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BEHAVIOUR OF INDIAN TEXTILES &  
CLOTHING SECTOR: AN ENQUIRY FOR  
MAJOR DESTINATION COUNTRIES**

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## ABSTRACT

The paper analyses the role of exchange rate in determining the export behavior of Textiles and Clothing (T&C) Sector. From the panel regression analysis of eight major exporting partner countries of Indian T & C sector, the study found an inverse relationship between the rises in exchange rate and exports. This suggests that the devaluation of Indian rupee has not helped to boost the exports of T&C sector. The findings further indicate the significant role of demand factor in determining the export growth.

**Key words:** exports, exchange rate, prices, & WTO

**JEL Classification:** F13, F32 & F41.

## **Introduction**

The study is an attempt to examine the role of exchange rate in determining the demand for India's exports in the Textiles and Clothing sector (T&C) to major destinations. The study specifically looks into T&C sector, as this is a labour intensive sector having major implications for determining the size of employment and income growth of the economy. It is also important to note that the import intensity of this sector is quite minimal. The share of T&C sector in total value added and employment in India is quite substantial. It accounts for 20 per cent of industrial production and 18 per cent of industrial employment. It provides direct employment to 3.5 crore people and another 5.5 crore people are engaged in allied activities. It contributes 15 percent of total export earnings and constitutes 4 per cent of national GDP (GOI, 2007-08). Although India has only a meager share in the global trade in the Textiles and Clothing (T&C), the sector is still important as far as the economy is concerned. In this context, the present study assesses the relative export performance of the sector and then tries to explore the role of exchange rate in determining the export behavior of the sector.

It is well observed that the export of textiles and clothing from larger exporters in major developing countries to the major industrialized countries was subject to regulations in the form of quotas, tariffs and non-tariff barriers (whose nature has changed over time). The agreement on textiles and clothing under WTO (World Trade Organization) dismantled Multi Fibre Agreement and the extensive

network of bilateral quotas over a period of 10 years ending on 31 December, 2004. Since exchange rate is propagated to be one of the key factors among other determinants, the change of which can affect the export sector, therefore, the present study relates the textile exports, among other factors with the exchange rate behaviour. The paper is divided into six sections. First section deals with the assessment of the export performance of the T&C sector. The second section brings out the theoretical underpinnings about the linkages between the major factors determining the exports such as exchange rate and other demand factors. Third section briefly explains empirical literature concerning the relationship. Fourth section sets out the basic framework of analysis and the results are reported in the fifth section and finally section six concludes the study.

### **Export Competitiveness of Indian T&Cs**

Export performance can be analysed by measuring its growth, export share in the world exports or in major import destination countries and also from a measure of relative comparative advantage indices. In this context, analyzing the relative strength of T&C sector in India's total exports to the selected destination countries and the share of India's exports in world exports to these selected destinations is of highly useful for understanding the performance of the sector in the international trade. Before analysing the export competitiveness of T & C sector, the study attempts to understand India's position among the leading world exporters. While India has been listed as the 9<sup>th</sup> leading exporter in (26), its position in the Textile Yarns, Fabrics etc. (65) and Clothing and Accessories (84) are 23<sup>rd</sup> and 87<sup>th</sup> respectively during 2006. However, India's export share to the world for Textile Fibre and Waste has increased from 1.08 per cent during 1985 to 2.36 per cent during 2006. The share for Textile Yarns, Fabrics etc has increased to 1.08 per cent from 0.28 per cent during the corresponding period. In the case of Clothing and Accessories, the export share to the world has increased marginally from

0.02 per cent to 0.04 per cent during 1985 to 2006 (see Appendix Table 1, 2 & 3). It is further observed that China has emerged as a leading world exporter of Textile Fibre and Waste (26) with an export share of 24.18 per cent by 2006. US maintained itself as the leading world exporter positions for the Textile Yarns, Fabrics etc. (65) and Clothing and Accessories (84) with an export share of 9.48 per cent and 21.12 per cent respectively during 2006.

While analysing the trends in the compound growth of exports, it is quite evident that the overall exports of Textiles and Clothing during 1985 to 2006 in India grew at a slower pace than the world exports. The export growth of this sector for India during 1985 to 2006 was only 9.28 per cent while the exports for the same sector at the world level grew at 3.67 percent for the corresponding period. A similar trend was also observed when one considers the exports of Textile Fibre and Waste (26), Textile Yarns, Fabrics etc. (65) and Clothing and Accessories (84) separately as compared to their world trend (see Table 1).

By dividing the whole period into two phases, the analysis further reveals that the total exports of T & C at the world level as well as for India grew at a much faster rate during the pre-1995 period as compared to the tardy growth during the post-1995 period especially when the Indian rupee has depreciated against major currencies. For instance, the growth of T&C exports of world during 1985-95 while was 7.73 per cent had sharply declined to the level of 0.98 per cent during 1995-2006 (See also Figure 1). Similarly in case of India, the growth had declined from 13.42 per cent to 6.54 per cent during the corresponding periods. A similar trend has also been noticed for the Textile Yarn & Fabrics (65) and Clothing and Accessories (84). However, the export of Textile Fibre and Waste (26) in India grew sharply which accounts 9.64 per cent during 1995-2006 from the level of -1.26 per cent during 1985-95. It is observed that although the growth of exports of the same sector at the world level has gone up during the second phase, but the growth is not

that remarkable. However from the above discussion, it is evident that despite rupee depreciation against major exporting countries, the growth of India's overall exports of T&C sector has decelerated during the second phase as compared to the first phase (See Figure 2). This behavioural pattern can also be noticed from the appendix-2 Table 1, 2 & 3. The possible reasons for this deceleration in growth of exports of T&C sector in India during the post-1995 period could be due to the slow growth in world trade during the period. Added to this was the emergence of powerful competitors such as China (see Beena 2008 for more details).

