

*JSPS (Kyoto University)-NRCT (Thammasat University)
Core University Program Conference 2006
“Emerging Developments in East Asia FTA/EPAs”
October 27-28, 2006
Kanbaikan Hall
Doshisha University*

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

By

Shandre M. Thangavelu
Singapore Centre for Applied and Policy Economics
Department of Economics
National University of Singapore

And

Shigeyuki Abe
Center for Contemporary Asian Studies (CCAS)
Doshisha University

Preliminary Draft

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

By

Shandre M. Thangavelu
Singapore Centre for Applied and Policy Economics
Department of Economics
National University of Singapore

and

Shigeyuki Abe
Doshisha University

23 October 2006

ABSTRACT

The paper studies if 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 - 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 Japanese economy. The paper highlights the two possible ways in which Japan could benefit both JSEPA and CECA. As Japan has strong trade and investment links with Singapore, the trade creation effects from CECA could directly increase the overall trade in Singapore and Japan. The trade creation effects could also increase the export growth of Singapore and India, thereby increasing the export from Japan if there are strong trade links 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.

1 Introduction

Globalization is changing the 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 end of 2005, WTO reports that the total Free Trade Agreements (FTAs) reported by the 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 has completed FTAs with Asian Free Trade Area (AFTA), Australia, the EU Free Trade Association, Jordan, India, Japan, Korea, New Zealand, Panama, and United States; and is having ongoing discussions with Bahrain, Canada, China, Egypt, Mexico, Pakistan, Peru, Sri Lanka, Kuwait, Qatar, and the United Arab Federation.

We are also observing both multilateral and bilateral agreements occurring concurrently in Asia. The key FTA in South-East Asia is the ASEAN Free Trade Area (AFTA) that was initiated in 1992, under the Common Effective Preferential Tariff (CEPT) scheme where the ASEAN (Association of South East Asian Nations) agreed to reduce tariffs to zero to five 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 zero to five percent range. The emphasis now is on trade facilitation, liberalization of services, and opening up of the investment regimes in ASEAN. With regional integration in South-East 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 Free Trade Agreements (FTA) and EPA (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). It was questioned 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 free trade. Baldwin (1995) and Yi (1996) found that the non-members have more 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 no regional bloc member should be able to prevent another bloc member from committing 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).

The paper studies if 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 - 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 Japanese economy. There are two possible ways in which Japan could benefit both JSEPA and CECA. As Japan has strong trade and investment linkages with Singapore, the trade creation effects from CECA could directly increase the overall trade in Singapore and Japan. The trade creation effects could also increase the export growth of Singapore and India, thereby increasing the export 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 the exports from 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 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 span of time. Thus the paper could only examine the possible trade links and channels through which the FTAs could have impact on the growth of the affected countries.

Further, it must be emphasised that the Free Trade Agreements (FTAs) of Singapore is mostly based on liberalizing services sector, harmonization of domestic regulations, and to allow 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, needed to carefully examine the full impact of FTAs on trade, investment and growth.

It is important to highlight that the multilateral agreement to reduce trade barriers is better than bilateral agreements as it has a broad base 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 might 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 multilateral process if they are WTO-plus agreements – going beyond the commitments made in the multilateral agreements of WTO. In fact, Singapore highlights that its FTAs are WTO-plus that goes beyond the agreements that are in WTO (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 Singapore Free Trade Agreements of CECA and JSEPA. Section 3 summarises 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. The conclusion is given in section 6.

2. Singapore Economy: Key Trends and Free Trade Agreements

2.1 Key Trends

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

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 the terms of GDP and employment growth. The share of the service industries account for nearly a total of 64% of Singapore's gross value-added and 72% of employment growth respectively over the period of 1999-2002. With the emergence of low-cost competitors in the region and in China, there is a strong pressure for the Singapore economy to move to higher value-added activities to sustain its competitiveness. However, the Government believes that both the manufacturing and services will form "twin engines" of growth, where manufacturing is expected to contribute around 20% of GDP (Economic Review Committee, 2002).

