

Explaining India's current account deficit: a time series perspective

Explaining
India's CAD

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Harendra Kumar Behera

Department of Monetary Policy, Reserve Bank of India, Mumbai, India, and

Inder Sekhar Yadav

*Department of Humanities and Social Sciences,
Indian Institute of Technology Kharagpur, Kharagpur, India*

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Abstract

Purpose – The purpose of this paper is to examine the issue of high current account deficit (CAD) from various perspectives focussing its behaviour, financing pattern and sustainability for India.

Design/methodology/approach – To begin with the trends, composition and dynamics of CAD for India are analysed. Next, the influence of capital flows on current account is investigated using Granger non-causality test proposed by Toda and Yamamoto (1995) between current account balance (CAB) to GDP ratio and financial account balance to GDP ratio. Also, the sustainability of India's current account is examined using different econometrics techniques. In particular, Husted's (1992), Johansen's cointegration and vector error correction model (VECM) is applied along with conducting unit root and structural break tests wherever applicable. Further, long-run and short-run determinants of the CAB are estimated using Johansen's VECM.

Findings – The study found that the widening of CAD is due to fall in household financial savings and corporate investments. Also, it was found that a large part of India's CAD has been financed by FDI and portfolio investments which are partly replaced by short-term volatile flows. The unit root and cointegration tests indicate a sustainable current account for India. Further, econometric analysis reveals that India's current account is driven by fiscal deficit, terms of trade growth, inflation, real deposit rate, trade openness, relative income growth and the age dependency factor.

Practical implications – Since India's CAD has widened and is expected to widen primarily due to rise in gold and oil imports, policy makers should focus on achieving phenomenal export growth so that a sustainable current account is maintained. Also, with rising working-age and skilled population, India should focus more on high-value product exports rather than low-value manufactured items. Further, on the structural side it is important to correct fiscal deficit as it is one of the important factors contributing to large CAD.

Originality/value – The paper is an important empirical contribution towards explaining India's CAD over time using latest and comprehensive data and econometric models.

Keywords Cointegration, Current account deficit, Twin deficit, Financial savings

Paper type Research paper

1. Introduction

The central goal of a country's macroeconomic policy is to achieve a simultaneous balance between internal and external sectors. While maintaining internal balance requires keeping inflation low and stable, and potential output or unemployment rate at desired levels, it is imperative that the current account balance (CAB) (especially, current account deficit (CAD)) be kept at a sustainable level to achieve the external balance. However, CAD is not considered as an explicit policy variable such as money supply or fiscal position, nor is it an ultimate policy target like output growth, inflation or unemployment rate. But, CAD is often



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viewed by policymakers as an important “intermediate target” that reflects the stance of a country’s macroeconomic policies and doubles as a source of information about the behaviour of economic agents. As the actions and expectations of market participants in an open economy are reflected in the movement of current account, policymakers often stress the importance of this variable when explaining its behaviour – particularly from the perspective of the factors driving a CAD (and whether it is sustainable or not) – as well as while framing policies to keep it at a sustainable level.

India’s CAD has increased sharply to 4.8 per cent of GDP in 2012–2013 which was about 2 per cent of GDP in the quarter ended December 2017 which is further expected to increase due to rising oil prices after staying below 1.6 per cent of GDP during the 1991–2008. As expected, the CAD increased to 2.7 per cent of GDP in first-half of 2018–2019 which further widened to 2.9 per cent of the GDP in the second-quarter of the fiscal from 1.8 per cent in the corresponding period of 2017–2018. The persistently high CAD since the global financial crisis has been of great concern to policymakers, economists and rating agencies. While, theoretically, opinions may be divided between pro- and anti-CAD camps, experience suggests that the persistence of a high CAD leads to costly macroeconomic adjustments. The sharp depreciation of the Indian rupee recently is one such pitfall. Against the backdrop of a weak rupee exchange rate, inflationary concerns and decelerating economic growth, it is even more critical to examine the sustainability of this high CAD level, and raises a number of questions. Whether this level of CAD is excessive in India? Does it represent a near- or longer-term risk to the Indian economy? Why this has suddenly become a concern to everyone, as India has been experiencing deficits for decades? To answer these fundamental questions, one should identify the underlying sources of this deficit, and how their dynamics have changed. It is also essential to understand how the CAD is being financed in India. This paper seeks to answer the reasons behind the recent surge in CAD, how it is financed and the risks associated with a high CAD in India.

2. Does current account deficit matter?

The “current account” of balance of payments comprises the transactions between residents and non-residents in terms of goods, services and incomes. A deficit in current account always reflects in an increase in net financial claims of foreigners (i.e. increase in net capital flows or depletion in foreign exchange reserves). Alternatively, CAB can be derived from national accounts by deducting total expenditure (i.e. sum of consumption (C), investments (I) and government spending (G)) from gross national production (GNP). From this equation, one can derive CAB as the difference between gross national savings (S) and investments (I)[1]. In an open economy, S hardly matches with I, and thus lead to a current account imbalance.

The debate over CAB is not new in academic or policy circles, and dates back to the sixteenth century when mercantilists criticised the drainage of precious metals implied by trade deficits. The debate is still ongoing whether a country should run a deficit or surplus to sustain its external sector balance. Countries such as Australia and New Zealand have been running CADs for decades without any problems, and countries like China have sustained persistent current account surpluses over the past two decades. However, many countries in the past have faced severe crises because of high CADs. Therefore, the debate on CAD still remains an important issue in policymaking. The views on CAD can be broadly classified as positive or negative. This section documents the perceptions about CAD, and how they have changed from “CAD matters” to “CAD does not matter” and then to “CAD matters sometimes”.

The evolution of theories analysing the behaviours of current account ranges from David Hume’s “specie-flow” mechanism, through the “elasticities”, the “monetary”, the “portfolio balance” to the recent “inter-temporal optimising” approach to the balance of payments (Pitchford, 1995). The initial concerns about CAD are well reflected in the views of mercantilists who emphasised trade surplus. However, the specie-flow mechanism of Hume (1752) shows that attempts to sustain trade surpluses would be defeated because perpetual

accumulation of external wealth itself would tend to eliminate trade imbalances in a world without international capital flows. According to him, trade imbalances would be brought to balance by an automatic mechanism implicit in the use of precious metals as an accepted means of settling international obligations.

The current account debate was even prevalent in the 1940s as it could be inferred from the Keynes' proposal for an international Clearing Union, intended to support countries during times of large payment imbalances and thereby share burdens of adjustment between both deficit and surplus nations (Edwards, 2004). The period following the Second World War analysed the behaviour of current account based on the elasticities approach and the absorption approach. The importance of elasticities in explaining trade balance, popularly known as "elasticities pessimism", dominated the policy debates of developing countries until the mid-1970s, when most economists focused on whether currency devaluation could improve a country's external position, including its trade and CABs (Edwards, 2002). On the other hand, the structuralist economists during that time argued that external sector imbalances in developing countries are "structural" in nature and severely constrain their ability to grow, and, therefore need to be addressed by policies ranging from industrialisation to import substitution. The absorption approach – considering CAB as the difference between national savings and investments – emphasised how macroeconomic factors ultimately determine international borrowing or lending patterns. Until the mid-1970s, much of the emphasis was on trade balance rather than CAD *per se*. Even the discussions on current account were not intense as CAB was relatively stable and countries were having strong capital controls.

