China and India in World Trade: Are the Asia Giants a Threat to Malaysia?

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Abstract

With higher shares in world merchandise trade and improvements in product quality, China is better positioned than India in the near term for influencing global trade. From the Malaysian perspective, China represents a non-negligible share in Malaysia's trade. The trends in bilateral trade with both Giants however suggest that competition has intensified. Relative to India, China appears to promulgate a more influential role on Malaysia *via* higher commodity overlap in external markets, greater matched trade that is of vertical differentiation, distinct quality shifts and negative adjustment pressures. Within this broad rubric of trade-induced changes, there is no evidence of skill upgrading for Malaysia in trade expansion with both Giants. This mirrors the lack of product quality improvements and the low levels of export values of high quality varieties in matched trade. Hence trade induced changes from the Giants that have been cited to be favourable from the Malaysian perspective in previous studies, may have been grossly overstated.

Keywords: **product quality changes, high quality varieties, skill upgrading**

JEL: **F14, F16, J23, L60**

1. Introduction

The emergence of China and India in the global economy cannot be ignored, given their rapid integration into world markets. The share of both economies in global gross domestic product (GDP) more than doubled to 7 per cent and China now ranks sixth whilst India tenth in GDP terms. In trade, China is currently the third largest trading (Ng, 2006) economy in the world, surpassing Japan, while India ranks twenty-fifth. The manufacturing exports of both countries increased by approximately 15 per cent over the last decade (Lederman *et al.*, 2007), with China and India accounting for approximately 8 per cent and 1 per cent of world merchandise exports respectively (The Star, October 16, 2007). Obviously, China's impact on global trade flows is already evident whilst India's merchandise trade still lags behind that of the former (UNCTAD, 2005; Srinivasan, 2006).

Nevertheless, both economies are said to have a much larger impact on the composition of world trade than Japan and the Republic of Korea during their economic nascent. A recent survey of 340 mainly Fortune 500 global manufacturing companies indicates that manufacturing will become the main activity of interest to be offshored to India (The Star, October 16, 2007). Manufacturing outsourcing to India is poised to surpass the country's flagship in activities of information technology and business process outsourcing. It is deemed that 'Made in India' or rather 'Made by India'[2] label will be the next success story. The growing influence of China and India on world trade basically relates to their consumers integrating into an emerging global middle-class (Winters and Shahid, 2007; Shahid *et al.*, 2007), which then results in quality improvements in manufactured products (see also Hummels and Klenow, 2004) and raises demand for skilled workers (Bussolo *et al.*, 2007).

The belief therefore is that the 'China effect' and the more recent 'India effect' may have profound consequences on product competitiveness (Branstetter and Lardy, 2006) and on income distribution globally (Rowthorn, 2006). Winters and Shahid (2007) argue that both Giants are most likely to pose biggest challenges to middle-income Asian countries. In view of this, the paper examines the challenges for Malaysia, focusing on trade in manufactures. The objectives of the study are thus twofold: First, to document key features of trade between Malaysia and the Asia Giants; and second, to estimate the labour effects of bilateral trade with China and India on Malaysia. The key concerns for Malaysia are: the extent to which both Giants move up market into their 'product space' – in terms of product (composition effect) and quality (technique effect) (see Winters and Shahid, 2007); and the extent to which the both Giants can affect local skill upgrading.

2. THEORY, METHODOLOGY AND DATA

2.1 Theoretical Exposition: Trade-Induced Changes

There is renewed interest in trade between countries in products that belong to the same sector, known as two-way matched trade or intra-industry trade (IIT). Prior to the 1990s, product differentiation centered on different varieties of a specific product that are of similar quality, horizontal intra-industry trade (HIIT). The distinction between HIIT and vertical intra-industry trade (VIIT, quality[3] based varieties) has now become critical given that the latter has grown in importance. VIIT is basically driven by differences in skill content since high quality goods require higher content of skilled labour relative to low quality goods (Widell, 2005). In fact, quality improvements in exports have been identified as a key influence on the performance of rapidly growing exporters, such as China and India (Hummels and Klenow, 2005).

Trade expansion, alongside product differentiation in matched trade, is critical as it presents different implications for factor markets. The most accessible framework for a discussion of adjustment issues in the labour market is the specific factors model, expounded concisely by Neary (1985). It is hypothesized that industries with high levels of IIT undergo less structural change in response to trade than industries with low levels of IIT. The former involves a reallocation within industries while the latter implies a reallocation between industries. It is often argued that the adjustment costs are lower when new trade is of the IIT type because disruption is minimized when adjustment is internal to an industry. It is easier to transfer and adapt resources within firms or industries than to switch them from one industry to another. This proposition has become known in the literature as the "smooth adjustment hypothesis (SAH)." Brulhart (1999) is the first to establish the SAH hypothesis that is firmly rooted in the neo-classical thinking. The SAH simply implies that if offsetting contemporaneous import and export shocks (expanding and contracting activities) occur within a sector, adjustment costs will be lower or smoother than if those shocks affect separate industries. In the context of the specific factors model, the SAH implicitly either assumes that the mobility of labour is greater within than between industries. According to Brulhart (1999), the

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[2] Hamm (2007) asserts that the 'Made by India' label will be more appropriate given that it will be made by indigenous Indian companies (see also Srinivasan, 2006), unlike the case of China.

[3] Product quality was first emphasized in international trade by Linder (1961) (cited from Hallak, 2006; Bernard *et al.*, 2007).

plausibility of labour mobility being higher within than between industries is more conceivable if skills requirements (factor mixes) similar within industries with IIT. Therefore trade shocks will result in an easier transferability of labour from contracting firms expanding firms within an industry since the labour can be redeployed with minimal training to the latter. Several qualifications been made by Greenaway and Hine (1991) to justify smoother adjustment of IIT. First since much of the IIT is in parts and compo (rather than in final goods), traded components are produced presumably in the same industry and rely upon similar skills to smoother adjustment. Second, the issue of retraining is not the sole issue to ensure transferability since there is also geograp mobility. With the latter, they argue that expanding and contracting activities are more likely to be based in a given area in a setting IIT than inter-industry trade.

The nature of IIT further complicates the conceptualizing of adjustment costs since varieties of vertically differentiated prod have inherently different factor intensities which link to the relative factor endowments of the trading countries. Within the conte the SAH, labour might be relatively less mobile within VIIT than HIIT industries. Greenaway and Hine (1991) posit that factor may alter in the process of specialization, particularly for VIIT. This results in complete retraining before transferability Following this logic, VIIT implies more severe adjustments since the transferability of labour from the contracting sector to expanding sector may not be with comparative ease.

