Regional Workshop on External Vulnerabilities in South Asia

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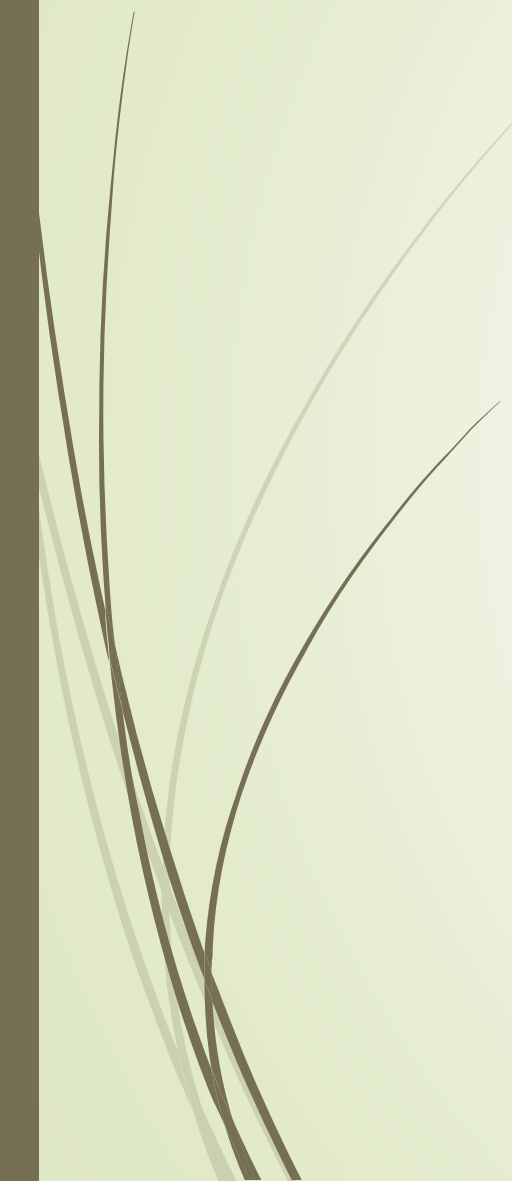# Twin deficit Hypothesis: Empirical Evidence from India

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Presentation scheme

- Introduction
- Twin deficit problem in India
- Data and methodology
- Summary
- Policy implications

Twin deficit hypothesis ???

Standard macroeconomic theory points to how a budget deficit can be a contributing factor to a current account deficit. This link can be seen from considering the national accounting model of the economy

$Y=C+I+G+(X-M)$

Another equation defining GDP using alternative terms (which in theory results in the same value

$Y=C+S+T$

Since $Y=C+I+G+NX$ and $Y-C-T=S$ then

$S=G-T+NX+I$ (Sectoral balance identity)

$(S-I)+(T-G)=(NX)$

If $(T-G)$ is negative, we have Budget deficit

assume an economy already at potential output, meaning Y is fixed. In this case, if the deficit increases, and saving remains the same, then this last equation implies that either investment (I) must fall or net exports (NX) must fall, causing a trade deficit. Hence, a budget deficit can also lead to a trade deficit, causing a twin deficit.

The persistence of these two deficits is a policy concern as the two are regarded as barometers of the internal and external position of an economy.

The large fiscal deficits are viewed to oppress the **growth** performance of an economy, and large current account deficits hinder **the international competitiveness**, cause a **drain of wealth**, a reduction in **forex reserves** and may even switch on a **currency crisis**.

The standard Keynesian macroeconomics expects a direct association between the two deficits. Whereas Ricardian equivalence hypothesis of **Barro** (1976, 1989) postulates neutrality between them, and more recently, **Kim and Roubini** (2008) support a negative association, "Twin Divergence" hypothesis

A pair of deficits are having a significant effect on the Indian economy. **The massive and prolonged budget deficit has discouraged the government to spend enough to develop adequate infrastructure**, making the country's **supply side of the economy** so fragile. This has dissuaded foreign manufacturers from expanding into the country.

The deficit is significant because its proportion to the country's gross domestic product is much higher than that for other Southeast Asian economies, such as Thailand and Indonesia.

The huge budget deficit can also increase the pressures both for **inflation** and expansion of the current account deficit, which are obstacles to keeping the country's **macroeconomic management healthy.**

To obtain enough money to supplement these deficits, the central government issues bonds, for which state-owned banks are major buyers. This has resulted in a state of **crowding out**, in which an overwhelming amount of government bonds can generally **raise interest rates** in the market, but it discourages private enterprises from raising funds.