The debate over CAD intensified in the late 1970s after a number of countries experienced large swings in their current account due to sharp increase in oil prices, change in exchange rate regimes and with several Latin American countries entering into debt crises. Both the elasticity approach and absorption approach independently failed to explain the large swings in CAB. Of the various theories developed during that period to explain the behaviour of current account, the inter-temporal approach to current account was the most popular. The inter-temporal dimension of current account analysis extended the absorption approach through its recognition that private saving and investment decisions, and sometimes even government decisions, emanate from life-cycle considerations and depend on expected returns on investment projects.

In his influential work, Sachs (1981) argued that to the extent that a CAD is due to rise in investment, there is no cause for concern or policy action. Supporting the views of Sachs, Robischek (1981) argued that there is no reason for Chile to worry even with CAD of more than 14 per cent of GDP to the extent fiscal accounts are under control and savings are rising. In an important paper, Corden (1994) argued that "an increase in the current account deficit that results from a shift in private sector behavior – a rise in investment or a fall in savings – should not be a matter of concern at all". Policymakers and economists having similar views argued that CAD should not be a matter of concern if it results from a change in private sector behaviour – a rise in investment or a fall in savings. The view that current account does not matter if it resulted from saving and investment decisions of the private sector, is also popularly known as consenting adults view[2]. This view, also known as Lawson Doctrine and Pitchford thesis, was carried forward by policymakers in their public statements during the late 1980s. In these ways, the debate over CAD changed from "CAD matters" to "CAD does not matter".

However, this "consenting adults view" came under severe criticisms when several countries faced crisis due to the accumulation of huge external debts accompanied by large CADs. Some policymakers during that time criticised this inter-temporal view of current account as it was based on a few unrealistic assumptions such as perfect capital mobility and constant world interest rate. Important flaws were found in this type of approach as many countries with large CADs faced crisis in the 1980s even in the presence of rising investments and a balanced fiscal account (Edwards, 2002). In a series of papers, Fischer

(1988, 1994, 2003) showed that large CAD should be a matter of concern and it provides primary indication of a future crisis. As emphasised by Fischer (1988), what matters is not whether there is a large CAD but whether the country is running an “unsustainable” deficit. In the years following the 1982 debt crisis, many authors accentuated the importance of CAD – Cline (1988) and Kamin (1988) showed that trade and current accounts deteriorated steadily through the year immediately prior to devaluation. Edwards and Edwards (1991) in the Chilean crisis context also found serious flaws in the Lawson doctrine.

The debate on CAD intensified in the early 1990s before the Mexican peso crisis. Many had expressed their concerns about Mexico’s large CAD. World Bank (1993) noted that two-thirds of the Mexico’s CAD ascribed to lower savings, and had warned about its unsustainability. Fischer (1994) raised the concern because a large portion of Mexico’s deficit was being financed through portfolio investments. Mexican authorities in the early 1990s, defending the rising CAD stated that it was clearly not a cause for undue concern so far it was an outcome of the private sector’s decisions and fiscal accounts were under control. However, Mexico entered into the currency crisis in 1994. In the aftermath of the Mexican crisis of 1994, a large number of analysts maintained, once again, that Lawson’s Doctrine was seriously flawed (Edwards, 2002). The analysts argued that large CAD was mostly unsustainable, regardless of the factors driving them (Summers, 1996; Loser and Williams, 1997; Reisen, 1998). Many researchers and analysts had also provided the linkages between large CADs and the East Asian crisis (e.g. Corsetti, *et al.*, 1999; Reisen, 1998; Radelet and Sachs, 2000). Corsetti *et al.* (1999) argued that the East Asian countries faced crisis because they were experiencing large deficits throughout the 1990s. The empirical link between large CADs, consumption booms, surges in bank lending and subsequent banking crises was also well documented (Gavin and Hausmann, 1996). Atkenson and Rios-Rull (1996) developed a model for credit-constrained countries in which they showed that changes in investor perceptions could lead to current account problems even in the presence of better fiscal and monetary policies.

The crises in the 1990s influenced many economists to pursue research on current account sustainability. Basically, the researchers tried to compare observed current account positions to those predicted by models based on macroeconomic fundamentals (e.g. Williamson, 1994). The current account positions those differ significantly from the prediction of the models were considered as unsustainable. Many analysts had also offered arbitrary level of thresholds for CAD and advised that any level exceeding the threshold should be a cause for concern (e.g. Summers, 1996). As against the traditional measures of sustainability that was based on inter-temporal solvency, Milesi-Ferreti and Razin (1996) developed a framework to analyse current account sustainability that emphasises the willingness to pay or lend in addition to solvency. Their main point was that the “sustainable” level of the current account was that level consistent with solvency. According to Milesi-Ferreti and Razin (1996), any persistent level of CAD exceeding any particular threshold (say 5 per cent of GDP) is not in itself a sufficient informative indicator of sustainability. Instead, the country should look at the imbalances in current account in conjunction with exchange rate policy, trade openness, the health of the financial system and the levels of savings and investments. Thereafter, this framework was adopted by many researchers to assess current account sustainability of different countries (e.g. Cashin and McDermott, 1996 in the Australian context; Ostry, 1997 in case of ASEAN countries; Roubini and Wachtel, 1998 and McGettigan, 2000 for Eastern Europe; Calvo *et al.*, 1993 and Corbo and Hernandez, 1996 for Latin America; and Ades and Kaune, 1997 and Edwards, 2002 in cross-country context). As against this *ex ante* assessment, many had adopted *ex post* assessment of current account sustainability investing large current account adjustments. In a developing country context, this was closely related to the issue of sudden stops (e.g. Dornbusch *et al.*, 1995; Calvo, 1998, 2004;

Calvo and Reinhart, 2000) and significant current account reversals (Milesi-Ferreti and Razin, 1998, 2000). Freund (2000) examined the issue of current account reversals in case of industrial countries, whereas Edwards (2004) studied current account reversals and sudden stops for the whole world economy.

Despite a number of studies analysed current account behaviour, none of them convincingly provided any answer about the level of deficit that should be considered as excessive. Many emerging and transition countries continue to experience large CAD without knowing when it will turn out to be unsustainable. It, however, becomes apparently clear now that persistent CAD is always problematic though temporary deficit, reflecting the reallocation of capital to the country where capital is more productive, may not have adverse effects on the economy. In fact, persistent deficit invites more capital inflows to finance it through high domestic interest rates. This could burden the economy in meeting debt service payments. Therefore, Milesi-Ferreti and Razin (1996, 1998) also made the point that it is important to look beyond persistent CADs. Judgments about current account often require an understanding of real exchange rates (Roubini and Wachtel, 1998). In a recent paper, Blanchard and Milesi-Ferreti (2011) also noted that CADs stem from domestic distortions or excessive fiscal positions are considered to be “bad”. They concluded that even good current accounts are mostly bad too and hence most CADs are imbalances. In their study, Baharumshah *et al.* (2003) stated that large CAD may serve as a leading indicator of financial crises. Moreover, Dülger and Ozdemir (2005) noted that persistent CADs could generate a favourable environment for external crises, especially when those deficits are financed through short-term capital inflows. Therefore, it is important to examine the composition and financing pattern of CAD along with various macroeconomic policies, financial market development and other indicators of that country in order to evaluate its sustainability.

