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Impact of Free Trade Agreements on Trade in East Asia

Misa Okabe
Faculty of Economics, Wakayama University

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Abstract: *The number of bilateral and plurilateral free trade agreements (FTAs) in East Asia has increased rapidly after the 2000s behind the world trend of RTAs. Many studies tackled the challenge of figuring out the impact of FTAs in this region by applying various methodologies. The first half of this paper reviews empirical studies of ex-post evaluation of FTAs in East Asia. A look at earlier studies on the impact of the ASEAN Free Trade Area (hereafter AFTA), the first regional FTA in this region revealed that few studies found robust trade creation effects of AFTA in the 1990s. However, since the 2000s, several studies using detailed trade and tariff data on products or sectors indicate that tariff elimination under AFTA promoted regional trade among ASEAN countries. Recent studies also show tariff elimination is not necessarily the most important measure to promote trade in goods in the case of AFTA. Liberalisation measures—such as reduction of non-tariff measures, trade facilitation and coordination of rules of origin, and improvement of FTA usability—are more important measures to facilitate trade between members other than tariff elimination. Likewise, with regard to bilateral FTAs in East Asia, some ex-post evaluation studies show that these FTAs positively impact trade at some extent. These studies show that the positive impacts are brought not only by tariff elimination under the FTAs but also by other liberalisation measures. The latter half of this paper discusses a basic empirical analysis on the impact of five ASEAN+1 FTAs which have not yet been sufficiently investigated because of shortage of data. We found that trade creation effects of ASEAN–China FTA (ACFTA) and ASEAN–Korea FTA (AKFTA) appear in industrial supplies and capital goods between members. Also, trade in consumption goods is facilitated under ACFTA. On the other hand, the impact of ASEAN–Japan FTA (AJCEP) is not revealed in many cases. These results suggest that these regional FTAs potentiate the positive impact on trade when production and sales networks among members have already been developed. At the same time, the newer FTAs whose members are the same as precedent FTAs should set tariff elimination and other liberalisation measures at more liberalised level than precedent FTAs. From the perspective of effectiveness, the newer regional FTA in this region, such as the Regional Comprehensive Economic Partnership, needs to have a higher level of liberalisation and more inexpensive procedures for members to utilize said FTA than the existing ASEAN+1 FTAs in this region.*

Keywords: ASEAN Free Trade Area; ASEAN+1 FTAs, RCEP

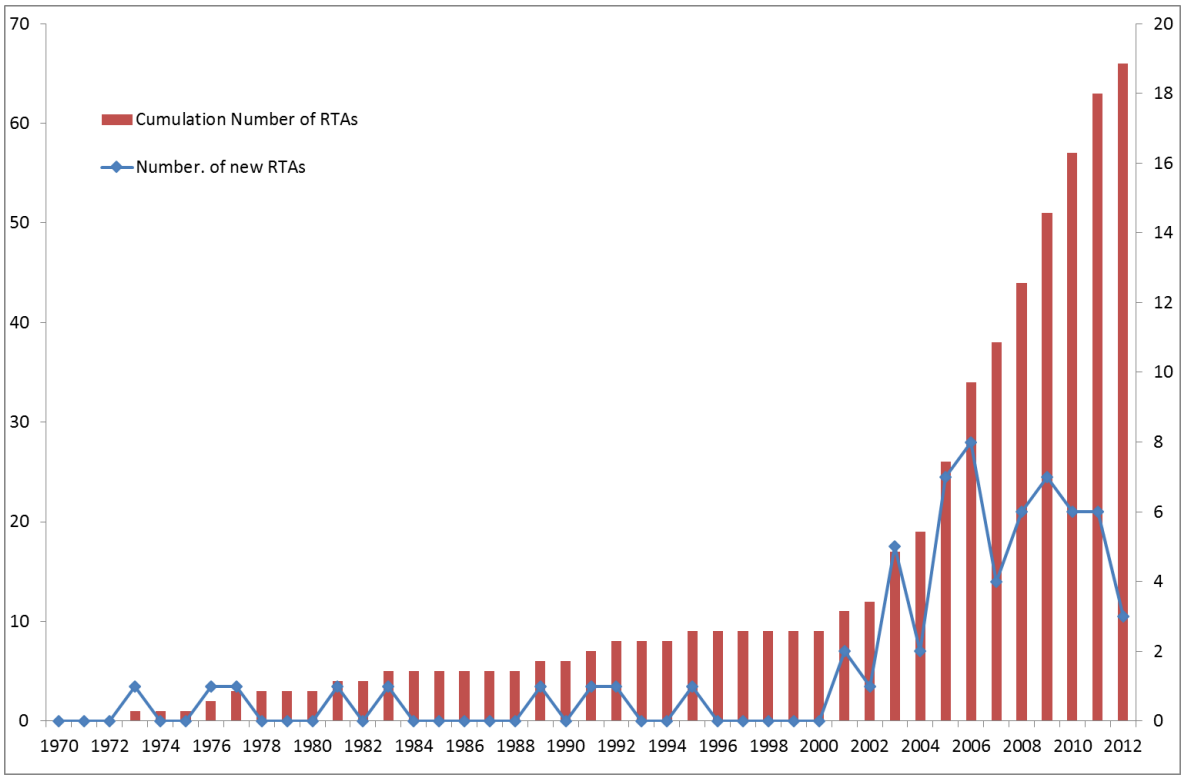
JEL Classification: F13; F14; F15

1. Introduction

According to the regional trade agreement (RTA) database of the World Trade Organization (WTO), the number of RTAs notified to WTO has increased rapidly since the early 1990s, with 585 RTAs notified as of June 2014. One reason for the surge of 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 which come from trade creation and market expansion effect by elimination 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 among member countries[1]. As regards free trade agreements (FTAs) in East Asia, bilateral and regional FTAs have increased rapidly after the 2000s behind the world trend of RTAs. Table 1 shows the number of RTAs in East Asia. Until the 1990s, few countries joined regional or inter-regional agreements of trade preferences such as the Global System of Trade Preferences among Developing Countries and the Asia Pacific Trade Agreement. Although East Asia was the first to establish the first regional FTA—with the creation of the ASEAN Free Trade Area (AFTA) in 1992—it had been behind other regions in the world as regards the formation of regional FTAs. Therefore, East Asia was called an 'FTA vacuum' until the beginning of the 2000s. However, since the latter half of the 2000s, bilateral FTAs in this region have rapidly increased, and five ASEAN+1 FTAs—namely, ASEAN–China FTA, ASEAN–Japan FTA, ASEAN–Australia–New Zealand FTA, ASEAN–Korea FTA, and ASEAN–India FTA—have been established one after the other. Nowadays, more than 60 FTAs have been formed by East Asian countries. Also, wider regional FTAs, such as the Regional Comprehensive Economic Partnership (RCEP), are being negotiated.

[1] Viner (1950) is 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 1: Number of RTAs Involving East Asian Countries

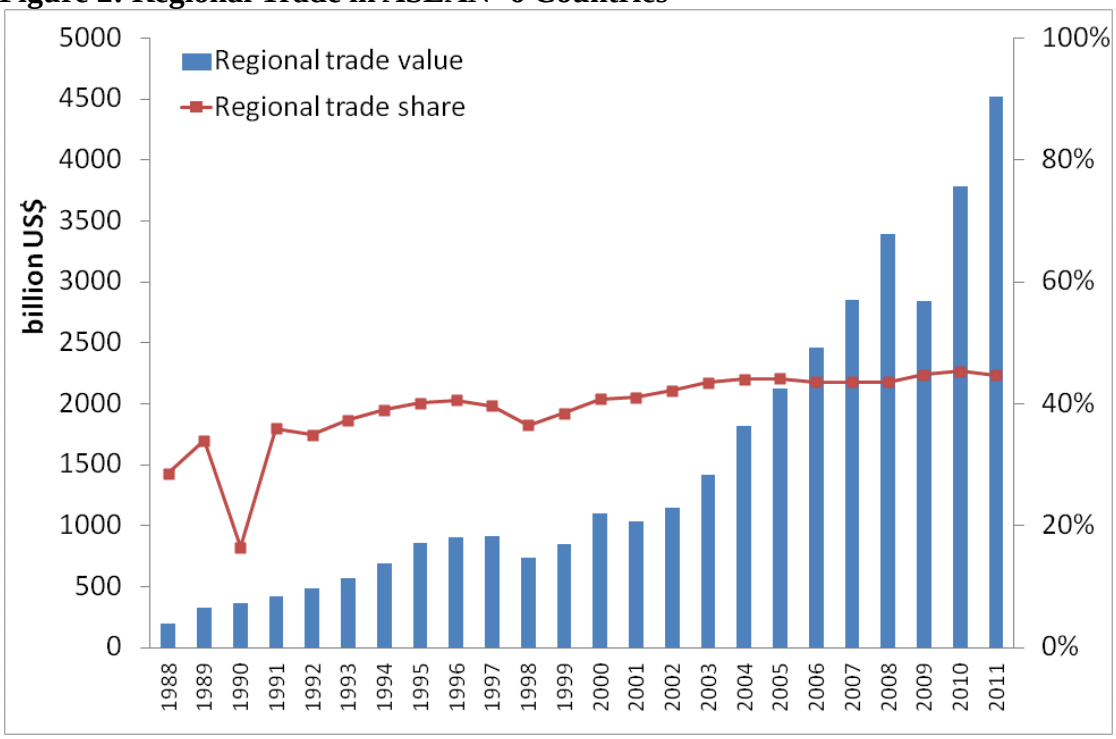


Note: Calculated based on WTO RTA database. Figures represent the number of FTAs with which ASEAN countries, Australia, China, India, Japan, Korea, and New Zealand affiliate.

With the increase of FTAs in East Asia, intra-regional trade and FDI have been increasing since the 2000s. Figure 2 shows the share and value of intra-regional trade of ASEAN countries, Australia, China, India, Japan, Korea, and New Zealand. Although intra-regional trade share has not varied drastically since the 1990s, the value has been increasing from the late 1980s and surged from the beginning of the 2000s. This rapid increasing trend of regional trade reflects an upsurge of exports to outside the region as well as an increase of intra-regional trade in East Asia. Regarding inward FDI to ASEAN countries, the share of inward FDI from East Asian countries has increased since the 2000s. Figure 3 shows the shares of inward FDI to ASEAN countries from major regions of the world. Given these facts of regional trade and FDI, the upsurge of regional FTAs in East Asia seems to be an important factor in positively impacting regional trade and FDI in this region. Detailed studies on the impact of FTAs on trade and FDI are indispensable for all countries in this region where new FTAs have been established or are being negotiated.

The first half of this paper aims to review studies on the impact of FTAs on trade in goods in East Asia to find out what has been explained so far regarding the impact of FTAs.

