Sri Lanka's Macroeconomic Challenges: A Tale of Twin Deficits

(joint with Dushni Weerakoon and Roselle Dime)

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CBSL-IPS-World Bank Conference on
External Vulnerabilities in South Asia
28 Feb- 1 Mar 2019

Objectives

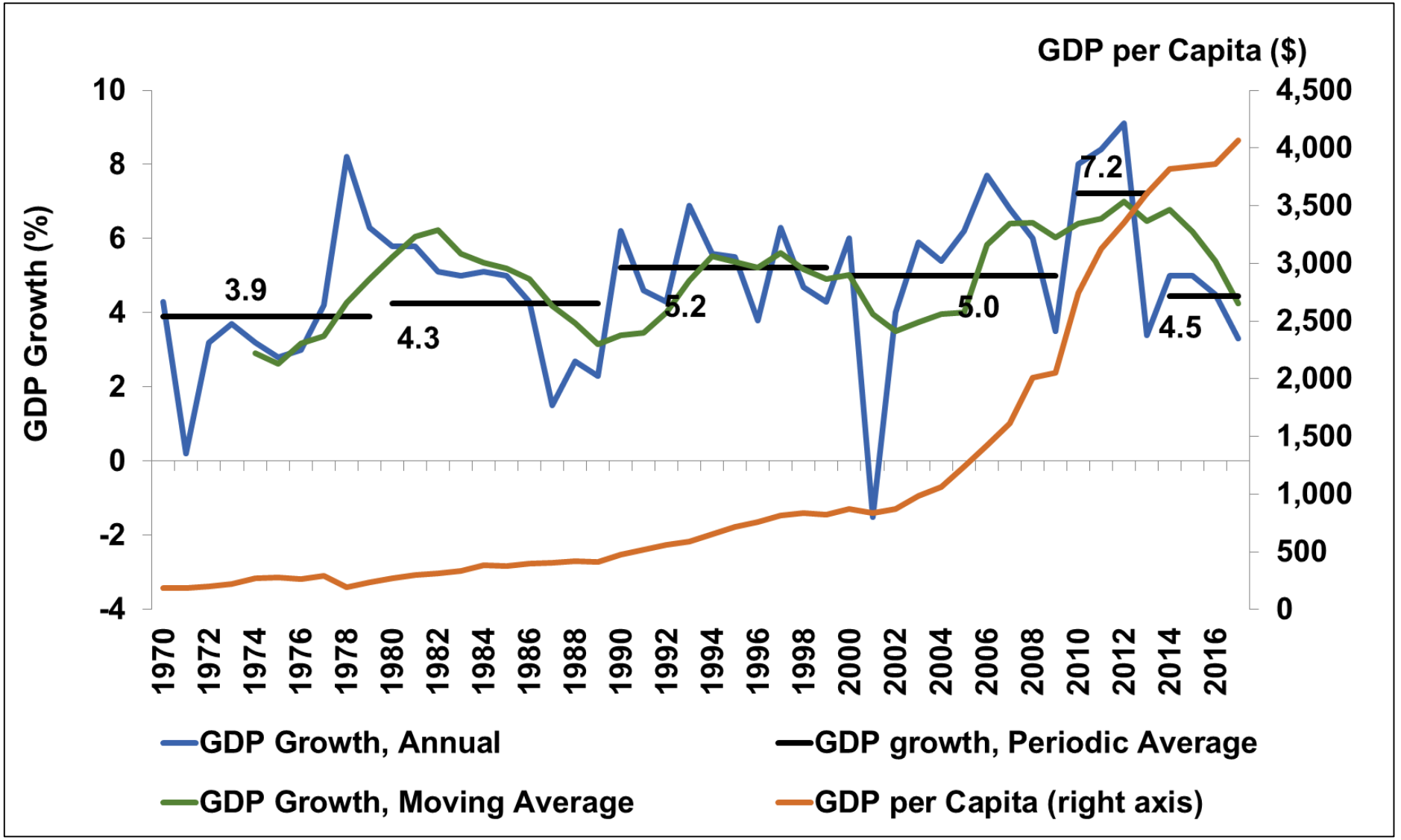
- Analyze Sri Lanka’s macroeconomic outcomes from the lens of twin deficits
- Empirical analysis: Direction of causality of twin deficits
- Policy recommendations

Glass Half Full or Half Empty?

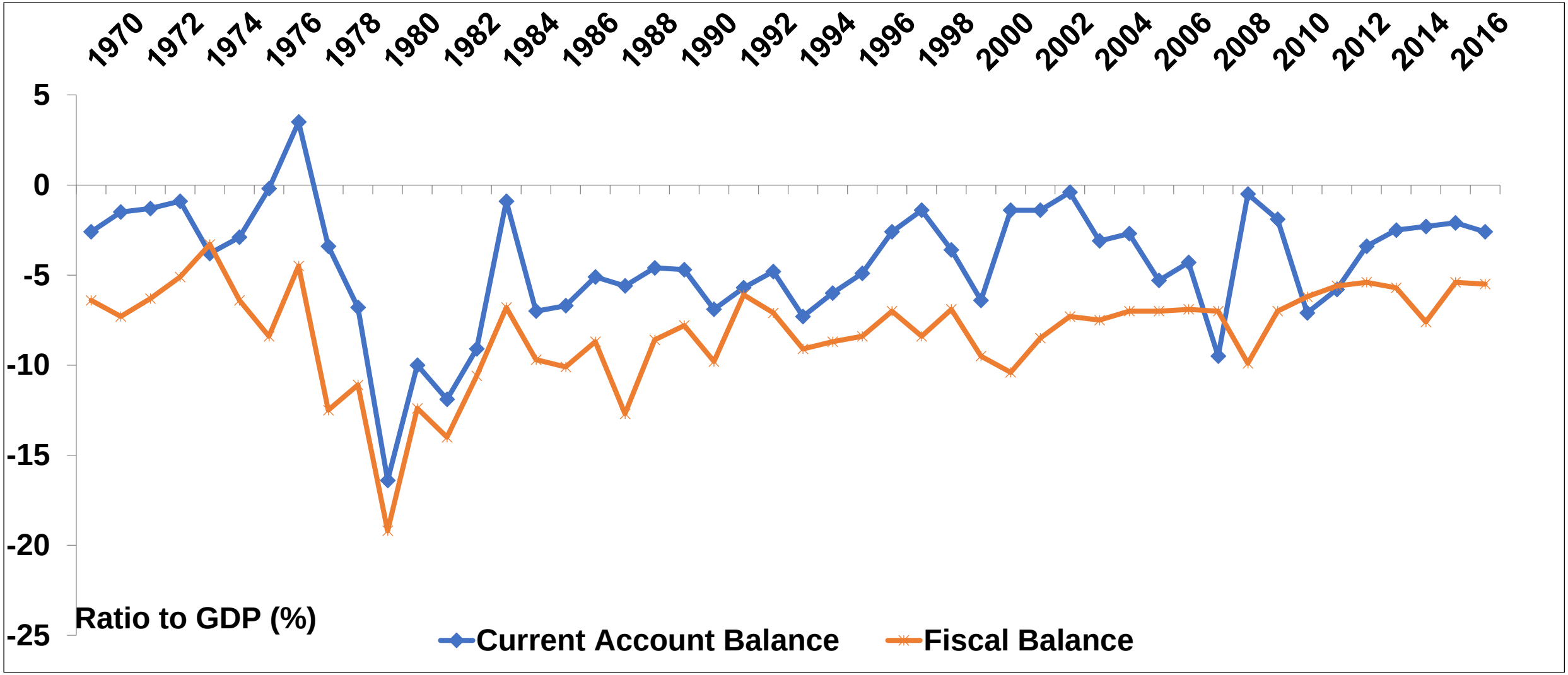
- Development strides
- Strong growth despite civil conflict…

- …but growth not as high as E/SE Asia and Sri Lanka has lagged behind
- Missed opportunities (small manufacturing base and limited presence in GVCs)

