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Not Sustainable: India's Trade and Current Account Deficits

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Not sustainable: India's trade and current account deficits

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Abstract: India's trade balance and current account have shown persistent deficits for a major part of its post-independence period. Since the mid-2000s, trade deficits have increased perilously, with a sharp rise in both oil and non-oil imports. This has increased the magnitude of the current account deficit, as net earnings from services and remittances have been insufficient to offset the trade deficits. India has relied on remittances, services exports and capital inflows to finance these deficits. This paper argues that all three sources entail elements of fragility. The recent global economic slowdown, economic recession in Europe, slow economic recovery and low growth forecasts for the US and Europe, and the potential Dutch disease effects of remittances raise questions on whether services exports and remittances can continue to generate sufficient earnings to sustain these deficits, especially if they continue to increase. Relying on remittances and capital inflows for financing ever-rising trade deficits also carry risks of financial fragility, especially with short-term capital inflows becoming more prominent in the Indian economy. Policy efforts aimed at improving the competitiveness of merchandise exports to reduce the magnitude and persistence of these deficits seem to be the need of the hour.

Keywords: Trade balance; current account; financial fragility; services exports; remittances; sudden-stop risks; capital account convertibility.

JEL Codes: F24; F32; F41; G01.

1: Introduction

For a major part of the post-independence period, India's trade balance has exhibited persistent deficits. Indeed, India has experienced two previous periods of foreign exchange problems- from 1956-57 to 1975-76, and from 1980-81 to 1990-91, which culminated in the foreign exchange crisis of July 1991. Both periods were marked by

rising current account deficits as imports grew faster relative to exports (Jalan 1992).[1]

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[1] Despite the balance of payments problems in the first period, India could keep its debt servicing burden

low because a major part of the current account deficit was financed through external assistance on

Though India has not experienced any major balance of payments problems in the post-liberalization period since 1991, the trade balance has remained in deficit, with the magnitude of the deficits increasing perilously since the mid-2000s. Besides soaring oil prices, which have pushed up the import bill for oil imports, India's non-oil imports have also been rapidly rising. Thus, in recent times, the persistent deficits also reflect an increasing dependence on non-oil imports, besides a low external competitiveness of merchandise exports. To finance these deficits, India has relied on remittances, exports of services and capital inflows, with the latter two sources becoming dominant since the late 1990s and 2000s. Indeed, the issue of capital account convertibility has been intensely debated in India both in the policy circles and among economists (see, e.g., Rao 1997, Rao and Singh 1998, Kohli 2001, Sen 2006,Vasudevan 2006, Williamson 2006, Barua 2007, Rajwade 2007, and Subramaniam 2007) . The last two decades have seen Indian governments appointing two committees (the Tarapore Committees of 1997 and 2006, often referred to as Tarapore I and Tarapore II respectively) to provide a road map to fuller capital account convertibility. More recently, the 2008 Report of the Raghuram Rajan Committee on Financial Sector Reforms has favored the removal of capital controls.

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concessional terms. However, in the second period, particularly from the mid-1980s, the decline in concessional loans to developing countries and a reduction in the net receipts on invisibles meant that the major part of the rising current account deficit was financed through capital inflows such as commercial borrowings and non-resident Indian (NRI) deposits. This increased reliance on non-concessional loans that were granted on market terms pushed up the external debt burden. The eventual drying up of funds from these sources resulted in the foreign exchange crisis of 1991 (Jalan 1992).

This paper seeks to explore the long-run sustainability of the current Indian growth path characterized by persistent trade and current account deficits, and a reliance on remittances, services exports and capital inflows to finance these deficits and drive economic growth. Section 2 tries to provide a theory for why persistent trade and current account deficits can create problems of financial fragility, especially in a developing country. Section 3 reviews some of the existing empirical work on the Indian balance of payments, and discusses the contribution that this paper expects to make. Section 4 analyzes the trends in the various components of India's external accounts. Section 5 explicitly analyzes the sustainability of India's current growth path. Section 6 presents the conclusions and broader policy implications of these findings for developing countries.

2: Persistent trade and current account deficits and financial fragility

By emphasizing the balance of payments accounting identities, it is generally argued that trade and current account deficits are financed by surpluses on the capital account through capital inflows (see, e.g., Fisher 1990). According to this view, since savings are often low in developing countries, capital inflows augment private savings, and thereby accelerate capital accumulation and economic growth. Trade and current account deficits are temporary phenomena that will be corrected through future surpluses generated by capital inflows, higher investment and faster economic growth.

A variation of this view extends the *intertemporal consumption approach*, which rests on the *permanent income hypothesis* to an open economy context (see, e.g., Sachs 1982, Ghosh and Ostry 1995, and Obstfeld and Rogoff 1995). Trade balance and current account fluctuations, and the associated capital flows, are seen as buffers to smooth out

consumption in response to shocks to output, investment and government expenditures. As long as saving and investment decisions reflect utility maximizing decisions by economic agents, the resulting current account and trade balance dynamics are also optimal and intertemporally solvent, even if they are in deficit. Thus, if the national cash flow (output minus investment minus government expenditure) is expected to increase over time, it is optimal to borrow against future resources (or accumulate indebtedness through capital inflows) by running a current account deficit. Conversely, if the anticipated national cash flow is expected to decrease over time, a country should run a current account surplus, or increase savings today to maintain future consumption.

Besides utility maximizing behavior, both these lines of argument assume that there are complete, well-established and efficiently functioning global financial markets for contingent securities that allow optimal risk diversification (Obstfeld 2012). Thus, relying on capital inflows for financing persistent deficits does not carry significant risks of financial fragility.

However, far from being temporary phenomena, trade deficits often have a tendency to persist for long periods of time (Moon 2007). The two-gap growth models (e.g., Prebisch 1949 and 1959, McKinnon 1964, and Chenery and Strout 1966) emphasize that developing countries generally specialize in the production and exports of primary commodities and commodities that rely on natural resources available in these countries. Such commodities face a low income elasticity of demand in external markets. As against this, many developing countries meet their requirements for manufactured and capital goods through imports from developed countries. Thus, without deliberate industrial and commercial policies, trade deficits may not be corrected over time.

Moreover, given that financial markets are incomplete in the real world, the large financial flows underlying current account imbalances often entail stability risks. Obstfeld (2012), and Blanchard and Milesi-Ferretti (2012) point out that foreign assets and liabilities are often held by different entities, and that the liquidity characteristics of assets and liabilities often differ. If foreigners suddenly become unwilling to lend further money, holders of short-term liabilities will find it extremely difficult to pay off their foreign debts through the sale of long-term foreign assets. In this "sudden stop" scenario, sharp adjustments in the current account become necessary, and entail curtailing domestic demand through abrupt and painful adjustments in relative prices and resource allocation. Sudden stops can also produce significant negative balance sheet effects when foreign currency liabilities are widespread.

Furthermore, capital inflows can cause trade and current account deficits to feed on themselves. When short-term inflows like portfolio investments become a major means of financing these deficits, the resulting appreciation of the real effective exchange rate acts to further widen them. A vicious circle emerges, with these larger deficits requiring even greater portfolio investment inflows, which further increase net external liabilities (Nayyar 2002).

Thus, persistent trade and current account deficits can produce financial fragility, a problem that is aggravated by the fact that developing countries are unable to borrow in international markets in their own currency (Vernengo 2006, and Eichengreen, Hausmann and Panizza 2002). Eichengreen, Hausmann and Panizza (2002) term this constraint, *the original sin hypothesis*. They provide evidence which suggests that countries with "greater sin" (having more external debt in foreign currency) are prone to

greater volatility in output and capital flows, lower credit ratings and more rigid monetary policies. Through a depreciation of the domestic currency induced by currency mismatches, original sin increases the external debt obligations of firms, which lowers their profits. This adversely affects their borrowing and investment capacity, thereby limiting the efficacy of countercyclical monetary policies and rendering output more volatile. Moreover, as Obstfeld (2012) argues, a country may utilize capital inflows to drive credit expansions. In the presence of potentially fragile financial systems, such credit expansions driven by capital inflows increase the likelihood of a future financial crash. Higher dollar liabilities also curtail the ability of central banks in developing countries to thwart liquidity crises through their role as lenders of the last resort. Finally, dollar-denominated debts give rise to greater volatility in domestic interest rates, which then produces uncertainties with respect to debt servicing. This may reduce investor confidence over time, ultimately resulting in a reversal of inflows and speculative attacks on the domestic currency. The 1994 Mexican peso crisis is one obvious example, where a large current account deficit (nearly 8 per cent of GDP) was financed by short-term capital inflows, which reversed in December 1994 as a result of the investor panic following the devaluation of the peso (Griffith-Jones 1997).

An excessive reliance on capital inflows to finance persistent trade and current account deficits also makes it increasingly difficult to frame macroeconomic policies in accordance with national priorities of output and employment. Sustaining capital inflows generally forces developing countries to keep interest rates high. Through their adverse effects on investment, output and employment, high interest rates can unleash contractionary forces on the domestic economy, which may not be offset by higher

exports or foreign investment. Furthermore, an overdependence on capital flows constrains fiscal policy by forcing governments to avoid public deficits, not only to avoid domestic imbalances, but also out of the fear of a capital flight (Patnaik 2006).

