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Singapore, India and Japan in the Framework of FTA/EPA Arrangement

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1. Introduction

Globalization is changing regional trading arrangements among countries. In recent years, many developing and developed countries are not only promoting multilateral agreements, but many are negotiating or have signed multiple free trade agreements. By the end of 2005, WTO reports that the number of free trade agreements (FTAs) reported by member countries could reach nearly 141 and more than 65 percent were written after 1995 (Crawford and Fiorentino 2005). The United States has preferential trade agreements with Mexico, Canada, Israel, Singapore and several Caribbean nations. The European countries have signed on to numerous free trade agreements with Asian countries. Mexico has free trade agreements with the United States, Canada, Bolivia, Costa Rica and Chile. As of 2006, Singapore had completed FTAs with the Asian Free Trade Area (AFTA), Australia, the EU Free Trade Association, Jordon, India, Japan, Korea, New Zealand, Panama and the United States, and is having ongoing discussions with Bahrain, Canada, China, Egypt, Mexico, Pakistan, Peru, Sri Lanka, Kuwait, Oatar and the United Arab Federation.

We are also observing both multilateral and bilateral agreements occurring concurrently in Asia. The key FTA in Southeast Asia is the ASEAN Free Trade Area (AFTA) that was initiated in 1992, under the Common Effective Preferential Tariff (CEPT) scheme where ASEAN (Association of South East Asian Nations) agreed to reduce tariffs to 0–5 percent over 15 years. In 2006, the ASEAN Secretariat announced that ASEAN member countries are well on their way towards AFTA with tariff elimination in ASEAN-6 and Cambodia, Lao PDR, Myanmar and Vietnam, bringing down the tariff rates to the 0–5 percent range. The emphasis now is on trade facilitation, liberalization of services and

opening of the investment regimes in ASEAN. With regional integration in Southeast Asia, ASEAN is also strengthening its links with other countries through bilateral agreements as a trading bloc. Currently, ASEAN is at different stages of negotiation of FTAs and EPAs (Economic Preferential Agreements) with China, India, Japan, Republic of Korea, Australia and New Zealand.

The growing trend of bilateral and regional agreements has led many studies to highlight that these agreements will lead to "spaghetti bowl" effects of overlapping FTAs and complicated rules of origin (Bhagwati 1993). Questions have been put forth as to whether these trading blocs are "building blocks" or "stumbling blocks" for freer global trade (Bhagwati 1991). The theory suggests that the overall impact of regionalism on economic welfare is not very certain as it could be trade diverting or trade creating (Panagariya 2000). However, recent studies have highlighted that the expansion of an existing regional agreement will lead to freer trade. Baldwin (1995) and Yi (1996) found that nonmembers have a greater incentive to join a regional agreement as it expands, thereby creating more trade. The key intuition is that as free trade grows, the cost of not joining the regional agreement also grows. Freund (2000) also shows in her theoretical model that a country is always better off forming a bilateral trade agreement with every other country, irrespective of previous agreements. However, this result greatly hinges on the assumption that signing a second bilateral agreement does not affect preferential treatment in the other member's market, and that no regional bloc member should be able to prevent another bloc member from committing to free trade with a third party. It is likely that the excluded countries will undertake protectionist policies initially, but if the FTAs reinforce the multinational agreements, the excluded countries are likely to reverse and adopt more open trade policies like their own bilateral free trade negotiations (Alejandro 2003).

This paper examines whether the growing bilateral and regional free trade agreements of Singapore will lead to free trade and growth in the region. In particular, we study the newly completed India-Singapore free trade agreement—the India-Singapore Comprehensive Economic Cooperation Agreement (CECA)—and its impact on the Japanese economy in terms of increasing trade and economic growth. Given that Singapore has already completed the Japan- Singapore New Age Economic Partnership (JSEPA) Agreement in November 2002, it will be interesting to study the impact of CECA on trade, investment and growth of the Japanese economy. There are two possible ways in which Japan could benefit from both JSEPA and CECA. As Japan has strong trade and investment linkages with Singapore, the trade-creation effects from CECA could directly increase overall trade between Singapore and Japan. The trade-creation effects could also increase export growth of Singapore and India, thereby increasing exports from Japan if there are strong trade linkages between Japan and these countries. The paper develops the revealed comparative advantage index (RCA) for Japan, India and Singapore to compare the changing comparative advantage across the countries. The RCA index is expected to indicate if exports of these countries are competing in the same product categories. If these countries have different comparative advantage, it is very likely that we will observe trade-creation effects from the FTAs competed by Singapore. The paper also uses the vector autoregressive (VAR) model to examine if trade has causal effects on the output growth of Japan and Singapore. It must be highlighted that the full impact of overlapping FTAs will only be observed after a long period of time. Thus the paper could only examine the possible trade links and channels through which the FTAs could have an impact on the growth of the affected countries.

Furthermore, it must be emphasized that the FTAs of Singapore are mostly based on liberalizing the services sector, harmonization of domestic regulations, and allowing greater flow of investments across countries. These issues are key points of agreements in the current

FTAs with India (CECA) and Japan (JSEPA), which has not been seriously examined in the theoretical and empirical literature. Although the paper examines the impact of FTAs with some empirical analysis, it must be emphasized that a more robust study, other than the GTAP models, are needed to carefully examine the full impact of FTAs on trade, investment and growth.

It is important to highlight that a multilateral agreement to reduce trade barriers is better than bilateral agreements as it has a broad-based impact on reducing trade barriers over a large number of countries. However, this is achievable if the multilateral trading system provides a strong forum to reduce trade barriers across its member countries, which is not supported by the recent failures of trade talks at WTO. In this case, bilateral agreements may be a strong conduit to sustain free trade and complement regional trading activities that could not be achieved through multilateral trading agreements. It is possible for bilateral agreements to form building blocks for the multilateral process if they are WTO-plus agreements—that is, going beyond the commitments made in the multilateral agreements of WTO. In fact, Singapore highlights that its FTAs are WTO-plus (Roy, Marchetti and Lim 2006, Thangavelu and Toh 2005).

In Section 2, we provide an overview of the Singapore economy with a brief summary of CECA and JSEPA. Section 3 summarizes the foreign investment and trade flows in India, Japan and Singapore. In Section 4, we provide the changing comparative advantage of Japan, India and Singapore. Section 5 provides a simple empirical analysis of the impact of trade and investment on Japan's economic growth. Conclusions are given in Section 6.

2. The Singapore economy: key trends and free trade agreements

Key trends

Since the Asian crisis in 1997, growth of the Singapore economy has been moderate and volatile due to such events as the Asian financial crisis, the slowdown in the U.S. and global economies, SARS and the ongoing war on terrorism. Over the period 1999–2003, Singapore's real output growth was at an average rate of 3.6 percent per annum as compared to an average of nearly 9 percent in 1991–97. The volatility in output is also reflected in the rising unemployment, as the unemployment rate had risen from 3.5 percent in 1999 to nearly 4.7 percent in 2003. However, the economy has shown some strong output growth in 2004, growing at a rate of 8.7 percent with the unemployment rate falling to 3.4 percent (Ministry of Trade and Industry 2005). It has been forecasted that the economy will grow at the average potential output level of 3–5 percent in the coming years with an average unemployment rate of 3.5 percent.

In addition to the volatility in output, the structural adjustment of the economy to higher value-added activities also contributed to the slower growth in employment. Throughout this period, the services sector has led much of the growth, both in terms of GDP and employment growth. The service industries account for nearly a total of 64 percent of Singapore's gross value added and 72 percent of employment growth over the period 1999–2002. With the emergence of low-cost competitors in the region and in China, there is strong pressure for the Singapore economy to move to higher value-added activities to sustain its competitiveness. However, the government believes that both manufacturing and services will form "twin engines" of growth, where manufacturing is expected to contribute around 20 percent of GDP (Economic Review Committee 2002).