Table 1: Key Macroeconomic Indicators: 1999-2005

	1999	2000	2001	2002	2003	2004	2005
Real GDP (2000 market 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

Source: Thangavelu and Toh (2005)

Services sector includes: Wholesale and Retail trade, Hotels and Restaurants, Transport and Communication, Financial Services, Business Services, other services

Table 2: The 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	0.1
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
	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

The emergence of the services sector is also observable in other Asian countries. The share of the services sector is rising for all the selected countries in Table 2. Hong Kong and Japan tend to have the highest share of services sector of over 70% of GDP and Taiwan's share is rising to nearly 67% in 2004. The importance of services sector for GDP and its growth is also reflected in the two key countries in ASEAN, namely Malaysia and Thailand which have nearly 60% and 46% share of services sector to GDP respectively for the period of 1999-2004. The services sector is also rising in India as its share of GDP rises from 49% in 1999 to 54% in 2004.

2.2 Bilateral “WTO-Plus” Free Trade Agreements: The Way Forward

Singapore has been an avid supporter of 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 has signed FTAs with New Zealand, Japan, the European Free Trade Areas (EFTA) States, Australia, the United States; and currently in negotiating with Canada, Chile, India, Jordan, Mexico, and Korea. Under ASEAN, negotiations are also underway with China, India, and Japan, and Sri Lanka. The bilateral

arrangements were preceded with equal and multi-track emphasize 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 and on the other hand, ASEAN countries like Malaysia were adopting a semi-protected economic policy. This differential policy adoption by the ASEAN countries reflects large gaps in institutional quality, stages of growth and economic policies, thus policy divergence and lack of response in the recent WTO meetings (Sally, 2004). Further, there is a growing perception that WTO is a weak forum for open multilateral trading system since the early 1990s and it was accentuated by the collapse of the Doha agenda at the World Trade Organisation (WTO) Ministerial meetings in Cancun in September 2003. The above problems were further accentuated by the flow of FDI into the Southeast Asian region. The 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 North-East Asia and especially China (Low, 2003).

The immediate benefit of the Singapore's Free Trade Agreements (FTAs) is that it increased the focus and diverted attention back to ASEAN and South-East Asian region, with backdrop of the strong global focus on North-East Asia and China. Secondly, it energized and raised the urgency for the other ASEAN countries to be become more proactive in open 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 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 the key for sustainable growth for the economy (Low, 2003). The importance of 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 US-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 are reflected by the FTAs with Australia and US, where the commitment to enact the competition law, to development intellectual property rights, customs provisions and to make 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 US-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 voluntary Code of Corporate Governance for all listed companies. In specific, 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 United States, there are significant changes in the framework of intellectual property rights. For example, Singapore extends copyright protection to the life of the author plus 70 years, measures against the circumvention of technologies that protect copyright works, imposes protection of well known marks, and an extension of the patent term for pharmaceuticals because of the delays in marketing approval (WTO-plus TPE Singapore 2004). Further, Singapore has acceded to some international agreements regarding copyrights and marks (e.g. Madrid Protocol on 31st October 2000, Patent Cooperation Treaty, Trademark Law Treaty, UPOV convention in 1991, WIPO Copyright in 1991 and 1996, and 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 the services sector liberalization and in the promotion of foreign direct investment between the two countries. In addition to reducing tariffs and non-tariff barriers (NTBs), JSEPA also cover 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 developments. By including issues such as smoother trans-border 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 Japan-Singapore FTA to

Singapore is projected to be around S\$69 million per year and leading to nearly S\$330 million within the next 5 years (PECC, 2003). The estimated global returns from JSEPA is expected to exceed US\$9 billion annually and most of it is expected to accrue to Japan due to its pro-active 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 the impact on trade, where tariffs on approximately 75 percent of Singapore's domestic exports will be eliminated or expected to be reduced within the next 5 years. The key sectors that are expected to benefit from the FTA are electronics and electrical, instrumentation, pharmaceutical 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 the 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, the 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. The

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.

3.1 Singapore: Trade and Foreign Investment Trends

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

The import and export share by merchandise trade and country destinations are given in Table 3 and 4. Singapore's share of import to GDP is relatively higher than the share of export to GDP. As the Singapore economy lacks natural resource and does not have an agricultural sector, its import mostly consist of intermediate imports. The share of

import of intermediate inputs (office machines & telecommunication equipments, non-electrical machinery, chemicals, etc.) form more than 70 percent of its imports.

