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**“Products Mapping” and Dynamic Shift in the Patterns of Comparative Advantage:
Could India catch up China?**

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“Products Mapping” and Dynamic Shift in the Patterns of Comparative Advantage: Could India catch up China?

Abstract

This paper aims to examine shifts in the level of comparative advantage in China and India for the period 1988-2003. Products are defined in the 3-digit level of the Standard International Trade Classification (SITC) Revision 2. This paper applies Revealed Symmetric Comparative Advantages (RSCA) index, Trade Balance Index (TBI), an econometric model and the Spearman's rank correlation. Some conclusions are withdrawn. *First*, China and India had biggest changes in their comparative advantages in the periods 1988-1993 and 1998-2003, respectively. *Second* China and India showed despecialization. The change in comparative advantage of China was more dynamic than that of India. *Third*, in term of the patterns of comparative advantage, India is a follower (if it is not called as a 'competitor') of China.

Keywords: Dynamic Specialization, Convergence in Trade Patterns
JEL: F10, F14, F17.

1. Introduction

China and India have played significant roles in international trade and been integrated with the world economy. An indicator measuring the integration level of a specific country is the share of exports and imports of goods and services in Gross Domestic Product (GDP). China's and India's shares of exports and imports of goods and services in GDP had almost doubled during the period 1994-2004. China's share of exports of goods and services in GDP increased from 18% in 1994 to 34% in 2004, meanwhile, the India's share increased from 7% in 1983 to 19% in 2004. China's share of imports of goods and services in GDP increased from 16% in 1994 to 31% in 2004, and the India's share increased from 9% in 1994 to 23% in 2004 (World Bank, 2006). China and India are geographically large and neighboring emerging-market economies (EMEs). Das (2006) calls them 'two-up-and-coming' economic powers. Given the large size of Chinese and Indian economies and their specific patterns of demand, the changes in their structure of supply and demand have much larger impacts on the composition of world trade than those of the other industrializing economies in Asia during their economic ascent (UNCTAD, 2005). World Trade Organization (2005) notes that China's share in world merchandise exports and imports increased dramatically from 1.2% and 1.1% in 1983 to 6.7%

and 6.1% in 2003, respectively. Meanwhile, India's share in world merchandise exports and imports increased modestly from 0.5% and 0.7% in 1983 to 0.8% and 1.1% in 2003, respectively.

Parallel with the integration process of China and India with the world market, a critical issue about the countries-specific specialization or dynamic comparative advantage patterns is rising. Wörz (2005) mentions four possible relationships between trade specialization and convergence of trade-patterns i.e. more-specialized together with diverging trade patterns; less-specialized together with diverging trade patterns; more-specialized together with converging trade patterns; and less-specialized together with diverging trade patterns. This paper is addressed to answer some questions. *First*, in what sorts of exported products do China and India have comparative advantages? *Second*, how far has the comparative advantage of China and India shifted? In other words, do they become less specialized or more specialized? *Third*, does India's pattern of trade specialization follow a sequential change similar to that of China? This paper is organized as follows. In the part 2, a brief comparative discussion on trade liberalization in China and India is made. The parts 3 and 4 show the methodology, results and analysis. Finally, some conclusions are presented in part 5.

2. Trade Liberalization in China and India

The importance of liberalizing trade policies towards faster growth in the case of China and India is clear. In the late 1970s when these countries began the process of liberalization, the levels of protection were high¹. In the case of India's manufacturing sector, for example, Aksoy and Etori (1992) find that some 210 effective rates of protection (ERP) from various sources, when grouped into 16 product categories, are generally high (for examples, average ERP of edible oils 85%, of Cotton yarns 52%, of Synthetic textiles 100%, of Heavy chemicals 68%, of

Synthetic fibers/resins 162%, of Iron/steel products 72%, of Casting/forging 72%, of Non-electrical machinery 64%, of Electronic and parts 92%). Throughout the fast-growth period, China and India have been more and more opening up their economies and integrating with the world economy. To some extent, the success of domestic policies of China and India was affected by the policy regimes (Bloom *et al.*, 2006; Srinivasan, 2006). China adopted faster approach in opening up its domestic market than India. The differences in their policy regimes nowadays are not enormous, putting agricultural sector aside.

China and India applied a tight controlled system of trade until the late 1970s. India more specifically implemented this control system with very strict licensing (Das, 2006:103). The Ministry of Commerce issued 'Red Book' that consists of a long list of import-permitted products every six months (Panagariya, 2006:27). The book also determines who could import the products listed therein, in what quantity, and for specific case from what country the product should be imported. China had more a longer story about controlled system. Starting from the beginning of 1950s, the Chinese Ministry of Foreign Trade (MFT) controlled the trade flow through a centrally planned trading system since the "planned economy supplemented with some market elements" was the objective model for the Chinese reform (Fan and Zhang, 2003). Under the MFT, very limited number of Foreign Trade Corporations (FTCs) dealt with product lines (for examples, Iron and steel, Textiles and clothing). FTCs had branch offices in the main provinces that produced export products or used imported inputs. In 1978 when China firstly launched its 'open-door' policy, 12 such FTCs dominantly controlled almost all its trade (Panagariya, 2006). We might say that China and India had started liberalization policies in the similar period and modified their protective trade policies. Formerly, the government interventions on international trade had been extremely high.

China and India had different paths of liberalization. China took the form of ‘decentralization’ of trade i.e. increasing the number of trading companies with more independent right to export and to import (Woo, 2003). Having initiated decentralization of trade, China implemented three main instruments to limit the flow of imports (Panagariya, 2006). *First*, China adopted import licensing system to control inflows of certain goods. At its peak in the late 1980s the share of all imports under licensing was 46 percent. *Second*, China distributed certain imported products to state agencies with exclusive trading rights. *Third*, tariffs were raised as decentralization made progress. The average statutory tariff rates in 1982 had already risen from negligible levels in the pre-reform era to 56 percent. Then, a major overhaul of the tariff regime was made in 1985 and the average tariff rate went down to 43 percent (Lardy, 2002).

Some policies were established following the decentralization of trade and in 1982 the Ministry of Foreign Economic Relation and Trade (MOFERT) was established by merging the MFT, Ministry of Economic Relations with Foreign Countries, Import Export Commission, and Foreign Investment Control Commission. During the 1980s, China’s merchandise liberalization gave overall impacts on the hold of the MOFERT on trade and resulted in significant increase of foreign trade companies and their autonomy in carrying foreign trade. The number of FTCs increased drastically from just 12 FTCs with monopoly rights on trade in 1978, to 800 in 1985 and to more than 5.000 with full authority in trade in 1988 (Panagariya, 2006). The number of manufacturing enterprises with trading rights also expanded, though it remained small compared with the total number of FTCs (Lardy, 2002). During 1978 and 1995, the Chinese government also devaluated the exchange rate more than 80 percent to encourage exports. China had a system of paying back the value added and custom duties paid on inputs, which were used in producing export goods. Partial rebate on value added tax was introduced in 1984. In 1994, the rebate was raised to 100 percent. Duty drawback was introduced initially for foreign-invested enterprises but

was extended subsequently to domestic enterprises as well. In the Special Economic Zones (SEZs) and Open Cities, the policy regime was particularly liberal towards the enterprises with the rights to have 100 percent ownership of assets and to hire and fire workers (Das, 2006:62; Srinivasan, 2006). China also offered financial incentives unavailable elsewhere to the enterprises in these zones.

In 1979, India established a system which classified products not domestically produced into three categories, i.e. (1) Open General Licensing (OGL), (2) Banned and (3) Restriction items. Products that are not in the OGL list were placed into the categories i.e. Banned or Restriction items. The governmental “canalizing” agencies², like in China, were also established to carry out import of essential consumer goods and some specific products (for examples petroleum and important minerals). Some observers argue that India undertook partial liberalization during the 1980s (Das, 2006; Panagriya, 2006) such as elimination of the share of canalized products from 67 percent in 1980-81 to 27 percent in 1986-1987; expansion of OGL from 5 percent in 1980-1981 to roughly 30 percent in 1987-1988, relaxation of industrial controls, setting exchange rate in the more realistic levels which contributed to the success in export expansion during the second half of the 1980s. Unfortunately, after 1985 tariff rates were raised by the government to some extent due to fiscal deficit. This increase had offset the effect of expansion of the OGL list.

The Indian government also adopted some other policies to promote export. The examples are listed in the following: a passbook scheme for duty free imports for exporters; increase in the business income tax deduction to 4% of net foreign exchange realization plus 50% (raised to 100 percent in 1988) of the remaining profits from exports; reduction in the interest rate on export credit from 12 to 9.5 percent; faster processing of export credit and duty drawback; upward revision of the rates of Cash Compensatory Support (CCS) for offsetting internal taxes;

international Price Reimbursement Scheme for raw materials for all major export sector (i.e. exporter were effectively offered international prices on internationally traded goods even when such inputs were purchased domestically); permission to retain 5-10% of foreign exchange receipts for export promotion; duty free capital goods imports for exporters in 'thrust' industry; full remission of excise duties and domestic taxes; and remission of 20% of interest charges on IDBI loans for firms exporting over 25% of output (Panagariya, 2006). These policies along with the depreciation of the real exchange rate played an important role in the rapid growth in exports observed in the second half of the 1980s.

The overall trade regime was more open in China than in India in 1980s. In India, the core regime for any product was licensing. The liberalization under the OGL was applied to at most 30 percent of the import in the late 1980s. Even then, only inputs not produced domestically had been liberalized. In comparison, even at its peak, licensing covered 46 percent of the imports in China. Chinese FTCs were also free of the regulations, while Indian enterprises faced a lot of industrial licensing. Finally, whereas the exchange rate in India came to be overvalued in the first half of the 1980s, China seems to have kept its exchange rate competitive, even undervalued throughout the 1980s. Thus, the superior Chinese performance in trade in the 1980s is certainly consistent with its more open regime (Srinivasan, 2006).

During the 1990s and beyond, China and India showed greater liberalization. India abolished import licensing on inputs and capital goods in 1991 though retaining it on consumer goods imports. India reduced the highest tariff rate from 355 percent in 1990-91 to 85 percent in 1993-94 and to 50 percent in 1995-96 (Panagariya, 2006). Currently, the top tariff rate is 12.5 percent. There are some exceptions to this rate, most notably automobiles that are subject to 100 percent duty (Woo, 2003); however, the overall level of protection has come down dramatically. In 2001, India also abolished licensing on consumer goods imports. In short, India virtually

abolished licensing and became relatively liberal in industrial products. Nevertheless, like other countries, India also implemented very high tariffs in agriculture. India had also devaluated the domestic currency against the US dollar and made the exchange rates more competitive.

China also continued to liberalize domestic markets. The share of imports subject to licensing decreased to 18 percent. By the mid 1997, it had only 5 percent of the tariff lines left subject to import licensing. Toward the end of the decade, the proportion fell to 4 percent and the share of imports subject to licensing to 8.45 percent of all imports. As a part of its WTO entry condition, it agreed to eliminate all import quotas, licensing requirements and other non-tariff barriers by the end of 2005. The average tariff decreased drastically from about 43 percent at the end of the 1980s to 40 percent in 1993, 23 percent in 1996 and 15 percent in 2001. As a part of its WTO entry conditions, China agreed to lower the average industrial tariff to 9 percent (automobile tariff to 25 percent) and average agricultural tariff to 15 percent by 2005 and to provide all state trading enterprises with freedom in imports and export after three years (Woo, 2003) . The limit of its agricultural subsidies decreased to 8.5 percent of the value of production.

To sum up, comparing the international trade regimes of China and India, whilst China is more open than India in industrial sector, the latter is steadily catching up. In fact, India abolished import licensing before China did. The highest industrial tariff in India has come down to 12.5 percent, which is not far from the average tariff of 9 percent in China In agriculture, China is obviously ahead of India. The average agricultural tariff in China is to come down to 15 percent, while that in India is still more than 30 percent (Panagariya, 2006).

3. Methodology

3.1. Data

This paper employs data on exports and imports published by the United Nations (UN), namely International Trade Statistics Yearbook (ITSY) and the United Nations Commodity Trade Statistics Database (UN-COMTRADE). Products are classified according to Standard International Trade Classification (SITC). This paper uses 3-digit SITC Revision 2. For comparison purposes, this paper focuses on 231 groups of products 3-digit SITC which are in the ITSY 2003. There are still nine groups of products (SITC) which are not covered in the ITSY 2003 due to poor reports and insufficient explanation of estimates (UN, 2004)³. Data on total world exports and imports are obtained from the ITSY 1988, 1993, 1998 and 2003. Meanwhile, data on exports and imports of China and India are taken from the UN-COMTRADE.

