Chapter **2**

The Impact of ASEAN +1 FTAs on ASEAN's Trade

Misa Okabe
Wakayama University, Japan

August 2015

Chapter 2

Impact of Free Trade Agreements
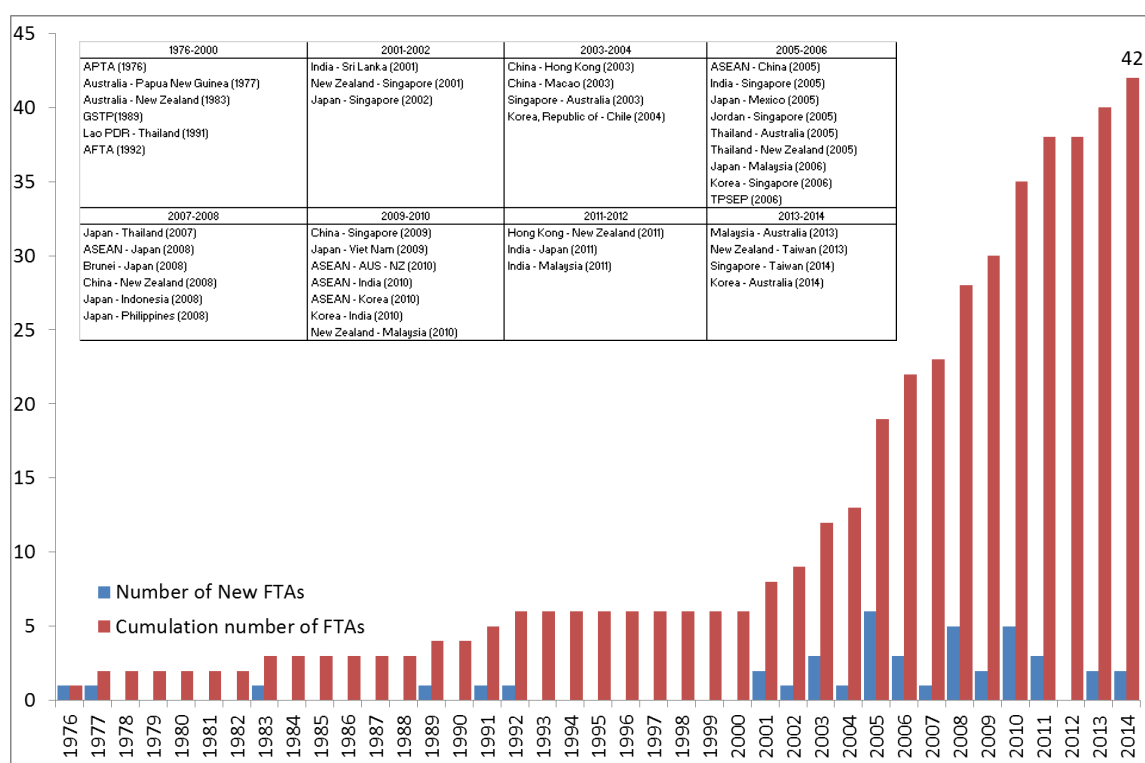# on Trade in East Asia

Misa Okabe
Faculty of Economics, Wakayama University

With the number of free trade agreements (FTAs) in East Asia having increased rapidly since the beginning of this century, a large number of studies have attempted to assess the impact of FTAs in the region. In the first half of this paper we review empirical studies of ex-post evaluation of FTAs in East Asia. Although few studies found robust trade creation effects of AFTA in the 1990s, recent studies indicated that tariff elimination under AFTA promoted regional trade amongst Association of Southeast Asian Nations (ASEAN) countries. Likewise, with regard to bilateral FTAs in East Asia, some ex-post evaluation studies show that these FTAs have had some positive impact on trade, not only as a result of tariff elimination under the FTAs but also due to other liberalisation measures. In the second half of this paper we conduct an empirical analysis on the impact of ASEAN FTAs. We found that trade creation effects of imports under the ASEAN–China FTA (ACFTA) and the ASEAN–Korea FTA (AKFTA) appear in industrial supplies, capital goods, and consumption goods between members. The impact of the ASEAN–Japan FTA (AJCEP) remains unclear in many cases. These results suggest that these regional FTAs facilitate trade when production and sales networks amongst members have already been developed. However, the newer FTAs, the members of which are the same as precedent FTAs, have had little impact on trade amongst members. To be effective, a region-wide FTA, such as the Regional Comprehensive Economic Partnership, needs to have a higher level of liberalisation and lower utilisation costs than the existing ASEAN+1 FTAs in the East Asia.

1. Introduction

According to the regional trade agreement (RTA) database of the World Trade Organization (WTO), the number of RTAs notified to the WTO has increased rapidly since the early 1990s, with 612 RTAs notified as of April 2015. One reason for the surge in RTAs is that global trade liberalisation under the WTO system has not proceeded smoothly with the increasing number of member countries. Many countries have pursued trade liberalisation by forming bilateral or plurilateral trade agreements to gain various economic benefits.[1] As regards free trade agreements (FTAs) in East Asia, bilateral and regional FTAs have increased rapidly since 2000 in line with the global trend of RTA formation. Table 1 shows the number of RTAs in East Asia. Until the 1990s, few countries had joined regional or inter-regional agreements of trade preference schemes such as the Asia Pacific Trade Agreement (APTA) and the Global System of Trade Preferences among Developing Countries (GSTP). Although East Asia established the first regional FTA in the region – the Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA) in 1992 – it had lagged other regions in the world in terms of the formation of regional FTAs. For this reason, until the early 2000s, East Asia was referred to as an 'FTA vacuum'. But since the second half of the 2000s, bilateral FTAs in the region have rapidly increased, and five region-wide FTAs were established – the ASEAN–China FTA (ACFTA), the ASEAN–Japan EPA (AJCEP), the ASEAN, Australia and New Zealand FTA (AANZFTA), the ASEAN–Korea FTA (AKFTA), and the ASEAN–India FTA (AIFTA). By the end of 2014, East Asian countries had formed more than 40 FTAs and a wider regional FTA, the Regional Comprehensive Economic Partnership (RCEP), has been under negotiation.

---

[1] Such benefits result from a trade creation and market expansion effect through elimination of trade barriers and various dynamic effects such as capital accumulation and productivity improvement brought about by liberalisation of foreign direct investment (FDI) and technology transfer amongst member countries. Viner (1950) was the first study to discuss the static effects of regional trade integration in terms of trade creation and diversion. The dynamic theory of regional economic integration by Balassa (1961) is the first attempt to introduce the dynamic effects of economic integration such as scale economy, technology change, and impact on competition. Up to the present, a number of theoretical studies have indicated that the dynamic effects of economic integration benefit member countries more than static effects.

Figure 2.1: Number of RTAs amongst East Asian Countries

1976-2000	2001-2002	2003-2004	2005-2006
APTA (1976)	India - Sri Lanka (2001)	China - Hong Kong (2003)	ASEAN - China (2005)
Australia - Papua New Guinea (1977)	New Zealand - Singapore (2001)	China - Macao (2003)	India - Singapore (2005)
Australia - New Zealand (1983)	Japan - Singapore (2002)	Singapore - Australia (2003)	Japan - Mexico (2005)
GSTP(1989)		Korea, Republic of - Chile (2004)	Jordan - Singapore (2005)
Lao PDR - Thailand (1991)			Thailand - Australia (2005)
AFTA (1992)			Thailand - New Zealand (2005)
			Japan - Malaysia (2006)
			Korea - Singapore (2006)
			TPSEP (2006)

2007-2008	2009-2010	2011-2012	2013-2014
Japan - Thailand (2007)	China - Singapore (2009)	Hong Kong - New Zealand (2011)	Malaysia - Australia (2013)
ASEAN - Japan (2008)	Japan - Viet Nam (2009)	India - Japan (2011)	New Zealand - Taiwan (2013)
Brunei - Japan (2008)	ASEAN - AUS - NZ (2010)	India - Malaysia (2011)	Singapore - Taiwan (2014)
China - New Zealand (2008)	ASEAN - India (2010)		Korea - Australia (2014)
Japan - Indonesia (2008)	ASEAN - Korea (2010)		
Japan - Philippines (2008)	Korea - India (2010)		
	New Zealand - Malaysia (2010)		

Note: Calculated based on WTO RTA database. Figures represent the number of FTAs established by ASEAN members, Australia, China, India, Japan, Korea, and New Zealand.

Intra-regional trade in East Asia has been increasing since the 2000s with the increase of FTAs in the region. Figure 2.2 shows the share and value of intra-regional trade of the ASEAN countries, Australia, China, India, Japan, Korea, and New Zealand. Intra-regional trade volumes have been rapidly increasing since the Asian currency crises of 1997, and the share of intra-regional trade has consistently exceeded 40% since the early 2000s. This rapidly increasing trend of regional trade reflects rapidly growing regional production in manufacturing sectors supported by extra-regional foreign direct investment (FDI). The upsurge of regional FTAs in the region seems to be an important factor to attract FDI and of productivity improvement. Detailed studies on the impact of FTAs on trade are indispensable for all of the countries in the region where new FTAs have been established or are being negotiated.

In the first half of this paper we review studies on the impact of FTAs on trade in goods in East Asia.

Figure 2.2: Regional Trade in ASEAN+6 Countries
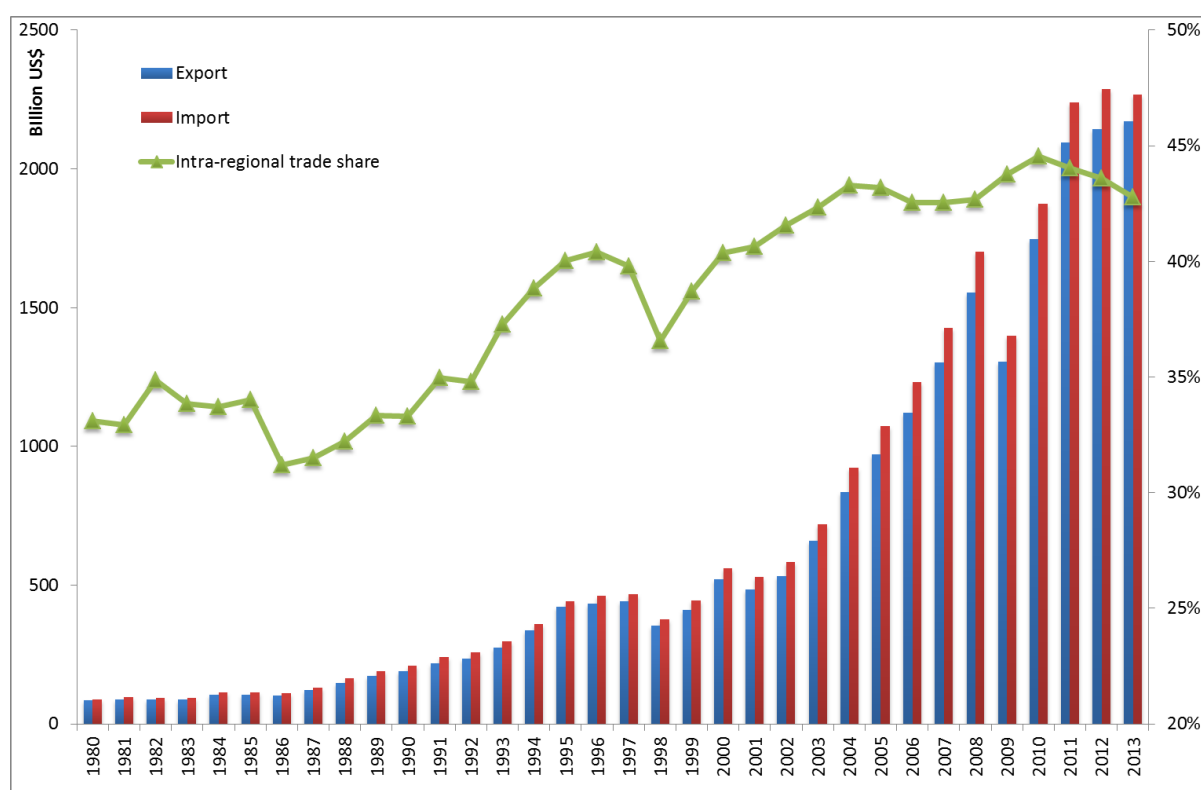
Notes: 1) ASEAN+6 countries comprise the 10 ASEAN members, Australia, China, India, Japan, Korea, and New Zealand. 2) Regional trade share is the share of regional trade value amongst the ASEAN+6 countries in the total trade value of the world.
Source: The United Nations COMTRADE statistics.

Two types of analysis are used to assess the impact of FTAs on trade in goods – ex-ante and ex-post analysis. Ex-ante analysis is useful for estimating the impact of an FTA before it is enforced. A typical ex-ante analysis is a simulation analysis using a computable general equilibrium (CGE) model, which enables us to investigate the impact of an FTA on various aspects of the economy such as trade value, production, and economic welfare by sector or country. We can estimate both the direct and indirect impact of different FTA types on various aspects of the economy by using CGE model analysis.

Most ex-post analysis is in the form of empirical studies applying a gravity model to trade data. The gravity model, originally developed by Tinbergen (1962) and Poyhonen (1963), has been used extensively for over 50 years to explain trade patterns. The theoretical background of the gravity model has been developed since the late 1970s in line with the development of trade theory, from traditional trade theory to the 'New–new' trade theory. Estimation methodologies have also been improved since the 1990s, and there have been various studies of methods to cope with endogeneity and zero-trade flow

problems.

We reviewed mainly ex-post studies on the impact of regional FTAs in East Asia in section 2. Section 2.1 gives an overview of empirical analyses on the general impact of tariff reductions as part of FTAs on trade in goods. Sections 2.1.1 to 2.1.3 focus on studies related to AFTA, and regional and bilateral FTAs in East Asia. Section 2.2 discusses studies of other trade liberalisation measures related to FTAs and channels of impact of FTAs. Section 2.3 provides an overview of the findings of studies on the utilisation of FTAs in East Asia.

We conduct an empirical analysis on the impact of five ASEAN+1 FTAs on trade in goods by using the gravity model in Sections 3 to 5. Ex-post evaluation of these recent regional FTAs is important to predict the future impact of the RCEP currently being negotiated and to design policies to facilitate economic development in the region under the region-wide FTA. Despite the importance of ex-post investigation of these ASEAN+1 FTAs, there have so far been only a few studies on their impact. Based on recent developments in empirical methodology, we apply gravity equations with FTA dummies to trade flows in each sector and county. Section 3 describes the process of the formation of each FTA. Section 4 explains estimation the methodology and data used. Section 5 discusses the estimated results and Section 6 summarises the results and policy implications for a region-wide FTA, the RCEP.

2. Literature Review on FTA's Impact on Trade in Goods in East Asia

2.1. Impact of FTAs on Trade in Goods in East Asia: Ex-post Evaluation

2.1.1. ASEAN Free Trade Area

AFTA was signed in 1992. The key objective of AFTA is trade liberalisation under the Common Effective Preferential Tariff (CEPT) scheme to eliminate tariffs on intra-ASEAN trade, which have been in effect since January 1993. AFTA was scheduled to reduce tariff rates on products in the Inclusion List to a level between zero and 5 percent by 2008 at first, then the target date was moved to 2002. Moreover, the ASEAN–CEPT agreement was revised significantly by the ASEAN Trade in Goods Agreement in 2008. The tariff rates of the products in the Inclusion List were scheduled to be entirely abolished by 2010 for the six ASEAN countries and by 2015 for the remaining four countries. By 2010, the share of tariff lines with the zero percent tariff rate was about 99 percent for the six countries, and the

share of tariff lines with zero to 5 percent tariff rate was more than 95 percent for the remaining four countries. Over the last 20 years, tariff elimination under the AFTA has almost been completed.

At the start of AFTA, according to Frankel (1997), many studies presumed that trade creation by AFTA would be small. For example, DeRosa (1995) used a CGE model to find that Most-Favoured Nation (MFN) tariff liberalisation of ASEAN members would increase trade more than trade liberalisation by AFTA. Frankel and Wei (1995) examined the impact of ASEAN's regional trading bloc by using a gravity model with ASEAN dummies. Although the coefficient of ASEAN dummy was significant and had positive values, they found that this ASEAN bloc effect disappeared completely when the East Asian bloc effect dummy was added to the estimated equation simultaneously with the ASEAN dummy. They concluded that ASEAN trade relations with outside industrialised countries are more important than intra-ASEAN trade relations. Endoh (1999) introduced two types of RTA dummies, which capture trade creation and diversion effect to a gravity model. Based on the estimated results, he found that ASEAN had no effect in boosting trade amongst its member countries during sample periods from 1960 to 1994. He presumed that this result reflects the fact that the share of intra-ASEAN trade in total trade of each ASEAN country is still low.

As described in the previous section, the methodology to estimate the gravity model has been developed since the 2000s. Furthermore, data coverage has been expanded. Soloaga and Winters (2001) used a Tobit model for estimation with consideration of zero trade flows. They quantified the impact of major preferential trade agreements on trade. The coefficient of the intra-bloc trade of ASEAN was negative but insignificant. Likewise in previous studies, ASEAN countries' trade with outside regions were significantly facilitated. Given that country-pair effects are unobservable, Carrère (2006) applied the instrumental variable method proposed by Hausman and Taylor (1981). Comparing the estimation results by panel and cross-sectional data, she found that most RTAs resulted in an increase in intra-regional trade whilst reducing imports from the rest of the world. As for ASEAN, a trade creation effect was seen over the sample periods.

