Trends in India's External Trade in Rubber and Rubber Products

An Inter Temporal Analysis

Joby Joseph, Tharian George K. and Toms Joseph

In a relative term, the assessment on the consequences of global trading regime governed by WTO in a significant way has been concerned with macro level issues compared to product specific studies from a national or global perspective. Several factors such as trade policy reforms initiated in a large number of countries or country groupings, rules of the WTO agreement, overriding importance of today's regional trade agreements and broad sectoral issues are influencing the behavioural patterns and equations of international trade. The popular academic and policy perspectives tend to treat product specific issues as an ensemble of broad sectoral issues. As a result, there exists a substantial paucity of product specific studies across countries. Attempts are made only when the issues surface beyond the scope of sectoral level survival or revival strategies. The long term implications of such a policy paradigm exposes the relevance of studies pertaining to the performance of individual product groups in the context of trade policy reforms.

In the light of this development, the paper makes an attempt to provide a detailed analysis of the trends in India's external trade in rubber and rubber products.

Introduction

IN a comparative sense, the assessments on the consequences of the WTO mandated international trade regime have been primarily concerned with macro level issues compared to product specific studies from a national or global perspective. The overwhelming concerns revolved around issues such as the trade policy reforms initiated in

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individual member countries or country groupings, technical virtuosity of various constituent provisions and rules of the WTO Agreement, growing importance of Regional Trade Agreements (RTAs) and broad sectoral issues impinging on the prevailing equations in international trade. The popular academic and policy perceptions tend to treat product specific issues as an ensemble of broad sectoral issues and therefore, there exists an explicit paucity of product specific studies across countries. As a result, attempts on product specific studies are initiated only when the issues surface beyond the scope of sectoral level survival or revival strategies. The long-term implications of such a policy paradigm highlight the relevance of studies pertaining to the performance of individual product groups in the context of trade policy reforms initiated in the backdrop of the WTO Agreement.

In this broad conceptual background, this paper makes an attempt to provide a comprehensive analysis of the trends in India's external trade in rubber and rubber products. Earlier studies on the issues were either focused on the value added rubber products sub-sector or confined to the analyses of the linkages among the resource base, rubber products manufacturing and composition of the exports from the regional and global perspectives (George and Joseph, 1992; Mohanakumar *et al.*, 1994; Mohanakumar and George, 1999; Joseph and George, 2000; Mohanakumar and George, 2001). An important missing link in the earlier studies has been a comprehensive assessment of the trends in India's external trade in both rubber and rubber products in the backdrop of trade policy reforms initiated in the country since the early 1990s. Although the share of rubber and rubber products in India's total value of external trade is rather insignificant, an inter-temporal analysis of the trends in the external trade of this industrial sector assumes relevance for three important reasons: (i) the country's sustained favourable balance of trade in the value added rubber products sub-sector over the past three decades has been unique for its structural composition dominated by the dry rubber products segment; (ii) the stakeholders involved in the industry consist of around one million small rubber growers and processing units engaged in the primary processing of the raw material segment, more than 9,000 licensed trading firms and around 5,000 registered rubber products manufacturing units; and (iii) the need to highlight appropriate policy inputs in the context of the market integration process.

Accordingly, the perceived objectives of the study were:

(i) to examine the trends in external trade in the dominant rubber products sub-sector;

(ii) to estimate the net balance of trade in rubber and rubber products;

(iii) to estimate the growth in the exports and imports during the pre and post-reforms phases;

(iv) to analyze the composition of the exports and imports and trends in the performance of the major product groups;

(v) to estimate the product and market concentrations in the external trade; and

(vi) to highlight policy options emerging from the study.

Database and Methodology

The analysis was based on the data for the 17-year period (1987-88 to 2003-04) on the value of exports and imports of rubber and rubber products published by the Ministry of Commerce, Government of India.[1] The choice of the study period was guided by the availability of comparable data as India adopted the Harmonized Commodity Description and Coding System (HS) only in April 1987. For the comparative analysis, the five-year period from 1987-88 to 1991-92 is considered the pre-reforms phase whereas the 12-year period between 1992-93 to 2003-04 represents the post-reforms phase. The classification of the 17-year period into pre- and post-reforms phases is justified as India launched its trade policy reforms during the year 1991-92. The scope of the analysis on the trends and composition of the external trade is confined to the four digit level product classification in Chapter 40 of the HS for two important reasons: (i) during the 17-year period, there were three revisions of the HS at the six digit level and the resultant issues related to changes in the product nomenclature beyond the four digit level; and (ii) disaggregate level analysis will be more meaningful and focused on the basis of the identification and comparative performance of the major product groups at the four digit level. The analysis on the trends and composition of the external trade is classified into two broad sections, viz. (i) rubber products; and (ii) rubber and rubber products for the important reason that in the total value of external trade in rubber and rubber products, the value added intermediate and finished rubber products sub-sector consisting of 14 product groups from HS 4004 to HS 4017 accounted for 70.22 per cent

during the seventeen year period. The product descriptions at the four digit level of Chapter 40 of the HS, dealing with rubber and rubber products, are given in Table 1.