3.2. Comparative advantage and trade balance indexes: “products mapping”

In order to analyze pattern of comparative advantages, this paper applies Revealed Symmetric Comparative Advantage (RSCA). The RSCA index is formulated as follows (Laursen, 1998):

$$RSCA_{ij} = (RCA_{ij} - 1) / (RCA_{ij} + 1) \quad (1)$$

RSCA is the Revealed Symmetric Comparative Advantage index of country *i* in group of products (SITC) *j*. RCA is the Revealed Comparative Advantage (Balassa) index by Balassa (1965), which is formulated as $RCA_{ij} = (x_{ij} / x_{in}) / (x_{rj} / x_{rn})$. Where x_{ij} represents total exports of country *i* in group of products (SITC) *j*. Subscript *r* denotes all countries without country *i*, and subscript *n* stands for all groups of products (SITC) except group of product *j*. By excluding the country and group of products under consideration, double counting is avoided and therefore bilateral exchange of goods between two countries is more exactly represented (Wörz, 2005; Vollrath, 1991). The $RSCA_{ij}$ index ranges from -1 to +1 (or $-1 \leq RSCA_{ij} \leq 1$). The $RSCA_{ij}$ greater

than zero imply that country i has comparative advantage in group of products j . In contrast, the $RSCA_{ij}$ less than zero imply that country i has comparative disadvantage in group of products j .

Trade Balance Index (TBI) (Lafay, 1992) is applied to analyze whether a country has specialization in export (as net-exporter) or import (as net-importer) for a specific group of products (SITC). TBI is simply formulated as follows:

$$TBI_{ij} = (x_{ij} - m_{ij}) / (x_{ij} + m_{ij}) \quad (2)$$

where TBI_{ij} denotes trade balance index of country i for group of products (SITC) j ; x_{ij} and m_{ij} represents exports and imports of group of products j by country i , respectively. This index ranges from -1 to $+1$ (or $-1 \leq TBI_{ij} \leq 1$). Extremely, the TBI is equal to minus one if a country only imports, in contrast, the TBI equals one if a country only exports. Indeed, the index is not defined when a country neither exports nor imports. In this case, this paper put zero for the TBI since it shows that the group of products is either potentially to be exported or imported. Any value between -1 and $+1$ implies that the country exports and imports good j simultaneously, “net-importer” (if the TBI is negative) or “net-exporter” (if the TBI is positive).

Revealed Symmetric Comparative Advantage Index (RSCA)	RSCA > 0	Group B: Have Comparative Advantage No Export-Specialization (net-importer) (RSCA > 0 and TBI < 0)	Group A: Have Comparative Advantage Have Export-Specialization (net-exporter) (RSCA > 0 and TBI > 0)
	RSCA < 0	Group D: No Comparative Advantage No Export-Specialization (net-importer) (RSCA < 0 and TBI < 0)	Group C: No Comparative Advantage Have Export-Specialization (net-exporter) (RSCA < 0 and TBI > 0)
		TBI < 0	TBI > 0
		Trade Balance Index (TBI)	

Figure 1. Products Mapping

By using the RSCA and TBI indexes, the “products mapping” is constructed. Products (SITC)⁴ can be categorized into four groups A, B, C and D as depicted in Figure 2. Group A consists of products, which have both comparative advantage and export-specialization; Group B

contains products, which have comparative advantage but no export-specialization; Group C includes products, which have export-specialization but no comparative advantage; while, Group D comprises products, which have neither comparative advantages nor export-specialization. (See Appendix for the detailed calculation results)

3.3. Econometric Model: Specialization or Despecialization?

An econometric model (3) is commonly used to examine the dynamics of comparative advantage (Laursen, 1998; Wörz, 2005):

$$RSCA_{ij,T} = \alpha + \beta RSCA_{ij,0} + \varepsilon_{ij} \quad (3)$$

where $RSCA_{ij,T}$ and $RSCA_{ij,0}$ are Revealed Symmetric Comparative Advantage of country i in product j for the years T and 0 , respectively. The coefficient β indicates whether existing comparative advantage or specialization patterns have been reinforced or not during the period of observation.

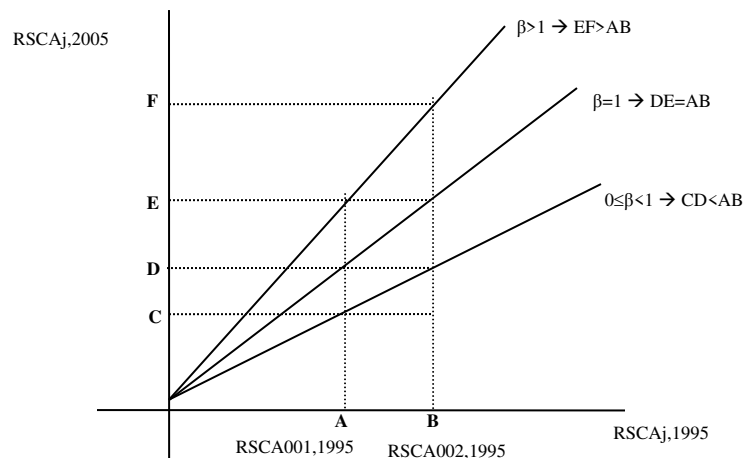


Figure 2. Dynamic Changes in Comparative Advantages

For illustration, Figure 2 represents RSCAs for SITC 001 and SITC 002 in 1995 (horizontal axis) and 2005 (vertical axis), respectively. If β is not significantly different from one ($\beta=1$), there is no change in the overall degree of specialization. The difference between

$RSCA_{001,1995}$ and $RSCA_{002,1995}$ (AB) equals the difference between $RSCA_{001,2005}$ and $RSCA_{002,2005}$ (DE). $\beta > 1$ implies the increase in specialization. The difference between $RSCA_{001,1995}$ and $RSCA_{002,1995}$ (AB) is smaller than the difference between $RSCA_{001,2005}$ and $RSCA_{002,2005}$ (EF). Finally, $0 < \beta < 1$ shows despecialization – that is, a country has gained comparative advantage in industries where it did not specialize and has lost competitiveness in those industries where it was initially specialized (Wörz, 2005). In the event of $\beta \leq 0$, no reliable conclusion can be taken from the pure statistical grounds; the specialization pattern is either random, or it has been reversed.

Since the data used in this paper is cross-section, we might have to deal with the assumptions of the classical regression model. Conventional wisdom says that the problem of autocorrelation is a feature of time series data and heteroscedasticity is a feature of cross-sectional data (Gudjarati, 2000). Therefore, we can expect that heteroscedasticity might be observed in our case. Wörz (2005) also finds that heteroscedasticity was initially a problem; therefore, the robust standard errors computed using the “White/sandwich”⁵ estimator of variance was used.

The existence of autocorrelation also might be possible. When the form of heteroscedasticity is not known, it might not be possible to get efficient estimates of the parameter using weighted least squares (WLS). The ordinary least squares (OLS) gives consistent parameter estimates in the presence of heteroscedasticity but the usual OLS standard errors will be incorrect and should not be used for the inference purposes. Therefore, this paper applies Heteroscedasticity and Autocorrelation Consistent Covariance (HAC) when the usual OLS have violated the homoscedasticity or no-autocorrelation assumptions⁶.

There are two possible approaches i.e. Heteroscedasticity Consistent Covariance (White) and HAC Consistent Covariances (Newey-West)⁷. To determine which approach is suitable for

a specific model, this paper follows some stages. *First*, the OLS is applied and then the residual testing on heteroscedastity and autocorrelation are conducted. If the test shows that there are no autocorrelation and heteroscedasticity simultaneously, then we apply the OLS. *Second*, if only heteroscedasticity exists, we use the White Heteroscedasticity Consistent Covariance. *Third*, if the autocorrelation and heteroscedasticity exist, we apply the HAC Consistent Covariances (Newey-West).

3.4. Correlation: convergent or divergent in the patterns of comparative advantage?

If it is believed that India's pattern of comparative advantages follows that of China, how big is the time-lag? This paper applies the Spearman's Rank Correlation to scrutinize the time-lag of pattern of comparative advantage. The degree of linear association between two series of RSCA can be compared by the Spearman's rank correlation coefficient, which is given as follows (Gujarati, 2000):

$$\rho_{s,Ct_a,It_b} = 1 - 6 \left[\frac{\sum_{i=1}^n d_{R_{it}}^2}{n(n^2 - 1)} \right] \quad (4)$$

Where:

ρ_{s,Ct_a,It_b} = the Spearman's Rank Correlation Coefficient between China's RSCA at time t_a (symbol: Ct_a) and India's RSCA at time t_b (symbol: It_b).

$$d_{R_i}^2 = (R_{RSCA_{iC,t_a}} - R_{RSCA_{iI,t_b}})^2$$

$R_{RSCA_{iC,t_a}}$ = the rank of China's RSCA of product i at time t_a

$R_{RSCA_{iI,t_b}}$ = the rank of India's RSCA of product i at time t_b

t_a and t_b is time (1988, 1993, 1998 or 2003)

The values of Spearman's rank correlation coefficients range from -1 (a perfect negative relationship) and $+1$ (a perfect positive relationship). The value of 0 indicates no linear relationship. Higher Spearman's rank correlation coefficient indicates stronger competition between two countries in the export market. High Spearman's rank correlation coefficient also

represents that the follower catches up quickly. Negative and smaller Spearman's rank correlation coefficient implies stronger complementarities of these two countries in supplying products to the export market. We might make a hypothesis that India's comparative advantage follows China.

4. Results and Analysis

4.1. "Products mapping"

As previously described, products (SITC) are classified into four groups i.e. A (have both comparative advantage and export-specialization); B (have comparative advantage but no export-specialization); C (have export-specialization but no comparative advantage) and D (have neither comparative advantage nor export-specialization). Table 1 represents the percentages of the number of products (out of 231 SITC) which lie in each group in the cases of China and India for the periods 1988, 1993, 1998 and 2003.

Table 1. Products Mapping: Percentage of the Number of SITC, 1988-2003

Country	1988		1993		1998		2003	
China	B: 3.5%	A: 29.9%	B: 3.9%	A: 36.4%	B: 3.0%	A: 36.8%	B: 2.6%	A: 36.4%
	D: 49.4%	C: 17.3%	D: 45.5%	C: 14.3%	D: 40.7%	C: 19.5%	D: 44.2%	C: 16.9%
India	B: 2.6%	A: 20.8%	B: 0.9%	A: 25.1%	B: 3.5%	A: 23.4%	B: 6.5%	A: 29.9%
	D: 53.2%	C: 23.4%	D: 48.5%	C: 25.5%	D: 54.5%	C: 18.6%	D: 39.8%	C: 23.8%

Notes: A (have both comparative advantage and export-specialization); B (have comparative advantage but no export-specialization); C (have export-specialization but no comparative advantage) and D (neither have comparative advantage nor export-specialization)
Source: International Trade Statistics Yearbook and UN-COMTRADE, *Author's calculation*.

TBI can show the "originality" level of a specific product. For example, if a country has export but no import of a specific product (TBI=1), we can say that the product is originally from the country. In contrast, if a country has import but no export of a specific product (TBI=-1), we can say that the product is not originally from the country. Our finding shows that higher revealed comparative advantage in international market has been more significantly supported by

the 'originality' level of products. The higher is the level of originality, the higher will be the level of comparative advantage⁸. In simple words, China and India have comparative advantage on the products, which are 'more originally' from China and India. It is shown by the higher number of products in Group A than in Group B. In contrast, the lower is the level of originality; the lower will be the level of comparative advantage. This finding strongly supports the Ricardian theory of comparative advantage saying that a country will have specialization in the products with high comparative advantage.

In the case of China, the number of products in Group A increased significantly from 29.9 percent in 1988 to 36.4 percent in 2003. In contrast, the number of products in Groups A, B and C decreased for the same periods. The biggest changes in comparative advantage and export specialization happened in the period 1988-1993. The dramatic change in the number of products in Group A happened from 1988 (29.9 percent) to 1993 (36.4 percent). However, it remained relatively constant afterwards. Relatively large number of products moved from Groups C and D to Group A rather than to Group B, indicates that import restrictions and export promotion policies were successful in encouraging comparative advantage. It is very interesting to compare the periods 1988-1993 and 1998-2003. What happened during 1998-2003 contradicts with what happened during 1988-1993. Increased number of products in Group A (followed by decreased number of products in Group B, C and D) happened during 1988-1993; while, increased number of products in Group D (followed by decreased number of products in Groups A, B and C) happened during 1998-2003.