Given the expansion of product differentiation and quality improvements in international trade, recent contributions link IIT the demand for labour, particularly high skilled [Manasse and Turrini (1999), Duranton (1999), Grossman (1999) and Beaulieu (2004)]. The reasons for the links between IIT and skills are as follows: Assuming skilled labour determines the quality of produced and that the opportunities for greater trade rests with industries that are basically producing high quality products, the dem for high skilled labour would increase much faster. Second, to employ advanced technology to produce high quality goods, the high skilled labour will have to increase. Third, the very fact that specialization in a smaller variety of products leads to higher scal operation in production of each variety, which links to skill intensity. In this context, trade can be perceived as a cause for adjus pressures (Greenaway *et al.*, 1994a, 1994b; Brulhart, 1999). Adjustments occur because of the following - temporary inefficiencies markets fail to clear instantaneously in response to changes in demand; changes in trade flows between different time periods changes in factors of production.

Another dimension of understanding trade and labour markets is the trade inducing technological change, as suggested Acemoglu (1999). The developing country is assumed to rely on imported technology mainly through foreign direct investment rather than directly creating technology. Acemoglu argues that if the imported production technology is skill-biased (Robbins, trade may increase the demand for skilled labour. An additional channel of trade-labour links is the outsourcing of production act abroad, an idea mooted by Feenstra and Hanson (1995). Moving low skilled activities abroad reduce the relative demand for unsk labour at home within each industry, which produces the same effect as skill-biased technological change. Outsourcing can also technological change if the success of outsourcing depends on new inventory methods and rapid and sophisticated commu techniques. Productivity gains associated with the new techniques may result in labour reallocation within industries rather than be industries. Therefore employment may well rise and not fall, after some time lags in import competing

In summary, trade may induce competitive and efficiency effects in product markets, resulting in product differentiation. factors alluded to as "trade-induced changes," represent the indirect effects of trade. Product differentiation in turn, which repres technological progress in a country's product (Kang, 2007), is able to proxy the degree and quality of labour in a given economy. induced changes and adjustment pressures of trade on the labour market may therefore translate into changes in skills, with the magnitudes depending on conditions in the labour market.

2.2 Measuring Product Quality Changes

The data are sourced from the UN COMTRADE database that records imports and exports in quantities and values. Merch imports and exports recorded in millions USD are deflated by the US consumer price index (CPI) at 1990 constant prices. This study be based on highly disaggregated data, compiled at the 5-digit SITC (Standard International Trade Classification), Revision minimize composition problems. The total number of products considered is 2,090 manufactured products (Sectors 5-8). Product changes in matched trade are tracked over the periods 1995–2000 and 2000–2005. The bilateral trade relationships are conside five trade flows as follows: China-ROW, India-ROW, Malaysia-ROW, Malaysia-China and Malaysia-India.

The method adopted is that which has been recently proposed by Azhar and Elliott (2007). It involves a two-stage approa stage one, the S index[4] (Azhar and Elliott, 2003) is used to measure dynamic IIT. This index, also labeled as an index of trade-in adjustment, is used to measure products that may have experienced large increases or decreases in matched trade over the perio analysis. The S index is given as:

$S = 1/2L\ (\Delta X - \Delta M) = (\Delta X - \Delta M)/\ 2[\max \{ |\Delta X|_t, |\Delta M|_t \}]$

where

L = largest change in exports (X) and imports (M) over the period studied

For the study, to infer the adjustments posed by matched trade, products with little IIT change and those that represent industry trade are removed. Therefore the S index values are taken to be $-0.4 < S < 0.4$. A S index of 0 means X and M are matched. At the extremes, X and M move in exact opposite directions either beneficial for the home country or *vice versa*, with S of +0.4 and –0.4 respectively.

In Stage 2, each product identified in Stage 1 is split into vertical and horizontal components using the product quality value (PQ index (Azhar and Elliott, 2006a; Azhar *et al.*, 2006b). The PQV index is a measure of the dispersion of product quality in IIT flows. The basis for the PQV index is the calculation of crude unit values (UV)[6] by dividing the monetary value of trade by the quantity. is given as:

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[4] The S index satisfies four criteria (see Azhar and Elliott, 2003): monotonicity (increasing function of the net change in trade); consistency (adjus costs associated with an industry expansion equals that with an industry contraction); country specificity (adjustment costs association with expan contracting industries) and matched trade changes do not involve resource reallocation costs.

[5] The PQV index exhibits proportionate scaling which is country invariant and thus less prone to distortions in product quality measurement, unlike the GHM (Greenaway, Hine and Milner, 1994) and FF (Fontagne and Freudenberg, 1997) approaches (see Azhar and Elliott, 2006a; Azhar *et al.*, 200

[6] Price is considered an indicator (albeit imperfect) of quality, that is higher quality goods command higher prices (see Widell, 2005; Azhar, Hallak, 2006). There are concerns that price (or rather UVs) may pick up other influences such as production costs, efficiency and compositional (Hallak, 2006; Silver, 2007; Fabrizio *et al.*, 2007). Nevertheless, Hummels and Klenow (2005) show that for the Giants, rising quality in existing lines account for increases of approximately 0.09 per cent in export prices for each 1 per cent increase in income levels.

$PQV = 1 + [(UVX - UVM)/(UVX + UVM)]$ where $0 < PQV < 2$

Where

UVX = unit value of export

UVM = unit value of import

From the PQV index, the extent of quality differences at the product level associated with the various bilateral trade relationships are quantified. The products are considered as HIIT or of similar quality if the X and M share at least 85 per cent[7] of their costs (reflected in the price). Thus,

$0.85 < PQV < 1.15$, HIIT

When all two-way trade is equal in quality (VIIT = 0), the PQV index is equal to unity. When imports and exports of a product share only 50 per cent of their costs, they are classified as VIIT. Products that are VIIT are further decomposed into those that are high quality (VIITH) and those that are low quality (VIITL) as follows:

$PQV > 1.15$, VIITH

$PQV < 0.85$, VIITL

2.3 Estimating Trade Effects on Skills

The empirical analysis is based on a specially constructed database, established by integrating trade, labour and industry statistics. The dataset involves consistent yearly and industry coverage of a panel of 19 major industrial groups (at the 3-digit aggregation level) spanning the period 1983 to 2004[8], to facilitate empirical enquiry. Thus the unit of observation in the data is industry. The dataset, a balanced panel of 418 observations, is informative in that it includes all manufacturing industries, excluding only the non-tradeables.

Trade data for the panel analysis is compiled for industries at the 3-digit Standard International Trade Classification (SITC level, Revision 3). The data on imports (M) and exports (X) for the period 1983 to 2004 are derived from the *Malaysia: External Trade Statistics* publications. Exports do not include re-exports. Exports are valued f.o.b. while imports c.i.f. Exports and imports are in ringgit Malaysia at current prices. Manufacturing imports and exports is deflated with the import price and export price index (1980=100) for the entire economy respectively.