TABLE 1

DESCRIPTION OF RUBBER AND RUBBER PRODUCTS

Sl. No.	*HS Code*	*Product Description*
1.	4001	Natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, in primary forms or in plates, sheets or strip.
2.	4002	Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any product of heading 4001 with any product of this heading, in primary forms or in plates, sheets or strip.
3.	4003	Reclaimed rubber in primary forms or in plates, sheets or strip.
4.	4004	Waste, parings and scrap of rubber (other than hard rubber) and powders and granules obtained therefrom.
5.	4005	Compounded rubber, unvulcanized, in primary forms or in plates, sheets or strip.
6.	4006	Other forms (for example, rods, tubes and profile shapes) and articles (for example, discs and rings), of unvulcanized rubber.
7.	4007	Vulcanized rubber thread and cord.
8.	4008	Plates, sheets, strip, rods and profile shapes, of vulcanised rubber other than hard rubber.
9.	4009	Tubes, pipes and hoses, of vulcanized rubber other than hard rubber, with or without their fittings (for example, joints, elbows, flanges).
10.	4010	Conveyor or transmission belts or belting, of vulcanized rubber.
11.	4011	New pneumatic tyres, of rubber.
12.	4012	Retreaded or used pneumatic tyres of rubber, solid or cushion tyres, tyre treads and tyre flaps, of rubber.
13.	4013	Inner tubes, of rubber.
14.	4014	Hygienic or pharmaceutical articles (including teats), of vulcanized rubber other than hard rubber, with or without fittings of hard rubber.
15.	4015	Articles of apparel and clothing accessories (including gloves, mittens and mitts) for all purposes, or vulcanised rubber other than hard rubber.
16.	4016	Other articles of vulcanized rubber other than hard rubber.
17.	4017	Hard rubber (for example, ebonite) in all forms, including waste and scrap; articles of hard rubber.

In order to derive a more realistic assessment of the trends, nominal values of trade in rupee terms were deflated with respective annual exchange rates with US dollars so as to eliminate the effects of consecutive devaluations of rupee in the early 1990s as well as to minimize the chances of overestimation (Appendix I). However, the year-wise aggregate values of exports and imports in rupee terms are given in Appendices II and III. The annual average growth rates were

estimated to analyze the trends in both phases. The product and market concentrations were analysed by estimating four product and country shares in exports and imports.

Results and Discussion

The status of rubber and rubber products sector in India's external trade is insignificant as it constituted only 0.81 per cent in the total value of exports and imports even during the year 2003-04 (GOI, 2005). However, the relative share of rubber and rubber products exports in the country's total value of exports was higher (1.04 %) compared to the share of the imports in the total value of imports (0.63%). As India's external trade in rubber and rubber products has been dominated by the value added rubber products consisting of 14 product groups from HS 4004 to 4017, the first part of the aggregate level analysis is concerned with the trends in this sub-sector. Table 2 provides the salient features of external trade in rubber products during the 17-year period.

TABLE 2

EXTERNAL TRADE IN RUBBER PRODUCTS

(US$ million)

Year	*Value of exports*	*Value of imports*	*Balance of trade*	*Value of imports as a percentage of exports*
1987-88	65.41	38.17	27.24	58.35
1988-89	70.50	35.91	34.58	50.94
1989-90	121.46	51.67	69.79	42.54
1990-91	137.14	56.36	80.78	41.10
1991-92	117.37	49.39	67.98	42.08
1992-93	208.78	47.59	161.19	22.79
1993-94	260.60	58.28	202.32	22.36
1994-95	293.09	66.03	227.06	22.53
1995-96	311.99	105.88	206.10	33.94
1996-97	326.58	95.18	231.40	29.15
1997-98	338.98	123.69	215.29	36.49
1998-99	294.93	132.65	162.28	44.98
1999-00	291.17	127.14	164.03	43.67
2000-01	354.77	131.15	223.63	36.97
2001-02	372.83	138.51	234.32	37.15
2002-03	485.87	162.22	323.65	33.39
2003-04	593.88	208.45	385.43	35.10
Average annual growth rate	17.12	12.78		**Average =35.05**

Table 2 is illustrative of the following points: (i) despite marked fluctuations in the values of rubber products exports and imports, the country has been maintaining a favourable balance of trade throughout the17-year period; (ii) the average share of the value of imports in the value of exports was 35.05 per cent; and (iii) the annual average growth rate in the total value of rubber products exports was higher than the rate in the total value of imports. Though the impressive performance of positive balance of trade in the value added rubber products segment during the 17-year period had been a continuum of the past three decades, it is important to capture the relative trends during the pre- and post-reforms phases from a long-term policy perspective. Table 3 shows the comparative growth rates of exports and imports during the pre- and post-reforms phases.

TABLE 3

AVERAGE ANNUAL GROWTH RATE OF RUBBER PRODUCTS EXPORTS AND IMPORTS

	Exports	*Imports*
Pre-reforms phase	19.64	8.67
Post-reforms phase	10.68	15.77
CV	52.47	52.58

The estimated growth rates of exports and imports exhibited disparate trends during the two phases. While the annual average growth rate in the total value of exports declined from 19.64 to 10.68 per cent during the post-reforms phase, the growth rate in imports not only increased from 8.67 to 15.77 per cent but also was higher than the growth rate in the exports during the post-reforms phase. Although a detailed disaggregate level analysis exploring the relative contribution of individual product groups in the observed changes is beyond the scope of this paper, it is important to understand the respective shares and rates of growth of individual product groups during the pre- and post–reforms phases as well as the 17-year period. Table 4 provides the summary.