In the case of India, rapid structural changes in comparative advantage and specialization happened in 1998-2003. The number of products in Group D decreased from 54.5 percent in 1998 to 39.8 percent in 2003. It was less than that of China during the same period. In contrast, significant increases in the number of products were found in Group A, B and C. It is clearly

shown that products which moved to Group A in 2003 were mainly from products in Group D in 1998. Significant increase in the number products in Group B is interesting since it shows the increase in the number of ‘re-exported’ products with high comparative advantages.

4.2. Dynamic changes in comparative advantage

China and India have long adopted trade policies for liberalization. The purpose of these policies has been to increase the level of national welfare. Therefore, it might be theoretically believed that China and India will try to raise their comparative advantages and to specialize in the products with higher comparative advantages. Do China and India become more specialized or de-specialized actually? If China and India become more specialized in specific products, the comparative advantage of such products will become stronger than that of other products.

Table 2. Estimation Results

RSCA	Coefficients (β)	Conclusion	Coefficients (β)	Conclusion
1993 against 1988	0.742*	despecialization	0.894*	despecialization
1998 against 1993	0.845*	despecialization	0.938**	despecialization
2003 against 1998	0.875*	despecialization	0.828*	despecialization
2003 against 1988	0.485*	despecialization	0.704*	despecialization

Notes: Wald Test⁹ is conducted to test null hypothesis $H_0: \beta=1$; and alternative hypothesis $H_1: \beta \neq 1$. By using 1% (*) and 5% (**) level of significance, we do not accept hypothesis H_0 .

Source: International Trade Statistics Yearbook and UN-COMTRADE, *Author's calculation*.

Table 2 represents the estimation results of equation (3) for the periods 1988-1993, 1993-1998, 1998-2003 and 1988-2003. The results confirm that China and India have generally become less specialized for the period 1988-2003, since estimated coefficient β lies between 0 and 1 ($0 < \beta < 1$). The second row from the bottom of the Appendix also supports this argument by the decrease in standard deviation of RSCA. For the period 1988-2003, China had smaller estimated coefficient $\beta=0.485$ than that of India (0.704). It implies that change in China's comparative advantages was bigger than that of India. In the case of China, the biggest change in comparative advantage, which is shown by lowest estimated coefficient (β), happened in the period 1993-1988. In the case of India, it was in the period 1998-2003.

4.3. Catching-up in the patterns of comparative advantage

Different approaches of liberalization have been adopted in China and India. In the beginning of liberalization, China was more progressive than India. As matter of fact, China has come far ahead of India in trade and industrial development. From the third row from the bottom of the Appendix, it is clearly shown that China has the higher average of RSCA than that of India for 1988-2003. This sub-part describes how big is the time-lag between the two countries' patterns of comparative advantage. Table 3 represents the Spearman's rank correlation coefficients between the comparative advantages of China and India for the period 1988-2003. The higher becomes the coefficient of correlation, the higher will be the linear associations of two countries' comparative advantage patterns. The positive coefficient implies that India is the follower (if it is not called as "competitor") of China in term of pattern of comparative advantage.

**Table 3. Spearman's Rank Correlation Coefficients:
China's and India's Comparative Advantages**

		India's Comparative Advantages			
		1988	1993	1998	2003
China's Comparative Advantages	1988	.426*	(2) .407*	.437*	.360*
	1993	.346*	.345*	(3) .369*	.320*
	1998	(1) .308*	.308*	.358*	.284*
	2003	.316*	.278*	.311*	.221*

** Correlation is significant at the 0.01 level (2-tailed).

Source: International Trade Statistics Yearbook and UN-COMTRADE, *Author's calculation*.

To determine the time-lag, we can follow the logic shown by arrow-sign in Table 3. *First*, comparing the coefficients within the same column, we can find that China's pattern of comparative advantages in 1988 had the highest coefficient (the arrow-sign 1). It indicates that China's pattern of comparative advantages in 1988 had most similar to that of India. *Second*, across 1988, 1993, 1998 and 2003; India's pattern of comparative advantages in 1998 had the highest coefficient with China's pattern of comparative advantages in 1988 (the arrow-sign 2). Therefore, we might say that the time-lag between India and China in term of their patterns of

comparative advantage is about 10 years (1998-1988=10 years). Interestingly, if it is the case, then the China's pattern of comparative advantages in 1993 will have the higher linear association with the India's one in 2003. However, in fact it is not the case, China's pattern of comparative advantages in 1993 have higher linear association with that of India in 1998 compared with the other periods (the time-lag becomes 5 years (=1998-1993), as the arrow-sign 3 shows). Now, the time-lag becomes smaller from about 10 years to 5 years. It is very consistent with previous explanation that the shift of China's comparative advantages was quick for the period 1988-1993 but it was slow for the period 1993-2003. In contrast, the shift of India's comparative advantages was slow for the period 1988-1998 but was fast for the period 1998-2003. Therefore, it might be generally said that the patterns of comparative advantages of both China and India could become similar in the near future, *ceteris paribus*.

5. Conclusions

This paper has described the trade liberalization in China and India from late 1970s up to the present. China and India have pursued different paths of liberalization. China took the form of 'decentralization' of trade, while the India's core trade regime was licensing for any product. The overall trade regime was more open in China than in India in 1980s. However, in the 1990s and beyond both countries' paces of liberalization have become faster. At this stage, China has been somewhat more open than India, though the latter has been steadily catching up the former.

Some conclusions are withdrawn. *First*, the products-mapping analysis shows that the China's biggest change in comparative advantage and trade-specialization happened in 1988-1993, meanwhile the India's one happened in 1998-2003. *Second*, for 1988-2003, econometric analysis shows that China and India had despecialization. The change in comparative advantages

of China was bigger than that of India. *Third*, India is the follower (if it is not called ‘competitor’) of China in term of their patterns of comparative advantages and the time-lag was about 5-10 years. As the trade patterns of the two countries become similar, the competition between them may become the severer.

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Appendix: Revealed Symmetric Comparative Advantage (RSCA), Trade Balance Index (TBI) and Group

No.	SITC (Rev. 2)	Code Descriptions	China												India											
			RSCA				TBI				Group				RSCA				TBI				Group			
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003
1	001	Live animals chiefly for food	0.52	0.35	0.19	-0.30	0.92	0.94	0.89	0.51	A	A	A	C	-0.99	-0.95	-0.96	-0.90	-0.21	0.27	0.52	0.72	D	C	C	C
2	011	Meat and edible meat offal, fresh, chilled or frozen	-0.09	-0.42	-0.21	-0.63	0.88	0.67	0.70	-0.09	C	C	C	D	-0.31	-0.30	-0.10	-0.04	1.00	1.00	1.00	1.00	C	C	C	C
3	012	Meat and edible meat offal, in brine, dried, salted or smoked	-0.11	-0.57	-0.48	-0.96	0.70	0.84	0.93	0.99	C	C	C	C	-0.86	-0.96	-0.97	-0.83	0.99	1.00	1.00	0.99	C	C	C	C
4	014	Meat and edible meat offal, prepared, preserved, nes; fish extracts	0.61	0.46	0.18	0.26	0.97	0.99	0.99	0.98	A	A	A	A	-0.96	-0.97	-0.94	-0.92	0.96	0.92	0.99	0.75	C	C	C	C
5	022	Milk, cream	-0.82	-0.82	-0.85	-0.91	-0.57	-0.26	-0.38	-0.75	D	D	D	D	-0.97	-0.93	-0.96	-0.81	-0.97	-0.36	-0.32	-0.16	D	D	D	D
6	023	Butter	-1.00	-1.00	-0.99	-1.00	-1.00	-1.00	-0.42	-1.00	D	D	D	D	-0.91	-0.90	-0.80	-0.68	-0.92	0.66	-0.46	-0.08	D	C	D	D
7	024	Cheese and curd	-1.00	-1.00	-0.99	-1.00	-0.96	-0.94	0.28	-0.73	D	D	C	D	-0.99	-1.00	-1.00	-0.99	-0.35	-0.60	-0.46	-0.53	D	D	D	D
8	025	Eggs, birds', and egg yolks, fresh, dried or preserved	0.53	-0.03	-0.14	-0.37	0.99	0.91	0.96	0.98	A	C	C	C	-0.85	-0.45	0.31	0.56	1.00	1.00	1.00	0.99	C	C	A	A
9	034	Fish, fresh, chilled or frozen	0.01	0.02	0.23	0.14	0.58	0.33	0.34	0.23	A	A	A	A	-0.43	0.00	0.16	-0.16	1.00	0.97	0.83	0.93	C	A	A	C
10	035	Fish, dried, salted or in brine; smoked fish	-0.60	0.05	-0.05	-0.08	-0.15	0.28	0.45	0.62	D	A	C	C	-0.58	-0.76	-0.54	-0.33	0.99	1.00	1.00	0.97	C	C	C	C
11	036	Crustaceans and molluscs, fresh, chilled, frozen, salted, etc	0.61	0.38	0.11	0.03	0.95	0.74	0.63	0.36	A	A	A	A	0.78	0.79	0.81	0.75	1.00	1.00	1.00	0.99	A	A	A	A
12	037	Crustaceans and molluscs, prepared or preserved, nes	-0.43	0.26	0.52	0.53	0.95	0.97	0.99	0.98	C	A	A	A	-0.96	-0.90	-0.95	-0.06	1.00	1.00	1.00	1.00	C	C	C	C
13	041	Wheat and meslin, unmilled	-0.99	-0.96	-0.99	-0.60	-1.00	-0.98	-0.99	0.55	D	D	D	C	-0.95	-1.00	-0.99	0.57	-0.99	-1.00	-1.00	1.00	D	D	D	A
14	042	Rice	0.58	0.40	0.55	0.07	0.41	0.76	0.77	0.67	A	A	A	A	0.89	0.88	0.94	0.88	0.18	0.92	1.00	1.00	A	A	A	A
15	043	Barley, unmilled	-1.00	-1.00	-0.94	-0.99	-1.00	-1.00	-0.98	-0.99	D	D	D	D	-1.00	-1.00	-0.99	-1.00	0.00	0.00	1.00	0.83	D	D	C	C
16	044	Maize, unmilled	0.43	0.71	0.26	0.50	0.94	1.00	0.89	1.00	A	A	A	A	-1.00	-0.89	-0.98	-0.11	-1.00	1.00	0.38	0.99	D	C	C	C
17	045	Cereals, unmilled	0.40	0.18	-0.17	-0.22	1.00	1.00	0.17	0.92	A	A	C	C	-0.64	-0.13	-0.70	-0.19	-0.37	0.99	0.94	0.98	D	C	C	C
18	046	Meal and flour of wheat and flour of meslin	-0.93	-0.11	0.00	-0.36	-0.92	0.68	0.65	0.74	D	C	A	C	-1.00	-0.87	-0.82	0.67	1.00	1.00	-0.09	0.97	C	C	D	A
19	047	Other cereal meals and flour	-0.23	-0.41	-0.57	-0.58	0.94	0.76	-0.02	0.69	C	C	D	C	-0.96	-0.49	-0.34	0.10	-0.95	0.99	-0.78	0.95	D	C	D	A
20	048	Cereal, flour or starch preparations of fruits or vegetable	-0.44	-0.57	-0.77	-0.77	0.68	0.58	0.68	0.18	C	C	C	C	-0.49	-0.61	-0.63	-0.55	-0.68	-0.03	0.49	0.57	D	D	C	C
21	054	Vegetables, fresh or simply preserve; roots and tubers, nes	0.43	0.37	0.20	0.01	0.94	0.95	0.89	0.76	A	A	A	A	-0.04	-0.09	-0.03	0.06	-0.63	-0.33	-0.15	-0.29	D	D	D	B
22	056	Vegetables, roots and tubers, prepared or preserved, nes	0.77	0.71	0.66	0.57	1.00	0.99	0.97	0.98	A	A	A	A	-0.31	-0.13	0.01	0.11	1.00	1.00	0.87	0.86	C	C	A	A
23	057	Fruit and nuts, fresh, dried	-0.09	-0.26	-0.47	-0.57	0.70	0.76	0.21	0.12	C	C	C	C	0.42	0.48	0.43	0.28	0.47	0.28	0.08	0.07	A	A	A	A
24	058	Fruit, preserved, and fruits preparations	0.11	0.02	0.10	0.15	0.94	0.82	0.94	0.83	A	A	A	A	-0.20	-0.29	-0.22	-0.60	1.00	1.00	0.90	0.54	C	C	C	C
25	061	Sugar and honey	-0.32	0.40	-0.37	-0.66	-0.79	0.71	0.16	-0.08	D	A	C	D	-0.79	-0.13	-0.76	0.45	0.34	0.81	-0.92	0.82	C	C	D	A
26	062	Sugar confectionery and preparations, non-chocolate	-0.57	-0.17	-0.48	-0.42	0.12	0.47	0.55	0.73	C	C	C	C	-0.84	-0.90	-0.85	-0.58	1.00	0.89	-0.03	0.54	C	C	D	C
27	071	Coffee and coffee substitutes	-0.98	-0.97	-0.90	-0.88	-0.72	-0.15	0.43	0.37	D	D	C	C	0.50	0.55	0.61	0.48	1.00	1.00	0.98	0.95	A	A	A	A
28	072	Cocoa	-0.48	-0.62	-0.75	-0.91	-0.20	0.02	-0.16	-0.40	D	C	D	D	-0.91	-0.98	-1.00	-0.99	0.99	-0.31	-0.99	-0.93	C	D	D	D
29	073	Chocolate & other food preparations containing cocoa, nes	-0.82	-0.84	-0.94	-0.91	0.73	0.27	-0.27	-0.26	C	C	D	D	-0.96	-0.97	-0.91	-0.91	1.00	0.90	0.08	-0.22	C	C	C	D
30	074	Tea and mate	0.87	0.76	0.61	0.36	0.89	0.98	0.99	0.98	A	A	A	A	0.96	0.93	0.94	0.87	1.00	0.99	0.94	0.92	A	A	A	A
31	075	Spices	0.46	0.53	0.27	0.20	0.69	0.86	0.92	0.93	A	A	A	A	0.91	0.90	0.91	0.83	0.69	0.79	0.66	0.42	A	A	A	A
32	081	Feeding stuff for animals (not including unmilled cereals)	0.56	0.00	-0.55	-0.58	0.40	0.19	-0.73	-0.21	A	C	D	D	0.57	0.74	0.57	0.54	0.98	0.94	0.88	0.81	A	A	A	A
33	091	Margarine and shortening	-0.98	-0.95	-0.55	-0.81	-0.98	-0.86	0.28	-0.14	D	D	C	D	-0.56	-0.42	-0.59	-0.65	0.98	0.97	-0.88	0.55	C	C	D	C
34	098	Edible products and preparations, nes	-0.18	-0.24	-0.02	-0.19	0.44	0.42	0.69	0.45	C	C	C	C	-0.60	-0.66	-0.33	-0.48	0.70	-0.62	0.98	0.57	C	D	C	C

