for inflation:

$$\pi_t = \mu + \alpha SGNRC_t + \beta PD_t + \gamma DF_t + \lambda UD_t + \delta ED_t + u_t \quad (4)$$

Where, γ , β , γ , λ , and δ represent slope coefficients in equation (3) and (4). The choice of data analysis technique depends upon the nature of data and its stationarity properties.

Research Methodology and Data Sources

Several studies such as (Pesaran & Shin, [1996](#); Pesaran & Pesaran, [1997](#); Pesaran & Smith, [1998](#); Pesaran et al., [2001](#)) suggested Auto-Regressive Distributed Lag (ARDL) method of cointegration for empirical analysis. It possesses some characteristics that make it more attractive and easier to use in empirical research. For instance, ARDL is useful for small sample data datasets Ghatak and Saddiki ([2001](#)) as compared to the Johansen cointegration method (Johansen 1988) which requires large sample data. ARDL can be applied, whether the series are I(1) or I(0), or combination of both. The problem of endogenous and exogenous variables, presence or absence of deterministic trend component, and VAR lag order in Johansen need more care but they are easily attempted in ARDL methodology. If variables in a model are of the same order, the Johansen's method of cointegration Johansen and Juselius ([1990](#)) is the most useful technique to test the long-run relationship among variables.

The ARDL framework consists of three basic equations. Firstly, it describes the long-run relationship among variables if exists. To determine the existence of a long-run relationship, the ARDL model expressed by the following equation,

$$\begin{aligned} \Delta(S_{pvt} - I_{pvt})_t = & \mu_0 + \sum_{i=1}^{p1} \alpha_i \Delta(S_{pvt} - I_{pvt})_{t-i} + \sum_{i=0}^{p2} \beta_i \Delta BSBP_{t-i} + \sum_{i=0}^{p3} \gamma_i \Delta BPSBD_{t-i} + \sum_{i=0}^{p4} \eta_i \Delta PD_{t-i} + \\ & \sum_{i=0}^{p5} \psi_i \Delta UD_{t-i} + \sum_{i=0}^{p6} \theta_i \Delta ED_{t-i} + \delta_1 (S_{pvt} - I_{pvt})_{t-1} + \delta_2 BSBP_{t-1} + \delta_3 BPSBD_{t-1} + \\ & \delta_4 PD_{t-1} + \delta_5 UD_{t-1} + \delta_6 ED_{t-1} + \varepsilon_t \end{aligned} \quad (5)$$

Where, $\alpha_i, \beta_i, \gamma_i, \eta_i, \psi_i$ and θ_i are short-run coefficients and δ_i are long-run coefficients. P1, P2, P3, P4, P5, and P6 are denoting lag structure for each variable. The author used Schwarz Information Criteria for the lag structure of each variable. To reject the null hypothesis of the long run relationship of equation (5) represented by the following expression.

$$H_0 : \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 \neq 0$$

It means that slope coefficients of all variables are not simultaneously zero and long-run relationship among variables of interest does exist. Once

the long-run relationship has been established, the researcher will estimate the long run equation based on the level of the variables. The long-run equation is estimated by the following equation.

$$(S_{pvt} - I_{pvt})_t = \mu_0 + \sum_{i=1}^{p1} \alpha_i (S_{pvt} - I_{pvt})_{t-i} + \sum_{i=0}^{p2} \beta_i BSBP_{t-i} + \sum_{i=0}^{p3} \gamma_i BPSBD_{t-i} + \sum_{i=0}^{p4} \eta_i PD_{t-i} + \sum_{i=0}^{p5} \psi_i UD_{t-i} + \sum_{i=0}^{p6} \theta_i ED_{t-i} + \varepsilon_t \quad (6)$$