Labour data (employment and wages) is drawn from industrial surveys conducted annually by the Department of Statistics (DOS) Malaysia. The study only considers full-time paid employees (measured in terms of numbers employed, and not the total man-hours worked[9] due to data unavailability), which excludes working proprietors and active business partners, unpaid family workers and part-time paid employees. Similarly only annual salaries and wages of full-time paid employees are taken into account. Salaries and wages paid refer to cash payments, including bonuses, commissions, over-time wages and cost of living allowances[10]. The employees' contribution to the social security schemes or to other provident or superannuating funds is included but the employer's contribution is excluded. Salaries and wages are deflated by the consumer price index at 1980 constant price. The wage measures used for the study are real average annual wages, calculated as the real annual full-time wages divided by the number of full-time employees. The definition of skills used for the study is solely based on occupational groupings governed by the availability of data. The study defines skills to include categories of managerial, professional, technical and supervisory workers.

Other industry measures employed comprise real output (Q), real value-added (VA), capital intensity (K) and the share of foreign direct investment in total capital investment (FDI/CI). Output and value-added are deflated by the GDP deflator at 1980 constant prices. Capital intensity is measured as fixed assets deflated by the consumer price index at 1980 constant prices and then divided by real output[11].

The study will take the labour perspective in analyzing the skill upgrading implications of trade flows with the global Asia giants. Generally, demand for labour is taken as being a derived demand – derived from the demand for the products produced by firms and hence affected by the product market conditions under which products are sold. The relative effects (factor input shares) of trade on labour demand are estimated using skill share equations derived from a standard translog cost function that has been widely used in the literature, such as studies by Machin *et al.* (1996) and Anderton *et al.* (2001). The translog function is considered appealing in that it provides a second order approximation to any cost function and it does not impose any restrictions on the substitutability of imports. The variable cost function in translog form that assumes capital to be a fixed factor of production is as follows:

$$\ln C_i = \alpha_0 + \alpha_q \ln Q_i + \tfrac{1}{2}\alpha_{QQ}\ln(Q_i)^2 + \beta_k \ln K_i + \tfrac{1}{2}\beta_{KK}\ln(K_i)^2 + \Sigma_j\gamma_j \ln W_{ij} + \tfrac{1}{2}\Sigma_j\Sigma_k\gamma_{jk}\ln W_{ij}\ln W_{ik} + \Sigma_j\delta_{Qj}\ln Q_i \ln W_{ij} +$$
$$\Sigma_j\delta_{Kj}\ln K_i \ln W_{ij} + \rho \ln Q_i \ln K_i + \lambda_T T_i + \tfrac{1}{2}\lambda_{TT}(T_i)^2 + \lambda_{QT} T_i \ln Q_i + \lambda_{KT} T_i \ln K_i + \Sigma_j \varphi_{TWj} T_i \ln W_{ij}$$

where

C_i = variable costs in industry i

Q_i = output in industry i

K_i = capital stock in industry i

W_{ij} = price of variable factor j

T_i = technology in industry i

Cost minimization of the above generates the following linear equations for the factor shares (L):

$$L_{ij} = \gamma_j + \delta_{Qj}\ln Q_i + \delta_{Kj}\ln K_i + \Sigma_k\gamma_{jk}\ln W_{ik} + \varphi_{TWj}T_i \quad (1)$$

Differencing (denoted by d) the above with respect to factor prices generates:

$$dL_{ij} = \varphi_{TWj}dT_i + \delta_{Qj}d\ln Q_i + \delta_{Kj}d\ln K_i + \Sigma_k\gamma_{jk}d\ln W_{ik} \quad (2)$$

Assuming homogeneity of degree one in prices imposes:

$$\Sigma_k\gamma_{jk} = \Sigma_j\gamma_{jk} = \Sigma_j\delta_{Kj} = \Sigma_j\delta_{Qj} = 0 \quad (3)$$

this generates

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[7] The cut-off point however does involve a certain degree of arbitrariness.

[8] The latest survey conducted at the time of study is 2004.

[9] Since part-time employees are excluded, variance in hours of work is expected to be small. (Full-time employees represent 98-99 per cent of the total number of persons engaged in the Malaysian manufacturing sector).

[10] The determination of salary and allowances are quite structured in Malaysia. The amount of bonuses paid is decided upon an annual negotiation between firm management and labour union according to the profit of the firm and performance of individual workers. Thus bonuses are included to reflect differences in wages.

[11] Capital intensity does not only capture the concentration ratio, but also other factors such as profit rate, different level of substitution between capital and labour and bargaining power. It has been argued that capital intensity may proxy for bargaining power since it is more likely for workers to be better organized in capital intensive industries for a variety of reasons.

$dL_{ij} = \varphi_{TWj}dT_i + \delta_{Qj}dlnQ_i + \delta_{Kj}dlnK_i + \gamma dln(W_j/W_k)$ (4)
with two variable factors j and k.

Machin *et al.* (1996) and Anderton *et al.* (2001) define the two variable factors of production as skilled (S) and unskilled (U). T skill share equation is thus defined in the above as the proportion of skilled employment to total employment.
Since there is no technology data available and given that technologies are mostly foreign sourced and embodied in imported cap foreign direct investment is used as an indirect measure of technology. Theoretically, skill upgrading occurs when foreign d investment causes technological spillovers that are skill-biased and when capital-skill complementarities exist. The other demand shi considered for the study are the effects of foreign competition, captured by trade flows.

The skill share equation is differenced to transform out the industry specific fixed effects. The static equations estimated in the p analyses are as follows:

$$d(S/N)_{it} = \Omega - \Sigma\varphi_0 dln(SW/USW)_{it} + \Sigma\varphi_1 dln(VA)_{it} + \Sigma\varphi_{2j}dK_{it} + \Sigma\mu_1 d(FDI/CI)_{it} + \Sigma\mu_1 dln(MROW)_{it} - \Sigma\mu_2 dln(XROW)_{it} + \varepsilon_{it} \quad (5)$$

$$d(S/N)_{it} = \Omega - \Sigma\varphi_0 dln(SW/USW)_{it} + \Sigma\varphi_1 dln(VA)_{it} + \Sigma\varphi_{2j}dK_{it} + \Sigma\mu_1 d(FDI/CI)_{it} + \Sigma\mu_1 dln(MCHINA)_{it} - \Sigma\mu_2 dln(MINDIA)_{it} - \Sigma\mu_3 dln(XCHINA)_{it} - \Sigma\mu_4 dln(XINDIA)_{it} + \varepsilon_{it} \quad (6)$$

where
i = industry
t = time
Ω = constant
(S/N) = ratio of skilled employment to total employment
(SW/USW) = ratio of skilled wages to unskilled wages
VA = real value-added
K = real capital intensity
(FDI/CI) = share of foreign direct investment in total capital investment
MROW = real imports from the ROW
MCHINA = real imports from China
MINDIA = real imports from India
XROW = real exports to the ROW
XCHINA = real exports to China
XINDIA = real exports to India
ε represents the error term that picks up random measurement errors in skill share and the effects of labour demand shocks on rel employment, which are not picked up by the included independent variables.

