Fiscal Deficit and External Debt Driven External Vulnerabilities in South Asia: A Panel Data Analysis

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Disclaimer: The views expressed in the paper are those of the author and do not represent the views of the Reserve Bank of India.

Structure of Presentation

- ❑Objective and Motivation of Study
- ❑Theoretical Frameworks
- ❑Brief Review of Literature
- ❑Stylised Facts
- ❑Empirical Estimation: Frameworks, Results and Analysis
- ❑Policy Implications
- ❑Concluding Remarks

Objective and Motivation

- Objective:
  - Investigate the contribution of fiscal deficits in external vulnerabilities in South Asia

- Motivation:
  - Most of countries have persistent fiscal and current account deficits in South Asia
  - All South Asian countries are external indebted
  - Countries with high external debt are more prone to external shocks than countries with low external debt

Theoretical Frameworks

- Linkage between fiscal and current account balances:

  $X - (M + R) = S - I$

  $CAB = (Sp - Ip) + (T - G)$

  (where, X = Exports of goods and services; M = Imports of goods and services; R = Net current account transfers and income from abroad; S = Domestic saving; I = Domestic investment; CAB = Current account balance: Sp = Private saving; Ip = Private investment; T = Government (tax) revenue); and G = Government expenditure)

  Fiscal deficit → Current account deficit → External Debt

- External debt dynamics:

  $$d_t = [1 + \{(r - g - \rho(1 + g) + \varepsilon\alpha(1 + r))/(1 + g + \rho + g\rho)\}]d_{t-1} - nb_t$$

  (where, d = External debt to GDP ratio; r = Interest rate on external debt; g = Real GDP growth rate; ρ = Change in US dollar GDP deflator (inflation rate); ε = Change in exchange rate defined as US dollar per domestic currency; α = Share of domestic currency-denominated debt in total external debt; and, nb = Non-interest current account balance and non-debt creating inflows as percentage to GDP)

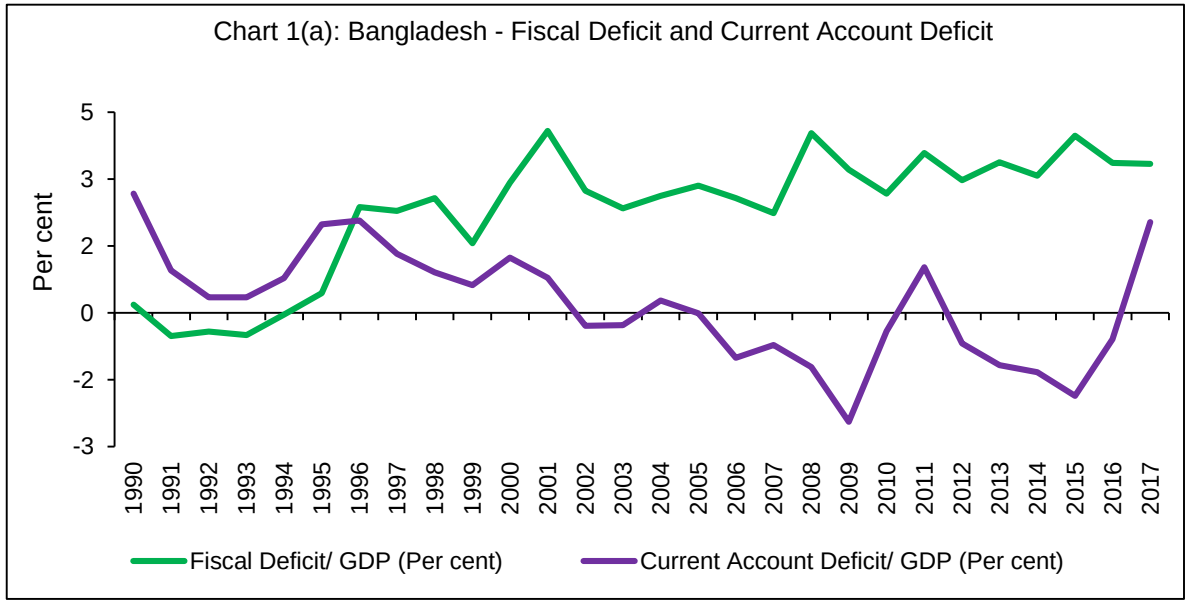
Review of Literature

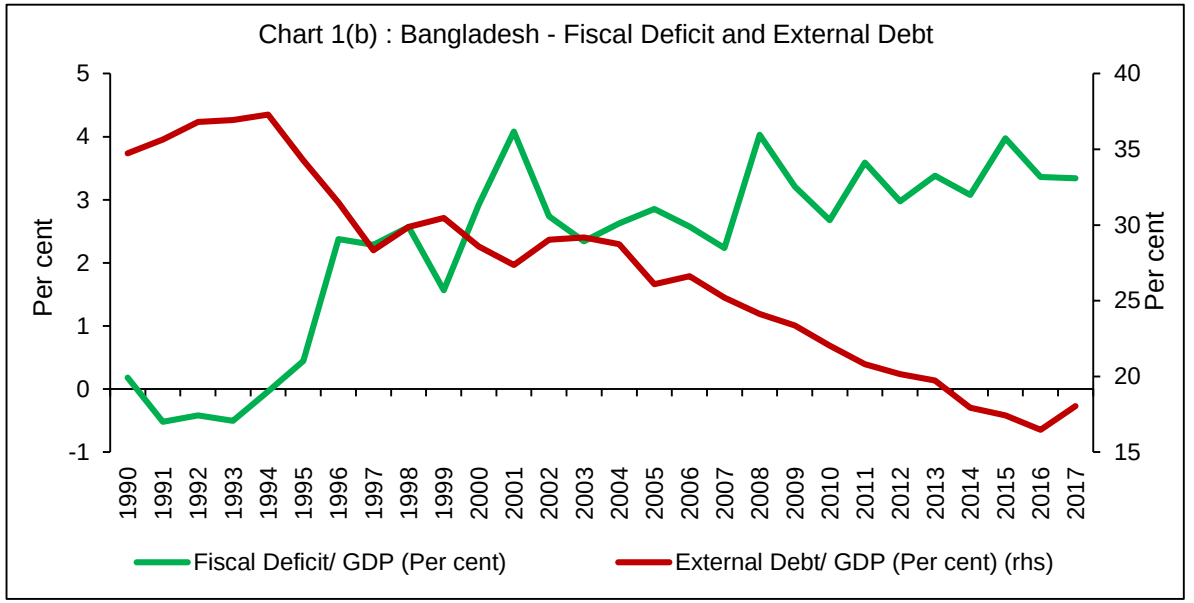
- Dornbusch (1984): External shocks (such as oil prices, interest rate, global recession and fall in real commodity prices) cannot be responsible by themselves for the external indebtedness and debt crises of 1980s in the three major Latin American countries, viz., Chile, Argentina, and Brazil. In his words, “these external factors only had made much more apparent and unsustainable an underlying disequilibrium in which exchange rate overvaluation and/or budget deficits were perpetuated by continuing and excessive recourse to the world capital market.”

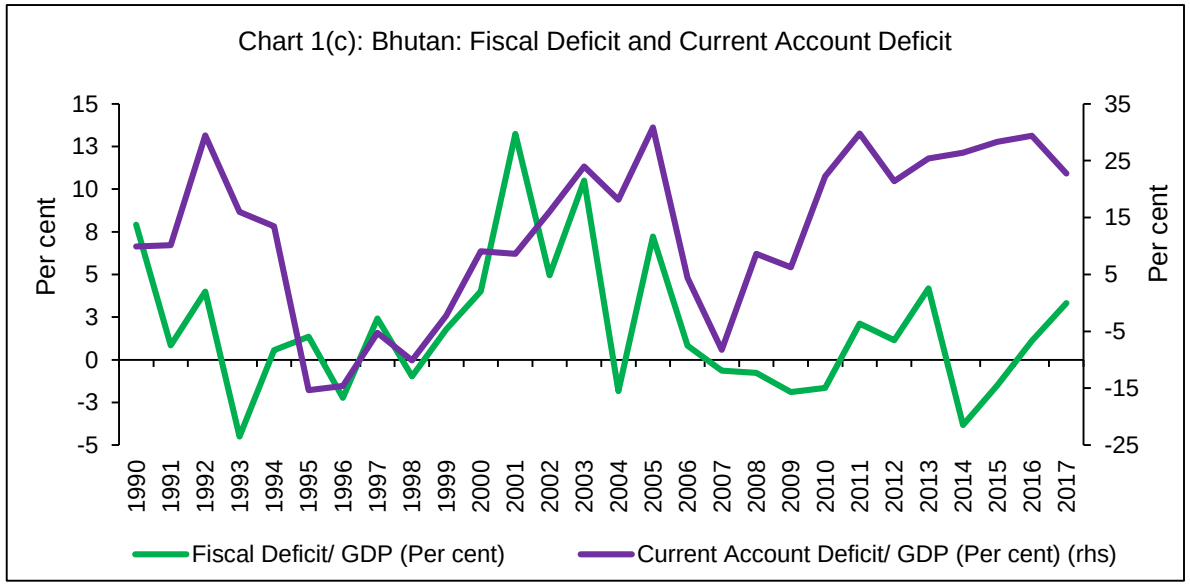
Review of Literature (concld.)