Appendix: Continued.....

No.	SITC (Rev. 2)	Code Descriptions	China												India											
			RSCA				TBI				Group				RSCA				TBI				Group			
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003
35	111	Non-alcoholic beverages, nes	0.53	0.32	0.33	-0.22	0.68	0.68	0.98	0.97	A	A	A	C	-0.97	-0.95	-0.98	-0.94	1.00	1.00	-0.32	-0.62	C	C	D	D
36	112	Alcoholic beverages	-0.69	-0.65	-0.82	-0.85	0.40	0.74	0.19	0.07	C	C	C	C	-0.96	-0.83	-0.87	-0.88	-0.50	0.59	0.16	0.19	D	C	C	C
37	121	Tobacco, unmanufactured; tobacco refuse	-0.28	0.01	-0.11	-0.19	-0.35	0.46	0.68	-0.07	D	A	C	D	0.50	0.57	0.55	0.57	1.00	0.99	0.93	0.96	A	A	A	A
38	122	Tobacco, manufactured	-0.50	0.14	-0.23	-0.59	-0.63	0.54	0.70	0.70	D	A	C	C	-0.41	-0.52	-0.43	-0.38	0.87	0.92	0.90	0.77	C	C	C	C
39	211	Hides and skins, excluding furs, raw	0.07	-0.66	-0.83	-0.97	0.44	-0.65	-0.91	-0.99	A	D	D	D	-1.00	-0.94	-0.99	-0.87	-1.00	-0.94	-1.00	-0.88	D	D	D	D
40	212	Furskins, raw	0.13	-0.33	-0.68	-0.92	0.41	-0.73	-0.68	-0.90	A	D	D	D	-1.00	-1.00	-1.00	-0.99	-1.00	-1.00	-1.00	0.13	D	D	D	C
41	222	Seeds and oleaginous fruit, whole broken, for 'soft' fixed oil	0.57	0.26	-0.29	-0.40	0.89	0.87	-0.64	-0.82	A	A	D	D	-0.40	0.09	0.07	0.33	0.97	1.00	0.99	0.99	C	A	A	A
42	223	Seeds and oleaginous fruit, whole broken, for other fixed oils	0.66	0.33	-0.41	-0.16	0.99	0.92	0.46	0.75	A	A	C	C	0.57	0.57	0.53	0.47	0.29	0.56	0.61	0.28	A	A	A	A
43	232	Natural rubber, latex; rubber and gums	-1.00	-0.90	-0.84	-0.99	-1.00	-0.95	-0.92	-1.00	D	D	D	D	-0.98	-0.99	-0.91	0.01	-0.99	-0.98	-0.89	0.08	D	D	D	A
44	233	Synthetic rubber, latex, etc; waste, scrap of unhardened rubber	-0.84	-0.72	-0.76	-0.67	-0.80	-0.84	-0.89	-0.86	D	D	D	D	-0.91	-0.79	-0.73	-0.60	-0.96	-0.93	-0.91	-0.87	D	D	D	D
45	244	Cork, natural, raw & waste	-0.99	-0.84	-0.97	-0.84	-0.99	-0.86	-0.95	-0.67	D	D	D	D	-1.00	-0.92	-0.96	-0.82	-1.00	-0.96	-0.97	-0.68	D	D	D	D
46	245	Fuel wood and wood charcoal	-0.90	0.07	0.52	0.38	-0.44	0.86	0.94	0.93	D	A	A	A	-0.98	-0.71	-0.74	-0.25	-0.89	1.00	0.68	0.73	D	C	C	C
47	246	Pulpwood (including chips and wood waste)	-0.70	0.15	0.34	-0.13	-0.29	0.86	0.91	0.49	D	A	A	C	-1.00	-1.00	-1.00	-1.00	0.00	-1.00	-1.00	-0.90	D	D	D	D
48	247	Other wood in the rough or roughly squared	-0.32	-0.55	-0.91	-0.99	-0.88	-0.73	-0.96	-1.00	D	D	D	D	-0.94	-1.00	-0.97	-0.92	-0.99	-1.00	-1.00	-0.99	D	D	D	D
49	248	Wood, simply worked and railway sleepers of wood	-0.83	-0.60	-0.69	-0.61	-0.39	-0.08	-0.40	-0.48	D	D	D	D	-0.99	-1.00	-0.99	-0.97	-0.97	-0.94	-0.87	-0.56	D	D	D	D
50	251	Pulp and waste paper	-0.97	-0.98	-0.97	-0.97	-0.98	-0.97	-0.98	-0.99	D	D	D	D	-1.00	-0.99	-0.98	-0.99	-1.00	-1.00	-0.99	-1.00	D	D	D	D
51	261	Silk	0.96	0.95	0.96	0.96	0.96	0.99	0.91	0.92	A	A	A	A	-0.11	-0.52	0.65	0.04	-0.83	-0.98	-0.69	-0.96	D	D	B	B
52	263	Cotton	0.77	0.10	-0.72	-0.61	0.85	0.80	-0.73	-0.80	A	A	D	D	-0.37	0.64	-0.13	0.46	-0.64	0.94	-0.29	-0.24	D	A	D	B
53	265	Vegetable textile fibers, excluding cotton, jute, and waste	0.74	0.47	-0.11	-0.69	0.96	0.32	-0.56	-0.92	A	A	D	D	-0.97	-0.79	-0.18	0.07	-0.98	-0.95	-0.35	0.01	D	D	D	A
54	266	Synthetic fibers suitable for spinning	-0.92	-0.87	-0.53	-0.29	-0.99	-0.98	-0.91	-0.77	D	D	D	D	0.09	-0.40	-0.23	0.10	0.08	-0.56	-0.52	0.11	A	D	D	A
55	267	Other man-made fibres suitable for spinning, and waste	-0.69	-0.90	-0.85	-0.93	-0.94	-0.89	-0.96	-0.97	D	D	D	D	-0.84	-0.56	-0.64	-0.11	-0.75	-0.45	-0.69	-0.15	D	D	D	D
56	268	Wool and other animal hair (including wool tops)	0.56	0.47	0.27	0.28	-0.33	-0.30	-0.39	-0.41	B	B	B	B	-0.60	-0.95	-0.72	-0.70	-0.85	-0.99	-0.95	-0.95	D	D	D	D
57	269	Old clothing and other old textile articles, rags	-0.47	-0.71	-0.77	-0.93	0.74	0.21	0.44	-0.15	C	C	C	D	-0.84	-0.92	-0.81	-0.13	-0.98	-0.98	-0.93	-0.77	D	D	D	D
58	271	Fertilizers, crude	-0.75	-0.21	0.25	0.27	-0.48	0.24	0.95	0.93	D	C	A	A	-1.00	-0.97	-0.93	-0.89	-1.00	-1.00	-1.00	-0.99	D	D	D	D
59	273	Stone, sand and gravel	0.11	0.16	-0.10	-0.24	0.98	0.79	0.01	-0.54	A	A	C	D	0.79	0.78	0.72	0.80	0.87	0.89	0.60	0.73	A	A	A	A
60	274	Sulfur and unroasted iron pyrites	-0.46	-0.91	-0.82	-0.84	0.58	-0.40	-0.91	-0.98	C	D	D	D	-0.99	-0.97	-0.84	-0.76	-1.00	-1.00	-0.99	-0.98	D	D	D	D
61	277	Natural abrasives, nes	0.18	-0.23	-0.30	-0.57	0.48	0.18	0.21	-0.23	A	C	C	D	0.47	0.27	0.38	0.44	0.74	0.19	0.38	0.23	A	A	A	A
62	278	Other crude minerals	0.61	0.50	0.54	0.32	0.95	0.88	0.74	0.52	A	A	A	A	0.28	-0.10	-0.02	0.14	-0.28	-0.39	-0.39	-0.15	B	D	D	B
63	281	Iron ore and concentrates	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	D	D	D	D	0.83	0.79	0.73	0.85	0.99	0.94	0.97	0.87	A	A	A	A
64	282	Waste and scraps metal or iron or steel	-0.05	-0.95	-0.95	-1.00	0.52	-0.98	-0.94	-1.00	C	D	D	D	-0.81	-0.97	-0.95	-0.94	-0.99	-0.99	-0.99	-0.99	D	D	D	D
65	287	Ores and concentrates of base metals, nes	0.16	-0.65	-0.77	-0.71	0.19	-0.72	-0.87	-0.88	A	D	D	D	0.46	0.26	-0.03	0.21	0.47	0.56	-0.30	-0.15	A	A	D	B
66	288	Non-ferrous base metal waste and scrap, nes	-0.81	-0.73	-0.84	-0.88	0.14	-0.83	-0.90	-0.96	C	D	D	D	-0.99	-0.99	-0.91	-0.21	-1.00	-1.00	-0.98	-0.67	D	D	D	D
67	289	Ores & concentrates of precious metal, waste, scrap	-0.98	0.88	-0.98	-0.89	0.46	1.00	-0.74	0.48	C	A	D	C	-1.00	-1.00	-1.00	-0.68	-1.00	-0.97	-0.82	0.08	D	D	D	C
68	291	Crude animal materials, nes	0.86	0.71	0.73	0.56	0.85	0.82	0.73	0.54	A	A	A	A	0.56	0.40	0.28	0.04	0.89	0.84	0.59	0.55	A	A	A	A
69	292	Crude vegetable materials, nes	0.27	0.11	-0.02	-0.39	0.47	0.49	0.50	0.32	A	A	C	C	0.54	0.37	0.64	0.41	0.78	0.70	0.81	0.70	A	A	A	A

Appendix: Continued.....