Table 3: Product Composition of Merchandise Trade for Singapore (%): 1999 & 2000

	Import		Export	
	1999	2003	1999	2003
Office Machines & Telecommunication Equipments	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 Mach	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 (USD)	\$111 b	\$127.9 b	\$68.6 b	\$79.7 b
Services (USD)	\$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 & 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

The exports from Singapore is mostly in electrical and electronic products, however the recent trends also indicates that the chemicals and biomedical exports have been increasing over the years. In addition to imports of merchandise goods, Singapore has also been importing a lot of services. In particular, the imports of transportation and financial & 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 United States, EU, Malaysia and Japan. In recent year, Singapore's export to China and India is also 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 linkage in both exports and imports.

Table 4: Direction of Merchandise Trade for Singapore (%): 1999 & 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

The strong trade linkage of the Singapore economy is also reinforced by the strong investment links in Asia and Japan (see Table 5). 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, the Japanese multinational corporations are very important for driving the industrial production in Singapore. In recent years, Singapore has also been heavily investing in the region and globally. Although, 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 2000-2003. The other key destination for its investment is Latin America with nearly 25 percent of its investment in 2000-2003. It is also important to observe that the share of investment in Japan and India is also rising in 2000-2003. In particular, the share of investment in Japan

has increased after the JSEPA, rising from \$999 million in 2000 to \$2243 million in 2003 (Singapore Statistical Yearbook, 2005).

Table 5: Direction of Foreign Direct Investment for Singapore (%): 1997 - 2003

Inflows			Outflows		
	1997-1999	2000-2003		1997-1999	2000-2003
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

Traditionally, the foreign investment flow is mainly to the manufacturing sector accounting for nearly 35 percent share of total foreign direct investment inflows into Singapore. Recently, we are also observing the rising share of foreign investment in the services sector. The financial & insurance, commerce and business services are some of the key services sector which the 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 & insurance and transport & 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 horizontal and vertically integrated production structure that relies on the 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.

Table 6: Foreign Direct Investment for Singapore by Industry (%): 1998 - 2003

	Inflows		Outflows	
	1997-1999	2000-2003	1997-1999	2000-2003
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

3.2 Japan: Trade and Investment Trends

The flow of merchandise trade for Japan is given in Table 7 and 8. Japan's exports are mostly in machinery, electrical and transport equipments 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 equipments. The imports of intermediate inputs indicate that Japanese firms are outsourcing and fragmenting their production structure as in the Singapore economy. The key countries that Japan imports from are United States, EU, and China. The country destinations for its exports are United States, EU, China, Hong Kong, Taiwan, Korea, Singapore and Thailand.

Table 7: Product Composition of Merchandise Trade for Japan (%): 1999-2004

	Imports		Exports	
	1999	2004	1998	2004
Machinery & Equipments*	36.0	28.1	21.8	21.0
Metals Products	4.8	4.9	5.0	5.3
Non-Metallic 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 Equipments	-	-	23.3	23.7
Others	20.8	28.8	15.6	15.1

Source: Japan Statistical Yearbook, various issues

* Includes Electrical Machinery, etc.

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

The flow of foreign direct investment from Japan also indicates that it relies heavily on the global production structure. Although, the key destination for its investment is United States, the share of its investment in United States has declined to around 24 percent in 1999-2004 from 42 percent in 1990-1998. In contrast, the share of investment in EU has increased from 37 percent in 1999-2004 from 19 percent in 1990-1998. Japan has also investing in Asia and South America of around 17 percent respectively. It is also clear that

Japan has been investing in services with nearly 60 percent of its total outward investment is in services sector. The key sectors are transport & communication, commerce, and financial & insurance industries; and with the transport & communication sector investment doubling in 1999-2004.