With increasing interest in the growing intra-regional trade of ASEAN members since the 1990s, the number of studies focusing on the impact of AFTA has been rising. Elliot and Ikemoto (2004) applied a modified gravity model to examine trade creation and diversion effects by AFTA. Comparing the estimated coefficient of AFTA dummies before

and after the AFTA process started, they found that both trade creation and trade diversion effects are significantly positive. Their findings indicate that AFTA increased not only intra-regional trade amongst its members, but also trade with non-members. Kien (2009) employed the Hausman–Taylor estimation for panel data from 1988 to 2002 to estimate several RTAs. By using AFTA dummy, which takes the value of one after 1993, he investigated the effect of AFTA as an institutional framework rather than as a regional trading bloc. Similar to Elliot and Ikemoto (2004), the result indicates that AFTA gives rise to a trade creation effect; at the same time, the effect of AFTA on trade between members and non-members was positive. Controlling unobserved heterogeneity by a using country-pair specific time trend, Bun et al. (2009) applied two types of AFTA dummies – an AFTA dummy that takes the value of one between members after the year 1992, and an AFTA dummy multiplied by a time trend which captures the effect of gradual tariff reduction under AFTA. They found that AFTA positively affected trade during the sample periods, and suggested that careful control for unobserved explanatory variables of the trend in trade is necessary for testing the impact of AFTA.

Although many studies had concluded that ASEAN regional trade blocs had little impact at the beginning of AFTA, several recent studies have found that as AFTA progressed, it made a significant and positive impact on trade. This transition of research findings is also caused by improved data availability and estimation methodology. These studies lead us to the temporary finding that the institutional framework of AFTA has facilitated intra-regional trade to a varying degree. In addition, trade liberalisation under RTAs is usually implemented through several measures along with tariff elimination. To understand the impact of FTAs more fully, it is necessary to investigate the effect of these measures directly.

Several studies have attempted to estimate the impact of the tariff elimination process under the CEPT scheme of AFTA by using tariff data. Manchin and Pelkmans–Balaoing (2007) applied a gravity model with time-varying country fixed effects as multilateral trade resistance (MTR) terms for aggregated and disaggregated trade data to estimate the effects of preferential AFTA tariffs on trade flows of AFTA members. Although their data set is limited to four ASEAN members in 2001–2003, they carefully investigated the impact of different preferential margins on trade. The result shows that the tariff reduction effect of AFTA basically has no or little impact on intra-ASEAN trade. However, they found that positive tariff reduction effects of AFTA are significant in a limited range of

products where the preferential margin is higher than 25 percent. Interestingly, their result implies that the cost of using AFTA is higher than the benefit from obtaining the preferential treatment when the difference between the MFN tariff rate and the preferential AFTA tariff rate is small. Similar to Manchin and Pelkmans–Balaoing (2007), Okabe and Urata (2014) utilised preferential margin, defined as the difference between the MFN rates and preferential tariff rate under the CEPT scheme as an explanatory variable of the gravity model. They investigated the effects of tariff reduction under the CEPT scheme in each ASEAN member in 1980–2010. They found positive and significant trade creation effects from tariff reduction for a wide range of products; the elasticity of tariff reduction on imports tends to be much larger than that on exports.

Although there are very few studies on the impact of tariff reduction under AFTA, it could be argued that tariff reduction under AFTA has a positive impact on regional trade in products where the difference between the MFN tariff rate and AFTA tariff rate is big, and on regional trade between countries trading in relatively large volumes. However, the impact on trade flow is basically not so strong. Also, the effect of tariff reduction under AFTA on newer members is limited. Based on these results, tariff reduction under AFTA is not necessarily the most important measure to promote region-wide trade. To promote region-wide trade in ASEAN and to make AFTA contribute to raising the economic welfare of all member countries, other measures such as trade facilitation, reduction of non-tariff measures (NTMs), and coordination of rules of origin (ROO) as well as improvement of AFTA utilisation should be examined carefully. We will review studies on other measures in the following sections.

Table 2.1: Results of Studies on the Impact of ASEAN or AFTA

Authors (year)		Methodology	Data	Trade Creation, Estimated Coefficient (elasticity)
Endoh (1999)	ASEAN dummy	Cross-section analysis, by pooled data	80 countries, 1960–1994	0.589–0.778 (80%–117%)
Carrère (2006)	ASEAN dummy	GL and Hausman–Taylor estimation, panel data	130 countries, 1962–1996	0.64–2.02 (90%–653%)
Elliot and Ikemoto (2004)	AFTA dummy	Cross-section analysis by pooled data	34 countries, 1983–1999	0.35–2.03 (42%–661%)
Kien (2009)	AFTA dummy	Hausman–Taylor estimation with two-way components	39 countries, 1988–2002	0.626 (87%)
Bun, Klaasen, and Tan (2009)	AFTA dummy *time trend	Panel data approach with country-pair specific time trends	217 countries, 1948–1997	0%–9% annually in average
Manchin and Pelkmans–Balaoing (2007)	AFTA Tariff rate	Panel data with time-varying country fixed effects	217 countries, 2001–2003	0.19–0.96% change when preferential margins are from 25% to 60%
Okabe and Urata (2013)	AFTA tariff rate	Hausman Taylor estimation	52 sectors, 193 countries 1980–2010	0.36% for export, 0.38% for import

Note: Elasticity of AFTA dummy with trade is calculated by (EXP (estimated value) -1)*100.

2.1.1. ASEAN+1 FTAs

More recently, several studies attempted to examine the impact of ASEAN+1 FTAs by using some trade indices or by estimation using trade data. Sheng et al. (2014) estimated a gravity model using intra-industry trade flow data in parts and components during 1980–2008, and the predicted trade creation effect on intra-industry trade under ACFTA based on actual 2008 data. They found that ACFTA will have a substantially larger impact on trade flows between members, particularly based on close international production linkages, whilst the positive impact will be spread unevenly amongst ASEAN countries. Likewise, Yang and Mattinez–Zarzoso (2014) examined the impact of ACFTA by applying a gravity model by using aggregated and disaggregated data. They found that ACFTA has a trade creation effect in total trade and trade in manufacturing and chemical products. By using trade indices, such as trade intensities and trade potential index, several studies attempted to estimate adequacy and predicted impact by sector. Chandran (2012) assessed the impact of the India–ASEAN FTA (AIFTA), focusing on India's fishery sector by using trade indices and a comparative advantage index. Based on sector analysis, he concluded that India could

35

improve trade by tariff elimination under AIFTA with some ASEAN countries, particularly less-developed members.

So far there have only been few ex-post evaluations of ASEAN+1 FTAs, as not much time has elapsed since the start of these FTAs. Considering the results of previous ex-ante studies, investigating the impact of various measures along with tariff elimination under ASEAN+1 FTAs should provide interesting findings. And, as demonstrated by Sheng et al. (2012) and Chandran (2012), examining the impact of ASEAN+1 FTAs on the growth gap amongst member countries and on trade flows by the industrial sector in the long term is another interesting research topic.

2.1.2. Bilateral FTAs in East Asia

Likewise, regarding ASEAN+1 FTAs, there have been few ex-post studies on bilateral FTAs in East Asia due to the limited availability of data. Ando (2007) examined the impact of the Japan–Singapore Economic Partnership Agreement (EPA) and the Japan–Mexico EPA by applying a gravity model to trade data at the commodity level. Comparing actual values to fitted values before and after the EPA's implementation, she found that the Japan–Singapore EPA has had little impact on trade, whereas the Japan–Mexico EPA has had a positive impact on trade, particularly on exports. She reasoned that the actual reduction of tariffs by the Japan–Singapore EPA is quite limited. Also, considering additional analysis of various situations beyond trade liberalisation, she indicates that conditions beyond tariff elimination, such as business environment and EPA utilisation, are important factors to be taken into account when designing an effective EPA for trade liberalisation. Athukorala and Kohpaiboon (2011) examined the impact of the Thailand–Australia FTA (TAFTA), paying attention to the implications of ROO and the utilisation of tariff preferences. By linking a data set of utilisation of tariff preferences by traders to bilateral trade volumes between Australia and Thailand, they found that trade expanded faster after TAFTA came into effect, but the impact was heavily concentrated on a few product lines in Australian imports from Thailand. They pointed out that the reason for the limited impact can be attributed to the rate of FTA utilisation. Hence, their results suggest that enhancing FTA utilisation is also necessary to strengthen the positive impact of FTAs. To sum up so far, similar to the result of studies on AFTA and other FTAs in East Asia, ex-post studies on bilateral FTAs also show

that bilateral FTAs positively impact trade. To some extent, however, the positive impact is brought about by tariff elimination under FTAs and by other necessary conditions for trade liberalisation such as greater utilisation of preferential tariffs.

2.2. Measures other than Tariff Elimination and Channels of FTA Effects

With the elimination of tariffs under FTAs progressing, the importance of reducing Non-tariff barriers (NTBs), harmonising ROO under several cumulative FTAs in East Asia, and implementing other measures, such as trade facilitation and improvement of transport infrastructure, has been increasingly recognised. For example, ASEAN prescribes that NTBs be eliminated gradually within five years after the concessions applicable to the products. Also, ASEAN+1 FTAs – for example, AANZFTA and AKFTA – include detailed guidelines on the elimination of Non-tariff measures (NTMs).

A major cost of FTA utilisation at the firm level arises due to certificates of origin[2]. Therefore, efficient administration of ROO is an important factor in facilitating trade creation under FTAs by increasing utilisation of FTAs[3]. Medalla and Balboa (2009) examined the various design and implementation practices in ROO regimes, focusing on RTAs where ASEAN is involved. Likewise, Medalla (2011) compiled a database on the ROO of AFTA, ASEAN+1 FTAs, and bilateral FTAs forged by Japan with ASEAN members. Hayakawa and Laksanapanyakul (2013b) constructed a list of ROO in Thailand of ACFTA, AKFTA, and AJCEP to calculate a new measure of FTA liberalisation. Based on their list, most preference products follow a regional value contents (RVC) in the case of ACFTA and AKFTA, whereas AJCEP sets many product-specific rules and a relatively large number of products follows 'change heading or RVC' (CH/RVC) or 'change in chapter' (CC). Judging from these recent studies, there is a significant divergence in types of ROO of cumulative regional FTAs in the region. Also, the restrictiveness of ROO varies significantly depending on products and each ASEAN+1 FTA.

---

[2] Medalla and Balboa (2009) pointed out that the cost of ROO immediately impacts FTA utilisation.

[3] Cadot, de Melo, and Portugal–Perez (2006) found that a 10-percentage point reduction of the local value content requirement increases the utilisation rate by between 2.5 and 8.2 percentage points by using data on trade between the European Union and the Generalized System of Preferences and the Africa, Caribbean, and Pacific partners. Also, Carrère and de Melo (2004) identified the difference of compliance cost of ROO by using Mexican exports to the United States under the North American Free Trade Agreement (NAFTA), and found that the highest compliance cost is caused by technical requirements, followed by regional value content, and by a change in tariff classification.

To enhance trade creation effects under FTAs by reducing FTA utilisation costs, ROO should be simpler and less restrictive[4]. In addition, convergence of all ROO under FTAs in East Asia where six multilateral regional FTAs and many bilateral FTAs coexist is necessary to increase utilisation of both existing FTAs and the region-wide FTA being formed. Hayakawa and Lakusanapanyakul (2013a) examined the impact of ROO on FTA utilisation by using Thai export data under ACFTA and AKFTA. They found that the harmonisation to 'change in tariff classification (CTC) or RVC' amongst FTAs has a significantly positive effect on utilisation of multiple FTAs. Furthermore, using data on Thai exports to Japan under JTEPA and AJCEP, Hayakawa (2012) compared the impact of ROO under a bilateral FTA with a multilateral FTA. He found that a multilateral FTA – diagonal cumulation – brings about 4 percent trade creation effects. Cadot and Ing (2014) examined the effect of ASEAN's ROO on regional trade by applying a disaggregated gravity model. They found a fairly high ad-valorem equivalent of ROO in ASEAN in some sectors in which some rules appear more restrictive than others.

The relationship between ROO and trade flows is more complicated than that between elimination of tariff measures and trade flows. The latest studies referred to above have gradually unveiled the impact of ROO on trade. Their investigation clearly shows that harmonising and conforming to unrestrictive ROO amongst FTAs is necessary to facilitate trade of goods in the region.

Whereas the importance of removal of NTBs is recognised and most FTAs in East Asia include provisions on NTBs, there is no standard measure of NTBs amongst these FTAs. Several methodologies to measure NTBs are available, and each methodology has merits and demerits. Also, NTBs vary widely in scope, ranging from direct trade measures to indirect measures. As Deardorff and Stern (1997) observed, 'NTBs are defined by what they are not, that is NTBs consist of all barriers to trade that are not tariff.' Hence, construction of quantitative data on NTBs under FTAs for empirical analysis is not an easy task.

Carrère and Melo (2011) reviewed studies on the impact of NTMs on trade flows mainly between European Union (EU) members or Organisation for Economic Co-operation and Development (OECD) countries. She found that (1) NTBs have a negative effect on the

---

[4] Hayakawa, Laksanapanyakul, and Urata (2015) estimated the costs for utilisation of FTA by using custom data on Thai imports. They found that the median costs are around two thousand US dollars in the case of exporting from China, and around one thousand US dollars in the case of exporting from Korea.

volume of bilateral trade, (2) core NTBs are more restrictive than existing tariffs, and (3) these core NTMs limit market access more for low-income countries. In contrast, Hayakawa, Ito, and Kimura (2015) decomposed trade creation effect of RTAs into those due to tariff reduction, on the one hand, and those due to removal of NTBs, on the other, by applying a gravity model to disaggregated tariff-line level trade data. They found significantly positive trade creation effects due to tariff reduction, whereas NTB removal has a weak effect.

Although ASEAN provides the NTM database of each member country at HS 9-digit level, the data is qualitative, not quantitative, and the classification of commodities is not completely standardised amongst member countries. Therefore, it is not easy to utilise the database to conduct an empirical analysis[5]. Due to the limitation of NTM data, only few studies have been conducted on the impact of NTBs on trade under FTAs in East Asia. Taking into account the previous studies on NTBs in the world, the impact of NTBs on regional trade in East Asia also needs to be examined. A comparable and quantitative database of NTMs of each member country of FTAs in the East Asia region is necessary for a detailed analysis on the impact of NTMs.

2.3. Utilisation of FTAs

As discussed above, utilisation of FTAs is an important factor in realising trade liberalisation under FTAs. As Athukorala and Kohpaiboon (2011) demonstrated, improving the utilisation of FTAs by exporters could significantly increase the positive impact of FTAs on trade between members. Several studies estimated the utilisation rate of FTAs in East Asia. Hayakawa et al. (2013) analysed the reasons for the low utilisation rates in East Asia by using survey data on Japanese affiliates in ASEAN. They identified two major reasons for the low utilisation rate in ASEAN. One is high fixed costs such administrative cost, and the other is low general tariff rates in electric parts and components, which are major traded goods in ASEAN. Kohpaiboon (2010) demonstrated that FTA utilisation rates in Thailand for its exports to four ASEAN members in 2008 ranged from 16.7 percent to 27.4 percent. Also, according to Sukekawa (2009), who calculated the utilisation rate of AFTA by Thailand using statistics of export values through AFTA issued by the government, the utilisation rate in Thailand was 26.8 percent in 2008. According to Wignaraja et al. (2010), whilst the

---

[5] Ando and Obashi (2010) constructed a comparative and quantitative NTM database based on the ASEAN NTM database. Cadot, Munadi, and Ing (2013) compared NTMs in ASEAN with other regions.

utilisation rate in Thailand is low (25 percent of respondents), it seems set to rise gradually. Besides, Hayakawa et al. (2013) pointed out that firms may use an FTA even if the preferential tariff rate is not lower than the MFN tariff rate in the case of ASEAN+1 FTAs, due to its diagonal cumulation rule.

Looking at FTAs other than the AFTA, Cheong et al. (2010) compared the utilisation rate of each Korean FTA. Their major findings are that the utilisation rate of the Korea–Chile FTA was very high, above 90 percent for the four years following implementation of the FTA, whereas that of the Korea–Singapore FTA, the Korea–EFTA, and AKFTA was relatively low, ranging from 29.8 percent to 43.3 percent. They concluded that the major reason for the high utilisation rate of the Korea–Chile FTA is the active utilisation by staple products groups whilst the relatively low rate of the Korea–Singapore FTA is attributed to the fact that products imported to Korea from Singapore are not likely to meet the ROO since Singapore is a transit-trading country. Takahashi and Urata (2010), based on a survey of Japanese firms, found that lack of knowledge about the FTAs and difficulties in obtaining certificates of origin are the two most serious obstacles to increasing the use of FTAs. Likewise, Wignaraja et al. (2010) found that more than one quarter of firms felt that dealing with multiple ROO significantly raises business costs.

The above studies on utilisation of FTAs reveal that FTA utilisation tends to be low at the early stages of an FTA, but that in many cases of FTAs in East Asia it gradually rises. The use of FTAs, however, entails high costs for firms, in particular for smaller companies. Further research is needed on what factors are important in decreasing the costs of FTA use, so that FTAs will have a positive impact on all sectors and companies. Moreover, the measuring method of the FTA utilisation rate is still at the development stage. Hamanaka (2013) pointed out the confusion on the use of FTAs due to a lack of consensus on the meaning of the utilisation rate and a lack of knowledge on biases due to various problems, such as indicator selection, time lag of FTA implementation, and specification of trade flows. He warned that the use of FTAs measured by certificate of origin data has a time-growing upward bias, hence the utilisation rate based on such data shows an increasing trend even though the utilisation rate has not necessarily improved. Also, he pointed out that firm surveys suffer from several methodological problems that cause an upward bias. It is fundamentally important to assess the situation of FTA use accurately for research on the effects of FTAs on trade. Consensus on the measurement of FTA utilisation rates based on

constructing appropriate data and accumulation of research is necessary to be able to reach sound conclusions and assess policy implications.