3. Trends, composition and dynamics of CAD in India

India was considered to be one of the most open economies in the world during the eighteenth century. In the nineteenth century, after becoming an agricultural exporter, it still managed a trade surplus (Desai, 2003). During the colonial rule, India's external sector deteriorated but the country still remained one of the top 10 exporting countries in the world. According to the data compiled by Banerji (1961), India ran current account surplus in seven years during 1921–1938. However, it experienced a decline in its share of merchandise exports in the world trade from about 2.5 per cent in 1949–1950 to a mere 0.5 per cent by the late 1980s (Singh, 2009). This decline and glitches in macroeconomic policies followed during that period landed India in an external payment crisis. Indian economic policy witnessed a marked shift thereafter with massive liberalisation measures to promote trade, capital flows and, ultimately, economic growth.

3.1 External sector policies

In the period following its independence, India remained insulated from the world trading system pursuing an inward-looking development strategy to achieve economic self-sufficiency. This goal displayed itself in a trade system characterised by strictly controlled imports through various exchange controls and quantitative trade restrictions, which were accompanied by a complex tariff structure with high and differentiated rates across industries (Joshi and Little, 1994). Given the apparent share of primary exports in the export basket and the hostile international environment for primary commodities, export pessimism gained ground in the post-independence period until the second Five-Year Plan (1956–1960) (Kapur, 1997). In contrast to the pessimistic and indifferent approach during the 1950s, export promotion received major attention in the 1960s, resulting in improved export earnings, albeit at a slower pace. Fall in invisibles surplus in

conjunction with high trade deficit led by rising import demand kept the CAD high during the third Plan (1960–1965). During these first three Plan periods, the CAD was financed through foreign aid and by depleting foreign exchange reserves. The border wars with China and Pakistan and two disastrous droughts in succession also contributed to the high CAD until 1967–1968 due to defence- and food-related imports. Thereafter, the current account problem was less acute until the end of the 1970s led by higher export growth in conjunction with improvement in invisibles.

Despite a comfortable balance of payment position, the oil shocks in 1973–1974 caused the policymakers to worry about imports and overall current account. The share of crude oil and petroleum products in India's import bill jumped from 11 per cent in 1972–1973 to 26 per cent in 1974–1975 and the import bill on account of fertiliser also increased by a substantial amount (Nayyar, 1982). India had recourse to various IMF facilities in 1974–1975 to finance its CAD.

During the mid-1960s through the end-1970s, India adopted several steps to promote exports, including a 36.5 per cent devaluation of rupee on June 6, 1966, and recognised invisibles as a source of foreign exchange by paying attention to the development of shipping and tourism and preventing leakages of remittances through unofficial channels. A recognition of shortcomings in earlier policies attached to inefficiencies in import substitution and export pessimism resulted in setting up of a number of committees by the Government of India to make changes in existing policies. However, the recommendations of those committees were mostly unimplemented until the late 1980s. Steps were taken in the late 1980s to ease industrial and import licensing, replace quantitative restrictions with tariff barriers and simplify the tariff structure, which were still less comprehensive and left a lot to be desired (Rangarajan and Mishra, 2013).

The 1980s witnessed a gradual deterioration of current account position and a profound change in its financing reflecting the effect of second oil shock in 1979–1980, deterioration in export growth, significant legal restrictions, large public spending, heavy dependence on official capital flows and debt flows, a fixed exchange rate system coupled with fall in remittances inflows. As a result, India entered into a balance of payment crisis in 1990. Thereafter, a number of measures were undertaken to liberalise India's external sector include removal of quantitative restrictions and reduction of tariff rates, reduction of capital controls and adoption of a market determined exchange rate system. Gradually, all the restrictions in current account were lifted and most of the restrictions in the capital account were removed. Among the various liberalisation measures undertaken, India has a strong preference for non-debt-creating flows, long-term and stable capital flows such as FDI.

3.2 Trends and composition of CAD

Until recently, the concerns about CAD are dominated by India's foreign trade and swayed its policies and practices. India's export basket is dominated by manufactured goods, particularly, low-value engineering products, and gems and jewellery. Although manufacturing goods remained as a major component in India's total exports, its share in world manufacturing exports is still low at 1.6 per cent in 2012 mainly because of low value and mostly semi-skilled nature of these products. The shares of agricultural products, textiles and textile products and handicrafts in total exports have declined while the share of petroleum products are rising (the share in world's total fuel exports is still low at 1.6 per cent). The share of India's exports in the world, which had reduced gradually from 2.2 per cent in 1948 to about 0.5 per cent in the mid-1980s, increased to 1.6 per cent in 2012. Therefore, India's export performance cannot be considered as phenomenal.

On the other hand, the share of petroleum and crude products and gold imports in India's import basket are rising. While petroleum is an important input in different production processes and transportation, gold is argued to be used as a hedge against inflation by Indian households. More than used as a hedge item, gold is used for making

jewellery, which is unproductive. Realising this and in a view of a swelling CAD, the Reserve Bank of India (RBI) and the Government of India have imposed various restrictions on gold imports. The measures include a ban on gold selling by banks, a phased increase in gold import duty from 2 to 10 per cent, a ban on imports of coins and medallions, and the requirement for 20 per cent of gold imports being used for export purposes. These steps helped curtail gold imports in 2013 and the overall CAD as well. Given a high demand for gold in India and the alleged smuggling of the yellow metal recently after the imposition of restrictions, authorities will likely be forced to withdraw these restrictions in the long run once the current account returns to a comfortable zone. India being the sixth largest economy in the world, witnessed the highest spike in fuel import growth (up 18 per cent) followed by China (up 14 per cent) in 2012. While the import growth exhibited some deceleration due to gold imports and a slowdown in domestic demand, the import demand is expected to increase in future with a potential revival of the economy and given the demographic structure of the Indian economy.

Over past six decades, merchandised trade deficit has been the leading factor behind India's CAD. Without any exception, India had deficits in merchandised trade account in all years, much of which was offset by surplus in invisibles, particularly, services and remittances. It may also be noted that India's invisibles account exhibited a negative balance during 1969–1970 through 1972–1973 and in the year of 1990–1991. India faced external payment crisis in 1991 essentially due to a negative invisibles balance led by sharp increase in investment income payments (debt servicing) and reduction in remittances receipts (Table I).

Since 2004, India has experienced a significant increase in merchandised trade deficit led by a significant increase in imports (particularly oil imports) as compared to exports. Recently, gold imports have contributed significantly to the rise of trade deficit and thereby the widening of CAD. Much of the trade deficit is being financed by services receipts and stable remittances inflows. However, CAD has widened recently due to deceleration in export growth, strong growth in oil and gold imports and rise in investment income payments coupled with a slowdown in investment income receipts. As a result, CAD to GDP ratio rose from an average of 1.7 per cent in 2006–2010 to 3.4 per cent during 2008–2012, reaching its historical peak of 4.8 per cent in 2012–2013. One of the reasons for the persistent CAD is CAD itself as large payments towards servicing international liabilities keep the investment income account balance in the negative zone. Therefore, prolonged deficits in current account of any country are problematic as they either put pressure on reserves or increase debt servicing burden.