Now $\alpha_i, \beta_i, \gamma_i, \eta_i, \psi_i$ and θ_i are representing long-run coefficients of fiscal deficit financing choices. Finally, the error correction term (ECT) was introduced to capture the short-run dynamics. An error correction mechanism applied to estimate short-run elasticity's also. ECM helps to estimate the speed of dynamic adjustment towards equilibrium point per period. The error correction mechanism of ARDL (Pesaran et al., [2001](#)) of equation (6) can be represented as:

$$\Delta(S_{pvt} - I_{pvt})_t = \mu_0 + \sum_{i=1}^{p1} \alpha_i \Delta(S_{pvt} - I_{pvt})_{t-i} + \sum_{i=0}^{p2} \beta_i \Delta BSBP_{t-i} + \sum_{i=0}^{p3} \gamma_i \Delta BPSBD_{t-i} + \sum_{i=0}^{p4} \eta_i \Delta PD_{t-i} + \sum_{i=0}^{p5} \psi_i \Delta UD_{t-i} + \sum_{i=0}^{p6} \theta_i \Delta ED_{t-i} + \theta_0 ECT_{t-1} + \varepsilon_t \quad (7)$$

Where θ_0 is the coefficient of error correction term representing the speed of dynamic adjustment towards equilibrium per period, other slope coefficients are short-run parameters and delta is representing the first difference form of the said variable. The model has subject to different diagnostic to check the stability, functional form, normality, and other assumptions of regression analysis associated with like autocorrelation and heteroskedasticity. The ARDL equations for inflation are also constructed in the same way. Therefore, the author left them for the reader to keep the study concise and in a compact way.

The time-series data from 1976 to 2015 has been collected from the statistical yearbook of 50 years of Pakistan economy published by SBP, Economic Survey of Pakistan (2012-13), and yearbooks issued by Finance Division, Ministry of Finance, the Government of Pakistan. All variables were measured in million rupees. The base year has taken 1999-2000. All

variables have subject to stationarity first as proposed in (Dickey & Fuller, 1979; Phillips-Perron, 1988).

Empirical Analysis

It is a pre-request to check stationarity properties of macroeconomic time series before applying ARDL and Cointegration techniques. The results of ADF (1979) and Phillips-Perron (1988) test are summarized in Table 1. According to both statistics, the variables used in equation-3 and 4 have a mix of I(0) and I(1) variables. The method of ARDL serves as the best technique for such type of time series data as compared to the Johansen method of cointegration. The unit root estimates of all variables are based on including both trends and intercept at level form while it includes intercept only at first difference form.

Table 1

Unit Root Test for Various Deficit Financing Options

Variables	Level/Difference Form	ADF statistics (p-value)	t-Phillips-Perron (p-value)	Decision
LSPIP	At level	-3.816342 (0.0262)	-3.773090 (0.0289)	I(0)
LBSBP	At level	-3.493409 (0.0545)	-2.657351 (0.02589)	I(1)
	At first difference	-5.463326 (0.0001)	-7.099420 (0.0000)	
LBPSBD	At level	-2.226141 (0.4625)	-2.120353 (0.5188)	I(1)
	At first difference	-6.030631 (0.0000)	-6.495523 (0.0000)	
LPD	At level	-1.910633 (0.6294)	-1.770949 (0.6995)	I(1)

Variables	Level/Difference Form	ADF statistics (p-value)	t-Phillips-Perron (p-value)	Decision
LUD	At first difference	-4.421957 (0.0011)	-4.398530 (0.0012)	
	At level	-0.209501 (0.9897)	-0.706097 (0.9655)	I(1)
LED	At first difference	-3.479322 (0.0141)	-3.576336 (0.0111)	
	At level	-3.548031 (0.0480)	-3.422645 (0.0629)	I(1)
LP	At first difference	-4.050848 (0.0032)	-4.050848 (0.0032)	
	At level	-2.514603 (0.1210)	-2.709410 (.0815)	I(1)
LDF	At first difference	-7.497625 (0.0000)	-7.497625 (0.0000)	
	At level	-3.655026 (0.0382)	-1.863005 (0.06543)	I(1)
LSGNRC	At first difference	-5.223033 (0.0001)	-5.288630 (0.0001)	
	At level	-6.760480 (0.0000)	-6.740600 (0.0000)	I(0)

Source: Author's own calculations with given data.