- Another major concern is the country's current account deficit. A couple of years ago, a global financial institution coined the expression "**Fragile Five**," indicating economies that are heavily dependent on foreign investment to finance growth. India was named, along with Turkey, Brazil, South Africa and Indonesia.

- India's current account balance has been in the red for years, and the size of the deficit began ballooning in 2010, largely due to the expansion of its trade deficit. **Expanding inflows of foreign direct investment boosted India's capital goods imports and domestic consumption**. The rise of crude oil prices also contributed to an increase of the trade deficit.

- With a negative current account balance, India needs to retain net capital inflows for keeping the total balance of payments in the black. In that sense, the country should seek more foreign direct investment, rather than foreign portfolio investment, as a stable source of money.

# Current account and gross fiscal deficit situation in India
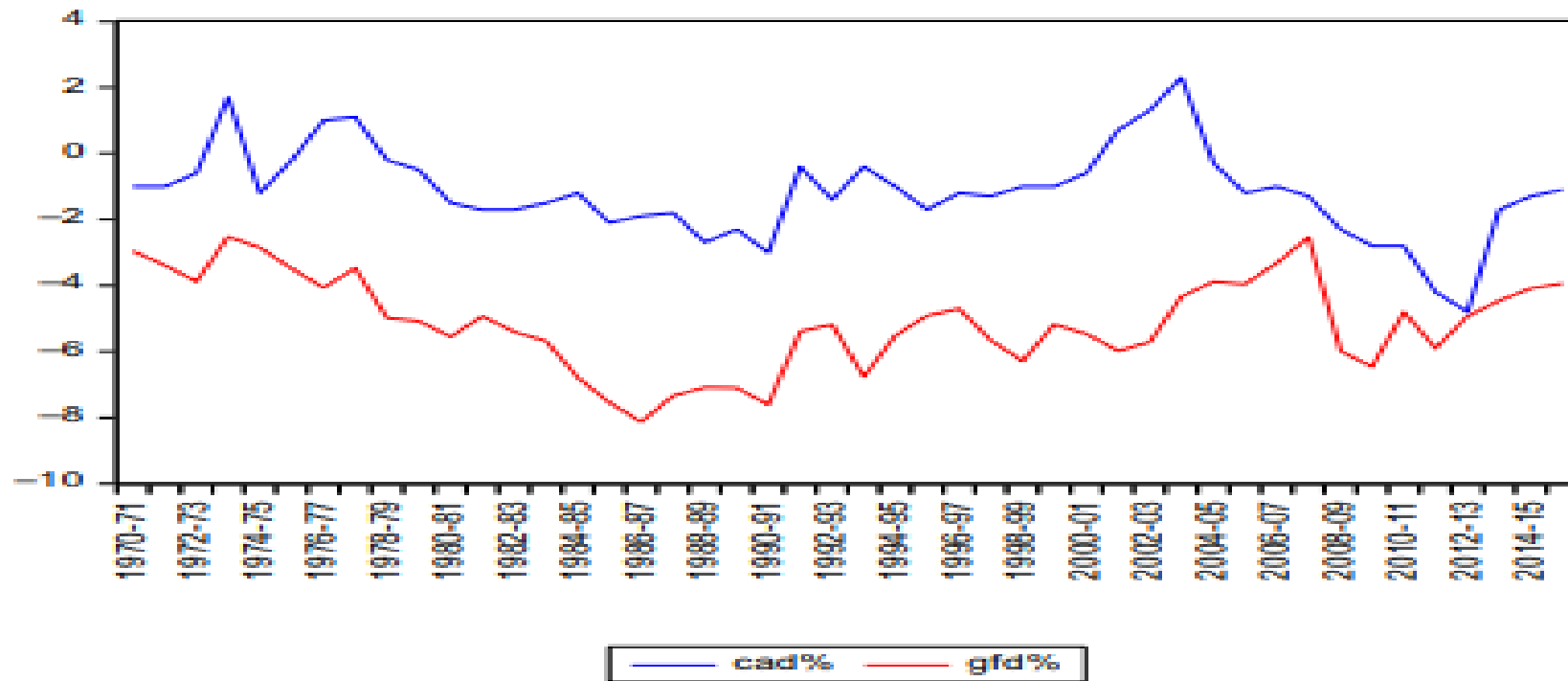
Twin deficit problem in India

- almost in every year, there is a deficit either in internal or external balance except for certain years like 1972-1973, 1975-1976, 1976-1977, 2001-2002 and 2002-2003 where there was a surplus in external account.

