

Indian Exports in the Post-Transitory Phase of WTO: Some Exploratory Results and Future Concerns

Debashis CHAKRABORTY

- Research Associate, Rajiv Gandhi Institute for Contemporary Studies (RGICS),
New Delhi

Rajiv Gandhi Institute for Contemporary Studies

Jawahar Bhawan, Dr. Rajendra Prasad Road

New Delhi – 110001

Tel: 23755117, 23312456

Fax: 23755119

Mail: debashis@rgfindia.com

Pavel CHAKRABORTY

- Research Associate, Global Agreements of Legislation and Trade, The Energy
and Resources Institute (TERI), New Delhi

The Energy and Resources Institute (TERI)

Darbari Seth Block

IHC Complex, Lodhi Road

New Delhi – 110003

Tel: 24682100, 24682111

Fax: 24682144, 24682145

Mail: pavel@teri.res.in

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Abstract

The ten-year transitory phase of WTO has come to an end on December 31, 2004. In the post-transitory phase, the members are expected to bring their trade policies increasingly in line with WTO directive, i.e., to reduce the barriers on imports. It is widely held that Indian exports would rise significantly in the post-transitory phase, owing to the potential increase in the level of market access. Since future exports are a function of current level of competitiveness, it is interesting to note whether Indian exports are competitive in the world market. The current paper compares the recent Indian export performance with that of China, and attempts to analyze the situation through various features of the formers' export basket, namely – competitiveness, diversification trends and instability. In the light of the analysis, the recent stance adopted by India at the WTO negotiation table and elsewhere is critically examined. Finally, based on the findings, the future policy options are explored.

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Introduction

The Indian economy embraced the process of globalization since early nineties, which got further intensified in the post 1995 (i.e., post-WTO) period. The fact is reflected from the increasing trend in the openness index (trade-GDP ratio) of the economy, which has increased three-fold since late eighties, and almost doubled over the last couple of years.¹ The ratio would increase in the coming future, as further trade liberalization is likely to follow the completion of the ten-year transitory phase of WTO in December 2004. The stated objective of Foreign Trade Policy (2004-2009) is to double the percentage share of our global merchandise trade within the next five years. The findings of Barua and Chakraborty (2004), showing that in the post WTO-accession period scale efficiency of the net exporting sectors has increased, provides empirical support to this contention. However, it has been pointed out from time to time that Indian exports are subject to various non-tariff barriers (NTBs), which inhibit the level of market access it enjoys (Bhattacharya, 1999; ESCAP, 2000; Kadekodi and Agarwal, 2004).

Among the major reforms in the post-transitory phase, the most discussed area is probably textile and garments sector, where India stands to gain massively from quota-removal (Banik and Bandopadhyay, 2000; Verma, 2002, Kathuria et al, 2003). Nordas (2004) notes that in the aftermath of MFA phase out, China's share in EU market in 'textile' and 'clothing' products will increase from 10 to 12 percent and 18 to 29 percent respectively, and the same in the US market would be 11 to 18 percent and 16 to 50 percent in that order. Although India will also gain from the exercise, the extent of the

expansion is going to be much modest as compared to Chinese performance. India's share in EU market in 'textile' and 'clothing' would rise from 9 to 11 percent and 6 to 9 percent respectively. In the US market, its share in 'textiles' would remain unchanged at 5 percent, but increase from 4 to 15 percent in case of 'clothing' products.

Quite evidently the potential increase in exports in textile and other sectors is a function of current level of competitiveness, and an analysis on Indian economy along this line is an area of interest. It could be seen from **Table 1** that the composition of India's export to the rest of world at sectional level has not changed much, barring a few exceptions.² While shares of chemicals (Section VI), base metals (Section XV) and machinery and equipments (Section XVI and XVII) have increased, the shares of textiles (Section XI) and primary products (Section I-IV) have declined.³ In this background, there is a need to explore the competitiveness of various key sectors within manufacturing.⁴ Stated alternatively, the goal of the paper is to broadly comment on whether Indian economy is at a position to reap the benefits of reduction in barriers in the coming days, based on the past trends. The paper is organized along the following lines. First, we briefly compare India's export performance with the same of China. Second, the competitiveness at the aggregate level is analyzed through RCAs of major export groups and other indices like intra-industry trade. Third, trends in export basket diversification and the stability in major markets is calculated. Fourth, sensitivity of select Indian exports in EU and US is analyzed. Fifth, we discuss the Indian positions in the ongoing negotiations and the responses. Finally, the findings are summarized with a note on future policy issues.

----- **Table 1: Export ratios of India by HS Sections** -----

Section I

Performance of Indian Exports: A Comparison with China

Before coming to the question of competitiveness of India's exports, a comparative analysis with that of China is provided. The performance of India's exports, when compared with that of China, seems quite modest. Throughout the nineties, China's commodity export has grown at an average of 14.9 percent, as compared to 9.9 percent in case of India, which clearly shows the supremacy of the formers' export potential. The overall export and the import shares of the two countries have been compared with the help of **Diagram 1**. In both cases, India's market share was higher than China in the forties, at the time of signing of GATT. However, thanks to the policy of self-reliance, India's share in global market steadily declined and China surpassed India soon in late fifties. While since mid-nineties, China's export and import share has taken a sharp upturn, India has not yet been able to capitalize its full potential, as reflected from the nearly horizontal stretch in its export share since early nineties. In order to analyze the extent of the supremacy (i.e. to say, competitiveness) enjoyed by Chinese products, we separately study two aspects of trade growth of these two countries, first, the share of export and import in major commodity groups in the global market, and second, the market share in selected destinations. In **Table 2**, we consider the export and import shares of the two economies in global trade over a twenty-year period for major commodity groups. It is seen that for all of the major groups, ranged from agriculture to manufacturing (including light manufacturing items like clothing etc.), the global share of China is significantly higher as compared to that of India.⁵ In **Table 3**, the penetration

ratios of the two countries for overall merchandise export in four principal markets, Canada, EU, Japan and the US over 1990-2002 is presented. It is seen that the penetration ratio for china has increased consistently over this period, and stood at a level almost four times higher than the initial value. On the other hand, India's export share marginally increased in case of the first three countries, while it has declined in case of Japan.