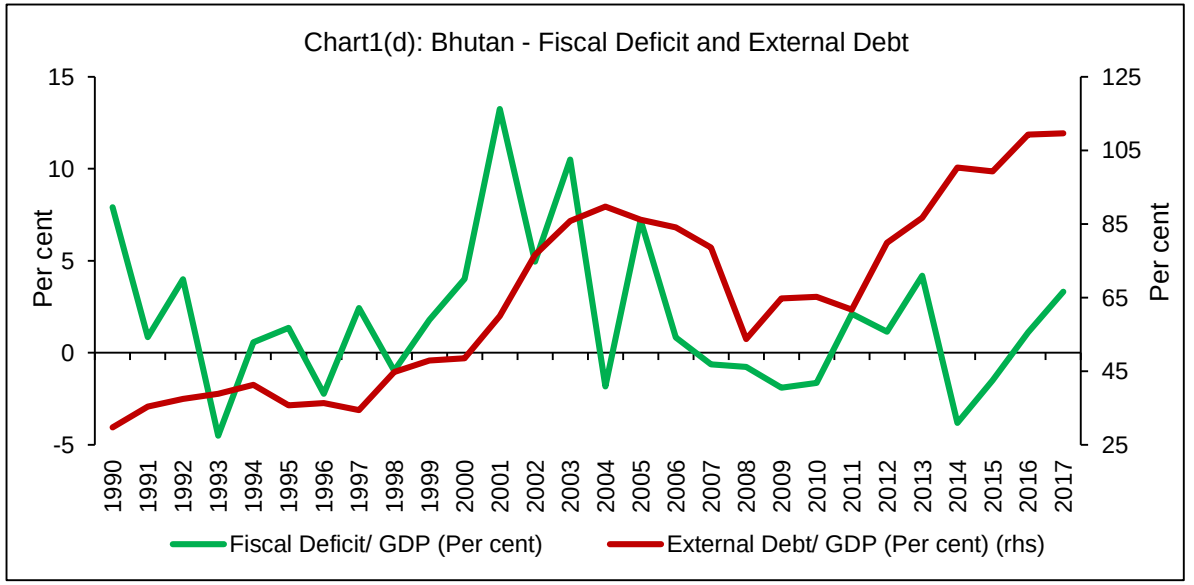
- World Bank (1999): In the context of East Asian financial crisis of 1990s says that the main source of external vulnerabilities of East Asia was “a rapid buildup from the late 1980s onward of risky forms of leverage on the balance sheets of financial institutions and nonfinancial corporations, in particular, short-term foreign currency debt in excess of foreign currency resources available on short notice. Mismatches between the currency and maturity of liabilities and assets made firms vulnerable to sudden swings in international investors’ confidence and to the possibility of being unable to borrow from international capital markets to roll over short-term debt or meet other current debt service obligations.”

Stylised Facts









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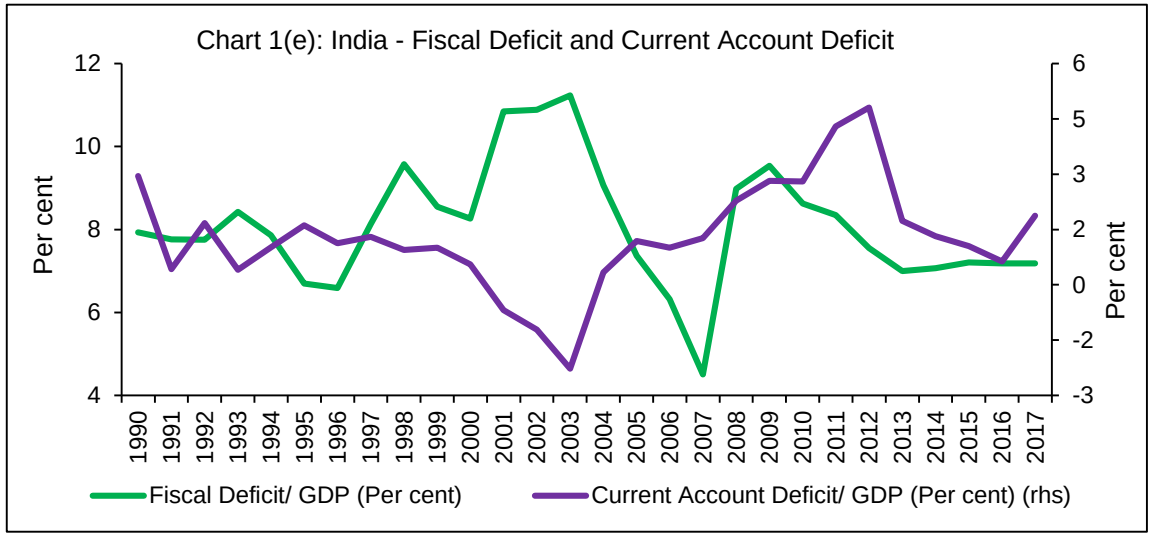