A long-term view of the current account requires an understanding of the structural features of the economy, such as levels of economic development, demographic profiles and patterns of consumption and production. These factors have a role in determining the savings and investments, hence, the CAB. In the post-global crisis period, both saving and investment rates have dropped; however, a higher fall in the saving rate as compared with the investment rate has resulted in the greater CAD. A closer look at Figure 1 reveals that India's CAD, being the mirror image of the absorptive capacity of the economy measured in terms of savings–investment (S–I) gap, is due to deficits in public (PUB) and private (PVT) sectors. The household (HH) sector always saves more than it invests resulting in a surplus in that sector. On the other hand, the public sector deficits being high over the years have larger contributions to the S–I gap. Further, the S–I gap of public sector – which had improved since 2002–2003 reflecting the impact of the FRBM Act[3] – deteriorated during 2008–2010, led by a large fiscal stimulus, and is mainly responsible for the recent surge in S–I gap as reflected in widening CAD. However, the impact of much of these deficits was offset by a reduction in private sector deficit and large surplus of household sector and therefore, the CAD could not increase substantially during 2008–2010. The CAD has widened significantly thereafter. It is also important to note that private sector deficit reduced during the post-crisis period, mainly due to a slowdown in corporate investments.

Table I.
Evolution of India's
current account

Period	Goods trade balance				As % of GDP			Invisible balance			Growth (%)		
	Total		Oil	Non-oil	Gold imports ^a	Total	Services	Remittances	Investment income	Current account balance	Exports	Imports	Goods
1951-1955	-0.7	-	-	-	-	0.7	0.4	0.4	-0.1	0.0	-1.1	6.0	-1.1
1956-1960	-2.7	-	-	-	-	1.0	0.4	0.3	-0.1	-1.7	1.6	8.1	1.6
1961-1965	-2.1	-	-	-	-	0.4	0.3	0.1	-0.4	-1.7	5.0	9.3	5.0
1966-1970	-1.7	-	-	-	-	0.1	0.2	0.2	-0.5	-1.6	2.3	-6.2	2.3
1971-1975	-0.9	-0.6	-	-0.3	-	0.5	0.1	0.2	-0.5	-0.4	16.9	23.0	16.9
1976-1980	-1.4	-1.7	0.3	-1.1	-	1.6	0.4	0.9	-0.1	0.2	14.4	17.2	14.4
1981-1985	-3.4	-2.3	-1.1	-1.8	-	1.9	0.5	1.2	-0.1	-1.5	5.2	6.3	5.2
1986-1990	-2.9	-1.0	-1.8	-1.0	-	0.8	0.3	0.9	-0.6	-2.1	11.4	9.4	11.4
1990-1991	-2.9	-1.7	-1.2	-1.2	0.0	-0.1	0.3	0.6	-1.1	-3.0	9.0	14.4	9.0
1991-1995	-2.0	-1.8	-0.2	-0.2	0.2	0.8	0.3	1.6	-1.2	-1.2	9.9	9.9	-1.2
1996-2000	-3.5	-2.1	-1.4	-1.4	0.7	2.3	0.4	2.6	-0.8	-1.2	7.2	9.5	7.2
2001-2005	-2.8	-2.8	0.0	0.0	1.1	3.4	1.1	3.1	-0.7	0.7	18.3	17.8	18.3
2006-2010	-7.7	-4.4	-3.4	-3.4	1.7	6.0	3.2	3.4	-0.6	-1.7	17.0	21.2	17.0
2008-2012	-9.3	-4.9	-4.4	-4.4	2.6	6.0	3.3	3.5	-0.8	-3.4	14.1	15.1	14.1

Notes: Net balances in invisibles may not match with the sum of services, remittances and investment income balances as some items like compensation of employees are not included any of the balances; Averages are calculated for financial year averages. - denotes not available. ^aIncludes silver also, which is negligible in value terms

Source: Author's compilation, based on data published in *Handbook of Statistics on the Indian Economy*, RBI

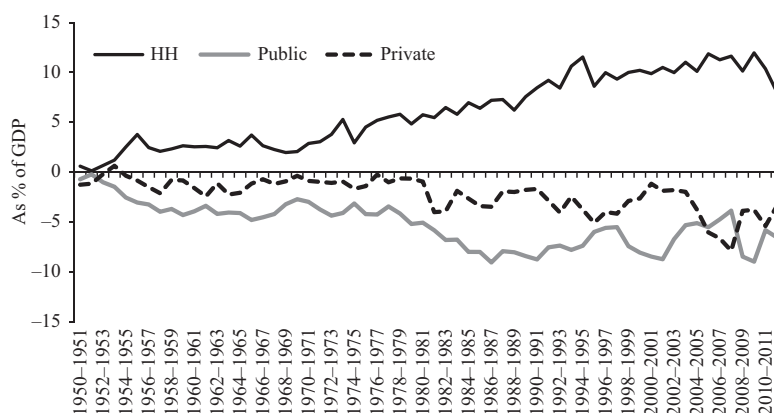


Figure 1.
Saving-investment
gap of private, public
and household sector

Household saving rates have decelerated since 2009-10 mainly reflecting high inflation, contributing to the widening of S-I gap[4]. Therefore, the recent widening of CAD, despite a fall in private investments, is not necessarily because of rise in investments but due to fall in savings. Although, the large S-I gap for earlier years were fed by a rise in investments and therefore were of lesser concern, the continuation of the recent S-I gap on account of fall in savings rate presents a major risk to the sustainability of CADs.

4. The way of financing CAD

Great attention has been paid in recent literature to examine the current account sustainability, by focusing on its composition and how the deficit is financed (e.g. Beim and Calomiris, 2001; Lane, 2004, 2005; Lane and Milesi-Ferretti, 2005a, b; Tang, 2006). In this study, an attempt has been made to examine the financing patterns of CAD in the Indian context. Although India has relatively low CAD, the trade deficits[5] continue to remain at a high level over the years and have been increasing steadily since 2004-2005. It is well known that India's CAD is low due to surplus in invisibles, including net surplus in services account as well as large workers' remittances inflows. The underlying risk here is that any layoffs in the overseas labour markets or a ban on visa by the USA, Europe, etc. could have an adverse impact on the CAB. This is because India receives a major part of the remittances from Gulf countries (37 per cent) followed by North America (34 per cent) and Europe (12 per cent)[6]. The past experience shows that a couple of crises in Dubai, the USA and Europe impacted the remittances inflows, though the effect was not significant.

The sustainability of CAD also depends on how it is financed, whether through debt capital or equity capital, whether through short-term flows or long-term capital flows. A country that relies more on short-term or debt capital inflow to finance its deficits is considered to be vulnerable. The sustainability of current account and external debt also depends on the level of foreign exchange reserves a country holds. However, it is important to know how these reserves have been accumulated over the years. Table II presents the sources of accumulation of India's foreign exchange reserves. As can be seen from the table, capital flows after financing \$331.0bn of CADs resulted in an accumulation of \$267.6bn of reserves between 1990-1991 and 2012-2013. Adding the reserves position at end-March 1991 and the valuation effects (due to movement of US dollar *vis-à-vis* other currencies on which a part of our reserve assets is denominated) with the \$267.6bn, the foreign exchange reserves were \$292.0bn at end-March 2013. Within \$292.0bn, a major portion (92.6 per cent) is due to short-term capital flows. Further, the fact that net international liabilities exceed the total reserves assets, i.e. 205.9 per cent of total reserves, is a matter of concern for India's external sector.