More detailed studies on both ROO and utilisation rates of each FTA is necessary to investigate the opportunity cost of utilising particular FTAs. Such studies are also useful for clarifying the impact of ROO design on trade under FTAs. Investigating the impact of various measures other than tariff reduction under an FTA is not easy, but necessary for a deeper understanding of the impact of FTAs in the East Asia region.

3. Empirical Investigation on the Impact of Five ASEAN+1 FTAs

ASEAN's six dialogue partners – Australia, China, India, Japan, Korea, and New Zealand – have formed bilateral FTAs with ASEAN members since the middle of the 2000s. For example, Japan has formed seven bilateral FTAs with other ASEAN members, starting with Singapore in 2002. Singapore has actively arranged bilateral FTAs with all these dialogue partners. Thailand and Malaysia also have arranged bilateral FTAs with Australia, New Zealand, and India since the late 2000s. As the active FTA proponent in the region, ASEAN, where regional economic integration amongst member countries started in the 1990s, has taken on the role of a hub of regional FTA networks in East Asia. After the ACFTA came into force in 2005, four more ASEAN+1 FTAs – AKFTA, AJCEP, AANZFTA, and AIFTA – were formed in the region[6].

Production and sales networks accompanied by industrial agglomeration revolving around ASEAN have been developed in East Asia since the 1990s. Regional FTAs in the region are more important than bilateral FTAs, as regional FTAs enable multinational enterprises (MNEs) to effectively use the expanding regional production and sales networks as a means of increasing their productivity by reducing transport and transaction costs across countries. Furthermore, a wider regional FTA, the Regional Comprehensive Economic Partnership (RCEP), covering AFTA and five ASEAN+1 FTAs, is in the process of negotiation. RCEP is expected to play the role of the regional FTA to coordinate five segmented regional ASEAN+1 FTAs.

---

[6] These FTAs are plurilateral. The date on which the FTA came into effect differs by bilateral agreement. See Appendix Table 2 for the effectivity date by country for each FTA.

Below we conduct an ex-post evaluation of ASEAN+1 FTAs by using the gravity model. We examine whether each ASEAN+1 FTA has a trade creation or trade diversion effect on each sector to be able to establish the necessary conditions for the RCEP to be an effective region-wide FTA.

3.1. Estimation Methodology and Data

We used the gravity model to estimate the impact of five ASEAN+1 FTAs on trade in goods by sector. To examine the impact of each FTA on individual member countries, we used both import and export data of each ASEAN member, Australia, China, India, Japan, Korea, and New Zealand from 176 countries in the world at BEC (broad economic categories) 1-digit level. Sample periods are from 2000 to 2013. We applied the most-often-formulated gravity model as the following:

$$X_{ijt} = A_0 Y_{it}^{\beta_1} Y_{jt}^{\beta_2} y_{it}^{\beta_3} y_{jt}^{\beta_4} D_{ij}^{\beta_5} \exp(\phi\, FTA_{ijt}) \tag{1}$$

where A_0 is constant; Y and y are real gross domestic product (GDP) and GDP per capita, respectively; D_{ij} is the geographical distance between the largest city of country i and j; and FTA_{ijt} is a proxy variable representing the effect of implementation of each FTA. We used three types of FTA dummy variable. To capture the trade creation effect, two types dummies are used. One is a binary dummy denoting one when a trade partner is a member of the FTA after the year in which it came into effect, and the other is a progressively increasing dummy variable, which increases its variable value by 20% annually to capture the effect of a gradual reduction of tariffs under the FTA. Another one is a dummy variable denoting one when a trade partner is not a member after the year in which the FTA came into effect to capture the trade diversion effect. The dates of coming into effect of each ASEAN+1 FTA differ by country-pair, as shown in Appendix Table 2A[7]. As for the FTA proxy variables for all bilateral and plurilateral FTAs other than ASEAN+1 FTAs, they are also included in the estimation equation. We use the following basic estimation equation:

---

[7] Information on the date on which each ASEAN+1 FTA came into effect of each country is obtained from several reports by FTA-related ministries in member countries.

$$E(x_{ij} \mid A_0, Y_{jt}, y_{jt}, D_{ij}, T_t) = \exp(A_0 + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(y_{it}) + \beta_4 \ln(y_{jt})$$

$$+ \beta_5 \ln(D_{ij}) + \Sigma \ \phi_1 FTA_{ijt} + \Sigma \ \varphi_N BFTA_{N,ijt} + \sum_{t=2000}^{2012} \mu_t T_t)$$

(2)

where FTA_{ijt} and $BFTA_{ijt}$ are FTA proxy variables of ASEAN+1 FTA and other FTAs, respectively. T_t is a year dummy. To use all bilateral trade data including zero trade flows, the PPML estimator is applied to the equation above. The list of countries used for estimations is shown in Appendix Table 1.

Regarding the data for our estimations, we use the trade values of ASEAN members and six ASEAN dialogue partner countries. Import and export values in US dollars at the bottom BEC 1-digit level are from Comtrade statistics of the United Nations. As for real GDP, real GDP per capita figures are from the World Development Indicators of the World Bank. Geographical distance is from the GeoDist database provided by CEPII[8]. Information on the dates when tariff elimination starts under bilateral and plurilateral FTAs are from the WTO's RTA database.

4. Results

4.1. Results by Sector

First, we estimate equation (2) by using pooled data of seven ASEAN members and six dialogue partners. Table 2.2.1 and 2.2.2 shows results for exports and imports of each sector. Coefficient of AFTA on both exports and imports under AFTA are significantly positive in all sectors. As previous studies indicated, the results reflect that AFTA has been effective in promoting regional trade since 2000. Looking at other ASEAN+1 FTAs, exports of fuels and transport equipment are facilitated under all ASEAN+1 FTAs except AJCEP, and imports of food and consumption goods are increased under all ASEAN+1 FTAs, except AJCEP and AIFTA. As for export in fuels, geographical distance is the more important factor as shown by a negative and bigger coefficient of the distance variable. The regional export share of fuels is high than that of other sectors – 79% in 2013. Also, regional trade in

---

[8] CEPII (Research and Expertise on the World Economy) provides the GepDist database, which includes several geographical variables for 225 countries. For details, see Mayer and Zignago (2011).

consumption goods is facilitated by imports from higher-income countries in the region, as shown by a positive and bigger coefficient of GDP per capita. The regional import share of consumption goods is 60% in 2013 and higher than that of other sectors. Regional trade-oriented goods due to high transport costs such as fuels and already established regional supply chains such as consumption goods are more likely to be positively affected by regional FTAs.

With regard to each ASEAN+1 FTA, trade creation effects are found in almost all sectors under ACFTA, except for imports of fuels. One possible reason for trade creation effects under ACFTA is that ACFTA was launched earlier than other ASEAN+1 FTAs. The coefficient of the trade diversion effect has no significant negative sign under ACFTA. Increased trade under ACFTA also boosts trade with other regions. It suggests that increased traded products under ACFTA are complementary goods to traded products with other regions, such as machinery and its parts.

Given gradual tariff reduction, it takes time for an FTA to generate a trade creation effect. Coefficients of a gradual trade creation effect are positive and significant in almost all cases where the binary FTA dummy is positive and significant. Both imports and exports of food and transport equipment increase over time under AIFTA. Given the higher average tariff rates in these sectors, it naturally takes time before a trade creation effect occurs.

Estimated coefficients of AJCEP are not significantly positive in all sectors, except exports of transport equipment and imports of consumption goods. A possible reason behind of these insignificant coefficients is seven concurrent bilateral FTAs between ASEAN countries and Japan, which had already been formed before or at the same time as ACJEP. The utilisation rate of AJCEP is likely to be lower than that for precedent bilateral FTAs at the beginning of AJCEP since tariff elimination in some sectors is implemented with a phased approach. The results suggest that the impacts of newer FTAs between the same members as precedent FTAs are limited.

4.2. Results by Further Classified Data into Final Goods and Parts

Next, we apply equation (2) to sectoral data of final goods and its parts. Tables 3.1–3.2 show estimation results for capital goods (BEC41) and their parts (BEC42) and passenger motor cars (BEC51) and their parts (BEC53). Regarding capital goods, both final goods and

parts are facilitated under ACFTA and AKFTA. China and Korea have developed production and sales networks with ASEAN members. The result in capital goods and their parts shows regional FTAs facilitate intra-industry trade under developed production and sales networks in this region.

Regarding trade in BEC51 and BEC53, exports and imports under AIFTA and exports under AKFTA are facilitated. Not only trade in parts for production in ASEAN members, but also trade in finished cars is boosted by these FTAs. On the contrary, the trade creation effect of ACFTA is limited to BEC53. This suggests that factors that promote trade, such as a large consumer market and a productive production base are important for maximising trade creation effects of regional FTAs. Judging from the results, regional FTAs tend to boost trade with growth potential rather than generate new trade between member countries.

4.3. Results by Country

Lastly, we estimate equation (2) by country and sector. Tables 4.1–4.4 show estimation results for each country and sector.

With regard to imports of ASEAN members, ACFTA increases imports in capital goods, industrial supplies, and consumption goods of almost all ASEAN members. Likewise, AKFTA has trade creation effect on imports in capital goods of all ASEAN members except Lao PDR. This implies that a regional FTA between countries where intra-regional production and sales networks have been formed actively stimulates intra-regional trade through reduction of the costs of cross-border production sharing[9]. In contrast, despite developed production and sales networks, trade between ASEAN members and Japan is not significantly boosted under JACEP. As discussed above, the trade creation effects under JACEP are less visible since Japan and seven ASEAN members had already formed bilateral FTAs before or around the same time JACEP came into effect. A newer regional FTA should go further in terms of tariff elimination schedule when concurrent FTAs are already in place between the same members.

Looking at trade creation effects under ACFTA, estimated coefficients for imports of industrial supplies and capital goods, and exports of industrial supplies of Cambodia, Lao

---

[9] Intra-regional production networks between China or Korea and ASEAN countries have been developing since the 2000s. For example, trade in industrial intermediate goods between China or Korea and ASEAN countries has increased rapidly. Viet Nam's import of industrial supplies from China has grown 20-fold over the past 10 years whilst total import increased 17-fold.

PDR, Myanmar, and Viet Nam are relatively high compared with other ASEAN members. Likewise, estimated coefficients of AKFTA for imports of industrial supplies of Viet Nam and Myanmar, and exports of industrial supplies of Lao PDR are relatively high. Moreover, Cambodia's export elasticity in industrial supplies and import elasticity in capital goods under AIFTA are also relatively high. Similar to ACFTA and AKFTA, this implies that a regional FTA takes the role of boosting the trade of emerging countries through their companies' search for new market opportunities in the region.

The first regional FTA in East Asia, AFTA, has had a significant impact on the region. AFTA has trade creation effects on imports of food, transport equipment, and capital goods in almost all ASEAN members. The precedent ASEAN members, Indonesia, Malaysia, Philippines, and Thailand, increase their imports and exports of capital goods and transport equipment under AFTA. Moreover, exports of consumption goods of Cambodia, Myanmar, and Viet Nam, and exports of food and industrial supplies of Lao PDR are facilitated under AFTA. Trade liberalisation under AFTA promotes regional trade based on regional production and sales networks amongst the precedent ASEAN members. At the same time, the emerging countries of ASEAN have also boosted their trade with other members under AFTA.

With regard to AANZFTA, trade creation effects are found in many countries in imports of food. Australia has started bilateral FTAs with Singapore and Thailand before AANZFTA came into effect. Therefore, trade in the manufacturing sectors amongst bilateral FTA members is possibly boosted by these precedent FTAs. Intra-regional trade in agricultural products amongst non-members of the precedent bilateral FTAs appears to have significantly increased due to AANZFTA.

To sum up the major findings of our estimations, trade creation effects are found in a wide range of sectors in most member countries due to regional FTAs under which production and sales networks had already been formed, such as ACFTA and AKFTA. A regional FTA that increases trade between members in which production and sales networks have been developed can boost the productivity of firms by reducing service link costs. Besides, we found that some ASEAN+1 FTAs, such as ACFTA, AKFTA, and AIFTA, facilitate trade in the region, by emerging countries in particular. The region-wide FTA is expected to boost trade especially of emerging countries and to narrow the development gap. ASEAN+1 FTAs have greater possibility to facilitate trade of emerging countries in

developing and deepening production and sales networks in the region than existing bilateral FTAs. Also, as in AANZFTA, even though bilateral FTAs have already been formed amongst the same members, a newer regional FTA could potentially facilitate regional trade. To develop and expand production and sales networks in the East Asia region, region-wide FTAs are necessary to further facilitate regional trade amongst members.

Table 2.2.1: Estimation Results on Exports by Sector, Pooled Data

	BEC 01		BEC 02		BEC 03	
	Food and Beverages		Industrial supplies		Fuels and lubricants	
ln (GDP) i	0.217 (14.4)	0.279 (20.3)	0.675 (42.2)	0.728 (44.9)	0.176 (7.0)	0.251 (10.9)
ln (GDP) j	0.742 (64.8)	0.730 (55.3)	0.820 (53.9)	0.812 (51.9)	0.688 (30.1)	0.675 (30.1)
ln (GDP per capita) i	0.031 (2.0)	-0.083 (5.4)	0.049 (3.5)	-0.053 (3.6)	0.304 (9.1)	0.175 (5.8)
ln (GDP per capita) j	-0.031 (2.2)	-0.018 (1.2)	-0.173 (10.0)	-0.163 (8.9)	0.120 (4.6)	0.131 (4.8)
ln (Distance) ij	-0.758 (26.4)	-0.665 (17.9)	-0.892 (33.4)	-0.869 (32.2)	-1.130 (32.0)	-1.083 (29.5)
ASEAN-China FTA (0/1 dummy)	1.197 (11.5)		0.813 (10.2)		0.984 (7.3)	
ASEAN-China FTA Diversion Effect	0.684 (14.3)		0.351 (6.3)		-0.036 (0.4)	
ASEAN-China FTA (gradual tariff reduction)		0.776 (6.2)		0.653 (7.4)		0.946 (5.4)
ASEAN-Korea FTA (0/1 dummy)	-0.803 (7.3)		0.755 (7.5)		1.515 (9.1)	
ASEAN-Korea FTA Diversion Effect	-0.819 (14.4)		-0.323 (4.5)		-0.355 (3.4)	
ASEAN-Korea FTA (gradual tariff reduction)		-0.129 (1.1)		1.108 (10.5)		1.956 (9.2)
ASEAN-Japan FTA (0/1 dummy)	-0.710 (6.0)		-0.302 (2.5)		-0.334 (1.4)	
ASEAN-Japan FTA Diversion Effect	-0.868 (14.9)		-0.504 (6.8)		-1.110 (10.0)	
ASEAN-Japan FTA (gradual tariff reduction)		-0.173 (1.3)		-0.196 (1.5)		0.432 (1.6)
ASEAN-Australia-New Zealand FTA (0/1 dummy)	1.332 (8.6)		0.399 (3.8)		0.939 (3.2)	
ASEAN-Australia-New Zealand FTA Diversion Effect	0.698 (11.1)		0.317 (2.1)		0.111 (0.7)	
ASEAN-Australia-New Zealand FTA (gradual tariff reduction)		1.171 (4.7)		0.404 (2.1)		1.330 (3.4)
ASEAN-India FTA (0/1 dummy)	0.801 (3.4)		0.094 (0.7)		1.378 (4.0)	
ASEAN-India FTA Diversion Effect	0.382 (5.8)		-0.044 (0.5)		0.866 (6.4)	
ASEAN-India FTA (gradual tariff reduction)		1.040 (2.2)		0.132 (0.8)		1.245 (1.8)
ASEAN Free Trade Area (AFTA)	0.572 (7.9)	0.761 (9.1)	0.887 (13.0)	0.945 (14.1)	1.280 (9.5)	1.220 (10.1)
Number of other FTAs dummies	50	50	50	50	50	50
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	31,850	31,850	31,850	31,850	31,850	31,850
% of zero trade flows	21.8%	21.8%	14.8%	14.8%	59.0%	59.0%
R-squared:	0.65348757	0.54136359	0.72645372	0.73345934	0.4947177	0.44100712

Note: Figures in parentheses are z-values. Cells coloured orange are significantly positive coefficients of trade creation effect. Cells coloured blue are significant and negative coefficients of trade diversion effect, that is, an FTA decreases exports to non-member countries after the FTA has come into force.