Studies on the US current account deficits emphasize that through sharp changes in the exchange rate, and the resulting adjustments in the prices of tradables and nontradables, a sudden shock-induced reversal of chronic trade and current account deficits can confront policy-makers with serious tradeoffs between inflation and employment (Obstfeld and Rogoff 2000 and 2004, and Edwards 2005). Obstfeld and Rogoff (2000) estimate that a shock-induced reversal of the US current account deficit could depreciate the nominal exchange rate of the US dollar by around 45 per cent, under the extreme assumption that the Federal Reserve allows the complete adjustment in the prices of traded and nontraded goods to maintain full employment. However, given the potentially severe consequences of such a sharp depreciation, policy makers are unlikely to allow the complete adjustment, but will then face another difficult tradeoff between inflation control and employment. Thus, even in the US where the solvency aspect of the current account is not a problem (since most of its foreign liabilities are in US dollars), large and persistent external deficits could pose serious challenges in the event of a sudden reversal. It is then not difficult to imagine how the adverse effects of such a reversal would be exacerbated in developing countries that are unable to issue the reserve currency, and could therefore face serious solvency considerations in framing policy responses to the reversal.

This brief discussion suggests that persistent trade and current account deficits tend to generate financial fragility in countries that are unable to issue the reserve currency. This

fragility acts to perpetuate these deficits, reduces the capacity for policy autonomy, and makes countries more vulnerable to debt servicing problems and financial crises.

3: The Indian current account: A brief review of some of the existing empirical work

Most studies dealing with the sustainability of the Indian current account deficits have utilized the cointegration framework, sometimes in conjunction with an intertemporal approach. Parikh and Rao (2006) use a Johansen maximum likelihood and error correction approach to analyze the effects of the real exchange rate, fiscal deficits and private investment spending on the Indian current account deficit. They find all three variables to have significant effects. Their findings also suggest that fiscal and current account deficits are cointegrated. Moreover, causality appears to run from fiscal deficits to current account deficits as the former have been generally financed through official borrowings from various external sources. The authors suggest that since investment spending is essential for economic growth, and devaluations can increase fiscal deficits, reining in the current account deficit requires that efforts be directed towards reducing the fiscal deficit.

Khundrakpam and Ranjan (2008) use the intertemporal approach to analyze the solvency and sustainability of India's current account. By employing a vector autoregressive (VAR) model of national cash flow and *detrended current account* (the current account excluding the *consumption tilting* component), their study suggests that the national cash flow and consumption are cointegrated during the period 1950-51 to 2005-06, and in the post-liberalization period from 1990-91 to 2005-06. However, there is no cointegration during the pre-liberalization period from 1950-51 to 1990-91. As per

these findings, the Indian current account balance was intertemporally insolvent in the pre-liberalization period, but moved into solvency in the post-liberalization period. The authors attribute this transition to greater freedom on capital flows in the post-liberalization period, which has helped the private sector to smooth out its consumption path. They further estimate the optimal current account balance, with their results suggesting that the optimal balance has tended to be larger than the actual balance. The authors conclude that by enabling private players to smoothen their consumption to the optimal level by enabling a higher current account deficit, a further liberalization of capital flows in India will facilitate the attainment of higher rates of economic growth. Examining the sustainability of the Indian current account over the period 1950-2003, Holmes, Panagiotidis and Sharma (2011) find evidence of cointegration between exports and imports from the late 1990s, and attribute this to the growing importance of exports, especially services during the post-liberalization period. Similar findings of cointegration between exports and imports following liberalization are arrived at in Sohrabji (2010). Besides improvements in services trade, she attributes the post-liberalization current account sustainability to a shift from predominantly oil imports to the imports of capital goods, which appear to be augmenting the productive capacity of the Indian economy.

These cointegration studies fail to account for the potential destabilizing effects of an excessive reliance on capital inflows. Indeed, both the Tarapore Committees of 1997 and 2006 recommended a phased removal of capital account regulations in India over a

period of time, subject to meeting certain preconditions.[2] More recently, the 2008 Report of the Raghuram Rajan Committee on Financial Sector Reforms has favored the removal of capital controls. It has been argued (see, e.g., Mecklai and Chandrashekhar 2006, Vasudevan 2006 and Barua 2007) that the structural reforms have contributed towards a macroeconomic (including meeting some of the Tarapore pre-conditions) and institutional framework that make the Indian economy capable of handling larger capital flows.

Nevertheless, some Indian economists have cautioned against greater capital account convertibility, emphasizing the risks associated with unrestricted capital flows. One area of focus has been the increased risks of capital outflows and speculative attacks under a regime of unregulated capital flows (see, e.g., Rao 1997, Rao and Singh 1998, Kohli 2001, Sen 2006, Dutt 2006, and Chandrasekhar and Ghosh 2012). This is particularly relevant to India, where portfolio investment inflows have become more prominent over time, and a significant portion of recorded FDI inflows in recent times have been in the form of private equity, and thus more akin to short-term portfolio inflows (Chandrasekhar and Ghosh 2012, and Rao and Dhar 2011). The task of regulating destabilizing speculative flows through appropriate macroeconomic policies becomes all the more daunting in a regime of unrestricted capital flows, since many of these flows use financial instruments such as derivatives which are extremely difficult to monitor (Dutt 2006). Kohli (2001) and Subramaniam (2007) emphasize that capital account convertibility

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[2] The preconditions spelt out macroeconomic targets with respect to the inflation rate , the reduction of gross non-performing assets of public sector banks, reduction in the cash reserve ratio, and reduction of the debt-service ratio(Mecklai and Chandrashekhar 2006, Williamson 2006).

presupposes a flexible exchange rate policy so that changes in capital flows can be absorbed through changes in the exchange rate. However, it is easier for advanced industrial countries than it is for an emerging market like India, to absorb large exchange rate fluctuations. Any rapid move to liberalizing capital flows would entail the risk of pushing the Indian exchange rate to excessively uncompetitive levels. As discussed in the previous section, this can cause trade and current account deficits to persist, and, by increasing external debt obligations, increase the risk of a financial crisis.

Furthermore, in line with the intertemporal approach, some of the cointegration studies implicitly assume that current account deficits are not worrisome as long as it is the private sector that drives these deficits. The fallacy of this benign view of private sector deficits is illustrated by the 1994 Mexican peso crisis, which occurred despite the fact that the current account deficit was the result of dissaving by the private sector, and the fiscal accounts of the Mexican government had been in balance (Griffith-Jones 1997). This was also the experience of Thailand and South Korea prior to the 1997 East Asian crisis, and of Ireland and Spain in the current Euro crisis. [3]

Finally, though these studies supposedly demonstrate the existence of long-run relationships between current account deficits and national cash flows, they ignore possible challenges that would arise if capital inflows, remittances or services exports were to fall in the future. This paper seeks to examine the sustainability of the Indian current account and trade deficits in a broader context, by accounting for the dynamics of

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[3] This is not to say that persistent current account deficits driven by fiscal deficits (or government dissaving) may not cause problems. Irrespective of whether the current account deficit is driven by the public or private sector, relying on unregulated short-term capital inflows to finance persistent deficits can be potentially destabilizing.

remittances, services exports and capital inflows. It also seeks to consider potential

challenges that may lead to a drying up of funds from these sources in the future, and

their implications for the long-run stability of the Indian economy.

4: Trends in India's external accounts

To provide a context to examining the long-run sustainability of India's external deficits,

this section analyzes the trends in the various elements of India's external accounts.

4.1: The trade balance and current account

Figure 1 shows the evolution of the Indian trade balance as a percentage of GDP over the

period 1970-71 to 2010-11. For this entire period, the trade balance has been in deficits,

which have sharply exacerbated since the mid-2000s. Till the mid-2000s, trade deficits

never exceeded 4 per cent of GDP. However, post- 2004-05, they have exhibited a fairly

persistent upward trend, reaching 10 per cent of GDP in the global recession year 2008-

09. Despite marginal improvements in the next two years, the deficit remains high at

close to 8 per cent of GDP.

These persistent deficits imply that foreign exchange earnings from merchandise

exports have consistently been insufficient to offset the spending on imports. Analyzing

the data on Indian exports and imports reveals that since the late 1980s, among

merchandise exports, the receipts from manufactured goods have been the greatest,

followed by primary products (agricultural and allied products and ores and minerals) and

petroleum products. In manufactured goods, the export basket has been very narrow,

with the major receipts coming from gems and jewelry, chemicals and related products

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and textile and textile products (Appendix A).[4] India's main imports have consisted of crude oil and petroleum products; capital goods; and items such as gold, silver, artificial resins and plastic materials, professional scientific controlling instruments, pharmaceutical products, chemical materials and products and non-metallic mineral manufactures (Appendix A). Spending on all of these imports has sharply escalated since the mid- 2000s, suggesting a growing dependency of the Indian economy on the imports of intermediate goods.[5]

Figure 2 shows the evolution of India's current account as a percentage of GDP. Barring a brief period of surpluses in the mid-1970s and the early 2000s, the current account has also been in persistent deficits. This suggests that the net earnings from

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[4] Primary and manufactured exports have mainly consisted of intermediate goods and raw materials, such as non-ferrous metals, engineering goods, raw cotton, aluminium, dyes and semi-finished iron and steel. A major part of the exports of metal and engineering have been to China because of its growing demand for such commodities due to its rapid economic growth (Chandrasekhar 2007, Chandrasekhar and Ghosh 2008, and Ghosh and Chandrasekhar 2009).