Table 4 shows the changes in the relative shares and growth rates of rubber products during the three phases. The composition of the country's rubber products exports had been dominated by new pneumatic tyres of rubber (HS 4011), the composite product group of other articles of vulcanized rubber other than hard rubber (4016), conveyor or transmission belts or belting of vulcanized rubber (4010)

TABLE 4

RELATIVE SHARES AND GROWTH RATES OF RUBBER PRODUCTS EXPORTS AND IMPORTS

HS Code	*Exports*			*Imports*		
	Pre-reforms phase	*Post-reforms phase*	*1987-88 to 2003-04*	*Pre-reforms phase*	*Post-reforms phase*	*1987-88 to 2003-04*
4004	0.02 (-21.99)	0.07 (117.71)	0.06 (141.20)	0.06 (-12.39)	0.21 (521.05)	0.19 (368.49)
4005	0.60 (21.37)	0.77 (17.45)	0.75 (19.51)	1.38 (44.00)	1.51 (39.85)	1.49 (36.80)
4006	0.48 (15.34)	0.44 (19.39)	0.44 (15.88)	0.88 (72.78)	0.41 (45.30)	0.48 (44.78)
4007	0.10 (201.86)	0.22 (130.57)	0.20 (137.35)	4.45 (13.60)	1.74 (13.66)	2.13 (12.93)
4008	1.08 (126.76)	2.22 (57.93)	2.10 (81.16)	3.74 (14.25)	2.92 (21.25)	3.03 (16.56)
4009	1.67 (-0.71)	1.31 (28.51)	1.35 (21.89)	9.81 (9.68)	13.43 (24.89)	12.92 (20.73)
4010	11.52 (3.45)	4.99 (16.86)	5.71 (12.90)	12.00 (9.93)	11.12 (13.06)	11.24 (10.39)
4011	69.22 (23.41)	64.28 (8.57)	64.82 (16.97)	12.83 (4.17)	13.34 (17.85)	13.27 (15.14)
4012	3.92 (-8.05)	2.40 (13.71)	2.57 (21.35)	0.97 (22.02)	0.95 (35.23)	0.95 (29.85)
4013	2.79 (28.54)	4.61 (13.51)	4.41 (28.78)	0.08 (93.43)	0.31 (23.44)	0.28 (56.37)
4014	2.60 (15.56)	5.49 (35.57)	5.18 (29.46)	7.81 (-0.53)	1.38 (13.22)	2.29 (6.94)
4015	2.67 (103.63)	4.78 (8.02)	4.55 (33.60)	0.24 (105.17)	0.69 (28.11)	0.63 (43.07)
4016	3.04 (36.04)	8.01 (22.01)	7.46 (27.48)	44.81 (15.92)	51.20 (17.39)	50.29 (15.62)
4017	0.29 (6.22)	0.41 (33.10)	0.40 (34.16)	0.94 (43.74)	0.79 (25.87)	0.81 (29.22)
Total	**100.00 (19.64)**	**100.00 (10.68)**	**100.00 (17.12)**	**100.00 (8.67)**	**100.00 (15.77)**	**100.00 (12.78)**

Note: Figures in parentheses indicate respective annual average growth rates.

and hygienic or pharmaceutical articles (including teats) of vulcanized rubber other than hard rubber, with or without fittings of hard rubber (4014). However, the relative shares of the product groups exhibited notable changes during the post-reforms phase. While the new pneumatic tyres of rubber retained its pre-eminent position during the two phases, the two major product groups which had improved the shares and rankings during the post-reforms were other articles of vulcanized rubber other than hard rubber (4016) and hygienic or pharmaceutical articles (including teats) of vulcanized rubber other than

hard rubber, with or without fittings of hard rubber (4014). Conversely, the relative shares of conveyor or transmission belts or belting, of vulcanized rubber (4010) and new pneumatic tyres of rubber (4011) had declined during the post-reforms phase. The highest growth rate in exports was observed in the case of vulcanized rubber thread and cord (4007) with an insignificant share of total exports of 0.22 per cent during the post-reforms phase. Among the four major product groups, the highest growth rate was recorded in the case of hygienic or pharmaceutical articles (including teats) of vulcanized rubber other than hard rubber, with or without fittings of hard rubber (4014) during the post-reforms phase as well as in the 17-year period. Moreover, among the four major product groups, only two product groups which had achieved higher growth rates compared to the pre-reforms phase were hygienic or pharmaceutical articles (including teats), of vulcanized rubber other than hard rubber, with or without fittings of hard rubber (4014) and conveyor or transmission belts or belting, of vulcanized rubber (4010) whereas the growth rates of other two had declined. The decline in the growth rate of the dominant new pneumatic tyres of rubber (4011) is more striking. Among the 14 product groups only seven had shown higher growth rates during the post-reforms phase. From a policy angle, the deceleration in the growth rates of the two major product groups, viz. new pneumatic tyres of rubber (4011) and other articles of vulcanized rubber other than hard rubber (4016) might have contributed to the decline in the growth rate in exports of rubber products at the aggregate level during the post-reforms phase.

As in the case of exports, imports of rubber products were also characterized by high degree of concentration during the period under review. The four major product groups, viz. other articles of vulcanized rubber other than hard rubber (4016), new pneumatic tyres of rubber (4011), tubes, pipes and hoses, of vulcanized rubber other than hard rubber, with or without their fittings (4009) and conveyor or transmission belts or belting, of vulcanized rubber (4010) accounted for 87.72 per cent share in the total value of rubber products imports. An important feature of the composition of the imports was that during the three phases the four product groups continued to be the major sources of imports with changes in the relative rankings in respective shares. Unlike in the case of rubber products exports, the higher growth rate in imports for all the four major product groups in the post-reforms phase had been unique and had contributed to the observed higher growth rate of

imports at the aggregate level. Among the four product groups, significant growth rates were recorded in the cases of tubes, pipes and hoses, of vulcanized rubber other than hard rubber, with or without their fittings (4009) and new pneumatic tyres of rubber (4011). The most important feature of the composition and the relative growth rates of the rubber products imports was that except the composite product group of other articles of vulcanized rubber other than hard rubber (4016), all the other three product groups are dry rubber products posing serious challenges to the hitherto unperturbed status of these product groups in the domestic market.