Table 9: Total Foreign Direct Investment from Japan by Destination (%): 1990 - 2004

Outflows		
	1990-1998	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		
	1990-1998	1999-2004
Manufacturing	36.4	41.1
Non-Manufacturing	66.3	58.9
Non-Manufacturing		
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

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 sector. The RCA_{ij} with respect to commodity i in country j is given as:

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

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

The RCA for Japan, Singapore and India are plotted in Figure 1, 2 and 3. Table 11 summarises the changing comparative advantage across the countries. The comparative advantage of Japan tend to have shifted to higher end production and its comparative advantage is mainly in SITC 7 – machinery & 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 to the higher

end production such as chemicals (SITC 5), machines & transport equipments (SITC 7) and in 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 comparative advantage in SITC 0 (food and live animals), SITC 2 (crude materials), SITC 4 (animal & vegetable oil), SITC 6 (basic manufactures), and SITC 8 (miscellaneous products). The results suggest that the comparative advantages of the 3 countries are distinct and there seems to be certain 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 support 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 inter-linkages across the 3 countries.

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

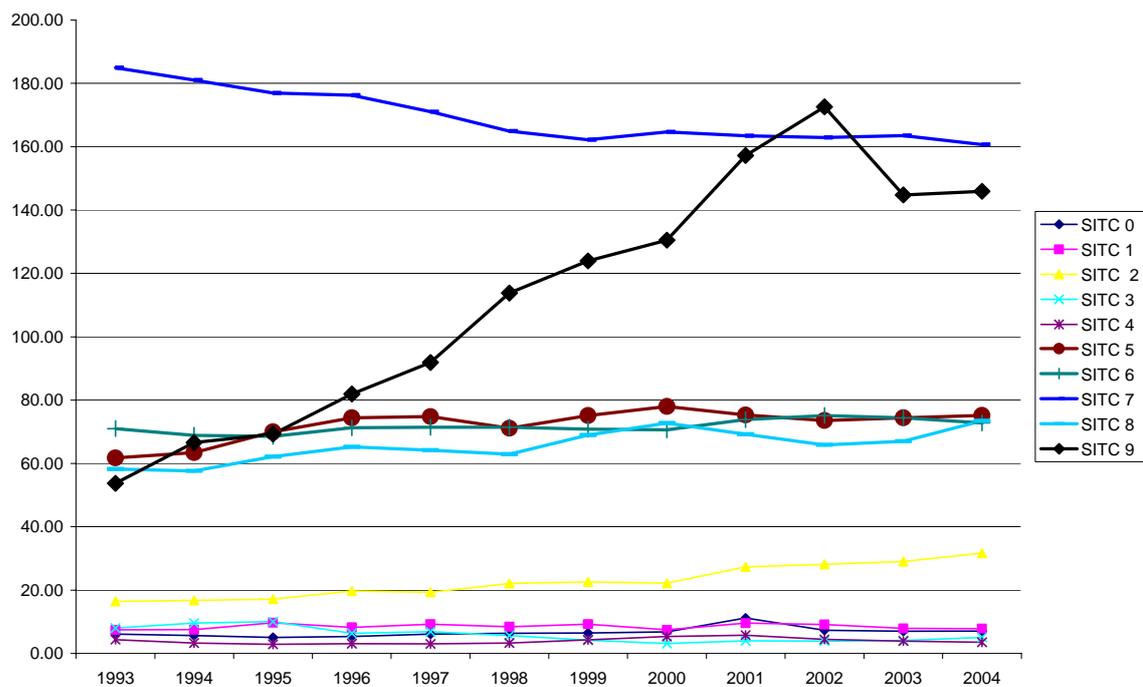


Figure 2: Singapore Revealed Comparative Advantage (RCA) from 1990 to 2004

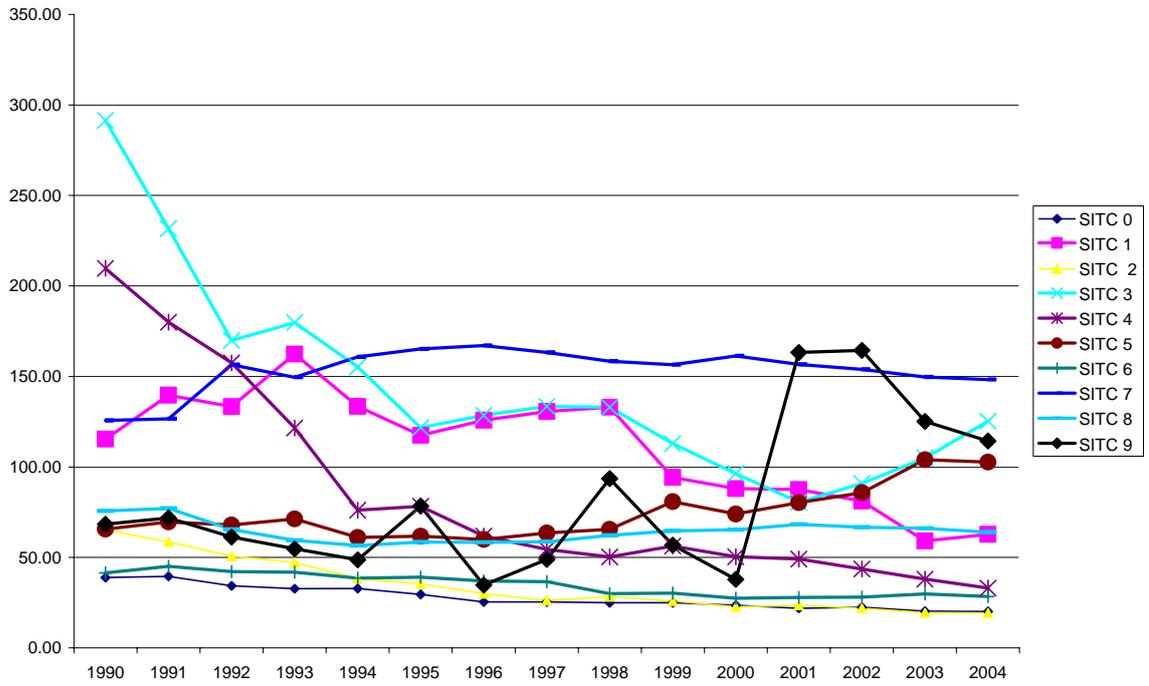


Figure 3: India's Revealed Comparative Advantage (RCA) from 1990 to 2004

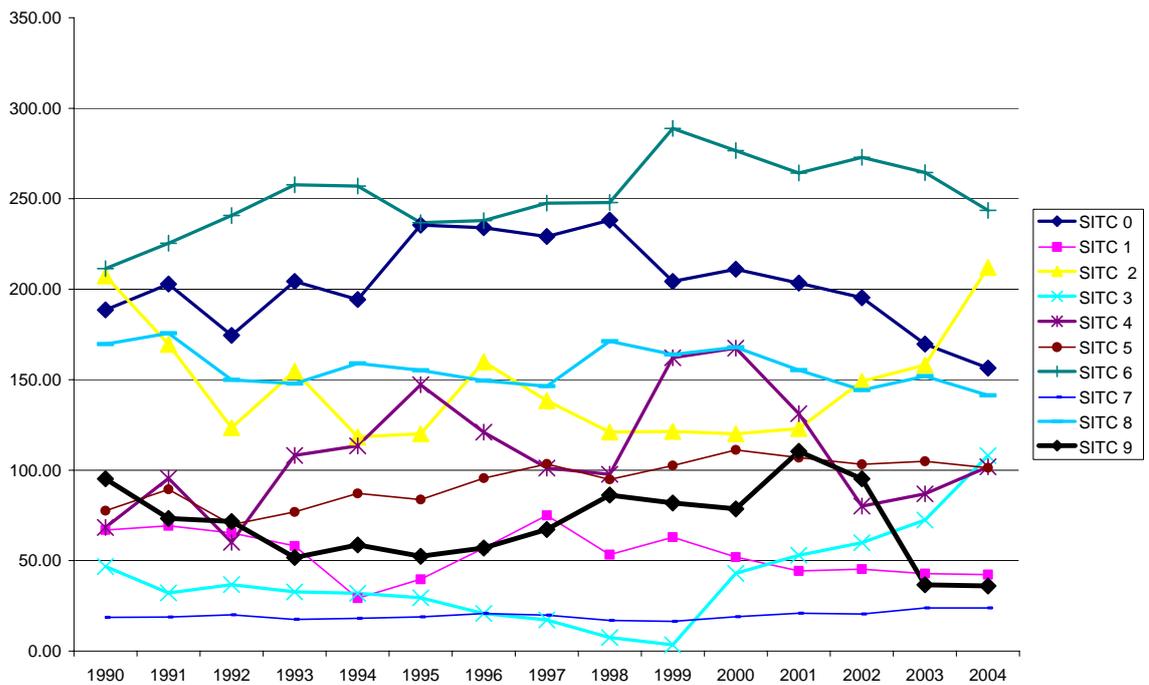


Table 11: Average RCA of India, Japan and Singapore: 1993-2004 (1-digit SITC Commodities)

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