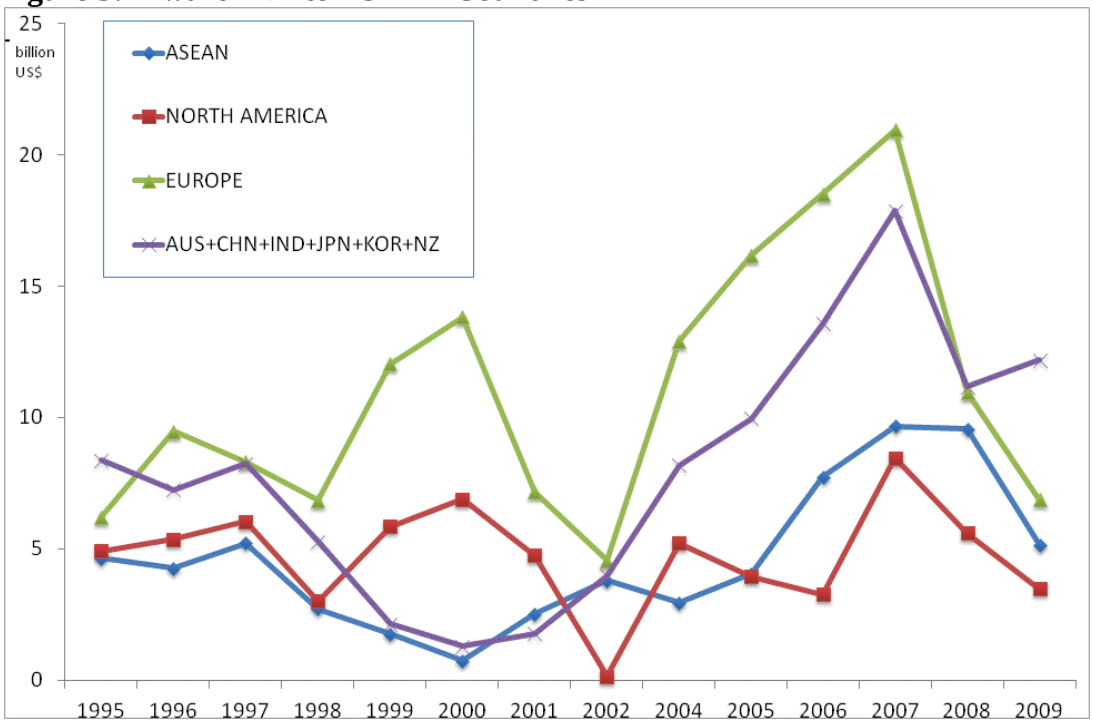
Figure 2: Regional Trade in ASEAN+6 Countries



Notes: 1) ASEAN+6 countries comprise 10 ASEAN members, Australia, China, India, Japan, Korea and New Zealand. 2) Regional trade value is a sum of export and import values among ASEAN+6 countries. Regional trade share is a share of regional trade value among the ASEAN+6 countries to total trade value of the world.

Source: The United Nations COMTRADE statistics.

Figure 3: Inward FDI to ASEAN Countries



Note : AUS = Australia, CHN = China, FDI = foreign direct investment, IND = India, JPN = Japan, KOR = Korea, NZ = New Zealand.

Source: ASEAN Secretariat, ASEAN statistical data.

Two types of analyses are used to investigate the impact of FTAs on trade in goods, namely, ex-ante and ex-post analyses. A typical ex-ante analysis is a simulation analysis by 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. In a CGE model, implementation of an FTA is measured by tariff reduction/elimination. Various measures of trade liberalisation implemented with tariff reduction/elimination under an FTA, such as trade and investment facilitation and service trade liberalisation, can be set in the model. Thus, we can estimate both direct and indirect impact of different FTA types on various aspects of the economy. Ex-ante analysis is useful for estimating the impact of an FTA before it is enforced.

Major ex-post analysis is an empirical study applying a gravity model for trade data at an aggregated or disaggregated level. The gravity model, originally developed by Tinbergen (1962) and Poyhonen (1963), has been used extensively to explain trade patterns for over 50 years. Studies on the impact of FTAs on trade in goods by applying the gravity model have been conducted since the 1960s. The pioneer of empirical study on the impact of FTAs is Timbergen (1962), who examined the effect of the Benelux FTA on trade in goods. After the 1970s, several studies investigated the impact of major regional FTAs such as the European Economic Community, European Free Trade Association (EFTA), and the Latin America Free Trade Agreement (see Aitken [1973] and Brada and Mendez [1983]). These studies used dummy variables of FTAs to capture the effects of FTAs on trade flows. If the estimated coefficient of an FTA dummy is significant and positive, an FTA has a positive impact on trade between members; in other words, the FTA has a trade creation effect. As FTAs rapidly expanded in the world since the 1990s, an increasing number of studies have attempted to examine the impact of FTAs by applying various types of gravity model.

By applying said model on the increasing number of studies on trade, two issues of estimation methodology present a challenge to be solved. One is concerned with the endogeneity problem of the gravity model. Some explanatory variables in the gravity model, such as gross domestic product (GDP), can be regarded endogenous. Also, FTA dummies can be an endogenous variable since the decision to form an FTA between two countries may depend on their trade relationship. Baier and Bergstrand (2007) treated FTA dummies as endogenous variables and found that the impact of FTAs on trade is much higher than in previous studies. Considering endogeneity among explanatory variables, Carrère (2006) used an instrumental variable method, the Hausman-Taylar method, to estimate a gravity model. She found that FTAs have generated a significant increase in trade between members.

The other issue of gravity model estimation is zero-trade flows. Many country-pairs have no bilateral trade. This often happens in the case of disaggregated trade data. Dependent variables in a standard gravity model are transformed into logarithms of bilateral trade values, while the log of zero bilateral trade flows is undefined. Santos Silva and Tenreyro (2006) pointed out that zero bilateral trade flows are almost half of all country-pairs in their study. To avoid biases caused by dropping zero values, several studies have addressed the development of econometric methodology to solve this problem. Santos Silva and Tenreyro (2006) utilized the Poisson Pseudo-Maximum-Likelihood (PPML) estimator to estimate a gravity equation that includes zero trade flows. Furthermore, Helpman *et al.* (2008) developed a two-stage estimation procedure to deal with zero trade flow problems. A selection equation that formulates a firm's decision to trade or not with a partner country is estimated at the first stage, and a trade flow equation similar to the standard gravity model, at the second stage. Analyses on trade flows at the sector or product level data by gravity model have been often conducted recently, hence, the above standard approaches to deal with zero trade flow problems are often used.

The theoretical background of the gravity model has been developed since the late 1970s. Anderson (1979) was the first to develop a simple theoretical gravity equation based on a two-country model of classical trade theory. After the 1990s, the new trade theory with an assumption of monopolistic competition was applied to explain intra-industry trade. Anderson and Van Wincoop (2003) derived a gravity equation from the general equilibrium model under monopolistic competition which can be used to estimate intra-industry trade. Their contribution is to introduce 'multilateral trade resistance' (MTR) terms which consist of price indexes, trade cost, and expenditure of trade partner. However, MTR terms are not observable. There are several ways to adopt MTR terms in an estimation equation. With the development of panel data, many studies have used country-year effects of importer and exporter as MTR terms. Based on such development of theoretical foundation and econometric methodology for gravity model, the most recent studies on the impact of FTA on trade often apply PPML estimators for panel data country-year fixed effects which are proxies for MTR terms.

The most recent application of the gravity model is based on the Melitz (2003) model, also called the 'New-New' trade theory. The Melitz model focuses on firm-level differences—such as firm heterogeneity—and assumes that only productive firms are engaged in export. Based on said model, several empirical studies applying firm-level data to the gravity model have attempted to examine bilateral trade flows which are composed of

extensive margin, namely differentiated number of exporting firm, and intensive margin, namely export value per firm. Helpman *et al.* (2008) applied a two-stage estimation to firm-level data, and found that the bias of estimated coefficient by the gravity model is caused by omission of extensive margin. In other words, the number of firms engaging in international trade is important information for estimating the gravity model.

Based on the development of research on the impact of FTAs, we reviewed mainly ex-post studies in section 2 on the impact of regional FTAs in East Asia. Section 2.1 reviews empirical analyses in general impact or tariff reduction of FTAs on trade in goods. Sections 2.1.1 to 2.1.3 focuses on studies related to AFTA, regional and bilateral FTAs in East Asia respectively. Section 2.2 discusses on studies on other trade liberalisation measures related to FTAs and channels of impact of FTAs. Section 2.3 overviews findings of studies on utilisation of FTAs in East Asia.

Sections 3 to 5 discuss the conduct of an empirical analysis on the impact of five ASEAN+1 FTAs on trade in goods by using the gravity model. Ex-post evaluation of these recent regional FTAs is important in order to predict the impact of the region-wide FTA under negotiation and to design policies to facilitate economic development in this region through trade liberalisation. Despite the importance of ex-post investigation on these ASEAN+1 FTAs, there are still a few studies on ex-post analysis in impact on these regional FTAs in this region. We examined the impact of five ASEAN+1 FTAs on sector trade in each member country. Based on recent developments in theoretical background and empirical methodology, we estimated gravity equations with FTA dummy variables to determine whether trade creation effects are caused in each sector and country. Section 3 describes the process of formation of each FTA. Section 4 explains estimation methodology and data. Section 5 discusses the estimated results and Section 6 summarizes the results and discusses further research direction regarding FTAs' impact on trade in goods based on both literature review and ex-post analysis on ASEAN+1 FTAs of this paper.

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. Its original members were six ASEAN countries—namely,

Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand—and four newer members—namely, Viet Nam, Lao PDR, Myanmar, and Cambodia which joined in 1995, 1997, 1997 and 1999, respectively. 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 planned to reduce tariff rates on products in the Inclusion List to a level between zero to five percent by 2008 in the beginning, 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 planned to eliminate to zero percent by the year 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 five percent tariff rate was more than 95 percent for the remaining four countries. Tariff elimination under the AFTA has almost been completed in the last 20 years.

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. Therefore, they concluded that the intra-ASEAN trade bloc is still effective while the 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 among its member countries during sample periods 1960–1994. He presumed that this result reflects the fact that the share of intra-ASEAN trade of each ASEAN country is still low.

As described in the previous section, the methodology to estimate gravity model has been modified 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 while reducing imports from the rest of the world. As for ASEAN, the trade creation effect was seen over the periods.

With increased interest in the growing intra-regional trade of ASEAN countries since the 1990s, the number of studies focusing on the impact of AFTA has been increasing gradually. 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 among its members but also trade with non-members. In other words, it is important to consider not only intra-ASEAN trade but also the effect of AFTA on trade between ASEAN members and non-members. Kien (2009) employed the Hausman-Taylor estimation for panel data of 39 countries from 1988 to 2002 to estimate several RTAs. By using the dynamic way of AFTA dummy which takes the value of one for only effective years, he investigated the effect of AFTA as an institutional framework rather than 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 using country-pair specific time trend, Bun *et al.* (2009) applied two types of AFTA dummies, that is, an AFTA dummy which takes the value of one between members after the year 1992 and an AFTA dummy multiplied to the 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. As most recent studies show, they pointed out that panel data should be used to estimate a gravity model for handling endogeneity problems.

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. Studies using an AFTA dummy, however, do not provide further

insights into the mechanism of trade liberalisation measures under AFTA to facilitate intra-regional trade. Trade liberalisation under RTAs are 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.

On the impact of the tariff elimination process under the CEPT scheme of AFTA, a few studies attempted to estimate the impact by using tariff data. Manchin and Pelkmans-Balaoing (2007) applied a gravity model with time-varying country fixed effects as 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 investigated carefully the impact of different preferential margins on trade. The result shows that the tariff reduction effect of AFTA have no or little impact on intra-ASEAN trade basically. 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 (2013) utilized preferential margin, defined as the difference between the MFN rates and preferential tariff rate under the CEPT scheme as an explanatory variable of gravity model. They investigated the effects of tariff reduction under the CEPT scheme for 52 products of nine ASEAN members in 1980–2010. As the result, they found positive and significant trade creation effects from tariff reduction for a wide range of products, while the elasticity of tariff reduction on imports tends to be much larger than that on exports. Also, trade creation effects for Singapore and newer ASEAN members such as Cambodia and Viet Nam were very low. It may be because the preferential tariff margin of Singapore had already been zero in almost all products. As for newer ASEAN members, the little impact of tariff reduction could be due to both small shares of regional trade of these countries and the subsequent tariff elimination schedule. Although very few studies on the impact of tariff reduction under AFTA exist, 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 relative large volumes. However, the impact on trade flow is not so strong basically. 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 1: Results of Studies on the Impact Effect 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.