**Table 1: Growth of Total Exports of T&C Sector (%)**

<i>Items &amp; Code</i>		1985-95	1995-2006	1985-2006
<i>Textile Fibre and Waste (26)</i>	<i>India</i>	-1.26(.84)*	9.64(.13)*	5.29(0.081)
	<i>World</i>	2.93(.044)	0.71(.450)*	1.59(.006)
<i>Textile Yarns, Fabrics etc. (65)</i>	<i>India</i>	14.31(.000)	6.34(.000)	9.51(.000)
	<i>World</i>	10.30(.000)	2.08(.005)	5.88(.000)
<i>Clothing and Accessories (84)</i>	<i>India</i>	13.52(.000)	6.54(.000)	9.32(.000)
	<i>World</i>	12.53(.000)	.046(.000)	7.76(.000)
<i>Total T &amp; C</i>	<i>India</i>	13.42(.000)	6.54(.000)	9.28(.000)
	<i>World</i>	7.73(.000)	0.98(.20)	3.67(.000)

Source: COMTRADE Data base, WITS.

Note: Figures in bracket represent P-value. \* represents that growth rates are not statistically significant.

### **Revealed Comparative Advantage Index (RCAI)**

The revealed comparative advantage for a country in a particular product is measured by the product's share in the country's exports relative to its share in the world trade. Revealed Comparative Advantage Index (RCAI) would indicate the advantage of the country in exporting a specific product (Balassa, 1965). The country is assumed to have a Revealed Comparative Advantage if the value is greater than unity. This index has



been measured under the assumption that the commodity pattern of trade reflects the inter-country differences in relative costs as well as non-price factors. Therefore, it has sometimes been argued that under the quota system, comparative advantage has been created artificially for countries.

However, it may be noted that even countries benefit from the quota system, they have to maintain competitiveness in terms of price, quality etc. vis-a-vis other countries. Therefore, RCA can still be a reliable indicator for measuring the export competitiveness even though it cannot distinguish improvements in factor endowments. Table 2 shows the product category-wise RCA indices for India. On the basis of RCA indices, it indicates that there is no consistent improvement in export competitiveness for all the categories during the study period. RCA for Textile Fibre and Waste (**26**) which was 0.82 for the year 1985 has declined to the level of 0.64 during 2006. Similarly for Textile Yarns, Fabrics etc. (**65**), the RCA index for the year 1985 was 4.04 which has increased to the level of 4.97 in 1996 and further reduced to the level of 3.78 in 2006. In the case of Clothing and Accessories (**84**), the RCA for the year was 4.21 in 1985 which has declined to the level of 4.02 in 1996 and further declined to the level of 3.52 in 2006.

**Table 2: Revealed Comparative Advantage Index**

Code	1985	1990	1996	2003	2006
<i>Textile Fibre and Waste (26)</i>	0.82	4.19	2.36	1.6	0.64
<i>Textile Yarns, Fabrics etc. (65)</i>	4.04	3.95	4.97	4.27	3.78
<i>Clothing and Accessories (84)</i>	4.21	4.67	4.02	3.17	3.52

Source: UN Trade statistics, Volume I & II. Handbook of International Trade and Development Statistics (Various Issues), UNCTAD.

It is interesting to note that the export share of *Textile Fibre and Waste* (Item 26) as a percent of all commodities exports in India showed an increasing trend to the world during 1985-2006. It has increased from 0.71 per cent during 1985 to 1.27 percent during 2006. China emerged and ranked the top major exporting destinations among other major destinations such as US, UK, Italy, Canada, UAE, Japan, France and Germany (see Table 3). It is seen that India's export share as a percent of all commodities exports to the world has sharply declined for the item Textile Yarns, Fabrics etc (Item 65) to the level of 6.96 per cent in 2006 from the level of 11.5 per cent in the period 1985. USA and UAE ranked top positions for this item among the destinations. Similarly, in the case of *Clothing and Accessories* (Item 84), the share has declined from 10.6 per cent to 7.6 per cent. However, among the countries, USA ranks the top destination for this item (see Table 4 and Table 5).

**Table 3: Share of India's Exports of Textile Fibre and Waste (26) to the selected countries in relation to India's Total Exports**

Country	Percentage Share to Total Exports			
	1985	1995	2000	2006
China	0.032	0.006	0.012	0.539
United Kingdom	0.005	0.031	0.003	0.003
United States	0.007	0.008	0.010	0.014
Italy	0.016	0.024	0.024	0.011
Canada	0.0003	.0000008	0.002	0.001
U.A.E	0.0003	0.005	0.003	0.003
Japan	0.204	0.044	0.013	0.004
France	0.0001	0.001	0.005	0.0007
Germany	0.011	0.005	0.012	0.007
World	0.71328	0.282667	0.263877	1.27

Source : COMTRADE Data base, WITS

**Table 4: Share of India's Exports of Textile Yarns, Fabrics etc (Item 65) to the selected countries in relation to India's total Exports**

Country	Percentage Share to Total Exports			
	1985	1995	2000	2006
China	0.00	0.00	0.00	0.00
United Kingdom	0.66	1.27	0.76	0.35
United States	2.20	1.89	2.30	1.41
Italy	0.23	0.65	0.58	0.35
Canada	0.21	0.16	0.22	0.10
U.A.E	0.22	0.83	0.69	0.42
Japan	0.20	0.46	0.36	0.12
France	0.23	0.32	0.30	0.12
Germany	1.05	1.20	0.72	0.35
World	11.50	13.73	13.21	6.96

Source: Same as Table 1. Note: India's Exports to China is quite insignificant.