--- **Diagram 1: A Comparison of Export and Import Shares of India and China** ---

--- **Table 2: Export and Import Shares of India and China – Commodity-wise** ---

--- **Table 3: The Export Penetration in Principal Markets (Overall)** ---

Section II

Indicators of Competitiveness at the Aggregate Level

In our analysis, we look into competitiveness of Indian exports in the global market through the analysis of Revealed Comparative Advantage (RCA) for a selected group of products, which includes the major export items of the country. RCA measured for a commodity group 'i' could be defined as the share of a country's export of product 'i' in the country's total export divided by the share of world's export of product 'i' in total world exports, i.e., by the following formula:

$$RCA = (X_i / X_t) / (W_i / W_t)$$

Where X_i and X_t are the export of commodity group 'i' of a country and its total export respectively in a particular year. Similarly W_i and W_t represent the export of commodity group 'i' of a country and total export of the world in that order. A brief review of the earlier literature would not be irrelevant here. Focusing on competitiveness, Kathuria (1995) and Kumar et al (2000) have shown that while during the 1990s export

competitiveness has increased for several sectors, simultaneously the same has declined for several labour-intensive product groups. Verma (2002) has also arrived at a not too encouraging conclusion. Furthermore, Storm (1997) points out that export growth is susceptible to domestic constraints. In other words, there is substantial scope for enhancing the competitiveness of the industries.

We select 18 industries at SITC 3-digit level, which include both labour-intensive as well as capital-intensive product groups. It could be seen from **Table 4** that a mixed trend is emerging at the sectoral level since the inception of WTO. While the competitiveness has increased appreciably for a number of industry groups in metal and machinery industries, it has declined for several chemical items over 1997-2000.

--- Table 4: The Revealed Comparative Advantage Index Trends (1994-2000) ---

Trends in Intra-Industry Trade

An indirect indicator for measuring the increased capacity of the industries is the intra-industry trade (IIT). IIT could be defined as the phenomenon of simultaneous export and import within industries. As the volume of trade rises within a particular industry group, the value of the index calculating IIT increases. In case of a developing country, the main source of increased IIT is export of newer product lines in the industrial sector, including trade in finished products as well as intermediates. Three major indices are most widely used for measuring IIT, namely - Grubel-Lloyd (uncorrected), Grubel-Lloyd (corrected), and Aquino index. The Grubel-Lloyd (corrected) index for industry i for trade with country j could be calculated as:

$$\hat{B}_i = \frac{\sum_i (X_{ij} + M_{ij}) - \sum_i |X_{ij} - M_{ij}|}{\sum_i (X_{ij} + M_{ij}) - |\sum_i X_{ij} - \sum_i M_{ij}|} \times 100$$

The Aquino index Q_j is calculated using the following formula⁶:

$$Q_j = \frac{\sum_i (X_{ij} + M_{ij}) - \sum_i |X_{ij}^e - M_{ij}^e|}{\sum_i (X_{ij} + M_{ij})} \times 100$$

We collect the trade data from the DGCIS Monthly Statistics of Foreign Trade. In **Diagram 2**, the trend in three IIT indices, namely - Grubel-Lloyd (uncorrected), Grubel-Lloyd (corrected), and Aquino index at aggregate level over 1987-88 to 2002-03 is provided. It could also be seen that all these indices registered a peak in 1989-90 and a trough in 1994-95. In the subsequent years, a clear increasing trend is noticed in all of them, though the growth rate of the index was different under each case. The rise in IIT index signifies increase in export of various items where India has traditionally been net importer.

--- Diagram 2: The overall Intra-Industry Trends in India ---

However, Veeramani (1999), Chakraborty (2002) and Barua and Chakraborty (2004) have shown that a significant proportion of India's IIT is vertical in nature. Horizontal IIT is generally associated with trade in commodities differentiated by attributes. On the other hand, vertical IIT is prevalent when trade in commodities differentiated by quality takes place. IIT is regarded as horizontal if the following condition holds:

$$1 - \alpha \leq (UV^X / UV^M) \leq 1 + \alpha$$

where UV^X and UV^M denote unit values of export and import products respectively. If the above condition is violated, then trade is vertically differentiated. Although the parameter α could take different values, the use of 15% and 25% cut-off level is most common in the literature.⁷ The rationale for using UVs is that assuming perfect information, a variety sold at a higher price is in general associated with a higher quality, or, stated otherwise, relative prices reflect relative qualities.⁸ The vertical IIT trends in twelve HS groups with relatively higher trade share and IIT indices are reported in **Table 5** using the UV method on trade data at HS 6-digit level. It is clearly seen that a major proportion of India's trade in these groups is vertical in nature. In a number of occasions, it is observed that the difference between the trend in vertical specialisation at 15% and 25% interval is quite narrow. This clearly suggests that, in aggregate, the difference between unit price of export and import is too high under these circumstances. Stated alternatively, Indian export in general service the lower segment of the market.