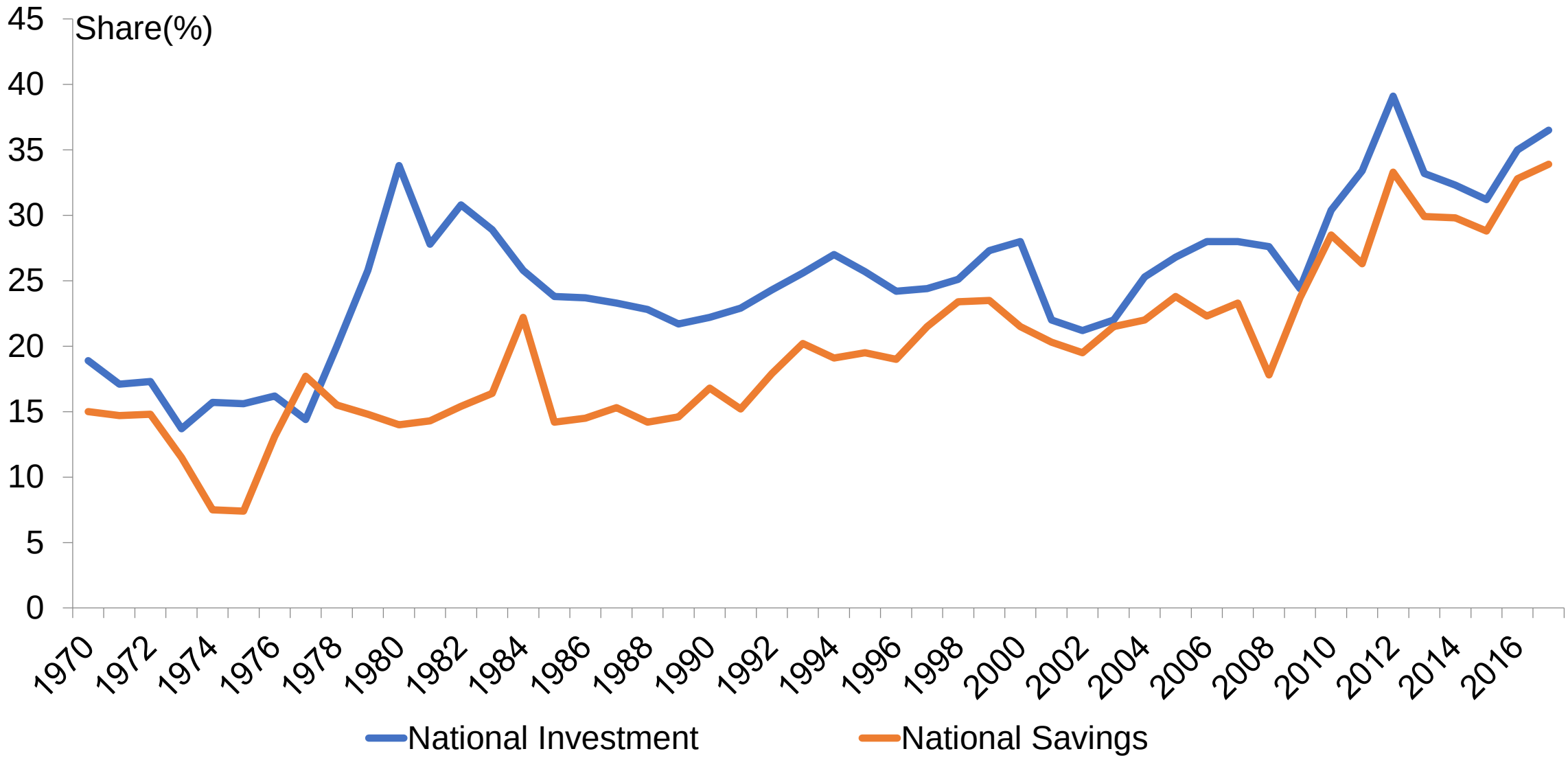
GDP growth averaged 4.8% over 48 years with major gains in poverty reduction, amidst a long civil conflict.