**Table 5: Share of India's Exports of Clothing and Accessories (Item-84) to the selected countries in relation to India's total Exports**

Country	Percentage Share to Total Exports			
	1985	1995	2000	2006
China	0.003	0.002	0.002	0.003
United Kingdom	0.849	1.278	1.048	0.783
United States	2.930	3.905	4.428	2.398
Italy	0.287	0.615	0.492	0.424
Canada	0.469	0.398	0.546	0.228
United Arab Emirates	0.059	0.375	1.226	0.421
Japan	0.281	0.382	0.266	0.099
France	0.506	0.932	0.859	0.576
Germany	1.275	1.815	1.029	0.587
World	10.197	13.024	13.734	7.587

Source: COMTRADE Data base, WITS

Export performance can also be analysed by looking at the share of India's exports to these destinations, as a world total of these sectors, at the two-digit level for the period 1985-2006. For Textile Fibre and Waste, Japan used to be the major export destinations for India. However, the share has declined over time. In turn, China has emerged as a major export destination for India and it accounts for 42 per cent of India's exports. Italy had second position till the year 2000 and that position has gone down drastically by 2006. United States is the major export destination country for Textile Yarns, Fabrics and India's export share to this country has been increasing consistently throughout the period. It accounts for 21 per cent of the India's exports by 2006. US ranked the top destination during 1985 and that was taken over by Japan in 1995. However, Japan's share has drastically declined since then. A similar trend is also observed in case of UK, Italy, France and Germany. Similarly, for *Clothing and Accessories*, US ranked the top position throughout the period. Its share has increased from 29 per cent in 1985 to 31 per cent in 2006. The export shares to UK, Italy and France have increased over time while the export share to Germany has declined during the corresponding period (see Table 6, Table 7 and Table 8).

**Table 6: Leading export Destinations of India in the world for item 26**

Country	Percentage Share of 26 Item to Selected Countries			
	1985	1995	2000	2006
China	0.00	2.39	4.56	42.16
United Kingdom	0.70	10.84	1.29	0.22
United States	1.048	3.06	3.96	1.17
Italy	2.37	8.68	9.39	0.92
Canada	0.045	0.03	1.09	0.14
UAE		1.92	1.51	0.28
Japan	28.65	15.75	5.09	0.37
France	0.018	0.62	2.19	0.06
Germany	1.64	2.07	4.71	0.62

Source: COMTRADE Data base, WITS

**Table 7: Leading export Destinations of India in the world for item 65**

Country	Percentage Share of 65 Item to Selected Countries			
	1985	1995	2000	2006
China	0.005	0.52	1.31	1.32
United Kingdom	5.77	9.28	5.86	5.06
United States	19.19	13.05	17.48	20.64
Italy	2.00	8.68	4.47	5.046
Canada	1.85	1.17	1.71	1.46
UAE	1.94	6.09	5.26	6.03
Japan	1.77	15.74	2.76	1.83
France	2.028	2.36	2.32	1.96
Germany	9.14	8.75	5.46	5.10

Source: COMTRADE Data base, WITS

**Table 8: Leading export Destinations of India in the world for item 84**

Country	Percentage Share of 84 Item to Selected Countries			
	1985	1995	2000	2006
China	0.03	0.018	0.018	0.035
United Kingdom	8.33	9.82	7.59	10.38
United States	28.74	29.89	32.26	31.42
Italy	2.81	4.73	3.56	5.60
Canada	4.61	3.04	3.99	2.99
UAE	0.59	2.89	8.97	5.62
Japan	2.75	2.93	1.94	1.31
France	4.96	7.18	6.23	7.59
Germany	12.50	13.96	7.49	7.76

Source: COMTRADE Data base, WITS

In the overall analysis, it can be observed from the above that although textiles and clothing sectors are the principal exporting sectors for India, their share has either been declining or has stagnated with respect to some major destination countries. In this context, it is imperative to examine exchange rate and other factors responsible for

influencing the exports from India and come out with some concrete policy solutions for a strategic export promotion policy of India.

### **Theoretical Consideration**

It is well known that exchange rate appreciation causes losses to the exporting sectors by degrading the competitiveness of the concerned industries' in the international market. When appreciation occurs, it becomes costlier for the foreigners to purchase the appreciating currencies' products as the foreign price of domestic product becomes costlier with appreciation of domestic currency. However, the exporters in order to maintain the competitiveness they have to maintain their prices in accordance with the prices at the international market, and while exchanging their revenues with the appreciating domestic currency, they suffer revenue losses as they receive lesser amount of domestic currency in exchange of export earnings denominated in foreign currency. In contrast, a depreciating currency is likely to have favourable impact on the exporting sectors to export more and thereby improving on the trade balance. With depreciation of domestic currency, the prices of commodities in the domestic market become cheaper in terms of foreign currencies as compared to the international prices, thereby accelerating the relative demand for the domestic product. This improves the competitiveness of the domestic products in the international market. With this strategy of improving the exports, the government of India had in the past, twice devalued the rupee in the period 1966 and 1991<sup>1</sup>.

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1 The 36 percent devaluation of the rupee in 1966 led to 0.7 percent increase dollar price of exports and decline in export volume by 4 percent, while 1991 devaluation in line with theoretical postulate, led to decline in dollar price of exports by 8.1 percent and increase in quantity by 7.5 per cent. Trade policy reforms undertaken in 1991 include removal of quantitative restrictions on exports and imports, reduction/rationalization of custom tariffs, simplification of administrative procedures and announcement of sector specific export promotion schemes.

The link between export and exchange rate could be direct or indirect. Exports depend on import intensity such as imported raw materials and other imported intermediate inputs. Thus, exports of commodities hinge on volume of imports as well as import prices as import costs directly affects the export prices. Import prices also do affect inflation<sup>2</sup>, wages, and cost of doing business in the domestic economy. If exporting sectors have more import content, then with an appreciating currency, that can reduce the domestic price of imports, which in turn, does little to reduce export volumes, as import prices would have fallen correspondingly (Abeysinghe and Yeok, 1998) and an import intensive exporting sector under depreciation may affect the exports as it may result in erosion of export competitiveness. In the extreme case, where the import content of exports is zero, appreciating currency would not help reducing the domestic price of the commodity to a lower level and hence eroding the competitiveness of the product in the international market. Rather, depreciation may promote exports over the long-run.

The quantitative restrictions in the importing countries and trade policy of both importing and exporting countries can have significant influence on the exports from an exporting country. It is difficult to capture all the policy variables in the modeling exercises. The part of the main reason is that there is lack of data and complexities involved in capturing them. Free trade policy being the order of the day, there is drastic cut in import tariffs all across the economies and relaxation of quantitative restrictions such as prohibition, stipulation of minimum export price and fixation of ceilings for maximum permissible quantities.

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2 If prices of domestic imports are higher which goes as inputs into the exporting sectors, it would increase the price of exports thereby, fuelling inflation for the domestic products, making the imports of items from the domestic economy costlier for the foreigners. This would lessen the volume of exports. On the other hand, if import price is lesser, it would promote exports unless this gets fully adjusted with the appreciation in the value of domestic currency.