[5] Some economists have argued that since the main drivers of imports since the 2000s have been non-oil imports, such as capital goods that reflect the needs of industrial growth, the trade and current account deficits indicate the good health of the Indian economy. From a long-run perspective, this argument has limitations. While the composition of imports may reflect the needs of a growing industry, in the long-run, continually meeting the needs of industrial growth through imports and capital inflows cannot be sustainable unless sufficient export revenues can be generated to offset the value of these imports and repay external liabilities. Thus, for long-run sustainability, policy efforts aimed at widening the export basket and raising external competitiveness are vital.

services, income and transfers or remittances (or net earnings from "invisibles") have

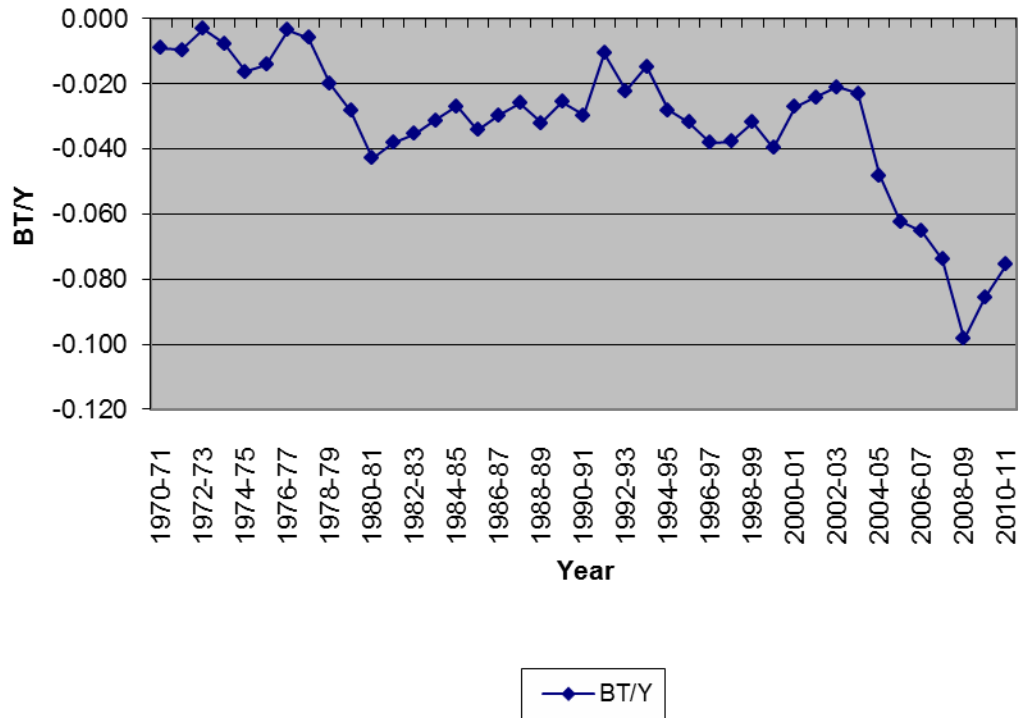generally been insufficient to offset the trade deficits. [6]

Figure 1. India's trade balance as a percentage of GDP (BT/Y), 1970-71 to 2010
Source: Reserve Bank of India (RBI) Handbook of Statistics on the Indian Economy and author's calculations

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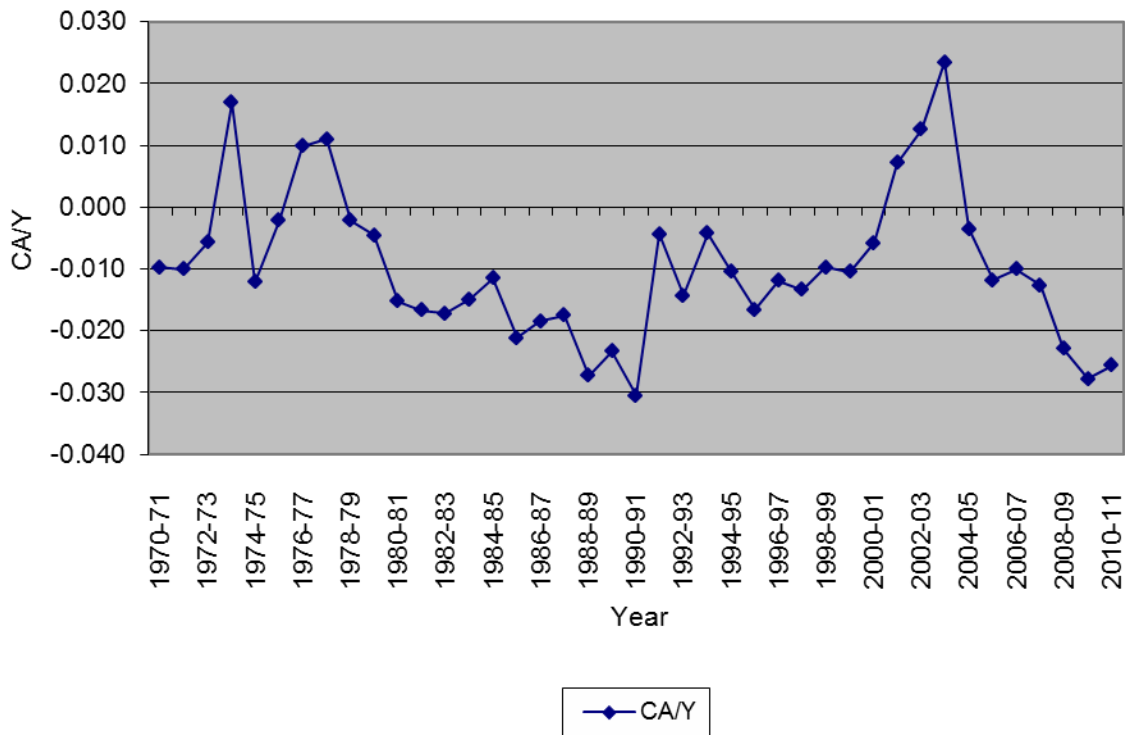[6] Similar arguments have been made in Chandrasekhar and Ghosh (2008 and 2012).

Figure 2. India's current account as a percentage of GDP (CA/Y), 1970-71 to 2010-11.
Source: As for Figure 1.

4.2: Financing the persistent deficits

4.2.1.The financial account

Figure 3 shows the evolution of India's financial account as a percentage of GDP over
the period 1970-71 to 2010-11. Barring 1973-74, the financial account has shown
surpluses in every year. In the 2000s, the surge in capital flows through rising foreign
investment inflows saw this ratio reach an all-time high of more than 8 per cent of GDP
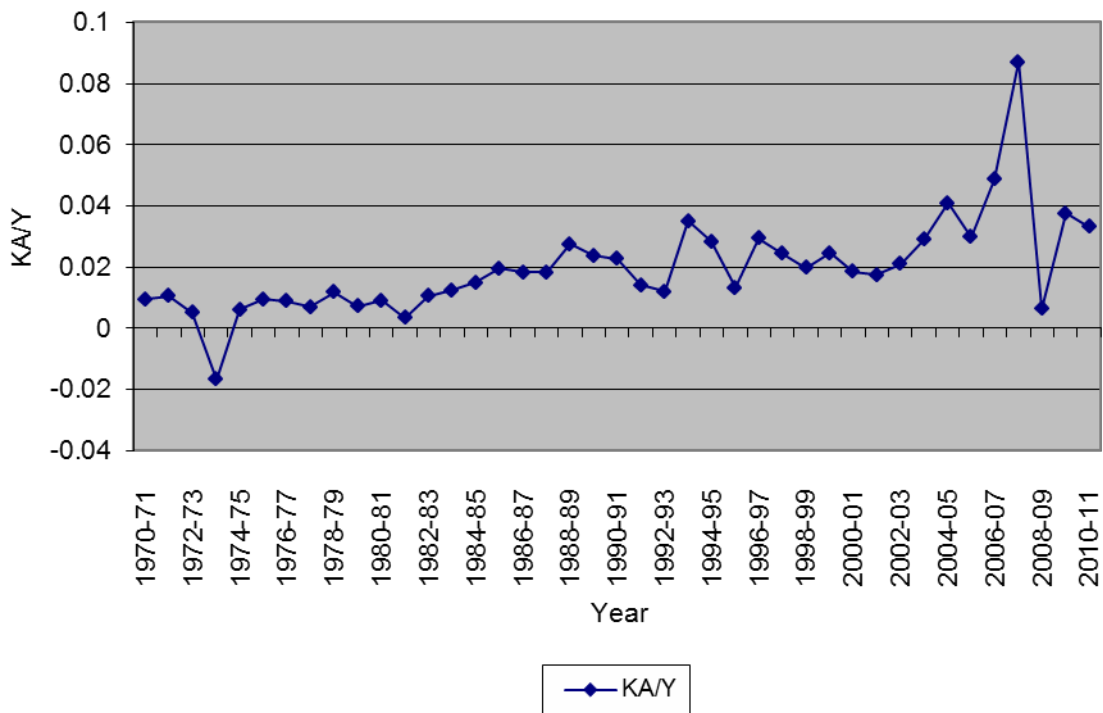
Figure 3. India's financial account as a percentage of GDP (KA/Y), 1970-71 to 2010-11
Source: As for Figure 1

in 2007-08. However, the 2008 global financial crisis produced a steep reversal of this

trend, and capital outflows caused the ratio to plunge to less than 2 per cent of GDP in

2008-09. There has been some respite in the next two years, with inflows causing the

ratio to rise to around 4 per cent of GDP. These observed oscillations should provide a

clear indication of the potential fragility of relying on capital flows for financing ever-

rising trade and current account deficits.

4.2.2. The composition of capital Inflows

Figure 4 shows the composition of India's capital inflows for the period 1991to 2010, and

Table 1 gives the shares of foreign direct investment (FDI), portfolio investment and

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other investment inflows in total capital inflows in each year.[7] [8] In the 1990s, barring 1994 and 1995, other investment inflows accounted for the largest share of India's capital inflows. However, in the 2000s, the composition of capital inflows has shifted towards FDI and portfolio investment, with the combined shares of these two categories surpassing other investment. This shift reflects policy efforts to further liberalize inflows under the FDI and portfolio categories since the late 1990s and 2000s. Furthermore, in several years, the share of portfolio inflows has exceeded that of FDI inflows, suggesting a growing prominence of short-term capital inflows in the Indian economy. The extent of this increase is likely to be even greater if one accounts for the fact that recent FDI inflows have mainly been in the form of private equity, which is more akin to portfolio flows. Figure 5 gives the values of the inflows under FDI and portfolio investments. Portfolio inflows have increased significantly since the early 2000s, and have also exceeded FDI inflows in several years. Predictably, in the global recession year of 2008, India witnessed outflows under the portfolio investment category.