Rubber and Rubber Products

In contrast to the pattern and trends observed in the value added rubber products segment with its sustained favourable balance of trade, the rubber and rubber products sector exhibited a very high degree of volatility in the net balance of trade.[2] Moreover, the aggregate level

TABLE 5

EXTERNAL TRADE IN RUBBER AND RUBBER PRODUCTS

(US$ million)

Year	*Total value of exports*	*Total value of imports*	*Net balance of trade*	*Value of imports as a percentage of exports*
1987-88	65.92	131.04	-65.11	198.77
1988-89	71.87	155.28	-83.40	216.04
1989-90	123.23	156.10	-32.87	126.68
1990-91	138.53	182.50	-43.97	131.74
1991-92	121.69	123.72	-2.03	101.66
1992-93	215.42	132.60	82.82	61.56
1993-94	263.81	167.30	96.52	63.41
1994-95	301.53	184.11	117.42	61.06
1995-96	321.41	320.90	0.51	99.84
1996-97	337.60	272.51	65.09	80.72
1997-98	344.41	284.08	60.33	82.48
1998-99	301.69	278.05	23.63	92.17
1999-00	297.11	270.44	26.67	91.02
2000-01	363.07	283.47	79.60	78.08
2001-02	384.23	312.84	71.39	81.42
2002-03	528.35	343.73	184.62	65.06
2003-04	666.34	489.35	176.99	73.44
Average annual growth rate	17.87	10.82		Average =84.35

analysis on the external trade performance of the entire rubber sector yielded useful indicators for the disaggregate level analysis.

Table 5 illustrates four important points: (i) a very high degree of volatility in the net balance of trade; (ii) negative net balance of trade during the entire pre-reforms phase; (iii) the average share of the total value of imports as a percentage of exports was higher (84.35%) compared to the observed pattern in rubber products (35.05%); and (iv) a higher growth rate in exports *vis-a-vis* imports as revealed in the case of rubber products sub-sector. Moreover, the performance of the rubber and rubber products sector also showed marked variations in exports and imports during the pre- and post-reforms phases. Table 6 provides the comparative growth rates in exports and imports.

TABLE 6

AVERAGE ANNUAL GROWTH RATES OF EXPORTS AND IMPORTS OF RUBBER AND RUBBER PRODUCTS

	Exports	*Imports*
Pre-reforms phase	20.19	0.93
Post-reform phase	11.65	14.75
CV	55.60	40.92

The value of exports of the rubber and rubber products sector grew at an annual average rate of 20.19 per cent compared to a stagnated growth rate of 0.93 per cent for the imports during the pre-reforms phase. However, similar to the observed pattern in the case of rubber products sub-sector, the rubber and rubber products sector has also registered a higher growth rate in the imports than the exports during the post-reforms phase. However, the most important observation is that while there had been a steep fall in the growth rate of exports, the increase in the growth rate of imports was rather sharper than in the case of the rubber products sub-sector. Hence, with a view to understanding the major sources of changes in the growth pattern, the relative shares and growth rates of the rubber and rubber products sector were estimated for the 17-year period, as well as for the pre- and post-reforms phases. Table 7 summarizes the details.

Table 7 provides the aggregate level composition and trends in the external trade in rubber and rubber products. The distinctive feature of India's external trade in rubber and rubber products had been the historical persistence of a high degree of concentration in exports and

TABLE 7

RELATIVE SHARES AND GROWTH RATES OF RUBBER AND RUBBER PRODUCTS

HS Code	Exports			Imports		
	Pre-reforms phase	*Post-reforms phase*	*1987-88 to 2003-04*	*Pre-reforms phase*	*Post-reforms phase*	*1987-88 to 2003-04*
4001	0.42 (3020.86)	2.52 (206.91)	2.29 (902.29)	27.90 (-18.83)	9.76 (100.81)	13.08 (66.23)
4002	0.87 (206.76)	1.36 (21.34)	1.30 (69.01)	41.15 (12.50)	48.37 (12.63)	47.05 (12.57)
4003	0.51 (48.93)	0.56 (34.99)	0.55 (36.47)	0.03 (-1.86)	0.04 (325.99)	0.04 (229.59)
4004	0.02 (-21.99)	0.06 (117.71)	0.06 (141.20)	0.02 (-12.39)	0.09 (521.05)	0.08 (368.49)
4005	0.59 (21.37)	0.73 (17.45)	0.72 (19.51)	0.43 (44.00)	0.63 (39.85)	0.59 (36.80)
4006	0.47 (15.34)	0.42 (19.39)	0.43 (15.88)	0.27 (72.78)	0.17 (45.30)	0.19 (44.78)
4007	0.10 (201.86)	0.21 (130.57)	0.20 (137.35)	1.38 (13.60)	0.73 (13.66)	0.85 (12.93)
4008	1.06 (126.76)	2.12 (57.93)	2.01 (81.16)	1.16 (14.25)	1.22 (21.25)	1.21 (16.56)
4009	1.64 (-0.71)	1.25 (28.51)	1.29 (21.89)	3.03 (9.68)	5.62 (24.89)	5.15 (20.73)
4010	11.32 (3.45)	4.77 (16.86)	5.48 (12.90)	3.71 (9.93)	4.65 (13.06)	4.48 (10.39)
4011	67.97 (23.41)	61.43 (8.57)	62.13 (16.97)	3.97 (4.17)	5.58 (17.85)	5.28 (15.14)
4012	3.85 (-8.05)	2.30 (13.71)	2.46 (21.35)	0.30 (22.02)	0.40 (35.23)	0.38 (29.85)
4013	2.74 (28.54)	4.40 (13.51)	4.23 (28.78)	0.02 (93.43)	0.13 (23.44)	0.11 (56.37)
4014	2.55 (15.56)	5.25 (35.57)	4.96 (29.49)	2.41 (-0.53)	0.58 (13.22)	0.91 (6.94)
4015	2.62 (103.63)	4.57 (8.02)	4.36 (33.60)	0.07 (105.17)	0.29 (28.11)	0.25 (43.07)
4016	2.98 (36.04)	7.66 (22.01)	7.15 (27.48)	13.86 (15.92)	21.41 (17.39)	20.03 (15.62)
4017	0.29 (6.22)	0.39 (33.10)	0.38 (34.16)	0.29 (43.74)	0.33 (25.87)	0.32 (29.22)
Total	100.00 (20.19)	100.00 (11.65)	100.00 (17.87)	100.00 (0.93)	100.00 (14.75)	100.00 (10.82)