Similarly, the developing economies among other things, are reducing the export duties as part of their export promotional policy. For instance, the government of India, provides interest subvention on post shipment of export credits (transport subsidy) and income tax exemptions and launches many other schemes in order to promote exports from India. Only in order to prevent increasing domestic inflation it imposes timely restrictions on exports in terms of either on volume or by imposing higher export duties and relaxing import tariffs on imports during the period of inflationary spiral. In India the tariff structure was highly complex till early 1990s.<sup>3</sup> Relaxation of various restrictions and rationalization of incentive structure in post 1991 period has enabled the emergence of several non-traditional agricultural exports (Mallik, 2005).

### **Empirical Literature**

There exists a large body of literature on examining the impact of exchange rate on trade flows. Some studies provide negative as well as positive impacts of depreciation of domestic currency (rising exchange rate) and some providing no impact of increase in exchange rate on trade depending upon the commodities/sectors studied and countries concerned and empirical estimation procedures. Cushman (1986, 1988), Akhtar and Hilton (1984), Kenen and Rodrik (1986), Thursby and Thursby (1987) Brada and Mendez (1988) Bahmani-Oskooee (1996)

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3 If the export sector is import intensive, higher import duty on its raw materials can affect the exports. However, following the initiation of reforms, there has been reduction in customs duty rates. The simple average basic duty rate has declined from 128 percent in 1991-92 to 22.4 percent in 2004-05 whereas the import weighted average duty rate declined from 81.4 percent in 1991-92 to 17.7 percent in 2004-05 (Mathur & Sachedeva, 2005). However, Mathur et al (2005) points out that in spite of removal of quantitative restrictions (QRs) in 2001-02, there is no change in import trend for the reason that most of QRs which were on agriculture and allied commodities that have a fairly low share in the import basket.



and Hongwei and Zhu (2001) found negative impact of exchange rate on trade while Hooper and Kohlhagen (1978), Gotur(1985), Baily et al (1986, 1987), Koray and Lastrapes (1989), Bahmani-Oskooee and McKenzie (1998) and Lee (1999) find no significant influence.

There are studies in the context of Turkish economy arguing that the real exchange rate is a significant determinant of imports and the trade deficits but not of exports (Aydin, Ciplac and Yucel, 2004). Another study by Sahinbeyoglu and Ulasan, (1999) argued that the traditional export equations are not sufficient for forecasting and policy simulations and variables like uncertainty indicators or investment have crucial roles in explaining exports. However, there is a constraint in obtaining investment data for different sectors in many economies context.

Bahmani-Oskooe and Wang (2008) investigated the impact of exchange rate volatility or uncertainty on the trade flows of specific commodity sectors between Australia and USA. Employing export and import demand models, their empirical results showed that exchange rate uncertainty has got short-run effects on imports and exports of majority of industries, and majorly an appreciation of exchange rate adversely affects the trade exports when the sectoral data is disaggregated by commodity. However, the short run effects last into long run only in limited number of industries. As far as effectiveness of real depreciation is concerned, the Marshall-Lerner condition was satisfied in 56 industries. In most of the industries, domestic economic activities in both the countries were found to be major determinants of trade flows between the two countries. They observed that this result was consistent with Assery and Peel (1991) for Australia. However, it contradicted with the Mckenzie (1998)'s findings, which showed that exchange rate volatility had no significant influence on bilateral aggregative trade flows. However, considering eight sectors, Mckenzie's study found that exchange rate volatility had positive effects on four Australian export sectors and negative effects on two import sectors.

It is generally assumed that exchange rate appreciation would be detrimental to exports and encourage imports. Abeysinghe & Yeok (1998) examined the factors such as import content of exports, rising external demand and productivity gains to see whether these factors influence the trade volume under an appreciated exchange rate regime for Singapore. They found that in the presence of high import content, exports are not adversely affected by currency appreciation because of lower imports prices that results therefrom, which reduces the cost of production of exportable commodities. The service exports, however, with a very low import content tend to suffer from currency appreciation.

Bhagawati and Srinivasan (1975) and Wolf (1978) argued that any inward looking policy, with capacity constraints, lack of competition, and high domestic demand do not provide enough incentives to export. Panchamukhi (1978) stressed that domestic policies have significant role on trade behaviour of developing countries. Rajaraman (1991) carried out an econometric exercise by looking at the impact of movements in the real external value of the rupee vis-à-vis currencies of competing exporters upon Indian export performance of cut diamonds, carpets and hand/machine tools during the period 1974-87. The study provides enough evidence to argue that one should look at the relationship of bilateral exchange rates of major export competitors while analyzing the role of exchange rate in determining the export performance. Ghosh (1990) looked at the role of exchange rate and relevant price elasticities of supply and demand factors with the export performance for the period 1973-74 to 1986-87. The study observed that the impact of changes in the real exchange rate appears to be in the opposite direction from the desired one although it is not significant. Another model with slightly different specification, showed a positive association between real exchange rate and export growth (i.e, a depreciation is positively associated

with growth in export values), although it is not statistically significant. On the whole, the study argues that the real exchange rate has played a marginal role in explaining the growth of exports. The study suggests that there are many other non-price factors such as demand and supply variables determining export performance. Nayyar (1976; 1988) also emphasized about the importance of world demand in the determination of exports. Contradicting to this, Wadhwa (1988), Virmani (1991), Krishnamurthy and Pandit (1995) found empirical evidence on the role of price on the export performance. As cited by Srinivasan (1998; p.211) Joshi and Little (1994) observed a strong relationship between real exchange rate depreciation along with a rapid export growth during the 70s and the late 80s. The study also observed a positive relationship between the periods of slow export growth with real exchange rate appreciation. However, other factors apart from the real exchange rate have also been recognised by the study. The study by Srinivasan (1998) followed a non-structural eclectic model of India's exports during 1963-94. The study observed negative elasticity of export performance with regard to the real exchange rate which also supports the findings of Joshi and Little (1994 ). A recent study by (Sinha Roy 2007) has shown that India's export performance during the post-reform period was not often led by the movements in the exchange rate. Demand factors played a major role in explaining India's disaggregate export performance during 1960-1999.