Table 2.2.1: (continued): Estimation Results on Exports by Sector, Pooled Data

	BEC 04		BEC 05		BEC 06	
	Capital goods and parts & accessories		Transport equipment, and parts & accessories		Consumption goods	
ln (GDP) i	0.694 (25.7)	0.730 (23.6)	1.274 (39.7)	1.056 (43.9)	0.859 (35.1)	1.020 (32.0)
ln (GDP) j	0.837 (36.5)	0.837 (31.9)	0.705 (26.3)	0.705 (25.5)	0.876 (46.1)	0.876 (32.7)
ln (GDP per capita) i	0.306 (12.7)	0.092 (3.7)	0.235 (13.2)	0.277 (18.6)	-0.362 (17.1)	-0.533 (26.4)
ln (GDP per capita) j	0.071 (3.5)	0.086 (4.2)	0.043 (2.8)	0.047 (3.1)	0.132 (7.3)	0.165 (7.7)
ln (Distance) ij	-0.813 (20.1)	-0.830 (19.8)	-0.095 (2.4)	-0.174 (4.2)	-0.348 (8.4)	-0.349 (8.2)
ASEAN-China FTA (0/1 dummy)	1.914 (19.0)		0.651 (5.5)		1.602 (11.5)	
ASEAN-China FTA Diversion Effect	1.262 (15.8)		0.061 (1.2)		1.559 (24.9)	
ASEAN-China FTA (gradual tariff reduction)		1.079 (9.5)		0.609 (5.3)		0.595 (3.7)
ASEAN-Korea FTA (0/1 dummy)	0.670 (4.4)		1.053 (8.4)		-0.475 (2.6)	
ASEAN-Korea FTA Diversion Effect	0.076 (0.8)		1.284 (16.4)		-0.504 (6.1)	
ASEAN-Korea FTA (gradual tariff reduction)		0.603 (3.5)		0.525 (3.4)		0.252 (1.2)
ASEAN-Japan FTA (0/1 dummy)	0.071 (0.4)		0.259 (3.3)		0.118 (1.2)	
ASEAN-Japan FTA Diversion Effect	0.017 (0.2)		0.139 (1.7)		0.071 (1.0)	
ASEAN-Japan FTA (gradual tariff reduction)		-0.313 (2.2)		0.193 (1.4)		-0.038 (0.2)
ASEAN-Australia-New Zealand FTA (0/1 dummy)	-0.330 (3.1)		-0.042 (0.2)		0.197 (1.2)	
ASEAN-Australia-New Zealand FTA Diversion Effect	-0.462 (6.4)		-0.557 (7.5)		-0.023 (0.3)	
ASEAN-Australia-New Zealand FTA (gradual tariff reduction)		-0.260 (1.0)		0.702 (1.2)		0.398 (1.6)
ASEAN-India FTA (0/1 dummy)	-0.271 (2.0)		0.543 (2.7)		-0.713 (4.7)	
ASEAN-India FTA Diversion Effect	-0.305 (3.5)		-0.059 (0.8)		-0.028 (0.3)	
ASEAN-India FTA (gradual tariff reduction)		-0.850 (3.3)		0.776 (2.5)		-1.721 (4.7)
ASEAN Free Trade Area (AFTA)	1.409 (10.1)	1.726 (11.5)	2.700 (18.9)	2.675 (17.2)	1.462 (11.9)	1.887 (12.0)
Number of other FTAs dummies	50	50	50	50	50	50
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	31,850	31,850	31,850	31,850	31,850	31,850
% of zero trade flows	16.7%	16.7%	24.2%	24.2%	12.9%	12.9%
R-squared:	0.77050684	0.74644332	0.72812132	0.71122004	0.86586125	0.75541468

Note: Figures in parentheses are z-values. Cells coloured orange are significantly positive coefficients of trade creation effect. Cells coloured blue are significant and negative coefficients of trade diversion effect, that is, an FTA decreases exports to non-member countries.

Table 2.2.2: Estimation Results on Import by Sector, Pooled Data

	BEC 01		BEC 02		BEC 03	
	Food and Beverages		Industrial supplies		Fuels and lubricants	
ln (GDP) i	0.956 (44.5)	0.934 (34.0)	0.741 (56.5)	0.778 (54.1)	0.728 (21.5)	0.723 (23.2)
ln (GDP) j	0.900 (49.7)	0.896 (46.1)	0.810 (87.4)	0.808 (82.6)	0.365 (24.0)	0.363 (23.2)
ln (GDP per capita) i	0.157 (8.0)	0.060 (2.3)	-0.100 (8.4)	-0.179 (14.2)	0.199 (6.1)	0.116 (3.8)
ln (GDP per capita) j	-0.213 (6.6)	-0.205 (6.4)	-0.022 (1.4)	-0.015 (0.9)	0.146 (4.8)	0.147 (4.8)
ln (Distance) ij	0.032 (0.5)	0.013 (0.2)	-0.801 (33.8)	-0.805 (35.6)	-0.709 (16.0)	-0.737 (17.0)
ASEAN-China FTA (0/1 dummy)	1.879 (16.2)		0.913 (13.6)		0.156 (1.0)	
ASEAN-China FTA Diversion Effect	0.650 (7.5)		0.305 (5.8)		0.144 (1.3)	
ASEAN-China FTA (gradual tariff reduction)		1.566 (12.5)		0.762 (10.0)		0.049 (0.3)
ASEAN-Korea FTA (0/1 dummy)	1.290 (10.2)		0.946 (11.0)		0.935 (5.9)	
ASEAN-Korea FTA Diversion Effect	0.316 (4.3)		-0.071 (1.4)		0.194 (1.5)	
ASEAN-Korea FTA (gradual tariff reduction)		1.214 (8.1)		1.150 (11.4)		0.976 (4.9)
ASEAN-Japan FTA (0/1 dummy)	0.017 (0.1)		-0.214 (3.2)		0.020 (0.1)	
ASEAN-Japan FTA Diversion Effect	0.139 (2.0)		-0.251 (4.9)		-0.161 (1.3)	
ASEAN-Japan FTA (gradual tariff reduction)		-0.202 (0.8)		-0.171 (1.5)		0.156 (0.5)
ASEAN-Australia-New Zealand FTA (0/1 dummy)	1.887 (8.1)		0.239 (2.0)		0.019 (0.1)	
ASEAN-Australia-New Zealand FTA Diversion Effect	-0.271 (3.6)		-0.107 (1.9)		-0.623 (5.3)	
ASEAN-Australia-New Zealand FTA (gradual tariff reduction)		2.503 (6.4)		0.386 (1.7)		0.206 (0.6)
ASEAN-India FTA (0/1 dummy)	0.855 (3.6)		0.230 (1.7)		0.259 (0.9)	
ASEAN-India FTA Diversion Effect	-0.180 (2.1)		0.084 (1.0)		0.488 (3.4)	
ASEAN-India FTA (gradual tariff reduction)		1.402 (4.0)		0.270 (1.4)		-0.070 (0.1)
ASEAN Free Trade Area (AFTA)	2.982 (25.4)	3.163 (25.9)	0.896 (16.4)	0.949 (16.5)	1.092 (8.1)	1.069 (7.9)
Number of other FTAs dummies	50	50	50	50	49	49
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	31,850	31,850	31,850	31,850	31,847	31,847
% of zero trade flows	36.8%	36.8%	19.7%	19.7%	65.5%	65.5%
R-squared:	0.61473714	0.58207739	0.73015039	0.72540482	0.0994959	0.44100712

Table 2.2.2: (continued): Estimation Results on Imports by Sector, Pooled Data

	BEC 04		BEC 05		BEC 06	
	Capital goods and parts & accessories		Transport equipment, and parts & accessories		Consumption goods	
ln (GDP) i	0.517 (24.3)	0.652 (30.0)	0.506 (21.8)	0.618 (21.2)	0.592 (19.8)	0.675 (24.4)
ln (GDP) j	0.962 (65.2)	0.942 (58.6)	1.134 (75.9)	1.118 (69.8)	1.077 (49.6)	1.070 (44.3)
ln (GDP per capita) i	0.163 (8.4)	-0.015 (0.8)	0.245 (9.9)	0.052 (2.0)	0.475 (23.9)	0.433 (23.5)
ln (GDP per capita) j	0.147 (6.8)	0.154 (7.2)	0.222 (12.6)	0.238 (11.3)	-0.269 (8.4)	-0.284 (8.1)
ln (Distance) ij	-1.168 (41.0)	-1.152 (32.2)	-0.599 (19.3)	-0.564 (14.0)	-0.913 (24.3)	-0.812 (19.9)
ASEAN-China FTA (0/1 dummy)	2.368 (18.1)		0.945 (8.6)		0.802 (8.0)	
ASEAN-China FTA Diversion Effect	0.762 (12.7)		0.812 (9.7)		0.146 (1.9)	
ASEAN-China FTA (gradual tariff reduction)		1.853 (11.6)		0.203 (2.1)		0.684 (6.3)
ASEAN-Korea FTA (0/1 dummy)	0.598 (4.8)		0.040 (0.3)		0.327 (1.9)	
ASEAN-Korea FTA Diversion Effect	-0.703 (9.7)		-0.718 (9.9)		-0.911 (10.6)	
ASEAN-Korea FTA (gradual tariff reduction)		1.144 (7.5)		0.426 (2.7)		0.856 (4.2)
ASEAN-Japan FTA (0/1 dummy)	-0.110 (1.1)		-0.218 (1.7)		0.238 (2.1)	
ASEAN-Japan FTA Diversion Effect	-0.304 (3.9)		-0.584 (7.6)		-0.033 (0.4)	
ASEAN-Japan FTA (gradual tariff reduction)		-0.094 (0.8)		-0.169 (1.0)		0.289 (1.5)
ASEAN-Australia-New Zealand FTA (0/1 dummy)	0.184 (0.9)		0.115 (0.3)		0.760 (3.7)	
ASEAN-Australia-New Zealand FTA Diversion Effect	-0.003 (0.0)		0.272 (2.8)		0.364 (2.9)	
ASEAN-Australia-New Zealand FTA (gradual tariff reduction)		0.185 (0.5)		-0.704 (0.9)		1.067 (3.0)
ASEAN-India FTA (0/1 dummy)	-0.033 (0.2)		0.705 (3.1)		0.055 (0.3)	
ASEAN-India FTA Diversion Effect	0.022 (0.2)		-0.110 (1.1)		0.200 (1.7)	
ASEAN-India FTA (gradual tariff reduction)		-0.301 (1.0)		0.746 (2.0)		-0.189 (0.5)
ASEAN Free Trade Area (AFTA)	1.279 (13.6)	1.407 (13.2)	2.280 (17.9)	2.335 (17.5)	1.404 (12.2)	1.548 (13.5)
Number of other FTAs dummies	50	50	50	50	50	50
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	31,850	31,850	31,850	31,850	31,850	31,850
% of zero trade flows	27.6%	27.6%	49.5%	49.5%	30.3%	30.3%
R-squared:	0.7905549	0.71971919	0.69095041	0.5886423	0.83083115	0.76688945

Note: Figures in parentheses are z-values. Cells coloured orange are significantly positive coefficient of trade creation effect. Cells coloured blue are significant and negative coefficients of trade diversion effect, that is, an FTA decreases imports from non-member countries.

Table 2.3.1: Estimation Result for BEC 41 & 42

	Export				Import			
	BEC 41		BEC 42		BEC 41		BEC 42	
	Capital goods (except transport equipment)		Parts and accessories of capital goods		Capital goods (except transport equipment)		Parts and accessories of capital goods	
ln (GDP) i	0.898 (32.1)	0.948 (30.8)	0.497 (17.3)	0.506 (15.5)	0.599 (29.4)	0.713 (37.0)	0.466 (18.8)	0.599 (22.3)
ln (GDP) j	0.904 (42.5)	0.906 (33.6)	0.747 (31.5)	0.743 (30.0)	1.047 (70.1)	1.027 (71.9)	0.893 (52.5)	0.872 (42.9)
ln (GDP per capita) i	0.145 (6.2)	-0.076 (3.2)	0.454 (16.2)	0.291 (11.5)	0.100 (4.9)	-0.034 (1.8)	0.207 (9.8)	0.000 (0.0)
ln (GDP per capita) j	0.006 (0.4)	0.023 (1.3)	0.143 (5.7)	0.151 (6.1)	0.056 (2.3)	0.062 (2.6)	0.220 (9.7)	0.227 (9.9)
ln (Distance) ij	-0.564 (14.0)	-0.587 (14.1)	-1.088 (26.4)	-1.093 (25.5)	-1.086 (40.8)	-1.053 (35.2)	-1.236 (37.1)	-1.235 (28.2)
ASEAN-China FTA (0/1 dummy)	1.774 (17.8)		2.020 (17.7)		1.803 (16.2)		2.852 (17.6)	
ASEAN-China FTA Diversion Effect	1.239 (17.8)		1.115 (12.1)		0.428 (6.8)		1.074 (16.9)	
ASEAN-China FTA (gradual)		0.984 (9.3)		1.304 (9.7)		1.505 (12.5)		2.144 (10.1)
ASEAN-Korea FTA (0/1 dummy)	0.771 (5.6)		0.679 (4.0)		0.361 (3.5)		0.785 (5.2)	
ASEAN-Korea FTA Diversion Effect	0.288 (3.0)		-0.028 (0.3)		-0.692 (9.6)		-0.663 (8.1)	
ASEAN-Korea FTA (gradual)		0.643 (4.0)		0.677 (3.6)		0.887 (7.7)		1.335 (7.1)
ASEAN-Japan FTA (0/1 dummy)	0.122 (0.6)		0.087 (0.4)		-0.238 (2.2)		0.008 (0.1)	
ASEAN-Japan FTA Diversion Effect	-0.057 (0.9)		0.134 (1.7)		-0.403 (4.4)		-0.200 (2.8)	
ASEAN-Japan FTA (gradual)		-0.282 (2.0)		-0.245 (1.5)		-0.061 (0.5)		-0.077 (0.6)
ASEAN-Australia-New Zealand FTA (0/1 dummy)	0.078 (0.6)		-0.698 (6.0)		0.514 (2.2)		-0.240 (1.2)	
ASEAN-Australia-New Zealand FTA Diversion Effect	-0.327 (4.5)		-0.582 (7.4)		0.273 (2.6)		-0.238 (2.7)	
ASEAN-Australia-New Zealand FTA (gradual)		0.267 (1.0)		-0.757 (2.6)		0.526 (1.2)		-0.309 (0.9)
ASEAN-India FTA (0/1 dummy)	-0.298 (1.7)		-0.228 (1.8)		-0.020 (0.1)		-0.148 (0.7)	
ASEAN-India FTA Diversion Effect	-0.551 (6.7)		-0.074 (0.8)		0.031 (0.3)		0.021 (0.2)	
ASEAN-India FTA (gradual)		-0.730 (2.5)		-0.870 (3.8)		-0.144 (0.4)		-0.630 (2.5)
ASEAN Free Trade Area (AFTA)	1.622 (13.6)	1.951 (13.3)	0.948 (5.5)	1.250 (7.6)	1.171 (14.0)	1.229 (13.9)	1.243 (11.0)	1.416 (11.0)
Number of other FTAs dummies	50	50	50	50	50	50	50	50
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	31,850	31,850	31,850	31,850	31,850	31,850	31,850	31,850
% of zero trade flows	20.6%	20.6%	23.0%	23.0%	36.9%	36.9%	35.4%	35.4%
R-squared:	0.80571775	0.75042227	0.74784124	0.7259034	0.79905335	0.77685474	0.73589233	0.61690567

Note: Figures in parentheses are z-values. Cells coloured orange are significantly positive coefficients of trade creation effect. Cells coloured blue are significant and negative coefficients of trade diversion effect.

Table 2.3.2: Estimation Result for BEC 51 & 53

	Export				Import			
	BEC 51		BEC 53		BEC 51		BEC 53	
	Transport equipment, passenger motor cars		Parts and accessories of transport equipment		Transport equipment, passenger motor cars		Parts and accessories of transport equipment	
ln (GDP) i	1.348 (23.3)	1.116 (32.0)	1.145 (49.9)	1.004 (49.6)	0.523 (10.1)	0.714 (11.6)	0.556 (22.2)	0.654 (23.4)
ln (GDP) j	0.932 (36.5)	0.935 (35.3)	0.963 (65.2)	0.969 (60.2)	1.006 (30.9)	0.989 (28.3)	1.156 (73.4)	1.144 (80.0)
ln (GDP per capita) i	0.506 (15.7)	0.735 (24.0)	0.200 (12.5)	0.150 (10.6)	0.573 (10.4)	0.168 (2.8)	0.190 (7.9)	0.000 (0.0)
ln (GDP per capita) j	0.090 (3.3)	0.105 (3.9)	-0.150 (10.3)	-0.138 (9.4)	0.503 (13.3)	0.485 (11.4)	0.170 (9.5)	0.200 (9.8)
ln (Distance) ij	0.261 (5.5)	0.112 (2.4)	-0.324 (11.9)	-0.369 (12.3)	-0.451 (7.7)	-0.381 (5.3)	-0.850 (25.9)	-0.826 (20.8)
ASEAN-China FTA (0/1 dummy)	-1.766 (8.7)		0.754 (6.6)		-0.785 (3.1)		0.878 (8.9)	
ASEAN-China FTA Diversion Effect	-1.385 (13.1)		0.520 (10.2)		1.379 (9.2)		0.825 (10.4)	
ASEAN-China FTA (gradual)		-1.325 (5.5)		0.472 (3.8)		-2.381 (8.0)		0.290 (2.9)
ASEAN-Korea FTA (0/1 dummy)	1.693 (8.4)		0.885 (6.7)		-0.149 (0.7)		-0.050 (0.3)	
ASEAN-Korea FTA Diversion Effect	1.602 (12.7)		0.846 (12.2)		-1.395 (8.2)		-0.593 (8.9)	
ASEAN-Korea FTA (gradual)		1.150 (5.0)		0.461 (2.8)		0.126 (0.5)		0.575 (3.3)
ASEAN-Japan FTA (0/1 dummy)	0.318 (1.4)		0.221 (1.4)		-0.332 (1.3)		-0.037 (0.3)	
ASEAN-Japan FTA Diversion Effect	0.305 (2.6)		0.223 (4.1)		-1.222 (5.3)		-0.282 (4.7)	
ASEAN-Japan FTA (gradual)		0.056 (0.2)		0.015 (0.1)		-1.129 (3.5)		0.243 (1.7)
ASEAN-Australia-New Zealand FTA (0/1 dummy)	-0.122 (0.2)		-0.154 (1.5)		0.134 (0.3)		-0.026 (0.1)	
ASEAN-Australia-New Zealand FTA Diversion Effect	-0.940 (5.9)		-0.454 (6.6)		0.342 (1.5)		0.097 (1.3)	
ASEAN-Australia-New Zealand FTA (gradual)		0.582 (0.6)		0.261 (0.8)		-1.108 (1.1)		-0.379 (0.8)
ASEAN-India FTA (0/1 dummy)	1.500 (3.3)		0.435 (2.0)		0.802 (2.5)		1.009 (3.5)	
ASEAN-India FTA Diversion Effect	0.818 (5.4)		-0.061 (0.9)		-0.545 (2.6)		0.181 (2.1)	
ASEAN-India FTA (gradual)		1.553 (2.6)		0.618 (1.7)		-0.118 (0.2)		1.346 (2.9)
ASEAN Free Trade Area (AFTA)	4.326 (21.1)	3.678 (16.6)	2.687 (26.0)	2.896 (25.5)	2.944 (11.3)	2.601 (9.5)	1.905 (14.1)	2.165 (16.7)
Number of other FTAs dummies	49	49	50	50	37	37	50	50
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	31,847	31,847	31,850	31,850	31,770	31,770	31,850	31,850
% of zero trade flows	57.6%	57.6%	27.6%	27.6%	81.0%	81.0%	53.3%	53.3%
R-squared:	0.84825484	0.84745222	0.86587021	0.84678747	0.36570108	0.18226791	0.78942384	0.74196991

Note: Figures in parentheses are z-values. Cells coloured orange are significantly positive coefficient of trade creation effect. Cells coloured blue are significant and negative coefficients of trade diversion effect.