SITC: 0 – Food & live animals; 1 – Beverages & Tobacco; 2 – Crude materials; 3 – Mineral fuel; 4 – Animal, vegetable oil, fat; 5 – Chemical; 6 – Basic manufactures; 7 – Machines, transport equipment; 8 – Miscellaneous manufactured goods; 9 – Goods not classified

5. Trade and Economic Growth: Impact on Japan and Singapore

Although the full impact of 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 post and developing the services sector in the economy. In recent years, Singapore have 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 little links with 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 been also strong in terms of flow of foreign direct investment and trade. The evidence of linkages will provide important policy implications in terms of types of 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 analyse if the growth in the Indian economy had any causal impact on the growth of Singapore and Japan. In addition to the trade variables of export and import, we also include the real GDP of Singapore and India separately in the empirical model.

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

We first conduct ADF test on the levels of real GDP (Y_t), exports (X_t), and imports (M_t) for Japan, Singapore and India. The results of these tests at the levels indicate that all the series are non-stationary for all countries at 5% 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 (cointegrating 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 is reported in Table 2. The

optimal lag length p is determined by SC (Schwartz) criteria. The Johansen's test for the above models indicate a cointegration of rank one is present in amongst the variables

Table 12: Trace / Maximum Eigenvalue Tests for Cointegration with Labour Productivity (Y_t), Exports (X_t), and Imports (M_t)

	Trace Test Hypotheses / Test Statistics			Maximal Eigenvalue Test Hypotheses / Test Statistics			Lags (p)
	r = 0	r ≤ 1	r ≤ 2	r = 0	r = 1	r = 2	
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

Notes:

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