		Amount (US\$bn)	Contribution (in Per cent)
A	Reserves as at end-March 1991	5.8	2.0
B.I.	Current account balance	-331.0	-113.3
B.II.	Financial and capital account (net) (a-e) ^a	601.4	205.9
	<i>Of which: Short-term capital^b</i>	270.5	92.6
a.	Foreign investment	336.9	115.4
	<i>Of which</i>		0.0
	(i) FDI	152.9	52.3
	(ii) FII	154.5	52.9
b.	NRI deposits	67.0	22.9
c.	External assistance	29.5	10.1
d.	External commercial borrowings	100.9	34.5
e.	Other items ^c	-21.7	-7.4
B.III.	Valuation change	18.6	6.4
	Reserves as at end-March 2010 (A+BI+BII+BIII)	292.0	100.0

Table II.
Sources of accretion to
foreign exchange
reserves since 1991

Notes: ^aExcluding reserve assets; ^bshort-term capital stock includes the short-term debt based on original maturity, long-term debt maturing by end-March 2013 and portfolio stocks (excluding FII debt); ^cinclude errors and omissions

Source: Author's calculation based on data published by RBI

It is generally perceived that financing of CAD through short-term capital is dangerous for an economy. One of the crucial factors that led to the payments crisis in the early 1990s was relatively high level of short-term debt and the rollover difficulties associated with the short-term liabilities. Hence, India's policy in respect of short-term capital flows continues to be restrictive and has largely been dictated by the lessons learnt from the payments crisis of 1991. However, the recent trend shows a significant rise in short-term capital flows to India with the faster liberalisation of India's capital account and probably due to carry trade activities on account of higher yields on rupee-denominated assets. This trend is also a reflection of India's eagerness to attract short-term capital inflows, in an environment of a slowdown in long-term inflows, to finance the widening deficit in the post-global crisis period.

To understand the risks associated with CAD, an analysis of composition of capital inflows to India is provided. As given in Table III, non-debt creating capital inflows comprising equity flows under FDI and foreign portfolio investments have been dominating capital inflows to India during most parts of the past two decades. It may be noted that in the pre-reforms period, capital flows into India were dominated by debt-creating flows and were about 98 per cent of total capital inflows during 1990–1992. And one of the reasons behind the balance of payment crisis was India's large external debt. A similar rising trend in external debt, particularly short-debt, has been observed in the past few years. At the same time, a slowdown in FDI inflows is fuelling the concerns. Inflows on account of short-term trade credit and net investments by FIIs were 46.6 per cent of total capital inflows during 2012–2013. Since India's CADs were financed largely through short-term and debt capital inflows in last few years, it is required to correct this development.

Sen (2013) argued that large capital inflows causing a real appreciation of exchange rate result in higher CAD in India. Yan (2007) examined the relationship between capital mobility and CAB and found that capital mobility is demand induced and therefore finances current account in developed countries. However, he found that financial account gives rise to a current account imbalance in emerging market economies. To examine whether capital flows influence current account in India, we have applied Granger non-causality test, as proposed by Toda and Yamamoto (1995), between CAB to GDP ratio (CAB) and financial account balance (excluding reserve change) to GDP ratio (FA) for the period of 1950–2013 and three sub-periods.

	US\$bn		Per cent to total net inflows									
	Total net inflows	Total	Non-debt creating	FDI	Portfolio	Of which: FII	Debt creating	ECB	STC	EA	NRI	Others
1990-1991	8.2	100.0	1.2	1.2	0.1	0.0	98.8	27.3	13.0	26.8	25.9	5.8
1991-1992	5.2	100.0	2.6	2.5	0.1	0.0	97.4	28.2	-10.0	59.0	11.2	9.0
1992-1993	4.8	100.0	11.6	6.6	5.0	0.0	88.4	-7.5	-22.5	38.7	45.0	34.6
1993-1994	9.9	100.0	42.9	5.9	36.9	16.9	57.1	6.2	-7.8	19.2	11.9	27.7
1994-1995	9.8	100.0	50.0	13.6	36.3	15.3	50.0	10.5	4.0	15.5	10.0	10.1
1995-1996	7.8	100.0	61.8	27.6	34.2	25.8	38.2	16.4	0.6	11.4	12.2	-2.4
1996-1997	13.2	100.0	46.7	21.6	25.1	14.6	53.3	21.6	6.4	8.4	25.1	-8.2
1997-1998	11.6	100.0	46.7	30.8	15.8	8.5	53.3	34.6	-0.8	7.9	10.0	1.7
1998-1999	9.4	100.0	25.8	26.5	-0.7	-4.2	74.2	46.6	-8.0	8.8	10.3	16.6
1999-2000	11.2	100.0	46.3	19.3	27.0	19.0	53.7	2.8	3.4	8.0	13.7	25.8
2000-2001	12.4	100.0	54.9	32.6	22.3	14.9	45.1	34.8	4.5	3.5	18.7	-16.4
2001-2002	10.6	100.0	76.7	57.7	19.0	14.2	23.3	-15.0	-7.5	11.3	25.7	8.6
2002-2003	13.2	100.0	45.6	38.2	7.4	2.9	54.4	-12.9	7.4	-23.5	22.6	60.9
2003-2004	19.1	100.0	81.9	22.6	59.3	57.0	18.1	-15.3	7.4	-14.4	19.0	21.4
2004-2005	31.1	100.0	49.2	19.3	30.0	28.0	50.8	17.5	12.2	6.5	-3.1	17.7
2005-2006	32.2	100.0	66.4	27.6	38.8	30.8	33.6	8.6	11.5	5.5	11.5	-3.5
2006-2007	60.7	100.0	49.0	37.5	11.5	5.3	51.0	27.1	10.9	2.9	7.1	3.0
2007-2008	126.8	100.0	50.2	27.0	23.2	16.0	49.8	17.9	13.5	1.7	0.1	16.6
2008-2009	35.3	100.0	78.9	118.1	-39.2	-42.5	21.1	18.8	-5.6	7.9	12.1	-12.1
2009-2010	80.9	100.0	80.9	40.9	40.0	35.9	19.1	3.1	9.3	4.0	3.6	-1.0
2010-2011	94.3	100.0	64.2	30.8	33.4	31.2	35.8	12.5	12.8	5.3	3.4	1.8
2011-2012	84.8	100.0	59.4	38.8	20.5	19.8	40.6	10.8	7.9	2.9	14.0	5.1
2012-2013	102.8	100.0	53.2	26.2	27.0	26.8	46.8	8.3	21.1	1.2	14.4	1.7

Notes: FII, Foreign Institutional Investors' Investments; ECB, External Commercial Borrowings; STC, Short-term Trade Credits; EA, External Assistance; NRI, Non Resident Indian's Deposits. Others include drawdown of reserves of foreign assets of banks, overseas borrowings of banks, rupee debt, export claim, SDR, allocation, etc. Intercompany loans part of FDI in debt securities are included in non-debt creating flows as they are not large in magnitude. Portfolio/FII inflows include debt flows also, which is significant during last few years due to revision of limits

Table III.
Composition of capital
inflows to India (net)

The following Granger non-causality procedure has been modelled for studying the relationship between CAB and FA:

$$CAB_t = \gamma_1 + \sum_{i=1}^{k+d_{\max}} \alpha_{1i} CAB_{t-1} + \sum_{i=1}^{k+d_{\max}} \beta_{1i} FA_{t-1} + \varepsilon_{1t},$$

$$FA_t = \gamma_2 + \sum_{i=1}^{k+d_{\max}} \alpha_{2i} CAB_{t-1} + \sum_{i=1}^{k+d_{\max}} \beta_{2i} FA_{t-1} + \varepsilon_{2t}.$$

To see whether FA affects CAB, we test the following hypothesis:

$$H_0 : \beta_{1i} = 0.$$

If the hypothesis is rejected, we can say that FA causes CAB and for reverse relationship, the null hypothesis is:

$$H_0 : \alpha_{2i} = 0.$$

Testing of null hypothesis in Toda–Yamamoto Granger non-causality procedure (termed as T–Y procedure hereafter) requires an asymptotic χ^2 distribution with modified Wald (MWald) test statistics. The T–Y involves the estimation of an augmented VAR($k+d_{\max}$) model, where k is the optimal lag length in the original VAR system and d_{\max} is the maximal order of integration of the variables in the model.