Long-Run Analysis and Discussion

For empirical analysis, the private sector savings-investment gap has been used as a proxy variable for crowding out of private sector investment. The BSBP, BPSBD, PD, UD, and EE in the logarithmic form are regressed on the private savings-investment gap. ARDL long-run equation for the saving-investment gap has an order of (2, 3, 0, 1, 0, 0) based on the Akaike

Information Criterion. The lower and upper bond values are 2.6 and 3.9 at 5 percent significance level sourced from Pesaran et al. (1996). The actual estimated F-stat of the Wald test is 4.53 greater than the upper bound value confirming the existence of a long-run relationship.

The BPSBD and external debt did not appear effective sources for credit to the private sector. The possible reason may be a high-interest rate and a lack of good collateral options required by the banking sector. The coefficient sign of external debt is negative as expected but insignificant. It may be due to the nature and purpose of external debt taken by the government. The government of Pakistan mostly borrow to improve foreign reserves level as Pakistan’s imports are twice as compared to exports. A one percent increase in borrowing from SBP crowds out credit by 1.025 percent. It shows that it is very costly to meet the budgetary needs of the Government from SBP because it directly affects the credit availability to the private sector.

The NSS called unfunded debt (UD) also restrict the credit available to the private sector because of a higher rate of return. People prefer to buy savings schemes instead of investing in the real sector and this widens the savings-investment gap. The borrowing from SBP and NSS (UD) causing the crowding-out effect in the context of Pakistan’s economy (Premchand, 1983). Deficit-financed by issuing bonds has a negative relationship with the private savings-investment gap. A one percent increase in borrowings from bond issuance reduces the private savings-investment gap by 0.88 percent. The study results are coinciding with the conclusion of Easterly (1989). Bond financing is a relatively better choice to avoid crowding out of private sector investment. Bendt (2010) also concluded that long-term maturity instruments are more effective to absorb fiscal shocks as compared to short-term instruments or other policy options.

Table 2

Long Run Estimates

Repressors	Equation (3): LSPIP Coefficients (p-value)	Equation (4): LP Coefficients (p-value)
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C	15.92 (0.092)	0.70 (0.918)
LBSBP	1.02 (0.015*)	-
LSGNRC	-	0.79 (0.021*)
LBPSBD	0.41 (0.444)	-
LDF	-	-0.21 (0.625)
LPD	-0.88 (0.037*)	1.23 (0.003*)
LUD	0.88 (0.003*)	-1.29 (0.000*)
LED	-2.26 (0.206)	-0.26 (0.845)
R-Squared	0.9245	0.7569
DW-stat.	2.0889	1.754
F-stat.	27.83 (0.000)	9.68 (0.000)

Source: Authors' estimations.

* 5 percent level of significance.

The long-run equation (4) of order (1, 1, 2, 0, 0, 0) estimates the impact of deficit financing choices on the rate of change of general price level, and results have in Table 2. The lower and upper bond values are 2.6 and 3.9 at 5 percent significance level sourced from Pesaran et al. (1996). The actual estimated F-stat of the Wald test is 4.13 greater than upper bound values suggesting a significant long-run relationship.

Seigniorage – a proxy variable for newly created money has a significant positive relationship with the inflation rate. Every additional percentage point of seigniorage increase inflation by 0.8 percentage point. It shows that the printing of money is a fundamental source of inflation. These findings are in agreement with that in (Faini, 1991). Among the components of domestic debt, permanent debt (bonds financed) and unfunded debt (NSS financed) have a significant positive and negative relationship with the inflation rate respectively. The NSS is causing crowding out of private sector investment; although they are deflationary causing aggregate demand to be lower. The floating debt component of

domestic debt (marketable securities) and external debt have an insignificant and negative relationship with the inflation rate.