Faith in the transmission effect of exchange rate on trade balance has been an important factor that determines the success in our country during the decades. Patra and Patnaik (1994) studied the impact of exchange rate transmission into export and import prices and found incomplete pass through effect of exchange rate on India's exports. A similar study was carried out by Dholakia et. al. (2000) in examining the effectiveness of the exchange rate policy from the sensitivity of export-import prices to the exchange rate and the volatility of exchange rate

using the quarterly data from 1980-1996 for India<sup>4</sup>. They developed the study in the backdrop of the earlier studies disregarding the time series properties of the variables for verifying the robustness in result estimates. The study found the support for the hypothesis of full pass-through of exchange rate changes in the case of imports<sup>5</sup>. The long-run estimates for the export equation suggest that export quantities respond to the exchange rate depreciation. It has become more elastic after the reform periods. The Exchange Rate Pass Through (E RPT) is complete only after 1991. The variance of exchange rate does not have significant adverse impact on the exports. They also found that foreign income and foreign prices have significant positive impact on Indian exports whereas Indian domestic prices have adverse impact on exports. Targeting real effective exchange rate in India may not contribute to improving the trade balance, though it is useful for export promotion. Rather, targeting domestic inflation and maintaining the stability of the nominal exchange rate appear to be better option for achieving trade balance and improving the terms of trade in the country.

Mallik (2005) presented an overview of growth performance of India's exports since 1950-51 highlighting the performance of the post 1990s. He reasons a number of non-policy factors such as deceleration in output growth, sluggish global demand, Asian crisis and restrictive trade practices adopted by the industrialised countries are responsible for the sluggish export growth performance of 1990s, though the praise

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4 Exchange rate pass through (ERPT) refers to the extent to which exchange rate changes get transmitted to the destination currency prices of traded goods. Positive import intensity of exports and imperfect competition due to segmented markets and product differentiation can lead to less than complete pass through.

5 On the whole, Indian imports behave as if India is a price taker in the international market and lacks any market power as a buyer. The results from the import equation also suggest that Indian import is determined by the domestic income and foreign prices. The exchange rate and its volatility measure do not play significant role. However, the regime-switch dummy for exchange rate shows significant positive impact on import volume for post reform periods.

for pick up in export growth during the mid-1990s is given to the policy. He points out, exports in India are still supply side driven although demand side factors like relative prices (including exchange rate movements<sup>6</sup>) and world income, are becoming increasingly important. The strategic policy has a role in providing the enabling conditions for the export expansion.

A most recent study by Veeramani (2008) found an inverse relationship between growth of exports and the appreciation of the REER for the period 1960-2007. However, the study found weakening of the degree of their association since 2002. The study has estimated an eclectic model, which postulated that the dollar value of India's merchandise exports (IX) as a function of the REER, India's real GDP (RGDP), and world merchandise exports (WX). RGDP serves as a proxy for the export supply capacity which can exert a positive effect on exports. On the other hand, growth of GDP can lead to higher domestic demand, which would lower exports. Therefore, the sign of this effect depends upon which effect dominates. The sign of WX is expected to be positive since higher world demand also means higher demand for India's exports. The study has further shown that the India's merchandise exports grew in spite of the appreciation in the REER during 2002-07. The study argued that the growth of GDP or world exports can have major impacts on the performance of India's merchandise exports than the depreciation or appreciation of REER. However, a recent field based study by ISID (Forthcoming) shows that the external demand for garments have declined more due to the rupee appreciation as compared to the world demand. For instance, it was reported that the order of garments was diverted to Bangladesh from Tirupur and the National Capital Region (Delhi, Noida, Manesar and Gurgaon), at the time of rupee appreciation during 2007.

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6 Price competitiveness in exports can be influenced through instrument of exchange rate.

## A Basic Framework

Based on Keynesian analysis, the study specifies a general model of exports. In formulating export demand function, the common practice is to relate the volume of exports and imports to a measure of income and relative prices taking into account of the exchange rate (Bahmani-Oskooee & Ardalani, 2006). The demand for a country's exports ( $X_i$ ) of a specific commodity can be specified as a function of foreign total demand for the product and relative prices in the domestic and foreign markets of that commodity, where exports would increase with an increase in demand and decrease/increase with a domestic currency appreciation (i.e. fall in  $e$ )/depreciation (i.e. rise in  $e$ ). Therefore, it can be specified as:

$$X = X \left( y^*, \frac{p^* \cdot e}{p} \right)$$

such that  $X$  = value of exports in the domestic currency,  $e$  = exchange rate in terms of units of foreign currency per unit of domestic currency<sup>7</sup>,  $p$  is the domestic price level (price of domestic goods in domestic currency or price of exports in the domestic market) and  $p^*$  is the price level of foreign goods in foreign currency.  $Y^*$  refers to foreign income representing demand for domestic goods or it can be proxied by total imports of foreign country.

One can also incorporate the variables such as variation in exchange rate to capture the effect of exchange rate uncertainty on exports and also the structure of markets for the same product both at the domestic and international levels. One way to partially capture the structure of domestic market for the same product is to see what the level

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7 Exchange rate could also be expressed in terms of domestic currency price per unit of foreign currency, which is used for our empirical analysis subsequently.

of domestic demand for such products is.<sup>8</sup> If the domestic demand is captured by the domestic industries, then domestic industry is said to be monopolistic as it also faces competition from outside. If domestic demand is more reliant on imports, that means industry is uncompetitive.