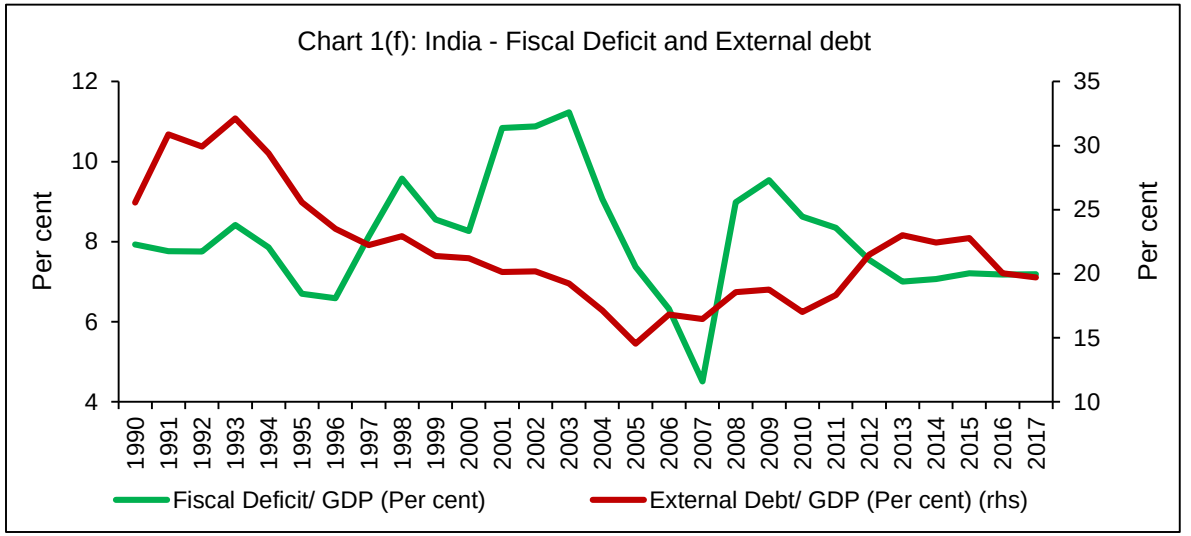

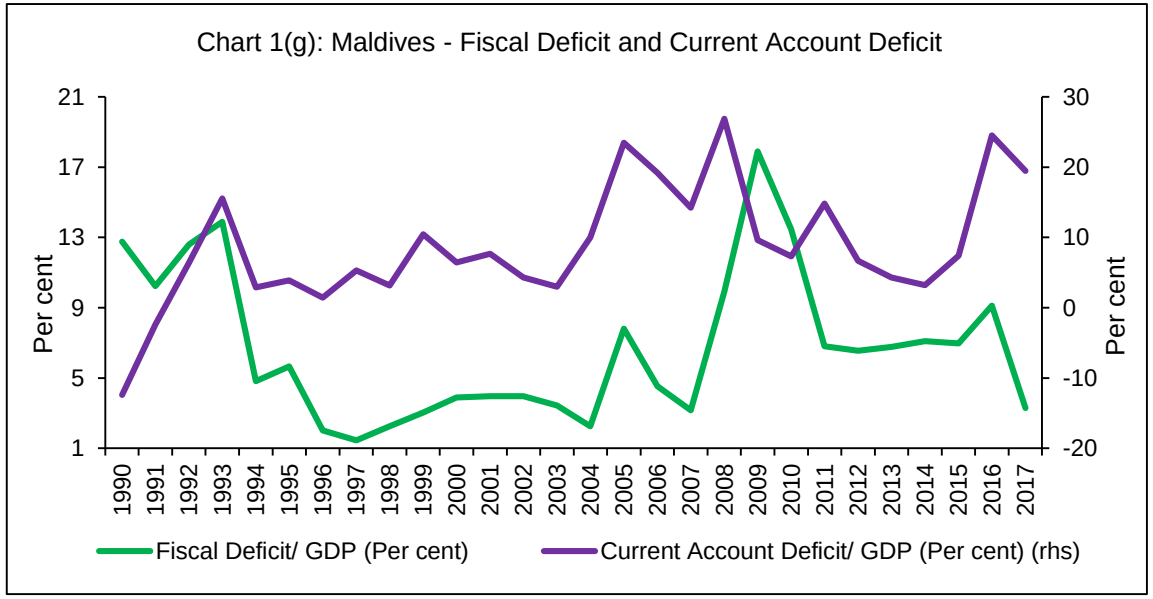

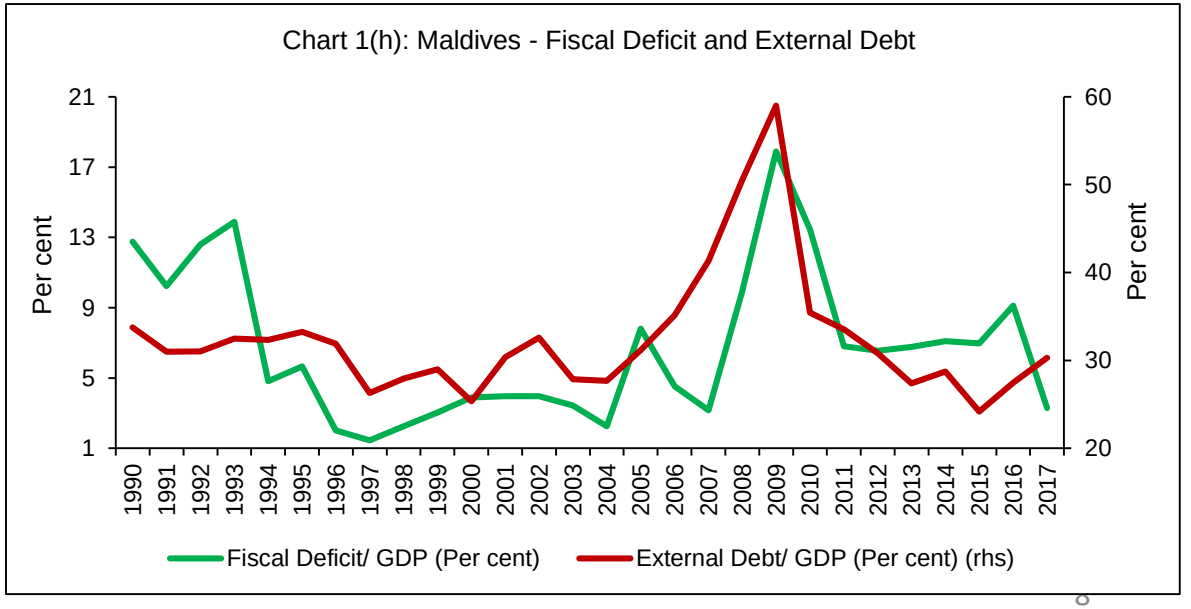

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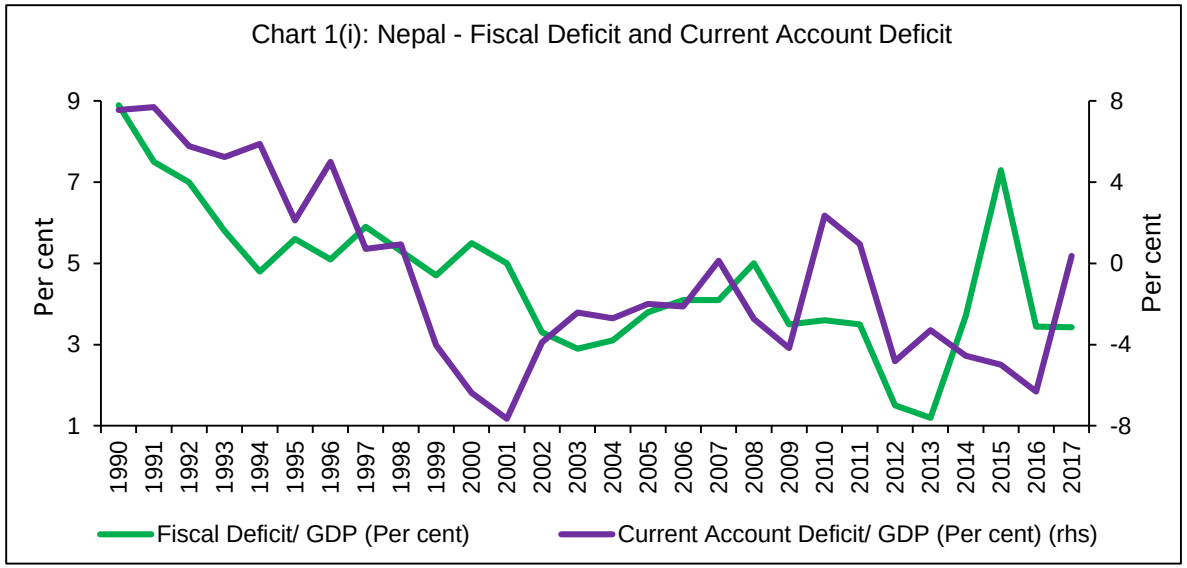