Before applying Granger non-causality test, the unit root test is conducted and both the series are found to be stationary at levels. Therefore, d_{\max} is 0. To get the optimal lag length (k), AIC, SIC, likelihood ratio (LR) criteria are used and the chosen k is 1 for all the periods. The Granger non-causality test results reported in Table IV reveal that current account and financial accounts do not have any statistically significant relationship for the full sample period or for the sub-period 1950–1990. However, during the post-reforms period (1991–2012) and another sub-period 1980–2012, FA causes CAB as the null hypotheses are rejected at their conventional level of significance. This result suggests that capital flows are driving India’s CADs. Large capital inflows over the years, mainly in the post-liberalisation period, facilitated easy financing of CAD, encouraging further growth in imports. In times of trouble, sudden slowdown in capital inflows made import financing difficult, thereby putting pressures on reserves and exchange rates.

Null hypothesis	MWald-Stat	p-value
<i>Sample: 1950–2012</i>		
FA does not Granger cause CAB	1.29	0.26
CAB does not Granger cause FA	0.84	0.36
<i>Sample: 1980–2012</i>		
FA does not Granger cause CAB	3.38	0.07**
CAB does not Granger cause FA	0.02	0.90
<i>Sample: 1991–2012</i>		
FA does not Granger cause CAB	3.87	0.05*
CAB does not Granger cause FA	0.74	0.39
<i>Sample: 1950–1990</i>		
FA does not Granger cause CAB	0.00	0.98
CAB does not Granger cause FA	0.75	0.38

Table IV. Granger non-causality test results

Notes: All the estimates are based on the model VAR($k+d_{\max}$) = 1. *,**Significant at 5 and 10 per cent levels, respectively

5. Econometric results on sustainability issues

In the Indian context, few studies attempted to examine the sustainability issues. Khundrakpam and Ranjan (2008) using an inter-temporal model found that CAB of India was inter-temporally insolvent during the pre-reforms period but has turned solvent during the post-reform period. According to them, this result is a reflection of significant liberalisation of capital account which helped in smoothening of private consumption. Goyal (2012) estimated the medium-term sustainable level of CAD for India is in the range of 2.4–2.8 per cent of GDP based on Domar's debt sustainability model. According to the International Monetary Fund's (IMF, 2013) external sustainability approach, the estimated threshold is marginally lower at 2.3 per cent of GDP. Holmes *et al.* (2011) employing a range of parametric and nonparametric tests for cointegration between exports and imports and a set of unit root tests for CAB, for the period of 1950–2003, found favourable evidence for India's current account sustainability since the late 1990s. Using a similar approach, Tiwari (2012) also concluded that CAD is sustainable as both non-oil exports and imports are strongly co-integrated.

In this study, sustainability of India's current account is examined using different econometrics techniques as discussed in literature. A mean-reverting or stationary CAB is considered as sustainable. This is because a sustainable current account needs to be solvent. The present discount value of a country's future trade surplus must be equal to the present value of its foreign debt to make it inter-temporally solvent (Milesi-Ferretti and Razin, 1996). This inter-temporal solvency condition implies that all debts will be repaid in the long run, which has been examined empirically extensively through unit root and cointegration tests (e.g. Hakkio and Rush, 1991; Husted, 1992; Sawada, 1994; Wu and *et al.*, 1996; Bodman, 1997; Fountas and Wu, 1999; Leachman and Francis, 2000; Apergis *et al.* 2000; Arize, 2002; Matsubayashi, 2005; Baharumshah, *et al.*, 2005; Wei, 2011). Furthermore, the modern inter-temporal approach combines the assumptions of perfect capital mobility and consumption-smoothing behaviour (Dülger and Ozdemir, 2005). This emphasises that the current account series should be stationary to be sustainable.

Four unit root tests, namely, Elliott–Rothenberg–Stock DF-GLS test (DF-GLS), augmented Dickey–Fuller test (ADF), Phillip–Perron test (PP) and Kwiatkowski–Phillips–Schmidt–Shin test (KPSS), are used to examine the stationarity of India's CAB to GDP ratio (CAB). These tests are also used to examine the stationary property of data used in other empirical exercises. The data on CAB, exports, imports, deposit rate, consumer price index (CPI) for industrial workers, real GDP, real effective exchange rate (REER), gross fiscal deficit and GDP at current market price are collected from RBI's *Handbook of Statistics on the Indian Economy*; age dependency, i.e. the ratio of dependents – people younger than 15 or older than 64 years – to the total working-age population in the ages of 15–64 years (DEP) is taken from World Bank's online database; and world real GDP, unit value index (UVI) of exports and imports data are taken from International Financial Statistics of the IMF. Terms of trade (TOT) is calculated as the ratio of UVI of exports to UVI of imports multiplied with 100. For empirical exercise, CPI inflation (INF), growth in age dependency (Δ DEP), growth in TOT (Δ TOT) and ratio of India's GDP growth to world GDP growth (RGDP) are considered. Trade openness (TOP) is defined as the sum of exports and imports of goods and services as a percentage of GDP. Gross fiscal deficit (GFD) is expressed as a percentage of GDP. Real deposit rate (RD) is calculated taking the difference between deposit rate and CPI inflation. The sample period is 1980 to 2012 except for cointegration test where the sample starts from 1950. Overall unit root test results are presented in Table V.

From the results, it can be said that CAB, RD, INF, RGDP and GFD are stationary at levels whereas other variables those are non-stationary at levels but stationary at first differences by at least one of the test criteria. The CAB is found to be stationary at levels by all test criteria suggesting that India's current account is mean-reverting. This indicates at first insight about India's CAD, which is not unsustainable.