2.1.2 ASEAN+1 FTAs

The impact of five ASEAN+1 FTAs, which already have been in force, and other broader region-wide FTAs, such as RCEP which is in the process of negotiation, is one of the most interesting issues in this region. A number of ex-ante studies of simulation analysis apply a CGE model on the impact of these region-wide FTAs. Estrada *et al.* (2011) compared the impact of ASEAN+ China, Japan, and Korea FTA (hereafter ASEAN+3 FTA) and existing ASEAN+1 FTAs on the economic welfare of member countries by using the Global Trade Analysis Project (GTAP) model. They found that ASEAN+3 FTA has the advantage of feasibility and desirability for ASEAN members and China, Japan, and Korea. Ando (2009), using the GTAP model, investigated the impact of (a) ASEAN+3 FTA; (b) ASEAN+ Australia, China, India, Japan, Korea, and New Zealand FTA (hereafter ASEAN+6 FTA); and (c) FTA between APEC members. Her simulation model with various trade and investment facilitation and technical assistance indicates that the larger the number of member countries, the more positive is the impact on the economic welfare of each member country. Itakura (2013) applied a dynamic GTAP model to capture cross-border investment for the long-term effect of FTAs, and demonstrated that welfare gain from ASEAN+6 is larger than that from

ASEAN+3. He also clarified that the welfare gains for each member country are larger when service trade barrier is reduced and trade cost of time are reduced than when only tariff is eliminated. It follows from these ex-ante studies on region-wide FTAs in East Asia that trade liberalisation not only by tariff elimination but also by other measures as trade and investment facilitation, trade cost reduction, and service trade liberalisation is accelerated and increases the positive effect of FTAs to raise the economic welfare of member countries.

In addition to simulation by CGE model, several studies attempted to predict the impact of ASEAN+1 FTAs by using some trade indices or by estimation using trade data. Sheng *et al.* (2012) 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 ASEAN–China FTA (hereafter 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 while the positive impact will be spread unevenly among ASEAN countries. By using trade indices, such as trade intensities and trade potential index, several studies attempted to estimate adequacy and predicted impact by sector. Bano, *et al*. (2013) calculated the trade intensities between New Zealand and ASEAN countries and the trade potential of members of the ASEAN–New Zealand FTA (hereafter AANZFTA) using trade data after the year 1980. They showed that trade intensities between members of AANZFTA have increased continuously, so the fact AANZFTA is explainable. Additionally, they drew the results of significant potential for future growth in specific export sectors by estimating potential trade between New Zealand and ASEAN across industries. Chandran (2012) discussed the impact of the India–ASEAN FTA (hereafter AIFTA) focusing on India's fishery sector by using trade indices and a comparative advantage index. Based on sector analysis, he concludes that India could improve trade by tariff elimination under AIFTA with some ASEAN countries, particularly less-developed members.

With regard to ex-post evaluation on ASEAN+1 FTAs, studies are few due to insufficient sample periods because these FTAs started recently. Considering the results of previous ex-ante studies, the conduct of ex-post analysis will hopefully be made to investigate the impact of various measures along with tariff elimination under ASEAN+1 FTAs. In addition, as Sheng *et al.* (2012) and Chandran (2012) demonstrated, examining the impact of ASEAN+1 FTAs on the growth gap among member countries and on trade flows by the industrial sector in the long term is an interesting research topic.

2.1.3 Bilateral FTAs in East Asia

Likewise in the cases of ASEAN+1 FTAs, ex-post studies on bilateral FTAs in East Asia are few because of limited data. Ando (2007) examined the impact of the Japan–Singapore Economic Partnership Agreement (EPA) and the Japan–Mexico EPA by applying a gravity model for 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, while the Japan–Mexico EPA has had a positive impact on trade, particularly on export. She reasoned that the actual reduction of tariffs by the Japan–Singapore EPA is quite limited. Also, considering additional analysis on various situations beyond trade liberalisation, she indicates that conditions beyond tariff elimination, such as business environment and EPA utilisation, are important factors to design an effective EPA for trade liberalisation. Athukorala and Kohpaiboon (2011) examined the impact of the Thailand–Australia FTA (hereafter TAFTA), paying attention to the implications of RoOs 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 has expanded faster after TAFTA came into effect, but the impact has heavily concentrated on a few product lines in Australian imports from Thailand. They pointed out that the reason for limited impact is attributed to the rate of FTA utilisation. Hence, their result suggests 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 improvement of utilisation rate of preferential tariff.

2.2 Measures other than tariff elimination and channels of FTA effects

With the elimination of tariff under FTAs progressing, the importance of reducing NTMs, harmonizing RoOs under several cumulative FTAs in East Asia, and implementing other measures, such as trade facilitation and improvement of transport infrastructure, has been recognized increasingly. For example, ASEAN prescribes that NTMs be eliminated gradually within five years after the concessions applicable to the products. Also, ASEAN+1 FTAs—for example, ASEAN–Australia–New Zealand FTA and ASEAN–Korea FTA—include detailed guidelines on the elimination of NTMs.

A major cost of FTA utilization at the firm level comes from certificates of origin[2]. Therefore, efficient administration of RoOs is an important factor in facilitating trade creation under FTAs by increasing the utilisation rate 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 RoOs of AFTA, ASEAN+1 FTAs, and bilateral FTAs forged by Japan with ASEAN members. Hayakawa and Laksanapanyakul (2013b) constructed a list of RoOs in Thailand of ACFTA, AKFTA, and ASEAN–Japan FTA (AJCEP) to calculate a new measure on FTA liberalisation. Based on their list, most preference products follow a regional value contents (RVC) in the case of ACFTA and AKFTA while AJCEP sets many product-specific rules and relatively a large number of products follows 'change heading or RVC' (CH/RVC) or change of chapter. Judging from these recent studies, there is a significant divergence in types of RoOs of cumulative regional FTAs in the region. Also, the restrictiveness of RoOs varies significantly depending on products and each ASEAN+1 FTA.

To enhance trade creation effects under FTAs by reducing the FTA utilisation costs, it is reasonable to suppose that RoOs should be simple and less restrictive. In addition, convergence of all RoOs under FTAs in East Asia where six multilateral regional FTAs and many bilateral FTAs coexist is necessary to raise the utilisation rate of both existing FTAs and the region-wide FTA being formed. Hayakawa and Lakusanapanyakul (2013a) examined the impact of RoOs on FTA utilisation rate by using Thai export data under ACFTA and AKFTA. They found that the harmonisation to 'change in tariff classification (CTC) or RVC' among FTAs has a significantly positive effect on utilisation of multiple FTAs. Furthermore, using Thai export data to Japan under JTEPA and AJCEP, Hayakawa (2012) compared the impact of RoOs under a bilateral FTA with a multilateral FTA. He found that a multilateral FTA, namely, diagonal cumulation, brings about four percent trade creation effects.

The relationship between RoOs and trade flows is more complicated than that between elimination of tariff measures and trade flows. The above latest studies have unveiled gradually the impact of RoOs on trade. Their investigation clearly shows that harmonizing

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

[3] Cadot, de Melo, and Portugal-Perez (2006) found that a 10-percent point reduction of the local value content requirement increases the utilisation rate by between 2.5 and 8.2 percent points by using trade data 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 RoOs by using Mexican export to the United States under North American Free Trade Agreement (NAFTA), and found that the largest compliance cost is caused by a technical requirement , and then a regional value content , and a change of tariff classification.

and conforming to unrestrictive RoOs among FTAs are necessary to facilitate trade of goods in this region.

While the importance of NTMs is recognized and most FTAs in East Asia include provisions of NTMs, there is no standard measure of NTMs among these FTAs. Several methodologies to measure NTMs are available, and each methodology has both merits and demerits. Also, NTMs have a wide range in scope from direct trade measures to indirect measures. As Deardorff and Stern (1997) remarked, 'NTMs are defined by what they are not, that is NTBs consists of all barriers to trade that are not tariff'. Hence, construction of quantitative data on NTMs under FTAs for empirical analysis is not an easy task.

Although ASEAN provides the NTM database of each member country at HS4 9-digit level, the data is qualitative—not quantitative—and the classification of commodities is not completely standardized among member countries. Therefore, it is not easy to utilize the database to conduct an empirical analysis[4]. Due to the limitation of NTM data, there remain few studies on the impact of NTMs on trade under FTAs in East Asia. Carrère and Melo (2011) reviews 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) NTMs have a negative effect on the volume of bilateral trade, (2) core NTMs are more restrictive than existing tariffs, and (3) these core NTMs limit market access more for low-income countries. Taking into account the previous studies on NTMs in the world, NTMs certainly also significantly impact trade in East Asia. It is necessary to construct a comparable and quantitative database of NTMs of each member country of FTAs in this region for a detailed analysis on the impact of NTMs.

Turning now to channels of FTAs' impact on trade in goods, the question of which liberalisation factors associated with FTAs have the most effective impact on trade in goods is also an important research issue. There are no empirical studies on channels of FTA impact which conduct a comparative analysis using data of all liberalisation measures—such as tariff elimination rate, NTM's reduction level, RoO index—since comparable data sets of these liberalisation measures are not available from any FTAs. Although it is not easy to build these data sets of comparable liberalisation measures under FTAs, research on channels of FTA impact on trade in goods are significant both for academic research and formation of effective FTA policy.

In addition, tariff elimination under an FTA directly affects import/export of one product

[4] Ando and Obashi (2010) constructed a comparative and quantitative NTM database based on the ASEAN NTM database.

and indirectly affects import/export of another product. If substantial tariff is eliminated on one product, import or export of another product which has a complementary or substitution relationship with the product could be changed. Such indirect effects of tariff elimination can be examined by ex-ante analysis using the CGE model. However, ex-post analyses on the effects of tariff elimination under an FTA have been focused solely on direct effects on import/export of each product. Although it is not easy to discern direct effects from indirect effects, a comparative analysis of the impact of tariff elimination by product using ex-ante and ex-post studies enables us to examine such direct and indirect impacts by product to an extent. Research on the direct and indirect effects of tariff elimination under an FTA is also an interesting further research issue.

Furthermore, there are a number of studies on the relationship between intra-industry trade and FDI in East Asia, and these studies have found that intra-industry trade and FDI have a complementary relationship[5]. Given this complementary relationship, liberalisation measures on investment attached to an FTA positively impact trade in goods between member countries. Studies on the impact of FDI liberalisation under an FTA on trade in goods also shed light on the mechanism of FTA impact on trade.

2.3 Utilisation of FTAs

As discussed earlier, utilisation of FTAs is an important factor in realizing trade liberalisation under FTAs. As Athukorala and Kohpaiboon (2011) demonstrated, improving the utilisation rate of FTAs by exporters could significantly increase the positive impact of FTA on trade between members.

Several studies investigated the utilisation rate of FTAs in East Asia. Hayakawa *et al.* (2013) analysed the reason for the low utilisation rate 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 rate 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 Indonesia, Malaysia, the Philippines, and Viet Nam in 2008 were 18.3 percent, 27.4 percent, 16.7 percent, and 26.1 percent, respectively. Also, according to Sukekawa (2009), who calculated the utilisation rate of AFTA by Thailand using statistics of export value through

[5] For example, see Eaton and Tamura (1994), Fukao, *et al*. (2003), Ando and Kimura (2005), Fung, *et al*. (2013).

AFTA issued by the government, the utilisation rate in Thailand was 26.8 percent in 2008. It seems the level of FTA utilisation is low although several studies show that the utilisation rate has increased over years since the FTA has been enforced. According to Wignaraja *et al.* (2010), while the utilisation rate in Thailand is low (25 percent of respondents), it seems set to rise gradually. Besides, Hayakawa *et al.* (2013) point 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) investigated Korean FTAs and compared the utilisation rate of each. Their major findings are that the utilisation rate of the Korea–Chile FTA is very high, more than 90 percent for the four years since the FTA was implemented while that of the Korea–Singapore FTA, Korea–EFTA, and ASEAN–Korea FTA is relatively low—29.8 percent, 42.5 percent, and 43.3 percent respectively. They conclude that the major reason for the high utilisation rate of the Korea–Chile FTA is the active utilisation by staple products groups. On the other hand, they presume that 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 on Japanese firms, discussed that a lack of knowledge about the FTAs and the difficulty in obtaining the certificates of origin are the two most serious obstacles for increasing the use of FTAs. Likewise, Wignaraja *et al.* (2010) found that more than one quarter of firms felt that dealing with multiple RoOs raise business cost significantly.