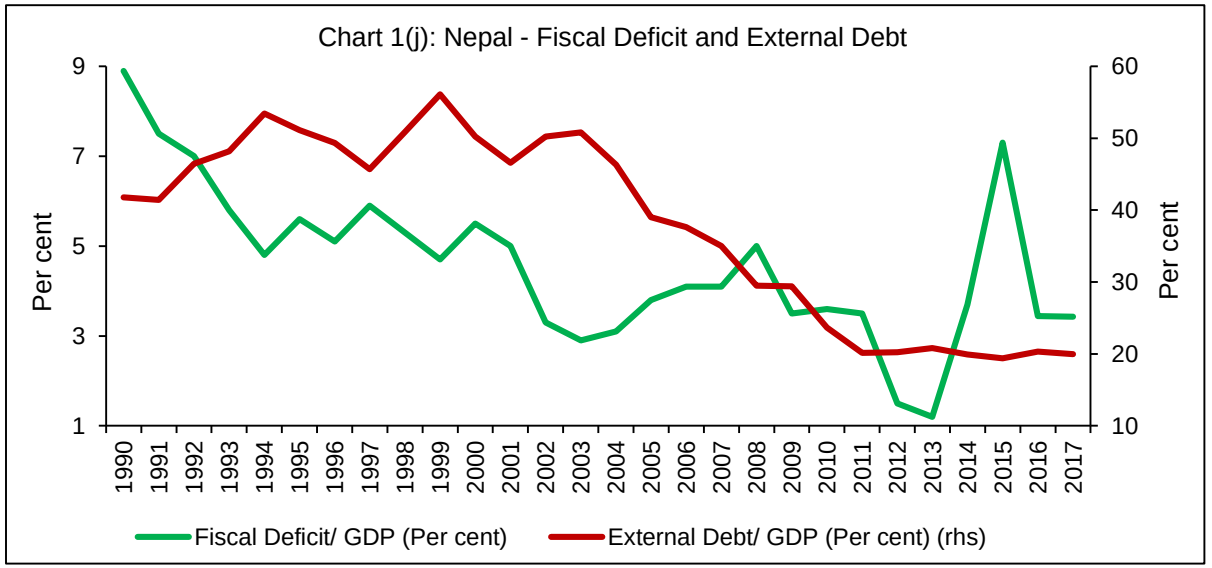

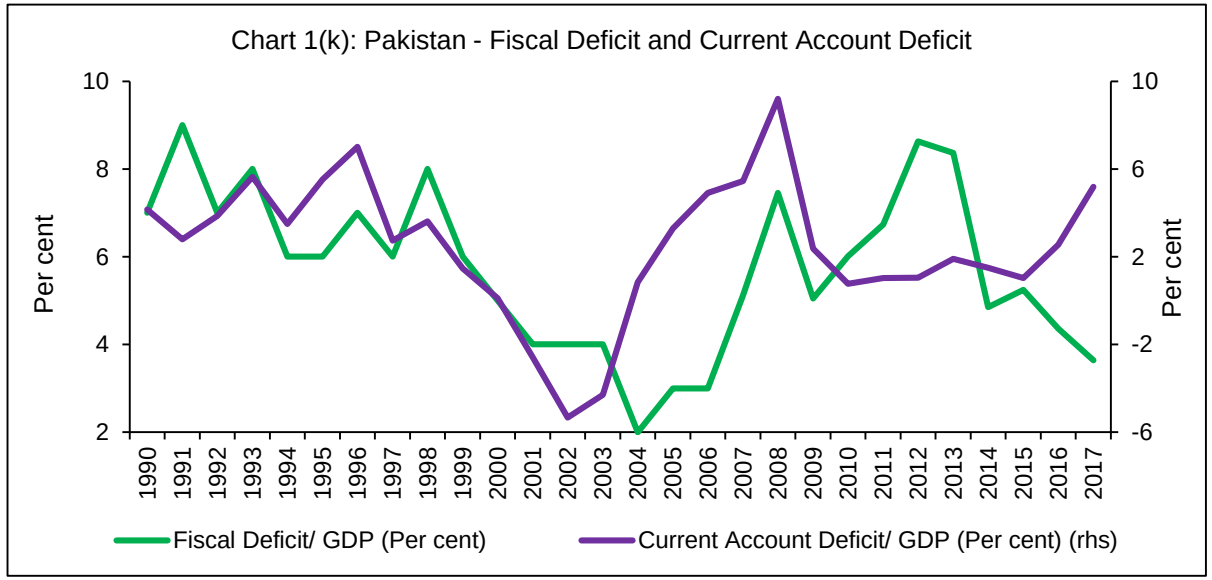

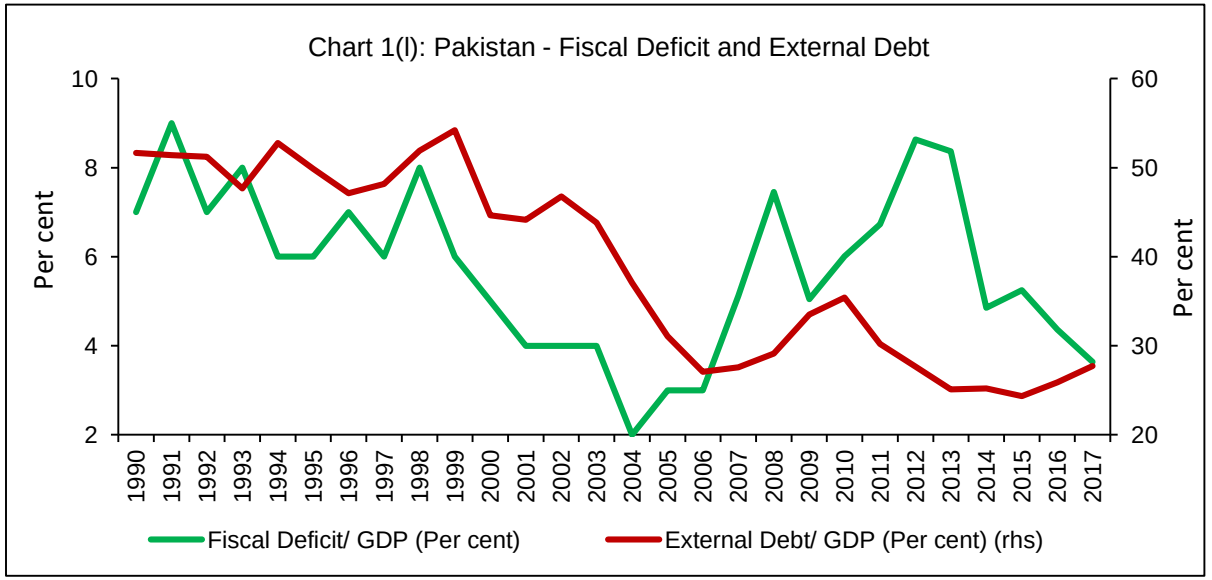

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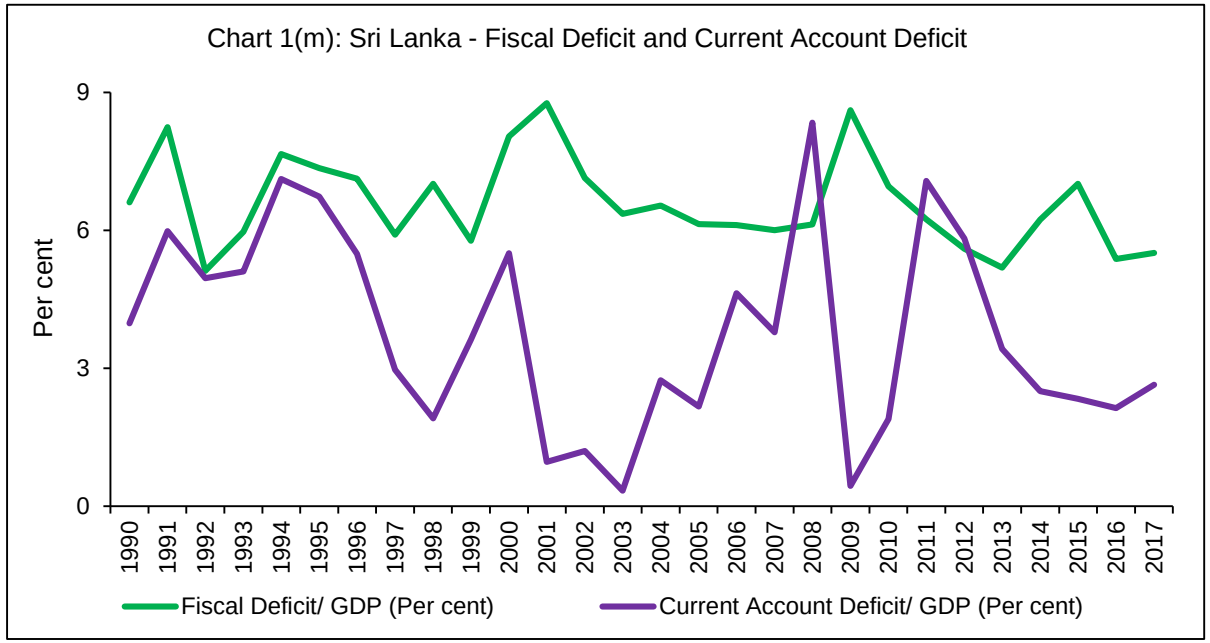
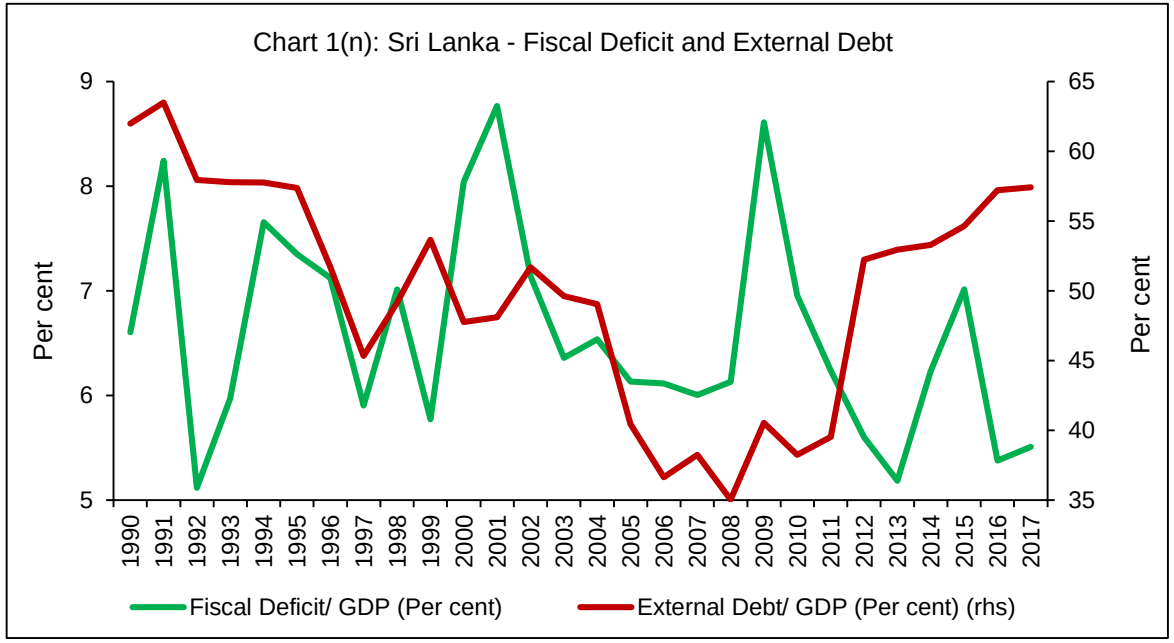




Source: World Bank; IMF; State Bank of Pakistan; Nepal Rastra Bank; Author's calculations.

Stylised Facts (contd.)

- India, Maldives, Nepal, Pakistan, and Sri Lanka have persistently higher fiscal deficits than Bangladesh and Bhutan

Key Indicators (1990-2017)							
	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Fiscal Deficit/ GDP (Per cent)	2.3	1.8	8.1	6.8	4.6	5.7	6.6
Current Account Deficit/ GDP (Per cent)	0.2	12.7	1.3	8.8	-0.6	2.5	3.8
External Debt/ GDP (Per cent)	27.0	65.1	21.8	32.4	38.0	39.0	50.0
Reserves/ Total External Debt (Per cent)	27.1	99.5	63.9	42.9	68.1	18.6	20.1
Short-term External Debt/ Reserves (Per cent)	19.6	1.6	26.8	37.4	3.8	81.0	55.8
Short-term External Debt/ Total External Debt (Per cent)	6.1	1.2	11.5	12.6	2.7	7.5	10.1
Net Foreign Assets/ GDP (Per cent)	-24.2	1.4	-21.8	-46.2	-14.8	-34.1	-48.6
Debt Service Ratio (Per cent)	10.6	11.9	18.8	4.1	9.1	22.2	13.4

Vulnerability

Low  High

Source: Author's calculations based on data from World Bank, IMF, State Bank of Pakistan, Nepal Rastra Bank, and Lane and Milesi-Ferreti's "The External Wealth of Nations Mark II" database.

Stylised Facts (contd.)

Key Indicators (2013-2017)							
	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Fiscal Deficit/ GDP (Per cent)	3.4	0.7	7.1	6.6	3.8	5.3	5.9
Current Account Deficit/ GDP (Per cent)	-0.6	26.4	1.3	11.8	-3.8	2.4	2.6
External Debt/ GDP (Per cent)	17.9	101.0	21.6	27.6	20.1	25.6	55.1
Reserves/ Total External Debt (Per cent)	65.5	58.4	73.6	50.1	169.0	24.3	17.1
Short-term External Debt/ Reserves (Per cent)	21.7	2.3	26.1	24.9	4.5	40.6	101.3
Short-term External Debt/ Total External Debt (Per cent)	17.1	1.1	19.0	10.0	8.1	9.4	16.5
Net Foreign Assets/ GDP (Per cent)	-11.5	-41.5	-26.5	-84.3	11.4	-30.5	-55.3
Debt Service Ratio (Per cent)	5.4	13.6	13.0	3.3	8.6	18.1	22.0

Vulnerability

Low  High

Source: Author's calculations based on data from World Bank, IMF, State Bank of Pakistan, Nepal Rastra Bank, and Lane and Milesi-Ferreti's "The External Wealth of Nations Mark II" database.

Empirical Frameworks

II) Regression of Current Account Deficit:

$cad = f(fd, g, dep, opn, nfa)$

Where,

cad = Current account deficit to GDP ratio (per cent);

fd = Fiscal deficit to GDP ratio (per cent);

g = Real GDP growth rate (per cent);

dep = Age dependency ratio (per cent);

opn = Trade openness; and

nfa = Initial (lagged) net foreign assets to GDP ratio (per cent)

Empirical Frameworks (concld.)

I) Regression of External Debt:

$d = f(fd, g, def, r, sdd, rxr)$

Where,

d = External debt to GDP ratio (per cent);

fd = Fiscal deficit to GDP ratio (per cent);

g = Real GDP growth rate (per cent);

def = Change in US dollar GDP deflator (per cent);

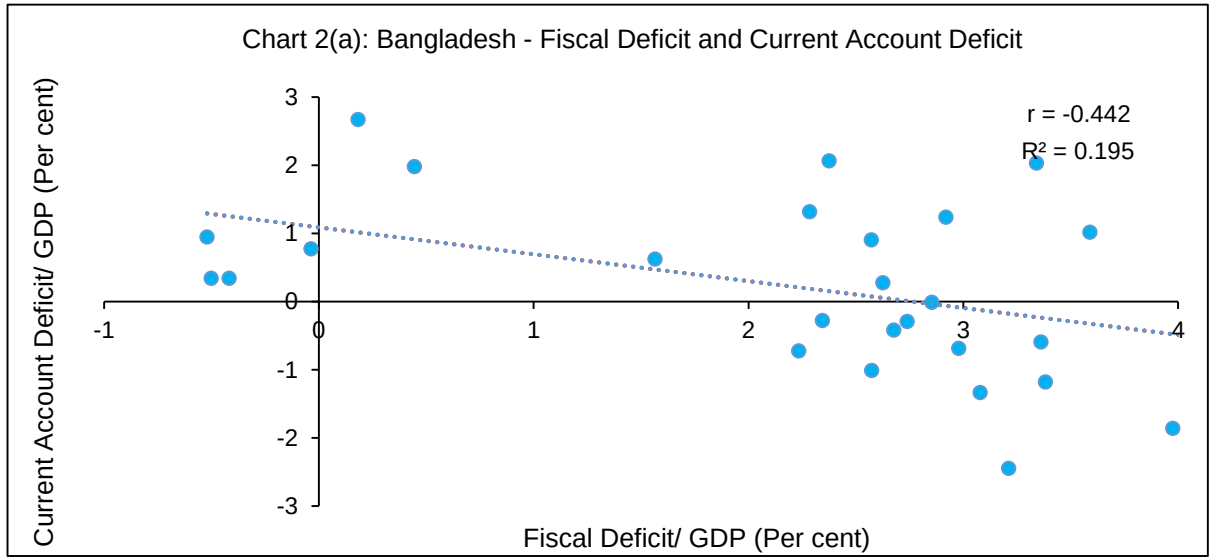
r = Interest rate on external debt (per cent);