No.	SITC (Rev. 2)	Code Descriptions	China												India											
			RSCA				TBI				Group				RSCA				TBI				Group			
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003
70	322	Coal, lignite and peat	0.33	0.18	0.24	0.37	0.79	0.89	0.88	0.76	A	A	A	A	-0.81	-0.71	-0.57	-0.51	-0.94	-0.91	-0.92	-0.89	D	D	D	D
71	323	Briquettes, coke and semi-coke; lignite or peat; retort carbon	0.45	0.65	0.88	0.86	0.99	0.99	1.00	1.00	A	A	A	A	-0.89	-0.94	-0.98	-0.87	-0.92	-0.96	-1.00	-0.99	D	D	D	D
72	333	Crude petroleum and oils obtained from bituminous minerals	0.10	-0.31	-0.61	-0.87	0.93	0.02	-0.37	-0.85	A	C	D	D	-1.00	-1.00	-1.00	-0.99	-1.00	-1.00	-1.00	-1.00	D	D	D	D
73	334	Petroleum products, refined	-0.25	-0.56	-0.63	-0.51	0.16	-0.65	-0.54	-0.24	C	D	D	D	0.02	-0.15	-0.73	0.38	-0.51	-0.71	-0.93	0.32	B	D	D	A
74	335	Residual petroleum products, nes and related materials	0.25	0.19	0.24	-0.21	0.45	0.47	0.33	-0.40	A	A	A	D	-0.98	-0.94	-0.60	0.17	-0.98	-0.96	-0.94	-0.13	D	D	D	B
75	341	Gas, natural and manufactured	-0.99	-0.99	-0.81	-0.95	-0.46	-0.97	-0.61	-0.84	D	D	D	D	-1.00	-0.47	-0.96	-0.96	-0.72	0.15	-0.96	-0.93	D	C	D	D
76	411	Animal oils and fats	-0.99	-0.96	-0.91	0.82	-0.99	-0.97	-0.93	0.66	D	D	D	A	-0.96	-0.96	-0.92	-0.79	-0.22	-0.58	-0.58	-0.20	D	D	D	D
77	423	Fixed vegetable oil, soft, crude refined or purified	-0.70	-0.26	-0.37	-0.88	-0.69	-0.13	-0.55	-0.92	D	D	D	D	-1.00	-0.96	-0.98	-0.56	-1.00	-0.94	-1.00	-0.91	D	D	D	D
78	424	Other fixed vegetable oils, fluid or solid, crude, refined	0.00	-0.07	-0.63	-0.90	-0.61	-0.52	-0.81	-0.95	B	D	D	D	-0.38	0.50	0.44	0.13	-0.95	0.43	-0.77	-0.87	D	A	B	B
79	431	Animal and vegetable oils and fats, processed, and waxes	-0.90	-0.79	-0.64	-0.88	-0.31	-0.05	0.19	-0.73	D	D	C	D	-0.80	-0.20	0.06	0.30	-0.89	-0.61	-0.72	-0.29	D	D	B	B
80	511	Hydrocarbons, nes and derivatives	-0.80	-0.66	-0.58	-0.56	-0.84	-0.67	-0.65	-0.78	D	D	D	D	-0.70	-0.35	-0.11	0.30	-0.83	-0.80	-0.71	-0.26	D	D	D	B
81	512	Alcohols, phenols etc. and their derivatives	-0.19	-0.20	-0.37	-0.48	-0.42	-0.31	-0.52	-0.79	D	D	D	D	-0.44	-0.25	0.05	-0.04	-0.82	-0.38	-0.29	-0.47	D	D	B	D
82	513	Carboxylic acids and their derivatives	-0.09	-0.10	-0.03	-0.17	-0.45	-0.18	-0.26	-0.64	D	D	D	D	-0.61	-0.28	-0.13	0.05	-0.66	-0.43	-0.43	-0.22	D	D	D	B
83	514	Nitrogen-function compounds	-0.52	-0.43	-0.34	-0.34	-0.68	-0.14	0.02	-0.10	D	D	C	D	0.19	0.00	-0.05	-0.13	0.07	0.13	-0.06	-0.19	A	A	D	D
84	515	Organo-inorganic and heterocyclic compounds	-0.08	-0.09	-0.11	-0.34	-0.26	0.11	0.24	0.07	D	C	C	C	-0.59	-0.29	-0.22	-0.32	-0.78	-0.32	-0.12	-0.04	D	D	D	D
85	516	Other organic chemicals	-0.38	-0.22	0.07	-0.16	-0.24	0.19	0.15	-0.15	D	C	A	D	-0.33	0.19	0.70	0.78	-0.82	-0.39	0.20	0.32	D	B	A	A
86	522	Inorganic chemical elements, oxides, and halogen salts	0.29	0.32	0.37	0.24	0.38	0.66	0.57	0.38	A	A	A	A	-0.66	-0.49	-0.23	-0.15	-0.96	-0.90	-0.90	-0.81	D	D	D	D
87	523	Other inorganic chemicals; compounds of precious metals	0.35	0.33	0.44	0.37	0.00	0.49	0.58	0.53	B	A	A	A	-0.18	-0.13	-0.11	0.07	0.05	0.08	-0.26	-0.10	C	C	D	B
88	524	Radioactive and associated materials	0.05	0.06	0.24	-0.26	0.96	0.94	0.80	0.44	A	A	A	C	-0.97	-0.99	-0.96	-0.95	0.93	-0.15	-0.17	-0.10	C	D	D	D
89	531	Synthetic dye, natural indigo, lakes	0.02	0.07	0.33	0.24	0.00	0.11	0.44	0.31	A	A	A	A	0.57	0.70	0.71	0.74	0.84	0.85	0.77	0.75	A	A	A	A
90	532	Dyeing and tanning extracts; synthetic tanning materials	-0.70	-0.23	-0.53	-0.14	-0.06	-0.10	-0.58	-0.39	D	D	D	D	-0.22	-0.07	0.26	0.42	-0.77	-0.74	-0.59	-0.34	D	D	B	B
91	533	Pigments, paints, varnishes and related materials	-0.20	-0.49	-0.43	-0.56	-0.03	-0.53	-0.44	-0.57	D	D	D	D	0.01	-0.70	-0.74	-0.48	0.14	-0.42	-0.65	-0.38	A	D	D	D
92	541	Medicinal and pharmaceutical products	-0.07	-0.19	-0.33	-0.63	0.10	0.37	0.52	0.25	C	C	C	C	0.22	0.45	0.23	0.08	0.22	0.53	0.42	0.52	A	A	A	A
93	551	Essential oils, perfume and flavor materials	0.30	-0.08	-0.42	-0.73	0.63	0.64	0.37	-0.11	A	C	C	D	0.23	0.09	0.14	0.05	0.27	0.39	0.39	0.39	A	A	A	A
94	553	Perfumery, cosmetics, toilet preparation, etc	-0.47	-0.47	-0.60	-0.54	0.61	0.74	0.68	0.67	C	C	C	C	0.29	-0.09	-0.17	-0.21	0.89	0.92	0.68	0.63	A	C	C	C
95	554	Soap, cleansing and polishing preparations	-0.44	-0.51	-0.56	-0.70	-0.15	-0.29	-0.20	-0.34	D	D	D	D	-0.14	0.00	-0.55	-0.50	0.15	0.42	-0.37	-0.13	C	A	D	D
96	562	Fertilizers, manufactured	-0.83	-0.74	-0.57	-0.08	-0.98	-0.94	-0.89	-0.38	D	D	D	D	-0.99	-0.89	-0.87	-0.90	-1.00	-0.99	-0.98	-0.97	D	D	D	D
97	572	Explosives and pyrotechnic products	0.91	0.67	0.76	0.64	1.00	0.98	0.99	0.97	A	A	A	A	-0.52	-0.32	-0.20	-0.31	-0.03	0.80	0.75	0.44	D	C	C	C
98	582	Condensation, polycondensation and polyaddition products	-0.90	-0.83	-0.56	-0.48	-0.93	-0.90	-0.73	-0.71	D	D	D	D	-0.83	-0.57	-0.25	-0.05	-0.71	-0.35	-0.18	-0.08	D	D	D	D
99	583	Polymerization and copolymerization products	-0.78	-0.74	-0.64	-0.77	-0.95	-0.90	-0.86	-0.88	D	D	D	D	-0.90	-0.82	-0.71	-0.14	-0.96	-0.85	-0.73	0.06	D	D	D	C
100	584	Regenerated cellulose, derivatives or cellulose, vulcanized fibre	-0.74	-0.71	-0.74	-0.63	-0.60	-0.79	-0.80	-0.49	D	D	D	D	-0.74	-0.73	-0.62	-0.36	-0.47	-0.61	-0.71	-0.43	D	D	D	D
101	585	Other artificial resins and plastic materials	-0.18	0.49	0.46	0.44	0.62	0.72	0.76	0.74	C	A	A	A	-0.98	-0.40	-0.33	-0.41	-0.89	0.35	-0.14	-0.28	D	C	D	D
102	591	Pesticides, disinfectants	-0.40	-0.37	-0.10	-0.02	0.99	-0.16	0.27	0.69	C	D	C	C	0.14	0.12	0.50	0.56	0.37	0.57	0.68	0.55	A	A	A	A
103	592	Starches, insulin and wheat gluten, albuminoid substances; glues	-0.54	-0.61	-0.51	-0.41	-0.17	-0.63	-0.53	-0.40	D	D	D	D	-0.92	-0.79	-0.42	-0.26	-0.66	-0.20	0.09	0.13	D	D	C	C
104	598	Miscellaneous chemical products, nes	-0.35	-0.48	-0.45	-0.52	-0.14	-0.41	-0.47	-0.63	D	D	D	D	-0.84	-0.67	-0.41	-0.53	-0.85	-0.64	-0.54	-0.54	D	D	D	D

Appendix: Continued.....