--- Table 5: Horizontal and Vertical Specialisation trend in IIT ---

Section III

The Diversification Trends

A diversifying trend has been noticed in Indian exports over the last couple of years, as a shift towards high value items have been noticed (Kumar et al, 2000; Bhattacharyya and De, 2000). In the current context, we measure export concentration (or diversification) by Michaely index, which is given by

$$C_t = (\sum W_{it}^2)^{1/2}$$

where $W_{it} = X_{it} / X_t$ and X_{it} and X_t are the value of i-th commodity exported and the total value of total exports ($i = 1, 2, \dots, m$) in period t respectively. Alternatively, C_t may be interpreted as an index of geographical concentration in which case, X_{it} and X_t represent the value of exports to i-th country and total exports in period t. The value of $(1 - C_t)$ provides a measure for the degree of export diversification in period t. It should, however, be distinguished that, this index is only a proxy for measuring the effect of “export diversification effort” as observed in the actual diversification, rather than a variable reflecting the extent of efforts and strategies for diversifying exports.

For calculating the above-mentioned index, we take the data from the CMIE database. The index is calculated for all the manufacturing commodities (HS-Code 25-99) to five destinations - rest of world and Canada, EU, Japan and the US, in order to give a comparative view about the diversification or concentration of the commodities. The time-period for our analysis is 1991-2003, and the result is reported in **Table 6**.

--- Table 6: Export Diversification Ratio ---

The higher the value of M, the more is the degree of dominance of a few groups/items in the export basket. It could be seen from the table that the concentration of a few products in the export basket has not declined to a major extent.⁹ The result is probably indicative of the fact that India’s relative competitiveness is much higher in case of certain commodity groups, rather than a wide range of products.

An Analysis of Export Earning Instability

The interrelation between concentration and export earning instability is a long debated question in the trade literature (Macbean and Nguyen, 1980; Lawson and Thanassoulas, 1981), which has not been conclusively proved. The index of instability in export growth for the i -th commodity is measured by I_i , defined as the variance of U_{it} , where:

$$U_{it} = (X_{it} - \hat{X}_{it}) / \hat{X}_{it}$$

and \hat{X}_{it} is the trend value of exports of i -th commodity in period 't'. In other words, the index of instability is given by the variance of the percentage deviation of actual value of exports from its trend value over period 't'. It is important to note that Michaely index of concentration (C_t) and the index of instability (I_t) are mathematically related to each other, as derived by Macbean and Nguyen (1980) and Turner and Lambert (1981).¹⁰

The index of instability measure has been calculated with the data drawn from the CMIE database. The items for which the index has been calculated have been selected on the basis of their importance in India's overall exports. We have calculated the index here for the commodities over 1991-2003, by taking the entire time period from as one unit following Narayana (1990). The instability index can also be calculated in the reverse manner, i.e., by taking the commodities as one unit and for different time periods (Das and Pant, 1987). We follow the former method owing to the following reason. Since a number of product groups were subject to various degrees of tariff and non-tariff barriers

during nineties, therefore, considering all the manufacturing groups over a particular year might not reveal a true picture of the instability. Instead, the instability measure for a particular commodity group gives a more meaningful picture. The results shown in **Table 7** highlight that the instability of the commodities differ in export destinations, and an analysis of the determinants of the instability in these markets is an area of future research.

Section IV

Competitiveness in the Principal markets: A Sensitivity Analysis

While the RCA indices calculated at the global and the cross-country level suggests that the competitiveness of Indian export has registered a mixed trend, the instability trends stress a need to assess the sensitivity of leading Indian export items to major economic variables. For this purpose an empirical testing is undertaken in the following. Here we assume a partial equilibrium framework for methodological simplicity, where three major variables, namely – size of market, supply conditions and price competitiveness vis-à-vis the domestic competitors in the selected export destination govern the overall pattern of trade. A caveat, we do not consider tariff and non-tariff barriers applied on the selected product groups in our model, which takes the following form:

$$X_t = f(Y_t, P_t, C_t)$$

Where,

X_t = Quarterly volume of Indian export to US.

Y_t = Quarterly value of US GDP.

P_t = Quarterly index of industrial production in India.

C_t = Indicator of competitiveness of Indian exports, denoted by unit price realized on export items divided by Quarterly WPI index in US.

We identify a few leading export items to EU and US, first at HS 2-digit level and then at 8-digit level within the selected groups. The data is collected from the CMIE - India Trades database. Here we identify 74 and 56 export commodities for the EU and US market respectively.¹¹ The period covered by the study ranges from the 4th quarter of 1998 to the 4th quarter of 2002 and the 1st quarter of 1994 to the 4th quarter of 2002 for EU and US in that order. The non-availability of the exchange rate between euro and Indian rupee restrains us from selecting a longer time period for EU. We estimate a cross-section time-series pooled dataset, and a log-linear model of regression is fitted into the data so that the estimated regression coefficients can be readily interpreted in terms of elasticity of change in any explanatory variable. The standard refinements are performed to take care of heteroscedasticity problem. The regression results are reported in the following.

For EU:

$$\text{Log X} = -47.5240 + 3.9643 \cdot \text{Log (Y)} + 1.8823 \cdot \text{Log (P)} - 0.9364 \cdot \text{Log (C)}$$

(***) (***) (***) (***)

For US:

$$\text{Log X} = -41.0326 + 3.7855 \cdot \text{Log (Y)} - 1.1216 \cdot \text{Log (P)} - 0.3847 \cdot \text{Log (C)}$$

(***) (***) (***) (***)

In our model, exports are likely to be positively related with the income of the importing country and the production conditions in India. However, if there is an increase in demand at home, growth in industrial production might not be reflected in exports. In addition, if export items become relatively cheaper in the foreign market, the volume of exports would rise. The regression results reported above show that the coefficients bear

the expected sign in case of EU. However in case of US, the relation between industrial production and exports is negative and significant. What is particularly important to note is that leading Indian exports at 8-digit level are price-competitive in the both EU and US market.¹² The finding provides further support to the postulation that the comparative advantage of Indian exports lie in particular product lines and not across industries.