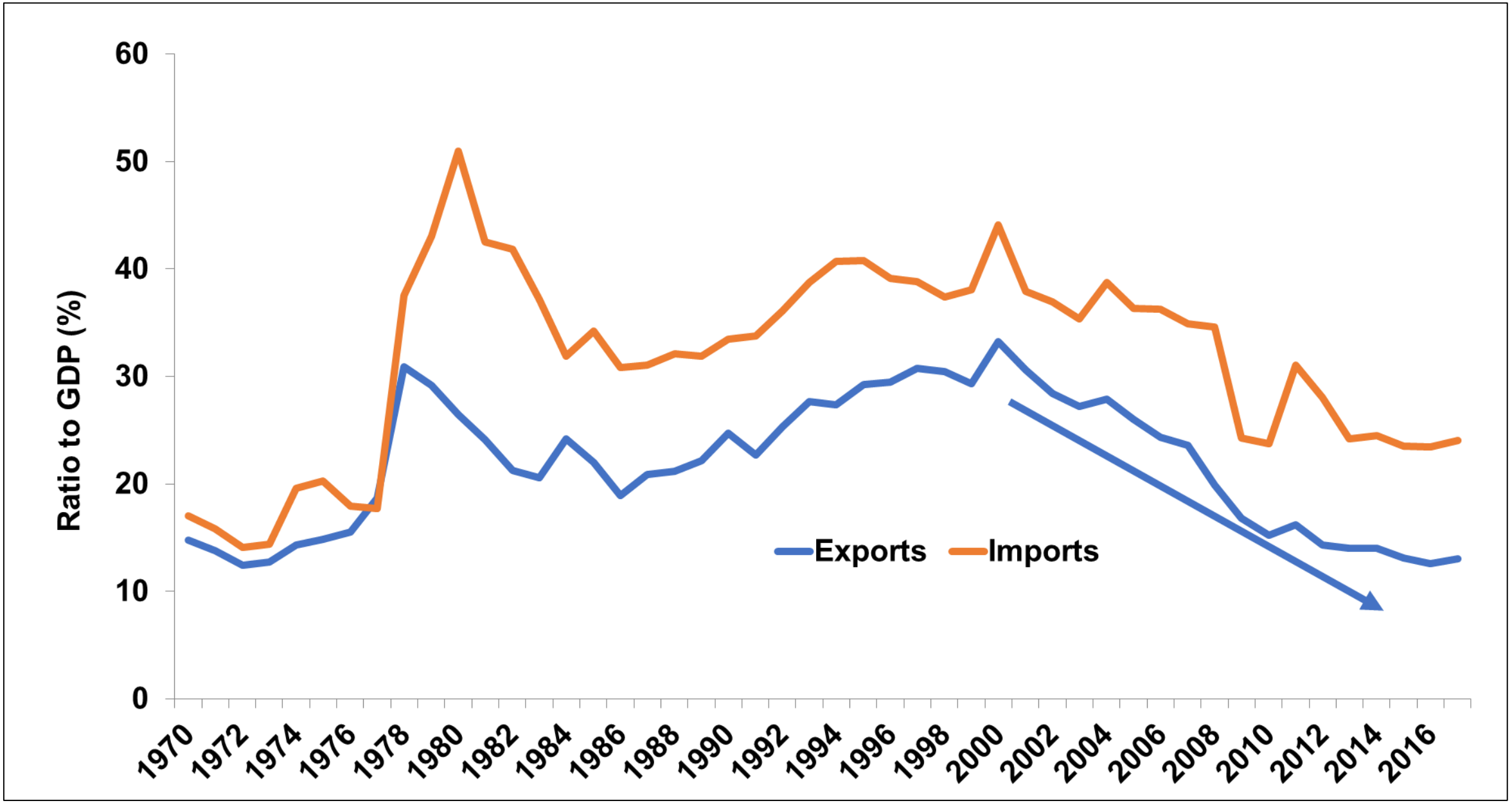
Classic Twin Deficit Economy



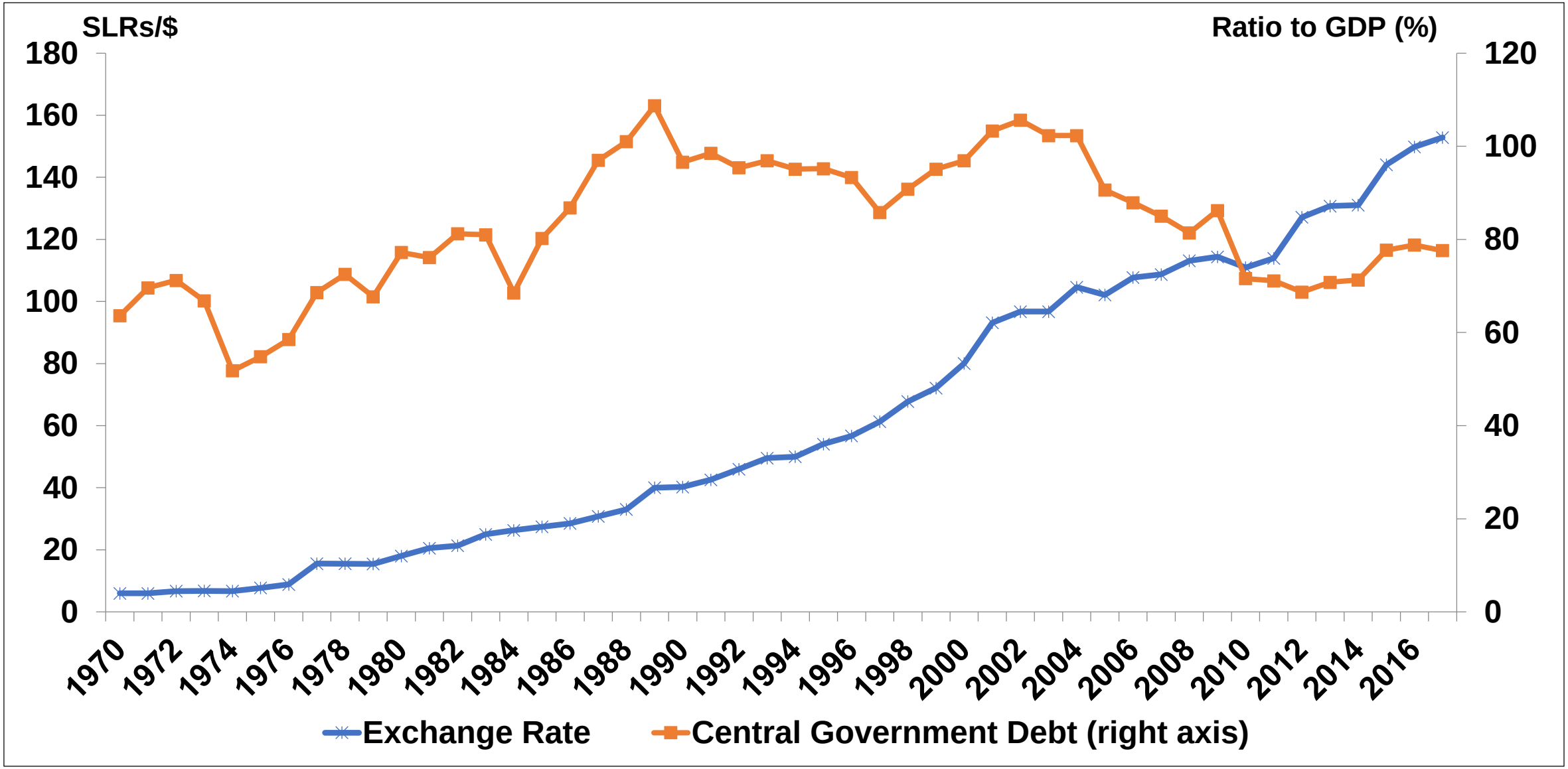
Savings-Investment Gap



Openness increased after reforms but declining since last decade

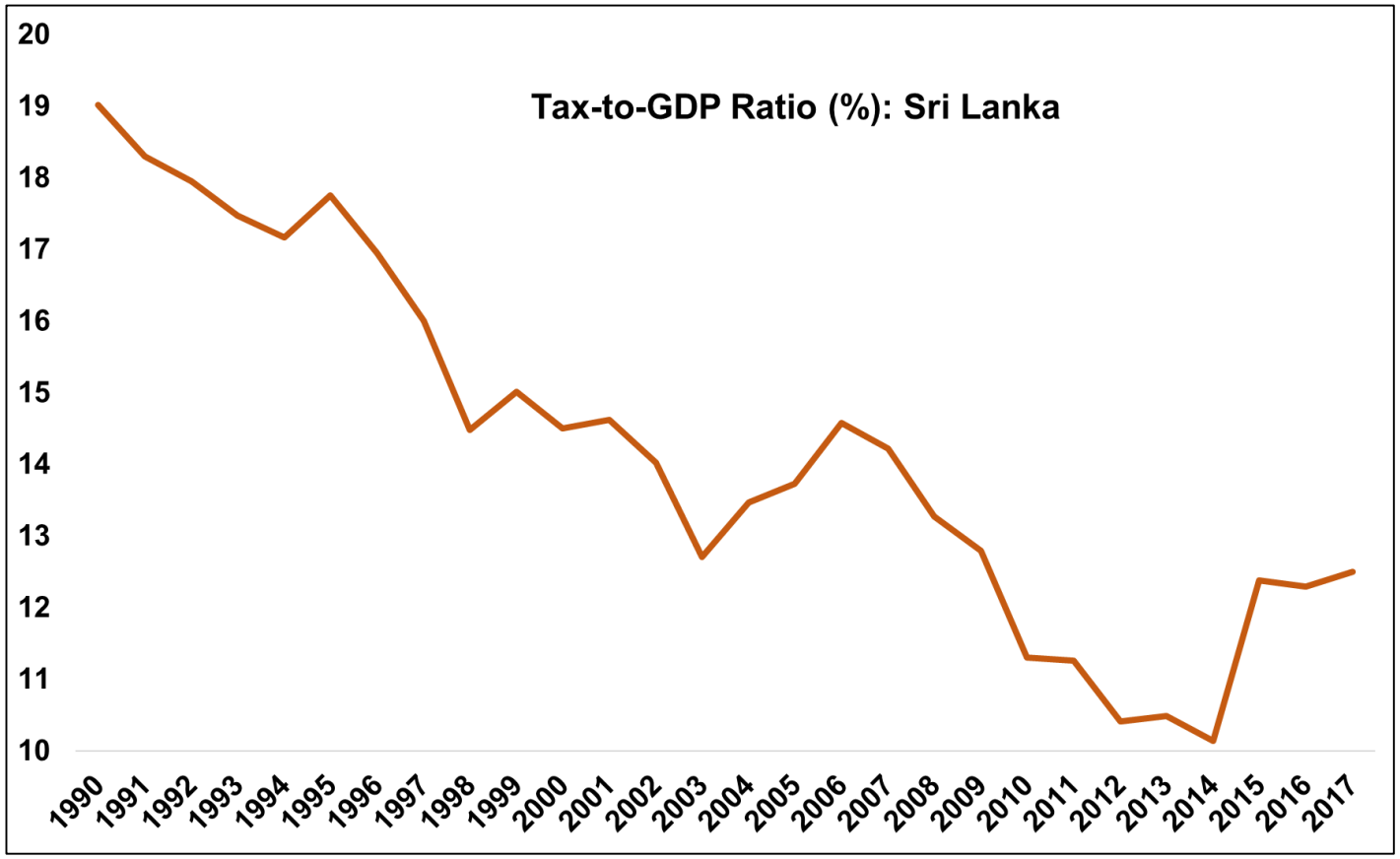


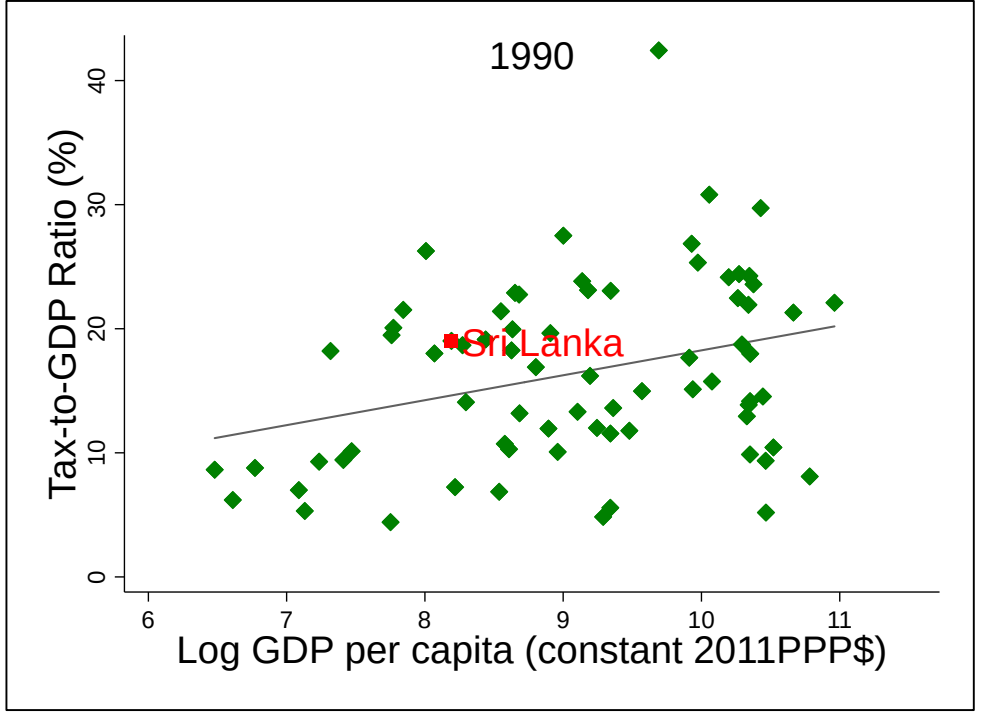
Imbalances are reflected in debt and exchange rate