.The main object of this study is to examine the causal relationships between Japan, Singapore and Indian output growth. Since all the variables are cointegrated, 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 cointegration 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 cointegrated system involves the estimation of the cointegration relationship and then followed by testing for non-causality in an ECM framework. The VECM with cointegrating rank r is given by

$$\Delta z_t = \mu + \alpha \beta z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta z_{t-i} + \varepsilon_t \quad (2)$$

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

$$\alpha = \begin{pmatrix} \alpha_{11} & \alpha_{12} \\ \alpha_{21} & \alpha_{22} \\ \alpha_{31} & \alpha_{32} \end{pmatrix} \text{ and } \beta = \begin{pmatrix} \beta_{11} & \beta_{12} \\ \beta_{21} & \beta_{22} \\ \beta_{31} & \beta_{32} \end{pmatrix} \text{ for the 3 variable case,}$$

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

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

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

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-run 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 exogeneity test as indicated by Charemza and Deadman (1992). In our model, we use the strong exogeneity test to determine the causal relationship between the variables.

In Table 13, we report the Chi-Square statistics for the test of the joint significance of the error correction term and the lagged difference variables for Japan, India, and Singapore. The results in Table 3 show the strong links between Japan and Singapore. Given the trade and investment flows between the two countries it was not surprising to

observe the bi-directional causal relationship between the output growth between Japan and Singapore. As compared to Singapore, Japan has only uni-directional impact on the output growth of India. This indicates that there is little economic and trade linkages between the two countries.