Section V

The Recent Trends in Multilateral Negotiation: An Indian Perspective

Given the results, there is a need to analyse whether there has been any attempt by India to enhance market access. Although in the recent period, the negotiations on agriculture has occupied the central position, negotiations on non-agricultural products has not been neglected either. Despite the decline in overall tariff levels in most of the countries, existence of tariff peaks and tariff escalation is still a major problem area (WTO Annual Report, 2003). The negotiating stance of India has undergone a change over the last ten years. While initially it maintained a submissive stance, and could not effectively form alliances with other developing countries (Anant, 2001; Singh, 2001), the scenario changed from Doha (2001) onwards. In Cancun (2003), India led the developing countries along with Brazil and China to counter EU-US plan to bypass reform in agriculture (Chakraborty, 2004). It also participated actively in the July 2004 meeting to resolve the deadlock in negotiations.¹³ Assigning high priority on enhancing non-agricultural market access, the July 2004 declaration noted that the future negotiations need to focus on:

“.. the formula, the issues concerning the treatment of unbound tariffs in indent two of paragraph 5, the flexibilities for developing-country participants, the issue of participation in the sectorial tariff component and the preferences... a formula approach is key to reducing tariffs, and reducing or eliminating tariff peaks, high

tariffs, and tariff escalation. We agree that the Negotiating Group should continue its work on a non-linear formula applied on a line-by-line basis which shall take fully into account the special needs and interests of developing and least-developed country participants, including through less than full reciprocity in reduction commitments... We agree that developing-country participants shall have longer implementation periods for tariff reductions.”¹⁴

As evident from the declaration, the negotiations are yet to be complete. In order to ensure further market access for manufacturing exports, India has submitted a number of proposals (both individually as well as in association with other developing countries) to WTO over the last couple of years. Although several areas have been addressed in the submissions (subsidy and countervailing measures, TRIPS), we mention four broad areas in the following:

1. ***Trade Diversion due to Regional Trade Agreements:*** India has raised its voice over circumvention of procedural liberalization undertaken due to recent spread of RTAs at times.¹⁵ On 6 June 2003, India formally submitted a proposal to the WTO Negotiating Group on Rules (Document No. TN/RL/W/114), and demanded that changes should be made so that RTAs do not create impediments on the exports of the excluded members. In particular, the submission was highly critical of the ‘rules of origin’ requirement, of which Indian textile and garment industry was the worst victim.
2. ***Amendments in Anti-dumping Agreement:*** India is one of the worst victims of anti-dumping provisions, and in a number of cases the discord has reached the WTO Dispute Settlement forum as well (Chaisse and Chakraborty, 2004). India believes that there exist several loopholes in the agreement, which a developed country could misuse against its developing counterparts to fulfill protectionist

- purposes, and Indian submissions point out the potential areas of amendment (India's submission dated 25 April 2002, Document No. TN/RL/W/4; submission dated 17 October 2002, Document No. TN/RL/W/26).
3. *Reform in Tariffs*: The slow pace of tariff reform has been acknowledged by the WTO at times (2001, 2003). India has been quite vocal on reduction of the tariff barriers in the developed countries and raised concern over the tariff peaks and tariff escalation. It has elaborated its position on the required level of tariff reduction in the developed countries at times and currently negotiation is going on in these areas (See India's submission dated 18 March 2003, Document No. TN/MA/W/10/Add.2; submission dated 10 April 2003, Document No. TN/MA/W/10/Add.3).
 4. *Ensuring higher market access in the post-MFA phase*: Apart from the 'rules of origin' requirement in the RTAs, imposition of anti-dumping duties on textile products is a major issue and India has been quite vocal on that point (Submission dated 14 July 2003, Document No. WT/GC/W/502). On the other hand, the developed countries have delayed the reduction in quota over key textile products upto December 2004. India in association with other developing countries have voiced their concern over 'quota carry forward' and demanded that the promised level of market access be accorded to developing countries in the post-MFA phase (Submission dated 14 July 2003, Document No. WT/GC/W/503).

Over the last couple of years, there has been a conscious attempt made by India to adopt proactive approach at multilateral level with other developing countries.

Chakraborty and Hazra (2005) have noticed that the country is recently trying to enter into preferential trade arrangement with a number of strategic partners, who has earlier been part of joint submissions to WTO. The point is highlighted through **Table 8**, where the number of joint submissions in key areas with the current and potential partners (with whom the negotiation is currently going on) is noted. At present, the level of cooperation is quite high only in case of South Asian and South-East Asian countries. However, it is logical to expect that cooperation with Latin American and African countries would increase further in future. Given the recent trend towards bloc formation (World Bank, 2000); needless to add, this would be instrumental in ensuring higher level of market access for Indian exports.

--- Table 8: An analysis of degree of Cooperation between India and the partners (Current and Potential) ---

Conclusion

It is very difficult to arrive at a straightforward conclusion on the future of Indian exports from the findings. The edge of Chinese exports over Indian exports is clearly established from the initial analysis, and it is quite possible that a number of Indian export items might adversely suffer owing to competition from their Chinese varieties. The other results reveal that while diversification of the export basket has slightly increased, the instability index is quite significant for a number of commodity groups at major export destinations. Besides, the competitiveness of a number of product groups has declined in the post-WTO phase. In all, a gloomy picture on future exports potential emerges, and fulfillment of the Foreign Trade Policy (2004-2009) objective looks less likely.