The emergence of the services sector is also observable in other Asian countries. As shown in Table 2, the share of the services sector is rising for all selected countries. Hong

Kong and Japan tend to have the highest share with the services sector contributing to over 70 percent of GDP and Taiwan's share increased to nearly 67 percent in 2004. The importance of the services sector for GDP and its growth is also reflected in the two key countries in ASEAN, namely, Malaysia and Thailand which have a nearly 60 and 46 percent share of services sector to GDP, respectively, for the period 1999–2004. The services sector is also rising in India as its share of GDP has increased from 49 percent in 1999 to 54 percent in 2004.

Bilateral "WTO-plus" free trade agreements: the way forward

Singapore has been an avid supporter of the multilateral trading system, including the provision of most-favored-nation (MFN) treatment to all members of the WTO. Singapore's commitment to regionalization is also reflected by its membership in the Association of Southeast Asian Nations (ASEAN), the Asia-Pacific Economic Cooperation (APEC) and the Asia Europe Meetings (ASEM), which have further highlighted the fact that Singapore is an active proponent of international trade to enhance welfare. ASEAN has always been the important nexus for multilateral negotiations for APEC and WTO. However, one major and most notable change in Singapore's trade policy since the late 1990s is the decision to pursue bilateral free trade agreements with its trading partners. As of March 2004, Singapore had signed FTAs with New Zealand, Japan, the European Free Trade Areas (EFTA) States, Australia and the United States, and is currently negotiating with Canada, Chile, India, Jordan, Mexico and Korea. Under ASEAN, negotiations are also underway with China, India, Japan and Sri Lanka. The bilateral arrangements were preceded with equal and multitrack emphasis on regionalism and multilateral trading activities.

The recent rise in the number of bilateral agreements was due to two important events. The post–Asian crisis revealed significant divergence in the economic and financial

restructuring among ASEAN countries, with Singapore taking a more proactive role in opening up with its economic liberalization policy especially in the services sector. At the same time, on the other hand, ASEAN countries like Malaysia were adopting a semi-protected economic policy. This difference in policies adopted by the ASEAN countries reflects large gaps in institutional quality, stages of growth and economic policies, and in turn, policy divergence and lack of response in the recent WTO meetings (Sally 2004). Furthermore, there is a growing perception that the WTO has been a weak forum for an open multilateral trading system since the early 1990s and this was accentuated by the collapse of the Doha agenda at the WTO Ministerial meetings in Cancun in September 2003. The above problems were further exacerbated by the flow of FDI into the Southeast Asian region. FDI flow into ASEAN dropped from US$21.5 billion in 1997 to US$13.1 billion in 1999 as compared to rising FDI into Northeast Asia and especially China (Low 2003).

The immediate benefit of Singapore's FTAs is that it increased the focus and diverted attention back to ASEAN and the Southeast Asian region, with the backdrop of a strong global focus on Northeast Asia and China. Second, it energized and raised the urgency for the other ASEAN countries to become more proactive in opening trading activities. The response from ASEAN, especially Malaysia and Thailand, is to seek their own FTAs to match the record number of FTAs signed by Singapore. Third, it highlighted the importance of the services sector for continual growth of the Singapore economy and ASEAN countries.

However, given Singapore's strong integration and production network in ASEAN, the multilateral trading system and regionalism is still superior and remains the key for sustainable growth for the economy (Low 2003). The importance of the multilateral trading system is emphasized by the representative from Singapore in the WTO-TPR Singapore 2004: "Many in the WTO, as well as at APEC and ASEAN, believed that FTAs could be complementary, and serve as building blocks, to the multilateral process. Singapore believed

that FTAs could be building blocks if they were WTO-plus (going beyond WTO commitments), WTO-consistent (covering substantially all trade) and open to others prepared to make the same commitments…Both could learn in the process, and as they got used to a higher level of liberalization, this could serve in multilateral negotiations."

The FTAs by Singapore are mostly based on services and goes beyond the GATS commitments that include financial services, business and professional services, telecommunications, education and environmental services (WTO-TPR Singapore 2004). Trade in services is the main component of the U.S.-Singapore FTA, where there is substantial market access to the services sectors subject to a "negative list" that deals with sensitive government institutions and policy (Roy, Marchetti and Lim 2006, PECC 2003). Singapore's commitment to go beyond the WTO commitments is reflected by its FTAs with Australia and the U.S., where there is commitment to enact the competition law, to the development of intellectual property rights, customs provisions and provisions for trade and environmental issues (see Appendix Table A1).

The commitment to promote competition by addressing anti-competitive practices through legislature is one of the key provisions in the U.S.-Singapore and Singapore-Australia FTAs. This law is expected to apply to all activities including the private sector and government linked corporations (GLCs) in all sectors, unless there are exclusions and exemptions for reasons of public policy and interest. Singapore has also engaged in efforts to improve corporate governance through a voluntary Code of Corporate Governance for all listed companies. Moree specifically, a Council on Corporate Disclosure and Governance was established in 2002 to prescribe and strengthen existing accounting standards, disclosure practices and reporting standards in Singapore.

Due to the FTAs with Australia, European Union, New Zealand and the United States, there are significant changes in the framework for intellectual property rights. For example,

Singapore extends copyright protection to the life of the author plus 70 years, has measures against the circumvention of technologies that protect copyright works, imposes protection of well-known marks, and provides an extension for the patent term of pharmaceuticals because of the delays in marketing approval (WTO-plus TPE Singapore 2004). Furthermore, Singapore has acceded to several international agreements regarding copyrights and marks (e.g., Madrid Protocol on October 31, 2000, the Patent Cooperation Treaty, the Trademark Law Treaty, the UPOV convention in 1991, WIPO Copyright in 1991 and 1996, and the Phonograms Treaty in 1996) that are due to be effective by the beginning of 2005.

The "new age" partnership agreement between Japan-Singapore FTA (JSEPA) goes beyond the WTO commitments (PECC 2003). The ultimate goal of the FTA is to focus on services sector liberalization and promotion of foreign direct investment between the two countries. In addition to reducing tariffs and nontariff barriers (NTBs), JSEPA also covers issues such as regulatory reforms; facilitation of customs procedures; cooperation in science and technology, media and broadcasting, electronic commerce, advancing information and communication technology; movement of natural persons; and human resource development. By including issues such as smoother transborder flow of capital and labor, significant reductions in customs costs, and collaboration on education and training, the Japan-Singapore FTA can complement multilateral trade liberalization. The economic benefit of the Japan-Singapore FTA to Singapore is projected to be around S$69 million per year and lead to nearly S$330 million within the next five years (PECC 2003). The estimated global returns from JSEPA is expected to exceed US$9 billion annually and most of the gain is expected to accrue to Japan due to its proactive approach to open up and reform its economy (Hertel et al. 2001).

The recently completed FTA with India (CECA) is a special comprehensive trade agreement between India and Singapore that is expected to promote trade in services and

investment across the two countries. The immediate impact of the India-Singapore FTA is its impact on trade, where tariffs on approximately 75 percent of Singapore's domestic exports will be eliminated or are expected to be reduced within the next five years. The key sectors that are expected to benefit from the FTA are electronics and electrical, instrumentation, pharmaceuticals and plastics. The general rule of origin (ROO) is a combination of 40 percent local content and a change in tariff classification at the 4-digit level. In the CECA, the rules of origin (ROO) take account of Singapore's unique production structure and give a list of products that are exempt from the general rule. The key part of the chapter is to promote and protect investments interest in both countries. The protection and legal recognition of intellectual property rights are clearly defined in the chapter. The promotion of trade in services in terms of market access for both countries is a key part of CECA. Under the chapter, both countries may not restrict access into their services market by imposing quantitative restrictions such as quotas. In addition, service suppliers in both countries will be granted the same treatment as local service suppliers. The chapter also allows for freer movement of people in terms of mutual recognition of professional bodies in accounting, auditing, architecture, medical, dental and nursing services in both countries through mutual negotiation (mutual recognition agreements, MRAs) within one year from the completion of CECA. The key services sectors that are expected to benefit are financial and telecommunication services. Singapore-owned banks are given greater autonomy to access the Indian banking sector. The telecommunication sector is given more access where companies are given privileges in using the local internet and infrastructure services.

