

THE MACROECONOMIC FACTORS SHAPING PAKISTAN'S PUBLIC DEBT PROFILE: *AN EMPIRICAL INVESTIGATION*

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Terminology

- **Public Debt** means debt contracted by the Federal Government and includes the guarantees extended by the GOP;
- **Autocratic Regime** means the military regime;
- **Democratic Regime** means when power is into the hands of political leaders i.e the chief executive gets selected through ballot ;
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Selected Public Debt Indicators of Pakistan

Table 1.1: Selected Public Debt Indicators (%)

	2010	2011	2012	2013	2014	2015
Revenue Balance / GDP*	(1.7)	(3.3) (a)	(4.5) (b)	(2.9) (c)	(0.7)	(1.7)
Primary Balance / GDP*	(1.6)	(2.5) (a)	(4.2) (b)	(3.6) (c)	(0.2)	(0.5)
Fiscal Balance / GDP	(6.2)	(6.5) (a)	(8.8) (b)	(8.2) (c)	(5.5)	(5.3)
Public Debt / GDP	60.6	58.9	63.3	63.9	63.8	63.5
Public Debt / Revenue	433.4	477.9	494.7	479.2	439.8	442.1
Debt Service / Revenue	40.4	38.0	39.9	40.5	40.1	40.4
Debt Service / GDP	5.6	4.7	5.1	5.4	5.8	5.1

*Note:**Adjusted for grants

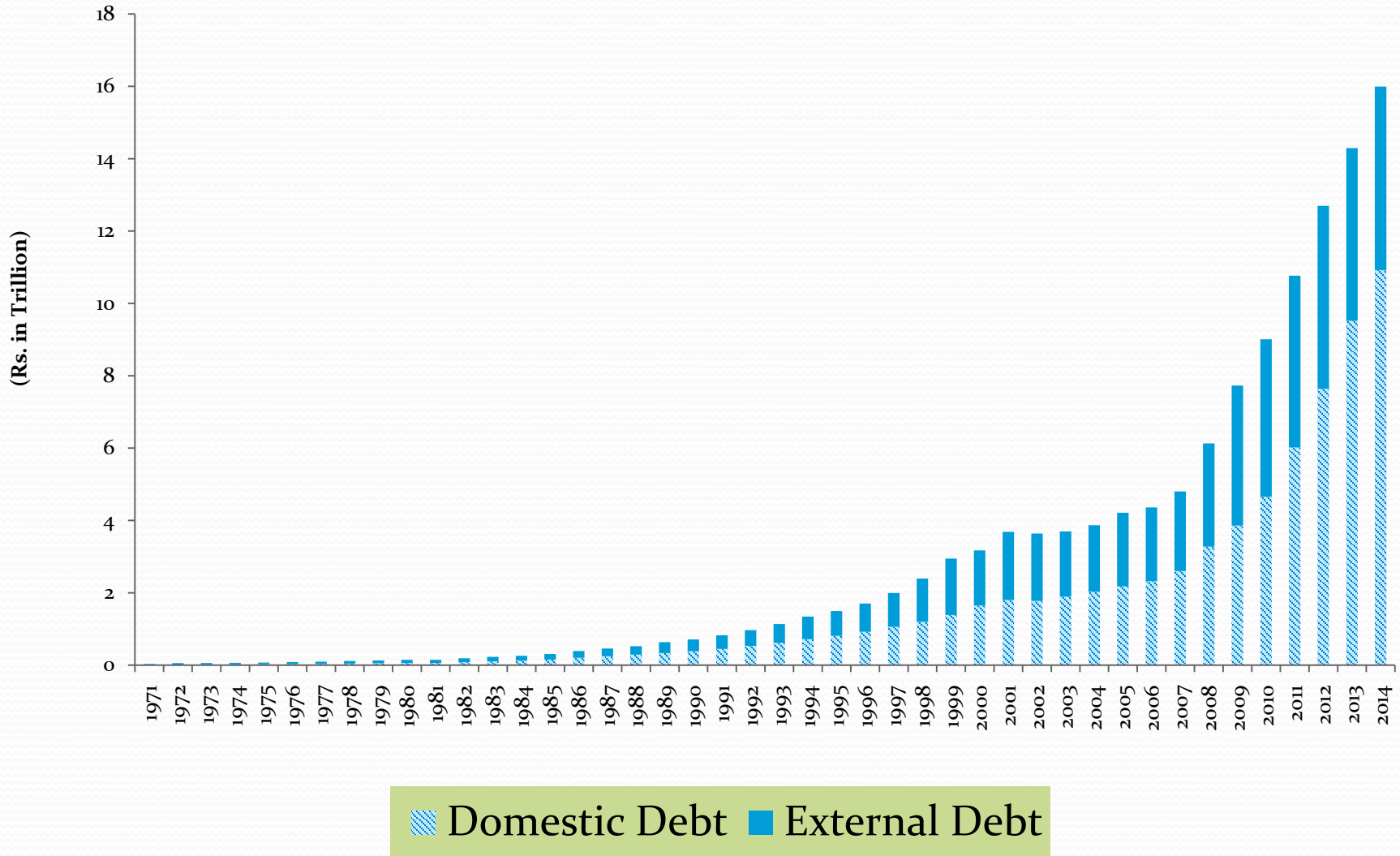
Source: DPCO, Ministry of Finance (MOF)