Note: Figures in parentheses indicate corresponding annual average growth rates.

imports. While the single product concentration of new pneumatic tyres of rubber (4011) accounting for 62.13 per cent had been the hallmark of the exports, the combined share of three forms of raw materials (4001, 4002 and 4003) in the total value of imports was 60.17 per cent. Technically, the basic tenets of the composition of external trade focusing on exports of value added rubber products and dominance of raw materials in the imports reflect a well developed rubber based industrial sector in India *vis-a-vis* other natural rubber producing countries with the major exception of China.[3] However, during the period under review, the highest growth rates in exports and imports were recorded in the cases of either raw materials or less value added products (natural rubber and related products covered under HS 4001 and intermediate products covered under HS 4004) with negligible shares in the total value of exports and imports. During the post-reforms phase, while the growth rate of exports in the major product group, viz. new pneumatic tyres of rubber (4011) showed a steep fall, the two other major product groups which had shown higher growth rates were conveyor or transmission belts or belting, of vulcanized rubber (4010) and hygienic or pharmaceutical articles (including teats), of vulcanized rubber other than hard rubber, with or without fittings of hard rubber (4014).

On the import front, while the historical dominance of the two major sources of raw materials, viz. natural rubber and allied products (4001) and synthetic rubber and allied products (4002), continued to tilt India's fortunes in the net balance of trade in rubber and rubber products. An important factor contributing to the negative net balance of trade during the pre-reforms phase had been a comparatively higher share of natural rubber and related products ranging from 9.76 to 40.58 per cent in the total value of imports. A disquieting trend observed during the post-reforms phase had been the significant growth rates in the imports of major product groups such as tubes, pipes and hoses, of vulcanized rubber other than hard rubber, with or without their fittings (4009), new pneumatic tyres of rubber (4011), other articles of vulcanized rubber other than hard rubber (4016) and conveyor or transmission belts or belting, of vulcanized rubber (4010). Although a systematic exposition of the sources of imports and the underlying factors require a detailed analysis at the disaggregate level, for the present, it will suffice to highlight the product and market concentrations in the external trade so as to identify the product groups for disaggregate level analysis.

Product and Market Concentrations

Technically, lower product and market concentrations in external trade are indicative of wider product and market bases with considerable leverage to cushion the adverse effects of individual products or markets. Conversely, higher product and market concentrations are vulnerable to fluctuations in the prices of the major product groups and the consequent adverse effects on the performance of the sector. India's progress in product diversification in exports had been sluggish and unique for two important reasons: (i) Independent India inherited a large and wide dry rubber products manufacturing base to cater to the requirements of the domestic market; and (ii) exports had been primarily a horizontal extension of the industrial structure nurtured by a protected external trade policy regime over the past five decades rather than adapted to changing dimensions of the export markets. Table 8 illustrates four product concentration in the exports of rubber and rubber products.

TABLE 8

FOUR PRODUCT CONCENTRATION IN EXPORTS OF RUBBER AND RUBBER PRODUCTS

Pre-reforms phase		*Post-reforms phase*		*1987-88 to 2003-04*	
Product group	*Share (%)*	*Product group*	*Share (%)*	*Product group*	*Share (%)*
HS 4010	11.32	HS 4010	4.77	HS 4010	5.48
HS 4011	67.97	HS 4011	61.43	HS 4011	62.13
HS 4012	3.85	HS 4014	5.25	HS 4014	4.96
HS 4016	2.98	HS 4016	7.66	HS 4016	7.15
Total	**86.12**	**Total**	**79.11**	**Total**	**79.72**

Table 8 succinctly reveals the dependence of India's fortunes on a single product group in the exports of rubber and rubber products. Although there had been steady decline in the share of new pneumatic tyres of rubber (HS 4011) from the historical peaks in the past, the country is still heavily dependent on this product group in its exports. The dominance of dry rubber products in the composition of exports is evident from the fact that more than 80 per cent of the exports was constituted by dry rubber products during the period under review. The decline in the four product concentration in the post-reforms phase is notable more for the changing composition in the export basket as underlined by the growing share of non-traditional product groups (HS 4016 and 4014).

In contrast to the observed trends in the product concentration in exports, concentration in the imports of rubber and rubber products revealed a growing share of the major product group, viz. synthetic rubber and allied products (HS 4002). Table 9 summarises the four product concentration in the import of rubber and rubber products.