The above studies on utilisation of FTAs reveal that FTA utilisation was intended to be low at the beginning of an FTA; however, it rises gradually in many cases of FTAs in East Asia. The use of FTAs, however, requires a big cost on firms. According to Takahashi and Urata (2010) and Hayakawa *et al.* (2013), the burden of cost of FTA use is heavier for smaller companies. Therefore, the utilisation rate tends to be low for smaller companies compared to large companies. Further investigation is needed on what factors are important to decrease the cost of FTA use so that FTAs will positively impact all sectors and companies. In addition, the measuring method of FTA utilisation rate is still in the developing stage. Hamanaka (2013) pointed out the confusion on the use of FTA due to the absence of consensus on the meaning of the utilisation rate and lack of knowledge on biases from various problems, such as indicator selection, time lag of FTA implementation, specification of trade flows, counting method of number of utilisation, data sources, and aggregation of plurilateral FTAs. He warned that the use of FTA measured by certificate of origin data has time-growing upward

bias, hence the utilisation rate based on the data shows an increasing trend even though the utilisation rate is not necessarily improved. Also, he pointed 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 in the effects of FTA on trade. Therefore, the consensus of the measurement of FTA utilisation rate based on constructing appropriate data and accumulation of research is necessary to make practical and policy implications.

The number of FTAs in East Asia has been increasing rapidly since the 2000s. With the increase of intra-regional trade, the impact of FTAs in this region have been an interesting issue for both researchers and policy makers. Various studies applying various methodologies have investigated the impact of FTAs in this region. As for tariff elimination under FTAs in this region, ex-post studies found that while tariff reduction/elimination under an FTA positively impacts trade between members to some extent, the impact differs by sector and country. Further detailed study on the impact of tariff reduction/elimination under FTAs in this region by sector and member country is an interesting research topic. Trade creation effect under existing larger regional FTAs such as ASEAN+1 FTAs in developing countries in this region—Cambodia, Lao PDR, Myanmar, and Viet Nam, in particular—is an interesting issue in terms of regional economic development. In addition, as the results of the study by Manchin and Pelkmans-Balaoing (2007) suggest, trade creation by tariff elimination is revealed when the benefit from tariff reduction under an FTA is bigger than the cost of utilizing said FTA. Therefore, to clarify a mechanism of trade creation effect by tariff elimination, it is useful to estimate the tariff reduction effect by diminution level of tariff reduction under an FTA.

Compared to tariff elimination, other measures of trade liberalisation under FTAs in East Asia are found to have similar or larger positive impacts on trade in goods. Although studies on the effect of NTM reduction on trade in this region are not sufficient, the impact of NTMs could be larger than tariff reduction since the extent of NTMs are much larger than tariff. It is not easy to measure the impact of NTMs on trade; however, it is worth investigating the effects of NTMs for a more detailed understanding of FTAs in this region. As for RoOs, their relationship with trade creation under an FTA is still not clear; hence, the need to clarify the mechanism of RoOs and FTA utilisation. More detailed studies on both RoOs and utilisation rate of each FTA is necessary to investigate the opportunity cost to utilize FTA. 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; however, it is

necessary for a deeper understanding of the impact of FTAs in this region.

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

ASEAN's six dialogue partners—namely, Australia, China, India, Japan, Korea, and New Zealand—have formed bilateral FTAs with ASEAN members since the middle of 2000s. For example, Japan started a bilateral FTA with Singapore in 2002, and has formed seven bilateral FTAs with other ASEAN members up to the present. 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[6]. As the active FTA proponent in this region, ASEAN, where regional economic integration among member countries started since 1990s, has taken on the role of a hub of regional FTA network in East Asia. After the ASEAN–China FTA came into force in 2005, four other ASEAN+1 FTAs—namely, ASEAN–Korea FTA, ASEAN–Japan FTA, ASEAN–Australia–New Zealand FTA, and ASEAN–India FTA—have sequentially been formed in this region[7].

Production and sales networks accompanied by industrial agglomeration revolving around ASEAN have been developed in East Asia since the 1990s. Regional FTAs in this region are more important than bilateral FTAs since region-wide multilateral FTAs enable firms to effectively use the expanding region-wide production and sales networks as a means to increase their productivity by reducing transport and transaction costs of production and sales bases across countries. For example, the automobile and electronic industries have already expanded multinational product fragmentation in this region. As a natural response to the requirement of more region-wide FTAs, which promote utilizing these developing production and sales networks, five ASEAN+1 FTAs have been formed since the second half of the 2000s. Furthermore, a wider regional FTA, the Regional Comprehensive Economic Partnership (hereafter RCEP), covering both ASEAN countries and all dialogue partners, has been on the negotiating process. RCEP is expected to play the role of the regional FTA to coordinate five segmented regional ASEAN+1 FTAs.

[6] Singapore entered into bilateral FTAs with New Zealand, Australia, India, Korea, and China in 2001, 2003, 2005, 2006, and 2009, respectively. Thailand formed bilateral FTAs with Australia and New Zealand in 2005, and Malaysia has arranged bilateral FTAs with New Zealand and India in 2010 and 2011, respectively.

[7] These FTAs are plurilateral. The effective date differs by bilateral agreement. See Appendix Table 2 for the effectivity date by country of each FTA.

The latter half of this paper aims to conduct an ex-post evaluation of ASEAN+1 FTAs on trade in goods by using the gravity model. By estimating the impact of ASEAN+1 FTAs using sector-level trade data by country, we examine whether each ASEAN+1 FTA brings a trade creation effect on each sector and country. Based on the estimation results, we discuss which sectors are expected to get trade creation effects by wider regional FTA in this region. Also, by looking into sectors which had shown little or no trade creation effects by FTAs, factors other than the FTA to facilitate regional trade are considered to draw policy implications for a wider regional FTA in this region.

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 data on imports of ASEAN members, Australia, China, India, Japan, Korea, and New Zealand from 184 countries in the world at BEC (broad economic categories) 1-digit level. Sample periods are from the years 2002 to 2012. We applied the most-often-formulated gravity model as the following:

$$X_{ijt} = A_0 Y_{jt}^{\beta_1} y_{jt}^{\beta_2} D_{ij}^{\beta_3} \exp\left(\phi\, FTA_{ijt}\right) \qquad \text{.....(1)}$$

where A_0 is constant; Y and y are real GDP and GDP 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 degree of tariff elimination under each FTA. Specifically, we used a cross-term of FTA dummy binary variable which denotes one when the FTA is in effect and a time-trend variable which starts from one on the effective year of the FTA. This linearly increasing variable captures the level of tariff elimination under the FTA which is implemented gradually under a tariff schedule. Dates in effect of each ASEAN+1 FTA differ by country-pair as shown in Appendix Table 2. We used information of the effectivity date of each country under each ASEAN+1 FTA from several reports of FTA-related ministries of member countries. As for the FTA proxy variables, both ASEAN+1 FTAs and all other bilateral and plurilateral FTAs, which country i forms with country j at year t, are used. For estimation, we use the following estimation equation:

$$E(x_{ijt} \mid A_0, Y_{jt}, y_{jt}, D_{ij}, T_t) = \exp(A_0 + \beta_1 \ln(Y_{jt}) + \beta_2 \ln(y_{jt}) + \beta_3 \ln(D_{ij}) + \phi_1 FTA_{ijt} + \sum_N \varphi_N BFTA_{N,ijt} + \sum_{t=2000}^{2012} \mu_t T_t) \quad (2)$$

where FTA_{ijt} and $BFTA_{ijt}$ are FTA proxy variables of ASEAN+1 FTA and other FTAs respectively described above. T_t is a year dummy.

To use all bilateral trade data including zero trade flows, the PPML estimator is used to the equation above. Since import value at level data can be used as a dependent variable by using the PPML estimator, zero import values are included in the estimation. The list of export countries (country j) is shown in Appendix Table 1.

As for multilateral resistance term, we replace them with year dummies. In trade theory, multilateral trade resistance consists of all barriers to both international and domestic trade that each country faces with all trading partners. In the case of panel data, country-year dummies are often used as a multilateral term. However, our estimation uses one importer (country i) and 184 exporters (country j), so we cannot use country-year dummies since the number of explanatory variables exceed the number of observations. Therefore, we assume that year dummies capture multilateral resistances.

Regarding data for estimation, we use the import values of seven ASEAN members and six ASEAN dialogue partner countries[8]. Import values at 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 flight distance at kilometre calculated by the World Atlas Flight Mileage Calculator. Information of date when tariff elimination starts under bilateral and plurilateral FTAs are from WTO's RTA database.

[8] Import values at BEC 1-digit level of Brunei Darussalam, Lao PDR, and Myanmar are not available or data are too scanty to analyse, so we dropped these countries from the estimation.

4. Results

We estimate equation (2) of each country and sector. A summary of estimation results is shown in Table 2, and the results of each country and sector are shown in Table 3-15. We use FTA proxy variables which gradually increase their values from the effective year to estimate the impact of FTAs in import from member countries; hence, a positive sign indicates a trade creation effect under the FTA.

Trade creation effects are found in many countries in imports of industrial supplies, capital goods, and consumption goods under ACFTA, in imports of industrial supplies and fuels and lubricants under AKFTA, and in imports of food and beverages under AANZFTA. ACFTA, in particular, increases imports of all member countries from the members in the case of consumption goods (BEC06). Looking at significant and positive coefficients of ACFTA and AKFTA, imports in intermediate goods such as industrial supplies (BEC02) especially are facilitated by FTAs. Furthermore, estimated coefficients of ACFTA and AKFTA in imports of industrial supplies (BEC02) and capital goods and parts (BEC04) of Cambodia and Viet Nam are relatively high compared to other countries. This result 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 cost of cross-border production sharing; in particular, it stimulates trade among emerging countries[9].

In addition, the first regional FTA in this region, AFTA, has significant impact in regional trade. Estimated coefficients of AFTA in all member countries are significant and positive in the case of food and beverages. Also, trade of transport equipment and its parts among almost all members are facilitated under AFTA. AFTA also promotes the import of industrial supplies and capital goods of Malaysia, Philippines, and Thailand. While the production and sales networks of some industries such as automobiles have penetrated all members of AFTA, the result suggests that production networks of other industries, including general and electric machineries, involve non-AFTA member major trading partners such as China, Japan, and Korea.

Despite the intra-regional production and sales networks among ASEAN countries and Japan, estimated coefficients of AJCEP are not significantly positive in many countries.

[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 been increased rapidly. Import in industrial supplies of Viet Nam from China has grown 20-fold over the past 10 years while total import increased 17-fold.

Compared to other ASEAN+1 FTAs, there are relatively few positive and significant signs, such capital goods (BEC04) in Cambodia and the Philippines, and consumption goods (BEC06) in Japan and Singapore. A possible factor of these insignificant coefficients is concurrent bilateral FTAs between ASEAN countries and Japan which have already formed before or at the same time as ACJEP. After the Japan–Singapore EPA started in 2002, Japan formed FTAs with Malaysia and Thailand in 2006 and 2007, respectively. Japan also entered into bilateral FTAs with Indonesia, Brunei Darussalam, and the Philippines in the same year of AJCEP and with Viet Nam in the next year. The utilisation rate of AJCEP is likely to be lower than precedent bilateral FTAs at the beginning of AJCEP since tariff elimination in some sectors are implemented with a phased approach. The estimated coefficients of ASEAN members' bilateral FTAs with Japan such as the Indonesia–Japan EPA, Thailand–Japan EPA, and Viet Nam and Japan EPA in Tables 4, 8, and 9, respectively, show many significant and positive signs. These bilateral FTAs, in particular, increases trade in major intermediate and final goods such as industry supplies, capital goods, transport equipment, and consumption goods. Therefore, the result suggests that the impacts of newer FTAs between the same members as precedent FTAs are limited. In other words, newer FTAs between the same members as precedent FTAs need to set tariff elimination at a more liberalised level as precedent FTAs, and necessary procedures along with FTA utilisation need to be more simplified.