- The fiscal deficits increased progressively from 1970 to 1971 (2.96 per cent of GDP) to 1986-1987 (8.13 per cent of GDP) particularly to meet the local expenditures.

- During global meltdown, the Government of India injected higher doses of stimulative packages and deficits swallowed again along with current account imbalance.

- In 2015-2016, the figures are -3.54 per cent and -1.25 per cent for the fiscal deficit and external deficit, respectively

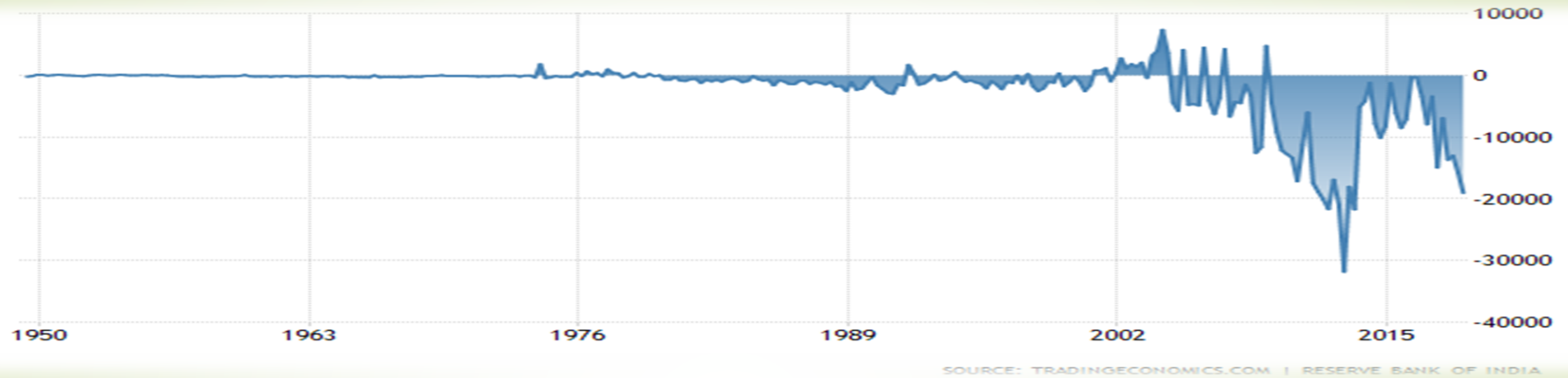Breakdown of India's current account balance *(in billions of dollars)*