TABLE 9

FOUR PRODUCT CONCENTRATION IN IMPORTS OF RUBBER AND RUBBER PRODUCTS

Pre-reforms phase		*Post-reforms phase*		*1987-88 to 2003-04*	
Product group	*Share (%)*	*Product group*	*Share (%)*	*Product group*	*Share (%)*
HS 4001	27.90	HS 4001	9.76	HS 4001	13.08
HS 4002	41.15	HS 4002	48.37	HS 4002	47.05
HS 4011	3.97	HS 4009	5.62	HS 4011	5.28
HS 4016	13.86	HS 4016	21.41	HS 4016	20.03
Total	**86.88**	**Total**	**85.16**	**Total**	**85.44**

The four main observations emerging from Table 9 are: (i) Compared to exports, the four product concentration in imports had been higher during the three time periods; (ii) more than 60 per cent of the country's total value of imports of rubber and rubber products had been accounted for by two major forms of raw materials (natural rubber and synthetic rubber) during the 17-year period; (iii) despite the combined share of these two product groups reached a peak level of about 69 per cent during the pre-reforms phase, there had been a marked decline in the share (58.13%) during the post-reforms phase; and (iv) while the four product concentration remained almost static, the combined share of two value added product groups increased from 17.83 per cent in the pre-reforms phase to 27.03 per cent during the post-reforms phase.

The analysis on product concentration underlines the following points: (i) There had been a gradual dilution in four product concentration in exports supplemented by the changing composition of the product groups; (ii) among the four product groups, the highest growth in relative share was achieved by the composite product group of other articles of vulcanized rubber other than hard rubber (4016) consisting of 22 individual products at the eight digit level; (iii) four product concentration in the imports remained rather higher and static compared to the exports; and (iv) as in the case of exports, the highest growth in the relative share in imports was achieved by the composite product group of other articles of vulcanized rubber other than hard rubber (4016) during the post-reforms phase.

In contrast to the product concentration, four country concentration in exports and imports was lower, but had increased during the post-reforms phase (Table 10).

TABLE 10

FOUR COUNTRY CONCENTRATION IN THE EXTERNAL TRADE

Exports (%)			*Imports (%)*		
Country	*Pre -reforms phase*	*Post-reforms phase*	*Country*	*Pre-reforms phase*	*Post-reforms phase*
USA	23.12	21.04	USA	10.20	8.56
UAE	3.33	9.00	Japan	21.45	21.06
Bangladesh	9.07	4.94	France	4.91	7.57
Singapore	2.45	4.53	Germany	6.13	7.76
Total	**37.97**	**39.52**	**Total**	**42.69**	**44.95**
Geographical diversification (Number of countries)	95	155		45	67

Though the extent and trends in the four country concentration were lower compared to the product concentration, it was more pronounced in the imports. It is rather paradoxical to note that in spite of the increase in the geographical diversification of the exports and imports, the extent of dependence on the markets remained to be more or less the same. These contradictory trends tend to underline the point that despite the growth in geographical diversification during the post-reforms phase, India's dependence on the traditional markets had been higher with serious analytical questions on the composition of products in the external trade with these countries at the disaggregate level. Another important observation is that while the four country concentration in exports had shown more diversification in terms of economic groupings of the countries, four major countries of rubber and rubber products imports were developed countries. Analysis of the composition of the exports to the four major markets revealed that from 70.22 per cent (USA) to 88.65 per cent (Singapore) of the exports were accounted for by the automotive tyres and allied products (4011, 4012 and 4013) even during the post-reforms phase. However, the growth in exports to UAE and Singapore requires closer monitoring as the chances of re-exports from these entrepots are higher. Similarly, imports had been dominated by two product groups, viz. synthetic rubber and allied products (4002) and other articles of vulcanized rubber other

than hard rubber (4016) from the four major countries. The combined share of these two product groups ranged from 76 per cent (Germany) to 89.23 per cent (France) in the total value of imports.

To a large extent, the observed market concentration in exports and imports was determined by product concentration in India's external trade in rubber and rubber products. Despite the significant increase in India's destinations of rubber and rubber products exports, the country's historical dependence on automotive tyres and allied products in exports will have serious policy implications in the context of the growing process of market integration. Conversely, while the continued dominance of synthetic rubber and allied products (4002) is justified in terms of its consumption for the manufacture of value added products and the deficit supply of the same in the domestic market, the growing share of the composite product group (4016) from the four major countries deserve considerable attention for two important reasons: (i) India has the potential competitiveness to manufacture a majority of products in this 22 individual products group (at the eight digit level); and (ii) the domestic market potential of these products is expected to grow at a faster rate along with the pace of industrial growth in the country.

Conclusion

The aggregate level analysis of India's external trade during the 17-year period highlights the following observations: (i) Though the value added rubber products sub-sector exhibited a favourable balance of trade during the entire period under review, the long-run sustenance of the same is questionable based on the observed trends in external trade; (ii) the sharp increase in the growth rate in the value of imports and the steep fall in the rate of growth in the value of exports during the post-reforms phase are not only serious issues of policy concern but also suggest the need for detailed disaggregate level analysis on the performance of the major product groups; (iii) product group-wise performance indicated declining shares and growth rates of the traditional sources of exports whereas the product groups which had shown higher growth rates accounted for only insignificant shares in the total value of exports; (iv) conversely, the growth rates in imports of all the four major rubber products increased during the post-reforms phase; (v) extension of the analysis to the rubber and rubber products sector did not seriously alter the observations except for the major

changes in the composition of the imports dominated by synthetic rubber and allied products (4002) and natural rubber and related products (4001); (vi) the most important observation emerging from the analysis is the remarkable growth in the relative share of the composite product group of other articles of vulcanized rubber other than hard rubber (4016) occupying the second major product group both in exports and in imports; (vii) however, performance of this product group in imports had been better than exports during the post-reforms phase suggesting the need for a detailed analysis at the disaggregate level and closer monitoring of the recent trends (Annexure iv);[4] (viii) the trends in product and market concentrations in the external trade revealed persistent product concentration reinforcing the in-built rigidities in the diversification of trade; and (ix) the observed trends have to be viewed in the context of the changing dimensions of global trade in rubber and rubber products underlining the growing importance of non-tyre products sector and the increasing relocation and transnationalization of the automotive tyre manufacturing industry (George *et al.*, 2003).