3. Trade PERFOMANCE and Product Evolution

3.1 Global and Bilateral Links

The expansion of trade in China grew as trade became more market determined in the 1980s with the dismantling and subseq abandonment of direct controls. Subsequently, duty exemption on imports in China was broadened beyond special economic zones the 1990s. Other policy instruments, such as tariffs, quotas and licensing requirements, had also declined significantly by the time Ch entered the World Trade Organization (WTO). The pace of reforms in India however accelerated only in the 1990s, as the reforms 1980s were basically 'pro-business' instead of 'pro-market' (Panagariya, 2004). India also joined the integration process with exemptions and free trade areas for exports in 2001. Amidst these reforms[12], merchandise trade has grown in both countries and exp shares of manufactures in China and India now constitute 93 per cent (Shahid *et al.*, 2007) and 75 per cent (Parikh, 2006) of total ex respectively. In Malaysia, merchandise exports command 95 per cent of total exports.

Table 1 clearly shows that both China and India have become increasingly integrated with the global economy, with the for taking the lead. Even with major reforms in both the Asia giants, China's export shares are much higher than India's level. Srini (2006) adds that a faster integration of China with the world is reflected in prices of Chinese goods moving closer to world p However, it is noted that exports from both the Asia giants (including Malaysia) are growing faster than world exports. Furth emphasis of both China and India are cited to be different; exports of the former comprising mainly finished goods (see also Winters Shahid, 2007; Dimaranan *et al.*, 2007) that are labour intensive (some studies indicate a shift towards low and medium tech products) exports of the latter mainly intermediate goods that are capital and skill intensive (Kochhar, *et al.*, 2006).

Table 1: Merchandise Trade, 1990-2005 (in per cent)

	Share in World Exports				Average Growth Rate
Country	1990	1995	2000	2005	1990-2005
China*	1.9	3.0	3.9	6.8	17.47
India	0.5	0.6	0.7	0.7	9.94
Malaysia	0.9	1.5	1.5	1.0	10.98
	Share in World Imports				Average Growth Rate
China*	1.7	2.6	3.4	8.0	14.49
India	0.5	0.7	0.9	1.0	10.84
Malaysia	0.9	1.5	1.3	0.9	7.89

Note: *Growth rate for China is for the period 1992-2005 since data for 1990-1991 are not available.

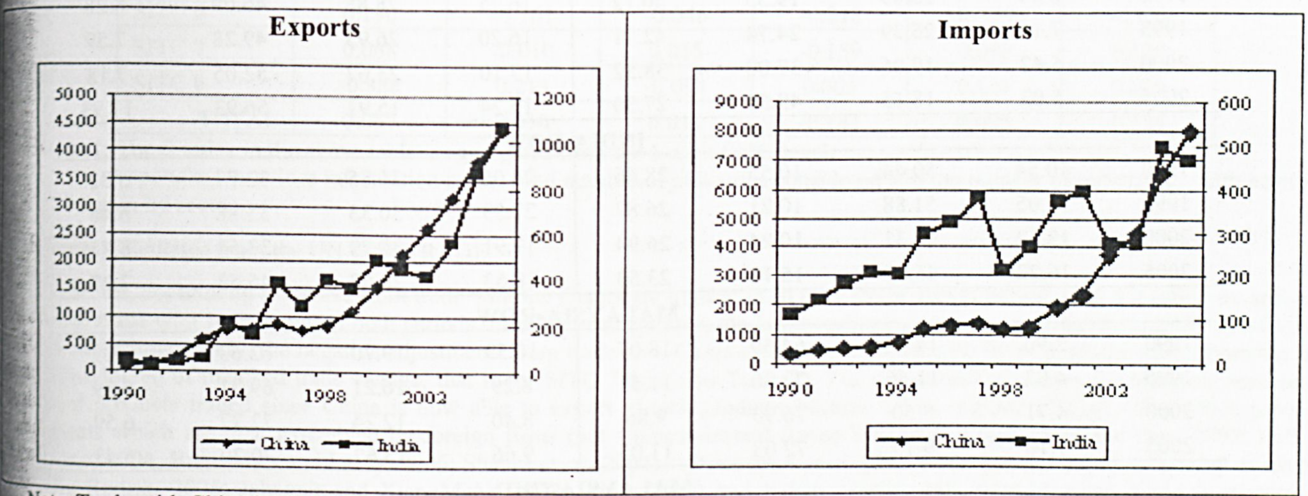
Source: 1. Calculated from the UN COMTRADE.

2. Calculated from the IFS (International Financial Statistics).

[12] For a comprehensive examination of the reforms and foreign direct investment (FDI) liberalization in China, see Branstetter and Lardy (2 Similarly, policy changes in India are dealt with extensively by Panagariya (2004) and Kochhar *et al.* (2006).

In trade relations with Malaysia, China again takes the lead (Figure 1). Exports from Malaysia to China are four times the level of that to India whilst imports from China are seventeen times that of India. Nevertheless, Malaysia-India trade ties have grown rapidly over the period of review. Malaysia's exports to India grew at an average of 40 per cent for the period 1990 and 2005, whilst export growth to China recorded an average of 33 per cent.

Figure 1: Malaysia: Bilateral Trade with China and India, 1990-2005 (in USD million)



Note: Trade with China is on the left axis and trade with India is on the right axis.

Source: Calculated from the UN COMTRADE.

The growing trade dependence between Malaysia and China is due to trade in intermediate goods (Abeysinghe and Lu, 2003; Ng, 2006; Bussolo *et al.*, 2007; Winters and Shahid, 2007), whilst India remains less integrated in production networks (UNCTAD, 2005). China is also more relevant to Malaysia as it is an important export destination and import source for merchandise goods, representing 6 per cent and 13 per cent market shares respectively. Conversely the market shares of trade with India remains below 1 per cent.

3.2 Trade Composition, Adjustment Pressures and Product Quality Changes

The following section addresses two key issues for Malaysia: Are there mounting adjustment pressures from trade? Is competition in quality intensifying? Prior to this investigation, the changes in product composition are examined to identify similarities and differences in trade flows. Table 2 captures the product shares in to total manufactures of five trade flows.