Table 13: The Joint Test (F-statistics) and the Granger Causality Structure of Japan GDP (Y_t), Exports (X_t) and Imports (M)

	$X_t \rightarrow Y_t$	$Y_t \rightarrow X_t$	$M_t \rightarrow Y_t$	$Y_t \rightarrow M_t$	$Y_t^F \rightarrow Y_t$	$Y_t \rightarrow Y_t^F$
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***

*, ** and *** denote 10%, 5% and 1% levels of significance respectively

The causality between exports and imports are not reported here. $Y_t^F, F=i, s,$, where i =India and s =Singapore.

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 the above simple 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 the growth and trade of Singapore, for example the India-Singapore Free Trade Agreement - CECA, will have positive impact on the trade and growth of Singapore and Japan.

6. Policy Implications and Conclusion

The 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 Free Trade Agreements 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 reducing and harmonizing regulations across countries.

The key component of 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 greater impact 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 does support 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 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 set up 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 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 flow 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” 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 negotiation such as agricultural subsidies, it is expected that FTA between India and Japan might be 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 advantage 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 the exports in skilled intensive commodities, 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 the CECA-JSEPA will provide the platform for Japanese firms to utilize the vast and rich resources in India.

References

Alejandro Lbarra-Yunes, 2003. "Spaghetti regionalism or strategic foreign trade: some evidence for Mexico", *Journal of Development Economics*, 72, pp: 567-584.

Athanasios, Vamvakidis, 1998. "Regional Integration and Economic Growth", In *The World Bank and Economic Review*, Vol. 12 no 2.

Balassa, Bela, 1961. "The Theory of Economic Integration" Illinois: Richard D. Irwin, Inc.

Baldwin, Richard, 1995. "A Domino Theory of Regionalism." In Baldwin, R., Haaparanta P., Kiander J. (Eds), *Expanding Membership of the European Union*, Cambridge University Press, Cambridge.

Bhagwati, Jagdish, 1992. "Regionalism and Multilateralism: An Overview," New York: Columbia University.

Charemaza, W.W. and D.F. Deadman, 1992. *New Directions in econometric practice*. Edward Elgar, Cambridge.

Chin, A. 2001. "Developments in the air transport industry: Implications for Singapore tourism", in *Tourism Management and Policy: Perspectives from Singapore*, Tan Ern Ser et al., eds., World Scientific (2001).

Crawford, Jo-Ann and Roberto V Fiorentino, 2005. "The Changing Landscape of Regional Trade Agreements", World Trade Organization Discussion Paper no. 8, World Trade Organization, Geneva, Switzerland.

Elek, Andrew. 2003. "Beyond Free Trade Agreements: 21st Century Choices for East Asian Cooperation", Pacific Economic Papers, no. 336, Australia-Japan Research Centre, Australian National University.

Freund, Caroline, 2000. "Spaghetti Regionalism", International Finance Discussion Paper no. 680, Board of Governors of the Federal Reserve Systems, US.

Hertel, T.W., T. Walmsley and K. Itakura. 2001. "Dynamic Effects of 'New Age' Free Trade Agreement Between Japan and Singapore, mimeo, Centre for Global Trade Analysis, Purdue University, West Lafayette.