(a) includes arrears of electricity subsidies amounting to Rs.120 billion or 0.7 percent of GDP

(b) includes "one off" payment of Rs.391 billion on account of debt consolidation or 2 percent of GDP

(c) includes payment for the resolution of the circular debt amounting to Rs.322 billion or 1.4 percent of GDP

Trends of Pakistan's Public Debt



Research Objectives & Questions

Research Objectives:

- ✓ To examine the debt-inflation nexus in the case of Pakistan.
- ✓ To analyze the impact of economic growth on the public debt in Pakistan.
- ✓ To measure the impact of Openness of the economy on the public debt in Pakistan.

Research Questions:

- ✓ Is *Inflation*, major factor which reduces the public debt in Pakistan?
- ✓ How does *economic growth* reduces public debt in Pakistan?
- ✓ Does *openness* have a disciplinary impact on the public debt in Pakistan?

Contribution

Macroeconomic factors of public debt:

- ✓ Inflation as a determinant ;
- ✓ Growth has been taken as an explanatory variable;
- ✓ Openness relationship with debt has been studied;
- ✓ Bounds testing has been used first time for public debt in case of Pakistan.

Regime wise impact

- ✓ Earlier regime wise no empirical study was conducted

Methodology

- **Econometric Model:**

$$DEBT_t = \beta_0 + \beta_1 INF_t + \beta_2 GDPC_t + \beta_3 OPEN_t + \beta_4 INV_t + \beta_5 FDI_t + \beta_6 ODA_t + \beta_7 EXCH_t + \varepsilon_t$$

$$\begin{aligned} \Delta DEBT_t = & \beta_0 + \sum_{i=1}^p \omega_i \Delta DEBT_{t-i} + \sum_{i=0}^p \psi_i \Delta INF_{t-i} + \sum_{i=0}^p \phi_i \Delta GDPC_{t-i} \\ & + \sum_{i=0}^p \delta_i \Delta OPEN_{t-i} + \sum_{i=0}^p \varphi_i \Delta FDI_{t-i} + \sum_{i=0}^p \Pi_i \Delta INV_{t-i} + \sum_{i=0}^p \partial_i \Delta ODA_{t-i} \\ & + \sum_{i=0}^p \Omega_i \Delta EXCH_{t-i} + \theta_1 DEBT_{t-1} + \theta_2 INF_{t-1} + \theta_3 GDPC_{t-1} \\ & + \theta_4 OPEN_{t-1} + \theta_5 FDI_{t-1} + \theta_6 INV_{t-1} + \theta_7 ODA_{t-1} + \theta_8 EXCH_{t-1} + \mu_t \end{aligned}$$

Methodology

Data Sources

- ✓ Debt Statistics from IMF website
- ✓ Macroeconomic Indicators from World Bank Development Indicators

Data Definition

Openness= Aggregate of Exports & Imports

Inflation= CPI

ODA=Foreign Aid

GDPC=GDP per Capita=Growth

ARDL Long Run Model (SBC Criteria)