The sign of permanent debt may seem inconsistent with the economic theory in the long run because the reduction of currency in circulation in the hands of the public due to the purchase of bonds is associated with a decrease in aggregate consumption demand causing the general price level to fall. McCallum (1984) supports the monetarist view and asserted that bonds financed deficit are not inflationary but in the present study bond financing is inflationary. Maybe the wealth effect is dominant and higher interest earnings induce more consumption in the long run. The bonds financing is also the main choice variable that is meeting the credit requirement of the private sector as results reveal in the savings-investment equation. The external debt showed an insignificant relationship with inflation. This may be due to a trade-off between current account deficit/surplus and expansionary/contractionary fiscal policy because no government can pursue an expansionary fiscal policy for a longer period (Sloman, 2006) and the external debt purpose. Because mostly Pakistan borrows to finance its foreign reserves account or to meet debt services. Concluding that domestic financing has a significant inflationary impact (Haque & Montiel, 1991, Khan et al., 2008) except deficit financed by NSS and floating debt. The summary measures like R squared, DW-statistic, and F-stat are highly significant.

Short-Run Analysis and Discussion

The short-run analysis of equation (3); the borrowing from SBP has a significant negative relationship and again financing from NSS (UD) causing crowding out of private sector credit. According to the economic theory, the investment decisions made by firms are long-term decisions and it is not possible for firms, investors, entrepreneurs, or even for the government to raise investment and to meet credit requirements for a shorter period. However, investment in short term securities and certificates like T-bills and other instruments offered by SBP may rise or fall to affect the private savings-investment gap. The error correction term has the correct sign and shows a high speed of convergence. As per estimation, crowding out of private sector investment has observed both a short-run and long-run phenomenon.

Table 3
Short Run Estimates

Equation (3): LSPIP		Equation (4): LP	
Regressor	Coefficients (p-value)	Regressor	Coefficients (p-value)
dLSPIP1	0.35 (0.03*)	dLSGNRC	.11 (0.307)
dLBSBP	-0.79 (0.01*)	dLPD	.22 (0.528)
dLBSBP1	-0.09 (0.78)	dLPD1	-.99 (0.16)
dLBSBP2	-1.13 (0.01*)	dLDF	-.13 (0.611)
dLBPSBD	0.42 (0.43)	dLUD	-.79 (0.005*)
dLPD	-0.05 (0.90)	dLED	-.16 (0.844)
dLUD	0.90 (0.01*)	dC	.43 (0.918)
dLED	-2.30 (0.18)	ECM(-1)	-.61 (0.000*)
dC	16.21 (0.07)	R-Squared	.61601
ECM(-1)	-1.01 (0.00*)	DW-statistics	1.7547
R-Squared	0.82260	F-stat	6.41 (0.000*)

Source: Authors' estimations.

* shows significance at 5 percent level.

The short-run analysis of equation (4); all variables have a negative relationship except seigniorage that has a positive and insignificant relationship but in the long-run. It appeared to be a major source of inflation. Permanent debt is not an effective source in the short run as it changes sign from positive to negative from the first lag to second lag but remained insignificant. Unfunded debt (NSS financed) has a significant negative relationship with the inflation rate. A one percent increase in permanent debt exactly reduces 1 percent of inflation in short-run and unfunded debt reduces inflation by 0.8 percent. While all other variables have a negative and insignificant relationship as expected by economic theory (McCallum, 1984). The error correction term shows significant adjustment and restores

the system towards equilibrium by 0.62 percent per period. Therefore, the study infers that seigniorage is responsible for price hike instead of permanent domestic debt which has mixed findings in the short run and long run and unfunded domestic debt.

The diagnostics statistics of equation-3 and equation-4 are summarized in Table 4. The model is free from serial correlation, functional form issues, and heteroscedasticity, and the assumption of normality of residuals holds as shown by the P-value of chi-square.