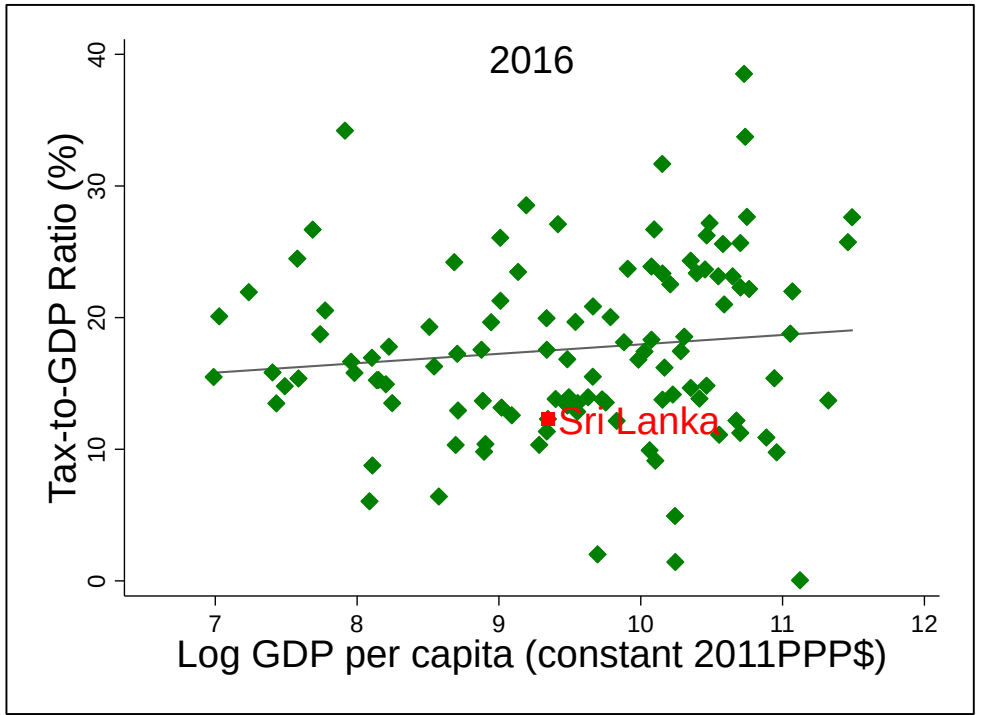


Source: Weerakoon, Kumar, and Dime (Forthcoming). Sri Lanka's Macroeconomic Challenges: A Tale of Two Deficits.

Downward trend in tax-to-GDP ratio which is starting to reverse but tax revenues remain low…