With regard to AANZFTA, trade creation effects are found in relatively many countries in the food and beverage sector (BEC01). In addition, the estimated coefficients are relatively high compared to coefficients in the case of other sectors. Australia has started bilateral FTAs with Singapore and Thailand earlier than AANZFTA. Therefore, trade in the manufacturing sector such as industrial supplies, capital goods, and transport equipment among Australia, Singapore, and Thailand are possibly promoted by these precedent bilateral FTAs. However, intra-regional trade in agricultural products among members—in particular, Cambodia, Indonesia, and Viet Nam which have no bilateral FTAs with Australia and New Zealand—appears to be significantly increased by AANZFTA. This result implies that bilateral FTAs are often formed with large trading partners while a regional multilateral/plurilateral FTA has a potential to expand trade with other trading partners.

However, import in capital goods and parts (BEC04) of Thailand and Singapore and import in transport equipment (BEC05) of Thailand are facilitated by AANZFTA, while import in capital goods and transport equipment of Australia and New Zealand from Thailand and Singapore are increased by bilateral FTAs (Tables 10 and 11). Although Australia and

New Zealand import capital goods and transport equipment through existing bilateral FTAs, import in these products of Thailand and Singapore has been facilitated under the newer regional FTA, AANZFTA. This implies that Australia and New Zealand also has formed production networks in such products in ASEAN, and Thailand and Singapore import these parts and products manufactured or assembled through the networks.

Looking at the result of AIFTA, positive and significant coefficients in transport equipment (BEC05) are found in India, Indonesia, and Singapore. The automobile industry has constructed supply chains in ASEAN countries. Therefore, AIFTA has taken a role to facilitate export in automobiles and its parts between ASEAN countries and India based on developing supply chains in ASEAN countries. In addition, import elasticity of Cambodia from AIFTA member countries in industrial supplies (BEC02), capital goods (BEC04), and consumption goods (BEC06) are higher than other countries. Similar to ACFTA and AKFTA, this implies that a regional FTA takes the role of facilitating trade of emerging countries to find new market opportunities in this region.

To sum up the major findings of estimation, trade creation effects are found in a wide range of sectors in most member countries under regional FTAs where production and sales networks, such as ACFTA and AKFTA, were already formed. A regional FTA that increases trade between members in which production and sales networks have been developed can facilitate the productivity of firms by reducing service link costs. Besides, we found that some ASEAN+1 FTAs, such as ACFTA, AKFTA, and AIFTA, facilitate regional trade particularly in emerging countries in the region. The region-wide FTA is expected to promote trade especially of emerging countries and to narrow the development gap. ASEAN+1 FTAs have more possibility to facilitate the trade of emerging countries in developing and deepening production and sales networks in this region than existing bilateral FTAs. Also, as in AANZFTA, even though bilateral FTAs have already formed among the same members, a newer regional FTA can potentially facilitate regional trade. In developing and expanding production and sales networks in this region, region-wide FTAs are necessary to further facilitate regional trade among members.

Meanwhile, as the example of AJCEP and precedent bilateral FTAs between Japan and ASEAN countries indicates, a newer regional FTA should set more liberalised measures in terms of tariff elimination schedule and RoO certification when other FTAs have already formed between the same member countries. The impact of AJCEP appears to be limited at this moment since seven bilateral FTAs between Japan and ASEAN countries are already utilised by exporting/importing firms. Gains from tariff reduction rate should be larger than

change over cost of FTAs for exporting and importing firms. Lastly, some products are still under graduated tariff elimination schedule of each ASEAN+1 FTA. Therefore, further impact of each ASEAN+1 FTA should be found by using more extended samples after 2012. It should be noted that the results of our estimation are tentative since our sample covers only short periods after each ASEAN+1 FTA started.

Table 2: Summary of Estimated Coefficients of Each ASEAN FTA's Dummy Variables

	BEC 01 Food and Beverages	**BEC 02** Industrial supplies	**BEC 03** Fuels and lubricants	**BEC 04** Capital goods, parts	**BEC 05** Transport equipment, parts	**BEC 06** Consumption goods
AANZFTA						
Australia	-0.2453 (1.17)	-0.4239 (2.75)	0.2600 (1.02)	-0.1243 (0.53)	-1.0189 (6.55)	-0.0360 (0.18)
New Zealand	-0.0423 (0.40)	-0.0812 (1.07)	0.0045 (0.02)	0.0975 (0.97)	-0.0419 (0.20)	0.0146 (0.14)
Cambodia	1.9381 (7.01)	-0.3186 (0.84)	-1.3142 (1.27)	-1.0261 (3.49)	0.1961 (0.55)	-1.0478 (2.14)
Indonesia	1.7452 (3.36)	0.2520 (0.54)	-0.5075 (0.99)	-0.2784 (0.82)	-0.4043 (1.41)	0.2041 (0.66)
Malaysia	0.7007 (5.73)	0.4914 (9.71)	0.2859 (1.30)	0.2439 (1.12)	0.1984 (0.94)	0.1557 (1.78)
Philippines	1.0697 (6.38)	0.4882 (7.20)	-0.3252 (1.44)	-0.8754 (3.02)	-0.2269 (1.24)	-0.1282 (0.74)
Singapore	-0.5820 (5.71)	-0.0762 (1.35)	-0.1626 (1.00)	0.9249 (2.51)	0.0402 (0.62)	-0.3631 (3.08)
Thailand	-0.4402 (3.78)	-0.0421 (0.33)	0.3334 (1.33)	0.7698 (3.37)	0.4954 (1.94)	0.3740 (1.91)
Vietnam	1.3207 (8.84)	0.1986 (0.83)	0.3320 (0.76)	0.0761 (0.31)	-0.6790 (1.67)	0.1036 (0.54)
	BEC 01 Food and Beverages	**BEC 02** Industrial supplies	**BEC 03** Fuels and lubricants	**BEC 04** Capital goods, parts	**BEC 05** Transport equipment, parts	**BEC 06** Consumption goods
ACFTA						
China	0.4261 (8.93)	0.0658 (3.66)	-0.0041 (0.11)	0.3280 (10.23)	-0.0756 (2.68)	0.2759 (8.87)
Cambodia	0.7354 (3.71)	0.4194 (9.17)	0.0704 (0.51)	0.3635 (11.32)	-0.2004 (3.94)	0.1149 (2.50)
Indonesia	-0.0843 (1.52)	0.1448 (3.16)	0.0453 (0.79)	0.3190 (7.02)	0.1690 (2.75)	0.3001 (6.69)
Malaysia	0.0103 (0.52)	0.0126 (0.89)	-0.1848 (3.19)	0.0354 (1.57)	-0.0353 (0.85)	0.0777 (3.19)
Philippines	-0.1228 (1.32)	0.0329 (1.01)	0.0020 (0.02)	0.0278 (0.50)	-0.1800 (2.11)	0.0742 (2.12)
Singapore	-0.0969 (1.90)	0.0450 (1.45)	0.1097 (1.03)	0.2269 (5.24)	-0.0909 (1.69)	0.1162 (2.15)
Thailand	0.1229 (5.21)	0.0635 (3.82)	-0.1751 (2.07)	0.0861 (4.40)	-0.1274 (3.28)	0.1354 (5.63)
Vietnam	0.0877 (2.41)	0.1517 (5.54)	0.5290 (5.93)	0.3554 (8.83)	0.1973 (4.69)	0.1854 (5.06)
	BEC 01 Food and Beverages	**BEC 02** Industrial supplies	**BEC 03** Fuels and lubricants	**BEC 04** Capital goods, parts	**BEC 05** Transport equipment, parts	**BEC 06** Consumption goods
AIFTA						
India	0.7136 (5.78)	0.3605 (2.97)	-0.2811 (1.15)	-0.1937 (0.98)	0.4133 (1.99)	0.1236 (0.83)
Cambodia	-1.0830 (2.65)	1.1759 (5.45)	1.2989 (1.57)	0.8426 (3.01)	-0.5731 (1.20)	0.7666 (2.16)
Indonesia	-0.6078 (1.73)	0.1916 (1.12)	0.3158 (1.30)	0.1963 (1.10)	0.6772 (3.90)	-0.0606 (0.33)
Malaysia	-0.1267 (0.96)	-0.2236 (2.17)	0.1676 (0.83)	-0.4650 (1.90)	0.1254 (0.43)	0.1602 (1.15)
Philippines	-1.0408 (2.44)	-0.7567 (5.52)	-0.2530 (0.68)	-0.3255 (1.23)	0.3887 (1.33)	-0.0111 (0.07)
Singapore	0.1394 (1.26)	-0.0649 (0.93)	0.2254 (1.23)	-0.8508 (2.01)	0.3236 (2.43)	0.2380 (1.80)
Thailand	0.0092 (0.06)	-0.0986 (0.98)	0.6296 (2.90)	-0.9317 (4.59)	-0.1940 (0.88)	-0.1479 (0.98)
Vietnam	0.0297 (0.12)	-0.2766 (1.49)	-0.9092 (2.54)	-0.4912 (1.97)	-0.1910 (0.98)	0.3849 (1.73)
	BEC 01 Food and Beverages	**BEC 02** Industrial supplies	**BEC 03** Fuels and lubricants	**BEC 04** Capital goods, parts	**BEC 05** Transport equipment, parts	**BEC 06** Consumption goods
AJCEP						
Japan	-0.0401 (0.21)	0.1249 (0.90)	0.4589 (3.74)	-0.1465 (0.65)	-0.6254 (1.51)	0.5168 (3.80)
Cambodia	-0.8227 (2.64)	-0.2763 (1.30)	-1.8445 (2.11)	0.2344 (2.21)	-0.0855 (0.53)	-0.3296 (1.31)
Indonesia						
Malaysia	-0.4571 (5.22)	-0.3168 (7.01)	-0.2156 (2.13)	0.0938 (1.09)	-0.2256 (2.22)	-0.1274 (2.43)
Philippines	-0.6297 (2.74)	-0.2701 (3.11)	-0.1448 (0.65)	0.5685 (2.66)	-0.0164 (0.10)	-0.1209 (0.82)
Singapore	0.4509 (7.56)	0.0247 (0.88)	0.0288 (0.24)	-0.0491 (0.66)	0.0414 (1.61)	0.1386 (2.07)
Thailand	0.1426 (1.66)	-0.2833 (3.47)	-0.5911 (3.04)	-0.3110 (3.44)	-0.7055 (5.75)	-0.1778 (1.76)
Vietnam	-0.6891 (5.64)	-0.3182 (2.42)	-0.3225 (1.05)	-0.2229 (1.41)	-0.2781 (1.15)	-0.4869 (4.33)
	BEC 01 Food and Beverages	**BEC 02** Industrial supplies	**BEC 03** Fuels and lubricants	**BEC 04** Capital goods, parts	**BEC 05** Transport equipment, parts	**BEC 06** Consumption goods
AKFTA						
Korea	0.2640 (5.09)	0.1837 (5.88)	0.2898 (4.78)	0.2984 (5.19)	-0.0281 (0.48)	0.3625 (6.18)
Cambodia	-0.1230 (0.83)	0.1768 (1.84)	0.0222 (0.34)	-0.1391 (1.44)	0.1139 (0.60)	0.1589 (3.09)
Indonesia	-0.4896 (3.47)	0.2561 (3.62)	0.4711 (6.86)	0.2082 (2.61)	-0.5826 (4.35)	-0.1115 (0.57)
Malaysia	-0.2114 (4.39)	0.0533 (0.84)	0.1441 (2.15)	0.0632 (1.06)	-0.5282 (2.95)	-0.2805 (3.80)
Philippines	-0.1090 (1.04)	0.1787 (5.13)	0.2591 (2.78)	0.0256 (0.44)	-0.4617 (3.06)	-0.2832 (6.40)
Singapore	-0.2702 (5.02)	-0.0275 (0.56)	-0.0212 (0.15)	-0.2801 (3.24)	-0.5341 (5.42)	-0.0421 (0.49)
Thailand	-0.1343 (0.68)	0.2431 (3.56)	0.0330 (0.16)	0.1767 (2.11)	0.0032 (0.03)	-0.4614 (2.58)
Vietnam	-0.4814 (2.49)	0.3679 (10.04)	0.4760 (3.53)	0.4566 (7.55)	0.5856 (9.98)	0.2744 (5.50)
	BEC 01 Food and Beverages	**BEC 02** Industrial supplies	**BEC 03** Fuels and lubricants	**BEC 04** Capital goods, parts	**BEC 05** Transport equipment, parts	**BEC 06** Consumption goods
AFTA						
Cambodia	1.6831 (6.81)	-0.5317 (8.23)	0.7172 (3.68)	-0.1767 (3.62)	0.2110 (2.66)	0.0635 (0.67)
Indonesia	0.4074 (4.82)	-0.1536 (2.30)	-0.1774 (2.06)	-0.1679 (2.44)	0.4181 (7.74)	0.0722 (0.98)
Malaysia	0.2238 (9.25)	0.0467 (1.75)	0.0498 (1.10)	-0.0400 (0.86)	0.3931 (7.40)	0.0560 (1.73)
Philippines	0.3898 (6.82)	0.1326 (5.28)	0.1600 (2.34)	0.3152 (6.78)	0.6083 (10.91)	0.2979 (12.15)
Singapore	0.2042 (6.73)	0.0047 (0.23)	-0.0958 (1.41)	0.0299 (0.72)	0.2690 (7.33)	-0.1664 (4.11)
Thailand	0.1787 (6.03)	0.0322 (1.93)	0.0929 (1.39)	0.1407 (5.81)	0.2831 (6.84)	0.1447 (6.23)
Vietnam	0.3593 (5.14)	-0.1431 (5.05)	-0.1790 (2.01)	-0.2490 (5.77)	-0.1914 (3.87)	-0.1410 (3.98)