Table 2: Composition of Trade, 1990-2005 (in per cent)

	SITC 5	SITC 6	SITC 7	SITC 8	SITC 5	SITC 6	SITC 7	SITC 8
	Exports				Imports			
Year	**CHINA-ROW**							
1992	6.44	23.89	19.55	50.12	16.75	28.88	46.09	8.28
1995	7.16	25.39	24.74	42.71	16.20	26.93	49.28	7.59
2000	5.42	19.06	37.00	38.52	17.10	23.67	52.05	7.18
2005	5.03	18.15	49.52	27.30	15.24	15.91	56.93	11.93
	INDIA-ROW							
1990	10.54	50.44	10.55	28.46	24.06	36.85	32.77	6.32
1995	11.05	51.88	10.21	26.87	27.33	30.33	35.88	6.46
2000	13.52	49.31	10.24	26.94	19.91	37.79	33.54	8.75
2005	16.22	45.07	15.18	23.53	18.53	28.67	45.53	7.27
	MALAYSIA-ROW							
1990	2.96	14.38	64.59	18.07	10.59	19.70	62.63	7.09
1995	4.02	11.66	72.80	11.51	8.29	16.21	69.81	5.69
2000	4.71	8.50	76.93	9.86	8.40	12.24	72.77	6.59
2005	7.18	9.75	72.03	11.05	9.66	13.62	70.29	6.43
	MALAYSIA-CHINA							
1990	14.69	53.93	25.60	5.78	17.69	52.23	19.64	10.44
1995	7.17	60.49	29.50	2.84	10.32	44.16	34.54	10.98
2000	13.70	17.50	64.64	4.16	7.97	16.60	64.69	10.74
2005	16.07	10.38	66.92	6.63	4.83	11.32	76.51	7.34
	MALAYSIA-INDIA							
1990	15.13	66.95	15.12	2.79	11.73	37.44	36.82	14.00
1995	9.64	29.11	56.85	4.40	12.98	53.13	26.36	7.53
2000	9.07	14.30	72.38	4.25	11.87	34.20	48.14	5.79
2005	23.93	14.45	55.70	5.92	28.66	41.05	23.61	6.67

Note: 1. Data for China is not available for 1990-1992.

1. SITC 5 – chemicals and related products; SITC 6 – manufactured goods classified chiefly by material; SITC 7 – machin transport equipment and SITC 8 – miscellaneous manufactured articles.

Source: Calculated from the UN COMTRADE.

The above table indicates a dramatic shift in the export structure of China. China's fastest growing exports were labour in manufactures, apparel, footwear and toys (SITC 8) in the 1990s. Distinct shifts are observed with China emerging as an imp location for the assembly/ processing operations of consumer electronics, computers and other informational technology products 7). Jahangir and XianMing (2007) also cite changes in the trade structure of China between 1995 and 2006, identified from rising elasticities. The current composition of Chinese trade is said to have little connection with Chinese comparative advantage (Bra and Lardy, 2006: Rodrik, 2006), resulting from increasing domestic production capabilities (UNCTAD, 2005; Li and Murtaza, Conversely, India's exports are concentrated in SITC 5 and SITC 6 products, congruent with her comparative advantage in che iron, steel and textiles (Veeramani, 2004).

Clearly, there is overlap in the export structure (see also Shafaeddin, 2004 on similarities in finished capital goods such processing equipment, telecommunications equipment and some electric machinery; Schmidt, 2006) of Malaysia and China in trad the ROW. China's rapid expansion into medium technology products after the mid-1990s, mainly simple electronics and machin cited to have hurt some Asian economies (including Malaysia) in their core or third markets (Lall and Albaladejo, 2004; Shaf 2004; Ng, 2006). Greenaway *et al.* (2006) do not agree of any competition from China *via* the displacement on exports of income Asian countries. While some view China as a direct threat, others contend with a co-movement of export expansion be China and Malaysia due to the vertical integration of many products (see Wong, 2003; Greenaway *et al.*, 2006; Harrigan and 2007), driven by a distinct division of labour. The overlap is also reflected in a growing concentration of Malaysia-China trade both the export and import side) in SITC 7 products. Whilst the increasing export shares of SITC 7 products are also noted in Ma India trade, imports from India are mainly in SITC 6 products.

The global and bilateral trade overlaps between Malaysia and China, and to a lesser extent between Malaysia and India, bring fore the extent of matched trade[13] and the associated adjustment pressures from the Malaysian perspective. The S index in T captures the trade-induced adjustment implications of Malaysia's trade with the ROW and the Asia giants for two periods, 199 and 2000-2005. On aggregate, the S index suggests benign adjustment implications in the early period relative to the recent p trade with the Asia Giants. Trade with China, unlike that with India, imposes severe (contracting) adjustment pressures for the 2000-2005. At the 5-digit level, only 36 per cent of the industries with matched trade had a positive S index in trade with In opposed to 71 per cent in trade with India between 2000 and 2005 (see Appendix 1). On aggregate, both Giants impose adjustment pressures to Malaysia than the latter's trade with the ROW. Winters and Shahid (2007) agree that adjustment pres inevitable even if the Giants' success is good news for Malaysia.

[13] The matched trade for Malaysia-China and Malaysia-India based on the traditional GL index at the 3-digit SITC level is 45 per cent (2005) a cent (2004) respectively (author's own calculations from national trade statistics).

Table 3: S index for Malaysian Manufactures

Sector	Malaysia-ROW		Malaysia-China		Malaysia-India	
	1995-2000	2000-2005	1995-2000	2000-2005	1995-2000	2000-2005
SITC 5	0.190	0.057	-0.009	0.090	0.137	0.136
SITC 6	0.190	-0.161	-0.046	-0.218	0.399	-0.199
SITC 7	0.068	-0.010	0.015	-0.159	0.090	0.130
SITC 8	-0.388	0.213	-0.094	0.005	0.141	0.020
TOTAL	0.057	0.010	0.011	-0.141	0.093	0.154

Note: 1. The S index in the above table is aggregated from the 5-digit SITC level.
2. Appendix 1 provides information on the total number of industries considered and the number of industries with positive S index by sector.