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[7] Till very recently, for India, data on capital inflows under the financial derivatives category was not reported as a separate category, but included in other categories. Thus, there is no time series data available for financial derivatives, and hence this category does not appear separately in Figure 4 or Table 1.

[8] The IMF Balance of Payments Manual (6th edition) (BPM6) defines other investment to include other equity (excluding direct investment or reserve assets); currency and deposits; loans (including IMF credit and loans); trade credit and advances; other accounts receivable and payable; Special Drawing Rights (SDR) allocations; nonlife insurance technical reserves; life insurance and annuity entitlements; pension entitlements; and provisions for calls under standardized guarantees.
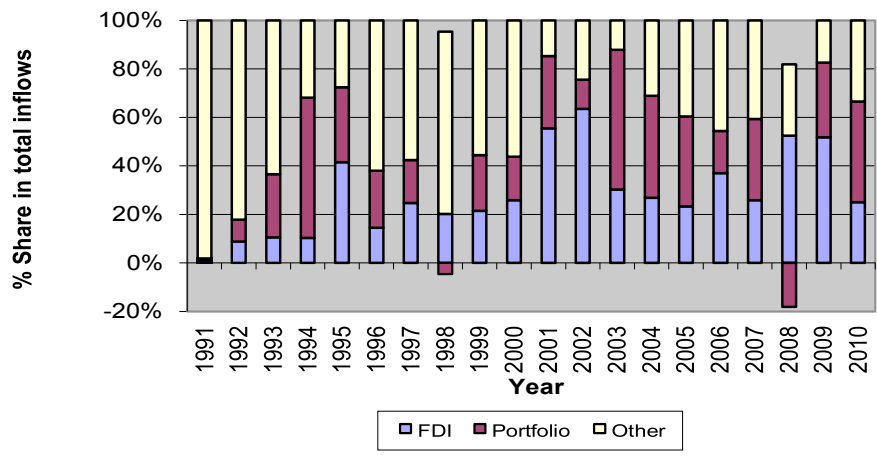
Figure 4. Composition of India's capital inflows
Source: International Financial Statistics (IFS), and author's calculations.
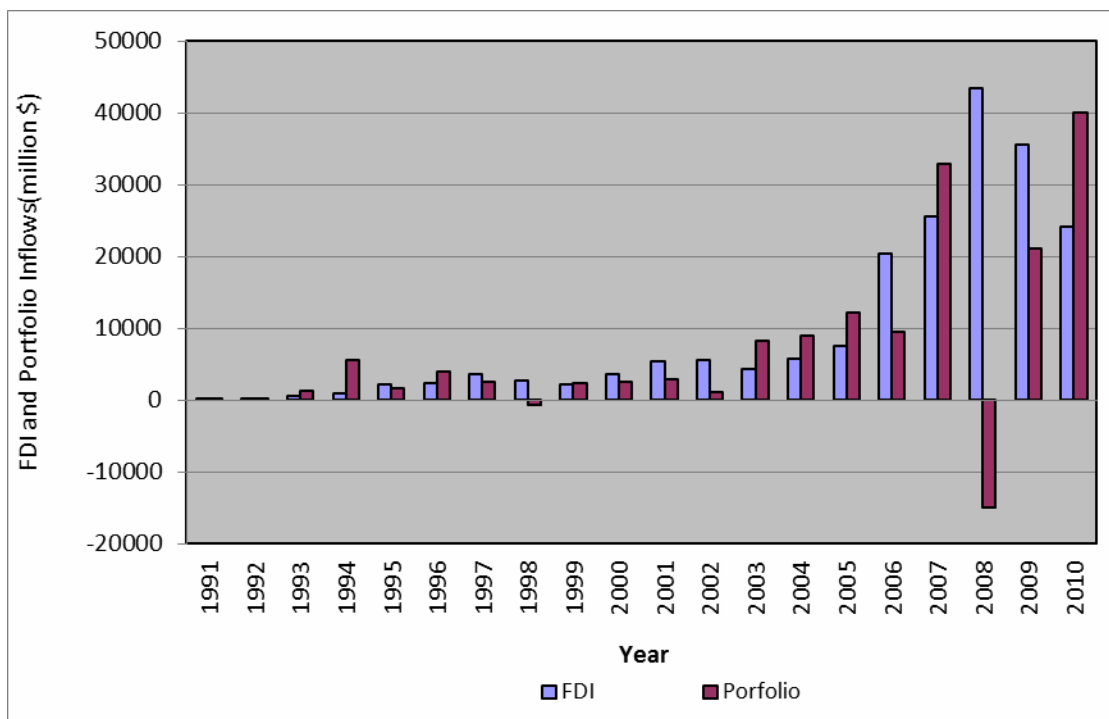

Figure 5. Foreign direct investment and foreign portfolio inflows in India
Source: IFS.

Table 1. Composition of India's Capital Inflows

Year	FDI	Portfolio Investment	Other Investment
1991	1.73%	0.11%	98.16%
1992	8.79%	9.01%	82.20%
1993	10.49%	26.11%	63.40%
1994	10.26%	57.87%	31.87%
1995	41.56%	30.84%	27.60%
1996	14.44%	23.56%	61.99%
1997	24.69%	17.64%	57.67%
1998	22.19%	-5.06%	82.87%
1999	21.45%	22.92%	55.62%
2000	25.85%	17.90%	56.26%
2001	55.43%	29.88%	14.68%
2002	63.55%	12.01%	24.44%
2003	30.27%	57.53%	12.20%
2004	26.81%	42.06%	31.13%
2005	23.26%	37.16%	39.58%
2006	37.06%	17.33%	45.61%
2007	25.89%	33.39%	40.72%
2008	82.32%	-28.50%	46.18%
2009	51.83%	30.74%	17.43%
2010	25.05%	41.44%	33.51%

Source: IFS and author's calculations

4.2. 3: Services exports and remittances

Figure 6 shows India's net services exports as a percentage of GDP(Net Services X/GDP), and as a percentage of total exports (Net Services X/Total X). Since the 2000s, net services exports have risen steadily, with the net service export-GDP ratio reaching a peak at 4.5 per cent in 2008-09, before falling to approximately 2.6 per cent in 2009-10 as a result of the world recession. The share of net services exports in India's total exports reached a peak level of approximately 18 per cent in 2008-09 before decreasing in the next two years due to the global economic slowdown.

Figure 7 shows India's net remittances and net exports of services as percentages of exports over the period 1975-2011. Net receipts from remittances have tended to be between 15 and 20 per cent, and, till very recently, have outpaced net earnings from services exports. This is striking, because it suggests that despite the rapid rise of services exports, net receipts from remittances have played a greater role in enabling India to finance persistent trade deficits.

5: Sustainability of the trade and current account deficits

The previous section showed that services exports, remittances and capital inflows have provided the main financial sources for sustaining India's trade and current account deficits. This section evaluates the sustainability of these sources.

5.1: Export performance of services

5.1.1: The main drivers of Indian services exports

Table 2 shows the shares of different service categories in India's total services exports over the period 2000 to 2010. Computer and information services have been the major contributors, followed by other business services. The "other business services" category
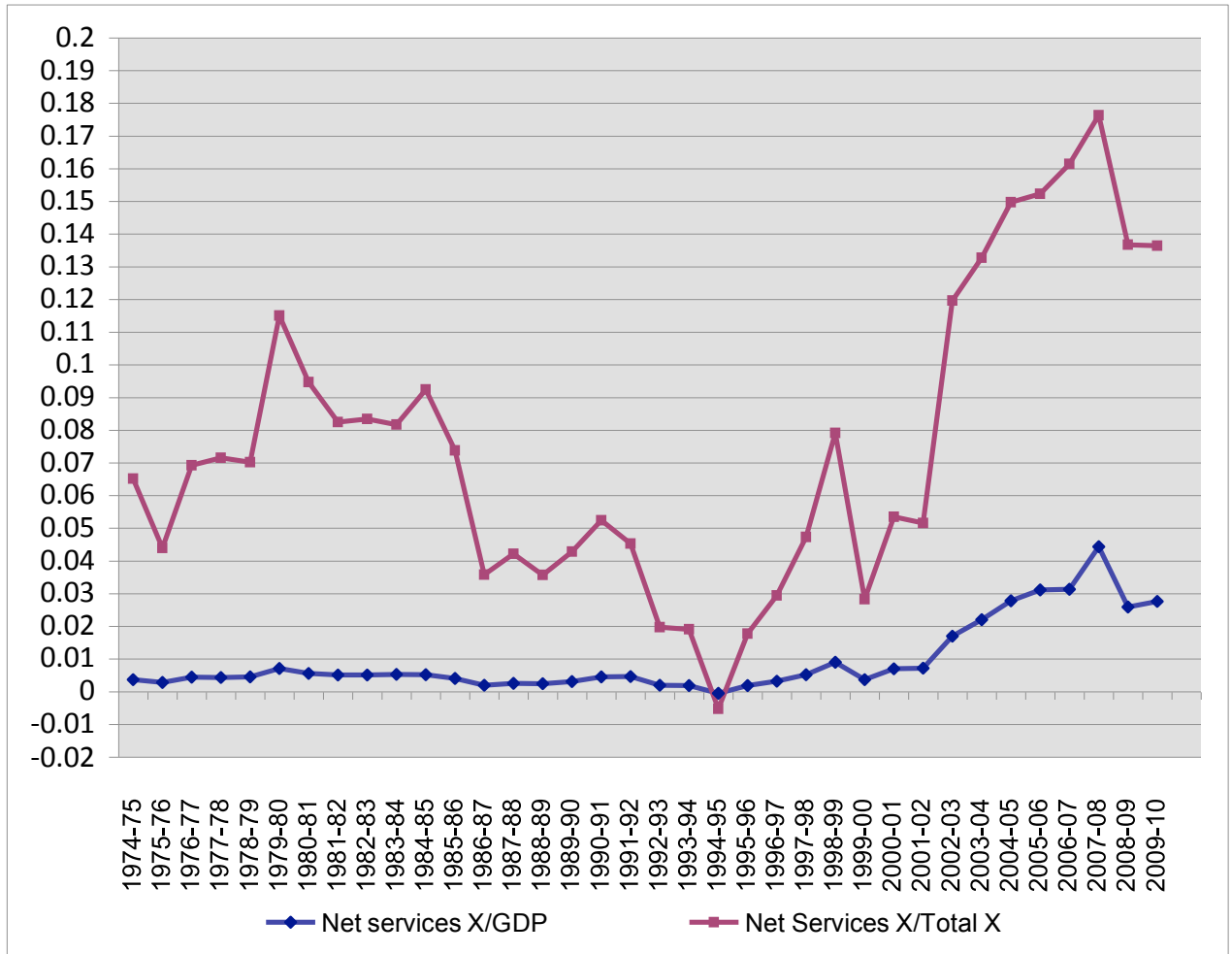
Figure 6. India's net exports of services as a percentage of GDP and as a percentage of total exports
Source: RBI Database on the Indian Economy, World Development Indicators (WDI) database, and author's calculations.