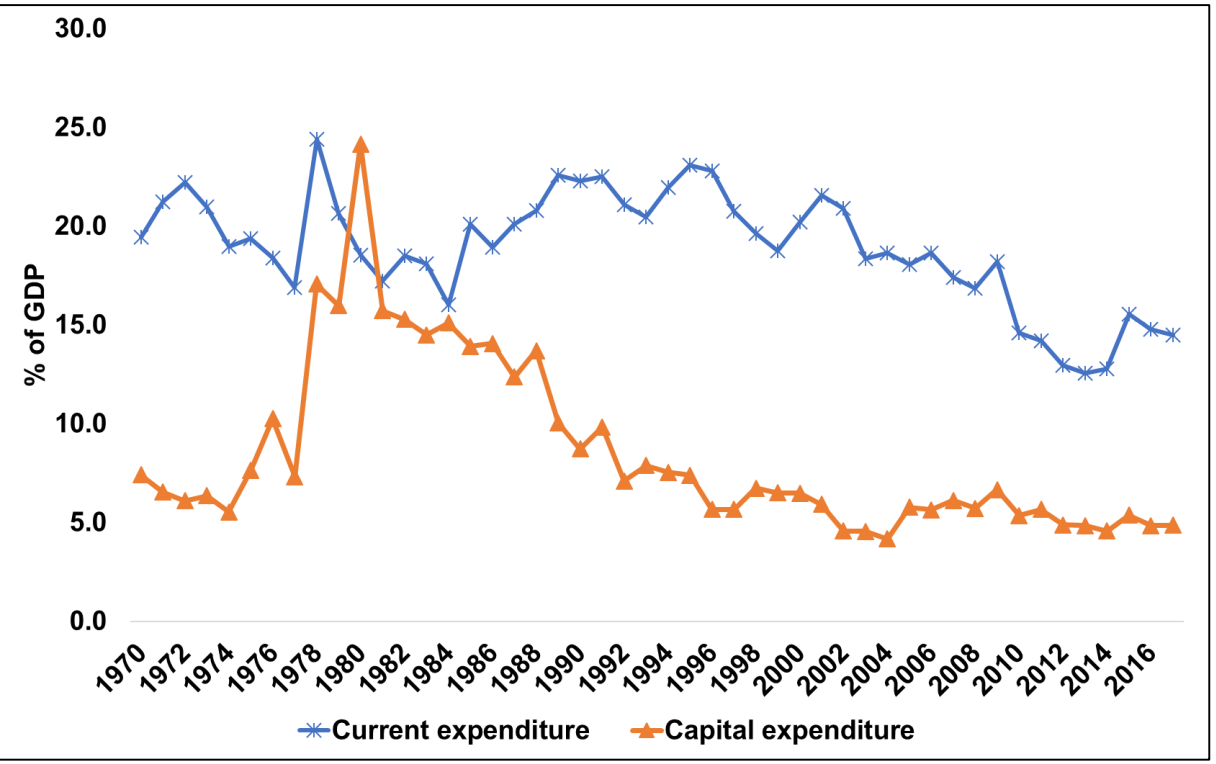


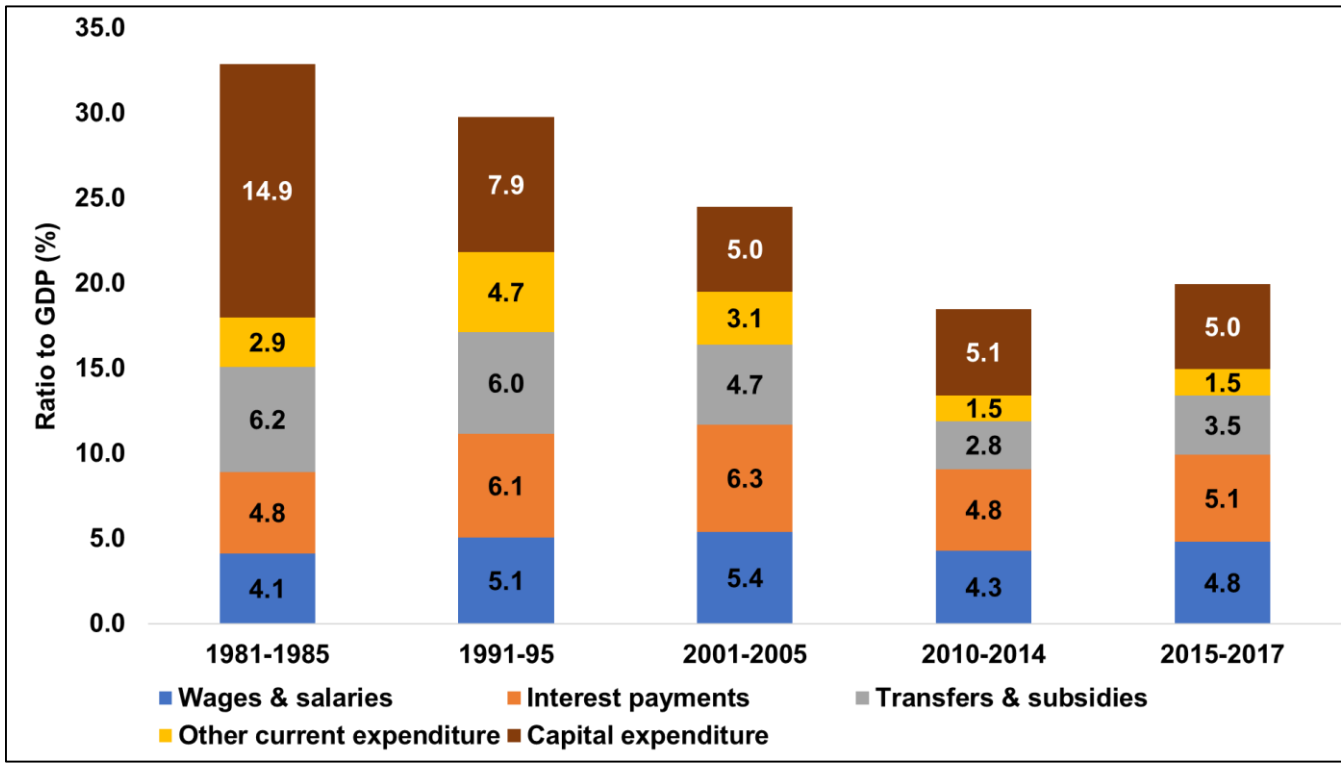




Source: Weerakoon, Kumar, and Dime (Forthcoming). Sri Lanka's Macroeconomic Challenges: A Tale of Two Deficits; World Bank WDI.

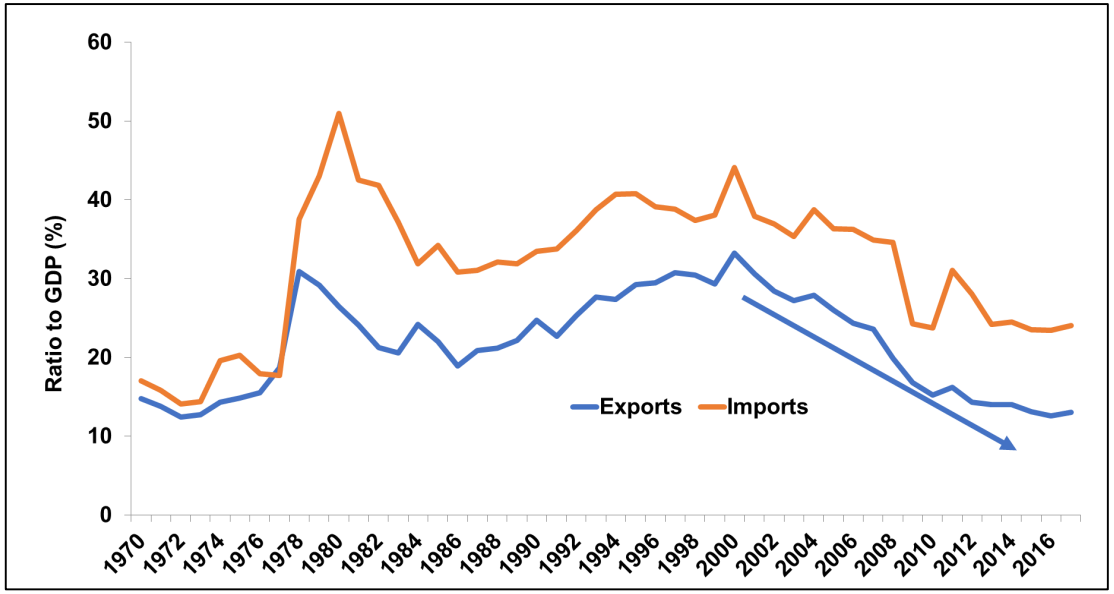
… and there are rigidities in the expenditure structure