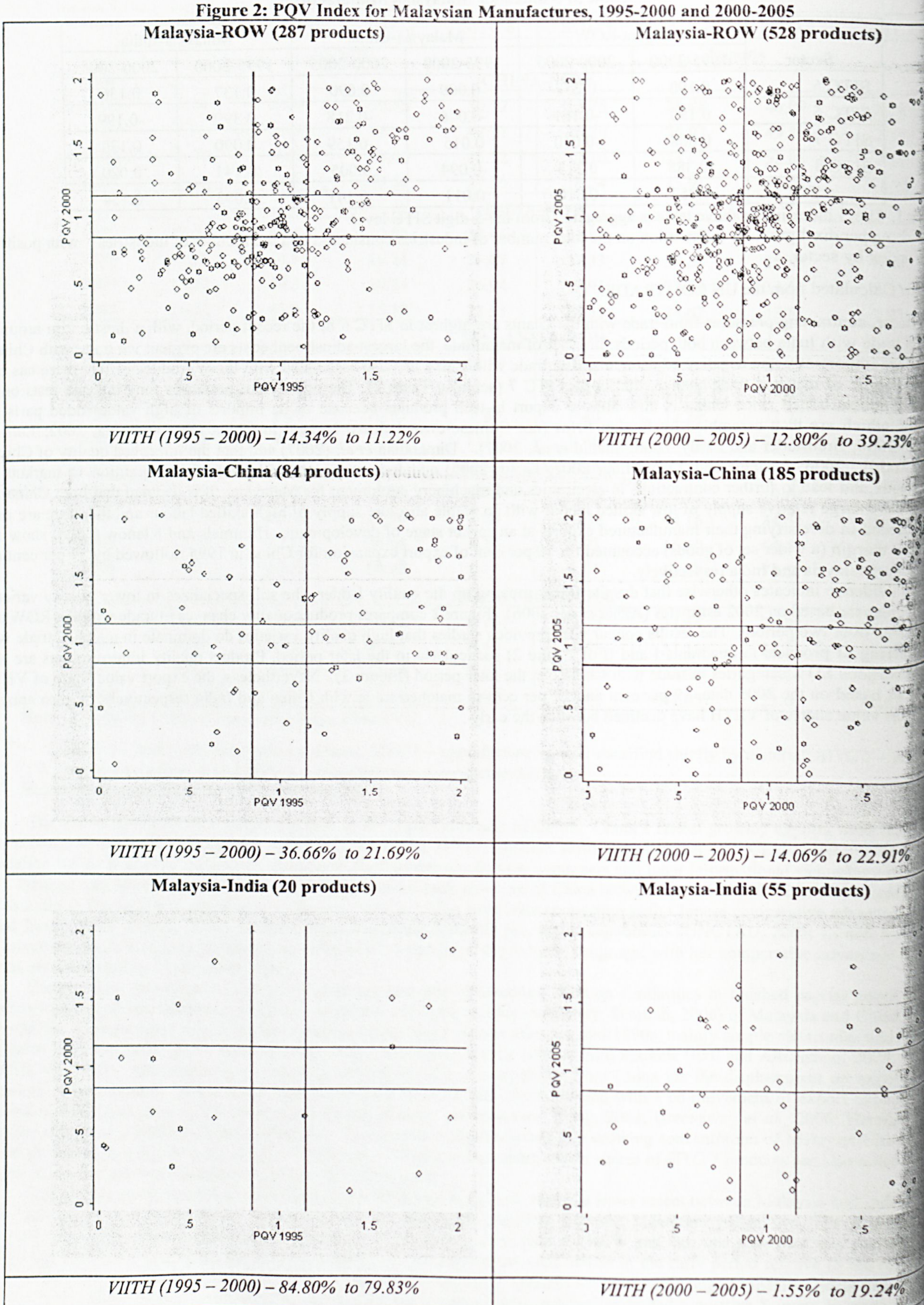
Source: Calculated from the UN COMTRADE.

By sector, contracting pressures from trade with the Giants are highest in SITC 6 in the recent period, with a drastic turn around in the case of trade with India between both periods. In order of magnitude, the largest adjustment costs are evident *via* trade with China in SITC 6. More importantly, the negative adjustments from trade with China are also associated with those products where there has been significant degree of matched trade change, that is for SITC 7 (see also Table 2). The adjustment pressures for Malaysia rests on the quality of products traded since China is now able to export hi-tech products because of its imports of high value-added parts and components which are then assembled by foreign firms (not Chinese-owned firms) located in China (Yue and Hua, 2002; Lall and Albaladejo, 2004; Branstetter and Lardy, 2006; Shahid *et al.*, 2007). Dimaranan *et al.* (2007) add that the improved quality of Chinese (see also Rodrik, 2006; Jahangir and XiangMing, 2007; Kang, 2007) and Indian exports will intensify competition in markets for different goods and lead to further contractions in electronics and machinery equipment for Malaysia. It is deemed that both China and India combine a large relative supply of low skilled labour with an ample absolute supply of high skilled labour and therefore are more likely to succeed in diversifying their manufactured exports at an earlier stage of development. Hummels and Klenow (2005) show that the extensive margin (a wider set of goods) accounted for 70 per cent of export expansion for China in 1995, followed by 54 per cent and 45 per cent for Malaysia and India respectively.

Recent evidence indicates otherwise that despite China moving up the quality ladder, she still specializes in lower quality varieties relative to Malaysia based on 2002 estimates (Azhar *et al.*, 2006). Figure 2 compares product quality changes in trade with the ROW and the Asia Giants over two periods. The results concur with previous studies that high quality varieties do dominate in matched trade with China (clustering of products in quadrants I and II of Figure 2) particularly in the later period. Product quality improvements are also noted in the various SITC categories in trade with China[14] in the later period (Figure 3). Nevertheless, the export value share of VIITH remains small based on the 2005 data, 19 per cent and 22 per cent in matched trade with China and India respectively. It also appears that the export value shares of VIITH have declined between the early

[14] Caution should be made in interpreting quality improvements in trade with India due to the small number of observations.

Figure 2: PQV Index for Malaysian Manufactures, 1995-2000 and 2000-2005



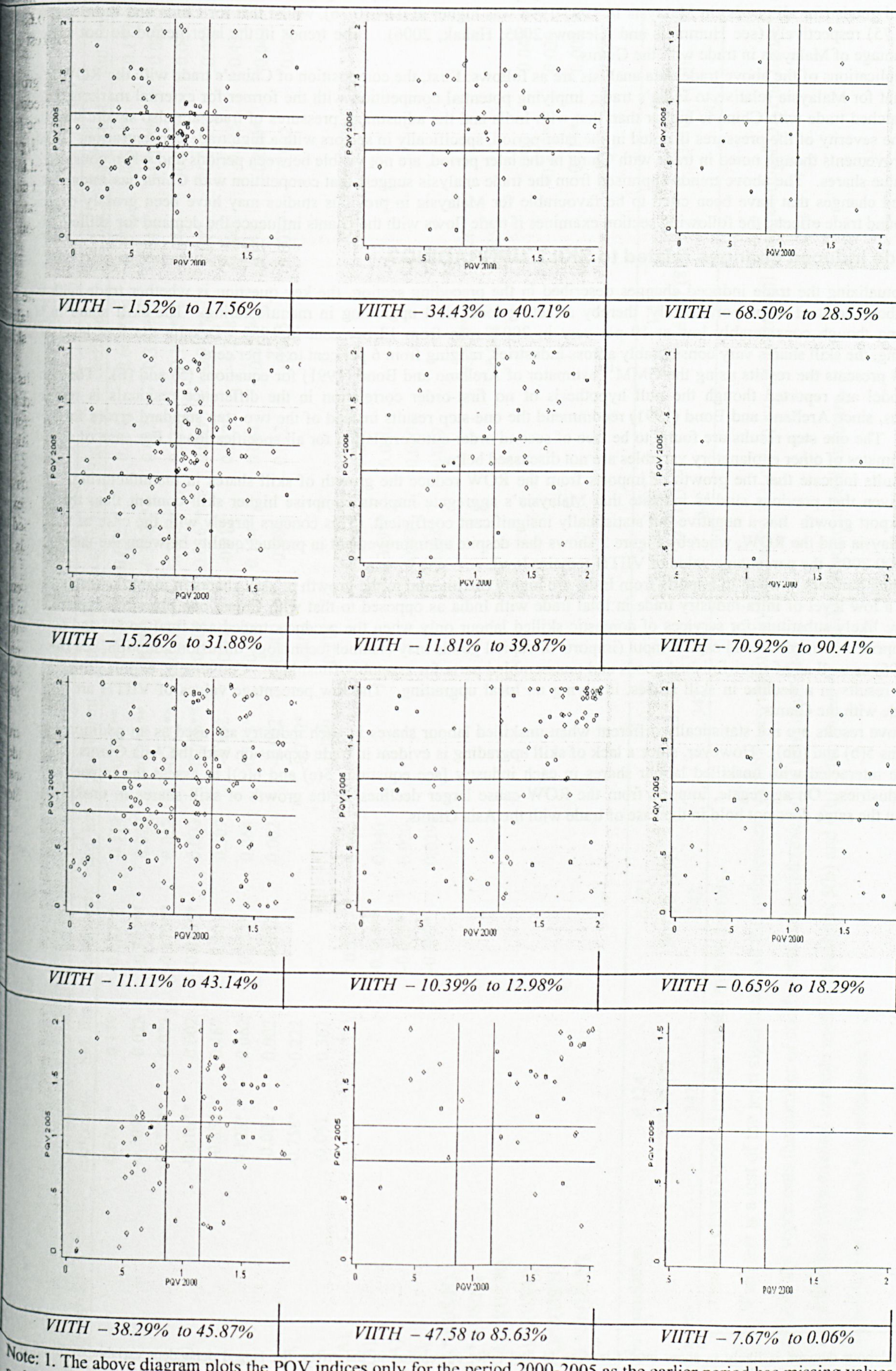
Note: 1. Data below the respective diagrams indicate the share of export value within matched trade that are VIITH for the end-period.