- Johansen, S. and K. Juselius, 1990. "Maximum likelihood estimation and inference on co-integration with application to demand for money," *Oxford Bulletin for Economics and Statistics*, 52, 169-210.
- Lee, Hiro. 2000. "General equilibrium evaluation of Japan-Singapore Free Trade Agreement" in *East Asian Trade and Financial Integration: New Issues*, Drysdale, P. and Ishigaki Kenichi eds., Melbourne: Asia Pacific Press.
- Low, Linda. 2003. "Multilateralism, Regionalism, Bilateral and Crossregional Free Trade Arrangements: All Paved with Good Intentions for ASEAN?" *Asian Economic Journal*, vol. 17, no. 1, pp. 65-86.
- Maddala, G.S. and In-Moo Kim, 1998. *Unit Roots, Cointegration, and Structural Change*, Cambridge University Press, Cambridge, United Kingdom.
- Panagariya, Arvind, 1999. "Regionalism in Trade Policy" Singapore: World Scientific Publishing Co.
- Panagariya, Arvind, 2000. "Preferential Trade Liberalization: The Traditional Theory and New Developments", *Journal of Economic Literature*, Vol. XXXVIII, pp. 287-331.
- Perroni, Carlo and Whalley, John, 1994. "The New Regionalism: Trade Liberalisation or Insurance?" National Bureau of Economic Research Working Paper No. 4626, Jan.
- Roy, Martin, Juan Marchetti, and Hoe Lim, 2006. "Services Liberalization in the New Generation of Preferential Trade Agreements (PTAs): How Much Further than the GATs?" ERSD Working Paper No: 2006-07, World Trade Organization, Geneva, Switzerland.
- Sally, Razeen. 2004. *Southeast Asia in the WTO*, Southeast Asia Background Series No. 5, Institute of Southeast Asia, Singapore.
- Soeassatro, Hadi. 2003. "Asean Perspectives on Preferential Trading Arrangements", paper presented at Pacific Economic Cooperation Council Trade Forum, May 2003, PECC, Singapore.
- Thangavelu, Shandre. 2004. "Singapore: TFP", in *Total Factor Productivity Growth: Survey Report*, Asian Productivity Organization, Tokyo.
- Thangavelu, S.M. and Toh Mun Heng, 2005. "Bilateral "WTO-Plus" Free Trade Agreements: The WTO Trade Policy Review of Singapore 2004", *World Economy*, 28(9), 2005.
- Thangavelu, S.M. and G. Rajaguru, 2004. "Is there an export-led or import-led productivity growth in rapidly developing Asian countries? A multivariate VAR analysis", *Applied Economics*, Vol. 36, No. 10, pp. 1083-1093, 2004.
- Tongzon, Jose. 2003. "US-Singapore Free Trade Agreement: Implications for ASEAN", *ASEAN Economic Bulletin*, vol. 20, no. 2, pp. 174-78.

Yokota, Kazuhiko, and Hideki Imaoka, 1993. "Structure of Trade Interdependence in Asia" In Ohno (ed.), *Regional Integration and its Impact on Developing Countries* Tokyo: Institute of Developing Economies.

Yi, S. 1996. "Endogenous Formation of Custom Unions Under Imperfect Competition: Open Regionalism is Good." *Journal of International Economics*, 41, pp. 153-177.

Appendix

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 to 10 years for others.	Based on a positive list. Trade in Goods chapter provides for tariff concessions. Tariffs on approximately 75% of Singapore's domestic exports will be eliminated or reduced within next 5 years. The sectors that will benefit include electrical and electronics, instrumentation, pharmaceuticals, 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	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	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	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	Based on a negative list, with exceptions to market access and national treatment listed in annexes. Singapore's commitments beyond the GATS include professional,	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

	either of the parties. Singapore's commitments beyond GATS include professional, telecommunications financial, business, and transport services.	GATS-include professional, telecommunication, financial, business, and transport services.	commitments beyond GATS include professional, telecommunication, financial, business, and transport services.	operations” in either of the parties. Singapore's commitments beyond GATS include professional, telecommunication, financial, business, and transport services.	telecommunications, financial, business, and transport services.	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 <i>inter alia</i> 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 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.	Intellectual Property (IP) cooperation and collaboration in terms of joint organization of training programs, and collaboration on projects that promote 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 prohibited.	Market Access for investments is based on the principle of National Treatment subject to the commitments or reservations 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.	

Note: Details of rules of origin under these agreements are provided in Chapter III (Table III.3).

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

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

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 4 years. Indian banks that satisfy Singapore’s admission criteria will be given Wholesale bank licenses and up to 3 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% to 49% for basic, cellular and long-distance services and 74% 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 specialist within organizations) will be permitted to stay and work in India and Singapore for an initial period of up to 2 years or the period of the contract, whichever is less. The period could be extended up to 3 years and total term not exceeding 8 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_t^i) and Singapore GDP (Y_t^s): 1960 to 2005

Variables	Levels		1 st 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_t^i	-1.98	1	-8.59***	1
Y_t^s	-0.86	1	-5.41***	1

Notes: *, ** and *** denote rejection of a unit root at the 10%, 5% and 1% levels of significance respectively