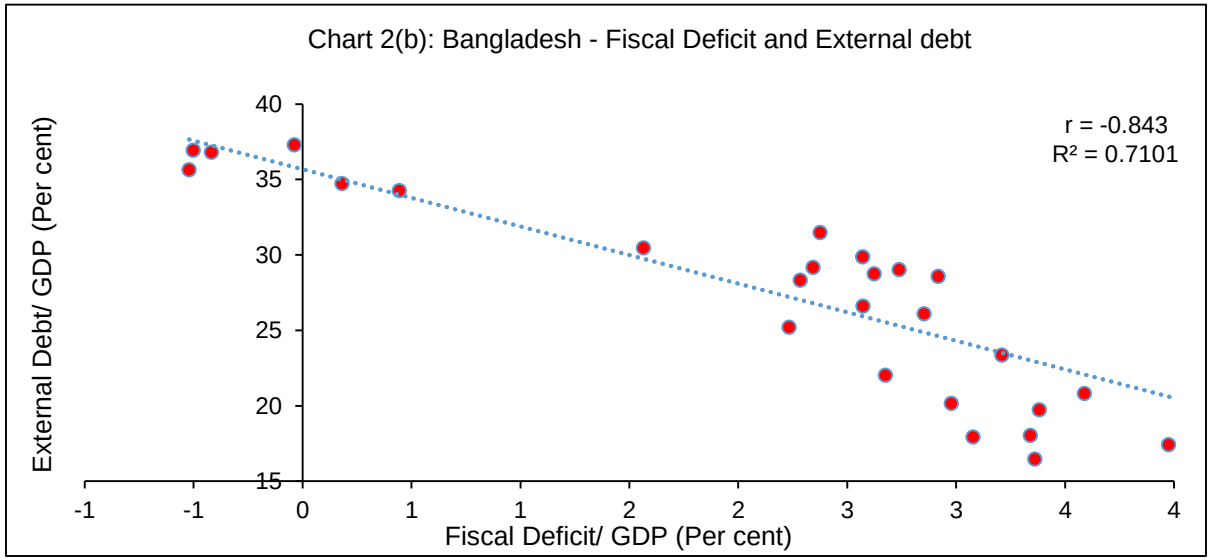
sdd = Share of Short-term external debt in total external debt (per cent); and,

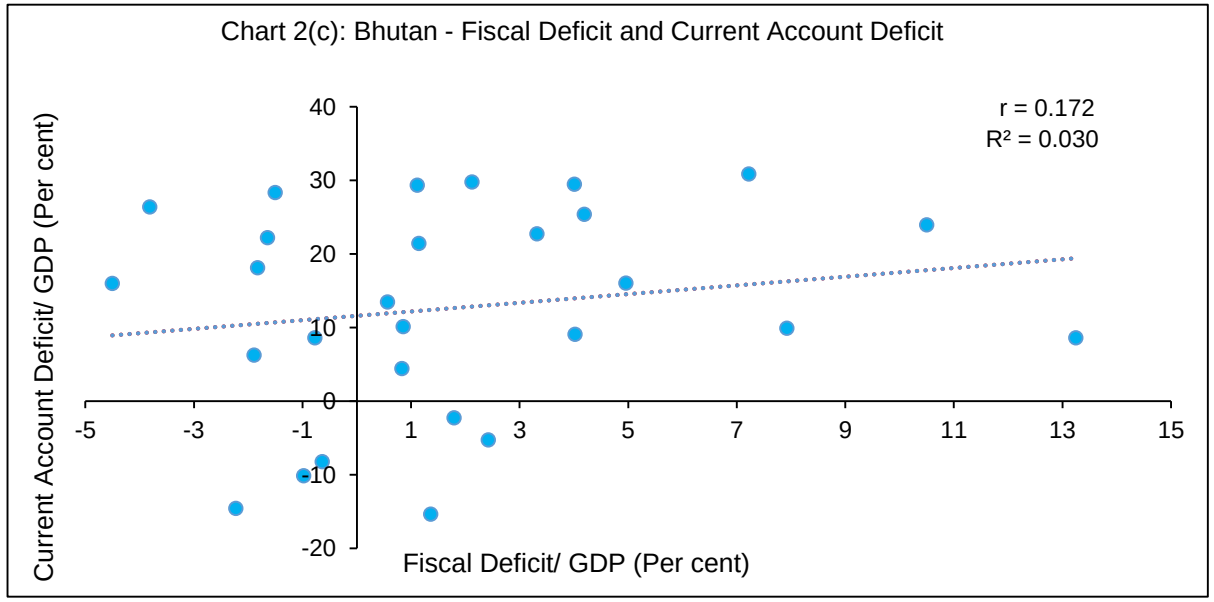
rxr = Real appreciation/depreciation of domestic currency

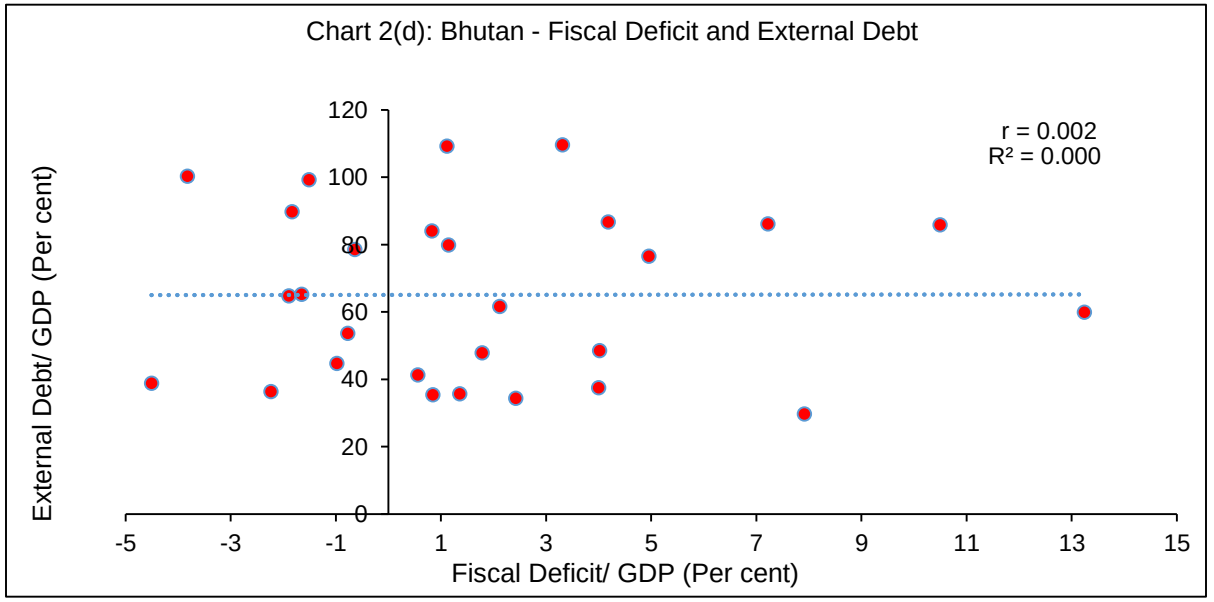
(i.e., $rxr = \varepsilon - def$)

Graphical Analysis: Scatter Plots









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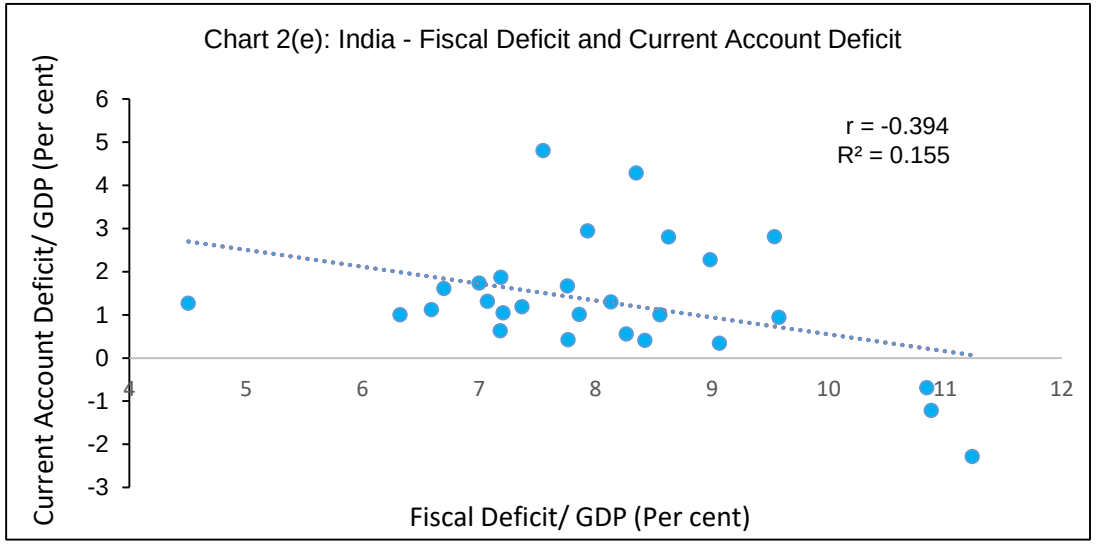