2. Products that fall within the t-zone represent horizontally differentiated goods (HIIT). Quadrant I represent products that have remained as VIITH, quadrant II refers to products that shifted from VIITL to VIITH, quadrant III are products that have remained as VIITL and quadrant IV represent products that have shifted from VIITH to VII

Source: Calculated from the UN COMTRADE.

Figure 3: PQV Index by Sections 5-8, 2000-2005

SITC	Malaysia-ROW	Malaysia-China	Malaysia-India



Note: 1. The above diagram plots the PQV indices only for the period 2000-2005 as the earlier period has missing values for quantity and different quantity measurements for exports and imports. 2. The explanation for the various quadrants of Figure 2 holds. 3. Data below the respective diagrams indicate the percentage value of exports within matched trade that are high quality varieties between 2000 and 2005. Source: Calculated from the UN COMTRADE

and later periods. The higher VIITH shares in the early period are not surprising given that the average export price differentiated goods (for all goods) in Malaysia in 1995-1996 was higher at 0.94 (0.76), whilst that for China and India was 0.8 and 0.82 (0.75) respectively (see Hummels and Klenow, 2005; Hallak, 2006). The trends in the later period do not suggest quality advantage of Malaysia in trade with the Giants.

The implications of the above trade data analysis are as follows: First, the composition of China's trade with the ROW is similar to that for Malaysia relative to India's trade, implying potential competition with the former for external markets. Second extent of matched trade with China is higher than that with India and the adjustment pressures of trade are also severe with the Critically, the severity of the pressures is noted in the later period, specifically in sectors with a high trade concentration. Third quality improvements though noted in trade with China in the later period, are not visible between periods and when considered of export value shares. The above trends appraised from the trade analysis suggest that competition with China has intensified trade induced changes that have been cited to be favourable for Malaysia in previous studies may have been grossly overstated further expound trade effects, the following section examines if trade flows with the Giants influence the demand for skilled labour

4. Are trade induced changes related to SKILL UPGRADING?

Conceptualizing the trade induced changes described in the preceding section, the key question is whether trade with the influence labour demand disproportionately, thereby affecting local skill upgrading in manufacturing. The skill share in Ma manufacturing though considerably low at 19 per cent in 2004, rose from 13 per cent in 1983. Despite the low level of sk manufacturing, the skill shares vary considerably across industries, ranging from 6 per cent to 64 per cent.

Table 4 presents the results using the GMM[15] estimator of Arellano and Bond (1991) for equations (5) and (6). The results one-step model are reported though the null hypothesis of no first-order correlation in the difference residuals is rejected specifications, since Arellano and Bond (1991) recommend the one-step results instead of the two-step standard errors for inference coefficients. The one step results are found to be free of second order autocorrelation for all specifications. For ease of exposition resulting estimates of other explanatory variables are not discussed below.

The results indicate that the growth of imports from the ROW reduce the growth of skill shares in manufacturing. Th surprising given that previous studies indicate that Malaysia's aggregate imports comprise higher skill content than that of Similarly, export growth has a negative but statistically insignificant coefficient. (This concurs largely with the case of matched between Malaysia and the ROW, whereby Figure 2 shows that despite an improvement in product quality between the subperiods 1995 and 2000-2005, the percentage value of VIITH remains low).

By trading partners, growth in imports from India are highly detrimental to the growth of skill shares in manufacturing. Given evidence of a low level of intra-industry trade in total trade with India as opposed to that with China, one plausible explanation imports more likely substitute for services of domestic skilled labour only when the products traded are final goods and not imports comprise intermediate and capital input (imports of capital goods may channel technology diffusion/adoption, see Hoekman Winters, 2005) as well as of semi-finished goods and unassembled parts for assembly/finishing. Conversely, export growth Asia Giants results in a decline in skill shares, implying no local upgrading. The low percentage values of VIITH are also matched trade with the Giants.

The above results are not statistically different when unskilled labour shares in each industry are used as an additional [see equations 5(b) and (6b)]. However, since a lack of skill upgrading is evident in trade expansion with the Asia Giants, the variables are interacted with unskilled labour shares in each industry [see equations 5(c) and 6(c)] to assess the impact on intensive industries. On aggregate, imports from the ROW cause larger declines in the growth of skill shares in unskilled industries but the same does not hold in the case of trade with the Asia Giants.

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15 As relative labour demand is likely to show inertia leading to first-order correlation in the errors, the lagged dependent variable is included explanatory variable. Further, the potential endogeneity of relative wages and capital intensity are addressed by using the first, second and values of an additional instrument, unskilled labour shares in each industry.