3. Trade and investment flows in Japan and Singapore

In order to understand the impact of JSEPA and CECA on economic growth, we need to examine the trends of trade and investment in Japan and Singapore. The key trade and foreign direct investment trends are given below.

Singapore: trade and foreign investment trends

Despite the volatile global economy, Singapore's exports grew at an average rate of 4.8 percent in 1999–2002 and it strengthened further to 12 percent in 2003. Manufactured exports in electronics goods still form a significant component of its domestic exports, where exports in office machines and telecommunication equipment and chemical products form nearly 42 and 17 percent of total domestic exports, respectively. In 1999, exports to China only accounted for 3.4 percent of total domestic exports, but this share rose to nearly 10 percent in 2003. ASEAN is the key trading partner for Singapore as it absorbs nearly 25 percent of total domestic exports from Singapore. The major sources of imports for Singapore are Malaysia (16.8 percent), the United States (13.9 percent), the European Union (12.5 percent) and Japan (12 percent). Trade in services grew at the rate of 7.7 percent on an average in 1999–2003 and exports of financial and transportation services have been the most vibrant.

The import and export shares by merchandise trade and country destinations are given in Tables 3 and 4. Singapore's share of imports to GDP is relatively higher than the share of exports to GDP. As the Singapore economy lacks natural resources and does not have an agricultural sector, its imports mostly consist of intermediate imports. The share of imports of intermediate inputs (i.e., office machines and telecommunication equipment, non-electrical machinery, chemicals, etc.) form more than 70 percent of its imports.

Exports from Singapore are mostly in electrical and electronic products; however, recent trends also indicate that chemicals and biomedical exports have been increasing over the years. In addition to imports of merchandise goods, Singapore has also been importing a significant amount of services. In particular, imports of transportation and financial and insurance services are rising in the economy. The rising trend of imports in intermediate inputs and services indicates that the economy is increasingly outsourcing and fragmenting its production structure.

The key trade destinations for Singapore are the United States, EU, Malaysia and Japan. In recent years, Singapore's exports to China and India have also been increasing. As the economy exports to these countries, it also imports from them. The United States, EU, China, Malaysia and Japan are the key countries that Singapore imports from. The strong trade linkages in Asia are indicated by its trade with Japan and Malaysia. In particular, Singapore and Japan have strong trade linkages in both exports and imports.

The strong trade linkages of the Singapore economy are reinforced by the strong investment links in Asia and Japan (Table 5). The United States, EU and Japan are the key countries that are investing in Singapore economy. Although the share of Japan's foreign investment in Singapore has declined in recent years, Japanese multinational corporations are very important in driving industrial production in Singapore. In recent years, Singapore has also been heavily investing in the region and globally. Although the United States and Europe are the key destinations for its investment, the share of investment in China and Hong Kong is quite significant at 23 percent in 2000–03. The other key destination for Singapore's investment is Latin America which accounted for nearly 25 percent of its investment in 2000–03. It is also important to observe that the share of investment in Japan and India also increased in 2000–03. In particular, the share of investment in Japan increased after JSEPA,

rising from $999 million in 2000 to $2,243 million in 2003 (*Singapore Statistical Yearbook 2005*).

Traditionally, the foreign investment flow is mainly to the manufacturing sector which accounts for nearly a 35 percent share of total foreign direct investment inflows into Singapore. Recently, we have also seen a rising share of foreign investment in the services sector. The financial and insurance, commerce and business services are some of the key services sectors in which foreign firms are investing. We are also observing similar trends in the outward investment of the Singapore economy, where the economy is investing in the manufacturing and services sector in the region and globally. The financial and insurance, transport and communication are the key sectors in which the Singapore economy is heavily investing overseas.

The key trends in trade and investment indicates that the Singapore economy is integrated with the global production structure. The trade flows and investment linkages indicate a horizontally and vertically integrated production structure that relies on global linkages and production. It is this link that the bilateral and multilateral trade agreements are expected to enhance and increase the trade links and investment flows in the region and globally.

Japan: trade and investment trends

The flow of merchandise trade for Japan is given in Tables 7 and 8. Japan's exports are mostly in machinery, electrical and transport equipment which accounts for more than 60 percent of its exports. In addition to its reliance on agricultural and food products, Japan also imports a large share of machinery equipment. Imports of intermediate inputs indicate that Japanese firms are outsourcing and fragmenting their production structure as is the case with Singapore. The key countries that Japan imports from are the United States, EU and China.

The country destinations for its exports are the United States, EU, China, Hong Kong, Taiwan, Korea, Singapore and Thailand.

The flow of foreign direct investment from Japan also indicates that it relies heavily on the global production structure. Although the key destination for Japan's investment is the United States, the share of its investment in the U.S. has declined to around 24 percent in 1999–2004 from 42 percent in 1990–98. In contrast, the share of investment in EU has increased from from 19 percent in 1990–98 to 37 percent in 1999–2004. Japan has also been investing in Asia and South America at around 17 percent. It is also clear that Japan has been investing in services with nearly 60 percent of its total outward investment in the services sector; the key sectors are transport and communication, commerce, and financial and insurance industries. It is noteworthy that the transport and communication sector investment doubled in 1999–2004.

4. Dynamic comparative advantage: revealed comparative advantage for Japan, India and Singapore

In this study we adopt a simple measure of Balassa's revealed comparative advantage (RCA) that only accounts for the export performance of a particular country in deriving the comparative advantage index. The objective of the RCA is to derive and examine if the comparative advantage of Japan, India and Singapore are substitutes or complementary. The RCA will indicate if these countries are competing in similar export sectors. The RCA_{ij} with respect to commodity i in country j is given as:

$$RCA_{ij} = \frac{\left(\frac{X_{ij}}{X_{wj}}\right)}{\left(\frac{X_{im}}{X_{wm}}\right)} \qquad (1)$$

where X_{ij} is the value of commodity *i* exports in country *j*, X_{wj} is the value of world total exports of commodity *i*, X_{im} is the value of total exports of manufactured products of country *j*, and X_{wm} is the value of total world exports of manufactured products. An RCA index greater than 100 indicates the comparative advantage of the country's commodity in global total exports. The SITC data were obtained from the *Direction of Trade,* United Nations.

The RCAs for Japan, Singapore and India are plotted in Figures 1, 2 and 3. Table 11 summarizes the changing comparative advantage across the countries. The comparative advantage of Japan has shifted to higher-end production and its comparative advantage is mainly in SITC 7 (machinery and transport equipment) and SITC 9 (goods not classified). In contrast, Singapore has lost its comparative advantage in SITC 1, SITC 3 and SITC 4. However, the comparative advantage of Singapore is moving toward higher-end production such as chemicals (SITC 5), machines and transport equipment (SITC 7) and other goods production (SITC 9). It is also interesting to observe that the comparative advantage for India is evenly spread out across the SITC classifications. India has a comparative advantage in SITC 0 (food and live animals), SITC 2 (crude materials), SITC 4 (animal and vegetable oil), SITC 6 (basic manufactures) and SITC 8 (miscellaneous products). The results suggest that the comparative advantages of the three countries are distinct and there seems to be complementarity in the export performance of the countries. The low-end production of India seems to complement the high-end production of Japan and Singapore, if the production industries such as basic manufactures serve as intermediate inputs in the high-end production of Japan and Singapore. In this case, we could expect the bilateral free trade agreements to enhance the trade and industrial interlinkages across the three countries.

5. Trade and economic growth: impact on Japan and Singapore

Although the full impact of the FTAs on the regional economies will only be felt in the medium- to long run, it is quite important to understand if Japan and Singapore have benefited from the economic liberalization and growth of the Indian economy. Singapore has traditionally kept its links with India in terms of early Indian immigrants establishing trading posts and developing the services sector in the economy. In recent years, Singapore has been establishing stronger links with the Indian economy through foreign investments, greater flow of Indian immigrants and skilled workers, and greater trade in manufacturing and services. As opposed to Singapore, Japan has few links with the Indian economy as indicated by the share of trade and flow of foreign investments. In this section, we would like to explore the links between the Indian economy, and Singapore and Japan. The linkage of Singapore with Japan has also been strong in terms of flow of foreign direct investment and trade. The evidence of linkages will provide important policy implications in terms of the strategies the Japanese and Singapore government could adopt to take advantage of the growing Indian economy. We adopt the vector-autoregressive model to explore the type of linkages that exist between Japan, Singapore and India. It will be interesting to analyze if growth in the Indian economy had any causal impact on growth of Singapore and Japan. In addition to the trade variables of exports and imports, we also include real GDP of Singapore and India separately in the empirical model.