Table 2.4.1: Estimation Result on Exports by Country and Sector, ASEAN Members

BEC01: Food and Beverages	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.6686 (8.3)	0.9479 (34.8)	0.6636 (20.1)	1.1155 (34.7)	0.5549 (21.0)	0.8083 (29.9)	0.8617 (41.6)	0.9480 (10.2)	0.8769 (14.9)	1.1185 (16.0)
ln (GDP per capita)	0.2264 (3.3)	-0.3359 (12.3)	-0.2091 (8.0)	0.2970 (9.0)	-0.0019 (0.1)	-0.0721 (2.4)	-0.0906 (3.0)	-0.7000 (4.9)	0.0909 (1.4)	-0.5536 (7.6)
ln (Distance)	-0.6750 (5.2)	-1.2626 (16.8)	-1.1796 (17.6)	-1.0808 (20.8)	-1.0732 (13.5)	-0.5895 (6.5)	-0.5498 (7.5)	0.5474 (1.9)	-1.1720 (7.4)	-1.5224 (16.1)
ASEAN-China FTA	-0.0457 (0.1)	-0.7192 (5.6)	0.5393 (3.7)	-1.5374 (9.2)	1.0179 (7.2)	-0.3409 (2.3)	-0.1354 (0.8)	-0.3945 (0.4)	-0.0176 (0.1)	-1.0514 (3.8)
ASEAN-Korea FTA	-2.9449 (5.2)	-0.9526 (11.6)	-0.2334 (2.4)	-0.2511 (1.9)	0.3502 (3.5)	-0.3337 (2.8)	0.3656 (4.4)	0.2372 (0.4)	-2.8186 (6.3)	0.0918 (0.3)
ASEAN-Japan FTA	-2.9294 (5.5)		0.0496 (0.6)	0.0136 (0.1)	-0.1691 (2.2)	0.1336 (1.4)	0.0482 (0.3)	2.7148 (2.4)	0.1426 (0.4)	0.4382 (2.3)
ASEAN-Australia-New Zealand FTA	-1.7349 (5.0)	-0.8702 (10.7)	0.6448 (6.1)	-0.2312 (1.0)	0.4307 (3.1)	0.0744 (1.0)	0.2621 (3.6)		0.2169 (0.9)	1.0211 (5.2)
ASEAN-India FTA	-2.8745 (4.8)	-0.5812 (3.2)	-1.0586 (6.4)	-3.4444 (23.7)	0.8307 (4.1)	-2.5055 (6.2)	-1.5639 (13.3)	-4.2592 (3.6)		0.6144 (2.6)
ASEAN Free Trade Area (AFTA)	0.6793 (1.6)	-0.2671 (1.7)	-0.6614 (4.0)	1.4407 (12.6)	0.6380 (2.7)	0.8352 (5.7)	0.7281 (3.6)	1.3529 (2.0)	0.6001 (2.5)	-0.2871 (1.7)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,446	2,273	2,450
% of zero trade flows	82.2%	10.9%	9.2%	31.7%	24.6%	4.8%	22.7%	89.0%	88.3%	65.0%
R-squared:	0.30262425	0.84151169	0.84615264	0.90831245	0.88861804	0.83170869	0.84357475	0.1268614	0.6201776	0.82970093

BEC02: Industrial supplies	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	1.3914 (7.9)	0.9851 (56.1)	0.8658 (68.8)	1.0487 (37.4)	0.9029 (29.0)	0.8558 (41.5)	0.9495 (29.4)	0.8961 (6.1)	1.6835 (11.2)	1.2026 (18.3)
ln (GDP per capita)	2.8508 (11.7)	-0.1092 (5.6)	-0.0813 (4.9)	0.1990 (5.6)	0.0296 (0.8)	0.1211 (4.0)	-0.0022 (0.1)	0.1138 (0.5)	-0.0501 (0.8)	-0.3897 (5.6)
ln (Distance)	-6.3895 (10.6)	-1.6309 (32.3)	-1.2735 (28.3)	-1.3015 (23.2)	-1.1397 (14.4)	-1.7380 (19.5)	-1.6771 (20.7)	-0.9989 (1.4)	-3.4413 (15.4)	-1.9785 (17.7)
ASEAN-China FTA	3.3892 (5.4)	-0.4894 (5.2)	0.2165 (3.2)	-0.5090 (3.7)	0.2982 (2.1)	0.1703 (1.8)	-0.1072 (0.7)	0.5202 (0.3)	1.3838 (5.3)	0.9908 (3.7)
ASEAN-Korea FTA	-0.6666 (1.4)	0.3796 (5.4)	0.4196 (7.0)	0.3857 (3.0)	0.1991 (1.4)	-0.5251 (5.1)	0.3070 (3.0)	1.4750 (1.6)	1.3769 (2.7)	-0.4091 (2.5)
ASEAN-Japan FTA	-2.8871 (3.8)		-0.0503 (0.7)	0.2644 (2.0)	-0.0773 (0.9)	-0.0909 (1.1)	0.2854 (2.2)	3.9135 (8.1)	-0.7060 (2.2)	-1.0858 (5.8)
ASEAN-Australia-New Zealand FTA	0.5072 (0.6)	0.3035 (3.1)	1.0317 (9.1)	-0.0034 (0.0)	-0.1435 (1.3)	-0.1967 (0.8)	-0.2143 (2.0)	-1.8591 (2.9)	4.3489 (5.6)	-1.2978 (3.6)
ASEAN-India FTA	6.9892 (6.1)	0.2548 (2.5)	0.1671 (2.0)	-0.8837 (3.6)	0.0634 (0.6)	-0.2801 (3.2)	-0.6405 (5.3)	-0.1774 (0.1)	1.5243 (4.8)	0.8002 (3.0)
ASEAN Free Trade Area (AFTA)	-3.2878 (14.8)	-0.2707 (3.1)	-0.1197 (1.0)	1.2656 (11.3)	0.5353 (2.4)	-0.1335 (0.9)	-0.6274 (3.8)	1.8566 (1.1)	1.4314 (4.5)	-0.0618 (0.3)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,275	2,450
% of zero trade flows	73.3%	2.9%	7.5%	26.5%	21.1%	2.7%	22.0%	74.7%	79.6%	63.5%
R-squared:	0.95039843	0.93936019	0.92031715	0.94719358	0.8622208	0.90669738	0.92598662	0.41997463	0.96367756	0.89039123

BEC03: Fuels and lubricants	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	-	1.4090 (28.0)	1.1289 (20.8)	0.8434 (12.4)	0.6706 (15.9)	0.9520 (12.88)	0.9364 (13.4)	1.2829 (12.1)	-	-
ln (GDP per capita)	-	0.0726 (1.4)	-0.2002 (5.3)	0.7047 (8.7)	-0.1454 (2.2)	0.3919 (7.86)	0.3453 (4.6)	-0.0317 (0.5)	-	-
ln (Distance)	-	-3.3337 (20.9)	-2.2195 (23.9)	-1.8088 (12.8)	-1.9461 (13.3)	-2.1406 (13.54)	-1.7889 (13.5)	-2.5548 (15.8)	-	-
ASEAN-China FTA	-	-0.8620 (5.3)	-1.5053 (6.8)	1.1472 (3.5)	-0.4597 (1.9)	0.9770 (3.15)	0.8397 (2.8)	-1.7497 (5.7)	-	-
ASEAN-Korea FTA	-	1.5708 (14.3)	1.7099 (12.9)	1.9585 (6.5)	1.2457 (3.8)	0.5513 (2.89)	0.8820 (2.6)	1.5252 (6.8)	-	-
ASEAN-Japan FTA	-		0.6412 (4.3)	0.6151 (1.4)	-0.8310 (2.8)	-0.9269 (4.73)	0.4907 (1.1)	0.5938 (1.7)	-	-
ASEAN-Australia-New Zealand FTA	-	0.3681 (3.3)	3.0061 (23.2)	-0.5353 (1.6)	-0.0623 (0.4)	-1.0556 (2.78)	3.0012 (12.1)	2.6305 (9.4)	-	-
ASEAN-India FTA	-	0.4502 (2.3)	-0.1425 (0.9)	0.8097 (2.3)	-0.4185 (1.2)	-1.6559 (2.24)	-0.8803 (1.9)	0.9334 (3.6)	-	-
ASEAN Free Trade Area (AFTA)	-	-2.3332 (6.3)	-1.3979 (5.8)	2.8451 (11.1)	-1.5464 (3.3)	1.8450 (8.25)	0.4304 (1.5)	-0.5720 (2.0)	-	-
Number of other FTAs dummies	0	1	5	1	12	4		1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	1,905	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,269	2,450
% of zero trade flows	99.2%	60.2%	62.3%	79.3%	47.3%	55.5%	71.3%	92.7%	96.9%	96.7%
R-squared:	0.9784002	0.93712486	0.92563858	0.71715409	0.7490195	0.81671699	0.53385167	0.90474841		0.99930309

Table 2.4.1 (Continued): Estimation Results on Exports by Country and Sector, ASEAN Members

BEC04: Capital goods and parts & accessories	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.6771 (3.0)	0.9349 (38.5)	1.0511 (25.9)	0.8950 (19.1)	0.8389 (20.8)	0.9562 (34.0)	0.8871 (19.6)	0.6271 (10.0)	0.6366 (14.4)	0.7750 (11.5)
ln (GDP per capita)	0.0697 (0.5)	0.3958 (12.1)	0.3235 (11.0)	0.7166 (15.1)	0.2571 (6.8)	0.4293 (13.4)	0.2674 (5.6)	0.7722 (6.5)	0.1787 (2.4)	0.7447 (6.1)
ln (Distance)	-1.2065 (3.6)	-1.5703 (16.9)	-1.2754 (8.5)	-1.3810 (11.7)	-1.7428 (8.9)	-1.6342 (12.9)	-1.2589 (21.5)	-1.0309 (-2.5)	-1.3921 (8.0)	-1.6804 (6.5)
ASEAN-China FTA	0.2121 (0.3)	-0.2197 (1.3)	0.5185 (2.3)	0.9042 (3.6)	0.3812 (2.1)	0.2355 (1.3)	-0.5823 (3.5)	-1.7450 (2.0)	-0.9414 (2.9)	2.7147 (7.8)
ASEAN-Korea FTA	0.3775 (0.7)	-0.3010 (2.7)	-0.4911 (2.7)	-0.2856 (1.6)	0.2780 (1.8)	-0.8538 (6.2)	-1.0771 (10.8)	-1.6068 (2.1)	-3.7992 (9.5)	-1.8777 (3.9)
ASEAN-Japan FTA	-0.9487 (1.3)		0.2041 (1.5)	0.0784 (0.5)	0.2322 (2.0)	-0.0621 (0.6)	0.1755 (1.1)	-0.4174 (0.5)	-3.9860 (7.7)	0.4914 (1.9)
ASEAN-Australia-New Zealand FTA	-0.2614 (0.4)	0.2979 (2.0)	-0.0781 (0.5)	-1.7262 (10.3)	0.1266 (0.9)	0.1313 (1.4)	-0.1386 (1.1)	0.0014 (0.0)	1.9817 (3.7)	-2.9068 (4.3)
ASEAN-India FTA	-1.2410 (1.0)	0.3233 (1.8)	-0.0995 (0.4)	0.7564 (3.7)	-0.1366 (0.9)	-0.2299 (1.5)	0.1432 (0.8)	0.6711 (1.3)	0.8580 (3.6)	3.5854 (5.4)
ASEAN Free Trade Area (AFTA)	1.5740 (2.7)	0.9293 (3.8)	0.2213 (0.4)	1.7540 (9.4)	-1.1766 (1.9)	0.4347 (1.9)	-0.2304 (1.2)	2.5928 (4.6)	0.1560 (0.6)	1.9472 (3.5)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,275	2,450
% of zero trade flows	80.4%	12.5%	9.6%	23.7%	20.2%	4.7%	38.8%	72.6%	79.8%	73.8%
R-squared:	0.30690291	0.90244406	0.77189676	0.653723	0.71119098	0.81167006	0.74446363	0.79105311	0.9868524	0.55626383

BEC05:Transport equipment, and parts & accessories	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.8902 (9.1)	0.8471 (37.4)	0.8901 (50.1)	0.9149 (12.3)	0.8519 (21.8)	0.6801 (51.1)	0.7363 (15.1)	0.7390 (6.5)	-	0.7674 (9.1)
ln (GDP per capita)	0.4154 (3.6)	-0.0485 (1.8)	0.1439 (6.9)	0.1402 (3.3)	0.0490 (1.1)	-0.0643 (3.2)	-0.0253 (0.6)	0.1365 (0.7)	-	0.0751 (0.3)
ln (Distance)	-1.1121 (5.8)	-0.7609 (8.0)	-1.0004 (16.7)	-0.8174 (7.8)	-1.0411 (5.8)	-0.1644 (2.7)	-0.4320 (3.0)	-1.8439 (3.6)	-	-0.8220 (4.3)
ASEAN-China FTA	-3.8268 (6.9)	-1.9018 (8.3)	-0.5006 (4.1)	-1.5603 (6.1)	-0.0128 (0.1)	-1.2098 (9.5)	-0.5253 (1.8)	-5.3888 (4.4)	-	-4.6025 (3.9)
ASEAN-Korea FTA	-3.4728 (6.8)	-1.5175 (4.8)	-1.4417 (8.2)	-2.8536 (6.9)	0.7195 (4.6)	-1.0072 (6.0)	1.5490 (4.9)	-0.0160 (0.0)	-	0.5826 (1.3)
ASEAN-Japan FTA	-3.5315 (8.5)		-0.1464 (1.3)	0.4623 (1.2)	0.0082 (0.1)	0.0162 (0.2)	1.8348 (8.1)	-5.7775 (8.8)	-	-2.7544 (3.5)
ASEAN-Australia-New Zealand FTA	-1.4570 (4.1)	0.4003 (1.7)	0.7197 (9.9)	0.8688 (1.6)	-0.0931 (0.9)	0.0507 (0.6)	-0.6460 (4.6)	0.2371 (0.5)	-	-0.7925 (0.9)
ASEAN-India FTA	-3.9377 (5.5)	-1.3130 (7.2)	-0.7278 (5.4)	0.1277 (0.6)	-0.4874 (2.4)	0.1610 (1.5)	0.3736 (1.8)	-4.6780 (4.6)	-	2.0056 (1.9)
ASEAN Free Trade Area (AFTA)	0.5176 (1.1)	1.9064 (7.8)	0.8844 (5.1)	2.0301 (7.9)	0.4191 (1.3)	2.2837 (18.2)	1.4637 (4.8)	-1.0524 (1.0)	-	1.4350 (2.3)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,446	2,271	2,450
% of zero trade flows	78.2%	17.6%	24.7%	48.1%	24.7%	7.3%	40.0%	83.9%	91.1%	88.2%
R-squared:	0.223599	0.79182297	0.87384604	0.48939719	0.76519778	0.89701373	0.80722261	0.05394567	0.77364371	0.06512226

BEC06: Consumption goods	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	1.0304 (27.9)	0.9644 (41.3)	0.8839 (29.2)	1.2811 (30.2)	0.7380 (25.0)	0.9971 (45.5)	1.0517 (36.4)	1.2380 (20.1)	0.7558 (16.8)	0.9318 (18.3)
ln (GDP per capita)	0.9600 (15.4)	0.2905 (10.1)	0.3716 (14.8)	0.4110 (9.5)	0.2428 (7.0)	0.2607 (10.0)	0.3737 (7.1)	2.6618 (18.0)	0.9472 (15.4)	0.7175 (13.6)
ln (Distance)	1.4408 (7.6)	-0.0031 (0.0)	-0.7699 (9.7)	0.0761 (0.9)	-1.0874 (8.7)	-0.6265 (6.6)	-0.0210 (0.3)	1.4312 (4.4)	-0.1799 (1.1)	-0.2923 (1.4)
ASEAN-China FTA	2.0771 (4.9)	-1.0252 (7.6)	-1.0709 (6.9)	-0.6877 (3.4)	0.7597 (5.4)	-1.5995 (12.2)	-0.5735 (3.0)	2.9821 (3.7)	-0.0662 (0.2)	1.5008 (2.9)
ASEAN-Korea FTA	0.8763 (2.9)	0.1350 (1.1)	-1.0151 (8.0)	0.7504 (3.6)	0.2615 (1.5)	-1.1341 (8.8)	0.6441 (3.5)	-1.0021 (1.6)	-2.3602 (6.7)	2.9798 (10.0)
ASEAN-Japan FTA	0.3322 (1.4)		0.4350 (3.5)	0.8782 (2.8)	0.1576 (1.3)	0.3362 (4.1)	-0.2943 (2.7)	-1.3549 (1.7)	-0.2992 (1.0)	2.1476 (8.7)
ASEAN-Australia-New Zealand FTA	-0.2371 (1.3)	0.3134 (3.4)	0.8492 (6.3)	0.8059 (4.4)	0.0847 (0.8)	0.4165 (4.7)	-0.3166 (3.7)	0.7225 (1.2)	-2.0877 (4.6)	-1.1659 (5.7)
ASEAN-India FTA	0.8385 (2.1)	-0.4693 (2.5)	0.5424 (2.6)	0.4145 (1.0)	-0.2993 (1.7)	-0.0248 (0.2)	-0.6338 (2.7)	4.8583 (4.4)	-3.0253 (6.2)	-0.4962 (0.9)
ASEAN Free Trade Area (AFTA)	3.7744 (9.1)	-0.3760 (-3.9)	0.8713 (2.8)	3.0293 (16.0)	0.3290 (0.9)	1.3448 (7.0)	0.9375 (5.3)	10.056 (12.6)	-0.0696 (0.2)	1.3503 (3.6)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,275	2,450
% of zero trade flows	45.6%	2.5%	5.2%	20.4%	21.1%	2.3%	17.9%	66.2%	61.3%	54.5%
R-squared:	0.93528627	0.95054187	0.79293149	0.94551043	0.78150707	0.89704051	0.96313287	0.93579014	0.34220445	0.79470857

Note: Figures in parenthesis are z-values. Cells coloured orange are significantly positive coefficients of trade creation effect. Data for Brunei, Lao PDR, and Myanmar is constructed by their trade partners on the assumption that exports of Brunei to county j equals imports of country j from Brunei. Estimation results are omitted when more than 90% of all samples arezero. trade.