- Secondary income
- Services
- Trade
- Primary income
- Current account balance
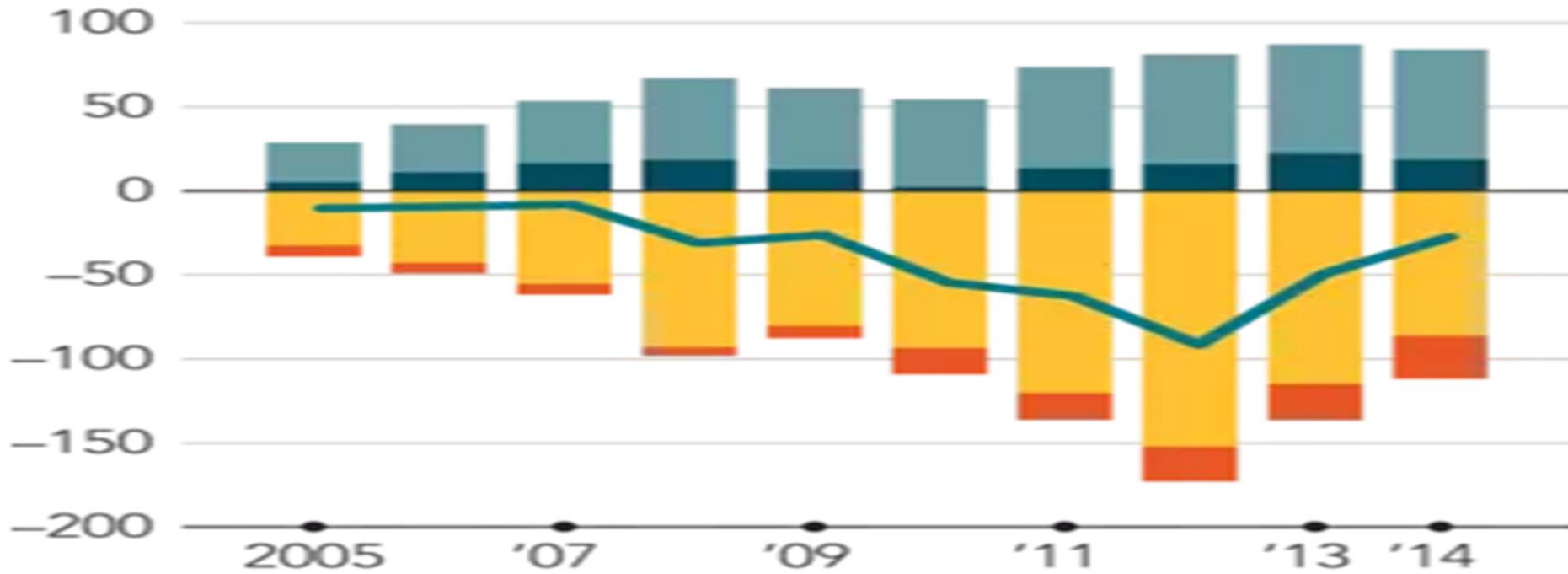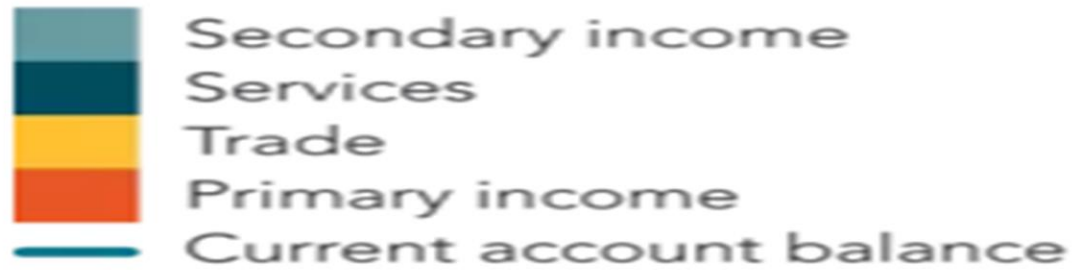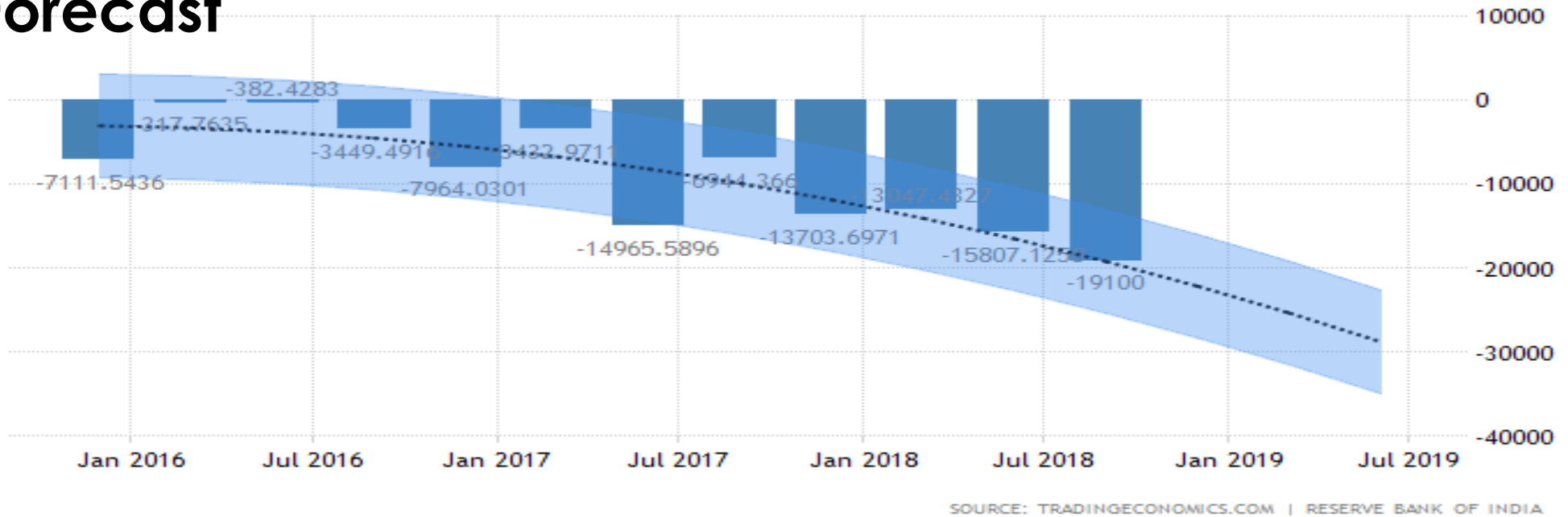
Source: IMF International Financial Statistics

India's Current Account balance

Forecast

DATA AND METHODOLOGY

- The present research has used time series data on budget deficit and trade deficit for the time span of 1970 to 2017. Data were collected from various issues of Indian Economic Survey, publications of RBI and International Monetary fund (IMF).