The data for our study are obtained from *World Development Indicators* (WDI). All variables are in logs and based in constant US$. The sample is from 1960–2005. First, all of the variables were tested for stationarity before we estimated the VAR model. The stationarity of the variables is established by conducting both the Augmented Dickey-Fuller (ADF) unit root tests.

We first conduct the ADF test on levels of real GDP (Y_t), exports (X_t), and imports (M_t) for Japan, Singapore and India. The results of these tests indicate that all the series are nonstationary for all countries at the 5 percent level of significance. The rejection of stationarity at the level leads to testing of the variables at the first difference. The test results in the first differences are reported in Table 3A in the appendix, and it confirms that all the series are I(1) process. The test results in the first difference confirm that all the series are I(1) process for all the series under study.

In order to capture the dynamic relationships between the variables, we tested for their co-integration relationship among the three variables as given in the above models. Since all the data series in the models are integrated process of order one, I(1), the linear combination (co-integrating vectors) of one or more of these series may exhibit a long-run relationship. The multivariate co-integration test based on the Johansen-Juselius (1990) method is used to test for these long-run relationships. The maximum eigenvalue test and trace test to establish the number of co-integrating vectors are reported in Table 2. The optimal lag length p is determined by SC (Schwartz) criteria. The Johansen's test for the above models indicate that a co-integration of rank one is present among the variables.

The main object of this study is to examine the causal relationships between Japan, Singapore and Indian output growth. Since all the variables are co-integrated, a proper VAR framework to study the dynamic relationship between the variables must include an error correction term (Granger 1988). It must be highlighted that co-integration is a property of the long-run equilibrium and Granger causality is a short-run phenomenon. In this case, the Granger causality test in a co-integrated system involves estimation of the co-integration relationship, which is then followed by testing for noncausality in an ECM framework. The VECM with co-integrating rank r is given by:

$$\Delta \mathbf{z}_t = \mu + \alpha\beta \mathbf{z}_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta \mathbf{z}_{t-i} + \varepsilon_t \qquad (2)$$

where the error correction coefficient α and the co-integrating vector β are the ($p \times r$) matrices of full rank r. For example, when r = 2, α and β takes the form

$\alpha = \begin{pmatrix} \alpha_{11} & \alpha_{12} \\ \alpha_{21} & \alpha_{22} \\ \alpha_{31} & \alpha_{32} \end{pmatrix}$ and $\beta = \begin{pmatrix} \beta_{11} & \beta_{12} \\ \beta_{21} & \beta_{22} \\ \beta_{31} & \beta_{32} \end{pmatrix}$ for the three variable case,

$$\Delta Y_t = \mu_1 + \alpha_{11}\xi_{1t-1} + \alpha_{12}\xi_{2t-1} + \sum_{j=1}^{p-1}\phi_{1j}\Delta Y_{t-j} + \sum_{j=1}^{p-1}\theta_{1j}\Delta X_{t-j} + \sum_{j=1}^{p-1}\psi_{1j}\Delta M_{t-j} + \varepsilon_{1t} \qquad (3)$$

$$\Delta X_t = \mu_2 + \alpha_{21}\xi_{1t-1} + \alpha_{22}\xi_{2t-1} + \sum_{j=1}^{p-1}\phi_{2j}\Delta Y_{t-j} + \sum_{j=1}^{p-1}\theta_{2j}\Delta X_{t-j} + \sum_{j=1}^{p-1}\psi_{2j}\Delta M_{t-j} + \varepsilon_{2t} \qquad (4)$$

$$\Delta M_t = \mu_3 + \alpha_{31}\xi_{1t-1} + \alpha_{32}\xi_{2t-1} + \sum_{j=1}^{p-1}\phi_{3j}\Delta Y_{t-j} + \sum_{j=1}^{p-1}\theta_{3j}\Delta X_{t-j} + \sum_{j=1}^{p-1}\psi_{3j}\Delta M_{t-j} + \varepsilon_{3t} \qquad (5)$$

where $\xi_{1t} = Y_t + (\beta_{21}/\beta_{11})X_t + (\beta_{31}/\beta_{11})M$ and $\xi_{2t} = Y_t + (\beta_{22}/\beta_{12})X_t + (\beta_{32}/\beta_{12})M_t$ are the normalized equations, and ε_{1t}, ε_{2t},and ε_{3t} may be correlated but are Gaussian white noise.

In the above VECM framework, ΔY_t (GDP), ΔX_t (exports) and ΔM_t (imports) are influenced by both long-term error correction terms (ξ_{it-1}) and the short-term difference lagged variables of ΔY_{t-j}, ΔX_{t-j} and ΔM_{t-j}. As opposed to a general VAR which is only Granger caused by short-term difference lagged variables, in a VECM framework there is an additional channel through which Granger causality could emerge through the long-term error correction term (Maddala and Kim 1999). A normal Granger causality test only requires a joint test of all the coefficients of the lagged difference variables. However, given the short- and long-run relationships in a VECM, we could modify the causality test by the joint significance of the coefficients of all the lagged difference variables (θ_{ij}) and the error correction coefficients (α_{ij}), which is the strong exogeniety test as indicated by Charemza

and Deadman (1992). In our model, we use the strong exogeniety test to determine the causal relationship between the variables.

In Table 13, we report the chi-square statistics for the test of joint significance of the error correction term and the lagged difference variables for Japan, India and Singapore. The results show the strong links between Japan and Singapore. Given the trade and investment flows between the two countries, it was not surprising to observe a bi-directional causal relationship between output growth between Japan and Singapore. As compared to Singapore, Japan has only a uni-directional impact on the output growth of India. This indicates that there is little economic and trade linkages between the two countries.

The results also indicate that inclusion of Singapore's GDP in the estimation tends to increase the impact of exports and imports on output growth. This clearly suggests that the linkages in terms of trade and investment between the two countries are very strong as indicated by the above data. One clear policy implication that could be drawn from this analysis is that the strategies that increase the flow of trade and growth between Japan and Singapore are mutually beneficial to both countries. In addition, any strategies that increase growth and trade of Singapore—for example, the India-Singapore Free Trade Agreement, CECA—will have positive impacts on trade and growth of Singapore and Japan.

6. Policy implications and conclusion

This paper provided an overview of the Japan-Singapore Free Trade Agreement (JSEPA) and India-Singapore Free Trade Agreement (CECA). The paper has shown that the CECA and JSEPA could be mutually complementary if it enhances the flow of trade and investment between Japan, India and Singapore. In fact, the FTAs written by Singapore with its trading partners are "WTO-Plus" agreements that emphasize trade in services, greater

movement of goods, greater flow of investment, and reduction and harmonization of regulations across countries.

The key component of the FTAs is its effect in creating greater knowledge creation and flow of investment across the involved countries. The agglomeration, knowledge creation and investment flows have far greater impacts on welfare and growth, although there might be some welfare-reducing effects from trade diversion from bilateral FTAs. The evidence of greater investment from Singapore into Japan after the Singapore-Japan FTA (JSEPA) supports the evidence of greater flow of bi-directional foreign investment. The investment commitments into India by leading Singapore multinationals (such as DBS Bank, Singtel, Singapore NatSteel, and PSA) after the India-Singapore FTA and development of IT Park Bangalore are evidence of greater flow of knowledge and investment across India and Singapore. With completion of CECA, the Singapore Exchange (SGX) is also wooing leading Indian companies to list in the Singapore stock exchange.