Table 2.4.2: Estimation Result on Exports by Country and Sector, 6 Dialogue Countries

BEC01: Food and Beverages	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.7209 (44.6)	0.8814 (36.4)	0.6749 (20.6)	0.6772 (9.4)	0.7080 (23.8)	0.6942 (53.0)
ln (GDP per capita)	0.2021 (7.6)	-0.0491 (1.3)	-0.0888 (2.1)	0.4152 (5.8)	0.3229 (10.8)	0.0728 (2.6)
ln (Distance)	-2.5933 (33.6)	-0.8984 (27.8)	-1.4652 (10.7)	-1.3528 (15.1)	-1.1889 (25.0)	-1.4194 (17.8)
ASEAN-China FTA		1.1596 (10.7)				
ASEAN-Korea FTA					1.6145 (11.5)	
ASEAN-Japan FTA				0.3317 (1.3)		
ASEAN-Australia-New Zealand FTA	0.4896 (4.7)					0.7331 (4.8)
ASEAN-India FTA			0.8689 (2.9)			
Number of other FTAs dummies	2450	2450	2450	2450	2450	2450
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5	8	9	11	7	7
% of zero trade flows	15.5%	4.3%	6.9%	36.3%	18.4%	16.0%
R-squared:	0.87531202	0.91977504	0.40045198	0.39748359	0.94619296	0.85473666

BEC02: Industrial supplies	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	1.2301 (34.6)	0.8078 (41.9)	0.8495 (31.2)	0.8433 (31.9)	0.7451 (22.0)	0.9509 (64.3)
ln (GDP per capita)	-0.3035 (6.7)	-0.2286 (12.4)	-0.0446 (1.0)	0.0393 (1.7)	-0.2696 (7.0)	0.0194 (0.8)
ln (Distance)	-2.8647 (17.0)	-0.5665 (14.1)	-1.4916 (9.2)	-1.4093 (43.9)	-0.8454 (16.4)	-3.0134 (45.9)
ASEAN-China FTA		0.6258 (7.8)				
ASEAN-Korea FTA					1.0213 (10.6)	
ASEAN-Japan FTA				0.1311 (1.4)		
ASEAN-Australia-New Zealand FTA	-0.7147 (3.6)					0.4582 (3.5)
ASEAN-India FTA			0.0077 (0.1)			
Number of other FTAs dummies	2450	2450	2450	2450	2450	2450
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5	8	9	11	7	7
% of zero trade flows	7.1%	1.6%	1.9%	2.4%	2.2%	21.7%
R-squared:	0.90245183	0.86958446	0.5856089	0.9390762	0.93179825	0.95765469

BEC3: Fuels and lubricants	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	1.0531 (30.4)	0.5771 (11.2)	0.5179 (11.5)	0.7213 (13.8)	0.7690 (14.0)	
ln (GDP per capita)	0.1330 (1.8)	0.0003 (0.0)	0.1221 (1.8)	0.1728 (2.5)	0.0145 (0.3)	
ln (Distance)	-3.2318 (21.9)	-1.0286 (17.1)	-1.6121 (7.4)	-1.3131 (15.0)	-0.9374 (12.2)	
ASEAN-China FTA		1.3122 (7.2)				
ASEAN-Korea FTA					1.9728 (9.7)	
ASEAN-Japan FTA				1.0484 (3.8)		
ASEAN-Australia-New Zealand FTA	-0.6898 (3.5)					
ASEAN-India FTA			-0.0164 (0.1)			
Number of other FTAs dummies	2450	2450	2450	2450	2450	2450
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5	8	9	11	7	7
% of zero trade flows	55.1%	13.2%	40.8%	46.1%	42.5%	80.7%
R-squared:	0.85126539	0.75375171	0.56058901	0.71362389	0.8283565	0.97663155

BEC04: Capital goods and parts & accessories	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.6169 (26.0)	0.9053 (34.4)	0.7307 (23.9)	0.9263 (29.4)	0.7947 (15.0)	0.8036 (22.3)
ln (GDP per capita)	0.0927 (3.3)	0.0220 (0.7)	-0.0552 (1.2)	0.0885 (2.5)	-0.1473 (2.4)	0.1858 (4.2)
ln (Distance)	-2.2422 (13.5)	-0.3115 (6.6)	-0.8965 (5.7)	-1.0571 (21.3)	-0.6640 (8.6)	-1.7380 (7.2)
ASEAN-China FTA		1.1058 (10.0)				
ASEAN-Korea FTA					0.4569 (2.8)	
ASEAN-Japan FTA				0.0882 (0.9)		
ASEAN-Australia-New Zealand FTA	-0.0032 (0.0)					-0.3008 (2.1)
ASEAN-India FTA			0.3067 (1.5)			
Number of other FTAs dummies	2450	2450	2450	2450	2450	2450
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5	8	9	11	7	7
% of zero trade flows	4.6%	1.9%	3.1%	1.2%	2.5%	13.9%
R-squared:	0.81307936	0.9402849	0.60981323	0.86388213	0.78464028	0.87061186

BEC05: Transport equipment, and parts & accessories	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.5592 (15.7)	0.6686 (20.3)	0.6498 (21.0)	0.8502 (24.1)	0.4952 (10.2)	0.5943 (8.4)
ln (GDP per capita)	0.3452 (9.9)	-0.0546 (1.8)	-0.1246 (2.6)	0.0274 (1.1)	0.0694 (1.7)	0.5368 (9.9)
ln (Distance)	-1.7308 (9.0)	-0.0874 (1.8)	-0.6048 (3.4)	0.0378 (0.7)	-0.0646 (0.7)	-2.6257 (12.8)
ASEAN-China FTA		0.5864 (4.4)				
ASEAN-Korea FTA					-0.3140 (2.0)	
ASEAN-Japan FTA				0.2202 (2.0)		
ASEAN-Australia-New Zealand FTA	-0.0409 (0.2)					0.0937 (0.5)
ASEAN-India FTA			0.1236 (0.8)			
Number of other FTAs dummies	2450	2450	2450	2450	2450	2450
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5	8	9	11	7	7
% of zero trade flows	18.9%	2.4%	6.9%	0.9%	2.6%	42.7%
R-squared:	0.50594492	0.8402348	0.52332807	0.84255407	0.64699782	0.71266533

BEC06: Consumption goods	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.6189 (22.3)	0.8991 (37.0)	0.8522 (18.6)	0.9568 (25.9)	0.8386 (23.4)	0.6196 (19.3)
ln (GDP per capita)	0.2869 (6.4)	0.0474 (1.6)	0.4110 (5.9)	0.4272 (10.0)	0.0774 (2.7)	0.6877 (20.8)
ln (Distance)	-2.0706 (13.2)	-0.1954 (5.2)	-1.4627 (4.0)	-1.0289 (17.2)	-0.3562 (8.1)	-2.4357 (15.3)
ASEAN-China FTA		0.4745 (3.5)				
ASEAN-Korea FTA					0.9580 (5.5)	
ASEAN-Japan FTA				0.0061 (0.1)		
ASEAN-Australia-New Zealand FTA	0.0300 (0.2)					-0.1135 (1.0)
ASEAN-India FTA			-0.6731 (3.1)			
Number of other FTAs dummies	2450	2450	2450	2450	2450	2450
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5	8	9	11	7	7
% of zero trade flows	12.0%	1.6%	1.9%	4.9%	3.8%	28.9%
R-squared:	0.78654411	0.93211874	0.49992827	0.84388134	0.83930342	0.97993747

Note: Figures in parenthesis are z-values. Cells coloured orange are significantly positive coefficients of trade creation effect.

Table 2.4.3: Estimation Result on Imports by Country and Sector, ASEAN Members

BEC01: Food and Beverages	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.978 (23.32)	0.972 (26.56)	0.881 (32.21)	0.901 (18.76)	0.965 (25.23)	0.735 (20.53)	0.774 (21.31)	0.6486 (16.04)	0.8430 (15.41)	1.1891 (17.96)
ln (GDP per capita)	0.347 (8.07)	-0.116 (2.03)	-0.274 (7.69)	-0.108 (1.96)	0.120 (3.12)	-0.104 (2.78)	-0.092 (2.30)	0.4851 (10.19)	0.7438 (7.00)	0.2168 (3.87)
ln (Distance)	-1.320 (16.46)	-0.690 (2.79)	-0.414 (5.96)	-0.274 (2.04)	-0.970 (17.20)	0.529 (4.96)	-0.298 (2.67)	-0.6157 (2.40)	-1.8384 (12.02)	-1.2775 (14.45)
ASEAN-China FTA	0.474 (2.62)	-0.215 (0.82)	0.152 (1.28)	-0.115 (0.37)	-0.128 (0.77)	1.573 (9.85)	0.240 (1.13)	1.9439 (4.67)	0.7465 (2.32)	1.4863 (5.93)
ASEAN-Korea FTA	-0.685 (3.14)	-1.568 (5.32)	-1.738 (11.77)	-0.996 (4.00)	0.132 (0.87)	1.073 (10.37)	-0.276 (1.86)	-2.0079 (4.41)	-2.3445 (5.78)	-1.2697 (4.41)
ASEAN-Japan FTA	-2.577 (7.03)		0.417 (2.61)	0.074 (0.28)	0.245 (2.50)	-0.222 (1.95)	-0.852 (4.27)	0.7851 (2.43)	-0.7251 (1.26)	-4.1323 (5.86)
ASEAN-Australia-New Zealand FTA	2.113 (15.85)	2.668 (10.20)	2.291 (25.15)	2.612 (8.78)	-0.062 (0.58)	0.028 (0.28)	2.511 (20.15)	2.8224 (11.02)	0.7423 (2.29)	3.6654 (15.52)
ASEAN-India FTA	0.966 (2.57)	-0.211 (0.71)	0.498 (3.56)	0.238 (1.05)	-0.021 (0.20)	0.926 (5.26)	0.220 (1.06)	3.3173 (8.49)	3.1126 (5.81)	1.8077 (4.56)
ASEAN Free Trade Area (AFTA)	2.133 (10.89)	1.343 (2.38)	1.700 (9.98)	2.464 (13.04)	1.048 (6.20)	2.925 (18.98)	1.898 (8.69)	4.4963 (7.65)	2.8642 (9.11)	4.4722 (13.47)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	75.6%	43.4%	36.2%	54.1%	33.0%	27.3%	50.3%	77.3%	83.5%	79.1%
R-squared:	0.82884537	0.59264545	0.8061224	0.49368441	0.79842532	0.82545592	0.73004075	0.66100177	0.98535043	0.92185047

BEC02: Industrial supplies	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.847 (8.37)	0.925 (64.08)	0.952 (42.53)	0.855 (49.69)	1.037 (52.79)	0.871 (27.26)	0.839 (38.37)	0.8467 (12.79)	1.0536 (13.95)	1.1331 (12.78)
ln (GDP per capita)	0.548 (6.77)	-0.028 (1.51)	-0.017 (0.91)	0.086 (3.87)	0.145 (6.69)	0.187 (5.12)	0.042 (1.44)	0.8808 (13.17)	-0.0785 (1.41)	0.0148 (0.11)
ln (Distance)	-2.598 (18.11)	-1.374 (20.46)	-1.037 (18.57)	-1.104 (22.65)	-1.294 (27.85)	-1.100 (15.58)	-1.269 (19.45)	-0.6236 (3.35)	-2.1297 (15.14)	-1.7196 (21.42)
ASEAN-China FTA	1.563 (3.63)	0.228 (3.72)	0.261 (2.84)	0.017 (0.19)	0.362 (3.84)	0.503 (4.35)	0.914 (8.12)	2.7961 (5.06)	0.7332 (3.69)	2.3350 (5.64)
ASEAN-Korea FTA	0.357 (1.45)	0.964 (14.52)	0.873 (11.76)	0.681 (10.61)	0.083 (1.10)	0.705 (8.30)	1.632 (16.96)	0.2777 (0.45)	-0.4849 (2.17)	2.6521 (10.61)
ASEAN-Japan FTA	-2.633 (6.60)		-0.110 (1.58)	-0.081 (0.91)	-0.100 (1.50)	-0.008 (0.09)	0.170 (1.43)	-0.1397 (0.33)	-1.1422 (6.79)	-0.3404 (1.96)
ASEAN-Australia-New Zealand FTA	-1.938 (4.87)	0.445 (5.29)	1.305 (10.91)	0.984 (14.92)	-0.470 (4.18)	-0.060 (0.47)	0.685 (7.11)	-1.9541 (3.20)	1.1849 (5.12)	0.4984 (1.66)
ASEAN-India FTA	0.257 (0.54)	-0.219 (2.50)	-0.301 (2.67)	-0.157 (1.40)	-0.768 (4.92)	-0.115 (1.09)	0.333 (2.98)	1.4416 (2.38)	-1.3824 (7.14)	0.7585 (1.59)
ASEAN Free Trade Area (AFTA)	-2.223 (7.55)	0.181 (1.17)	0.587 (3.83)	1.385 (15.96)	-0.022 (0.13)	0.534 (5.23)	0.130 (1.00)	3.6945 (7.80)	0.6922 (3.76)	1.8326 (6.22)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,464
% of zero trade flows	57.6%	12.2%	19.6%	34.6%	26.2%	7.2%	26.8%	69.6%	73.2%	69.3%
R-squared:	0.85071143	0.94659315	0.90915064	0.93278527	0.93994697	0.89644984	0.95770853	0.42658535	0.98223377	0.95312326

BEC03: Fuels and lubricants	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	1.337 (8.11)	0.503 (13.91)	0.527 (14.68)	0.464 (14.20)	0.495 (10.98)	0.37379 (10.58)	0.798 (9.80)	0.5556 (4.14)		1.0484 (13.48)
ln (GDP per capita)	0.809 (4.41)	0.154 (3.60)	0.111 (3.07)	0.298 (5.01)	0.332 (5.14)	0.35586 (5.50)	1.005 (15.73)	0.6577 (5.44)		1.3529 (13.48)
ln (Distance)	-3.267 (7.30)	-2.209 (19.81)	-1.570 (20.14)	-0.777 (8.98)	-1.209 (10.40)	-1.4013 (11.41)	-1.828 (10.16)	-1.2971 (1.84)		-2.2229 (10.96)
ASEAN-China FTA	1.430 (3.19)	-0.846 (2.22)	-1.585 (5.10)	-0.317 (0.86)	-0.111 (0.29)	-2.7414 (6.80)	3.707 (9.99)	0.4246 (0.31)		4.7901 (10.33)
ASEAN-Korea FTA	-0.303 (0.66)	1.112 (4.86)	-0.156 (0.33)	0.924 (3.15)	0.902 (3.02)	-2.3299 (7.81)	2.657 (11.58)	0.0017 (0.00)		0.8648 (1.24)
ASEAN-Japan FTA	-1.325 (3.27)		1.007 (2.37)	-0.775 (1.20)	1.869 (3.81)	0.15047 (0.37)	-0.006 (0.02)	0.5865 (0.80)		-3.2039 (4.92)
ASEAN-Australia-New Zealand FTA	-1.834 (1.89)	-1.507 (6.07)	0.859 (4.53)	-2.310 (5.10)	-0.650 (2.70)	0.09969 (0.28)	1.109 (4.08)	-3.8315 (4.32)		-2.3323 (4.00)
ASEAN-India FTA	0.824 (0.72)	-0.989 (2.40)	-1.050 (4.12)	-2.979 (4.31)	0.182 (0.82)	-2.5238 (5.79)	1.724 (3.21)	-2.3158 (1.70)		2.8285 (5.23)
ASEAN Free Trade Area (AFTA)	4.152 (9.08)	-0.712 (2.74)	-0.456 (1.74)	1.312 (4.98)	-0.622 (1.56)	-0.7217 (2.22)	2.562 (7.57)	4.2796 (2.71)		5.0131 (7.22)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,464
% of zero trade flows	90.1%	70.0%	68.5%	78.2%	58.2%	60.7%	75.1%	90.4%	94.2%	89.8%
R-squared:	0.9556987	0.83943783	0.86969547	0.15468506	0.42922428	0.06026706	0.91904296	0.62817815	0.99948203	0.90181371