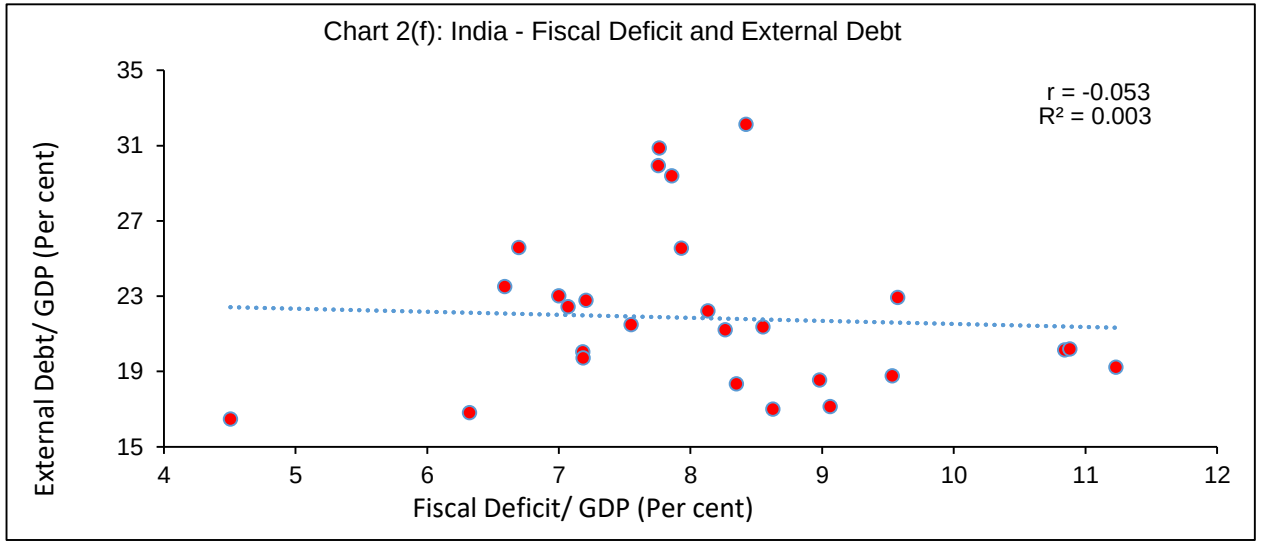

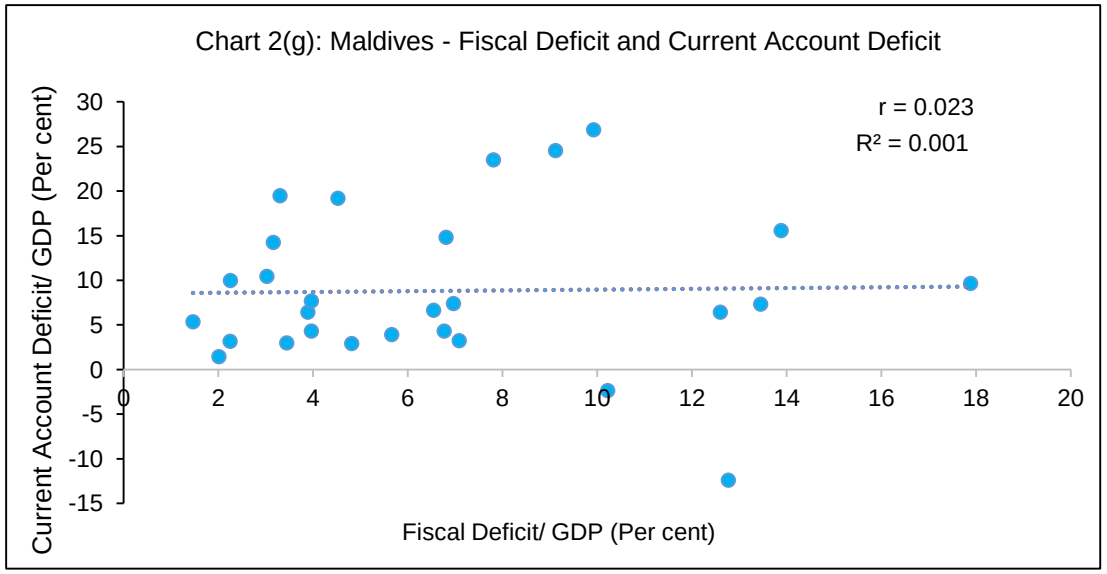

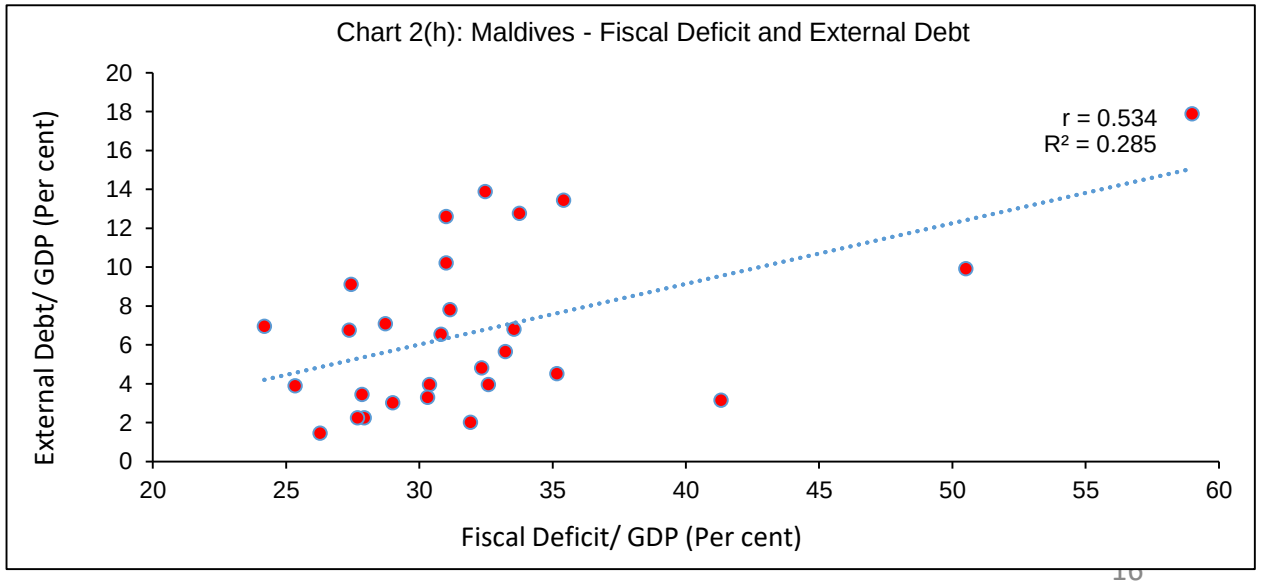

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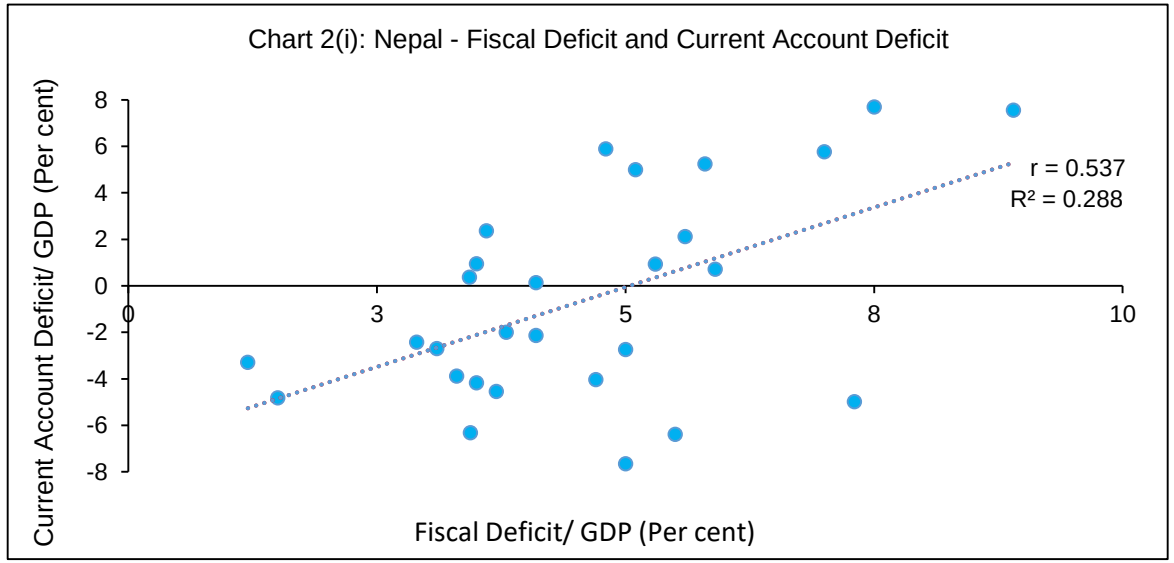