In comparison, with the completion of CECA, Indian firms are investing and setting up companies in Singapore and more than 300 Indian IT companies have established software development operations. The consultancy operations by leading Tata Consultancy Services, establishment of regional headquarters in Singapore by leading software Indian Multinational Satyam, and investment by Infosys in Singapore are examples of the bi-directional flow of knowledge and investment from India to Singapore. The investment is also supported by greater flow of skilled workers across the two countries.

Although we could expect CECA and JSEPA to be mutually beneficial to the countries involved, Japan still needs to consider several important issues to fully take advantage of trade- and investment-enhancing effects of the free trade agreements. Given the size of the domestic economy, it is expected that India and China will dominate the flow of investment and trade in the Asian region, and there is a strong tendency for ASEAN to sign

FTAs with India and China. Japan is expected to follow suit in signing a FTA with India and it can use CECA to develop a more comprehensive trade agreement with India. The key part of the FTAs is the policy reform commitments and "locking-in" of reform policy commitments by the participating countries to maintain free trade, deregulate industries and harmonize regulations across countries. Given the diversity of issues that will be involved in the bilateral negotiations (for example, agricultural subsidies), it is expected that a FTA between India and Japan may take several years to finalize.

In the interim, Japan should use the trade and investment linkage with Singapore to source into the Indian market. Given the historical linkage in terms of culture, trade and investment, Singapore will be an ideal platform for Japan to penetrate the Indian market. The derived RCA indices indicate that India and Japan tend to have comparative advantages in different export commodities. At the moment, the recent India-Singapore FTA will lead to more trade and investment flow in the region. However, given the level of development in India, it will not be surprising to see the Indian economy dominating a larger proportion of exports in skill-intensive commodities, areas in which Singapore and Japan tend to have the comparative advantage. There is a strategic policy component of the "first-mover advantage" in terms of establishing linkages in Indian economy. In this respect, CECA and JSEPA will provide the platform for Japanese firms to utilize the vast and rich resources in India.

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Table 1. Key macroeconomic indicators, 1999–2005

	1999	2000	2001	2002	2003	2004	2005
Real GDP (2000 price & % change)	7.2	10.0	-2.3	4.0	2.9	8.7	6.4
Manufacturing	13.6	15.3	-12.8	8.4	3.0	13.9	9.3
Services	6.0	9.0	1.9	4.0	3.3	7.6	6.0
Construction	-8.8	-1.7	-1.2	-14.0	-9.0	-6.1	-1.1
Share of gross value-added (%)							
Manufacturing	23.1	26.8	23.7	25.8	26.3	27.7	27.3
Services	63.6	61.9	64.5	63.5	63.4	63.0	63.8
Construction	7.9	6.3	6.1	5.4	5.0	4.3	3.7
Others	5.1	5.0	5.7	5.3	5.3	5.0	5.2
Employment share (%)							
Manufacturing	21.0	20.8	18.8	18.2	17.9	17.3	21.4
Services	71.1	65.5	74.2	75.0	75.6	76.3	69.6
Construction	6.9	13.1	6.1	5.9	5.6	5.5	8.1
Others	1.0	0.6	0.9	0.9	0.9	0.9	0.9
Unemployment rate (average)	3.5	3.1	3.3	3.6	4.0	3.4	3.2

Note: The services sector includes wholesale and retail trade, hotels and restaurants, transport and communication, financial services, business services and other services.

Source: Thangavelu and Toh (2005).

Table 2. Share of services sector to GDP in selected Asian countries, 1999-2004 (%)

Country	Share of gross value-added	1999	2000	2001	2002	2003	2004
Hong Kong	Manufacturing	14.6	14.4	13.7	13.0	12.1	11.3
	Services	85.2	85.4	86.2	86.8	87.9	88.6
	Other	0.2	0.2	0.1	0.2	0.0	0.1
Japan	Manufacturing	28.3	28.6	27.2	26.0	25.8	25.3
	Services	70.1	69.9	71.3	72.6	72.9	73.4
	Other	1.6	1.5	1.5	1.4	1.3	1.3
Korea	Manufacturing	40.2	40.6	39.1	38.4	39.2	40.8
	Services	54.5	54.3	56.1	57.6	57.1	55.9
	Other	5.3	5.1	4.8	4.0	3.6	3.3
Malaysia	Manufacturing	33.4	34.9	32.9	32.9	33.5	33.4
	Services	58.5	57.1	59.4	59.5	58.9	59.2
	Other	8.1	8.0	7.7	7.6	7.6	7.4
Taiwan	Manufacturing	33.1	32.3	30.7	30.9	30.1	31.0
	Services	64.2	65.5	67.3	67.2	68.0	67.3
	Other	2.7	2.2	2.0	1.9	1.9	1.7
Thailand	Manufacturing	40.9	41.9	42.1	42.3	43.4	44.2
	Services	49.6	48.9	48.7	48.1	46.3	46.4
	Other	9.5	9.2	9.2	9.6	10.3	9.4
India	Manufacturing	14.7	15.6	15.0	15.3	16.0	16.1
	Services	49.2	50.0	51.2	52.6	53.2	53.8
	Other	36.1	34.4	33.8	32.1	32.1	30.1

Source: *World Development Indicators*, World Bank.

Table 3. Product composition of merchandise trade for Singapore, 1999 and 2000 (%)

	Imports		Exports	
	1999	**2003**	**1999**	**2003**
Office machines & telecommunication equipment	38.1	38.4	56.2	42.0
Non-electrical machinery	9.8	9.3	3.6	4.3
Other semi-machinery	5.5	4.6	1.8	1.9
Chemicals	6.0	6.7	8.9	17.0
Fuels	9.1	13.6	13.0	18.3
Agriculture	4.4	3.7	1.7	1.7
Textiles & clothing	2.5	2.3	-	-
Transport equipment	4.9	5.6	-	-
Other electrical machinery	7.6	5.8	5.0	3.8
Other	3.3	3.0	1.2	1.6
Other manufacturing	8.9	7.2	8.5	9.3
Total merchandise (US$)	$111 b	$127.9 b	$68.6 b	$79.7 b
Services (US$)	$41.1 b	$51.5 b	$44.7 b	$53.4 b
Transportation	45.7	45.4	40.5	38.4
Travel	15.9	16.7	19.3	13.0
Financial and insurance	6.0	7.4	5.9	8.7
Other services	32.4	30.5	34.3	39.9

Source: *Trade Policy Review: Singapore*, WTO.

Table 4. Direction of merchandise trade for Singapore, 1999 and 2000 (%)

	Imports		Exports	
	1999	**2003**	**1999**	**2003**
United States	17.0	13.9	24.6	15.5
EU	12.7	12.5	18.7	16.0
Middle East	7.1	8.6	-	-
Malaysia	15.6	16.8	12.1	10.7
Japan	16.6	12.0	7.7	7.8
China	5.1	8.7	3.4	7.2
Hong Kong	-	-	7.6	9.9
Thailand	4.7	4.3	-	-
Chinese Taipei	4.0	5.1	4.3	4.4
Other East Asia	10.2	9.6	10.0	11.4
South Asia	-	-	2.8	2.8
Oceania	-	-	3.4	5.1
Other America			2.5	4.7
Others	7.0	8.5	2.8	4.3

Source: *Trade Policy Review: Singapore*, WTO.

Table 5. Direction of foreign direct investment for Singapore, 1997–2003 (%)

Inflows			Outflows		
	1997–99	2000–03		1997–99	2000–03
United States	15.0	16.6	United States	5.4	5.8
Europe	35.5	40.0	Europe	13.3	9.4
- Netherlands	10.0	13.5	- Netherlands	2.5	1.0
- Switzerland	9.0	7.2	- Switzerland	0.5	0.3
- UK	9.2	8.8	- UK	3.9	4.9
Malaysia	4.0	2.7	Malaysia	9.4	8.3
Japan	17.0	13.8	Japan	1.3	2.4
Australia	2.2	1.3	Australia	2.5	2.4
Latin America	14.6	16.3	Latin America	13.3	24.7
Others	11.7	9.3	China	15.5	13.2
			Hong Kong	10.5	8.2
			Thailand	3.5	3.0
			Chinese Taipei	2.9	2.4
			Korea	2.0	1.8
			India	0.6	1.1
			Others	19.8	16.6

Source: *Singapore Statistical Yearbook*, Department of Statistics, Singapore.