Table 4
Summary of Diagnostic Statistics

Test Statistics: LM Version	Equation-3: LSPIP	Equation-4: LP
	Chi-Square P-Value	Chi-Square P-Value
A Serial Correlation	0.647	.330
B Functional Form	0.343	.157
C Normality	0.909	.451
D Heteroscedasticity	0.885	.781

Source: Author's estimations.

A: Lagrange multiplier test of residual serial correlation.

B: Ramsey's RESET test using the square of the fitted values.

C: Based on a test of skewness and kurtosis of residuals.

D: Based on the regression of squared residuals on squared fitted values.

Conclusion and Policy Implications

The study addresses the possible consequences of each financing option on macroeconomic variables like the savings-investment gap and the general price level to choose a less lethal financing option. In the first instance, the impact of domestic financing options in the disaggregate level on the private savings-investment gap has been analyzed. The estimates revealed that deficit financing from domestic sources significantly causes crowding out of private sector investment. Borrowing from the State Bank of Pakistan (BSBP), and financing from National Savings Schemes (UD) have a

significant positive impact and causing crowding out effect. The financing from external debt (ED) and the issuance of bonds (PD) show a negative impact on the savings-investment gap in the long run. The government may reduce its reliance on domestic borrowing except deficit financed by issuing long term bonds-permanent debt. The government may prefer to borrow from private sector banking deposits for short-run to avoid the crowding-out effect. However, the crowding out is a certain outcome in the long-run.

The second major problem addressed as an outcome of deficit financing is inflation. To examine this, the domestic financing sources were analyzed at a disaggregated level to avoid the aggregation bias. Seigniorage shows a significant positive impact on the long-run and insignificant impact in the short-run. It depicts that the printing of money has long-run economic costs and is a fundamental source of inflation. The consistently following the expansionary monetary policy may have severe economic consequences in the long-run. The balanced approach is highly desirable in this regard. Bond financing (permanent debt) has a positive and significant impact in the long run and insignificant negative impact in the short run. The debt securities are highly volatile and riskier yielding higher returns because wealth effect is dominating in the present scenario and causing the price level to rise in the long-run due to higher aggregate demand.

Floating component of debt (marketable securities and other short-term instruments) have a negative and insignificant impact in the short-run and long-run while NSS financed debt (unfunded debt) have a negative and significant impact both in short-run and long-run. It means the national savings schemes are appeared as a lucrative investment for money holders and significantly controlling the inflation rate. Although, NSS financing widens the savings-investment gap. Again the balanced approach is needed because controlling inflation by NSS causes crowding out and vice versa. The rate of return on NSS and long term bonds is very important regarding the policy perspective adopted by the government. External debt has a negative and insignificant impact in the short-run and long-run. Concluding that domestic financing has a significant inflationary impact except for NSS.

Summing up, financing from domestic sources causes crowding out of private sector credit and investment but external financing and deficit-

financed by bonds appeared free from such costs. Seigniorage and permanent debt appeared a major inflationary source of financing while deficit financed by NSS showed significant deflationary impact in the short-run and long-run and causes investment to fall. The external financing did not show any significant inflationary impact like a floating component of domestic debt. The government of Pakistan restricts printing of money/avoid expansionary monetary policy to control the rate of inflation. The interest rate on national savings deposits and long term instruments may be revised because it is responsible for crowding out of private sector investment and rise in general price level respectively. The government may opt for bonds and floating debt management to avoid crowding out effect.

Summarizing the policy suggestions that the government may opt the bonds financing or external financing as compared to any other financing source because both sources do not causes crowding out of private sector investment and hike in the general price level. The domestic financing is more distortionary as compared to external financing. The seigniorage is highly responsible for the hike in the general price level. Therefore, the study favours external financing because it appeared non-inflationary, satisfy forex gap needs, and overcome the issue of crowding out and bonds financing.

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