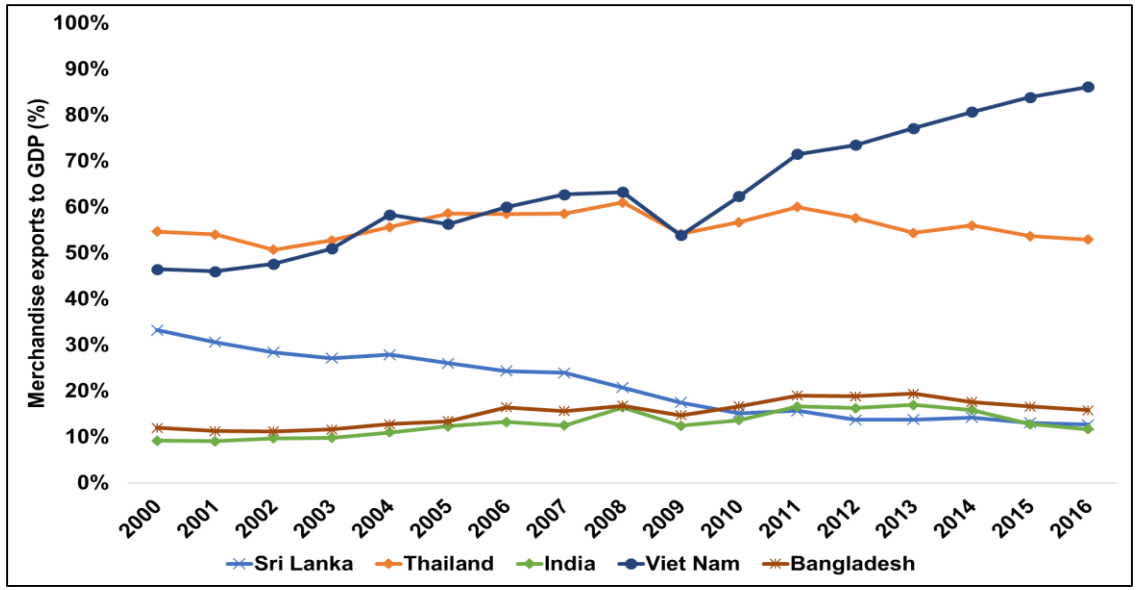


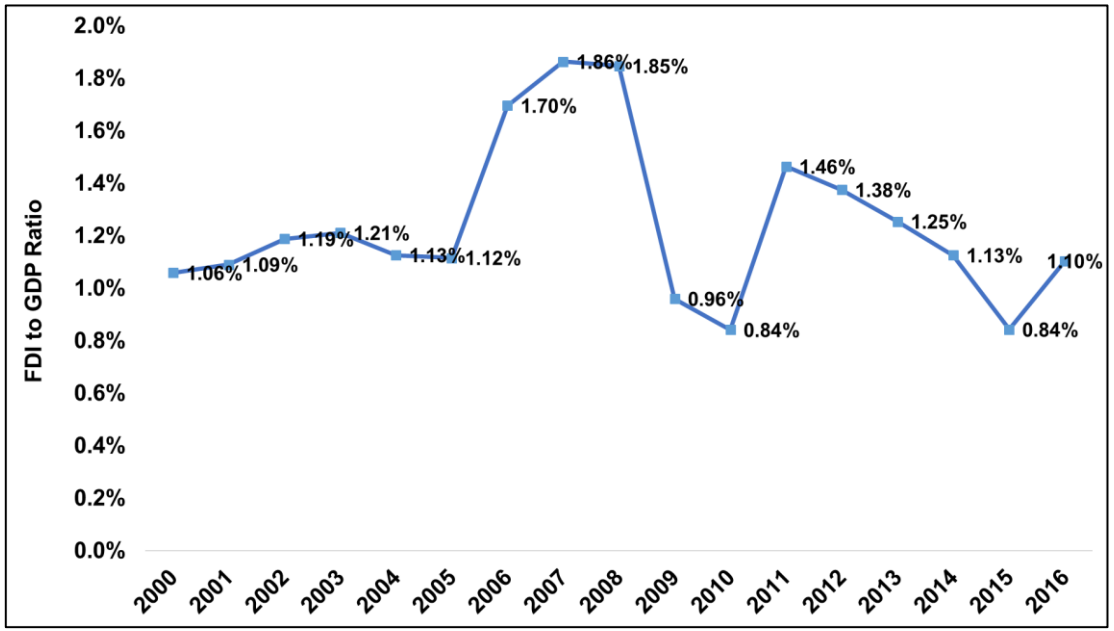


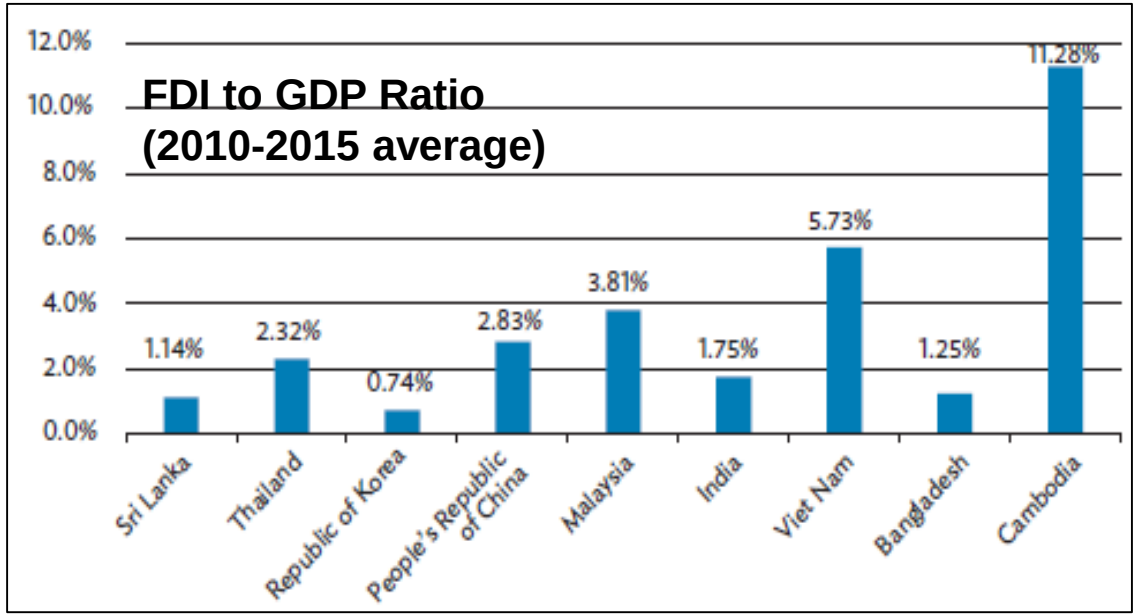
Source: Weerakoon, Kumar, and Dime (Forthcoming). Sri Lanka's Macroeconomic Challenges: A Tale of Two Deficits;

Need to improve exports and attract FDI



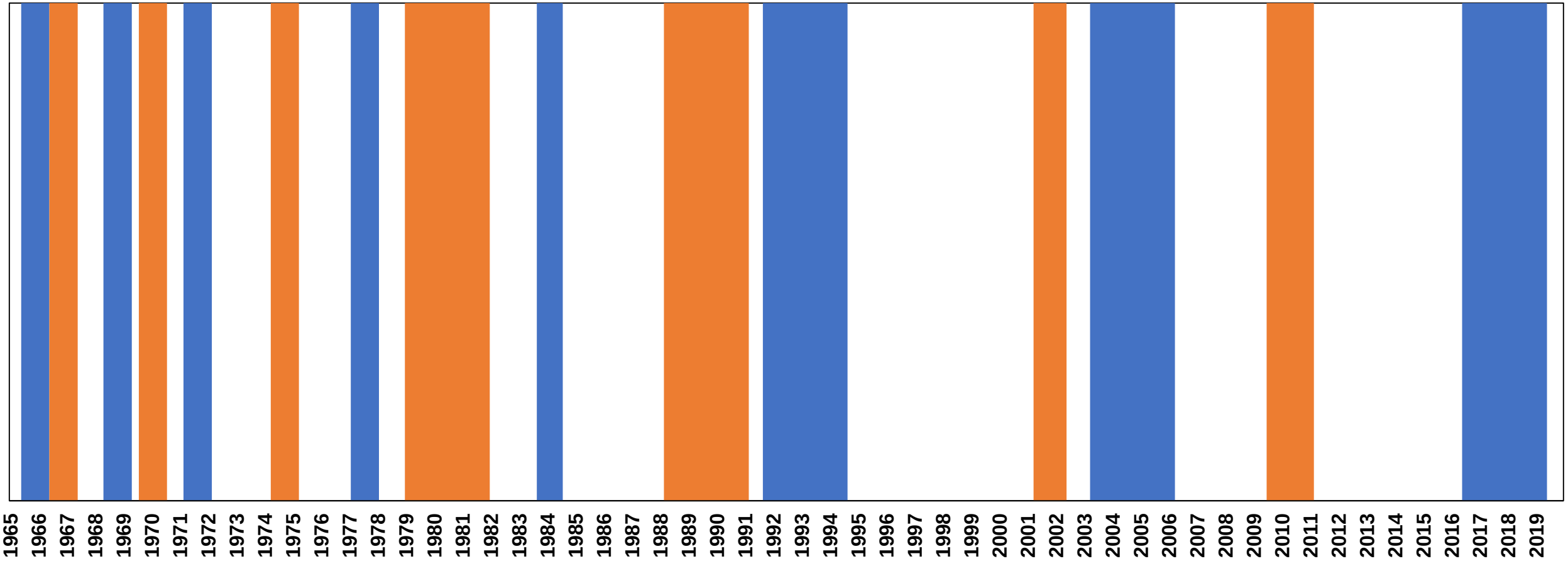






Persistent Macroeconomic Vulnerability

15 IMF Arrangements in 52 years



Source: IMF.

Note: In 2003 there were two arrangements: one of the arrangements was an Extended Fund Facility and the second was the Poverty Reduction and Growth Facility. The two are counted as a single arrangement here. The last IMF program commenced in June 2016 and is to be implemented over 36 months.

Empirical Analysis

- To determine the direction of causality between the twin deficits
- Literature review and existing evidence on Sri Lanka
- Data and methodology
- Findings of this paper

Literature Review (1)

- Much of the earlier work on twin deficits (TDs) was in 1980s in the context of the US
- Four testable hypotheses:
  - Unidirectional causal pattern from fiscal balance (FB) to current account balance (CAB)
  - Unidirectional causal pattern from CAB to FB
  - Bidirectional causality between CAB and FB
  - FB and CAB are causally independent
- In the literature one can find results supporting each of the above four hypotheses (even for the same country). Results seem to depend on methodology, country, time period, and definition of variables

Literature Review (2)

- Saleh, Mehandhiran, and Agalewatte (2005):
- Chowdhury and Saleh (2007):
- Premaratne, Ravinthirakumaran, Kesavarajah (2011):
- Perera and Liyanage (2012):
- Selliah and Balamurali (2012): bidirectional causality

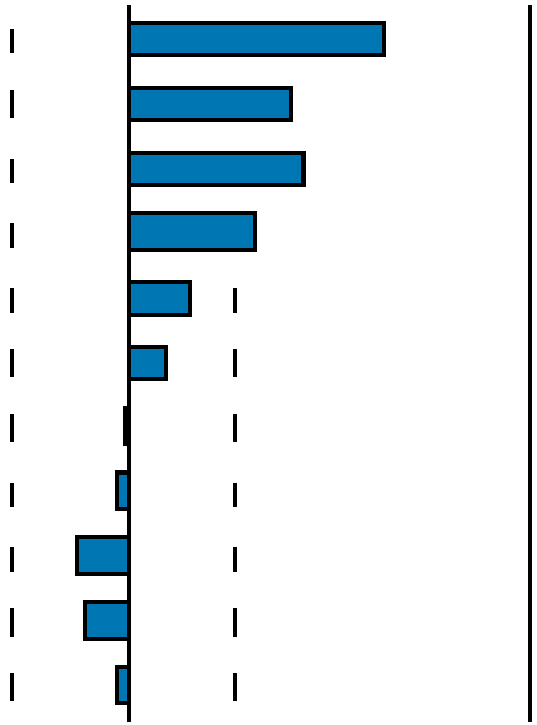
Data

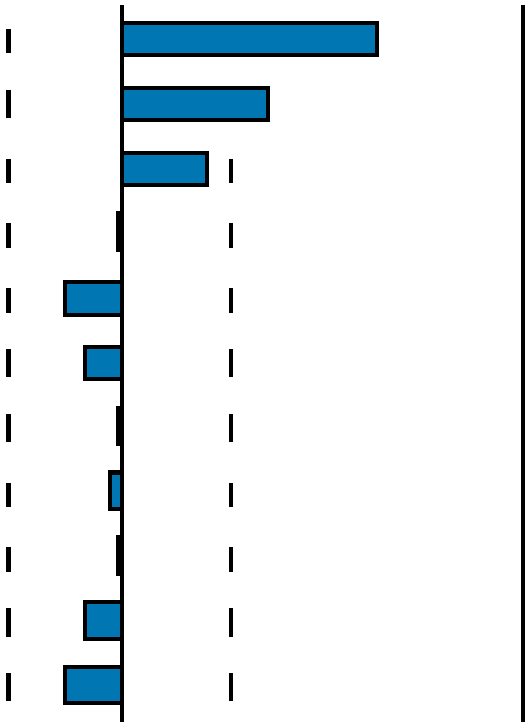
- Annual series from 1970 to 2017
- FB and CAB as ratio to GDP are used
- Levels of the ratio