Table 6. Foreign direct investment for Singapore by industry, 1998–2003 (%)

	Inflows		Outflows	
	1997–99	2000–03	1997–99	2000–03
Manufacturing	34.0	36.0	24.9	20.2
Commerce	15.2	14.8	8.2	7.0
Transport & communication	3.7	4.5	6.0	8.0
Financial & insurance	36.6	37.0	48.2	55.0
Real estate	3.4	3.0	7.4	5.2
Business services	3.6	4.1	2.7	1.2
Others	3.5	0.6	2.6	3.4

Source: *Singapore Statistical Yearbook*, Department of Statistics, Singapore.

Table 7. Product composition of merchandise trade for Japan, 1999–2004 (%)

	Imports		Exports	
	1999	**2004**	**1998**	**2004**
Machinery & equipment*	36.0	28.1	21.8	21.0
Metal products	4.8	4.9	5.0	5.3
Nonmetallic mineral products	1.5	1.4	1.1	1.0
Chemicals	9.1	9.7	7.0	8.3
Fuels	4.7	6.2	-	-
Agriculture	15.7	13.0	0.4	0.4
Textiles & clothing	7.4	7.9	1.8	1.6
Electrical machinery	-	-	24.0	23.6
Transport equipment	-	-	23.3	23.7
Others	20.8	28.8	15.6	15.1

Note: * Includes electrical machinery, etc.

Source: *Japan Statistical Yearbook*, various issues.

Table 8. Direction of merchandise trade for Japan, 1999–2004 (%)

	Imports		Exports	
	1999	**2004**	**1999**	**2004**
United States	29.0	22.6	41.2	31.5
EU	21.5	20.7	22.0	19.8
Malaysia	4.6	4.3	3.1	2.7
China	18.1	28.7	6.5	15.8
Hong Kong	0.7	0.5	6.1	7.6
Thailand	3.8	4.3	3.1	4.3
Chinese Taipei	5.4	5.0	8.0	9.0
Singapore	2.3	2.0	4.5	4.0
India	1.0	0.8	0.7	0.7
Oceania	8.9	6.7	2.8	3.0
South America	2.5	2.8	1.2	1.0
Others	2.2	1.6	0.8	0.6

Source: *Japan Statistical Yearbook*, various issues.

Table 9. Total foreign direct investment from Japan by destination, 1999–2004 (%)

Outflows

	1990–98	1999–2004
United States	42.3	24.5
Europe	18.9	37.4
Asia	19.0	16.5
South America	8.8	15.2
Africa	1.0	0.5
Oceania	5.0	2.9
Australia	4.3	2.5
Others	0.7	0.5

Source: *Japan Statistical Yearbook*, various issues.

Table 10. Foreign direct investment from Japan by industry, 1990–2004 (%)

Inflows

	1990–98	1999–2004
Manufacturing	36.4	41.1
Nonmanufacturing	66.3	58.9
Commerce	11.1	8.4
Transport & communication	5.0	10.6
Financial & insurance	15.4	28.0
Real estate	15.2	3.2
Business services	15.2	5.3
Others	4.4	3.4

Source: *Japan Statistical Yearbook*, various issues.

Table 11. Average RCA of India, Japan and Singapore, 1993-2004 (1-digit SITC commodities)

SITC	0	1	2	3	4	5	6	7	8	9
Japan										
1993–95	5.61	8.22	16.77	9.20	3.50	65.04	69.46	**180.98**	59.31	**63.18**
1996–99	6.07	8.79	20.94	5.77	3.41	73.86	71.23	**168.59**	65.30	**102.87**
2000–04	7.89	8.38	27.66	4.03	4.60	75.28	73.33	**163.03**	69.63	**150.18**
India										
1990–95	**199.99**	54.76	**148.91**	34.96	**98.78**	80.77	**238.16**	18.65	**159.52**	67.14
1996–99	**226.38**	62.03	**135.17**	12.25	**120.47**	99.09	**255.55**	18.48	**157.74**	73.10
2000–04	**187.13**	45.34	**152.45**	67.24	**113.48**	105.51	**264.31**	21.57	**152.12**	71.34
Singapore										
1990–95	34.64	133.58	49.25	191.65	137.17	**66.20**	41.39	**147.38**	65.44	**63.87**
1996–99	25.18	120.91	27.64	126.97	55.67	**67.45**	33.43	**161.31**	60.96	**58.47**
2000–04	21.71	75.69	21.41	99.57	42.83	**89.34**	28.34	**153.97**	66.08	**120.99**

Note: SITC categories are: 0, food and live animals; 1, beverages and tobacco; 2, crude materials; 3, mineral fuel; 4, animal, vegetable oil and fat; 5, chemicals; 6, basic manufactures; 7, machines and transport equipment; 8, miscellaneous manufactured goods; 9, goods not classified.

Table 12. Trace / maximum eigenvalue tests for co-integration with labor productivity (Y_t), exports (X_t) and imports (M_t)

	Trace test hypotheses/test statistics			**Maximal eigenvalue test hypotheses/test statistics**			
	r = 0	**r ≤ 1**	**r≤ 2**	**r = 0**	**r = 1**	**r = 2**	**Lags (p)**
Japan	33.41*	15.30	5.07	18.10	10.22	5.08	1
Japan with GDP Singapore	53.50*	21.77	15.49	31.72*	10.97	7.33	1
Japan with GDP India	71.23*	37.92	19.07	33.32*	18.84	12.33	1

Note: * and ** denote 5 percent and 1 percent levels of significance, respectively. The value of p is justified by Akaike's Information Criterion (AIC) and Schwartz Criteria (SC).

Table 13. Joint test (F-statistics) and the Granger causality structure of Japan GDP (Y_t), exports (X_t) and imports (M)

	$X_t \rightarrow Y_t$	$Y_t \rightarrow X_t$	$M_t \rightarrow Y_t$	$Y_t \rightarrow M_t$	$Y^F_t \rightarrow Y_t$	$Y_t \rightarrow Y^F_t$
Japan with GDP Singapore (Y^s_t)	14.06***	9.10***	14.06***	10.50***	14.71***	11.38***
Japan with GDP India (Y^i_t)	4.35	28.62***	4.91	8.72**	3.51	23.90***

Note: * , ** and *** denote 10 percent, 5 percent and 1 percent levels of significance, respectively. The causality between exports and imports are not reported here. Y^F_t, $F=i, s,$, where i=India and s=Singapore.