Table 4: GMM Estimates of Skill Share Equations (one step results)

Independent Variables	(5a) coefficient	(5a) Std. Err.	(6a) coefficient	(6a) Std. Err.	(5b) coefficient	(5b) Std. Err.	(6b) coefficient	(6b) Std. Err.	(5c) coefficient	(5c) Std. Err.	(6c) coefficient	(6c) Std. Err.
Cons	0.676**	0.179	0.632**	0.114	0.680**	0.179	0.632**	0.114	0.663**	0.193	0.628**	0.177
$d(S/N)_{t-1}$	-0.304**	0.023	-0.302**	0.022	-0.303**	0.023	-0.302**	0.022	-0.310**	0.043	-0.195**	0.026
$d(S/N)_{t-2}$	-0.174**	0.021	-0.170**	0.022	-0.173**	0.021	-0.170**	0.022	-0.195**	0.044	-0.146**	0.022
$d(SW/USW)_t$	-0.016**	0.002	-0.016**	0.003	-0.016**	0.002	-0.016**	0.003	-0.012**	0.002	-0.011**	0.003
$dln(VA)_t$	-0.854	0.467	-0.903	0.507	-0.862	0.471	-0.912	0.513	-0.248	0.260	-0.835	0.491
dK_t	0.128*	0.062	0.134*	0.064	0.128*	0.062	0.134*	0.064	0.073*	0.034	0.090*	0.043
$d(FDI/CI)_t$	-0.002	0.002	-0.002	0.002	-0.002	0.002	-0.001	0.002	-0.005	0.003	0.002	0.004
$dln(MROW)_t$	-0.758*	0.222			-0.770*	0.363						
$dln(XROW)_t$	-0.041	0.362			-0.060	0.216						
$dln(MCHINA)_t$			0.335	0.294			0.338	0.295				
$dln(MINDIA)_t$			-0.364**	0.040			-0.369**	0.040				
$dln(XCHINA)_t$			-0.045*	0.020			-0.043*	0.020				
$dln(XINDIA)_t$			-0.089*	0.039			-0.088*	0.039				
$dln(MROW)_t*d(US/N)_t$									-0.762**	0.126		
$dln(XROW)_t*d(US/N)_t$									-0.048	0.085		
$dln(MCHINA)_t*d(US/N)_t$											neg.	0.040
$dln(MINDIA)_t*d(US/N)_t$											-0.349**	0.039
$dln(XCHINA)_t*d(US/N)_t$											-0.015*	0.007
$dln(XINDIA)_t*dln(US/N)_t$											-0.042	0.022
2nd order serial correlation	-0.124		-0.621		-0.137		-0.627		1.232		1.61	
Wald test	695.53 (8)		907.50 (10)		723.25 (8)		929.12 (10)		1365.57 (8)		3110.13 (10)	
No. of observations	342		342		342		342		342		342	

Note: 1. The standard errors reported are the robust standard errors.

2. The Wald test is a test of the joint significance of the independent variables asymptotically distributed as a chi-square under the null of no relationship. The figure in paranthesis represents the number of coefficients estimated (excluding time dummies).

3. The additional instrumental variable used in Equations 5(b) and 6(b) is the shares of unskilled labour in each industry.

** significant at 1% and *significant at 5%.

5. Concluding Remarks

With higher shares in world merchandise trade (and in products that are fastest growing in the world economy) and improve product quality, China is undeniably better positioned than India in the near term for influencing global trade. From the Mal perspective, China too represents a non-negligible share in Malaysia's trade. Relative to India, China appears to promulgate influential role on Malaysia *via* higher commodity overlap in external markets, greater matched trade that is of vertical p differentiation, distinct quality changes and negative adjustment pressures. The evidence of no skill upgrading in trade expansi both Giants also mirrors the lack of product quality improvements and the low levels of export values of high quality varieties in trade between Malaysia and gargantuan economies.

Within this broad rubric of trade-induced changes, Malaysia will have to strengthen her position in skill intensive activities as Giants are currently far ahead in technology and the availability of human capital (Abeysinghe and Lu, 2003; Srinivasan, 2006; *al.*, 2006; Shahid *et al.*, 2007; Winters and Shahid, 2007). Improvements in quality are therefore going to accelerate and presage changes in comparative advantage. To avoid being squeezed by competing Chinese exports (and to a lesser degree Indian exports global market and to simultaneously maintain her market share in China's imports, Malaysia needs to focus on human capital to her exports as rising quality of production goes hand in hand with rising skill endowments (Fabrizio *et al.*, 2007).

Appendix 1: Number of Products with Positive S Index

	2000-2005		1995-2000	
	TOTAL*	S > 0	TOTAL*	S > 0
Malaysia-World	*(20.88 – 25.54)*		*(33.17 – 34.99)*	
SITC 5	118	56	80	43
SITC 6	185	95	176	103
SITC 7	206	95	152	96
SITC 8	146	67	125	59
TOTAL	655	313	533	301
Malaysia-China	*(20.81 – 25.95)*		*(11.00 – 41.45)*	
SITC 5	56	25	36	16
SITC 6	100	39	67	35
SITC 7	132	45	133	55
SITC 8	69	21	57	30
TOTAL	357	130	293	136
Malaysia-India	*(29.16 – 5.75)*		*(10.05 – 32.12)*	
SITC 5	32	14	26	15
SITC 6	7	2	6	6
SITC 7	83	36	77	46
SITC 8	46	24	29	20
TOTAL	168	119	138	87

Note: 1. *Total number of products that have experienced significant changes in matched trade for the period b the S index (-0.4 < S < 0.4). The S index is calculated at the 5-digit level and reported at the 1-digit level.

2. Figures in parenthesis refer to the percentage value of two-way trade in total trade for the various bi relationships based on the start and end-year for the period.

Source: Calculated from the UN COMTRADE.

Appendix 2: Product Quality (Number of Products)

	2000 - 2005						1995 – 2000					
	2000			2005			1995			2000		
	VIITL	VIITH	HIIT	VIITL	VIITH	HIIT	VIITL	VIITH	HIIT	VIITL	VIITH	HIIT
Malaysia-World												
SITC 5	63	11	37	36	34	42	22	15	17	26	6	21
SITC 6	52	36	50	44	56	37	40	30	52	40	31	32
SITC 7	81	58	41	79	81	27	37	36	22	39	37	16
SITC 8	36	46	10	25	48	18	20	28	7	16	36	5
TOTAL	232	151	138	184	219	124	119	109	98	121	110	74
Malaysia-China												
SITC 5	14	16	8	17	26	10	4	9	0	9	8	9
SITC 6	14	27	7	17	37	16	4	14	6	11	18	5
SITC 7	63	31	8	31	41	15	40	32	8	56	25	11
SITC 8	29	10	2	10	14	8	8	4	0	19	7	2
TOTAL	120	84	25	75	118	49	56	59	14	95	58	27
Malaysia-India												
SITC 5	8	5	3	17	6	6	2	3	3	7	6	5
SITC 6	2	2	1	1	5	0	1	0	0	1	1	0
SITC 7	18	16	6	25	28	10	13	6	6	16	15	4
SITC 8	6	5	0	10	13	5	2	1	1	2	8	1
TOTAL	34	28	10	53	52	21	18	10	10	26	30	10

Note: The total number of products in the above table does not match that which is indicated in Appendix 1 given that for some products, the unit values could not be calculated either due to missing data on quantity or different units of quantity measurement for exports and imports.

Source: Calculated from the UN COMTRADE.

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