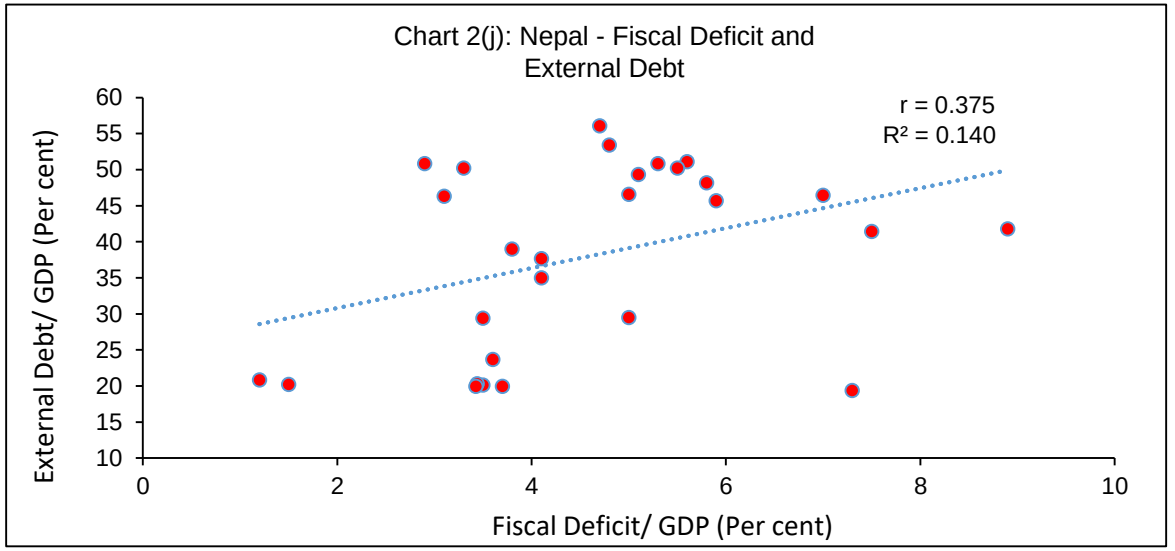

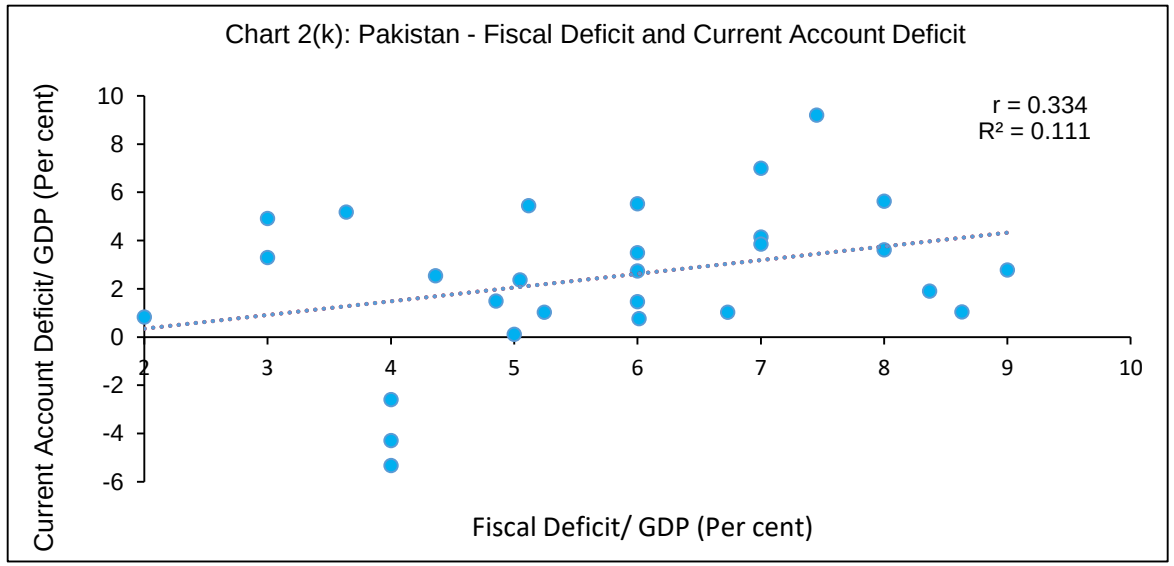

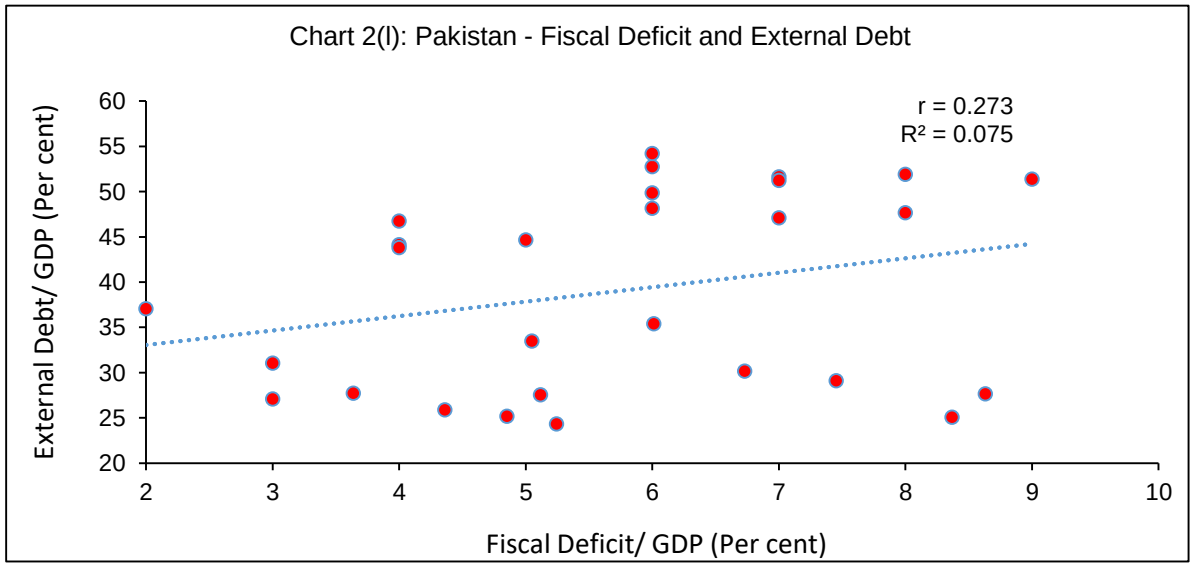

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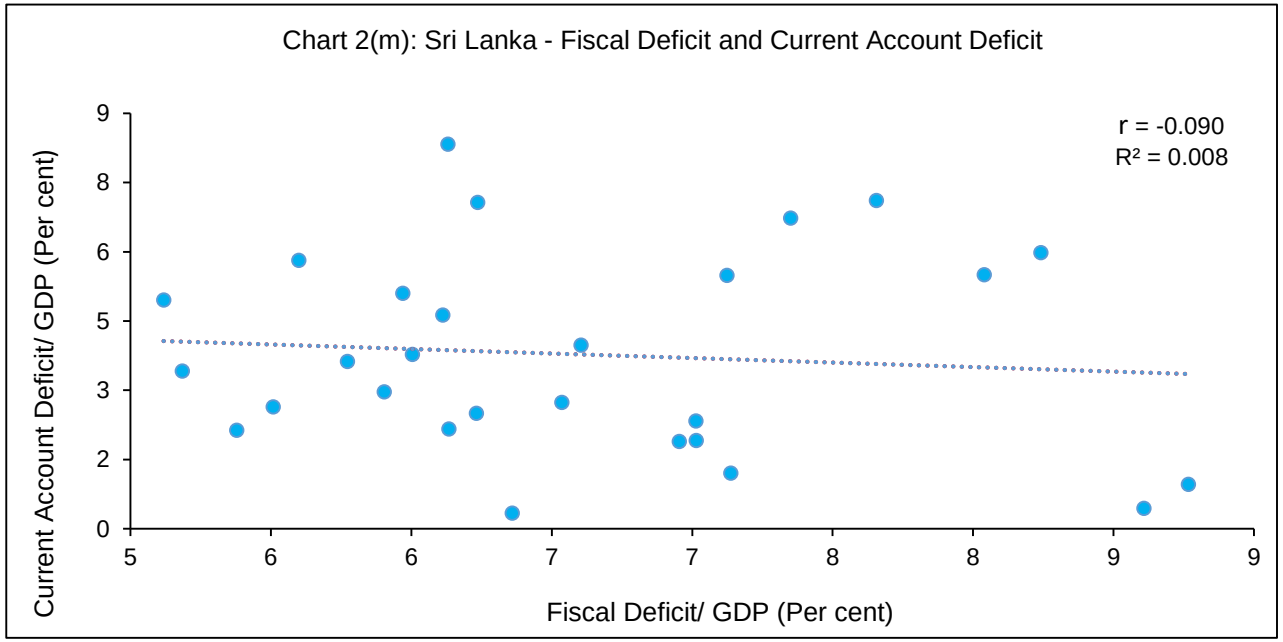
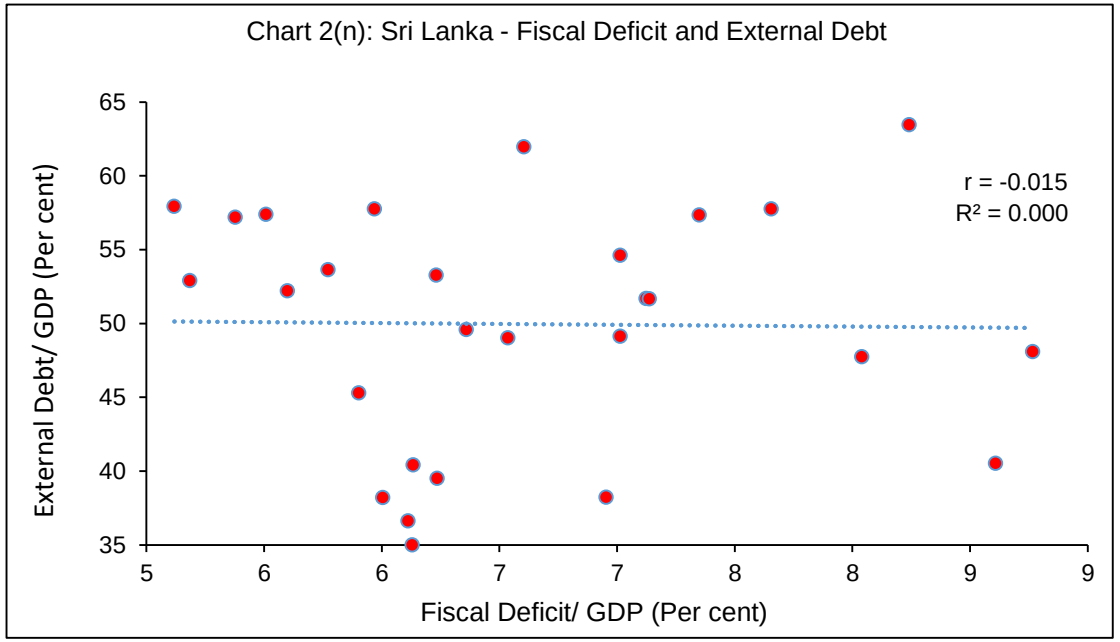




Source: Author's calculations based on data from World Bank, IMF, State Bank of Pakistan, and Nepal Rastra Bank.

Estimation: Results and Analysis (1)

Table 1: Regressions: Dependent Variable - Current Account Deficit (*cad*)			
	Pooled	**Fixed Effects**	**System-GMM**
cad(-1)	0.67***	0.55***	0.53***
fd	0.23	0.39*	0.47***
g	0.01	0.03	-0.07
dep	-0.04	-0.07	-0.13**
opn	0.08***	0.04	0.08
nfa(-1)	0.02	-0.02	0.05
Constant	-0.14	2.04	6.48
R^2	0.61		
Within R^2		0.44	
Between R^2		0.80	
Overall R^2		0.56	
Arellano-Bond test AR(1) (*p*-value)			0.15
Arellano-Bond test AR(2) (*p*-value)			0.29
Countries	7	7	7
Observations	189	189	189

***, **, and * indicate significance level of 1 per cent, 5 per cent, and 10 per cent, respectively.
Note: Robust standard errors were calculated for all regression models.
Source: Author's estimates.