The increased IIT gives evidence to the fact that trade in newer products, including trade in intermediate goods, is emerging. However, this type of trade is mostly vertical in nature, suggesting that Indian exports consist of low-cost varieties. Despite the increase in the proportion of developing countries in India's export basket, the share of the developed world is still significant. Since Indian export items are situated at the lower side of the technological scale, there is always a theoretical possibility that foreign producers, capable of servicing the market at a lower price could replace them. To be specific, the competition from China is worth mentioning; whose export items are also primarily labour-intensive light manufacturing goods.

India has already started looking into these questions, both domestically and internationally. At the multilateral negotiations, the key concerns are being highlighted in association with other developing countries and an attempt is being made to cement the trade relation with the strategic partners through formation of preferential trade arrangements. Domestically, the recent establishment of the 'National Manufacturing Competitiveness Council' is a welcome step, which needs to focus on a wide range of problems facing the industries, procedural as well as technological.

The sensitivity analysis involving the leading export items in EU and US market shows that adoption of any sector-specific approach may not bring the desired outcome, as India's comparative advantage is not uniformly distributed across all the industries even within a particular sector. Therefore, any future export growth strategy must focus on particular sub-industries within industry groups, with consistent expanding trends over the years. In the light of this scenario, any future export growth strategy should also

concentrate on diversifying the export basket. Furthermore, in today's world having a potential in an industry hardly matters, until and unless the potential is adequately harnessed through suitable policy decisions. In other words, there is an urgent need to enhance the R & D expenditure in Indian industries, which currently not at an appreciable level.

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Diagram 1: A Comparison of Export and Import Shares of India and China