Methodology

- Step 1: Test for stationarity
- Step 2: Examine direction of causality

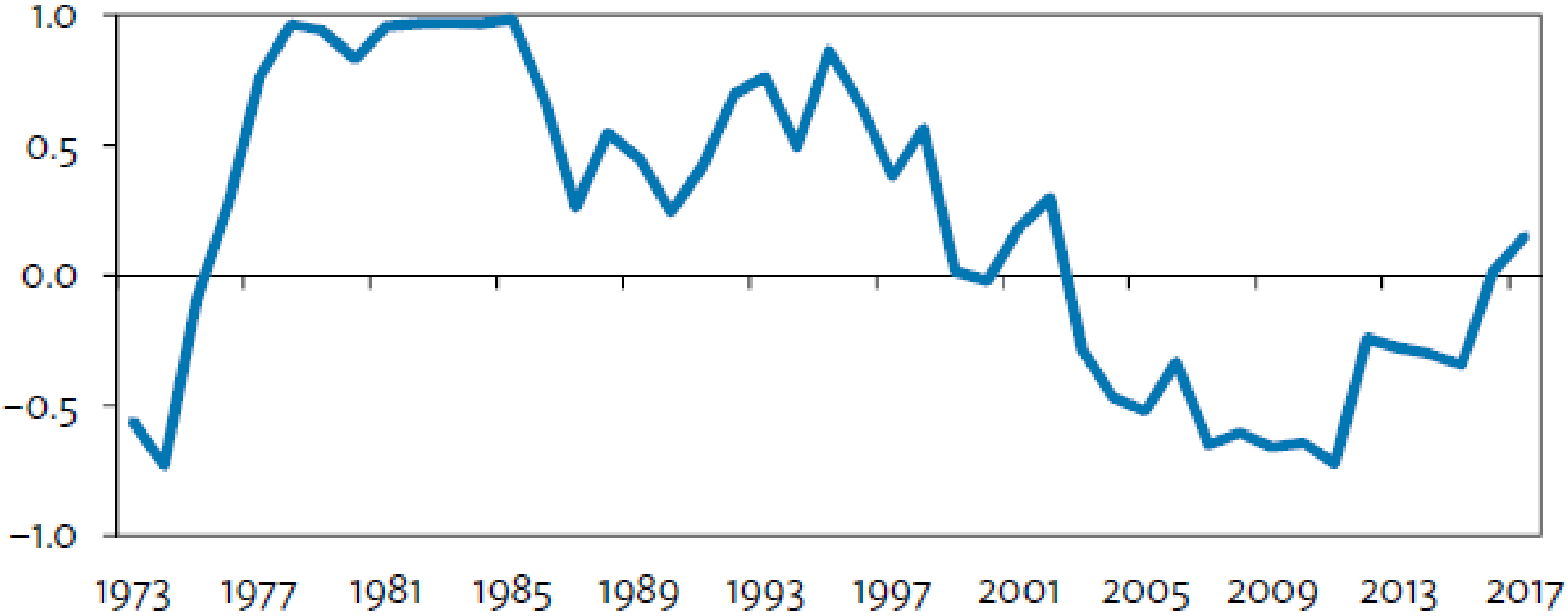
Correlogram of CAB and FB





Cross-correlation(lag)	Cross-correlation(lead)	i	lag	lead
		0	0.6644	0.6644
		1	0.4253	0.3807
		2	0.4663	0.2155
		3	0.3305	−0.0118
		4	0.1681	−0.1407
		5	0.1035	−0.0884
		6	−0.0157	−0.0003
		7	−0.0190	−0.0212
		8	−0.1304	−0.0003
		9	−0.1047	−0.0911
		10	−0.0197	−0.1411

5-year Rolling Average of Correlation between CAB and FB



Unit Root Tests

Variable	Augmented Dickey-Fuller	Philips-Perron	Zivot-Andrews Breakpoint
H_O: Non-stationary (unit root exists)			
Current Account Balance to GDP Ratio	-4.09***	-4.09***	-5.30***
Fiscal Balance to GDP Ratio	-2.34	-3.94***	-5.30***

Method	Statistic
H_O: Non-stationary (unit root exists)	
Levin, Lin, and Chu *(assumes common unit root process)*	-2.40***
Augmented Dickey-Fuller *(assumes individual unit root process)*	15.69***
Philips-Perron *(assumes individual unit root process)*	23.30***

*** significant at 1%, ** significant at 5%, * significant at 10, GDP = gross domestic product.

Unit Root Test Results: Comparison With Other Papers

Sample Period	Variable	Method		
		Augmented Dickey–Fuller	Philips–Perron	Breakpoint
1970–2017 (this paper)	CAB	−4.09***	−4.09***	−5.30***
	FB	−2.34	−3.94***	−5.30***
1970–2003 (Saleh, Mehandhiran, and Agalewatte, 2005)	CAB	−2.98**	−2.98**	−4.30*
	FB	−3.49***	−3.56***	−4.96***
1970–2005 (Chowdhury and Saleh, 2007)	CAB	−3.16**	−3.16**	−4.59**
	FB	−2.19	−3.63***	−5.03***
1960–2009 (Perera and Liyanage, 2012)	CAB	−3.96***	−3.96***	−5.37***
	FB	−2.32	−3.83***	−5.76***

*** significant at 1%, ** significant at 5%, * significant at 10%, CAB = current account balance (percentage of GDP), FB = fiscal balance(percentage of GDP), GDP = gross domestic product.

Notes: The null hypothesis is that the series being tested has a unit root. This table shows the results of unit root tests for different sample periods using the data deployed in this paper. The choice of different sample periods is based on the duration used for analysis in selected papers which are indicated in parentheses next to the sample period. Only those papers which use current account balance and fiscal balance as percentages of GDP are selected for comparison of results for unit root test. For the purposes of this table, our dataset was extended back to 1960.

VAR Estimation

- Step 2: Examine direction of causality. With unit root tests indicating stationarity, long-run relationship is not modeled and a VAR specification is estimated

$$CA\_GDP_t = \beta_{10} + \beta_{11} CA\_GDP_{t-1} + \beta_{12} CA\_GDP_{t-2} + \beta_{13} FB\_GDP_{t-1} + \beta_{14} FB\_GDP_{t-2} + e_{1t}$$

$$FB\_GDP_t = \beta_{20} + \beta_{21} CA\_GDP_{t-1} + \beta_{22} CA\_GDP_{t-2} + \beta_{23} FB\_GDP_{t-1} + \beta_{14} FB\_GDP_{t-2} + e_{1t}$$

Null Hypothesis:	Statistic	Probability
FB_GDP does not Granger Cause CA_GDP	10.698**	0.00
CA_GDP does not Granger Cause FB_GDP	1.83	0.40