covers activities like merchanting, other trade-related services, operational leasing services and miscellaneous business, professional and technical services. Taken together, the average contribution of these two categories to India's total services exports has been around 63 per cent. The trends in both these categories reflect the emergence of the information technology (IT) sector in India, and the emergence of India as a popular destination for business process outsourcing (BPO) activities in the 2000s. These
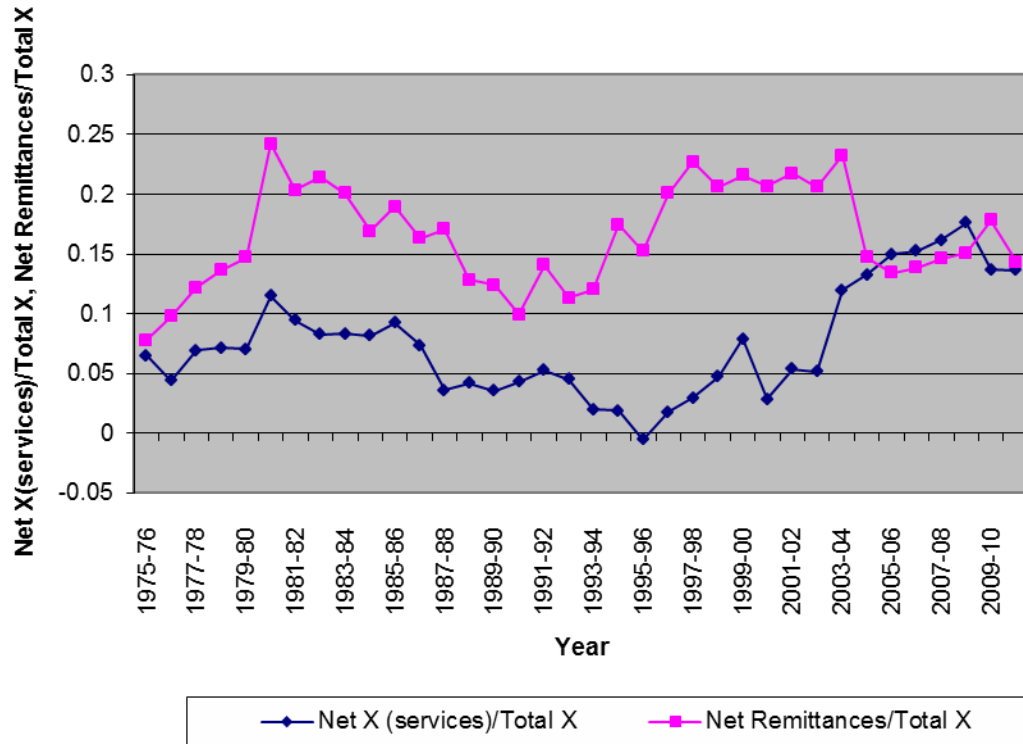
Figure 7. India's services exports and net remittances (as a percentage of total exports)
Source: As for Figure 6.

developments can be attributed to factors such as the ability of foreign firms to hire

English-speaking workers at relatively lower wages in India than in developed

countries, the bias of Indian domestic and foreign investment policies and fiscal

concessions towards services, the establishment of export-oriented production facilities in

service activities, lower telecommunication costs and a time-zone differential favorable

to service provision from India.

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Table 2. Percentage share of different services categories in India's total services exports

Service Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1.Transport	11.86	11.82	12.70	12.64	11.42	10.95	10.84	10.40	10.80	11.80	10.70
2.Travel	20.74	18.45	15.93	18.67	16.12	14.26	12.38	12.34	11.04	11.97	11.44
3.Other Services (I to IX)	**67.40**	**69.73**	**71.38**	**68.69**	**72.46**	**74.78**	**76.77**	**77.26**	**78.16**	**76.23**	**77.85**
I. Communication	3.59	6.37	4.00	4.05	2.86	2.98	3.13	2.70	2.31	1.60	1.14
II. Construction	3.01	0.38	1.19	1.15	1.35	0.66	0.89	0.87	0.78	0.90	0.42
III. Insurance	1.54	1.63	1.70	1.71	2.20	1.79	1.60	1.73	1.46	1.64	1.44
IV. Financial Services	1.65	1.77	3.07	1.53	0.89	2.18	3.38	3.89	4.01	3.94	4.85
V. Computer and Information	28.33	42.72	45.64	49.69	42.70	41.64	41.72	43.13	45.84	50.15	45.81
VI. Royalties	0.49	0.21	0.10	0.10	0.14	0.39	0.09	0.19	0.14	0.21	0.10
VII. Other Business Services	24.87	13.55	13.86	9.33	21.30	24.30	25.15	23.81	22.60	16.86	23.42
VIII. Personal, Cultural and Recreational Services	..	..	..	..	0.12	0.21	0.44	0.59	0.66	0.50	0.27
IX. Government Services, nie.	3.92	3.10	1.81	1.13	0.91	0.62	0.39	0.37	0.36	0.44	0.39

Source: UNCTAD Stat

5.1.2: The destinations of computer and information services exports from India

Table 3 presents the findings from Reserve Bank of India (RBI) surveys of Indian software-exporting firms conducted in 2005, 2009 and 2012. The United States (US) and Europe have been the main destinations for India's computer services exports, with the US accounting for more than 60 per cent of computer services exports from India, and Europe, for more than 20 per cent.[9]

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[9] Chandrasekhar and Ghosh (2007) suggest that there may be a potentially significant issue of over-invoicing of service exports. They show that US estimates of software and IT-related imports from India are much smaller than Indian estimates of the same exports to the US. Since industry estimates are

Table 3. Destinations of India's computer services exports

Country/Region	Percentage Share in Computer Services Exports from India			
	2002-03	2007-08	2009-10	2010-11
USA and Canada	63.7	64	61.9	65
Europe	23.7	26	26.5	23.5
East Asia	5.9	3	3.8	4
West Asia	1.9	0.5	0.8	0.9
South Asia	0.94	0.5	0.3	0.2
Australia/New Zealand	1.45	1.5	2.3	2.7
Latin America	0.22	-	-	-
Others	2.19	3.8	4.4	3.7

Source: RBI Monthly Bulletins (September 2005, September 2009 and October 2012).

5 .1.3: Expected growth rates in major destinations and the income elasticity of demand for computer and information services imports in the US

Table 4 shows the growth projections for the US and European Union (EU) over the period 2012-17. The growth forecasts are low for both regions, given the recent global economic crisis, the subsequent economic recessions in the US and the EU and the slow economic recovery in the US and EU. These developments raise questions on whether the export earnings from computer services can continue to provide sufficient financial resources for sustaining India's trade deficits, especially if these continue to increase.

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responsible for much of the data, and the tax holiday provided huge incentives and no penalties for overestimation, it is likely that at the very least there was double counting of some software "exports". This became explicit during the 2009 Satyam scam.

Table 4. Projected Growth Rates in the US and Europe

Country/Region	Projected growth rates		
	2012	**2013**	**2017**
U.S.	2.2	2.1	3.3
EU	-0.4	0.2	1.7

Source: IMF World Economic Outlook Report, September 2011.

5.1.4: US income elasticity of imports of computer and information services

Due to the non-availability of a sufficiently long time-series data set on computer

services imports for the EU region, this paper only estimates the income elasticity of

demand for computer services imports in the US. The estimation covers the period 1986

to 2009. The results for the US are informative, since it is the main destination for India's

exports of computer information services. The income elasticity of imports of computer

and information services is estimated using the following regression equation:

$$\ln(rea\lim p) = \alpha_0 + \alpha_1 \ln(rea\lg dp) + \alpha_2 \ln(reer) + \varepsilon \qquad (1)$$

where "ln" denotes the natural logarithm of the relevant variable, realimp is the real

imports of computer services by the US; realgdp is the real GDP of the US and rexchr is

the US real effective exchange rate. The estimated coefficient on the natural logarithm of

real GDP will provide an estimate of the income elasticity of demand for imports, while

the estimated coefficient on the log of the real effective exchange rate will give an

estimate of the price elasticity of demand for computer and information services imports.