Estimation: Results and Analysis (2)

Table 2: Regressions: Dependent Variable - External Debt (*d*)			
	Pooled	**Fixed Effects**	**System-GMM**
d(-1)	1.02***	0.95***	1.04***
fd	-0.20	0.07	-0.16
g	-0.17	-0.19**	-0.23***
def	-0.22***	-0.21***	-0.30***
r	0.31	0.40**	0.42
sdd	0.15**	0.19***	0.41***
rxr	-0.18	-0.15*	-0.13
Constant	-1.26	-0.40	-3.80*
R^2	0.94		
Within R^2		0.87	
Between R^2		0.99	
Overall R^2		0.93	
Arellano-Bond test AR(1) (*p*-value)			0.13
Arellano-Bond test AR(2) (*p*-value)			0.43
Countries	7	7	7
Observations	189	189	189

***, **, and * indicate significance level of 1 per cent, 5 per cent, and 10 per cent, respectively.
Note: Robust standard errors were calculated for all regression models.
Source: Author's estimates.

Sensitivity Analysis

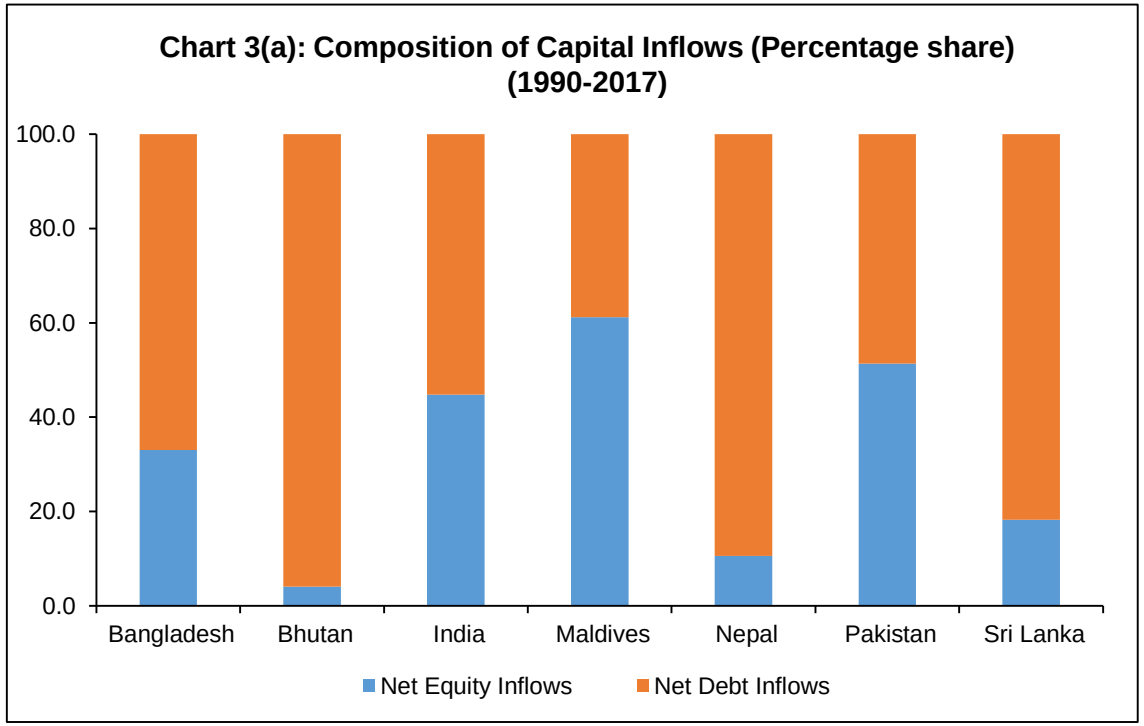
Table 3: Sensitivity Analysis of GMM	
Robustness of Regressions of Current Account Deficit (*cad*)	
cad(-1)	0.55***
fd	0.49***
g	0.16
dep	-0.14*
opn	0.08
nfa(-1)	0.05
g^2	-0.02
Constant	6.40
Arellano-Bond test AR(1) (*p*-value)	0.14
Arellano-Bond test AR(2) (*p*-value)	0.53
Countries	7
Observations	189

***, **, and * indicate significance level of 1 per cent, 5 per cent, and 10 per cent, respectively.
Note: Robust standard errors were calculated for the regression model.
Source: Author's estimates.

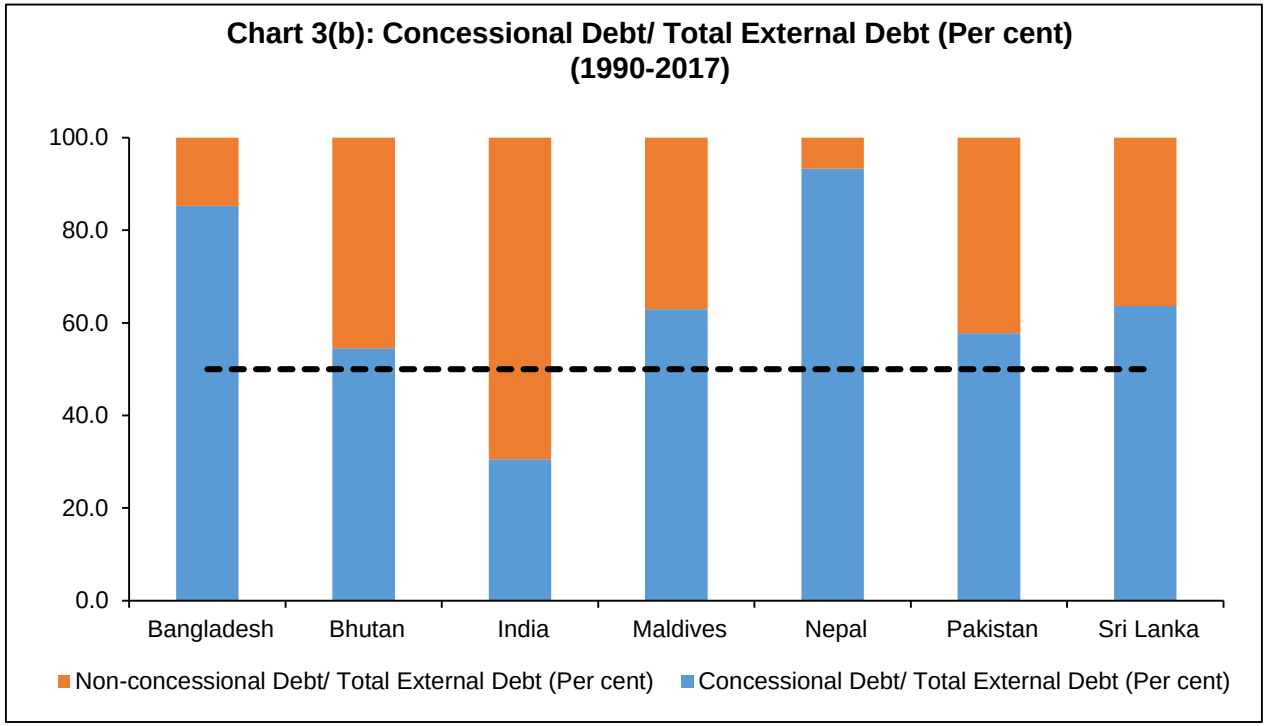
Table 4: Sensitivity Analysis of System-GMM Robustness of Regressions of External Debt (*d*)		
	I	**II**
d(-1)	1.04***	0.99***
fd	-0.15	-0.07
g	-0.21**	-0.25***
def	-0.30***	-0.20*
r	0.44	0.28
sdd	0.42***	
rxr	-0.13	-0.04
g^2	0.00	
str		0.04
Constant	-4.00	0.55
Arellano-Bond test AR(1) (*p*-value)	0.14	0.11
Arellano-Bond test AR(2) (*p*-value)	0.44	0.33
Countries	7	7
Observations	189	189

***, **, and * indicate significance level of 1 per cent, 5 per cent, and 10 per cent, respectively.
Note: Robust standard errors were calculated for all regression models.
Source: Author's estimates.

Why no association between fiscal deficits and external debt despite "twin deficits" in South Asia?



Source: IMF; Author's calculations.



Source: World Bank; Author's calculations.

Policy Implications

- Fiscal discipline – Fiscal consolidation (prudent fiscal management) – Implication for sustainable current account deficit/balance
- Reserves accumulation – Benefits [Qian and Steiner (2017)]:
  - Insurance and liquidity buffers against external shocks and financial crises
  - Induces foreign capital inflows that reduce the vulnerability in the times of sudden stops or capital reversals
  - Increases share of long-term external debt in total external debt, making the economy more resilient to shocks
  - Enhances financial stability
- Real growth enhancing policies
- Preference of equity flows over debt flows
- Preference of stable flows over volatile flows
- Preference of long-term debt over short-term debt
- Productive utilisation of FDI – Enhancing exports earnings and debt repayment capacity

Concluding Remarks

- Sri Lanka has lower reserves cover for total and short-term external debt, and higher debt service ratio; while, Pakistan has lower reserves cover for total external debt and higher debt service ratio
- The study finds “twin deficits” problem in South Asia
- However, fiscal deficit does not significantly contribute in external vulnerabilities in South Asia through external debt
- Equity capital inflows play important role in financing current account deficit in Maldives, India, Pakistan, and Bangladesh; However, debt inflows are in form of concessional debt in all countries (except India), resulting in no significant association between fiscal deficit and external indebtedness in South Asia
- Given the developmental needs of South Asian countries, current account deficit and external debt are not problems as long as they are sustainable
- Policies should aim at increasing reserves cover for short-term and total external debt, real GDP growth, exports/ current account receipts, preferring equity flows over debt flows, long-term debt over short-term debt, stable flows over volatile flows, and productive utilization of FDI

Thank You!