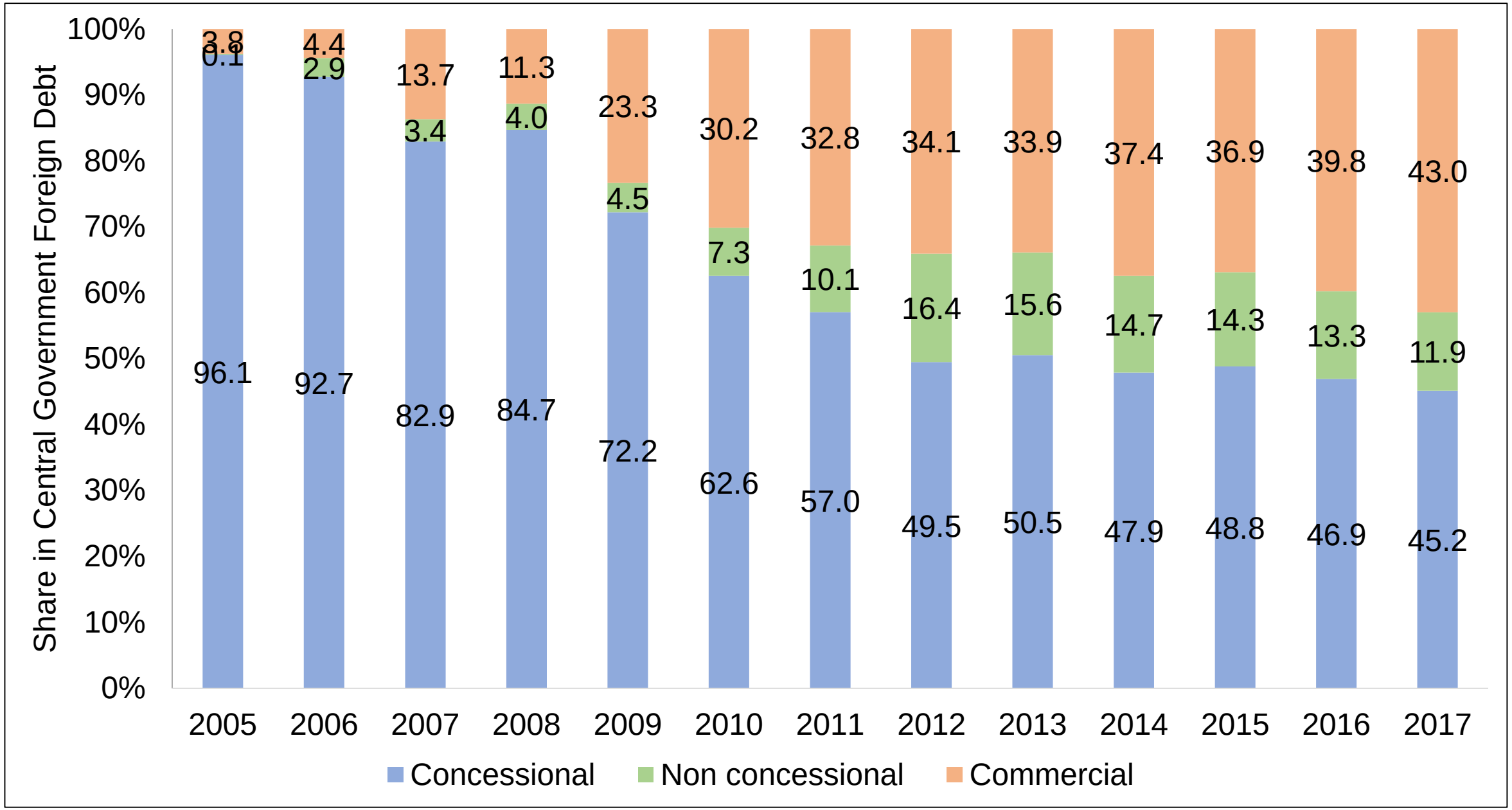
** significant at 5%, CAB = current account balance (percentage of GDP), FB = fiscal balance(percentage of GDP), GDP = gross domestic product.

Comparative Research Findings on TD for Sri Lanka

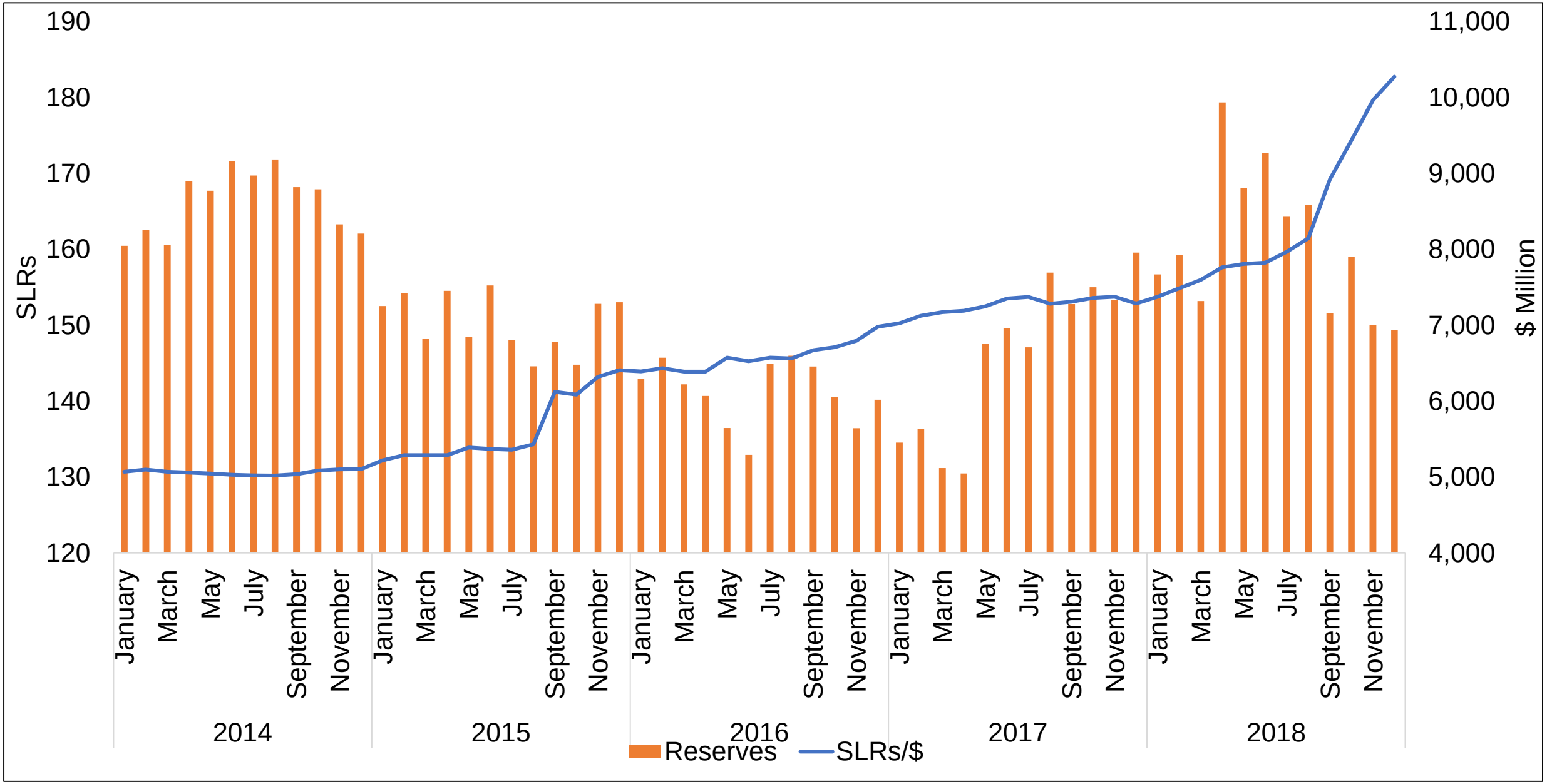
Reference	Period Covered; Frequency	Variable Used	Presence of Unit Root	Direction of Causality	Cointegration
This paper	1970–2017; A	% of GDP	none	FB to CAB	None
Saleh, Mehandhiran, and Agalewatte (2005)	1970–2003; A	% of GDP	Yes	FB to CAB	Yes
Chowdhury and Saleh (2007)	1970–2005; A	% of GDP	Yes	FB to CAB	Yes
Perera and Liyanage (2012)	1960–2009; A, and 1990–2009; Q	% of GDP	Yes	FB to CAB	Yes
Premaratne, Ravinthirakumaran, and Kesavarajah (2011)	1970–2003; A	levels	Yes	FB to CAB	Yes
Selliah and Balamurali (2012)	1960–2010; A	log of real levels	Yes	Bidirectional	Yes

A = annual, CAB = current account balance, FB = fiscal balance, GDP = gross domestic product, Q = quarterly.

Change in debt composition



Gross official reserves and exchange rate movements



Policy Recommendations

- Fiscal reforms
  - Revenue side measures
  - Expenditure rationalization

- Continued push for deep structural reforms to enhance competitiveness of the economy and make it an attractive FDI destination

- Sustaining the reforms

Thank You!