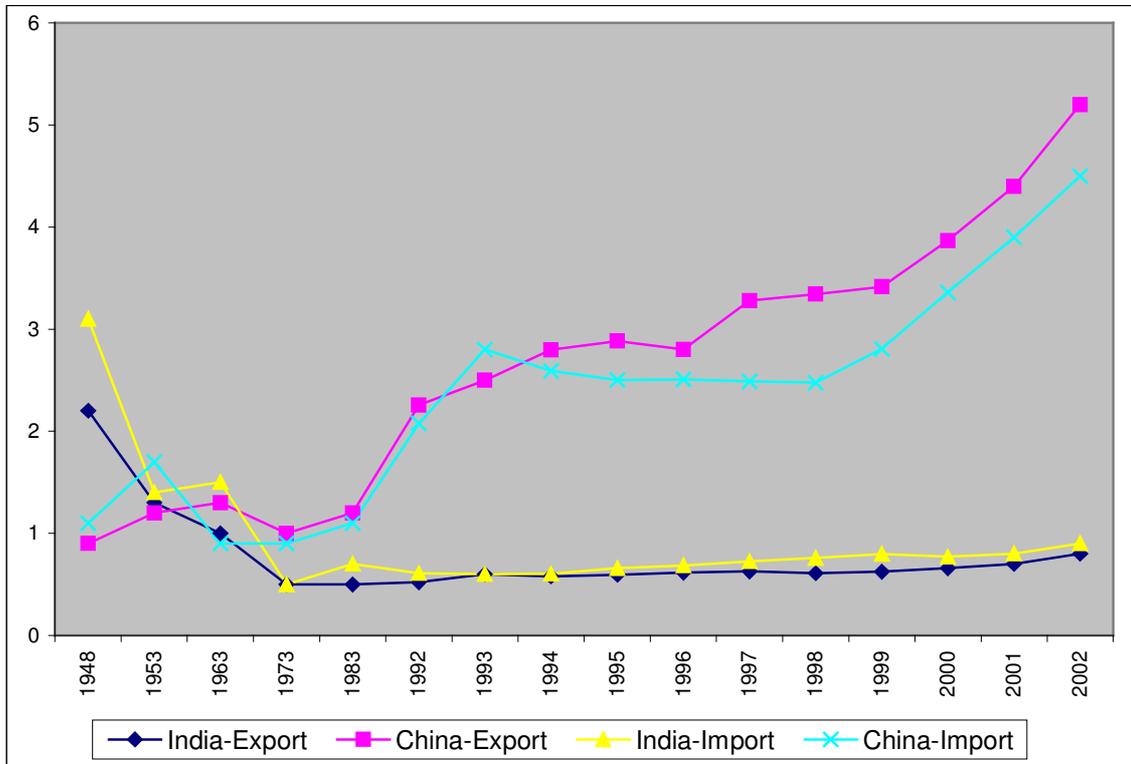


Diagram 2: The overall Intra-Industry Trends in India

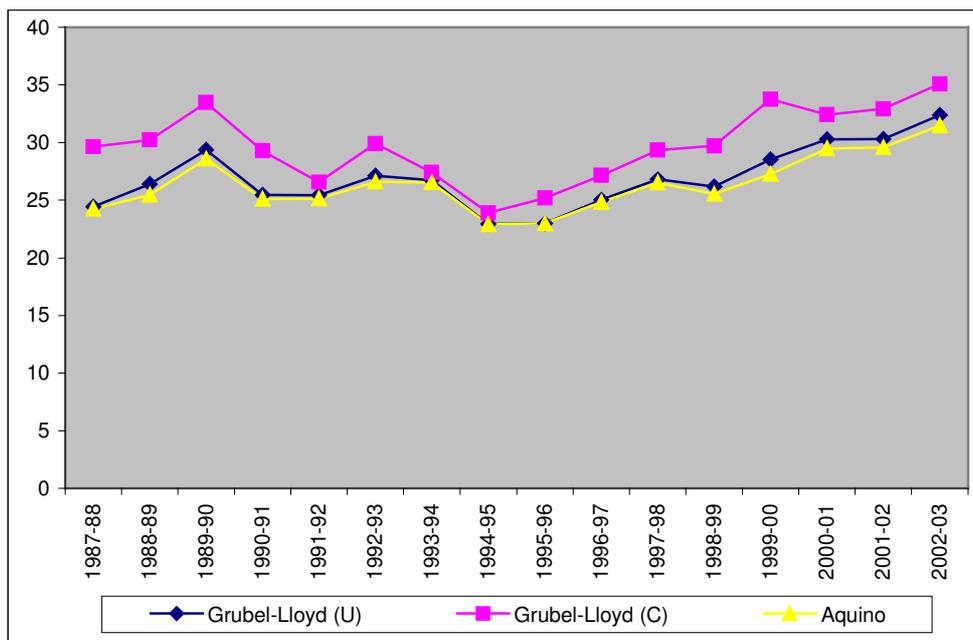


Table 1: Export ratios of India by HS Sections

Year	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	2000-01	2001-02	2002-03
I	4.237	3.530	3.125	3.605	4.018	4.020	4.324	4.930	3.929	4.188	4.280	3.848	3.891	4.016	3.613	3.405
II	14.582	10.270	10.848	9.734	9.856	6.514	8.131	7.796	11.177	9.713	9.722	11.503	8.889	7.021	6.892	7.077
III	0.136	0.063	0.285	0.270	0.406	0.313	0.472	0.603	0.848	0.585	0.506	0.512	0.714	0.522	0.395	0.292
IV	2.708	2.864	3.430	3.227	3.715	4.867	4.797	3.122	3.757	5.244	4.388	2.665	2.309	2.357	3.057	2.306
V	9.118	6.926	7.629	7.543	6.991	6.336	5.628	5.028	4.543	4.227	3.439	2.450	2.194	6.382	7.247	8.111
VI	4.646	15.103	8.399	7.864	8.621	6.968	7.080	7.853	7.746	8.793	9.448	9.056	9.510	9.538	9.711	10.239
VII	0.784	0.762	1.127	1.207	1.137	1.839	2.000	2.599	2.467	2.210	2.084	1.890	1.983	2.394	2.643	2.903
VIII	5.584	4.817	5.068	5.392	4.712	5.000	4.011	4.293	3.837	3.256	3.385	3.463	2.925	3.029	3.062	2.516
IX	0.117	0.091	0.087	0.080	0.092	0.074	0.227	0.168	0.118	0.128	0.099	0.073	0.080	0.080	0.077	0.092
X	0.208	0.137	0.193	0.186	0.203	0.259	0.836	0.384	0.476	0.433	0.334	0.376	0.449	0.542	0.572	0.605
XI	26.506	20.386	23.989	27.433	27.236	28.120	25.738	27.298	25.625	27.391	26.897	27.211	26.001	26.038	23.624	22.491
XII	2.877	2.505	2.457	2.864	2.684	2.369	2.270	2.181	1.918	1.760	1.589	1.852	1.756	1.551	1.613	1.292
XIII	0.308	0.351	0.384	0.434	0.571	0.719	0.795	0.996	1.024	0.974	0.944	0.914	1.066	1.180	1.150	1.176
XIV	16.772	20.010	19.175	16.205	15.387	16.942	18.035	17.179	16.643	14.183	15.327	17.861	20.951	16.710	16.748	17.247
XV	2.409	3.255	3.987	4.088	4.541	6.065	6.243	5.528	5.583	5.827	6.203	5.380	6.249	6.677	6.525	8.016
XVI	4.707	4.860	5.293	5.230	4.849	4.311	4.349	4.656	5.047	5.555	5.826	5.310	5.401	6.121	6.464	6.020
XVII	1.622	1.652	1.957	2.218	2.769	2.927	2.659	2.933	2.815	2.889	2.664	2.293	2.226	2.378	2.327	2.538
XVIII	0.627	0.542	0.684	0.464	0.416	0.319	0.359	0.374	0.377	0.435	0.449	0.501	0.675	0.737	0.819	0.808
XIX	0.002	0.001	0.003	0.001	0.001	0.005	0.003	0.002	0.001	0.003	0.011	0.001	0.002	0.005	0.014	0.004

Calculated on the basis of DGCIS Data

Table 2: Export and Import Shares of India and China – Commodity-wise

Product	Country	Export				Import			
		1980	1990	2000	2002	1980	1990	2000	2002
Agricultural products	China	1.5	2.4	3.0	3.2	2.1	1.8	3.3	3.5
	India	1.0	0.8	1.2	1.1	-	0.4	0.7	-
Manufactures	China	0.8	1.9	4.7	6.2	1.1	1.7	3.5	4.9
	India	-	0.5	0.7	-	-	0.5	0.4	-
Iron and Steel	China	0.3	1.2	3.1	2.3	2.7	2.5	6.3	8.9
	India	-	-	-	-	-	-	-	-
Chemicals	China	0.8	1.3	2.1	2.3	2.0	2.2	5.0	5.7
	India	0.3	0.4	0.8	0.8	-	-	-	-
Office machines and telecom equipment	China	-	1.0	4.5	9.0	-	1.3	4.6	7.9
	India	-	0.06	0.04	-	-	0.2	0.3	-
Automotive Products	China	-	-	0.2	0.4	-	-	0.6	1.1
	India	-	0.06	0.1	-	-	0.08	0.06	-
Textiles	China	-	6.9	10.4	13.5	-	5.0	8.3	8.5
	India	-	2.0	3.8	-	-	0.2	0.3	-
Clothing	China	4.0	8.9	18.3	20.6	0.1	0.0	0.6	0.6
	India	1.7	2.3	3.1	2.8	-	0.0	0.0	-