No.	SITC (Rev. 2)	Code Descriptions	China												India											
			RSCA				TBI				Group				RSCA				TBI				Group			
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003
105	611	Leather	-0.48	-0.38	-0.17	0.02	-0.49	-0.84	-0.69	-0.43	D	D	D	B	0.84	0.60	0.51	0.56	0.95	0.54	0.48	0.52	A	A	A	A
106	612	Manufactures of leather or of composition leather, nes; etc	-0.44	0.43	0.39	0.35	-0.46	-0.19	0.23	0.45	D	B	A	A	0.94	0.84	0.83	0.64	0.95	0.85	0.89	0.84	A	A	A	A
107	613	Furskin, tanned or dressed; pieces of furskin, tanned or dressed	-0.62	0.56	0.37	0.40	0.04	-0.11	0.02	0.19	C	B	A	A	-0.96	-1.00	-0.99	-0.99	1.00	-1.00	-0.93	-0.94	C	D	D	D
108	621	Materials of rubber	-0.75	-0.56	-0.60	-0.63	0.01	-0.45	-0.38	-0.67	C	D	D	D	-0.69	-0.37	-0.57	-0.32	-0.47	-0.09	-0.30	0.03	D	D	D	C
109	625	Rubber tires, tire cases, inner and flaps, for wheels or all kinds	-0.50	-0.37	-0.16	-0.03	0.47	0.60	0.90	0.88	C	C	C	C	-0.14	0.32	0.12	0.18	0.85	0.91	0.80	0.85	C	A	A	A
110	628	Articles of rubber, nes	-0.58	-0.31	-0.22	-0.30	0.25	0.14	0.17	-0.11	C	C	C	D	-0.31	-0.23	0.00	0.08	-0.28	-0.16	-0.15	0.04	D	D	B	A
111	633	Cork manufactures	-0.30	-0.57	-0.91	-0.81	0.70	-0.10	-0.62	-0.10	C	D	D	D	-0.84	-0.89	-0.96	-0.93	-0.36	-0.27	-0.45	-0.23	D	D	D	D
112	634	Veneers, plywood, "improved" wood and other wood, worked, nes	-0.92	-0.73	-0.60	-0.20	-0.98	-0.89	-0.73	0.06	D	D	D	C	-0.62	-0.31	-0.75	-0.71	0.68	0.80	-0.36	0.03	C	C	D	C
113	635	Wood manufactures, nes	0.22	0.36	0.29	0.32	0.66	0.68	0.77	0.96	A	A	A	A	-0.86	-0.84	-0.85	-0.77	-0.18	0.65	0.18	0.49	D	C	C	C
114	641	Paper and paperboard	-0.71	-0.81	-0.84	-0.72	-0.58	-0.81	-0.87	-0.64	D	D	D	D	-0.95	-0.85	-0.80	-0.65	-0.95	-0.79	-0.79	-0.57	D	D	D	D
115	642	Paper and paperboard, precut, and articles of paper or paperboard	-0.21	-0.03	-0.04	-0.18	0.18	0.07	0.32	0.51	C	C	C	C	-0.92	-0.80	-0.67	-0.45	-0.51	-0.20	-0.09	0.41	D	D	D	C
116	651	Textile yarn	0.51	0.41	0.29	0.28	0.21	-0.13	-0.14	-0.03	A	B	B	B	0.34	0.65	0.75	0.72	0.32	0.72	0.84	0.71	A	A	A	A
117	652	Cotton fabrics, woven (not including narrow or special fabrics)	0.81	0.72	0.60	0.61	-0.17	0.38	0.28	0.46	B	A	A	A	0.78	0.75	0.76	0.62	0.92	0.95	0.89	0.75	A	A	A	A
118	653	Fabrics, woven, of man-made fibres (not narrow or special fabrics)	0.53	0.36	0.45	0.54	0.15	-0.34	-0.16	0.23	A	B	B	A	-0.12	0.25	0.36	0.59	0.74	0.64	0.54	0.61	C	A	A	A
119	654	Textile fabrics, woven, other than cotton or man-made fibres	0.83	0.56	0.46	0.41	0.69	0.23	0.08	0.12	A	A	A	A	0.74	0.52	0.60	0.68	0.96	0.90	0.81	0.46	A	A	A	A
120	655	Knitted or crocheted fabrics, nes	0.54	0.52	0.41	0.45	0.41	-0.12	-0.12	0.21	A	B	B	A	-0.01	0.06	-0.33	-0.50	0.30	0.86	0.39	0.06	C	A	C	C
121	656	Tulle, lace, embroidery, ribbons, trimmings and other small wares	0.09	-0.01	0.11	0.13	-0.01	-0.45	-0.25	0.05	B	D	B	A	-0.22	0.25	0.30	0.22	0.54	0.71	0.62	0.33	C	A	A	A
122	657	Special textile fabrics and related products	-0.45	-0.24	-0.13	-0.10	-0.68	-0.68	-0.45	-0.16	D	D	D	D	-0.72	-0.38	-0.26	-0.35	-0.38	0.08	-0.17	-0.12	D	C	D	D
123	658	Made-up articles, wholly or chiefly of textile materials, nes	0.88	0.79	0.71	0.70	0.90	0.97	0.98	0.98	A	A	A	A	0.79	0.76	0.79	0.79	0.99	1.00	0.99	0.97	A	A	A	A
124	659	Floor coverings, etc.	0.57	0.53	0.29	0.20	0.91	0.90	0.92	0.89	A	A	A	A	0.84	0.86	0.83	0.80	1.00	1.00	0.98	0.95	A	A	A	A
125	661	Lime, cement and fabricated construction materials	-0.16	0.31	0.45	0.33	-0.14	0.56	0.72	0.87	D	A	A	A	-0.37	0.56	0.54	0.67	0.57	0.99	0.97	0.90	C	A	A	A
126	662	Clay and refractory construction materials	-0.43	-0.53	-0.28	0.08	0.16	-0.05	0.42	0.74	C	D	C	A	-0.85	-0.53	-0.54	-0.33	-0.66	0.20	-0.28	-0.16	D	C	D	D
127	663	Mineral manufactures, nes	-0.51	-0.25	-0.28	-0.35	0.18	0.21	0.29	0.10	C	C	C	C	-0.30	-0.62	-0.45	-0.39	-0.02	-0.43	-0.25	-0.18	D	D	D	D
128	664	Glass	-0.45	-0.28	-0.26	-0.09	-0.53	-0.20	-0.23	-0.07	D	D	D	D	-0.74	-0.72	-0.63	-0.32	-0.84	-0.56	-0.48	-0.01	D	D	D	D
129	665	Glassware	-0.36	-0.18	0.03	0.10	0.43	0.33	0.53	0.47	C	C	A	A	-0.41	-0.26	-0.39	-0.06	0.20	0.67	0.37	0.42	C	C	C	C
130	666	Pottery	0.60	0.70	0.79	0.75	0.98	0.96	1.00	1.00	A	A	A	A	-0.86	-0.88	-0.80	-0.49	0.79	0.89	0.57	0.60	C	C	C	C
131	667	Pearls, precious and semi-precious stones, unworked or worked	-0.68	-0.69	-0.59	-0.57	0.00	-0.26	0.01	-0.14	D	D	C	D	0.92	0.91	0.91	0.90	0.14	0.16	0.14	0.09	A	A	A	A
132	671	Pig and sponge iron, spiegeleisen, etc, and ferro-alloys	0.74	0.51	0.60	0.33	0.66	0.50	0.93	0.42	A	A	A	A	0.51	0.61	0.39	0.31	-0.20	0.62	0.47	0.35	B	A	A	A
133	672	Ingots and other primary forms, of iron or steel	-0.96	-0.79	-0.09	-0.55	-0.80	-0.96	-0.13	-0.81	D	D	D	D	-0.78	-0.01	-0.25	0.41	-0.93	-0.25	-0.38	0.68	D	D	D	A
134	673	Iron and steel bars, rods, shapes and sections	-0.53	-0.70	-0.64	-0.40	-0.82	-0.96	-0.68	-0.09	D	D	D	D	-0.63	0.16	-0.15	0.15	-0.62	0.59	0.19	0.51	D	A	C	A
135	674	Universals, plates, and sheets, of iron or steel	-0.64	-0.84	-0.60	-0.81	-0.91	-0.95	-0.77	-0.93	D	D	D	D	-0.82	-0.16	-0.03	0.34	-0.95	-0.19	-0.20	0.16	D	D	D	A
136	676	Rails and railway track construction materials, of iron or steel	-0.74	0.10	-0.14	-0.50	-0.84	-0.45	0.87	-0.07	D	B	C	D	-0.75	-0.31	-0.39	-0.54	-0.99	-0.59	-0.60	0.16	D	D	D	C
137	677	Iron or steel wire (excluding wire rod), not insulated	0.14	0.08	-0.26	-0.16	0.54	-0.20	-0.38	-0.27	A	B	D	D	-0.31	0.25	0.22	0.44	-0.29	0.37	0.29	0.53	D	A	A	A
138	678	Tube, pipes and fittings, of iron or steel	-0.41	-0.40	-0.13	-0.20	-0.82	-0.55	0.12	0.12	D	D	C	C	-0.35	-0.22	-0.13	0.06	-0.66	-0.42	-0.26	0.17	D	D	D	A
139	679	Iron, steel casting, forging and stamping, in the rough state, nes	-0.18	0.44	0.59	0.42	0.38	0.60	0.84	0.80	C	A	A	A	0.46	0.41	0.58	0.73	0.41	0.63	0.90	0.95	A	A	A	A

Appendix: Continued.....

No.	SITC (Rev. 2)	Code Descriptions	China												India											
			RSCA				TBI				Group				RSCA				TBI				Group			
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003
140	681	Silver, platinum and other metals of the platinum group	-0.95	-0.96	-0.81	-0.26	-0.90	-0.58	-0.25	0.15	D	D	D	C	-0.91	-0.94	-0.92	-0.92	-0.24	-0.76	-0.99	-0.98	D	D	D	D
141	682	Copper	-0.21	-0.95	-0.32	-0.43	-0.19	-0.98	-0.57	-0.75	D	D	D	D	-0.95	-0.86	-0.79	0.22	-0.98	-0.93	-0.82	0.31	D	D	D	A
142	683	Nickel	-0.47	-0.94	-0.35	-0.67	-0.59	-0.89	0.06	-0.78	D	D	C	D	-1.00	-0.97	-0.95	-0.85	-1.00	-0.99	-0.98	-0.95	D	D	D	D
143	684	Aluminum	-0.23	-0.70	-0.38	-0.16	-0.11	-0.59	-0.29	-0.05	D	D	D	D	-0.46	-0.19	-0.48	-0.22	-0.03	0.20	-0.24	0.15	D	C	D	C
144	685	Lead	-0.44	0.24	0.50	0.51	0.40	0.82	0.84	0.71	C	A	A	A	-0.94	-0.87	-0.92	-0.62	-0.98	-0.92	-0.98	-0.93	D	D	D	D
145	686	Zinc	-0.58	0.35	0.46	0.19	-0.67	0.49	0.51	0.05	D	A	A	A	-0.98	-0.81	-0.70	-0.29	-1.00	-0.83	-0.86	-0.64	D	D	D	D
146	687	Tin	0.60	0.75	0.74	0.42	0.95	0.84	0.70	0.20	A	A	A	A	-0.95	-0.81	-0.43	-0.16	-0.98	-0.90	-0.63	-0.42	D	D	D	D
147	689	Miscellaneous non-ferrous base metals, employed in metallurgy	0.77	0.46	0.55	0.61	0.73	0.77	0.81	0.70	A	A	A	A	0.02	-0.95	-0.72	-0.93	-0.29	-0.97	-0.77	-0.94	B	D	D	D
148	691	Structures and parts, nes, of iron, steel or aluminium	-0.61	-0.21	0.09	0.13	-0.67	-0.04	0.23	0.69	D	D	A	A	-0.50	0.02	0.05	-0.12	0.24	0.42	0.72	0.55	C	A	A	C
149	692	Metal containers for storage or transport	-0.87	-0.42	-0.31	-0.26	-0.90	-0.49	0.31	0.50	D	D	C	C	-0.42	-0.28	-0.63	-0.31	-0.19	0.41	-0.44	0.04	D	C	D	C
150	693	Wire products (excluding insulated electrical wire); fencing grills	-0.07	0.17	0.22	0.14	-0.36	0.24	0.67	0.36	D	A	A	A	0.06	-0.05	0.30	0.13	0.56	0.48	0.68	0.49	A	C	A	A
151	694	Nails, screws, nuts, bolts, rivets, etc, of iron, steel or copper	0.32	0.19	0.14	0.14	0.92	0.42	0.32	0.14	A	A	A	A	0.01	0.04	-0.10	0.04	0.38	0.56	0.02	0.15	A	A	C	A
152	695	Tools for use in the hand or in machines	0.29	0.25	0.22	0.11	0.68	0.68	0.62	0.36	A	A	A	A	0.08	0.10	0.00	0.08	0.23	0.29	-0.05	0.28	A	A	D	A
153	696	Cutlery	0.36	0.56	0.62	0.68	0.88	0.88	0.88	0.85	A	A	A	A	0.04	0.02	0.09	-0.02	0.88	0.89	0.83	0.68	A	A	A	C
154	697	Household equipment of base metal, nes	0.04	0.40	0.58	0.64	0.53	0.71	0.92	0.96	A	A	A	A	0.07	0.27	0.43	0.78	0.98	0.99	0.95	0.97	A	A	A	A
155	699	Manufactures of base metal, nes	-0.13	0.13	0.15	0.14	0.27	0.18	0.40	0.44	C	A	A	A	-0.16	-0.05	-0.08	-0.10	0.09	0.34	0.22	0.13	C	C	C	C
156	711	Steam boilers and auxiliary plant; and parts thereof, nes	-0.70	-0.41	-0.13	-0.23	-0.95	-0.85	-0.82	-0.44	D	D	D	D	0.08	-0.39	-0.29	0.17	-0.14	-0.33	-0.26	0.77	B	D	D	A
157	712	Steam engines, turbines	-0.99	-0.94	-0.56	-0.61	-1.00	-0.95	-0.87	-0.70	D	D	D	D	-0.99	-0.41	0.14	-0.52	-1.00	-0.46	-0.43	-0.79	D	D	B	D
158	713	Internal combust piston engines, and parts thereof, nes	-0.88	-0.81	-0.80	-0.73	-0.58	-0.76	-0.44	-0.55	D	D	D	D	-0.40	-0.38	-0.53	-0.49	0.03	0.16	-0.12	-0.07	C	C	D	D
159	714	Engines and motors, non-electric; parts, nes; group 714, item 71888	-0.96	-0.92	-0.94	-0.91	-0.84	-0.58	-0.75	-0.53	D	D	D	D	-1.00	-0.80	-0.99	-0.94	-0.99	-0.76	-0.94	-0.85	D	D	D	D
160	716	Rotating electric plant and parts thereof, nes	-0.19	0.22	0.24	0.18	-0.60	-0.24	0.00	0.03	D	B	A	A	-0.77	-0.67	-0.58	-0.39	-0.88	-0.52	-0.52	-0.36	D	D	D	D
161	718	Other power generating machinery and parts thereof, nes	-0.90	-0.80	-0.66	-0.61	-0.73	-0.65	-0.74	-0.84	D	D	D	D	-0.81	-0.58	-0.64	-0.31	-0.75	-0.36	-0.67	-0.15	D	D	D	D
162	721	Agricultural machinery (excluding tractors) and parts thereof, nes	-0.80	-0.78	-0.80	-0.49	-0.74	-0.66	-0.37	0.21	D	D	D	C	-0.56	-0.79	-0.64	-0.67	0.18	-0.50	0.02	0.08	C	D	C	C
163	722	Tractors (other than those falling in heading 74411 and 7832)	-0.89	-0.52	-0.76	-0.77	-0.12	-0.26	0.67	0.49	D	D	C	C	-0.87	-0.73	-0.55	-0.05	0.25	0.83	0.79	0.97	C	C	C	C
164	723	Civil engineering, contractors' plant and equipment and parts, nes	-0.86	-0.75	-0.63	-0.38	-0.88	-0.90	-0.59	-0.51	D	D	D	D	-0.75	-0.79	-0.79	-0.46	-0.89	-0.87	-0.75	-0.57	D	D	D	D
165	724	Textile and leather machinery, and parts thereof, nes	-0.51	-0.29	-0.19	-0.05	-0.87	-0.87	-0.50	-0.58	D	D	D	D	-0.20	-0.40	-0.31	-0.22	-0.50	-0.78	-0.73	-0.67	D	D	D	D
166	725	Paper and paper manufacture machinery, and parts thereof, nes	-0.92	-0.75	-0.85	-0.66	-0.90	-0.89	-0.96	-0.82	D	D	D	D	-0.72	-0.74	-0.72	-0.58	-0.41	-0.36	-0.53	-0.46	D	D	D	D
167	726	Printing and bookbinding machinery and parts thereof, nes	-0.91	-0.87	-0.90	-0.74	-0.87	-0.95	-0.88	-0.83	D	D	D	D	-0.50	-0.74	-0.61	-0.34	-0.57	-0.66	-0.53	-0.26	D	D	D	D
168	727	Food-processing machines (non-domestic) and parts thereof, nes	-0.59	-0.69	-0.39	-0.64	-0.88	-0.92	-0.32	-0.50	D	D	D	D	0.04	-0.36	0.00	-0.32	0.17	0.48	0.37	0.04	A	C	C	C
169	728	Other machinery, equipment, for specialized industries; part nes	-0.04	-0.59	-0.71	-0.56	-0.71	-0.92	-0.86	-0.78	D	D	D	D	-0.65	-0.69	-0.57	-0.47	-0.65	-0.67	-0.59	-0.47	D	D	D	D
170	736	Metalworking machine-tools, parts and accessories thereof, nes	-0.33	-0.33	-0.54	-0.52	-0.58	-0.79	-0.71	-0.75	D	D	D	D	-0.18	-0.52	-0.48	-0.41	-0.44	-0.52	-0.67	-0.54	D	D	D	D
171	737	Metalworking machinery (other than machine-tools), and parts, nes	-0.78	-0.58	-0.47	-0.42	-0.97	-0.81	-0.68	-0.72	D	D	D	D	-0.81	-0.62	-0.47	0.08	-0.83	-0.66	-0.75	-0.15	D	D	D	B
172	741	Heating and cooling equipment and part thereof, nes	-0.79	-0.81	-0.45	0.09	-0.90	-0.90	-0.41	-0.02	D	D	D	B	-0.78	-0.75	-0.73	-0.45	-0.78	-0.54	-0.71	-0.33	D	D	D	D
173	742	Pumps for liquids; liquid elevators; and parts of thereof, nes	-0.85	-0.68	-0.60	-0.42	-0.75	-0.50	-0.35	-0.29	D	D	D	D	-0.53	-0.43	-0.29	-0.30	-0.61	-0.24	-0.35	-0.18	D	D	D	D
174	743	Pumps, compressors, centrifuges; filtering apparatus; etc, parts	-0.88	-0.69	-0.68	-0.49	-0.93	-0.70	-0.63	-0.49	D	D	D	D	-0.47	-0.72	-0.60	-0.55	-0.53	-0.60	-0.56	-0.46	D	D	D	D