Figure 1: Japan's Revealed Comparative Advantage (RCA) from 1993 to 2004

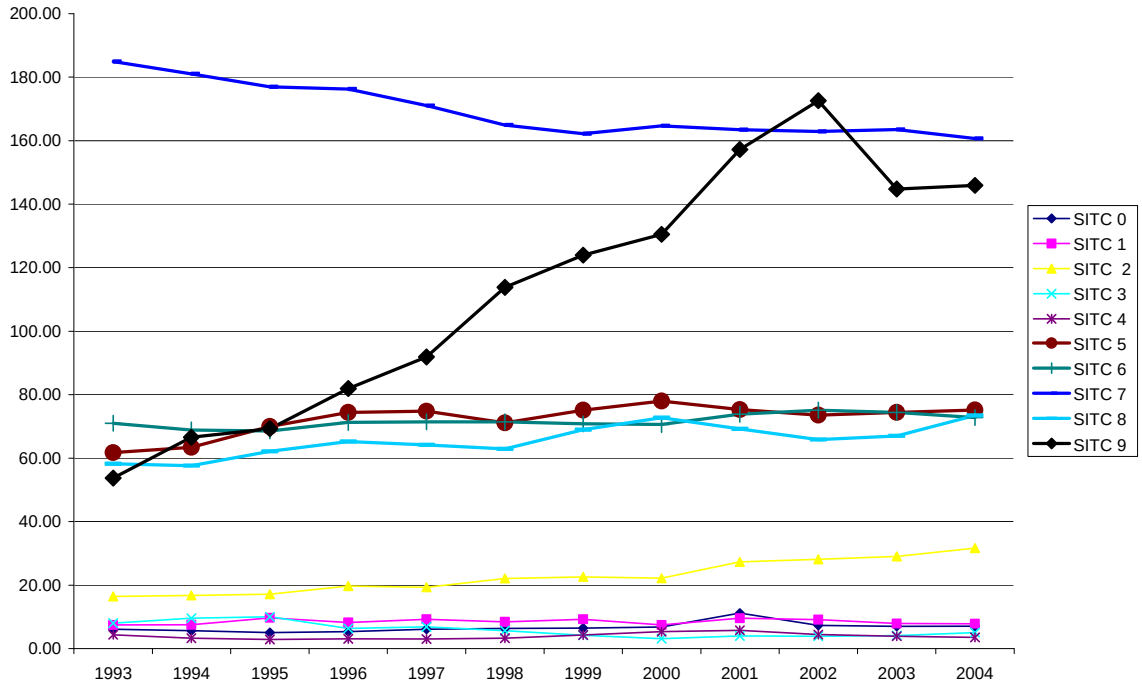

Figure 2: Singapore Revealed Comparative Advantage (RCA) from 1990 to 2004

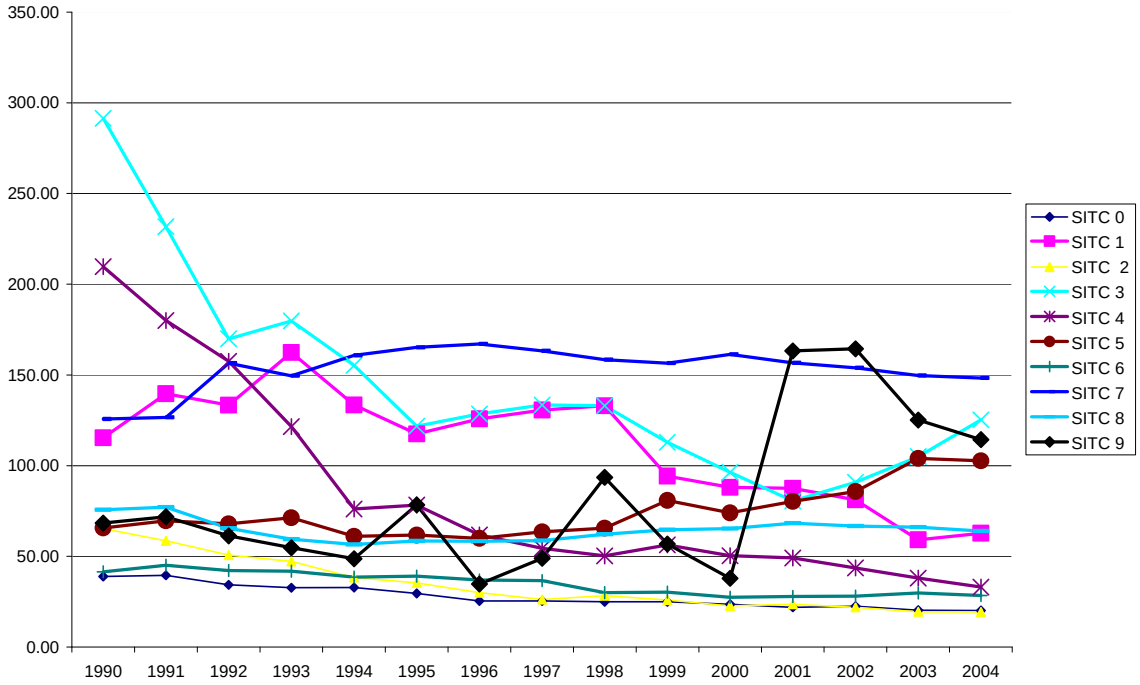

Figure 3: India's Revealed Comparative Advantage (RCA) from 1990 to 2004

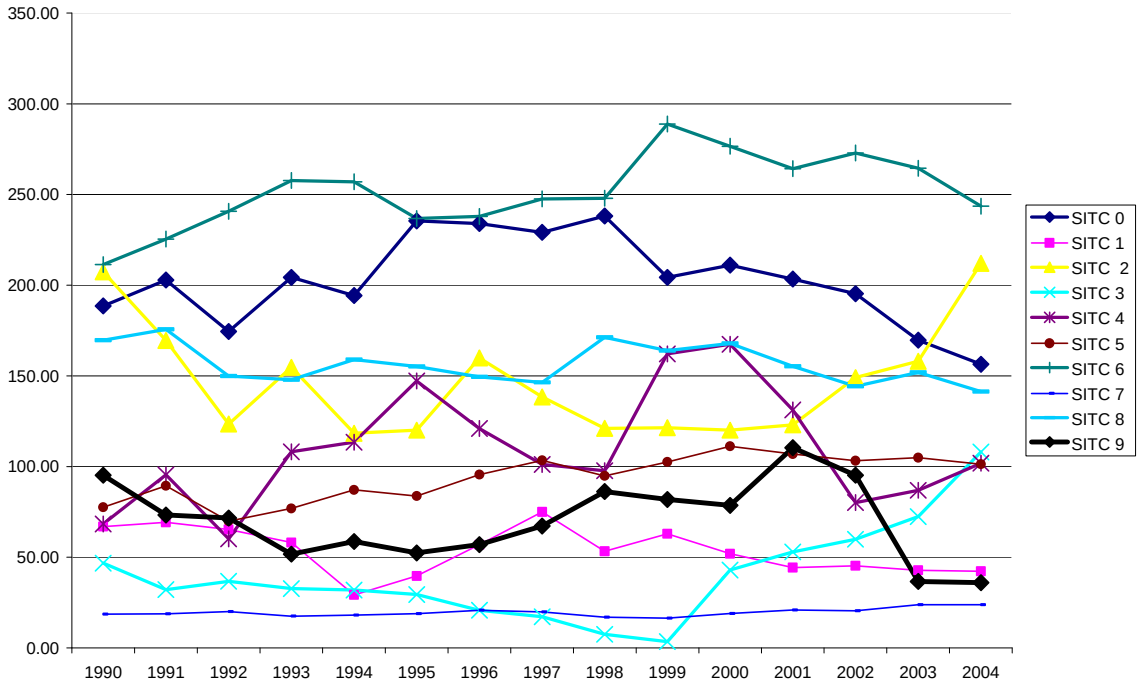

Table A1. Elements of Singapore's bilateral free trade agreements

Agreement/ sector	ANZSCEP	JSEPA	ESFTA	SAFTA	USSFTA	CECA
	Agreement between Singapore and New Zealand on a Closer Economic Partnership, in force since January 2001. To be reviewed biannually.	Agreement between Singapore and Japan for a New-Age Economic Partnership in force since November 2002. To be reviewed annually	Agreement between Singapore and EFTA states in force since January 2003. To be reviewed biannually.	Agreement between Singapore and Australia in force since July 2003. To be reviewed annually.	Agreement between Singapore and the United States in force since January 2004. To be reviewed annually.	Agreement between Singapore and India was completed on 29 June 2005. To be reviewed biennially.
Goods	Elimination of customs duties on date of entry into force.	Singapore eliminated all remaining customs duties on imports from Japan on entry into force. Based on a positive list. For most exports to Japan, tariff elimination is immediate. For the rest, tariff elimination is phased over a 3½ to 8-year period.	Elimination of duties on industrial goods on entry into force. Liberalization of duties on agricultural goods based on positive list and on agreements with each EFTA state; duties on processed agricultural and fish products to be liberalized based on positive lists with each EFTA state.	Elimination of customs duties on entry into force.	Based on a positive list. Singapore eliminated all remaining customs duties on imports from the United States on entry into force. For most exports to the United States, immediate tariff elimination, and a transition period of 3 to10 years for others.	Based on a positive list. Trade in Goods chapter provides for tariff concessions. Tariffs on approximatel y 75% of Singapore's domestic exports will eliminated or reduced within next 5 years. The sectors that will benefit includes electrical and electronics, instrumentati on, pharmaceuti-