Table 2.4.3 (Continued): Estimation Result on Imports by Country & Sector, ASEAN Members

BEC04: Capital goods and parts & accessories	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.958 (21.30)	1.079 (37.29)	1.171 (29.78)	1.189 (28.57)	0.982 (19.91)	1.342 (46.22)	1.075 (31.32)	1.0217 (24.31)	1.0566 (10.74)	1.0290 (20.45)
ln (GDP per capita)	0.625 (11.38)	0.279 (6.80)	0.216 (5.08)	0.760 (20.77)	0.329 (11.38)	0.350 (11.38)	0.547 (11.38)	1.2674 (20.38)	0.1283 (1.09)	0.6082 (3.31)
ln (Distance)	-2.013 (20.85)	-1.593 (15.31)	-1.131 (8.79)	-1.262 (14.17)	-1.044 (7.08)	-1.924 (26.10)	-1.688 (17.54)	-0.2645 (1.39)	-1.5319 (9.82)	-1.6514 (16.49)
ASEAN-China FTA	2.127 (10.47)	1.258 (9.13)	0.978 (4.53)	0.668 (3.71)	1.753 (4.59)	0.717 (6.60)	1.944 (10.53)	4.4335 (10.78)	2.0093 (4.21)	3.4592 (6.46)
ASEAN-Korea FTA	0.256 (1.76)	0.662 (6.49)	1.014 (7.43)	0.633 (4.04)	0.273 (2.82)	0.570 (7.19)	1.873 (9.17)	1.1574 (2.28)	-0.4944 (2.27)	1.5100 (7.45)
ASEAN-Japan FTA	-0.219 (1.28)		0.169 (1.76)	0.124 (1.20)	0.104 (1.44)	0.104 (1.44)	0.439 (2.48)	-0.6970 (1.66)	-0.3774 (1.20)	0.0809 (0.42)
ASEAN-Australia-New Zealand FTA	-0.718 (2.16)	-0.809 (4.56)	-1.104 (8.31)	-1.299 (6.60)	0.450 (3.64)	0.107 (1.14)	-1.159 (4.68)	0.4234 (1.67)	1.6233 (8.83)	-1.7207 (8.63)
ASEAN-India FTA	1.092 (3.35)	0.008 (0.05)	-1.180 (4.75)	0.738 (3.56)	-0.254 (1.71)	-1.014 (7.66)	0.092 (0.38)	7.8869 (11.17)	-0.9652 (1.62)	1.8945 (2.66)
ASEAN Free Trade Area (AFTA)	-0.010 (0.05)	0.510 (2.00)	0.871 (2.21)	2.810 (15.64)	1.568 (3.04)	1.318 (11.51)	0.470 (2.09)	6.0399 (15.17)	0.2301 (0.68)	2.2586 (5.26)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	67.9%	10.1%	27.4%	38.4%	26.3%	15.2%	44.8%	72.4%	76.2%	73.7%
R-squared:	0.88364588	0.9655577	0.92370551	0.86186802	0.93097417	0.97842248	0.96165508	0.84561952	0.88815037	0.93976944

BEC05:Transport equipment, and parts & accessories	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	1.955 (16.60)	1.354 (21.06)	1.266 (22.23)	1.325 (23.87)	1.532 (48.52)	1.390 (18.93)	1.116 (20.06)	1.2883 (17.88)	1.2831 (15.56)	1.2558 (13.45)
ln (GDP per capita)	0.388 (4.45)	-0.019 (0.32)	0.041 (0.84)	0.074 (1.56)	0.623 (14.53)	0.157 (2.69)	0.025 (0.51)	0.7756 (12.28)	-0.0435 (0.49)	0.1816 (1.19)
ln (Distance)	-2.422 (16.33)	-0.780 (3.05)	-0.753 (4.15)	-1.519 (13.43)	-0.974 (9.53)	-1.475 (6.47)	-1.384 (11.78)	-1.7741 (8.43)	-1.8025 (9.77)	-2.0885 (18.20)
ASEAN-China FTA	-0.519 (1.28)	-0.288 (0.87)	-0.379 (1.37)	-1.895 (8.88)	0.472 (2.51)	-0.947 (3.46)	-0.239 (1.00)	0.7086 (2.43)	0.3887 (1.40)	2.2499 (4.93)
ASEAN-Korea FTA	2.075 (9.16)	0.190 (0.78)	0.594 (2.32)	0.053 (0.33)	0.870 (3.93)	-0.035 (0.17)	1.395 (8.02)	2.1285 (4.30)	2.2589 (9.05)	0.8065 (3.21)
ASEAN-Japan FTA	-0.124 (0.54)		0.057 (0.26)	-0.037 (0.12)	-0.582 (4.42)	-0.120 (0.72)	-0.135 (0.77)	-0.7463 (2.32)	0.1530 (0.54)	1.8768 (6.06)
ASEAN-Australia-New Zealand FTA	-1.518 (4.65)	-0.732 (2.61)	-1.384 (4.57)	-1.809 (6.39)	-0.386 (3.82)	-0.536 (2.39)	-3.372 (11.71)	-2.6774 (11.42)	-1.6634 (4.24)	-2.0706 (3.74)
ASEAN-India FTA	-0.797 (1.70)	0.167 (0.51)	-1.864 (5.90)	0.461 (1.89)	0.229 (0.83)	-0.476 (1.99)	-1.325 (5.46)	2.1011 (5.86)	-0.9952 (1.80)	-0.1339 (0.25)
ASEAN Free Trade Area (AFTA)	1.446 (3.06)	3.002 (5.22)	1.747 (3.41)	2.618 (12.74)	1.418 (4.12)	1.256 (3.90)	0.279 (1.28)	2.3513 (6.94)	-0.0780 (0.29)	1.1986 (3.55)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	80.8%	48.1%	54.7%	61.6%	43.8%	41.4%	65.4%	80.6%	83.3%	81.9%
R-squared:	0.74618528	0.74126625	0.63366567	0.66562333	0.95120533	0.90708701	0.70172803	0.64089689	0.95911289	0.8829668

BEC06: Consumption goods	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Brunei	Lao PDR	Myanmar
ln (GDP)	0.876 (13.11)	1.081 (28.78)	1.033 (35.40)	0.875 (28.43)	1.107 (26.11)	1.120 (35.48)	1.010 (34.23)	0.8554 (15.66)	0.9661 (9.78)	1.0729 (12.53)
ln (GDP per capita)	0.101 (0.79)	-0.050 (1.08)	0.024 (0.67)	0.243 (8.84)	0.195 (4.54)	0.438 (11.69)	0.245 (6.05)	0.9887 (14.86)	0.1873 (1.69)	0.0876 (0.68)
ln (Distance)	-1.197 (4.46)	-1.408 (9.26)	-1.221 (11.33)	-1.312 (16.54)	-1.722 (18.37)	-1.647 (23.33)	-1.709 (21.51)	-0.1725 (0.73)	-1.9929 (14.85)	-1.8548 (24.47)
ASEAN-China FTA	0.521 (2.50)	1.045 (5.06)	0.622 (3.59)	0.368 (2.38)	0.611 (3.21)	0.960 (6.11)	0.398 (2.70)	5.8854 (15.15)	2.7047 (6.11)	1.9287 (4.42)
ASEAN-Korea FTA	0.309 (1.10)	0.538 (4.06)	-0.313 (2.59)	-0.960 (8.83)	-0.148 (1.48)	-0.578 (7.64)	0.820 (8.51)	-0.7027 (2.35)	0.4509 (1.65)	1.4044 (10.39)
ASEAN-Japan FTA	-1.468 (2.23)		-0.507 (3.19)	-0.005 (0.05)	-0.052 (0.69)	0.127 (1.32)	-0.205 (1.43)	0.1100 (0.21)	-1.4246 (6.06)	-1.6239 (9.74)
ASEAN-Australia-New Zealand FTA	-1.329 (5.54)	-0.450 (3.08)	0.252 (1.90)	0.278 (2.94)	0.092 (0.92)	-0.213 (1.50)	-0.364 (3.90)	-0.3502 (1.23)	1.6096 (7.82)	-0.8907 (2.81)
ASEAN-India FTA	0.488 (1.82)	-1.154 (5.17)	-1.110 (5.36)	0.792 (7.95)	-0.051 (0.40)	-0.140 (0.82)	0.644 (4.39)	2.2675 (6.30)	0.3029 (0.61)	1.3489 (2.73)
ASEAN Free Trade Area (AFTA)	1.030 (1.46)	1.263 (3.35)	0.319 (0.99)	1.803 (15.76)	-0.681 (2.36)	1.348 (11.21)	-0.006 (0.03)	5.3310 (11.28)	1.4111 (4.37)	1.5908 (5.61)
Number of other FTAs dummies	0	1	5	1	12	4	1	1	1	0
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	65.6%	35.0%	40.1%	42.3%	28.7%	16.0%	49.3%	71.3%	75.8%	73.3%
R-squared:	0.46235331	0.93749042	0.87914009	0.8409638	0.87933307	0.95155658	0.89515825	0.85932816	0.92207952	0.94402684

Note: Figures in parenthesis are 1-values. Cells coloured orange are significantly positive coefficients of trade creation effect. Data for Brunei, Lao PDR, and Myanmar is constructed by their trade partners on the assumption that imports of Brunei from county j equals exports of country j to Brunei. Estimation results are omitted when more than 90% of all samples are zero trade.

Table 2.4.4: Estimation Result on Imports by Country and Sector, 6 Dialogue Countries

BEC01: Food and Beverages	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.691 (30.12)	0.982 (25.61)	0.710 (24.75)	0.899 (44.89)	0.949 (28.04)	0.681 (26.27)
ln (GDP per capita)	0.056 (1.42)	-0.259 (3.75)	-0.531 (9.80)	-0.118 (3.59)	-0.218 (3.76)	0.070 (2.32)
ln (Distance)	-0.743 (4.46)	2.415 (8.04)	0.615 (4.16)	-0.400 (9.89)	-0.141 (2.49)	-1.343 (7.63)
ASEAN-China FTA		4.144 (10.93)				
ASEAN-Korea FTA					1.307 (8.35)	
ASEAN-Japan FTA				0.223 (1.53)		
ASEAN-Australia-New Zealand FTA	0.682 (4.83)					0.795 (5.11)
ASEAN-India FTA			1.731 (5.85)			
Number of other FTAs dummies	5	8	8	11	7	7
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	25.0%	25.8%	36.9%	13.6%	22.9%	34.5%
R-squared:	0.82845877	0.776735	0.44539861	0.79884217	0.73652936	0.97039159

BEC02: Industrial supplies	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.799 (21.89)	0.813 (34.65)	0.732 (18.43)	0.893 (55.76)	0.910 (53.32)	0.821 (41.00)
ln (GDP per capita)	0.031 (0.75)	-0.114 (2.72)	0.177 (2.54)	-0.142 (4.67)	-0.019 (0.76)	0.039 (0.97)
ln (Distance)	-2.108 (10.71)	-0.707 (17.76)	-1.379 (8.49)	-0.532 (12.77)	-0.672 (23.98)	-1.026 (7.11)
ASEAN-China FTA		0.426 (4.72)				
ASEAN-Korea FTA					0.859 (9.10)	
ASEAN-Japan FTA				-0.020 (0.20)		
ASEAN-Australia-New Zealand FTA	-0.056 (0.35)					0.374 (1.89)
ASEAN-India FTA			0.381 (1.82)			
Number of other FTAs dummies	5	8	8	11	7	7
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	15.6%	7.4%	7.4%	10.5%	8.7%	22.9%
R-squared:	0.70187705	0.7203842	0.408931	0.84253917	0.93480716	0.95136062

BEC3: Fuels and lubricants	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	0.493 (17.00)	0.484 (14.96)	0.603 (12.43)	0.326 (8.76)	0.353 (9.49)	0.301 (6.52)
ln (GDP per capita)	0.050 (0.70)	-0.240 (4.76)	-0.154 (2.06)	0.397 (5.15)	0.375 (4.69)	0.622 (5.12)
ln (Distance)	-2.770 (19.22)	-0.384 (5.04)	-2.002 (7.88)	-0.577 (8.10)	-0.167 (1.84)	-1.681 (12.52)
ASEAN-China FTA		-0.203 (1.08)				
ASEAN-Korea FTA					1.135 (5.15)	
ASEAN-Japan FTA				0.204 (0.82)		
ASEAN-Australia-New Zealand FTA	0.812 (3.20)					0.570 (1.89)
ASEAN-India FTA			-0.794 (2.16)			
Number of other FTAs dummies	5	8	8	11	7	7
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	65.0%	49.4%	54.2%	59.9%	51.3%	70.1%
R-squared:	0.66125968	0.09532459	0.26986448	0.10346014	0.08633746	0.52672556

BEC04: Capital goods and parts & accessories	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	1.122 (24.23)	0.843 (34.42)	1.339 (37.25)	1.199 (34.63)	1.063 (28.45)	0.938 (23.08)
ln (GDP per capita)	-0.059 (0.98)	0.447 (9.05)	-0.210 (5.04)	-0.152 (5.35)	0.049 (1.72)	0.178 (1.97)
ln (Distance)	-1.362 (8.09)	-1.240 (28.85)	-1.826 (16.31)	-1.232 (33.13)	-0.869 (25.84)	-1.054 (7.87)
ASEAN-China FTA		2.433 (14.47)				
ASEAN-Korea FTA					1.513 (7.28)	
ASEAN-Japan FTA				-0.069 (0.88)		
ASEAN-Australia-New Zealand FTA	0.138 (0.56)					0.253 (1.06)
ASEAN-India FTA			0.087 (0.44)			
Number of other FTAs dummies	5	8	8	11	7	7
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	16.5%	15.6%	21.9%	21.0%	11.4%	26.2%
R-squared:	0.77959557	0.86982635	0.87630687	0.95525228	0.93441774	0.88864373

BEC05: Transport equipment, and parts & accessories	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	1.155 (40.55)	1.040 (28.47)	1.141 (26.38)	1.239 (59.05)	1.073 (26.52)	0.969 (31.90)
ln (GDP per capita)	0.519 (24.32)	0.497 (8.15)	0.040 (0.76)	0.104 (2.89)	0.168 (7.24)	0.750 (18.81)
ln (Distance)	-1.905 (18.94)	-0.649 (11.39)	-0.981 (6.50)	-0.459 (10.14)	-0.516 (19.16)	-2.334 (14.69)
ASEAN-China FTA		-0.318 (2.10)				
ASEAN-Korea FTA					-0.006 (0.03)	
ASEAN-Japan FTA				0.282 (1.82)		
ASEAN-Australia-New Zealand FTA	0.020 (0.22)					0.362 (2.68)
ASEAN-India FTA			1.028 (3.13)			
Number of other FTAs dummies	5	8	8	11	7	7
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	38.6%	41.7%	43.3%	47.6%	36.4%	42.7%
R-squared:	0.95595158	0.68925999	0.73396825	0.8705487	0.86588838	0.86647853

BEC06: Consumption goods	Australia	China	India	Japan	Korea	New Zealand
ln (GDP)	1.165 (24.15)	0.754 (27.68)	1.176 (20.54)	1.213 (38.03)	1.105 (41.78)	1.077 (18.21)
ln (GDP per capita)	-0.318 (4.59)	0.664 (11.38)	-0.053 (0.58)	-0.405 (8.82)	-0.269 (7.03)	-0.406 (4.76)
ln (Distance)	-1.052 (5.05)	-0.614 (15.33)	-2.101 (5.83)	-1.096 (16.05)	-0.756 (18.61)	-0.757 (3.38)
ASEAN-China FTA		1.951 (16.82)				
ASEAN-Korea FTA					1.633 (8.09)	
ASEAN-Japan FTA				0.719 (2.92)		
ASEAN-Australia-New Zealand FTA	0.214 (0.94)					0.637 (3.63)
ASEAN-India FTA			0.310 (1.25)			
Number of other FTAs dummies	5	8	8	11	7	7
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,450	2,450	2,450	2,450	2,450	2,450
% of zero trade flows	14.2%	21.6%	28.6%	17.4%	15.3%	20.0%
R-squared:	0.73215405	0.78740942	0.66374595	0.96041945	0.9098462	0.87216488

Note: Figures in parenthesis are z-values. Cells coloured orange are significantly positive coefficients of trade creation effect.

5. Conclusion

By estimating the impact of ASEAN+1 FTAs using sectoral trade data in 2002–2013, we found several characteristics of these regional FTAs. The results indicate that five ASEAN+1 FTAs have a positive impact on regional trade in many sectors even during their early phase. This trade creation effect seems to be based on existing production and sales networks in East Asia. Our results on ACFTA and AKFTA suggest a regional FTA stimulates intra-regional trade by developing production and sales networks in the region. Moreover, ACFTA, AKFTA, and AIFTA have the potential to boost trade in industrial supplies and capital goods of emerging ASEAN members. A region-wide FTA in this region can take the role of expanding the existing production and sales networks to newer developing members.

Trade creation effects under AJCEP cannot be observed in ASEAN members in many sectors, even though wide and deep production and sales networks between Japan and ASEAN countries have already been formed. A possible reason is that existing bilateral FTAs between Japan and seven ASEAN countries are utilised more than AJCEP. This implies that a newer region-wide FTA formed between the same members of precedent FTAs should be more liberalised and/or have lower utilisation costs than the precedent FTAs.

RCEP, which is going to be formed by coordinating five ASEAN+1 FTAs and AFTA, needs to be constructed with a view to enhancing the strengths and eliminating the weaknesses of these existing regional FTAs. The necessary conditions for RCEP to be a substantially effective region-wide FTA are: higher-level liberalisation, lower cost of utilisation compared with the precedent bilateral and plurilateral FTAs in the region, the early implementation of tariff reduction/elimination in sectors already liberalised under the existing ASEAN+1 FTAs, and more comprehensive liberalisation to increase productivity and narrow the development gap in the region.