In this analytical backdrop, it becomes imperative to chart the long-term policy inputs for the rubber sector. Though the historically inherited structure of the domestic rubber sector and its external trade appendages had been so far able to withstand the challenges arising from trade policy reforms from the multilateral trade route, the number of Regional Trade Agreements (RTAs) signed by the country within the continent have the potential to tilt the balance on account of selective tariff concessions on value added products and regional integration of the markets at a faster pace than the multilateralist route. In this process, the product groups in the non-tyre sector appear to be more vulnerable to imports than the automotive tyre sector for the explicit differences in the scale of production and organizational structure related to production and market orientation. Even the dominant automotive tyre sector is also confronting serious challenges in the context of regional integration of the markets and this dominant segment has been restructuring the organizational arrangements related to production and marketing. Conversely, a major share of individual products in the non-tyre sector are manufactured in the unorganized sector. The illustrative cases of individual products covered under the HS 4016 deserve detailed investigations and interventions at the disaggregate level. More specifically, policy initiatives are necessary to streamline the priorities and strategies in the non-tyre sector to organize the

production and marketing processes. This point assumes added significance in the context of the growing importance of non-tyre products in the global trade in rubber and rubber products. Hence, a comprehensive study focusing on the identification of individual products with inherent advantages in the context of the market integration process deserves top priority. While consolidating the inherent strengths in the traditional sub-sectors is pivotal, the real challenge is in providing an organizational network to the unorganized segments in the non-tyre sub-sectors from a global perspective. In this endeavour, India's position is unique with its more than eight decades long experience on a wide array of products compared to any other natural rubber producing country.

NOTES

[1] The annual data on the country's external trade is available in the *Monthly Statistics of Foreign Trade of India*, published by the Directorate General of Commercial Intelligence and Statistics under the Ministry of Commerce, Government of India.

[2] The net balance of trade refers to the difference between the total value of rubber and rubber products exports and imports.

[3] For instance, compared to the 89.12 per cent share of value added products (during the year 2003-04) in India's rubber and rubber products exports, the respective shares of Malaysia and Thailand were 62.87 per cent (during the year 2003) and 42.5 per cent (during the year 2002-03) respectively (ANRPC, 2005; MRB, 2004; Muller, 2003).

[4] Among the major product groups, HS 4016 shows the highest negative balance of trade to the tune of Rs 2,295.38 million during the year 2003-04.

REFERENCES

1. ANRPC (2005), *Quarterly Natural Rubber Statistical Bulletin*, the Association of Natural Rubber Producing Countries, 28 (2), Kuala Lumpur, Malaysia. p. 1.

2. George, Tharian K. and Joseph, Toms (1992), "Rubber based Industrialization in Kerala: An Assessment of the Missed Linkages", *Economic and Political Weekly*, January 27 (1&2), pp. 47-56.

3. George, Tharian K., Joseph, Joby and Jacob, Jom (2003), *Global Trade and Tariff Policy on Rubber and Rubber Products Under the WTO Regime: A Preliminary Assessment* (Working paper), Economics Division, Rubber Research Institute of India, Kottayam, India, p. 30.

4. GoI (2003), *Economic Survey 2002-03*, "Exchange Rate of Rupee *vis-a-vis* Selected Currencies of the World", Economics Division, Ministry of Finance, Government of India, New Delhi. p. s-76.

5. GoI (2005), *Economic Survey 2004-05*, "Exchange Rate of Rupee *vis-a-vis* Selected Currencies of the World", Economics Division, Ministry of Finance, Government of India, New Delhi. p. s-76.

6. GoI (2005), Export Import Data Bank, Ministry of Commerce and Industry, Government of India, www.commerce.nic.in

7. Joseph, Toms and George, Tharian K. (2000), "From Primary Exports to Value Addition: Emerging Trends in Major Natural Rubber Producing Countries", in P. Rethinam, H.H. Khan, V.M. Reddy, P.K. Mandal and K. Suresh (ed.) *Plantation Crops Research and Development in the New Millennium*, Proceedings of PLACROYSM XIV, National Research Centre for Oil Palm, Hyderabad, India. pp. 184-191.

8. Mohanakumar S., Joseph, Toms and George, Tharian K. (1994), *Foreign Trade of Rubber Products in India (1971-72 to 1992-93): An Exploratory Analysis*, International Conference on Plantation Crops (PLACROSYM XI), 30 November - 4 December, National Research Centre for Spices, Calicut, India.

9. Mohanakumar S. and George, Tharian K. (1999), *Indian Rubber Products Manufacturing Industry: Evolutionary Dynamics and Structural Dimensions* (Monograph), Rubber Research Institute of India, Kottayam, India, p. 39.

10. Mohanakumar S. and George, Tharian K. (2001), "Impact of Economic Reforms on Tyre Industry", *Economic and Political Weekly*, 36 (12), pp. 1044-1050.