						cals, and plastics. Singapore will grant zero-tariff treatment on all imports from India.
Services	Based on a positive list and to be reviewed with the goal of free trade in services by 2010. Preferential treatment extended to non-parties engaged in "substantive business operations" in either of the parties. Singapore's commitments beyond GATS include professional, telecommunications financial, business, and transport services.	Based on a positive list; preferential treatment also extended to non-parties engaged in "substantive business operations" in either of the parties. Singapore's commitments beyond GATS include professional, telecommunication, financial, business, and transport services.	Based on a positive list and to be reviewed with the goal of eliminating substantially all remaining restrictions in services covered at the end of ten years. Singapore's commitments beyond GATS include professional, telecommunication, financial, business, and transport services.	Based on a negative list; exceptions to market access and national treatment listed in annexes. Preferential treatment extended to non-parties engaged in "substantive business operations" in either of the parties. Singapore's commitments beyond GATS include professional, telecommunication, financial, business, and transport services.	Based on a negative list, with exceptions to market access and national treatment listed in annexes. Singapore's commitments beyond the GATS include professional, telecommunications, financial, business, and transport services.	Market Access: Both countries may not restrict access into their services market by imposing quantitative restrictions. National Treatment: Service suppliers will be granted the same treatment as local suppliers. Mutual Recognition Agreements (MRAS): The agreement facilitates freer movement of people in professional bodies in the accounting

						and audit, architecture, medical, dental and nursing services. There will be a mutual recognition of educational qualifications.
Contingency measures	No right to take safeguard measures against each others' imports; anti-dumping provisions are stricter than those applied under GATT Article VI.	May take emergency measures against each others' imports only during the 10-year transition period; anti-dumping measures to be in accordance with GATT Article VI.	May take emergency measures against each others' imports but not anti-dumping measures.	No right to take safeguard measures against each others' imports; anti-dumping rules are stricter than those applied under GATT Article VI.	Safeguard measures may be taken during the ten-year transition period; anti-dumping measures may be taken in accordance with GATT Article VI.	May take safeguard measures against each other's imports; anti-dumping measures may be taken in accordance with GATT Article VI.
Intellectual property rights	WTO TRIPS Agreement provisions to apply.	WTO TRIPS Agreement provisions to apply. Cooperation on IPR matters, including through a Joint Committee.	WTO TRIPS Agreement provisions to apply.	WTO TRIPS Agreement provisions to apply. Cooperation *inter alia* on enforcement and education.	Singapore to accede to international conventions including WIPO Copyright Treaty, WIPO Performances and Phonographs Treaty, and UPOV. TRIPS-plus provisions include extending copyright protection to life of author plus 70 years, measures	Intellectual Property (IP) cooperation and collaboration in terms of joint organization of training programs, and collaboration on projects that promote

					against the circumvention of technologies that protect copyright works, protection of well-known marks, extension for unreasonable curtailment of patent term for pharmaceutical products due to delays in marketing approval process.	effective use and application of IP.
Competition	Commitment to creating and maintaining open and competitive markets; endeavouring to implement the APEC Principles to Enhance Competition and Regulatory reform. Parties also agreed to consult with each other in the development of any new competition measures.	Cooperation on controlling anti-competitive practices including the exchange of information on such practices.	Cooperation through consultations on eliminating anti-competitive business practices.	Commitment to promote competition by addressing anti-competitive practices including through consultation and review. Within six months of a generic competition law being enacted by Singapore, a review of the competition provisions of the FTA to be conducted.	Commits Singapore to enacting generic competition legislation by 2005 and ensuring that GLCs do not engage in agreements that restrain competition or in exclusionary practices that substantially lessen competition.	-
Investment	Provisions apply to all goods and those services listed in the parties' schedules.	Provisions apply to all goods and those services listed in the parties' schedules. Performance requirements are prohibited.	Provisions on investment do not apply to measures affecting trade in services and to investors investing in services (subject to a review after ten years).	Provisions apply to all goods and services (except where reservations have been listed by the parties).	Negative list for goods and services except those scheduled, and detailed investor-state dispute settlement provisions. Performance requirements are	Market Access for investments is based on the principle of National Treatment subject to the commitments or reservations

					prohibited.	undertaken. The key features: Beneficiaries: Indian investors are not required to seek foreign investment approval; Broad range of investment instruments; National Treatment; Both countries cannot expropriate investments with proper legal safeguards; Disputes to be settled at an International arbitration tribunal; Free transfer of funds related to capital, profits, dividends and royalties; Indian government has formally recognized

						Temasek and GIC as distinct entities.
Government procurement	Single market between the two parties for procurement valued at over SDR 50,000.	Provisions of the WTO GPA apply. Procurement threshold of SDR 100,000.	Provisions of the WTO GPA apply.	Single market between the two parties.	Preferences up to S$102,710 for goods and services for Ministries (S$910,000 for statutory boards), and S$11,376,000 for construction services	-
Others					Provisions on labour and environment.	

Notes: Details of rules of origin under these agreements are provided in Chapter III (Table III.3).
ANZSCEP: New Zealand-Singapore Free Trade Agreement
JSEPA: Japan-Singapore Free Trade Agreement
ESFTA: European Union Free Trade Agreement
SAFTA: Singapore-Australia Free Trade Agreement
USSFTA: United States-Singapore Free Trade Agreement
CECA: India-Singapore Comprehensive Economic Cooperation Agreement

Source: WTO Secretariat, based on the texts of Singapore's bilateral FTAs. Ministry of Trade and Industry, Singapore: http://app.fta.gov.sg/

Table A2. Other key features of CECA

Rules of origin	Rules of Origin (ROO) identify the "nationality" of a good. It is to ensure only Singaporean or Indian goods enjoy the tariff concessions under CECA. The general rule of origin is combination of 40% local content and a change in tariff classification at the 4-digit level. Specific considerations for a list of products that is exempt from the general rule given unique production pattern of Singapore.
Standards and technical regulations, sanitary and phytosanitary measures	Provides the framework for conducting mutual recognition agreements (MRAs) to eliminate duplicative testing and certification of products to facilitate entry of goods for sale in the respective markets. Key sectors that are included in this framework are electrical and electronics and telecommunication equipments.
Services sectors	Both countries have committed to liberalize various services sectors beyond the WTO commitments. Preferential access are given to business services, construction and related engineering services, financial services, telecommunication services, environmental services, tourism and transport services. Financial services: Singapore-owned or controlled financial institutions have given greater access to the Indian market (DBS, UOB and OCBC). They are allowed to set up branches and given a quota of 15 branches over four years. Indian banks that satisfy Singapore's admission criteria will be given Wholesale bank licenses and up to three bank licenses with Qualifying Full Banks privileges. Asset management: Mutual funds and collective investment schemes (CIS) could be listed in Stock Exchange by registered fund managers in the respective countries. Telecommunication services: India will increase its limit from 25–49 percent for basic, cellular and long-distance services and 74 percent for internet and infrastructure services. Singapore companies will be given access to public infrastructure to offer their services. E-commerce: Commitment to promote a liberalized environment for electronic commerce.
Movement of natural persons	Easier access for movement of natural persons. Intra-corporate transferees (i.e., managers, executives and specialists within organizations) will be permitted to stay and work in India and Singapore for an initial period of up to two years or the period of the contract, whichever is less. The period could be extended up to three years with the total term not exceeding eight years.
Education	University linkages: NUS-IIT-B tie-up

Source: Ministry of Trade and Industry, Singapore: http://app.fta.gov.sg/

Table3A. Unit root test for Japan GDP (Y_t), exports (X_t), imports (M_t), India GDP (Y^i_t) and Singapore GDP (Y^s_t), 1960–2005

Variables	Levels		1st Differences	
	ADF	P	ADF	p
Y_t	2.09	1	-3.94**	1
M_t	-3.43	1	-5.93***	1
X_t	-2.40	1	-6.15***	1
Y^i_t	-1.98	1	-8.59***	1
Y^s_t	-0.86	1	-5.41***	1

Note: *, ** and *** denote rejection of a unit root at the 10 percent, 5 percent and 1 percent levels of significance, respectively.

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