The data on the real imports of computer services is from the OECD database on trade in

services, while data on real GDP and the real effective exchange rate are from the

26

International Financial Statistics (IFS) database. The estimated elasticities are shown in Table 5.[10][11] For the detailed regression results, please see Appendix B.

For the period considered, the estimated income elasticity of demand of imports of computer and information services in the US is 9.08, implying that a 1 per cent decrease in US real GDP could potentially reduce US real imports of these services by approximately 9 per cent. The estimated price elasticity of demand for the US imports of computer and information services is 3.85, suggesting that a 1 per cent depreciation in the US real effective exchange rate (which makes US goods cheaper relative to imports) could potentially reduce US imports of these services by nearly 4 per cent. Thus, an economic contraction in the US has the potential to significantly reduce India's exports of these services, and hence its earnings from services exports. This raises further questions on whether services exports can be viewed a sustainable means for financing persistent trade deficits.

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[10] Das, Banga and Kumar (2011) adopt the same approach to estimate the income and price elasticities of demand for the imports of software services by the US, for the period 1970-2008. For this longer period, they obtain an estimate of 6.04 for the income elasticity of demand, and 0.23 for the price elasticity of demand.

[11] In the IFS data, an increase in the real effective exchange rate index corresponds to an appreciation, and a decrease to a depreciation of the home currency. The estimated price elasticity therefore has a positive sign- as the real effective exchange rate index increases (or the US dollar appreciates, making US goods more expensive relative to imports), US imports should increase. Similarly, as the real effective exchange rate index decreases (or the US dollar depreciates, making US goods cheaper relative to imports), US imports should decrease.

Table 5. Income and Price Elasticities of Computer and Information Services Imports in the US

Income elasticity (α_1)	9.08[*]
Price elasticity (α_2)	3.85[*]

*Estimate is statistically significant
at the 5 per cent level.

5.2: Net earnings from remittances

5.2.1: Main sources of remittance inflows to India

The Middle East, US and Europe have been the major sources for workers' remittances to India (Report of the Working Group on Cost of NRI Remittances 2006 and RBI Monthly Bulletin September 2009). According to RBI estimates, around 44 per cent of India's remittances come from North America, 24 per cent from the Middle East and 13 per cent from Europe (RBI Monthly Bulletin September 2009). The RBI distinguishes between two waves of remittance inflows that have contributed to the emergence of India as one of the top recipients of remittances. The first wave was led by the migration of semi-skilled and unskilled Indian workers to the Middle East. This wave began in the 1970s, reaching a peak in the early 1980s. Despite a tapering off since the 1990s, oil-exporting countries from the Middle East continue to provide a significant source of remittance inflows to India. The second wave has been driven by the IT boom since the mid-1990s, and consists of remittances from skilled Indian workers, who have migrated to North America and Europe.

5.2.2: The potential of remittances as a source for financing trade deficits

Figure 9 shows India's private transfer receipts (mainly workers' remittances) over the period 1970-71 to 2010-11. These receipts were modest till 1990, but increased steadily and significantly since the 1990s. This increase may be viewed as the result of factors such as increased migration by skilled Indian workers to developed countries; policy efforts to attract remittances since the 1990s; a more flexible exchange rate regime; and the gradual liberalization of the Indian capital account in the 1990s (RBI Monthly Bulletin September 2009).
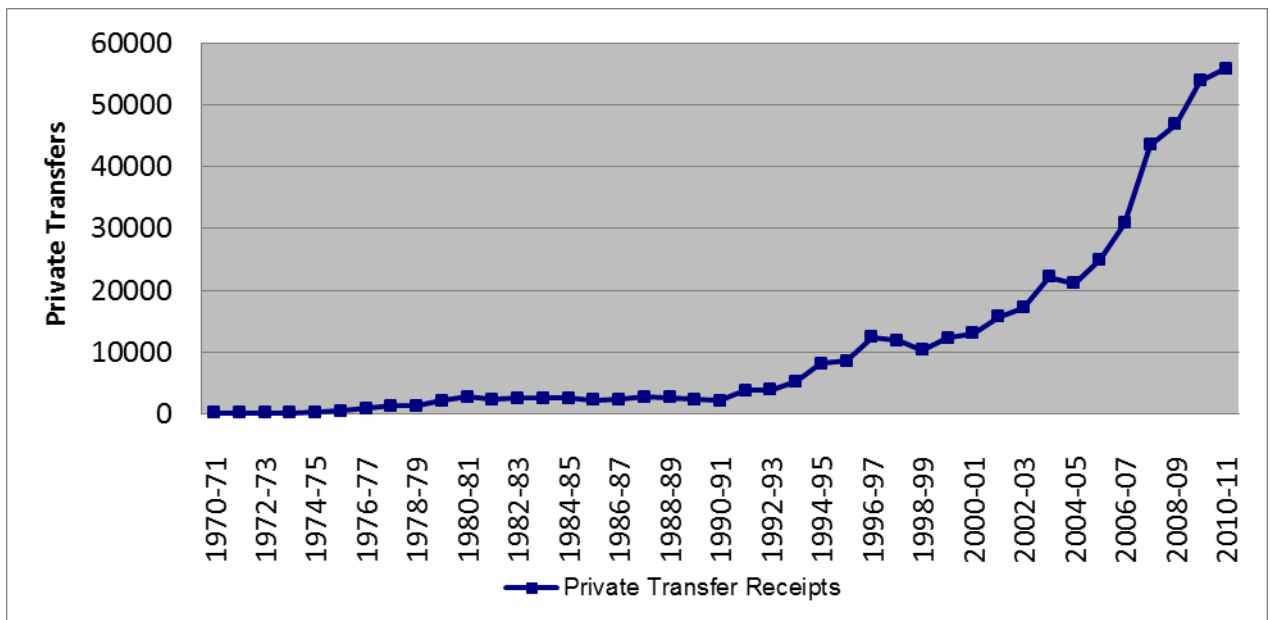

Figure 8. India's private transfer receipts (million US dollars)
Source: RBI Handbook of Statistics on the Indian Economy

Since remittance inflows to India have shown a fairly steady increase, this may suggest that they can provide a reliable means of financing persistent trade deficits. Indeed, the RBI study noted that the stability of private transfers played a role in

offsetting India's merchandise trade deficit and containing the current account deficit during the 1990s.

Nevertheless, it would be folly to assume that there are no sustainability risks associated with relying on remittances, especially if trade deficits continue to increase. The potential to significantly increase future remittances from the Middle East has narrowed with the slowing down of the oil boom in these countries in the late 1990s and early 2000s, and the plateauing out of the Indian diaspora in this region with respect to size and economic scope. More recently, the construction industry in the Gulf region has been severely hit by the global economic recession, resulting in large layoffs, and leaving large numbers of workers from India without jobs. The slowdown of the construction industry has also adversely affected workers employed in the production of goods related to construction. These developments could have lagged effects that further slow down future remittance receipts from the Middle East (Report of the Working Group on the Cost of NRI Remittances 2006, RBI Monthly Bulletin September 2009 and World Bank Migration and Development Brief 13, November 2010).

The slow economic recovery in the US and Europe following the global economic recession and the economic recession in the wake of the Euro crisis, and the slow four-year growth forecasts for these regions raise further questions on whether remittances can continue to grow sufficiently to finance ever-rising trade deficits. These economic developments and the rising unemployment in Europe may also reduce economic and employment opportunities for migrants, and thereby restrict the potential for significantly increasing future remittances from these regions. If some of the proposals to tighten immigration laws and reduce the current levels of immigration in European countries

materialize, further restrictions are likely to arise (World Bank Migration and Development Brief 17, December 2011).

Table 5, which shows the growth of India's receipts of private transfers, provides some indication of a slowdown in remittance receipts in the wake of these developments. In 2008-09, the growth of private transfer receipts decreased to 7.8 per cent from 41 per cent in 2007-08. Though they grew faster at 14.9 per cent in 2009-10, the growth rate again declined to 3.6 per cent in 2010-11. These oscillations should provide a clear indication that adverse global economic events can induce sudden and acute volatility in the receipts of remittances, and thus raise serious questions on their ability to provide a sustainable source of financing rising trade deficits.

As one final point on the potential fragility of relying on remittances, Chami et al. (2008) show that by appreciating the real exchange rate, remittances can produce Dutch disease effects in the recipient country. This can set off a vicious circle, as an appreciating exchange rate further reduces external competitiveness, which widens the trade deficit, and calls for further increases in remittance inflows. If a country is already dependent on remittances for financing persistent trade and current account deficits, it becomes all the more difficult for policy makers to take significant corrective measures to curb the appreciation as attracting higher remittances in the future requires a strong exchange rate.

5.3: Capital inflows and persistent trade and current account deficits

Section 4 showed that capital inflows have provided another source for financing India's trade and current account deficits. Sections 2 and 3 provided a detailed discussion of the financial fragility that such a strategy can entail. To avoid repetition, this section briefly

Table 5. Growth of private transfer receipts

Year	Growth of Private Transfer Receipts
1971-72	16.42%
1972-73	-8.33%
1973-74	40.56%
1974-75	46.77%
1975-76	77.63%
1976-77	62.79%
1977-78	51.82%
1978-79	4.40%
1979-80	61.39%
1980-81	24.06%
1981-82	-13.82%
1982-83	8.23%
1983-84	1.70%
1984-85	-2.30%
1985-86	-11.56%
1986-87	5.41%
1987-88	16.46%
1988-89	-2.02%
1989-90	-13.94%
1990-91	-9.32%
1991-92	82.33%
1992-93	1.74%
1993-94	36.80%
1994-95	53.46%
1995-96	5.28%
1996-97	45.61%
1997-98	-4.50%
1998-99	-12.92%
1999-00	18.85%
2000-01	6.31%
2001-02	20.63%
2002-03	9.07%
2003-04	29.05%
2004-05	-4.99%
2005-06	18.39%
2006-07	23.58%
2007-08	41.10%
2008-09	7.80%
2009-10	14.92%
2010-11	3.64%

Source: As for Figure 11.

reviews the main issues. When borrowing countries like India do not have the ability to issue the reserve currency, financing persistent trade deficits through capital inflows can make countries more vulnerable to debt servicing problems and financial crises in the long-run. Furceri, Guichard and Rusticelli (2011) estimate that a large capital inflow episode nearly doubles the probability of banking and currency crises in the recipient country in the two years following this episode.