Note: Figures in parentheses are z-value. Cells in orange are estimated values at more than five percent significant level.

Table 3: Impact of ASEAN+1 FTAs on Cambodia's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	0.8740 (17.5)	0.7272 (11.0)	1.1685 (10.5)	0.9182 (18.0)	1.7457 (13.7)	0.8422 (10.7)
ln (GDP per capita)j	0.3297 (6.7)	0.6191 (6.1)	0.8195 (3.1)	0.5446 (9.5)	0.4540 (5.1)	0.1500 (1.0)
ln (Distance)	-1.2056 (13.8)	-2.4835 (16.5)	-3.3220 (5.7)	-1.9043 (14.8)	-2.4879 (13.1)	-1.2654 (5.5)
FTA dummies						
ACFTA	0.7354 (3.7)	0.4194 (9.2)	0.0704 (0.5)	0.3635 (11.3)	-0.2004 (3.9)	0.1149 (2.5)
AJCEP	-0.8227 (2.6)	-0.2763 (1.3)	-1.8445 (2.1)	0.2344 (2.2)	-0.0855 (0.5)	-0.3296 (1.3)
AKFTA	-0.1230 (0.8)	0.1768 (1.8)	0.0222 (0.3)	-0.1391 (1.4)	0.1139 (0.6)	0.1589 (3.1)
AIFTA	-1.0830 (2.7)	1.1759 (5.5)	1.2989 (1.6)	0.8426 (3.0)	-0.5731 (1.2)	0.7666 (2.2)
AANZFTA	1.9381 (7.0)	-0.3186 (0.8)	-1.3142 (1.3)	-1.0261 (3.5)	0.1961 (0.6)	-1.0478 (2.1)
AFTA	1.6831 (6.8)	-0.5317 (8.2)	0.7172 (3.7)	-0.1767 (3.6)	0.2110 (2.7)	0.0635 (0.7)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,634	1,677	1,610	1,669	1,628	1,650
R-squared:	0.84674385	0.82759586	0.97241727	0.84963812	0.56901671	0.48830464

Note: Figures in parenthesis are z-value.

Table 4: Impact of ASEAN+1 FTAs on Indonesia's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	1.0286 (11.3)	0.8672 (16.9)	0.4505 (7.5)	0.9480 (14.5)	1.2020 (11.8)	0.9597 (15.1)
ln (GDP per capita)j	-0.1534 (1.0)	0.0206 (0.4)	0.2812 (3.1)	0.2967 (4.5)	0.2881 (2.9)	0.1288 (1.8)
ln (Distance)	-1.0796 (3.4)	-1.0319 (5.8)	-1.4798 (7.6)	-1.0240 (4.9)	-0.2032 (0.8)	-1.0239 (5.1)
FTA dummies						
ACFTA	-0.0843 (1.5)	0.1448 (3.2)	0.0453 (0.8)	0.3190 (7.0)	0.1690 (2.8)	0.3001 (6.7)
AKFTA	-0.4896 (3.5)	0.2561 (3.6)	0.4711 (6.9)	0.2082 (2.6)	-0.5826 (4.4)	-0.1115 (0.6)
AIFTA	-0.6078 (1.7)	0.1916 (1.1)	0.3158 (1.3)	0.1963 (1.1)	0.6772 (3.9)	-0.0606 (0.3)
AANZFTA	1.7452 (3.4)	0.2520 (0.5)	-0.5075 (1.0)	-0.2784 (0.8)	-0.4043 (1.4)	0.2041 (0.7)
AFTA	0.4074 (4.8)	-0.1536 (2.3)	-0.1774 (2.1)	-0.1679 (2.4)	0.4181 (7.7)	0.0722 (1.0)
Indonesia-Japan	-0.8629 (7.8)	0.1851 (3.2)	-0.4839 (3.9)	0.3145 (5.6)	0.3814 (5.9)	0.1220 (2.1)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	623	684	576	658	629	649
R-squared:	0.55580838	0.88056512	0.89132975	0.96219321	0.92456865	0.95342326

Note: Figures in parentheses are z-value.

Table 5: Impact of ASEAN+1 FTAs on Malaysia's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	0.8503 (27.2)	0.9740 (49.8)	0.4361 (12.2)	1.2265 (31.0)	1.2502 (22.8)	1.0590 (32.0)
ln (GDP per capita)j	-0.2404 (5.4)	-0.0014 (0.1)	0.1840 (4.7)	0.1126 (2.8)	0.1274 (2.4)	0.0410 (1.0)
ln (Distance)	-0.6779 (10.0)	-1.1923 (29.9)	-1.4666 (23.1)	-1.4132 (17.9)	-0.8903 (8.1)	-1.3114 (20.5)
FTA dummies						
ACFTA	0.0103 (0.5)	0.0126 (0.9)	-0.1848 (3.2)	0.0354 (1.6)	-0.0353 (0.9)	0.0777 (3.2)
AJCEP	-0.4571 (5.2)	-0.3168 (7.0)	-0.2156 (2.1)	0.0938 (1.1)	-0.2256 (2.2)	-0.1274 (2.4)
AKFTA	-0.2114 (4.4)	0.0533 (0.8)	0.1441 (2.2)	0.0632 (1.1)	-0.5282 (3.0)	-0.2805 (3.8)
AIFTA	-0.1267 (1.0)	-0.2236 (2.2)	0.1676 (0.8)	-0.4650 (1.9)	0.1254 (0.4)	0.1602 (1.2)
AANZFTA	0.7007 (5.7)	0.4914 (9.7)	0.2859 (1.3)	0.2439 (1.1)	0.1984 (0.9)	0.1557 (1.8)
AFTA	0.2238 (9.3)	0.0467 (1.8)	0.0498 (1.1)	-0.0400 (0.9)	0.3931 (7.4)	0.0560 (1.7)
Malaysia-Chile	0.2181 (1.2)	1.4617 (13.9)	-5.6760 (19.5)	-3.4909 (20.4)	-1.0852 (2.0)	-2.6502 (17.1)
Malaysia-India	0.4356 (2.1)	0.1521 (0.9)	0.0702 (0.2)	-0.3443 (0.7)	0.2519 (3.2)	-0.7906 (2.6)
Malaysia-Japan	-0.2417 (1.7)	0.2726 (8.8)	-0.3671 (2.5)	-0.0733 (1.2)	0.0441 (0.2)	-0.0179 (0.5)
Malaysia-New Zealand	0.6214 (3.7)	-0.2451 (4.8)	-5.8693 (5.2)	-0.6829 (2.9)	-1.0236 (6.1)	-0.4952 (5.4)
Malaysia-Pakistan	0.0853 (2.3)	-0.2540 (4.0)	-0.7014 (2.2)	-0.9124 (4.5)		-0.1105 (1.7)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,954	1,955
R-squared:	0.76893414	0.91226994	0.8697558	0.90319402	0.73353334	0.88473307

Note: Figures in parentheses are z-value.

Table 6: Impact of ASEAN+1 FTAs on the Philippines's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	0.9251 (10.2)	0.8699 (22.7)	0.4622 (8.7)	1.1789 (14.2)	1.1564 (13.9)	0.8673 (18.6)
ln (GDP per capita)j	-0.2293 (2.6)	0.0703 (1.8)	0.3902 (4.7)	0.7772 (9.4)	0.0706 (1.1)	0.2667 (5.8)
ln (Distance)	-0.3950 (2.1)	-1.0604 (12.0)	-0.7771 (5.3)	-1.4975 (8.0)	-1.1885 (5.5)	-1.2210 (11.5)
FTA dummies						
ACFTA	-0.1228 (1.3)	0.0329 (1.0)	0.0020 (0.0)	0.0278 (0.5)	-0.1800 (2.1)	0.0742 (2.1)
AJCEP	-0.6297 (2.7)	-0.2701 (3.1)	-0.1448 (0.7)	0.5685 (2.7)	-0.0164 (0.1)	-0.1209 (0.8)
AKFTA	-0.1090 (1.0)	0.1787 (5.1)	0.2591 (2.8)	0.0256 (0.4)	-0.4617 (3.1)	-0.2832 (6.4)
AIFTA	-1.0408 (2.4)	-0.7567 (5.5)	-0.2530 (0.7)	-0.3255 (1.2)	0.3887 (1.3)	-0.0111 (0.1)
AANZFTA	1.0697 (6.4)	0.4882 (7.2)	-0.3252 (1.4)	-0.8754 (3.0)	-0.2269 (1.2)	-0.1282 (0.7)
AFTA	0.3898 (6.8)	0.1326 (5.3)	0.1600 (2.3)	0.3152 (6.8)	0.6083 (10.9)	0.2979 (12.2)
Philippines-Japan	-0.7026 (2.3)	0.2088 (2.6)	-0.4388 (2.0)	-0.4525 (2.9)	0.1606 (1.1)	-0.3806 (3.5)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,125	1,161	1,088	1,156	1,131	1,160
R-squared:	0.43293404	0.91253742	0.18793764	0.73882201	0.83896232	0.88093203

Note: Figures in parentheses are z-value.