Variables	At level				At first difference			
	DF-GLS	ADF	PP	KPSS	DF-GLS	ADF	PP	KPSS
CAB	-2.35*	-2.89*	-2.83**	0.09	-1.61**	-9.84*	-10.07*	0.13
X	-0.31	-0.35	-0.37	0.24*	-10.27*	-11.49*	-11.33*	0.05
MM	-0.30	-0.25	-0.25	0.23*	-6.10*	-8.48*	-8.48*	0.05
RD	-5.04*	-4.99*	-4.82*	0.24	-7.30*	-5.95*	-18.33*	0.28
INF	-4.41*	-5.74*	-5.17*	0.08	-7.87*	-8.12*	-15.61*	0.22
RGDP	-5.51*	-5.50*	-5.50*	0.29	-9.08*	-5.09*	-28.05*	0.50*
ΔDEP	-1.48	-1.71	2.73	0.13**	-	-	-	-
ΔTOT	-5.28*	-6.19*	-7.74*	0.32	-	-	-	-
GFD	-2.02*	-2.65*	-2.63*	0.19	-6.54*	-6.69*	-7.46*	0.18
TOP	-0.19	-0.06	0.16*	0.24	-7.80*	-10.26*	-10.26*	0.07

Notes: Optimum lag length for DF-GLS and ADF are selected based on SIC criterion. The PP and KPSS tests are performed using spectral estimation based on Newey-West bandwidth method. For DF-GLS, ADF, PP - H_0 : Unit root; H_1 : No unit root, For KPSS - H_0 : No unit root; H_1 : Unit root. Unit root tests are conducted using both drift and trend when trend is statistically significant, otherwise taking drift only. *,**Significant at 5 and 10 per cent levels, respectively

Table V.
Results for unit
root tests

To investigate the sustainability of India's CAD, we have adopted an approach similar to Husted (1992) who examined the long-run relationship between exports and imports. According to him, the budget constraint of a consumer in small open economy is:

$$C_0 = Y_0 + B_0 - I_0 - (1 + r_0)B_{-1},$$

where C_0 is current consumption; Y_0 , output; I_0 , investment; r_0 , the current period world interest rate; B_0 , the size of international borrowing; and $(1+r_0)B_{-1}$ is the initial debt level of the consumer, corresponding to the country's external debt. After making several assumptions, Husted (1992) derived a testable model which is given by the following regression:

$$X_t = \alpha + \beta MM_t + \varepsilon_t,$$

where X is exports of goods and services, MM is the imports of goods and services plus net interest and transfer payments. The economy to satisfy its inter-temporal budget constraint, β should be equal to 1 and ε_t should be stationary. However, if trade flows are expressed relative to GNP and β is less than 1, the economy will fail to satisfy its budget constraint (Hakkio and Rush, 1991; Husted, 1992). Cointegration is a necessary condition for the economy to be obeying its inter-temporal budget constraint. Therefore, Johansen cointegration test is used to examine the relationship between exports of goods and services to GDP ratio (X) and imports of goods and services plus net interest and transfer payments to GDP ratio (MM). A structural break for the year 2002 is identified in MM series based on Zivot-Andrew test and therefore a dummy variable DS_{2002} (1 for 2002 onwards and 0 for the years before 2002) is used to capture the effect[7]. Since X and MM are $I(1)$ variables as confirmed from the results given in in Table V, we proceed to investigate the cointegrating relationship among them.

The results of Johansen cointegration test, conducted using one lag, a deterministic trend in the data and DS_{2002} , are presented in Table VI. From the table, the eigenvalue tests suggest one cointegrating relationship between X and MM as both the λ -trace and λ -max values are higher than their respective 5 per cent level critical values rejecting the null of $r \leq 0$ against $r \geq 0$ in the λ -trace test and the null of $r = 0$ against $r = 1$ in the λ -max test. The cointegration test confirms about the long-run relationship between X and MM . Further validity of this relationship is established using vector error correction model (VECM).

Results in Table VII provide the estimates of long-run steady-state coefficients of the variables as well as their short-run coefficients using Johansen's VECM. The LR test statistic suggested that the (over-identifying) restriction that the slope coefficient of X (i.e. β) is equal to 1 could not be rejected at the 1 per cent level. The error correction term ecm_{t-1} is significant at 5 per cent level and large in magnitude indicating a sizeable amount of correction of disequilibrium error in the short-run to maintain the steady-state equilibrium. The significance of error correction term also validates the long-run relation between exports and imports, and thereby ensures the sustainability. The coefficient of X is positive and statistically equal to 1 further confirms the sustainability of India's current account position.

Both unit root and cointegration tests are useful in examining the sustainability of the current account in the medium and long run. However, they do not indicate the immediate risks associated with the current account. Although the empirical results discussed earlier show that India's CAD is sustainable, many analysts, economists and rating agency have questioned the sustainability of India's current account whenever it had high deficits (e.g. the late 1980s or the recent 2008–2013 period). At any time, India had high deficits, they were forced to be corrected, due to drying up of capital flows, using some policy measures. Therefore, it is important to examine the underlying factors driving the current account to take appropriate policy actions before its deterioration.

The usual proximate determinants of the CAB chiefly are the terms of trade, real exchange rate, economic growth, real interest rate, government expenditure, trade openness and the age dependency ratio (e.g. Karunaratne, 1988; Calderon, *et al.*, 2000; Chinn and Prasad, 2003; Osakwe and Verick, 2007). In the context of developing countries,

<i>λ trace tests</i>				
Null hypothesis	Alternative hypothesis	<i>λ</i> trace statistic	5% critical value	<i>p</i> -value
$r = 0$	$r > 0$	31.23*	25.87	0.01
$r \leq 1$	$r > 1$	8.61	12.52	0.21
<i>λ max tests</i>				
Null hypothesis	Alternative hypothesis	<i>λ</i> max statistic	5% critical value	<i>p</i> -value
$r = 0$	$r = 1$	22.61*	19.39	0.02
$r = 1$	$r = 2$	8.61	12.52	0.21

Notes: r indicates the number of cointegrating vectors, For critical values, see Johansen and Juselius (1990), Lag length 1 is selected based on AIC, SC and likelihood ratio (LR) tests. No deterministic trend (restricted) assumption is employed and the result remained unchanged employing the same assumption also. *Indicates significance at 5 per cent level

Table VI.
Johansen Test Results
for Cointegration
between X and MM
(Sample 1950–1951
to 2012–2013)

<i>A. Long-run coefficient</i>			
Explanatory variables	Coefficients	<i>t</i> -stat	
χ	1.11	8.53*	
<i>B. Short-run coefficients</i>			
ΔMM_{t-1}	0.14	0.86	
$\Delta \chi_{t-1}$	-0.43	-1.78**	
Trend	0.02	2.69*	
DS2002	1.38	2.61*	
ecm_{t-1}	-0.54	-4.20*	
$\bar{R}^2 = 0.34$			

Notes: Testing restriction to the cointegrating vector (1, -1), Wald test for β restrictions, χ^2 test statistics: 0.3266, *p*-value: 0.5676. **Significant at 5 and 10 per cent levels, respectively

Table VII.
Long-run and
short-run coefficient
estimates based on
VECM

Calderon *et al.* (2000) found a moderate level of persistency in the current account, beyond which it is explained by domestic output growth, savings and shocks accompanied by terms of trade or appreciation of the real exchange rate. Similarly, investigating the medium-term determinants of current account, Chinn and Prasad (2003) found that government budget balances, initial net foreign asset positions and indicators of financial deepening are positively associated with CABs while terms of trade volatility is found to be negatively correlated with CADs. Nkuna (2013) finds the statistically significant determinants of CAD in case of Malawi are population growth, terms of trade, official development assistance, net foreign assets, real exchange rate and trade openness.