- Unit root

- ARDL

- ECM

Variables	Level	First difference	Critical values of unit root			Decision	Order of integration
			1%	5%	10%		
Budget Deficit	-2.5014	-7.4523	-3.6077	-2.9210	-2.6210	Stationary At 1st difference	I(1)
Trade Deficit	-1.6787	-4.8496	-3.6701	-2.9639	-2.6210	Stationary At 1st difference	I(1)

Estimated Long Run Coefficients using the ARDL Approach

ARDL selected based on Akaike Information Criterion (AIC)

Dependent variable is TRD

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
BD	1.8148	.22147	8.1941[.000] *
SI	1.1929	.27307	4.3684[.000] *
EXR	3981.0	706.7585	5.6327[.000] *
CMR	-2802.6	2705.1	-1.0360[.309]
C	-3262.5	23763.1	-.13729[.892]

*— indicates significance at one per cent level. Gand Tare gross domestic product and tourism receipts, respectively. Optimal lag length is determined by the Schwarz Bayesian Criterion (SBC).

Computed F-Statistic: 9.1665[.000]*	Critical Value	
	Lower Bound	Upper Bound
1% significance level	5.25	6.66
5% significance level	3.29	4.96
10% significance level	3.12	4.13

Table 4: Error Correction Representation for the Selected ARDL Model

ARDL selected based on Akaike Information Criterion

Variables	Coefficient	Standard Error	T-Ratio[Prob]
$\triangle$BD	.10211	.088398	1.1552[.257]
$\triangle$BD1	-.37451	.11068	-3.3836[.002]
$\triangle$SI	.10296	.13714	.75075[.458]
$\triangle$EXR	810.0713	1738.3	.46601[.644]
$\triangle$CMR	-594.3161	832.0246	-.71430[.480]
$\triangle$CMR1	-988.9468	755.7867	-1.3085[.200]
$\triangle$C	1333.4	9736.9	.13694[.892]
ecm(-1)	-.40870	.060418	-6.7646[.000]

ECM = TRD -1.8148*BD -1.1929*SI -3981.0*EXR + 2802.6*CMR + 3262.5*C

R-Squared   .93224   AIC   -435.9265   S B C   -446.0598

F-stat.   F(7, 32)   55.0325[.000]

DW-statistic   2.5225

Short-run Diagnostic Tests

Serial Correlation =   3.8182[.051] *F (1, 27)   =   2.8493[.103]

Heteroscedasticity =   .17387[.677] *F(1, 38)=   .16590[.686]

The one period lag Error Correction term (ECM (-1) arrests the correction concerning the long-run equilibrium.

The speed of adjustment signified ECM (-1) coefficient, reaches to long-run equilibrium after a short-run shock. ECM (-1) is significant with required negative sign specifying the establishment of co-integration and long-run causality among TDF and BD.

The coefficient of one period lagged ECM proposes that adjustment progression is slow and 40 per cent of the previous year's disequilibrium in BD from its equilibrium path is recovered in the current year.

Conclusion

- The main objective of this study is to reconnoitre the short run and long run relationship between budget deficit and trade deficit as well as to investigate the causal relationship between them.

- The study confirms the long-run co-movements of two deficits and therefore refutes the Ricardian equivalence proposition and validates the "twin-deficit" hypothesis

➢ The results of the ARDL model confirm that there is the positive and significant relationship between trade deficit and budget deficit. So twin deficits hypothesis is valid for India.

➢ The ARDL results of the short run confirm the hypothesis that trade deficit can determine the budget deficit in the case of India. The results of the long run estimates are also significant. The ECM results are also significant with its required negative sign and the coefficient of ECM is -.40870.

➢ The coefficient of one period lagged ECM proposes that adjustment process is slow and 40 per cent of the previous year's disequilibrium in BD from its equilibrium path will be enhanced in the current year. Hence this empirical study corroborates the twin deficits hypothesis in India.

Policy implications

- Output growth, export promotion and import substitution, increasing integration and fiscal austerity are seen as helpful in achieving a desired (and growth conducive) external balance together with the macroeconomic stability

- To conduct a sound fiscal policy, the government needs to cut down unproductive consumption expenditures, raise tax revenues and pay an attention to distribution and trickledown effects to avoid the adversity of high inequality and liquidity constraints in the economy

Thanks