Table 7: Impact of ASEAN+1 FTAs on Singapore's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	0.9852 (21.3)	1.0597 (50.7)	0.4194 (9.7)	1.0503 (29.0)	1.5861 (47.0)	1.1365 (24.3)
ln (GDP per capita)j	0.0734 (2.1)	0.0900 (3.7)	0.3871 (5.9)	0.1330 (2.9)	0.5077 (12.7)	0.1751 (3.9)
ln (Distance)	-1.1426 (19.2)	-1.2571 (41.8)	-1.0841 (12.6)	-1.3375 (16.7)	-1.1997 (18.1)	-1.7098 (33.9)
FTA dummies						
ACFTA	-0.0969 (1.9)	0.0450 (1.5)	0.1097 (1.0)	0.2269 (5.2)	-0.0909 (1.7)	0.1162 (2.2)
AJCEP	0.4509 (7.6)	0.0247 (0.9)	0.0288 (0.2)	-0.0491 (0.7)	0.0414 (1.6)	0.1386 (2.1)
AKFTA	-0.2702 (5.0)	-0.0275 (0.6)	-0.0212 (0.2)	-0.2801 (3.2)	-0.5341 (5.4)	-0.0421 (0.5)
AIFTA	0.1394 (1.3)	-0.0649 (0.9)	0.2254 (1.2)	-0.8508 (2.0)	0.3236 (2.4)	0.2380 (1.8)
AANZFTA	-0.5820 (5.7)	-0.0762 (1.4)	-0.1626 (1.0)	0.9249 (2.5)	0.0402 (0.6)	-0.3631 (3.1)
AFTA	0.2042 (6.7)	0.0047 (0.2)	-0.0958 (1.4)	0.0299 (0.7)	0.2690 (7.3)	-0.1664 (4.1)
Singapore-New Zealand	0.5147 (5.8)	-0.0598 (1.8)	0.0402 (0.4)	-0.0380 (0.6)	0.4089 (6.5)	-0.0942 (2.9)
Singapore-Japan	-0.3932 (10.0)	-0.0204 (1.8)	-0.0683 (1.3)	0.0165 (0.6)	-0.1807 (10.3)	-0.2102 (7.4)
Singapore-Australia	0.2875 (10.8)	0.0394 (1.8)	0.0020 (0.1)	-0.3157 (3.8)	-0.1433 (8.5)	-0.0507 (1.7)
Singapore-India	-0.1518 (3.2)	0.0249 (0.8)	0.2460 (3.4)	-0.1205 (1.4)	-0.0675 (1.4)	-0.1076 (2.3)
Singapore-Korea	-0.1540 (1.8)	0.1061 (2.4)	0.1661 (1.3)	0.5041 (6.6)	0.5744 (6.1)	-0.2449 (2.9)
Singapore-China	-0.0537 (0.6)	-0.1276 (2.1)	-0.1981 (0.9)	-0.2940 (3.6)	-0.0982 (1.0)	-0.3001 (3.3)
Singapore-EFTA	-0.0189 (1.2)	0.1698 (4.8)	-0.8528 (4.7)	0.0756 (5.3)	-0.1147 (5.4)	0.2751 (8.0)
Singapore-US	-0.0868 (2.4)	0.0355 (3.3)	0.0356 (1.0)	0.1054 (5.6)	-0.0728 (3.7)	-0.0365 (1.5)
Singapore-Jordan	-1.0118 (3.9)	0.0426 (1.5)	-0.5740 (3.1)	-0.7535 (4.6)	0.2134 (5.9)	-0.1919 (4.4)
Singapore-Panama	0.1003 (1.6)	-0.4787 (6.8)	-1.0396 (2.4)	-0.1714 (1.4)	-0.0861 (0.7)	-0.1629 (2.1)
Singapore-TPP	-0.1615 (1.0)	0.1452 (2.6)	-0.5707 (5.2)	-0.4538 (4.3)	-0.5211 (4.4)	0.1461 (2.5)
Singapore-Peru	-0.1723 (2.8)	-0.1847 (1.2)	-9.7824 (8.0)	-1.5097 (3.8)	-1.6059 (3.7)	-0.1757 (4.7)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.81988707	0.95726759	0.45407733	0.92557112	0.95812894	0.9010276

Note: Figures in parentheses are z-value.

Table 8: Impact of ASEAN+1 FTAs on Thailand's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	0.7338 (17.7)	0.8819 (30.5)	0.2587 (7.6)	1.3142 (45.8)	1.3358 (18.3)	1.1049 (35.7)
ln (GDP per capita)j	-0.1030 (2.3)	0.1849 (5.0)	0.4058 (5.4)	0.2680 (8.4)	0.2499 (3.4)	0.3449 (8.0)
ln (Distance)	0.0235 (0.2)	-1.0407 (18.5)	-0.8577 (10.1)	-1.7021 (26.9)	-1.4497 (9.8)	-1.4162 (24.0)
FTA dummies						
ACFTA	0.1229 (5.2)	0.0635 (3.8)	-0.1751 (2.1)	0.0861 (4.4)	-0.1274 (3.3)	0.1354 (5.6)
AJCEP	0.1426 (1.7)	-0.2833 (3.5)	-0.5911 (3.0)	-0.3110 (3.4)	-0.7055 (5.8)	-0.1778 (1.8)
AKFTA	-0.1343 (0.7)	0.2431 (3.6)	0.0330 (0.2)	0.1767 (2.1)	0.0032 (0.0)	-0.4614 (2.6)
AIFTA	0.0092 (0.1)	-0.0986 (1.0)	0.6296 (2.9)	-0.9317 (4.6)	-0.1940 (0.9)	-0.1479 (1.0)
AANZFTA	-0.4402 (3.8)	-0.0421 (0.3)	0.3334 (1.3)	0.7698 (3.4)	0.4954 (1.9)	0.3740 (1.9)
AFTA	0.1787 (6.0)	0.0322 (1.9)	0.0929 (1.4)	0.1407 (5.8)	0.2831 (6.8)	0.1447 (6.2)
Thailand-Lao PDR	0.0820 (3.9)	0.2669 (12.5)	0.0877 (2.2)	0.0145 (0.6)	0.1795 (3.8)	0.0400 (1.9)
Thailand-Australia	0.4111 (12.5)	0.1987 (4.9)	0.1119 (1.2)	-0.3703 (5.3)	-0.2590 (2.9)	-0.1189 (1.8)
Thailand-New Zealand	0.5582 (13.8)	-0.0214 (0.5)	-0.4044 (3.4)	-0.1476 (1.7)	-0.3912 (4.1)	-0.2304 (3.9)
Thailand-Japan	-0.1014 (1.8)	0.3202 (6.4)	-0.2899 (1.2)	0.3139 (5.5)	0.6419 (7.8)	0.1183 (2.0)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.75075173	0.88698929	0.06688984	0.96418081	0.91317528	0.91594804

Note: Figures in parentheses are z-value.

Table 9: Impact of ASEAN+1 FTAs on Viet Nam's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods and parts & accessories	BEC 05 Transport equipment, and parts & accessories	BEC 06 Consumption goods
ln (GDP)j	0.7421 (16.4)	0.8997 (27.1)	0.8149 (8.4)	1.1237 (24.9)	0.9537 (15.2)	0.9872 (22.8)
ln (GDP per capita)j	0.0096 (0.2)	0.1325 (2.8)	1.0223 (6.4)	0.5645 (9.0)	0.2215 (3.9)	0.4162 (7.8)
ln (Distance)	-0.3728 (3.1)	-1.5642 (17.9)	-2.7292 (11.1)	-2.0922 (17.5)	-1.0783 (7.1)	-1.8984 (18.5)
FTA dummies						
ACFTA	0.0877 (2.4)	0.1517 (5.5)	0.5290 (5.9)	0.3554 (8.8)	0.1973 (4.7)	0.1854 (5.1)
AJCEP	-0.6891 (5.6)	-0.3182 (2.4)	-0.3225 (1.1)	-0.2229 (1.4)	-0.2781 (1.2)	-0.4869 (4.3)
AKFTA	-0.4814 (2.5)	0.3679 (10.0)	0.4760 (3.5)	0.4566 (7.6)	0.5856 (10.0)	0.2744 (5.5)
AIFTA	0.0297 (0.1)	-0.2766 (1.5)	-0.9092 (2.5)	-0.4912 (2.0)	-0.1910 (1.0)	0.3849 (1.7)
AANZFTA	1.3207 (8.8)	0.1986 (0.8)	0.3320 (0.8)	0.0761 (0.3)	-0.6790 (1.7)	0.1036 (0.5)
AFTA	0.3593 (5.1)	-0.1431 (5.1)	-0.1790 (2.0)	-0.2490 (5.8)	-0.1914 (3.9)	-0.1410 (4.0)
Vietnam-Japan	0.3824 (1.7)	0.6004 (3.3)	0.1321 (0.3)	0.6760 (3.0)	0.8430 (2.5)	0.7197 (4.0)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,515	1,549	1,471	1,530	1,496	1,514
R-squared:	0.67119501	0.8876777	0.72871725	0.95361147	0.82447766	0.85542461

Note: Figures in parentheses are z-value.

Table 10: Impact of AANZFTA on Australia's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods (except transport equipment) and parts and accessories	BEC 05 Transport equipment, and parts and accessories	BEC 06 Consumption goods
ln (GDP)j	0.6318 (23.2)	0.7835 (21.9)	0.5110 (16.2)	1.0780 (23.2)	1.0917 (38.3)	1.1108 (21.8)
ln (GDP per capita)j	0.0991 (2.3)	0.0383 (0.9)	0.0688 (0.8)	-0.0504 (0.8)	0.4905 (17.0)	-0.2894 (3.8)
ln (Distance)	-0.8337 (4.6)	-2.0702 (10.4)	-3.0268 (18.1)	-1.4329 (8.1)	-1.9605 (18.5)	-1.1471 (5.3)
FTA dummies						
AANZKFTA	-0.2453 (1.2)	-0.4239 (2.8)	0.2600 (1.0)	-0.1243 (0.5)	-1.0189 (6.6)	-0.0360 (0.2)
Australia-Chile	-0.0080 (0.2)	0.5108 (8.8)	-5.0077 (3.6)	-1.0971 (4.1)	-1.3280 (4.2)	-2.4160 (3.2)
Australia-New Zealand	0.4838 (11.5)	0.4345 (14.6)	0.3285 (5.8)	0.2899 (6.1)	0.2784 (9.4)	0.3298 (6.8)
Australia-Singapore	0.2470 (4.5)	0.1751 (4.8)	0.2372 (3.7)	0.2178 (3.7)	-0.0782 (1.1)	0.2096 (3.9)
Australia-Thailand	0.4211 (6.4)	0.3500 (8.3)	-0.2365 (3.8)	0.2487 (3.3)	0.8084 (16.4)	0.1891 (3.5)
Australia-USA	0.0629 (3.2)	0.0800 (2.7)	-0.2241 (3.8)	0.0005 (0.0)	-0.0729 (3.3)	-0.0981 (3.4)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.82086327	0.67690346	0.57467711	0.77179153	0.94519637	0.69801016

Note: Figures in parentheses are z-value.

Table 11: Impact of AANZFTA on New Zealand's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods (except transport equipment) and parts and accessories	BEC 05 Transport equipment, and parts and accessories	BEC 06 Consumption goods
ln (GDP)j	0.6711 (26.4)	0.8117 (37.5)	0.2825 (6.6)	0.9633 (25.1)	1.0318 (29.3)	1.0583 (19.3)
ln (GDP per capita)j	0.0976 (3.6)	0.0494 (1.3)	0.6560 (5.4)	0.0815 (1.1)	0.5530 (11.1)	-0.3711 (4.7)
ln (Distance)	-1.9047 (21.8)	-1.5019 (17.0)	-1.7910 (17.4)	-1.1120 (12.4)	-1.7282 (13.0)	-1.4905 (11.0)
FTA dummies						
AANZKFTA	-0.0423 (0.4)	-0.0812 (1.1)	0.0045 (0.0)	0.0975 (1.0)	-0.0419 (0.2)	0.0146 (0.1)
New Zealand-Australia	0.0500 (1.5)	0.0626 (2.2)	-0.1788 (4.2)	-0.0170 (0.5)	-0.1747 (3.7)	0.0906 (2.2)
New Zealand-China	0.0088 (0.2)	0.2368 (7.0)	-1.2934 (2.9)	0.3529 (6.7)	0.0027 (0.1)	0.3191 (5.9)
New Zealand-Hong Kong	-1.2936 (3.5)	-0.4580 (3.1)	-5.8851 (12.8)	0.2281 (2.6)	-1.8435 (4.1)	0.7659 (5.1)
New Zealand-Malaysia	0.6812 (5.7)	0.8593 (8.2)	1.1460 (5.5)	0.6938 (4.9)	-0.1766 (0.8)	0.9089 (6.0)
New Zealand-Singapore	0.1140 (5.8)	0.2553 (8.9)	0.0853 (1.2)	0.6265 (11.7)	-0.0952 (1.7)	0.3783 (8.4)
New Zealand-Thailand	0.3273 (9.3)	0.2850 (9.3)	0.0333 (0.4)	0.2792 (6.8)	0.5339 (7.1)	0.2867 (9.2)
TPP	0.0075 (0.3)	-0.1977 (3.6)	0.3084 (3.6)	-0.7682 (8.4)	-0.1480 (1.6)	-0.3734 (4.6)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.95729659	0.92188835	0.52560675	0.85579828	0.80710239	0.83335618

Note: Figures in parenthesis are z-value.