### **Data Discussion**

The data on India's exports to major destinations such as USA, Canada, UK, Italy, France, Germany, Japan and China, is collected from World Integrated Solutions (WITS). The data for *Textile Fibre and Waste (26)*, *Textile Yarns, Fabrics etc. (65)* and *Clothing and Accessories (84)* from the code list of UNCOMTRADE have been considered for the period from 1984–2006 depending upon the availability of data in the SITC - Revision 1<sup>9</sup>. The ratio of India's exports of each category of textiles commodities to the selected countries to India's all commodities exports to the world have been considered as a dependent variable. Import demand is measured by taking the ratio of imports of each category of commodities to the corresponding countries' total imports of all commodities. Unit price index of exports is collected from SITC, Revision 1 at the 3-digit classification. Unit price of manufactured commodities has been considered to proxy for International unit price

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8 Since there is unavailability of data on the volume of domestic demand for the textile and clothing, except the fact that there exists data what is being imported from other countries, therefore, the study tried to capture the domestic demand from the total income. However, the study did not find the expected result. Therefore, the domestic demand aspect is not reported in the empirical section of this present study. For incorporating domestic demand in the model one can also express the export demand equation in terms of ratio of textile exports of a particular product to total textile domestic production of that product. This would reflect what is being demanded in the domestic market and the remaining gets exported. Similarly, in the right hand of the equation imports of particular product can be expressed in terms of import of textile to total world production of textiles. But such data on denominator is not available.

9 SITC revision 1 is considered for the reason that data is available from 1984-85. The trade statistics presented here is mostly collected from the data source WITS prepared by The World Bank and UNCTAD.

of commodities in the absence of availability of international prices of T & C commodities. This would compare the prices of exports in relation to the international prices. It can capture the competitiveness character of domestic exports in the international market. The exchange rates are expressed as one unit of foreign currency in terms of domestic currencies or expressed alternatively domestic currency in terms of one unit of foreign currency. This is taken from various issues of International Financial Statistics of IMF and Handbook of Statistics on The Indian Economy (RBI, 2008). Varex is calculated by taking the differences between two years of exchange rate. We have also run a separate model by taking the ratio of India's exports of each category of Textile and Clothing products to the selected countries to India's corresponding category of total T&C exports to the world as dependent variable. The independent variables are all the same as used in the other previously defined model.

### **Result Discussion**

We have used panel data regression analysis by considering eight major export destinations of T&C sector in order to understand the role of exchange rate and the export performance. We could not carry out the same exercise for individual countries through a time series regression analysis due to the limited number of observations. The study only presents results using panel data regressions. Using panel regression analysis, the Hausman specification test is carried out for model selection – random effect vis-a-vis fixed effect model. As a check of robustness of results, the study also applies Generalized Methods of Moments (GMM) developed by Arellano, M. and S. Bond. (1991) in order to capture the dynamic relationship between export demand and its various relevant determinants and taking into account of simultaneity problem in the estimation.

The panel regression result in case of *Textile Fibre and Waste* shows that it is only the exchange rate (its depreciation) which has got



significant and adverse impact on Indian exports.<sup>10</sup> The adverse impact of exchange rate depreciation is contrary to the general expectation. The result from random effect model for Textile Yarns, Fabrics etc also shows similar effect of exchange rate on exports. Rather, it is also surprising to see that the variation in exchange rate, which is considered to reflect the exchange rate uncertainty, exerts a positive impact on the exports. However, when the model is estimated using GMM, it shows that along with the consistency in the sign of exchange rate and its variation, the demand factor measured from the import demand of major export destinations is also positively influencing India's exports. In fact, when rupee depreciates, the importers from abroad would be able to buy more products with the same previous units of foreign currency which would lead to a boom in our exports. However, if there is less demand for exports, the depreciation of rupee can have negative influence on exports when the economies of scale do not work.<sup>11</sup>

The positive influence of variation in exchange rate on the exports could be explained in terms of the fact that it captures the short-run impact, indicating that in the short-run depreciation may be favourable for gaining competitiveness in the international market. However, when the depreciation continues over a longer period of time, as reflected in the movement of trends in the level of exchange rates, it hurts the exporters and thereby, discourages exports from India. This is in contrast to the J-curve hypothesis which postulates that depreciation of exchange rate at the initial stage discourages exports in the short-run but it would encourage trade expansion in the long-run (Bahmani-Oskooee & Malixi, 1992).

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10 Since the GMM estimates did not yield good result for 26 item, the study does not report the GMM estimates. However, it reports the results for other two product categories such as 65 and 84 items.

11 The productivity of Indian T&C sector found to be quite low (refer Verma 2002 and Hashim 2005 for more details)

The insensitive attitude of exports of *Textile Fibre and Waste* (item 26) as well as *Textile Yarns, Fabrics etc* (item 65) to import demand reflects that foreigners are buying or importing the products from other countries. However, the GMM result for *Textile Yarns, Fabrics etc* (item 65) shows that import demand has a positive influence on exports providing mixed results on the impact of imports on Indian exports.

The results from the random effect model reported for the *Clothing and Accessories (84)* shows that exchange rate has the same (adverse) impact as with *Textile Fibre and Waste* (items 26) & *Textile Yarns, Fabrics etc* (item 65) and import demand has a positive impact on India's exports. The coefficients of *Varex* provide mixed results as it is noticed that the coefficient of *Varex* is not significant across the product category and with different models of estimation. Even with the same equation, different estimation procedures are yielding different results. However, given the result consistency for *Varex* and exchange rate variables, it could be seen that most often than not, the exchange rate has got dominant impact over the variation in exchange rate in influencing the exports as reflected from the magnitude of their respective coefficients.

Thus, from the overall results, it can be concluded that the J-curve analysis may not support in explaining the long term behaviour of T&C exports in India. We have also estimated equations with dummies for the period 1992-93 for capturing the effect of economic liberalization and also for the year 1994-95 for capturing the effect of partial removal of quota system. However dummies are found to be insignificant and therefore the results are reported by dropping the dummies from the models.