Source: International Trade Statistics (2003)

Table 3: The Export Penetration in Principal Markets (Overall)

Market	Exporter	1990	1995	1997	1998	1999	2000	2001	2002
Canada	China	1.0	2.1	2.3	2.6	2.8	3.2	3.7	4.6
	India	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4
US	China	3.1	6.3	7.3	8.0	8.3	8.2	9.3	11.1
	India	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1.0
EU (15)	China	0.8	1.8	1.9	2.0	2.2	2.6	2.9	3.1
	India	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Japan	China	5.1	10.7	12.4	13.2	13.8	14.5	16.6	18.3
	India	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6

Source: International Trade Statistics (2003)

Table 4: The Revealed Comparative Advantage Index Trends (1994-2000)

SITC Code	Description	1994	1997	2000
Chemical				
514	Nitrogen-function compounds	1.3173	1.3737	0.9464
516	Other organic chemicals	1.8573	4.5760	5.3284
531	Synthetic dye, natural indigo, lakes	5.9237	6.3760	7.3350
583	Polymerization and copolymerization products	0.2368	0.2382	0.5129
591	Pesticides, disinfectants	1.5109	10.9635	3.4627
Pharmaceutical				
541	Medical and pharmaceutical products	1.5614	1.7656	1.5967
Leather				
611	Leather	4.7055	6.0464	3.4181
612	Manufactures of leather or of composition leather, nes etc.	9.8354	18.2895	8.8711
Rubber				
625	Rubber tires, tire cases, inner and flaps, for wheels of all kinds	1.9862	3.3132	1.3022
Gems				
667	Pearl precious and semi precious stones unworried or worked	17.5416	16.6909	15.7911
897	Gold silver ware, jewellery and articles of precious metals	3.6395	4.6879	5.9286
Metal				
674	Universals, plates, and sheets, of iron or steel	0.5716	1.2083	1.5976
684	Aluminium	0.7572	0.7797	0.8216
697	Household equipment of base metal, nes	1.9237	2.2896	4.6256
699	Manufacturing of base metal, nes	0.7757	1.6830	0.9616
Machinery				
778	Electrical machinery and apparatus, nes	0.2293	0.2984	0.3477
Automobile				
784	Motor vehicle parts and accessories, nes	0.3815	0.3054	0.3514
785	Cycles, scooters, motorized ot not; invalid carriages	2.6394	1.8818	2.2363

Table 5: Horizontal and Vertical Specialisation trend in IIT

HS-Digit	Both way Trade (Number of HS 6-digit lines)			Proportion of Both way Trade (% of all 6-digit lines)			Proportional of 6-digit lines with Vertical trade (15%)			Proportional of 6-digit lines with Vertical trade (25%)		
	1988-89	1999-00	2003-04	1988-89	1999-00	2003-04	1988-89	1999-00	2003-04	1988-89	1999-00	2003-04
28	44	61	153	70.97	95.31	85.00	88.64	86.89	90.20	77.27	80.33	85.62
29	76	129	287	77.55	98.47	91.69	85.53	91.47	86.41	77.63	70.07	76.31
30	-	16	26	-	100.00	89.66	-	81.25	100.00	-	75.00	100.00
39	39	47	119	92.86	100.00	94.44	79.49	93.62	91.60	69.23	80.85	79.83
40	20	24	70	86.96	100.00	95.89	100.00	91.67	85.71	100.00	87.5	78.57
42	-	12	10	-	92.31	100.00	-	91.67	70.00	-	91.67	50.00
71	6	14	39	46.15	77.78	79.59	83.33	85.71	92.31	83.33	64.29	82.05
72	61	63	155	63.54	94.03	91.18	88.52	90.48	77.42	78.69	80.95	67.10
73	33	50	111	67.35	96.15	92.50	96.97	94.00	96.40	87.88	88.00	91.89
84	167	198	471	90.76	98.02	92.90	97.6	97.47	95.75	96.40	95.96	93.84
85	78	99	275	93.98	99.00	94.18	96.15	92.93	89.82	93.59	87.88	83.27
87	19	27	65	65.52	96.43	89.04	94.74	96.30	93.85	89.47	81.48	86.15

Table 6: Export Diversification Ratio

Year	US	EU	Canada	Japan	World
1991	0.9542	0.9703	0.9291	0.9373	0.9785
1992	0.9564	0.9723	0.9397	0.9303	0.9798
1993	0.9660	0.9734	0.9451	0.9212	0.9802
1994	0.9720	0.9761	0.9541	0.9099	0.9804
1995	0.9349	0.9743	0.9486	0.9484	0.9735
1996	0.9365	0.9754	0.9494	0.9313	0.9755
1997	0.9507	0.9767	0.9532	0.9601	0.9779
1998	0.9403	0.9769	0.9582	0.9720	0.9772
1999	0.9320	0.9750	0.9552	0.9680	0.9731
2000	0.9255	0.9766	0.9574	0.9593	0.9626
2001	0.9396	0.9770	0.9579	0.9702	0.9748
2002	0.9384	0.9760	0.9564	0.9604	0.9755
2003	0.9399	0.9759	0.9558	0.9552	0.9749