11. MRB (2004), *Malaysian Rubber Review*, a quarterly publication of the Malaysian Rubber Board, 7(1), p. 22.

12. Muller, Erwin (2003), New Alternative for the Thai Rubber Industry, *The Rubber International*, 5(2), pp. 42-47.

APPENDIX I

EXCHANGE RATE OF RUPEE VIS-A-VIS US DOLLAR

Year	*Rs*	*Year*	*Rs*
1987-88	12.97	1996-97	35.50
1988-89	14.48	1997-98	37.17
1989-90	16.65	1998-99	42.07
1990-91	17.94	1999-00	43.33
1991-92	24.47	2000-01	45.68
1992-93	30.65	2001-02	47.69
1993-94	31.37	2002-03	48.39
1994-95	31.40	2003-04	45.95
1995-96	33.45		

Source: GOI, 2003; 2005.

APPENDIX II

EXTERNAL TRADE IN RUBBER PRODUCTS

(Rs million)

Year	*Value of exports*	*Value of imports*	*Balance of trade*	*Imports as a percentage of exports*
1987-88	848.06	494.88	353.18	58.35
1988-89	1,020.91	520.08	500.83	50.94
1989-90	2,022.19	860.33	1,161.86	42.54
1990-91	2,460.65	1,011.27	1,449.38	41.10
1991-92	2,872.48	1,208.70	1,663.77	42.08
1992-93	6,398.80	1,458.45	4,940.35	22.79
1993-94	8,173.96	1,827.92	6,346.03	22.36
1994-95	9,202.67	2,073.21	7,129.46	22.53
1995-96	10,436.04	3,541.83	6,894.21	33.94
1996-97	11,593.68	3,379.07	8,214.62	29.15
1997-98	12,598.28	4,596.91	8,001.37	36.49
1998-99	12,407.87	5,580.51	6,827.36	44.98
1999-00	12,617.27	5,509.57	7,107.70	43.67
2000-01	16,207.48	5,991.30	10,216.18	36.97
2001-02	17,780.99	6,605.76	11,175.23	37.15
2002-03	23,506.57	7,848.35	15,658.22	33.39
2003-04	27,276.84	9,574.03	17,702.81	35.10
Average annual growth rate	27.48	21.83	35.00	34.99

APPENDIX III

EXTERNAL TRADE IN RUBBER AND RUBBER PRODUCTS

(Rs million)

Year	*Value of exports*	*Value of imports*	*Balance of trade*	*Imports as a percentage of exports*
1987-88	854.74	1,699.01	-844.27	198.77
1988-89	1,040.88	2,248.70	-1,207.81	216.04
1989-90	2,051.66	2,598.98	-547.32	126.68
1990-91	2,485.60	3,274.62	-789.02	131.74
1991-92	2,978.30	3,027.89	-49.59	101.66
1992-93	6,602.53	4,064.66	2,537.87	61.56
1993-94	8,274.74	5,247.42	3,027.32	63.41
1994-95	9,467.72	5,780.97	3,686.75	61.06
1995-96	10,751.05	10,734.02	17.02	99.84
1996-97	11,984.74	9,674.89	2,309.85	80.73
1997-98	12,800.15	10,557.92	2,242.23	82.48
1998-99	12,692.23	11,697.94	994.28	92.17
1999-00	12,874.65	11,718.82	1,155.83	91.02
2000-01	16,586.42	12,949.98	3,636.44	78.08
2001-02	18,324.70	14,919.99	3,404.71	81.42
2002-03	25,561.44	16,629.63	8,931.81	65.06
2003-04	30,605.16	22,475.77	8,129.39	73.44
Average annual growth rate	28.27	19.26		Average=80.30

APPENDIX IV

BALANCE OF TRADE OF RUBBER PRODUCTS UNDER HS 4016 DURING 2003-04

(Rs million)

Products	*Value of exports*	*Value of imports*	*Balance of trade*	*Imports as a percentage of exports*
Other articles of cellular rubber	198.79	50.11	148.68	25.21
Floor coverings and mats	590.10	30.86	559.24	5.23
Erasers	9.10	5.56	3.54	61.11
Patches for puncture repair of self-vulcanizing rubber/a rubber lacking	47.20	123.84	-76.64	262.36
Rubber ring (o-ring)	104.84	551.82	-446.98	526.34
Rubber seals (oil seals, etc)	177.50	770.66	-593.16	434.17
Gaskets	412.83	448.08	-35.25	108.54
Washers	24.77	25.55	-0.78	103.14
Plugs	6.27	6.58	-0.31	104.86
Other articles of gaskets washers and other seal	314.60	542.22	-227.62	172.35
Boat or dock fenders whether or not inflatable	27.33	14.61	12.72	53.47
Air mattresses of inflatable articles	1.54	0.27	1.27	17.65
Other items of inflatable articles	102.69	11.92	90.77	11.60
Rubber cots for textile industry	198.13	270.71	-72.58	136.64
Rubber bands	2.83	5.62	-2.79	198.31
Rubber thread	32.04	16.65	15.39	51.96
Rubber blankets	8.98	100.20	-91.22	1,115.58
Rubber cushion	1.14	14.49	-13.35	1,271.23
Rubber bush	28.63	65.28	-36.65	228.00
Ear plug	0.30	0.65	-0.35	218.46
Stoppers	10.38	96.55	-86.17	929.79
Others	673.73	2,116.87	-1,443.14	314.20
Total	***2,973.72***	***5,269.10***	***-2,295.38***	***177.19***