The emergence of negative effect of exchange rate on exports could also be for the reason that when there is a depreciation of rupee against major trade partners, there is a decline in confidence on the economy. As a result, this may lead to pull out of private investment by the investors leading to decline in output and exports from India. Thus,

Table 9: Estimates of Export Demand Model

	Random Effect (1984-06) - 26 item	GMM (1984-06) - 26 item	Random Effect (1984-06) - 65 item	GMM (1984-06) - 65 item	Random Effect (1986-06) - 84 item	GMM (1986-06) - 84 item
	1	2	3	4	5	6
Constant	.06 (3.23)*	.035 (1.56)	.778 (3.19)*	.35 (2.62)	.486 (1.14)	-.30 (-.74)
expi(-1)		.542 (5.94)*		.60 (6.55)*		.28 (2.26)*
Imps	-.008 (-.90)	.002 (0.16)	.015 (0.86)	.52 (1.77)*	.263 (6.38)*	.414 (4.13)*
Ex	-.0009 (-2.91)*	-.0007 (-1.25)	-.005 (-4.64)*	-.001 (-1.70)***	-.0115 (-7.23)*	-.010 (-2.84)*
Exip	-.0003 (-.58)	-.0005 (-1.12)	-.0002 (-0.36)	-.004 (-2.45)*	-.0007 (-0.73)	-.002 (0.74)
Varex	.0007 (0.69)	-.0001 (-0.23)	.007 (2.10)*	.003 (1.63)***	.0092 (1.79)***	.006 (1.10)
R <sup>2</sup>	.04		.04		.36	
F / Wald $\chi^2$	8.99***	55.30*	36.90*	244*	78.82*	93.61*
$\chi^2$ (Hausman fixed test)	4.10		4.47		0.65	

Note: expi refers to India's export of a particular commodity item to a country to its total exports of same item to all countries, Imps - imports of each category of commodities of a country to the corresponding countries' total imports of all commodities, Ex-exchange rate, Exip-Total exports price to international price, varex-variation in exchange rate of Indian rupee per US dollar.

this may be one of the pertinent factors of a negative relationship between exchange rate and the exports. As the exchange rate in levels has more adverse impact than the positive effects arising from exchange rate variations in the economy, this proves that exchange rate intervention may not be the right solution for export promotion. This may work only in the short run. But over the long run, depreciation of rupee has got adverse impact.

By dropping the variation of exchange rate (Varex) from the models, it is seen in Table 10 that the role of exchange rate cannot be ignored in exerting its impact on exports. It is seen that depreciation of rupee instead of inducing more exports, discourages exports from India.

**Table 10: Estimates of Export Demand Model without VAREX variable**

	Random Effect (1984-06) - 26 item	Fixed Effect (1984-06) - 65 item	Random Effect (1986-06) - 84 item
	1	3	5
Constant	.061 (3.27)*	.765 (10.39)*	.483 (1.19)
Imps	-.008 (-0.80)	.020 (1.15)	.266 (6.41)*
Ex	-.0009 (-2.80)**	-.005 (-4.27)*	-.011 (-6.96)*
Exip	-.0003 (-0.59)	-.0002 (-0.41)	-.0008 (-0.84)
$R^2$	.04	0.04	.37
$F / \text{Wald } \chi^2$	8.50**	10.99*	74.54*
$\chi^2$ (Hausman fixed test)	4.41	6.33***	.80

Other factors do not play any major role in influencing exports from India except the import demand in case of *Clothing and Accessories* (84).

Further, replacing the dependent variable (exports of T & C to total exports of all commodities from India) with exports of T & C to total exports of T& C to the world), it is seen from Table 11 and Table 12 that the effect of exchange rate on Indian exports of the T & C remains same or is negative.

**Table 11: Estimates of Export Demand Model**

	Random Effect (1984-06) - 26 item	Random Effect (1984-06) - 65 item	Random Effect (1986-06) - 84 item
	1	2	3
Constant	7.48 (3.63)*	5.95 (2.99)*	5.989 (1.75)***
Imps	-1.66 (-1.63)	.043 (0.36)	.89 (4.40)*
Ex	-.079 (-2.39)*	-.020 (-2.61)*	-.024 (-3.04)*
Exip	-.034 (-.65)	-.0007 (-0.23)	-.002 (-0.51)
Varex	.212 (2.02)**	.012 (0.48)	.002 (0.08)
$R^2$	.06	0.06	.14
$F / \text{Wald } \chi^2$	8.50***	11.09*	24.94*
$\chi^2$ (Hausman fixed test)	4.44	2.06	0.88

**Table 12: Estimates of Export Demand Model without VAREX Variable**

	Random Effect (1984-06) - 26 item	Fixed Effect (1984-06) - 65 item	Random Effect (1986-06) - 84 item
	1	2	3
Constant	7.27 (3.66)*	5.88 (11.74)*	5.98 (1.84)***
Imps	-1.40 (-1.39)	.060 (0.51)	.897 (4.43)*
Ex	-.063 (-1.93)**	-.020 (-2.64)*	-.023 (-3.07)*
Exip	-.033 (-.63)	-.0004 (-0.12)	-.002 (-0.52)
$R^2$	0.032	.064	.14
$F / \text{Wald } \chi^2$	4.03*	3.78*	25.12*
$\chi^2$ (Hausman fixed test)	5.80	8.95*	1.30

### Conclusion and Policy Suggestion

From our preliminary analysis, it is observed that the growth of India's T&C exports was relatively higher than the world growth rate during 1985 to 2006. However, there has been a decline in T & C export growth from India during 1995-2006 as compared to the earlier phase (1985-1995). We have also analysed the role of exchange rate in determining the export behaviour of Textiles and Clothing (T&C) sector during the period when domestic currency was depreciating against the US dollar. From our panel regression analysis of eight major export destinations in T & C sector, the study found that exchange rate did play a major role in determining the export behaviour of this sector. However, an inverse relationship is observed between the exchange rate and exports in the long run and it overwhelms the short-run positive effect

of variation in exchange rate on exports. This suggests that the devaluation of Indian rupee has not helped to boost the exports of the T&C sector.

The adverse impact of exchange rate (i.e falling volume of exports in the event of rising exchange rate of Indian rupee against US dollar) could be explained for the reason that when rupee value declines or exchange rate increases, the importers from abroad would be able to buy more products at the previous foreign currency price units. It may lead to more foreign demand for domestic products. However, the depreciation of rupee can have negative influence on exports when the economies of scale do not work due to lower level of exports demand. This can adversely affect exports of the manufacturers/producers. The negative effect of exchange rate on exports could also be for the reason that when there is a depreciation of rupee against major trading partners, there is a decline in confidence on the economy. As a result, private investment may plummet due to withdrawal of investment leading to decline in output and exports from India. Exchange rate intervention may not be the right solution for export promotion and therefore government should not place much emphasis on devaluing the exchange rate as a policy option to promote exports. Our analysis also reveals that demand factor has a role to play in determining the export behaviour as noted by many studies (refer Beena 2008 for more references). Our regression analysis could not control for market access variables such as non-tariff barriers and supply factors and this forms the limitation of the present study. However, an earlier exploratory study (Beena, 2008) argued that these factors did play a significant role in determining the export performance of T&C sector and suggested that the developing country could adopt specific tactics in order to improve R&D and productivity and can also engage in more effective promotional activities such as developing brands, delivery of innovative products on time, etc.