Appendix: Continued.....

No.	SITC (Rev. 2)	Code Descriptions	China												India											
			RSCA				TBI				Group				RSCA				TBI				Group			
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003
175	744	Mechanical handling equipment, and parts thereof, nes	-0.65	-0.41	-0.40	-0.31	-0.63	-0.53	-0.35	-0.14	D	D	D	D	-0.81	-0.78	-0.78	-0.77	-0.81	-0.57	-0.60	-0.54	D	D	D	D
176	745	Other non-electric machinery, tools and mechanical apparatus, nes	-0.89	-0.80	-0.65	-0.25	-0.90	-0.84	-0.53	-0.14	D	D	D	D	-0.68	-0.72	-0.62	-0.61	-0.43	-0.48	-0.44	-0.33	D	D	D	D
177	749	Non-electric parts & accessories of machinery, nes	-0.51	-0.43	-0.29	-0.07	-0.37	-0.47	-0.14	-0.06	D	D	D	D	-0.83	-0.73	-0.46	-0.32	-0.92	-0.76	-0.63	-0.38	D	D	D	D
178	751	Office machines	-0.17	0.02	0.46	0.60	-0.07	0.54	0.83	0.79	D	A	A	A	-0.55	-0.92	-0.76	-0.75	0.61	-0.15	-0.46	-0.60	C	D	D	D
179	752	Automatic data process machines and units thereof	-0.93	-0.95	0.13	0.58	-0.85	-0.85	0.59	0.56	D	D	A	A	-0.62	-0.80	-0.94	-0.83	0.07	-0.17	-0.87	-0.72	C	D	D	D
180	759	Parts, nes of and accessories for machines of heading 751 or 752	-0.90	-0.32	-0.04	0.36	-0.65	-0.02	-0.06	0.21	D	D	D	A	-0.78	-0.75	-0.89	-0.71	-0.71	-0.35	-0.76	-0.57	D	D	D	D
181	761	Television receivers	0.27	0.28	-0.09	0.23	0.04	0.62	0.68	0.95	A	A	C	A	-0.78	-0.71	-0.75	-0.60	0.93	0.86	0.07	0.09	C	C	C	C
182	762	Radio-broadcast receivers	0.66	0.60	0.68	0.59	0.22	0.90	0.98	0.96	A	A	A	A	-0.97	-0.98	-0.99	-0.97	0.10	0.29	-0.59	-0.86	C	C	D	D
183	763	Gramophones, dictating machines and other sound recorder	-0.84	-0.09	0.36	0.67	-0.17	0.08	0.96	0.86	D	C	A	A	-0.85	-0.97	-0.73	-0.97	0.28	-0.19	0.20	-0.85	C	D	C	D
184	764	Telecommunications equipment, nes; parts and accessories, nes	-0.53	-0.06	0.11	0.37	-0.72	-0.47	-0.10	0.20	D	D	B	A	-0.93	-0.89	-0.88	-0.86	-0.95	-0.72	-0.76	-0.91	D	D	D	D
185	771	Electric power machinery, and parts thereof, nes	-0.58	0.32	0.45	0.47	-0.59	0.20	0.34	0.21	D	A	A	A	-0.81	-0.59	-0.39	-0.29	-0.79	-0.13	0.00	-0.09	D	D	D	D
186	772	Electrical apparatus for making and breaking electrical circuits	-0.72	-0.19	-0.07	-0.06	-0.56	-0.21	-0.15	-0.33	D	D	D	D	-0.76	-0.63	-0.70	-0.57	-0.76	-0.37	-0.50	-0.33	D	D	D	D
187	773	Equipment for distribution of electricity	-0.53	-0.27	-0.04	0.05	-0.41	-0.33	0.06	0.16	D	D	C	A	-0.11	-0.65	-0.46	-0.37	0.13	-0.26	-0.10	-0.02	C	D	D	D
188	774	Electro-medical and radiological equipment	-0.96	-0.92	-0.82	-0.61	-0.97	-0.92	-0.74	-0.61	D	D	D	D	-0.41	-0.82	-0.61	0.06	-0.57	-0.80	-0.71	-0.10	D	D	D	B
189	775	Household type equipment, nes	-0.39	0.34	0.44	0.54	-0.01	0.67	0.87	0.85	D	A	A	A	-0.89	-0.83	-0.77	-0.67	0.17	0.36	-0.12	0.02	C	C	D	C
190	776	Thermionic, microcircuits, transistors, valves, etc	-0.92	-0.74	-0.48	-0.27	-0.93	-0.71	-0.55	-0.67	D	D	D	D	-0.74	-0.92	-0.93	-0.87	-0.77	-0.79	-0.78	-0.65	D	D	D	D
191	778	Electrical machinery and apparatus, nes	-0.49	-0.07	0.12	0.23	-0.27	-0.03	0.13	0.05	D	D	A	A	-0.33	-0.63	-0.52	-0.48	-0.32	-0.39	-0.31	-0.24	D	D	D	D
192	781	Passenger motor vehicles (excluding buses)	-1.00	-0.97	-1.00	-0.99	-1.00	-0.94	-0.91	-0.95	D	D	D	D	-0.96	-0.86	-0.86	-0.72	0.43	0.79	0.68	0.78	C	C	C	C
193	782	Lorries and special purposes motor vehicles	-0.92	-0.88	-0.90	-0.90	-0.89	-0.90	-0.46	-0.47	D	D	D	D	-0.81	-0.80	-0.77	-0.82	0.73	0.40	0.76	0.44	C	C	C	C
194	783	Road motor vehicles, nes	-0.99	-0.91	-0.92	-0.93	-0.99	-0.90	-0.64	-0.49	D	D	D	D	-0.28	-0.45	-0.35	-0.34	0.95	0.99	0.95	0.99	C	C	C	C
195	784	Motor vehicle parts and accessories, nes	0.23	-0.86	-0.80	-0.64	-0.11	-0.70	-0.28	-0.44	B	D	D	D	-0.63	-0.51	-0.58	-0.48	-0.32	0.00	-0.05	0.11	D	C	D	C
196	785	Cycle, scooters, motorized or not; invalid carriages	-0.03	0.27	0.38	0.52	0.13	0.04	0.75	0.92	C	A	A	A	0.43	0.45	0.34	0.28	0.14	0.87	0.83	0.92	A	A	A	A
197	786	Trailers, and other vehicles, not motorized, nes	-0.43	0.37	0.69	0.74	0.69	0.42	0.98	0.98	C	A	A	A	-0.18	-0.34	-0.80	-0.83	0.92	0.81	0.45	-0.10	C	C	C	D
198	791	Railway vehicles and associated equipment	-0.48	-0.60	-0.18	-0.62	-0.93	-0.39	0.04	-0.42	D	D	C	D	-0.50	-0.57	-0.85	-0.77	-0.86	-0.52	-0.90	-0.77	D	D	D	D
199	792	Aircraft and associated equipment; and part thereof, nes	-0.97	-0.82	-0.81	-0.89	-0.95	-0.85	-0.76	-0.82	D	D	D	D	-0.92	-0.97	-0.97	-0.85	-0.86	-0.99	-0.88	-0.87	D	D	D	D
200	793	Ships, boats and floating structures	0.03	-0.53	0.14	-0.02	-0.19	-0.55	0.82	0.58	B	D	A	C	-1.00	-0.99	-0.65	-0.61	-1.00	-0.97	-0.60	-0.85	D	D	D	D
201	812	Sanitary, plumbing, heating, lighting fixtures and fitting, nes	-0.19	0.35	0.41	0.52	0.06	0.59	0.85	0.85	C	A	A	A	-0.60	-0.65	-0.73	-0.73	-0.06	0.69	0.35	-0.22	D	C	C	D
202	821	Furniture and parts thereof	-0.26	0.12	0.22	0.34	0.59	0.84	0.93	0.88	C	A	A	A	-0.93	-0.91	-0.89	-0.67	0.47	0.62	0.19	0.28	C	C	C	C
203	831	Travel goods, handbags etc, of leather, plastics, textile, others	0.54	0.76	0.78	0.73	0.95	0.94	0.99	0.98	A	A	A	A	0.47	0.50	0.58	0.49	1.00	1.00	1.00	0.96	A	A	A	A
204	842	Men's and boys' outerwear, textile fabrics not knitted or crocheted	0.60	0.77	0.71	0.64	1.00	0.98	0.97	0.97	A	A	A	A	-0.03	-0.14	0.14	0.17	1.00	1.00	0.98	0.97	C	C	A	A
205	843	Womens, girls, infants outerwear, textile, not knitted or crocheted	0.56	0.74	0.65	0.62	0.99	0.98	0.96	0.95	A	A	A	A	0.72	0.67	0.76	0.60	1.00	1.00	1.00	1.00	A	A	A	A
206	844	Under garments of textile fabrics, not knitted or crocheted	0.73	0.76	0.65	0.56	1.00	0.98	0.93	0.92	A	A	A	A	0.82	0.77	0.81	0.75	1.00	1.00	1.00	0.98	A	A	A	A
207	845	Outerwear knitted or crocheted, not elastic nor rubberized	0.74	0.65	0.70	0.67	0.99	0.93	0.93	0.94	A	A	A	A	0.35	0.30	0.24	0.30	1.00	1.00	0.99	0.99	A	A	A	A
208	846	Under-garments, knitted or crocheted	0.59	0.63	0.66	0.48	1.00	0.99	0.99	0.96	A	A	A	A	0.49	0.59	0.63	0.68	1.00	1.00	1.00	0.99	A	A	A	A
209	847	Clothing accessories, or textile fabrics, nes	0.80	0.69	0.72	0.62	0.98	0.38	0.52	0.81	A	A	A	A	0.66	0.62	0.50	0.53	1.00	0.99	0.97	0.96	A	A	A	A

Appendix: Continued.....