Table 7: Export Instability ratio

HS Codes	US	EU	Canada	Japan	World
29	0.3422	0.2210	-	0.3097	6.5396
30	4.0270	0.2154	0.4395	0.7854	0.3483
32	0.4188	0.2825	0.1093	0.3421	0.1355
38	1.2063	0.8739	-	2.6281	-
39	2.8597	7.2217	-	9.2845	-
40	0.4804	0.8964	29.7303	1.9721	0.3950
41	0.4148	0.7009	1.2637	2.0871	0.6327
42	0.1895	0.1452	0.1436	0.9004	0.1307
71	6.9518	5.4153	2.0029	2.5946	0.2953
72	1.2126	3.2290	-	2.9472	0.6048
73	0.2132	0.6753	0.6798	5.0449	0.7774
84	0.7535	0.5864	2.2698	34.3762	0.2839
85	2.2565	1.9416	10.5925	6.2881	1.0855
87	1.0024	1.4159	0.3020	0.8856	0.4010

**Table 8: An analysis of degree of Cooperation between India and the bloc partners
(Current and Potential)**

Countries	WTO Disciplines						
	A	B	C	D	E	F	G
<i>South Asia</i>							
Bangladesh	-	-	8	-	-	-	1
Bhutan	-	-	-	-	-	-	-
Maldives	-	-	2	-	-	-	-
Nepal	-	-	-	-	-	-	-
Pakistan	5	2	15	1	-	8	5
Sri Lanka	4	2	11	-	-	1	7
<i>East And South-East Asia</i>							
Brunei Darussalam	-	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-	-
China, PR	3	-	5	1	-	5	-
Indonesia	4	1	21	-	1	5	1
Lao People's Democratic Republic	-	-	-	-	-	-	-
Malaysia	2	3	15	-	1	4	1
Myanmar	-	-	-	-	-	-	-
Philippines	4	-	5	-	-	5	1
Republic of Korea	3	-	-	-	-	1	-
Singapore	-	-	-	-	-	1	-
Thailand	2	-	5	-	-	5	4
Vietnam	-	-	2	-	-	-	-
<i>Africa</i>							
Botswana	2	-	5	-	-	-	1
Mauritius	2	-	4	-	1	-	4
Namibia	1	-	1	-	-	-	1
South Africa	2	-	1	-	-	-	1
Swaziland	1	-	1	-	-	-	1
<i>Latin America</i>							
Argentina	3	-	-	-	-	4	1
Brazil	3	-	2	-	-	4	4
Chile	3	-	-	-	-	4	-
Paraguay	3	-	1	-	-	1	-
Uruguay	1	-	-	-	-	-	-

Source: Chakraborty and Hazra (2005)

A – Agriculture; B – Dispute Resolution; C – General Council; D – Investment; E – Non-Agricultural Market Access; F – Services; G - TRIPS

Notes:

¹ For instance, total trade as a percentage of GDP has jumped from about 19 per cent in 1994-95 to 36 percent in 2001-2002, and crossed 42 percent in 2003-2004.

²² The rank correlation coefficient between the export shares of various HS section for 1987-88 and 2002-03 and 1995-96 and 2002-03 are 0.877 and 0.959 respectively. The same figures for import shares are 0.943 and 0.947 respectively.

³ The underlying cause of the decline for textile sector is probably persistent of the MFA quota, which has imposed a constraint on this sector, causing a relative decline in export growth rate vis-à-vis the non-quota sectors.

⁴ We do not consider textile in our analysis, since it has been subject to quantitative restrictions until recently. Also we exclude agricultural products from our analysis.

⁵ For certain commodity groups, the '-' sign does not mean that India is not exporting these groups. The fact is it does not figure among the top 15 exporter countries in those commodities, and hence the share has not been reported in International Trade Statistics.

⁶ where,
$$X_{ij}^e = X_{ij} \cdot (1/2) \cdot \sum_i (X_{ij} + M_{ij}) / \sum_i X_{ij}, \text{ and}$$

$$M_{ij}^e = M_{ij} \cdot (1/2) \cdot \sum_i (X_{ij} + M_{ij}) / \sum_i M_{ij}$$

It is evident from the formula that $\sum_i X_{ij}^e = \sum_i M_{ij}^e = (1/2) \cdot \sum_i (X_{ij} + M_{ij})$. Aquino (1978).

⁷ The 15% threshold is generally used when the price differences are supposed to reflect only quality differences, based on the assumption of perfect competition, i.e., consumers will not purchase a similar, or lower quality good at a higher price. However, in case of imperfect information, where price difference could result from brand names as well, the 15% difference is too narrow and 25% should be used for this purpose. Both the values could be used in order to check the robustness of the result.

⁸ This is in line with the findings of Stiglitz (1987), which states that even with imperfect information, prices tend to reflect quality.

⁹ An analysis through the Herfindahl index in EU and US, the two principal markets also reveal a similar result.

¹⁰ Macbean and Nguyen (1980) described the variance of total export proceeds and the variance of exports of *i*-th commodity by I and I_i respectively, and derived that

$$I^2 = \sum W_i^2 I_i, \text{ which resembles the Michaely's index of concentration, given by } C^2 = \sum W_i^2.$$

¹¹ No textile and garment product (HS 50-63) is selected for the analysis, since they were subject to MFA quotas.

¹² We repeat the same analysis by considering quarterly exchange rate of Indian rupee as an additional determinant of exports. However, no major change is observed in the new analysis.

¹³ The other countries participating in the July 2004 meeting were Australia, Brazil, EU and the US.

¹⁴ WTO (2004), Document No. WT/L/579.

¹⁵ See *India and the WTO*, Vol. 1, No. 8, August 1999, p. 3.