Moreover, through their effects on the real exchange rate, and by reducing the capacity for policy autonomy, relying on capital inflows can perpetuate these deficits. More unregulated capital flows also reduce the ability to take corrective measures (such as expansionary fiscal or monetary policies) during economic crises.

Finally, there is no guarantee that foreign lenders will be willing to indefinitely lend money, a danger that has been termed the "sudden stop" risk in the literature on capital account volatility (Reinhart and Calvo 2000, and Calvo 2007). The sudden stop risk in developing countries is compounded by the fact that capital inflows to these countries tend to follow a boom-bust cycle, involving alternating periods of risk underestimation (in which the "appetite for risk" is high) and risk aversion (leading to a "flight to quality", or to developed countries) by foreign investors (Ocampo 2005). The 1994 Mexican peso crisis and the 1997 East Asian currency crises provide clear evidence that in the event of a "sudden stop", sharp adjustments of external deficits may become necessary, and are likely to involve the curtailment of demand, along with abrupt and painful adjustments in relative prices (Stiglitz 2002). Furthermore, unlike developed economies that can sustain large depreciations while keeping an open capital account, sudden stops in emerging markets tend to be accompanied by wide fluctuations in the real exchange rate, (Calvo,

Izquierdo and Mejia 2003). Through these swings in relative prices, sudden stops can generate significant contractions in output. They may also lead to collapses in output by giving rise to banking crises, which cause asset prices to collapse, generating significant negative wealth effects and adversely affecting consumer spending. If capital inflows constitute a major source of domestic credit, a sudden stop is likely to generate a credit crunch, and thereby contract investment and output (Reinhart and Calvo 2000). Furceri, Guichard and Rusticelli (2011) also suggest that the probability of a sudden stop is higher for countries with a higher external debt-to-export ratio. In India, this ratio is currently close to 81 (Global Development Finance Report, World Bank, 2012), which although less compared to some countries, is nevertheless high, suggesting that the risk of a sudden stop should not be underestimated.

Furthermore, short-term portfolio investment inflows have become more prominent in the Indian economy over time. Such inflows are more volatile compared to longer-term inflows such as FDI, since they are prone to rapid reversals in the wake of adverse economic developments or the emergence of risk aversion sentiments. More unregulated short-term capital inflows will therefore increase the vulnerability of India to sudden stops and financial crises. Though studies such as Reinhart and Calvo (2000), and Furceri, Guichard and Rusticelli (2011) suggest that the risks of sudden stops can be reduced through policy reforms aimed at modifying the composition of capital flows, relying on FDI inflows to finance persistent trade deficits is also not a risk-exempt path. While less volatile than short-term inflows, FDI inflows can be procyclical, and can contribute to macroeconomic instability if they take the form of mergers and acquisitions that often depend on the procyclical availability of financing (Ocampo and Vos 2008).

Furthermore, in India, the measurement of FDI inflows have been flawed, with equity investments that are not via the institutional investor route being classified as FDI. Thus, a lot of the reported FDI inflows in India have often been more akin to portfolio investments, which have the potential to further reduce the competitiveness of India's merchandise exports by causing currency appreciations (Rao and Dhar 2011).

Given the elements of financial fragility inherent in a regime of more unregulated capital flows, India should be wary of further liberalizing its capital account to finance persistent deficits Rather, policy efforts to improve the competitiveness of merchandise exports, and thereby reduce the magnitude of the trade deficits seem to be the need of the hour.

6: Conclusions and policy implications

This paper has sought to evaluate the long-run sustainability of India's current growth path that has involved a reliance on earnings from services exports, remittances and capital inflows to finance persistent trade and current account deficits. The analysis suggests that all three sources entail elements of fragility. The slow economic recovery in the US, onset of an economic recession in Europe and the low growth projections for these regions raise questions on whether earnings from services exports can continue to grow adequately to finance these deficits. Furthermore, given the high income elasticity of demand for computer information services imports in the US, an economic downturn in the US has the potential to significantly reduce India's earnings from services exports. Though remittance receipts have been increasing over time, their growth has been subject to sharp oscillations in the last three years due to the recent global economic recession. There could be further lagged effects with the economic slowdown in the US and Europe,

possibility of tighter immigration laws in Europe and the plateauing out of the Indian diaspora and employment opportunities in the Middle East. The potential Dutch disease effects of remittances provide another reason to be cautious about relying on remittances to finance persistent trade and current account deficits. While short-term portfolio inflows may presently finance external deficits and aid credit expansion, they also generate liabilities which must be paid off at a future date. Unless policy efforts are directed towards making merchandise exports more competitive, so that they can generate the foreign exchange earnings needed to repay the liabilities, the risks of future debt servicing problems remain.

Thus, policy efforts need to be directed towards reducing the magnitude and persistence of these deficits. These require stronger industrial policies aimed at accelerating the growth and expansion of industry, raising industrial productivity and making merchandise exports more competitive. These could take the form of more active research and development (R&D) programs by the government through private-public partnerships; better bank lending schemes and credit policies for the commercial sector ; and policies to develop and improve infrastructural facilities.

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Appendix A. Components of Indian merchandise exports and imports

Figures A1 and A2 show the major trends in India's merchandise exports. Figure A3 shows the major trends in India's merchandise imports. All of the data used to analyze the trends in India's merchandise trade is from the RBI Handbook of Statistics on the Indian economy.
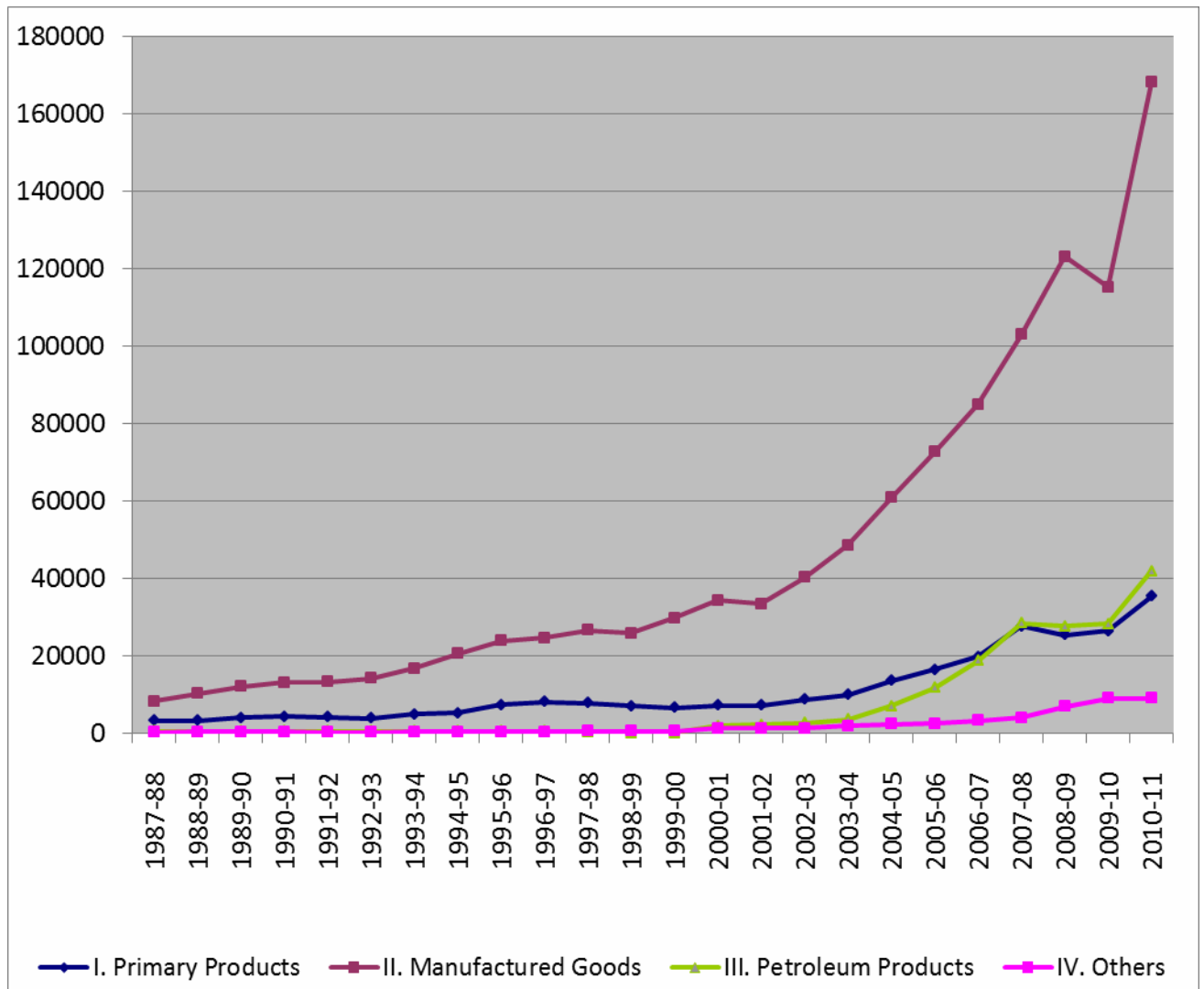
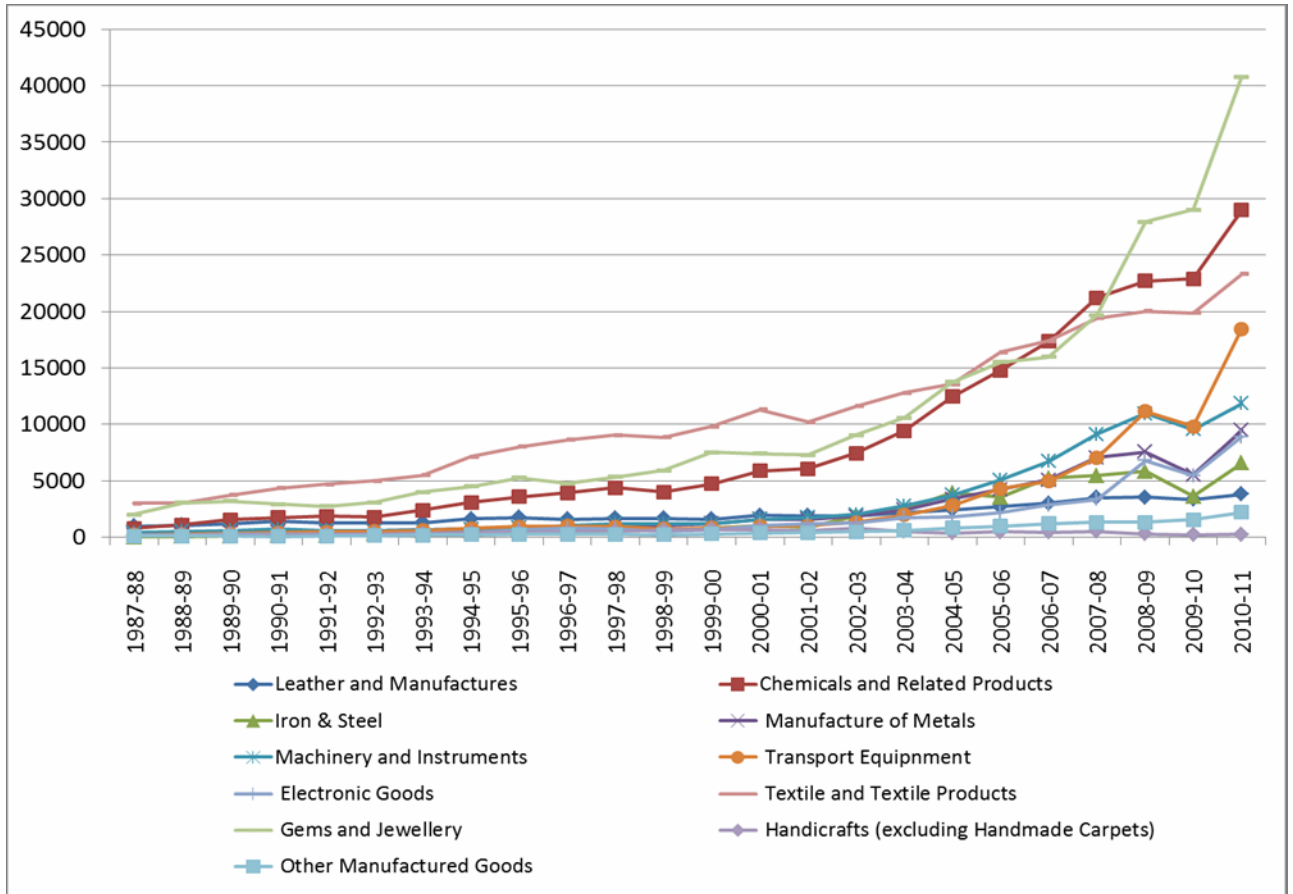Figure A1. Exports of Principal Commodities (million US Dollars)