As our estimation results indicate, all ASEAN+1 FTAs have trade diversion effects in several sectors. RCEP is expected to be conducive to extending the existing production and sales networks between ASEAN and its dialogue partners to region-

wide networks. Therefore, RCEP need to be implemented simultaneously in all member countries to avoid trade diversion effects.

References

Aitken, N. (1973), 'The Effect of the EEC and EFTA on European Trade: A Temporal Cross-Section Analysis', *American Economic Review*, 63(5), pp.881–92.

Anderson, J.E. (1979), 'A Theoretical Foundation for the Gravity Equation', *American Economic Review*, 69(1), pp.106–16.

Anderson, J.E. and E. van Wincoop (2003), 'Gravity with Gravitas: A Solution to the Border Puzzle', *American Economic Review*, 93(1), pp.170–92.

Ando, M. (2007), 'Impacts of Japanese FTAs/EPAs: Preliminary Post Evaluation', *The International Economy*, 11, pp.57–83.

Ando, M. (2009), 'Impacts of FTAs in East Asia: CGE Simulation Analysis', *RIETI Discussion Paper Series* 09–E–037, Tokyo: Research Institute of Economy, Trade and Industry.

Ando, M. and A. Obashi (2010), 'The Pervasiveness of Non-tariff Measures in ASEAN – Evidences from the Inventory Approach, In United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), *Rising Non-Tariff Protectionism and Crisis Recovery*. Bangkok: UNESCAP, pp.27–55.

Athukorala, P. and A. Kohpaiboon (2011), 'Australia–Thailand Trade: Has the FTA Made a Difference?', *Working Papers in Trade and Development* No. 2011/12, Canberra: Australian National University.

Baier, S.L. and J.H. Bergstrand (2007), 'Do Free Trade Agreements Actually Increase Members' International Trade?', *Journal of International Economics*, 71(1), pp.72–95.

Balassa, B. (1961), *The Theory of Economic Integration*. Homewood, IL: Richard D. Irwin.

Brada, J.C. and J.A. Mendez (1983), 'Regional Economic Integration and the Volume of Intra-regional Trade: A Comparison of Developed and the Developing Country Experience', *KYKLOS*, 36(4), pp.589–603.

Bun, M.J.G., F.J.G.M. Klaassen, and G.K.R. Tan (2009), 'Free Trade Areas and Intra-Regional Trade: The Case of ASEAN', *The Singapore Economic Review*, 54(3), pp.319–34.

Cadot, O., C. Carrère, J. De Melo, and B. Tumurchudur (2006), 'Product Specific Rules of Origin in EU and US Preferential Trading Agreements: An Assessment', *World Trade Review*, Cambridge University Press, 5(2), pp.199–224.

Cadot, O., J. de Melo, and A. Portugal–Perez (2006), 'Rules of Origin for Preferential Trading Arrangements: Implications for the ASEAN Free Trade Area of EU and U.S. Experience', *World Bank Policy Research Working Paper* 4016, Washington, DC: The World Bank.

Cadot, O., E. Munadi, and L. Y. Ing (2013), 'Streamlining NTMs in ASEAN: The Way Forward', ERIA *Discussion Paper Series* 2013–24, Jakarta: ERIA.

Cadot, O. and L. Y. Ing (2014) How Restrictive Are ASEAN's RoO?, *ERIA Discussion Paper Series* 2014–18, Jakarta: ERIA.

Carrère, C. and J. de Melo (2004), 'Are Different Rules of Origin Equally Costly?: Estimates from NAFTA', *CEPR Discussion Paper* No. 4437, London: CEPR.

Carrère, C. (2006), 'Revisiting the Effects of Regional Trade Agreements on Trade Flows with Proper Specification of the Gravity Model', *European Economic Review*, 50(2), pp.223–47.

Carrère, C. and J. de Melo (2011), 'Notes on Detecting The Effects of Non Tariff Measures', *Journal of Economic Integration*, 26, pp.136–68, Seoul: Center for Economic Integration, Sejong University.

Chandran, B.P.S. (2012), 'Implications of India–ASEAN FTA on India's Fisheries Sector', *MPRA Paper* No. 38712, Munich, Germany: MPRA.

Cheong, I. and J. Cho (2009), 'The Impact of Free Trade Agreements on Business in the Republic of Korea', *ADBI Working Paper* No. 156, Tokyo: ADBI.

Cheong, I. and J. Cho (2009), 'An Empirical Study on the Utilisation Ratio of FTAs by Korean Firms', *Journal of Korea Trade* 13(2), pp.109–26.

Cheong, I., H. Kim, and J. Cho (2010), 'Business Use of FTAs in Korea', *RIETI Discussion Paper Series* 10–E–038, Tokyo: Research Institute of Economy, Trade and Industry.

Deardorff, A.V. and R.M. Stern (1997), 'Measurement of Non-Tariff Barriers', *OECD Economic Department Working Papers* No. 179, Paris: OECD Publishing. (http://dx.doi.org/10.1787/568705648470)

Deardorff, A.V. and R.M. Stern (1997), 'Measurement of Non-Tariff Barriers', *OECD Economics Department Working Papers* No. 179, Paris: OECD Publishing.

DeRosa, D.A. (1995), 'Regional Trading Arrangements among Developing Countries: The ASEAN Example,' *International Food Policy Research Institute Research Report* No.103, Washington, DC: IFPRI.

Elliot, R.J.R. and K. Ikemoto (2004), 'AFTA and the Asian Crisis: Help or Hindrance to ASEAN Intra-Regional Trade?', *Asian Economic Journal*, 1, pp.1–23.

Endoh, M. (1999), 'The Transition of Post-war Asia-Pacific Trade Relations', *Journal of Asian Economics*, 10, pp.571–89.

Estrada, G., D. Park, I. Park, and S. Park (2011), 'ASEAN's Free Trade Agreements with the People's Republic of China, Japan, and the Republic of Korea: A Qualitative and Quantitative Analysis', *ADB Working Paper Series on Regional Economic Integration* No.75, Manila: ADB.

Frankel, J.A. (1997), 'Estimated Effects of Trading Blocs', in J.A. Frankel, E. Stein and S.J. Wei (eds.), *Regional Trading Blocs in the World Economic System.* Washington, DC: Peterson Institute for International Economics.

Frankel, J.A. and S.J. Wei (1996), 'ASEAN in a Regional Perspective', *Center for International and Development Economic Research Working Paper* No. C96–074, Berkeley, CA: CIDER.

Helpman, E., M.J. Melitz, and Y. Rubinstein (2008), 'Estimating Trade Flow: Trading Partners and Trading Volumes', *Quarterly Journal of Economics*, 123(2), pp.441–87.

Hamanaka, S. (2013), 'On the Use of FTAs: A Review of Research Methodologies', *ADB Working Paper Series on Regional Economic Integration* No. 113, Manila: ADB.

Hausman, J.A. and W.E. Taylor (1981), 'Panel Data and Unobservable Individual Effects', *Econometrica* 49(6), pp.1377–98.

Hayakawa, K. (2012), 'Impact of Diagonal Cumulation Rule on FTA Utilisation: Evidence from Bilateral and Multilateral FTAs between Japan and Thailand', *IDE Discussion Paper* No. 372, Tokyo: IDE.

Hayakawa, K. and N. Laksanapanyakul (2013a), 'Impacts of Common Rules of Origin on FTA Utilisation', *IDE Discussion Paper* No. 429, Tokyo: Institute of Developing Economies.

Hayakawa, K. and N. Laksanapanyakul (2013b), 'New Measures of FTA Liberalization Level', *IDE Discussion Paper* No. 437, Tokyo: Institute of Developing Economies.

Hayakawa, K., and N. Laksanapanyakul, and K. Shiino (2013), 'Some Practical Guidance for the Computation of Free Trade Agreement Utilisation Rates', *IDE Discussion Paper* No. 438, Tokyo: Institute of Developing Economies.

Hayakawa, K., D. Hiratsuka, K. Shiino, and S. Sukegawa (2013), 'Who Uses FTAs?' *Asian Economic Journal,* 27(3), pp.245–64.

Hayakawa, K., T. Ito, and F. Kimura (2015), 'Trade Creation Effects of Regional Trade Agreements: Tariff Reduction versus Non-Tariff Barrier Removal', *ERIA Discussion Papers* 2015–35, Jakarta: ERIA.

Hayakawa, K., N. Laksanpanyakul, and S. Urata (2015), 'Measuring the Costs of FTA Utilization: Evidence from Transaction-level Import Data of Thailand', *ERIA Discussion Paper Series* 2015–38, Jakarta: ERIA.

Itakura, K. (2013), 'Impact of Liberalization and Improved Connectivity and Facilitation in ASEAN for the ASEAN Economic Community', *ERIA Discussion Paper Series* 2013–01, Jakarta: ERIA.

Kien, N.T. (2009), 'Gravity Model by Panel Data Approach; An Empirical Application with Implications for the ASEAN Free Trade Area', *ASEAN Economic Bulletin*, 26(3), pp.266–77.

Kohpaiboon, A. (2010), 'Exporters' Response to FTA Tariff Preferences: Evidence from Thailand', *RIETI Discussion Paper Series* No. 10–E–039, Tokyo: RIETI.

Kuroiwa, I. (2006), 'Rules of Origin and Local Content in East Asia', *IDE Discussion Paper* No. 78, Tokyo: Institute of Developing Economies.

Mayer, T. and S. Zignago (2011), 'Notes on CEPII's Distance Measures: The GeoDist Database', *CEPII Working Paper* 2011–25, Paris: CEPII.

Manchin, M. (2006), 'Preference Utilisation and Tariff Reduction in EU Imports from ACP Countries', *World Economy*, 29(9), pp.1243–66.

Manchin, M. and A.O. Pelkmans–Balaoing (2007), 'Clothes without an emperor: Analysis of the Preferential Tariffs in ASEAN', *Centro Studi Luca D'Agliano Development Studies Working Papers* No. 223, Milan, Italy: Centro Studi Luca D'Agliano.

Medalla, E.M. and J. Balboa (2009), 'ASEAN Rules of Origin: Lessons and Recommendation for Best Practice', *ERIA Discussion Paper Series* 2009–17, Jakarta: ERIA.

Medalla, E.M. (2011), 'Taking Stock of the ROO in the ASEAN+1 FTAs: Toward Deepening East Asian Integration', *Philippines Institute for Development Studies Discussion Paper* No. 2011–36, Makati City, Philippines: PIDS.

Melitz, M.J. (2003), 'The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity', *Econometrica*, 71(6), pp.1695–725.

Okabe, M. and S. Urata (2014), 'The Impact of AFTA on Intra-AFTA Trade', *Journal of Asian Economics*, 35, pp.12–31.

Poyhonen, P. (1963), 'A Tentative Model for the Volume of Trade between Countries', *Weltwirtschaftliches Archiv*, 90(1), pp.93–99.

Santos Silva, J. and S. Tenreyro (2006), 'The Log of Gravity', *The Review of Economics and Statistics*, 88, pp.641–58.

Sheng, Y., H.C. Tang and X. Xu (2012), 'The Impact of the ACFTA on ASEAN–PRC Trade: Estimates Based on an Extended Gravity Model for Component Trade', *Applied*

Economics, 46(19), pp.2251–63.

Sukekawa, N. (2009), 'Keizaitougou no keninyaku AFTA to sonokatuyo' (in Japanese), in K. Ishikawa, K. Shimizu, and N. Sukekawa (eds.), *ASEAN Economic Community.* Tokyo: JETRO.

Solaga, I. and L.A. Winters (2001), 'Regionalism in the Nineties: What Effect on Trade?', *The North American Journal of Economics and Finance*, 12(1), pp.1–29.

Takahashi, K. and S. Urata (2010), 'On the Use of FTAs by Japanese Firms: Further Evidence', *Business and Politics*, 12(1), pp.1–17.

Tinbergen, J.M. (1962), *Shaping the World Economy: Suggestions for an International Economic Policy*. New York, NY: The Twentieth Century Fund.

Tran, V.H. (2004), 'Australia–Thailand Free Trade Agreement: Challenges and Opportunities for Bilateral Trade Policy and Closer Economic Relations', *Economics Working Papers*, No. 04–12, Wollongong, Australia: University of Wollongong.

Viner, J. (1950), 'The Customs Union Issue', *Carnegie Endowment for International Peace*, New York, pp.41–56.

Wignaraja, G., R. Olfindo, W. Pupphavesa, J., Panpiemras, and S. Onglittikul (2010), 'How Do FTAs Affect Exporting Firms in Thailand?', *ADBI Working Paper Series* No. 190, Manila: ADB.

Yang, S. and I. Martinez–Zarzoso (2014), 'A Panel Data Analysis of Trade Creation and Trade Diversion Effects: The Case of ASEAN–China Free Trade Area', *China Economic Review*, 29(C), pp.138–51.

Appendix Table 2.A.1: Sample Countries

Albania	Dominican Republic	Liberia	Senegal
Algeria	Ecuador	Libya	Serbia
Angola	Egypt, Arab Rep. of	Lithuania	Seychelles
Antigua and Barbuda	El Salvador	Luxembourg	Sierra Leone
Argentina	Equatorial Guinea	Macao SAR, China	Singapore
Armenia	Eritrea	Macedonia, FYR	Slovak Republic
Australia	Estonia	Madagascar	Slovenia
Austria	Ethiopia	Malawi	Solomon Islands
Azerbaijan	Fiji	Malaysia	South Africa
Bahamas, The	Finland	Mali	Spain
Bahrain	France	Malta	Sri Lanka
Bangladesh	Gabon	Marshall Islands	St. Kitts and Nevis
Belarus	Gambia, The	Mauritania	St. Lucia
Belgium	Georgia	Mauritius	St. Vincent and the Grenadines
Belize	Germany	Mexico	Sudan
Benin	Ghana	Moldova	Suriname
Bhutan	Greece	Mongolia	Swaziland
Bolivia	Grenada	Montenegro	Sweden
Bosnia and Herzegovina	Guatemala	Morocco	Switzerland
Botswana	Guinea	Mozambique	Tajikistan
Brazil	Guinea-Bissau	Myanmar	Tanzania
Brunei Darussalam	Guyana	Namibia	Thailand
Bulgaria	Haiti	Nepal	Togo
Burkina Faso	Honduras	Netherlands	Tonga
Burundi	Hong Kong	New Zealand	Trinidad and Tobago
Cabo Verde	Hungary	Nicaragua	Tunisia
Cambodia	Iceland	Niger	Turkey
Cameroon	India	Nigeria	Turkmenistan
Canada	Indonesia	Norway	Tuvalu
Central African Republic	Iran, Islamic Rep.	Pakistan	Uganda
Chad	Iraq	Palau	Ukraine
Chile	Ireland	Panama	United Arab Emirates
China	Israel	Papua New Guinea	United Kingdom
Colombia	Italy	Paraguay	United States
Comoros	Japan	Peru	Uruguay
Congo, Dem. Rep.	Jordan	Philippines	Uzbekistan
Congo, Rep.	Kazakhstan	Poland	Vanuatu
Costa Rica	Kenya	Portugal	Venezuela
Cote d'Ivoire	Kiribati	Qatar	Viet Nam
Croatia	Korea, Rep. of	Romania	Yemen
Cyprus	Kyrgyz Republic	Russian Federation	Zambia
Czech Republic	Lao PDR	Rwanda	Zimbabwe
Denmark	Latvia	Samoa	
Djibouti	Lebanon	Sao Tome and Principe	
Dominica	Lesotho	Saudi Arabia	

Appendix Table 2.A.2: Date in effect of Each Member of ASEAN+1 FTA

ACFTA	Normal Track	Early Harvest	AKFTA	Normal Track	AJCEP	Normal Track	AANZKFTA	Normal Track	AIFTA	Normal Track
China	Jul-05	Jan-04	Korea	Jun-07	Japan	Dec-08	Australia	Jan-10	India	Jan-10
Brunei Darussalam	Jul-05	Jan-04	Brunei Darussalam	Jun-07	Brunei Darussalam	Jan-09	New Zealand	Jan-10	Brunei Darussalam	Jan-10
Cambodia	Jul-05	Jan-06	Cambodia	Jun-07	Cambodia	Jan-10	Brunei Darussalam	Jan-10	Cambodia	Jul-11
Indonesia	Jul-05	Jan-04	Indonesia	Jun-07	Indonesia	Still pending	Cambodia	Jan-11	Indonesia	Jan-10
Lao PDR	Jul-05	Jan-06	Lao PDR	Jun-07	Lao PDR	Dec-08	Indonesia	Jan-12	Lao PDR	Jan-10
Malaysia	Jul-05	Jan-04	Malaysia	Jun-07	Malaysia	Feb-09	Lao PDR	Jan-11	Malaysia	Jan-10
Myanmar	Jul-05	Jan-06	Myanmar	Jun-07	Myanmar	Dec-08	Malaysia	Jan-10	Myanmar	Jan-10
Philippines	Jul-05	Jan-06	Philippines	Jun-07	Philippines	Jul-10	Myanmar	Jan-10	Philippines	May-11
Singapore	Jul-05	Jan-04	Singapore	Jun-07	Singapore	Dec-08	Philippines	Jan-10	Singapore	Jan-10
Thailand	Jul-05	Oct-03	Thailand	Jan-10	Thailand	Jun-09	Singapore	Jan-10	Thailand	Jan-10
Viet Nam	Jul-05	Jan-04	Viet Nam	Jun-07	Viet Nam	Dec-08	Thailand	Mar-10	Viet Nam	Jan-10
							Viet Nam	Jan-10		

Source: Information on FTA/EPA provided by Japan External Trade Organization.