ARDL Long Run Model with Log Public Debt as Dependent variable							
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
INF	-0.0293** (0.0171)	-0.0283** (0.0117)	-0.0388** (0.0176)	0.0372** (0.0170)	-0.0377** (0.0168)	-0.0382** (0.0183)	-0.0401** (0.0160)
GDPC		0.0980*** (0.0338)	-0.1128** (0.0471)	-0.1085** (0.0455)	-0.1013** (0.0467)	-0.1123** (0.0478)	-0.0733** (0.0346)
OPEN			-0.4323 (0.6920)	-0.3157 (0.6959)	-0.3378 (0.6764)	-0.4535 (0.7301)	0.1792** (0.5465)
No. of Observation	41	41	41	41	41	41	41
R-Squared	0.2575	0.5234	0.5616	0.5520	0.5531	0.5489	0.7716
ECM_{t-1}	-0.2791** (0.1056)	-0.3275*** (0.0896)	-0.2444*** (0.0833)	-0.2539*** (0.0863)	-0.2548*** (0.0860)	-0.2446*** (0.0845)	-0.2043*** (0.0612)

ARDL Long Run Model (AIC Criteria)

ARDL Long Run Model with Log Public Debt as Dependent variable

Variables	Model 1	Model 2	Model 3	Model 4
Inflation (CPI)	-0.0293** (0.0171)	-0.0374** (0.0153)	- 0.0319** (0.0127)	-0.0377** (0.0186)
GDP per Capita		-0.1026** (0.0401)	-.0973*** (0.0343)	- 0.1033** (0.0513)
Openness			-0.0353 (0.5399)	0.2243 (0.6471)
No. of Observations	41	41	41	41
<i>ECMt – 1</i>	-0.2791** (0.1056)	-0.2889*** (0.0968)	-0.3056*** (0.0891)	-0.1745** (0.0698)
R-Squared	0.2575	0.5519	.5829	0.7815

Robustness Analysis

Variables	Model 1	Model 2	Model 3	Model 4
Inflation (CPI)	-0.0293** (0.0171)	-0.0374** (0.0153)	- 0.0319** (0.0127)	-0.0377** (0.0186)
GDP per Capita		-0.1026** (0.0401)	-.0973*** (0.0343)	- 0.1033** (0.0513)
Openness			-0.0353 (0.5399)	0.2243 (0.6471)
Exchange Rate				-0.0554 (0.0787)
No. of Observations	41	41	41	41
R-Squared	0.2575	0.5519	.5829	0.7815
<i>ECMt – 1</i>	-0.2791** (0.1056)	-0.2889*** (0.0968)	-0.3056*** (0.0891)	-0.1745** (0.0698)

Regime and Public Debt

(Democratic Regimes)

ARDL Long Run Model with Log Public Debt as Dependent variable

Variables	Model 1 (SBC)	Model 2 (AIC)	Model 3 (P ₂)
INF	-0.0390*** (0.0110)	-0.0390*** (0.0110)	-0.0356*** (0.0104)
GDPC	- 0.0198 (0.0246)	- 0.0198 (0.0246)	0.0204 (0.0354)
No. of Observations	21	21	21
<i>ECMt - 1</i>	- 0.6609 (0.1781)	- 0.6609*** (0.1781)	-0.7091*** (0.2003)
R-Squared	0.7201	0.7201	0.7172

Regime and Public Debt

(Autocratic Regimes)

ARDL Long Run Model with Log Public Debt as Dependent variable

Variables	Model 1 (SBC)	Model 2 (AIC)	Model 3 (P ₂)
INF	- 0.0180 (0.0148)	- 0.0131 (0.0130)	- 0.0382** (.02077)
GDPC	- 0.0932** (0.0513)	-0.0775** (0.0402)	-0.0454 (0.0390)
No. of Observations	20	20	20
<i>ECM_t - 1</i>	- 0.2535** (0.1159)	- 0.2908** (0.1163)	-0.4600** (0.2421)
R-Squared	0.3430	0.3756	0.2252

Main Findings

- ✓ Inflation and Growth(GDP/Capita) are the major macroeconomic determinants/ reducing factors of Public Debt
- ✓ Openness of the economy does not have any significant effect on the Public Debt dynamics in Pakistan
- ✓ Inflation is the major factor having a declining effect on public debt in Democratic Regimes
- ✓ Growth is the potent factor which reduces public debt during autocratic regimes.

Conclusion

- Inflation reduces the debt during democratic regimes
- Growth reduces the debt during the autocratic regimes.



THANK YOU

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