Analysis of CAD requires that the fundamental causes as well as the proximate causes should be identified. Looking at the literature, we try to establish a relationship between CAB and other macroeconomic factors such as relative income growth (RGDP), inflation, real interest rate, fiscal deficit, terms of trade, trade openness and age dependency. As found earlier, inflation and real interest rate being the determinants of savings are expected to impact CAD. A high age dependency is expected to put a drag on household savings. High domestic growth could lead to higher CAD through greater import demand whereas high world growth increasing export demand is expected to reduce CAD. While fiscal deficit is expected to affect CAD negatively and indirectly through both savings and investments as predicted by twin deficit hypothesis, terms of trade could affect current account directly. Therefore, to find out the determinants of current account, we have regressed CAB on RGDP, GFD, INF, RD, TOP, Δ TOT and Δ DEP. One dummy variable is used to capture exceptional years of surplus in CAB due to strong remittances inflows despite lacklustre growth in developed countries (i.e. D2001_03, 1 for the years 2001–2003 and 0 for other years). The estimation is conducted for the period 1981–2012. The actual and fitted CAB is presented in Figure 2. The figure shows that the estimated CAB is tracking well the actual CAB, except for the years 1990 and 2012 when the difference was significantly large about 1 per cent of GDP. The significant divergence during these years indicates the deterioration of CAD, as the actual CAD was moving away from the estimated one.

The estimated results are given in Table VIII. All the coefficients except the intercept are statistically significant. The diagnostic checks are conducted for serial correlation problem using Breusch–Godfrey LM test and DW test, which reveal the absence of any

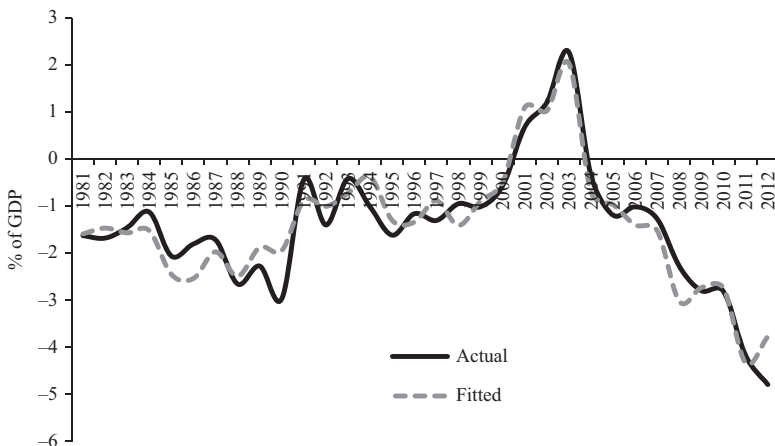


Figure 2.
Current account
balance

Table VIII.
Estimated
determinants of
current account
balance

Variable	Coefficient	t-stat	p-value
Constant	0.42	1.65	0.11
$RGDP_t$	-0.01	-1.95**	0.06
ΔTOT_t	0.02	18.88*	0.00
GFD_t	-0.28	-14.40*	0.00
INF_t	-0.08	-10.13*	0.00
ΔTOP_t	-0.12	-31.75*	0.00
ΔDEP_t	-3.40	-35.79*	0.00
RD_t	-0.13	-11.73*	0.00
$D2001_{03}$	1.76	26.61*	0.00

$\bar{R}^2 = 0.87$; DW: 1.89; LM(2) = 0.94 (0.40); No. of obs. = 32

Notes: *,**Significant at 1 and 10 per cent levels, respectively

autocorrelation problem. The overall results show that India's current account is driven by fiscal deficit, relative income growth, terms of trade growth, inflation, real deposit rate, trade openness and age dependency factor. Fiscal deficit is found to have significant and sizeable impact on CAD, indicating that a one percentage point increase in gross fiscal deficit as per cent of GDP would increase CADs as per cent of GDP by 28 basis points. This finding is consistent with the finding of a recent study by Suresh and Tiwari (2014) on twin deficit hypothesis. A higher domestic growth as compared with world growth is found to be increasing CAD. The rise in age dependency increases CADs significantly; however, given the trend in rising working-age population, a subsequent reduction in age dependency is expected to provide comfort to the CAD in India. These medium-term determinants have important implications for policy-making. While age dependency would play a crucial role in automatic correction in CAD, policy makers should focus on reducing fiscal deficit to keep the current account in a sustainable path in the long run.

6. Concluding remarks

India's CAD has widened in last few years mainly because of the rise in gold and oil imports, and increase in investment income payments in conjunction with fall in investment income receipts, despite a large comfort provided by services sector and private remittances. Given large demand in India, it is difficult to control import growth. However, policy makers should focus on achieving phenomenal export growth so that a sustainable current account is maintained. With rising working-age and skilled population, India could focus more on high-value product exports rather than low-value manufactured items.

On the structural side, the widening CAD is contributed to a large extent by fall in household financial savings despite a fall in corporate investments, which raises concerns. Further investigation suggests that slowdown in household savings has been mainly led by acceleration in inflation. India has been financing its CAD through capital inflows and the composition of capital inflows has changed during previous few years. In particular, currently a large portion of CAD is financed through short-term volatile capital flows. The rising short-term debt mainly due to high CAD is a risk to India's external sector. Granger non-causality test result suggests that capital inflows in the post-liberalisation period are driving CADs rather than the causality running from the opposite side. The empirical results using unit root tests and Johansen cointegration test provide the evidence of sustainability of India's CAD in the long run. Results from econometric analysis revealed that India's current account is driven by fiscal deficit, term of trade, inflation, real deposit rate and age dependency factor. The results suggest that one of the important factors contributing to large CADs over the years from the structural side is fiscal deficit. Therefore, it is important to correct fiscal deficits to keep CAB at a sustainable level.

Notes

1. $GNP = C + I + G + X - M$ + Net income from abroad, where X , exports; M , imports.

$$CAB = GNP - (C + I + G) = X - M + \text{Net income from abroad} = S - I, \text{ where } S = GNP - (C + G).$$

2. John Pitchford (an Australian Economist) and Nigel Lawson (former UK Chancellor of the Exchequer) used this framework to argue that large current account deficits in their respective countries (Australia and the UK) did not represent any risks, given the absence of any apparent distortions and so far the government balance is in order, which is commonly called as “consenting adults” view of current account.
3. The Fiscal Responsibility and Budget Management (FRBM) Act was enacted in 2003 to institutionalise financial discipline by eliminating revenue deficit and reducing fiscal deficit to 3 per cent of GDP by March 2008.
4. To examine the determinants of financial saving, an equation is estimated running regression of household financial saving as a percentage of GDP (HH_FN) on real deposit rate (RD), i.e. the difference between 1-3 year deposit rate and CPI inflation rate, CPI Inflation (CP_INF), GDP growth (GR), change in log of age dependency ratio (ΔDEP) and its own lag for the period of 1971-2011. The results reported below show that all the variables are significant at 5 per cent level and free from serial correlation problem, while income has a significant positive impact on household financial savings, age dependency and inflation affect it negatively:

$$HH_FN_t = 1.57 + 0.52HH_FN_{t-1} + 0.04RD_t - 0.4CP_{INF_t} + 0.12GR_t - 2.08\Delta DEP_t$$

(3.40)* (4.75)* (2.13)* (-3.42)* (1.89)* (-3.55)*

$$\bar{R}^2 = 0.84 \text{ Durbin's } h - \text{stat} = -0.93; \text{ LM}(4) = 1.40 (0.25); \text{ Q}(4) = 3.68 (0.45).$$

5. Here, trade deficits are the difference between merchandise as well as services exports and imports to GDP ratio.
6. RBI (2013). “Remittances from Overseas Indians: Modes of Transfer, Transaction Cost and Time Taken”, *Monthly Bulletin*, December.
7. Although the series is non-stationary with this break, the break year statistic (t -value = 2.89) is statistically significant at 1 per cent level.

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Corresponding author

Inder Sekhar Yadav can be contacted at: yadavis@hss.iitkgp.ac.in