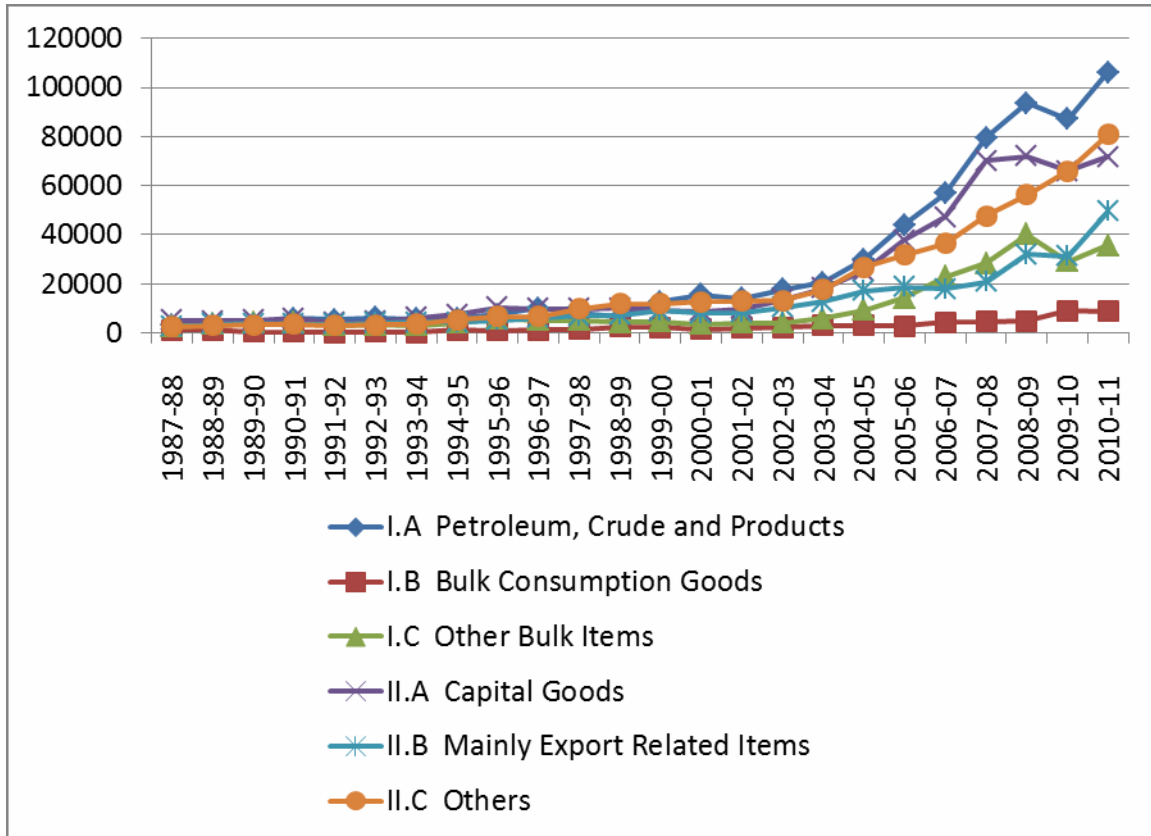Figure A2. Exports of Manufactured Goods (million US Dollars)

Figure A3. Imports of Principal Commodities (million US Dollars)

Note: The RBI defines the "Others" category to include gold; silver; artificial resins and plastic materials; professional scientific controlling instruments; coal; coke; briquittes; medicinal and pharmaceutical products; chemical materials and products and non-metallic mineral manufactures.

Appendix B. Regression results for US imports of computer and information services

Table B1 shows the results that were obtained by estimating equation (1).

Table B1. Regression results for equation (1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-84.76847	6.653206	-12.74100	0.0000
LOG(REALGDP)	9.080682	0.418166	21.71550	0.0000
LOG(REER)	3.849461	1.239003	3.106902	0.0053
R-squared	0.959161	Mean dependent var		16.55022
Adjusted R-squared	0.955271	S.D. dependent var		1.961993
S.E. of regression	0.414945	Akaike info criterion		1.195129
Sum squared resid	3.615772	Schwarz criterion		1.342385
Log likelihood	-11.34154	Hannan-Quinn criter.		1.234196
F-statistic	246.6053	Durbin-Watson stat		1.429194
Prob(F-statistic)	0.000000			

Comparing the value of the Durbin Watson statistic to the relevant upper bound and lower bound Durbin-Watson values does not yield a conclusive result for autocorrelation. Thus, to check for autocorrelation, equation B.1 is estimated, which includes the residuals obtained from estimating equation (1):

$$\log (\text{realm}) = \alpha_0 + \alpha_1 \log(rea \lg dp) + \alpha_2 \log(rexchr) + \rho(resid_{t-1}) + \varepsilon \quad (\text{B.1})$$

where $resid_{t-1}$ are the lagged values of the residuals obtained from estimating equation (1). Estimating equation (B.1) yields the results shown in Table B2. The estimated coefficient on ρ is not significant at the 5 per cent level. Thus, serial autocorrelation is not a problem, and the elasticity estimates shown in Table B1 are reliable.

Table B2. Regression results for equation B.1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-269.4113	13.64245	-19.74801	0.0000
LOG(REALGDP1)	8.964421	0.461819	19.41113	0.0000
LOG(REER)	3.840674	1.504383	2.552989	0.0194
RESID01(-1)	0.267450	0.236636	1.130215	0.2725

R-squared	0.959340	Mean dependent var	16.67499
Adjusted R-squared	0.952920	S.D. dependent var	1.906263
S.E. of regression	0.413622	Akaike info criterion	1.229041
Sum squared resid	3.250576	Schwarz criterion	1.426518
Log likelihood	-10.13397	Hannan-Quinn criter.	1.278706
F-statistic	149.4283	Durbin-Watson stat	1.760754
Prob(F-statistic)	0.000000		