### Appendix 1

**Table 1: Export Share of Leading Exporters in the world for item 26**

Country	1985	1995	2006
China	6.38	15.59	24.18
Italy	9.19	8.18	6.14
Turkey	0.62	1.81	5.58
Indonesia	1.17	4.06	3.82
United States	2.54	4.17	3.55
Germany	6.54	4.73	3.49
Mexico		1.19	2.75
Pakistan	0.65	1.49	2.67
India	1.08	2.46	2.36
Thailand	-	-	2.14
Korea, Rep.	4.82	4.33	2.08
Japan	9.48	5.72	2.02
United Kingdom	4.14	3.46	2.01
Belgium	4.06	2.46	1.82
Hong Kong, China	1.25	5.94	1.67

**Table 2: Export Share of Leading Exporters in the world for item 65**

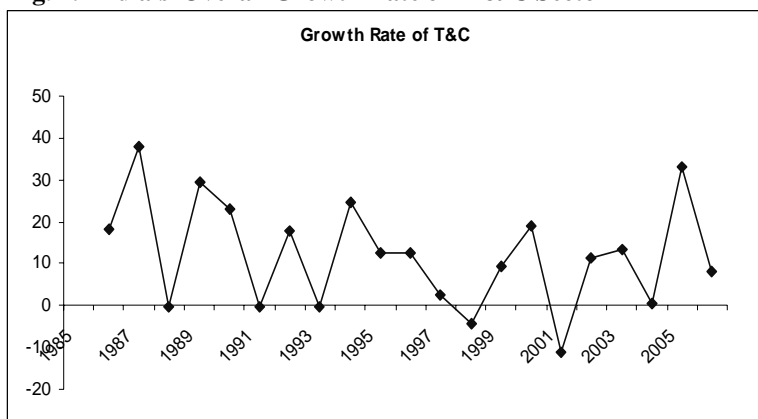
Country	1985	1995	2006
United States	7.82	6.20	9.48
China	4.19	8.21	8.89
Hong Kong, China	3.37	11.46	6.97
Germany	9.42	8.65	5.86
Italy	4.42	3.38	3.67
France	6.48	4.61	3.57
United Kingdom	7.08	4.72	3.35
Japan	2.57	3.56	2.78
Mexico	0.42	0.77	2.35
Spain	0.59	1.73	2.15
Canada	2.53	2.02	1.97
Belgium	3.48	2.77	1.85
Netherlands	3.48	2.44	1.84
Turkey	0.28	1.04	1.81
Korea, Rep.	1.18	2.33	1.76
India	0.28	0.30	1.08(23)



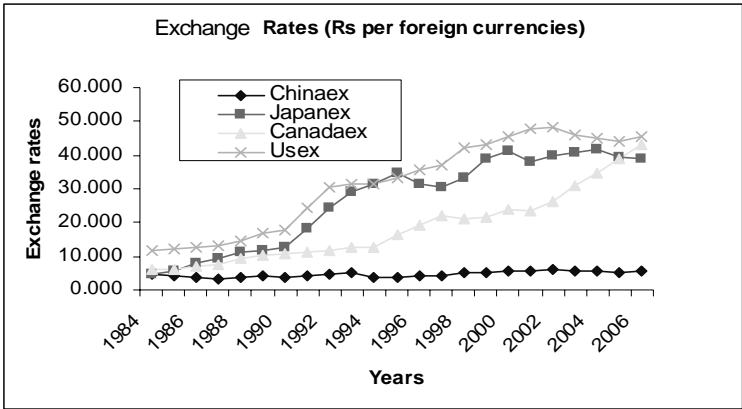
**Table 3: Export Share of Leading Exporters in the world for item 84**

Country	1985	1995	2006
United States	27.48	20.18	21.12
Germany	14.30	14.76	8.21
Japan	3.93	10.31	7.13
France	6.02	6.01	6.24
United Kingdom	6.17	4.78	6.19
Italy	1.57	2.56	4.42
Spain	0.28	1.73	3.72
Hong Kong, China	1.18	5.12	3.47
Netherlands	4.59	3.53	2.91
Belgium	3.39	2.81	2.13
Russian Federation			2.64
Canada	2.62	1.61	2.09
Romania			1.98
Switzerland	3.39	2.18	1.70
Korea, Rep		0.80	1.42
India	0.02	0.01	0.04(87)

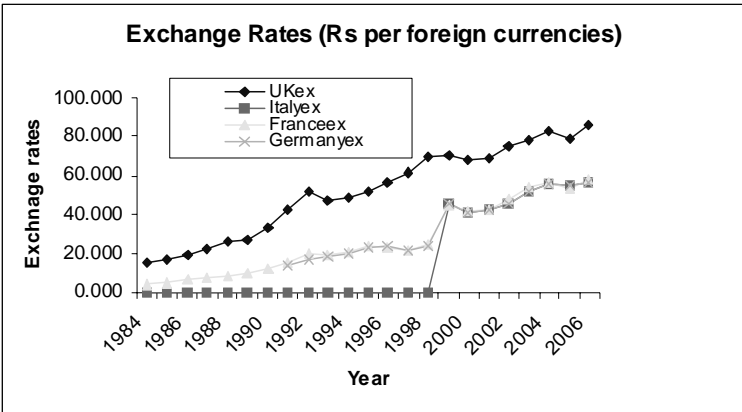
## Appendix 2

**Fig. 1: India's Overall Growth Rate of T & C Sector**

**Fig. 2: Exchange Rate of Rupees Against Major Currencies**



**Fig. 3: Trends of Exchange Rates**



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