No.	SITC (Rev. 2)	Code Descriptions	China												India												
			RSCA				TBI				Group				RSCA				TBI				Group				
			1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	1988	1993	1998	2003	
210	848	Articles or apparel, clothing accessories, non-textile, headgear	0.59	0.78	0.80	0.80	0.98	0.93	0.96	0.97	A	A	A	A	0.47	0.70	0.70	0.53	0.96	0.99	0.98	0.97	A	A	A	A	
211	851	Footwear	0.37	0.75	0.75	0.70	1.00	0.99	1.00	0.99	A	A	A	A	-0.02	0.15	0.14	0.15	1.00	1.00	0.97	0.95	C	A	A	A	
212	871	Optical instruments and apparatus	-0.62	-0.03	0.14	0.36	-0.51	0.32	0.35	-0.58	D	C	A	B	-0.95	-0.96	-0.88	-0.95	-0.95	-0.90	-0.59	-0.74	D	D	D	D	
213	872	Medical instruments and appliances, nes	-0.85	-0.58	-0.89	-0.47	-0.64	-0.21	-0.58	0.07	D	D	D	C	-0.74	-0.68	-0.63	-0.56	-0.70	-0.53	-0.66	-0.50	D	D	D	D	
214	873	Meters and counters, nes	-0.69	-0.37	0.79	0.00	0.17	-0.03	0.93	0.42	C	D	A	A	-0.98	-0.97	-0.74	-0.63	-0.91	-0.89	-0.52	-0.22	D	D	D	D	
215	874	Measuring, checking, analysis, controlling instruments, nes, parts	-0.80	-0.64	-0.30	-0.51	-0.84	-0.69	-0.24	-0.58	D	D	D	D	-0.79	-0.84	-0.78	-0.74	-0.87	-0.85	-0.83	-0.76	D	D	D	D	
216	881	Photographic apparatus and equipment, nes	-0.65	0.30	-0.55	0.05	-0.40	0.10	-0.62	0.00	D	A	D	A	-0.59	-0.93	-0.94	-0.83	-0.25	-0.65	-0.84	-0.66	D	D	D	D	
217	882	Photographic and cinematographic supplies	-0.78	-0.76	-0.63	-0.22	-0.68	-0.31	-0.23	0.01	D	D	D	C	-0.67	-0.93	-0.71	-0.89	-0.77	-0.94	-0.80	-0.93	D	D	D	D	
218	883	Cinematograph film, exposed and developed	-0.41	-0.72	-0.54	-1.00	0.05	0.23	0.43	-0.85	C	C	C	D	0.66	0.51	0.82	0.50	0.66	0.85	0.93	0.70	A	A	A	A	
219	884	Optical goods, nes	-0.86	-0.04	0.30	0.39	-0.54	-0.17	0.22	-0.08	D	D	A	B	-0.77	-0.58	-0.53	-0.45	-0.13	-0.18	-0.34	-0.37	D	D	D	D	
220	885	Watches and clocks	0.52	0.55	0.49	0.22	0.05	0.19	0.38	0.34	A	A	A	A	-0.98	-0.74	-0.64	-0.41	-0.95	0.05	-0.01	0.30	D	C	D	C	
221	892	Printed matter	-0.85	-0.58	-0.66	-0.37	-0.69	-0.31	-0.20	-0.01	D	D	D	D	-0.62	-0.66	-0.76	-0.46	-0.66	-0.48	-0.59	-0.53	D	D	D	D	
222	893	Articles, nes of plastic materials	-0.41	0.24	0.35	0.22	-0.02	0.42	0.66	0.62	D	A	A	A	-0.65	-0.07	-0.45	-0.42	-0.08	0.71	0.31	0.23	D	C	C	C	
223	894	Baby carriages, toys, games and sporting goods	0.62	0.71	0.74	0.71	0.21	0.84	0.94	0.94	A	A	A	A	-0.57	-0.64	-0.62	-0.67	0.62	0.88	0.47	0.23	C	C	C	C	
224	895	Office and stationery supplies, nes	0.04	0.19	0.30	0.30	0.71	0.69	0.79	0.69	A	A	A	A	-0.57	-0.03	-0.01	0.10	-0.17	0.34	0.12	0.30	D	C	C	A	
225	896	Works of art, collectors' pieces and antiques	-0.01	-0.62	-0.68	-0.94	0.98	0.91	0.66	0.55	C	C	C	C	-0.96	-0.95	-0.93	-0.48	0.96	0.89	0.89	0.96	C	C	C	C	
226	897	Gold, silver ware, jewelry and articles of precious materials, nes	-0.13	0.28	0.40	0.02	0.59	0.73	0.92	0.86	C	A	A	A	0.40	0.52	0.74	0.81	1.00	0.97	0.93	0.91	A	A	A	A	
227	898	Musical instruments, parts and accessories thereof	-0.68	-0.09	-0.21	-0.20	-0.41	0.33	0.20	-0.09	D	C	C	D	-0.49	-0.33	0.07	0.05	0.15	0.40	-0.02	-0.29	C	C	B	B	
228	899	Other miscellaneous manufactured articles, nes	0.63	0.66	0.66	0.41	0.76	0.62	0.79	0.71	A	A	A	A	-0.52	-0.43	-0.25	-0.27	-0.44	0.08	0.20	0.19	D	C	C	C	
229	931	Special transactions, commodity not classified according to class	0.44	-0.61	-1.00	-0.87	0.75	-0.33	-0.90	-0.14	A	D	D	D	0.06	0.01	-0.08	-0.47	-0.59	-0.65	-0.55	0.11	B	B	D	C	
230	941	Animals, live, nes, (including zoo animals, pets, insects, etc)	0.18	0.40	0.06	-0.43	-0.18	0.56	-0.40	-0.14	B	A	B	D	-0.50	-1.00	-0.99	-0.98	-0.42	0.00	1.00	0.32	D	D	C	C	
231	951	Armoured fighting vehicles, war firearms, ammunition, parts, nes	-1.00	-0.77	0.10	-0.97	0.00	0.25	0.94	0.59	D	C	A	C	-0.99	-0.98	-0.99	-0.75	0.29	0.99	-0.39	0.62	C	C	D	C	
		Maximum	0.964	0.953	0.958	0.963	0.999	1.000	0.999	1.000					0.963	0.932	0.944	0.898	1.000	1.000	1.000	1.000					
		Minimum	-1.000	-1.000	-1.000	-1.000	-1.000	-0.999	-1.000					-1.000	-1.000	-1.000	-0.998	-1.000	-1.000	-0.997							
		Average	-0.251	-0.174	-0.158	-0.185	-0.025	0.021	0.094	0.067					-0.430	-0.374	-0.337	-0.216	-0.091	0.051	-0.061	0.065					
		Standard deviation	0.575	0.550	0.542	0.535	0.696	0.679	0.663	0.649					0.569	0.569	0.572	0.544	0.749	0.737	0.697	0.637					
		Coefficient of variation	-2.293	-3.159	-3.431	-2.890	-27.883	32.656	7.048	9.640					-1.322	-1.521	-1.698	-2.516	-8.264	14.435	-11.422	9.803					

Notes

¹ Please refer, for examples, to Das (2006), Aksoy and Ettori (1992), Panagariya (2006).

² The term “canalize” means “distribute”. These agencies are assigned to distribute certain items. In developing countries, such agencies are established to ensure equal distribution of important products. For example, the Indonesian government established some governmental agencies to canalize fertilizers and oil.

³ The nine excluded groups of products consist of Jute, raw or semi-processed (SITC 264); Ores and concentrates of uranium and thorium (SITC 286); Electric current (SITC 351); Hoops and strip, of iron or steel, hot-rolled or cold rolled (SITC 675); Uranium depleted in U235 and thorium (including waste) and their alloys and articles thereof (SITC 688); Postal packages not classified according to kind (SITC 911); Postal packages not classified according to kind (SITC 961); Coins (other than gold coin), not being legal tender (SITC 961); and Gold, non-monetary excluding gold ores and concentrates (SITC 971).

⁴ Hereinafter, term “products” refers to 3-digit SITC Rev. 2 in this paper.

⁵ This term is used by Wörz (2005).

⁶ It is important to note that HAC (either the White Heteroscedasticity consistent or the Newey-West HAC consistent covariance estimates does not change the point estimates of the parameters, only the estimated standard errors.

⁷ See EViews 4 User’s Guide for the detailed explanation. White (1980) formulated a heteroscedasticity consistent covariance matrix estimator that provides correct estimates of the coefficient covariance in the presence of heteroscedasticity of unknown form. The White covariance matrix is given by

$$\hat{\Sigma}_w = \frac{T}{T-k} (X'X)^{-1} \left(\sum_{t=1}^T u_t^2 x_t x_t' \right) (X'X)^{-1}$$

where T is number of observations, k is the number of regressors; and u_t is the least squares residual. The White covariance matrix assumes that the residuals of the estimated equation are serially uncorrelated. Newey and West (1987) derived a more general estimator that is consistent in the presence of both heteroscedasticity and autocorrelation of unknown form:

$$\hat{\Sigma}_{nw} = \frac{T}{T-k} (X'X)^{-1} \hat{\Omega} (X'X)^{-1}$$

where:

$$\hat{\Omega} = \frac{T}{T-k} \left\{ \sum_{t=1}^T u_t^2 x_t x_t' + \sum_{v=1}^q \left(\left(1 - \frac{v}{q+1} \right) \sum_{t=v+1}^T x_t u_t u_{t-v} x_{t-v}' + x_{t-v} u_{t-v} u_t x_t' \right) \right\}$$

q, the truncation lag, is a parameter representing the number of autocorrelations used in evaluating the dynamics of the OLS residuals u_t . Following the suggestion of Newey and West, Eviews set the q to $q = \text{floor} \left(4(T/100)^{2/9} \right)$.

⁸ Pearson correlation test on RSCA and TBI is also conducted. The result shows that there are significant and positive linear relationships between RSCA and TBI. China has RSCA-TBI Pearson correlation coefficients 0.789, 0.807, 0.785 and 0.737 for 1988, 1993, 1998 and 2003, respectively. Meanwhile, India has RSCA-TBI Pearson correlation coefficients 0.586, 0.608, 0.625 and 634 for 1988, 1993, 1998 and 2003, respectively.

⁹ See Gujarati (2000) for the detailed explanation about Wald coefficient restrictions test. Basically, the Wald test calculates the test statistic by estimating the unrestricted regression and the restricted regression- without and with imposing the coefficient restrictions specified by the null hypothesis, H_0 . The Wald statistic measures how close the unrestricted estimates come to satisfying the restriction under the null hypothesis. If the restrictions are in fact true, then the unrestricted estimates should come close to satisfying the restrictions.