Table 12: Impact of ACFTA on China's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods (except transport equipment) and parts and accessories	BEC 05 Transport equipment, and parts and accessories	BEC 06 Consumption goods
ln (GDP)j	1.0529 (26.9)	0.8135 (33.8)	0.4261 (12.0)	0.7898 (28.9)	1.0358 (26.7)	0.7157 (24.3)
ln (GDP per capita)j	-0.3712 -(4.8)	-0.1183 (2.8)	-0.1423 (2.9)	0.3483 (6.0)	0.4840 (7.9)	0.6621 (9.8)
ln (Distance)	1.5514 (5.1)	-0.6985 (16.2)	-0.4230 (5.1)	-1.2464 (28.6)	-0.6826 (10.7)	-0.6676 (15.5)
FTA dummies						
ACFTA	0.4261 (8.9)	0.0658 (3.7)	-0.0041 (0.1)	0.3280 (10.2)	-0.0756 (2.7)	0.2759 (8.9)
China-Hong Kong FTA	0.3179 (4.2)	-0.0415 (2.4)	-0.2644 (8.3)	-0.1688 (12.6)	-0.5262 (19.2)	0.0647 (2.2)
China-Macao	-0.0906 (1.0)	-0.2474 (6.7)	-3.4760 (3.4)	-1.5607 (4.2)	-0.4657 (10.6)	-0.0882 (1.5)
China-Chile	0.0442 (0.9)	0.4786 (10.7)	-11.9198 (12.2)	-0.6146 (3.5)	-0.3630 (3.6)	-1.2229 (4.1)
China-Pakistan	-0.0096 (0.1)	-0.1052 (2.6)	-2.8838 (2.7)	-1.5397 (2.8)	-2.0230 (3.1)	0.1257 (3.2)
China-New Zealand	0.7652 (12.0)	0.1350 (3.5)	-0.7298 (4.3)	-0.4826 (3.7)	-1.5139 (3.5)	-0.9201 (4.7)
China-Singapore	-0.2734 (2.2)	0.1178 (2.2)	0.2868 (3.3)	-0.2975 (4.1)	-0.1230 (1.4)	-0.0639 (0.8)
China-Peru	-0.3117 (2.1)	0.7653 (7.6)	-1.8912 (2.8)	-4.1078 (4.6)	-7.1946 (5.4)	-0.5495 (6.0)
China-Costa Rica	-0.8970 (2.4)	-1.4645 (2.7)		2.3237 (12.5)	-4.6563 (3.4)	-1.0985 (4.9)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.7035028	0.73558021	0.08917301	0.8694525	0.68540755	0.77597336

Note: Figures in parentheses are z-value.

Table 13: Impact of AIFTA on India's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods (except transport equipment) and parts and accessories	BEC 05 Transport equipment, and parts and accessories	BEC 06 Consumption goods
ln (GDP)j	0.7262 (21.7)	0.7298 (14.6)	0.5537 (11.6)	1.3164 (35.5)	1.1231 (23.9)	1.1396 (19.8)
ln (GDP per capita)j	-0.5823 (9.4)	0.1629 (1.9)	-0.1316 (1.6)	-0.1860 (4.3)	0.0768 (1.4)	-0.1242 (1.9)
ln (Distance)	0.5157 (3.3)	-1.2249 (6.7)	-1.8968 (8.1)	-1.8867 (16.5)	-0.9987 (6.0)	-1.6817 (13.7)
FTA dummies						
AIFTA	0.7136 (5.8)	0.3605 (3.0)	-0.2811 (1.2)	-0.1937 (1.0)	0.4133 (2.0)	0.1236 (0.8)
India-Chile	-0.1270 (2.1)	0.4608 (7.7)	-5.6045 (4.2)	-0.2685 (3.9)	-1.0458 (3.1)	-0.4315 (5.0)
India-Afganistan	0.2771 (6.6)	-0.3141 (7.0)	-6.2083 (4.5)	-0.9077 (4.1)	-0.7561 (7.3)	-0.8378 (5.7)
India-Bhutan	0.1195 (0.9)	0.6074 (5.9)	0.1621 (0.8)	1.2201 (3.4)	0.4565 (2.7)	0.2395 (1.7)
India-Japan	-1.2155 (4.0)	-0.4613 (1.3)	-1.5556 (3.1)	-0.1433 (1.7)	-0.0855 (0.9)	-0.7950 (3.8)
India-Malaysia	0.5006 (2.2)	0.2057 (1.1)	0.4049 (1.1)	1.0950 (3.5)	-0.0764 (0.3)	0.6957 (3.1)
India-Singapore	-0.0042 (0.1)	-0.0300 (0.6)	0.1222 (2.0)	0.4354 (6.4)	0.2037 (2.4)	0.2213 (3.2)
India-Korea	-0.6073 (3.0)	0.2167 (1.9)	-0.4589 (3.3)	0.3908 (6.4)	0.6282 (6.8)	-0.0303 (0.5)
India-MERCOSUR	0.3047 (3.6)	-0.0341 (0.4)	0.4324 (3.8)	-0.3527 (5.7)	-0.3148 (3.2)	-0.3653 (5.2)
SAPTA	0.1212 (3.4)	-0.2504 (4.4)	-0.8406 (10.8)	-1.0910 (5.3)	-0.4871 (6.1)	-0.2395 (3.8)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,879	1,950	1,829	1,907	1,861	1,891
R-squared:	0.40475504	0.33709387	0.20803831	0.86897891	0.71145838	0.76570266

Note: Figures in parentheses are z-value.

Table 14: Impact of AJEPA on Japan's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods (except transport equipment) and parts and accessories	BEC 05 Transport equipment, and parts and accessories	BEC 06 Consumption goods
ln (GDP)j	0.8809 (40.7)	0.8775 (52.7)	0.3097 (8.8)	1.1375 (33.4)	1.2323 (57.6)	1.1871 (33.7)
ln (GDP per capita)j	-0.0964 (2.6)	-0.1342 (4.1)	0.4186 (5.5)	-0.1387 (4.6)	0.0866 (2.2)	-0.3756 (7.1)
ln (Distance)	-0.4238 (9.0)	-0.5589 (12.3)	-0.6460 (7.6)	-1.2624 (29.2)	-0.4493 (9.0)	-1.1166 (14.2)
FTA dummies						
AJCEP	-0.0401 (0.2)	0.1249 (0.9)	0.4589 (3.7)	-0.1465 (0.7)	-0.6254 (1.5)	0.5168 (3.8)
Japan-Singapore	0.0898 (1.4)	0.0473 (0.9)	-0.3345 (7.3)	0.3512 (4.2)	0.0515 (0.7)	0.0228 (0.4)
Japan-Mexico	0.0487 (1.5)	0.0194 (0.4)	0.1082 (1.9)	0.2749 (4.7)	0.0358 (1.3)	0.0314 (0.5)
Japan-Thailand	0.4768 (3.7)	0.2352 (2.5)	-0.5147 (6.2)	0.5906 (4.0)	0.9832 (3.8)	0.0583 (0.6)
Japan-Brunei	-8.2657 (40.9)	-0.6351 (3.2)	0.0404 (0.4)	-4.0313 (4.8)	-3.8391 (2.8)	-2.4034 (10.5)
Japan-Indonesia	0.1273 (4.6)	0.3504 (6.6)	0.7096 (9.2)	0.1524 (4.0)	0.3798 (6.1)	0.0510 (1.6)
Japan-Philippines	0.3497 (3.1)	0.1158 (1.5)	-1.4809 (3.3)	0.4759 (3.8)	0.8047 (3.7)	-0.2964 (4.1)
Japan-Switzerland	-0.5329 (3.8)	0.2219 (4.9)	-4.0414 (3.8)	0.3718 (7.4)	-0.5611 (4.6)	0.9022 (9.9)
Japan-Vietnam	0.5676 (2.3)	0.2405 (1.3)	-0.1112 (0.6)	0.8124 (2.7)	1.5417 (2.9)	0.0830 (0.5)
Japan-India	-0.8605 (4.1)	-0.5748 (3.6)	0.6275 (2.7)	-1.7764 (3.3)	-1.0457 (3.5)	-1.3738 (3.3)
Japan-Peru	-0.2745 (1.7)	1.4429 (8.8)	0.8596 (2.3)	-5.8788 (29.4)		-0.8946 (5.3)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.78337113	0.83356344	0.09153838	0.94553429	0.88194426	0.95914081

Note: Figures in parentheses are z-value.

Table 15: Impact of AKFTA on Korea's Import

	BEC 01 Food and Beverages	BEC 02 Industrial supplies	BEC 03 Fuels and lubricants	BEC 04 Capital goods (except transport equipment) and parts and accessories	BEC 05 Transport equipment, and parts and accessories	BEC 06 Consumption goods
ln (GDP)j	0.9396 (25.2)	0.9038 (52.7)	0.3075 (8.8)	1.0094 (25.5)	1.0707 (26.0)	1.0905 (39.3)
ln (GDP per capita)j	-0.2168 (3.5)	-0.0292 (1.2)	0.3484 (5.0)	0.0648 (2.1)	0.1657 (6.6)	-0.2715 (6.1)
ln (Distance)	-0.1631 (2.6)	-0.6801 (23.4)	-0.2796 (3.1)	-0.8743 (22.0)	-0.4884 (16.8)	-0.7404 (15.8)
FTA dummies						
AKFTA	0.2640 (5.1)	0.1837 (5.9)	0.2898 (4.8)	0.2984 (5.2)	-0.0281 (0.5)	0.3625 (6.2)
Korea-Chile	0.2548 (8.1)	0.3977 (10.5)	-2.0618 (2.4)	-0.8917 (5.3)	-0.7981 (4.3)	-0.3176 (4.4)
Korea-EFTA	-0.0589 (0.8)	-0.0695 (2.2)	-0.4972 (1.9)	0.2814 (6.5)	-0.1710 (3.3)	0.4121 (6.6)
Korea-Singapore	-0.1858 (4.0)	0.0214 (0.8)	-0.3862 (4.8)	0.2951 (4.5)	0.0080 (0.2)	0.0955 (1.5)
Korea-India	-0.6427 (2.7)	-0.1857 (3.5)	0.5468 (4.4)	-1.0005 (3.2)	-0.6514 (4.6)	-0.8603 (3.0)
Kore-EU	-0.5403 (3.2)	-0.5188 (3.9)	-2.2105 (3.1)	0.2274 (1.6)	0.3583 (1.8)	0.5651 (4.2)
Korea-Peru	0.4129 (2.7)	1.0927 (7.0)	-1.0869 (2.9)	-2.6691 (8.4)	-5.2376 (3.8)	-0.4690 (3.1)
Korea-US	0.3576 (1.2)	-0.1323 (0.8)	-1.2172 (3.5)	0.5329 (2.8)	0.2327 (1.4)	0.3446 (1.5)
Year dummies	yes	yes	yes	yes	yes	yes
Number of observations	1,955	1,955	1,955	1,955	1,955	1,955
R-squared:	0.71229306	0.93677524	0.07056324	0.92013007	0.86997946	0.9029471

Note: Figures in parentheses are z-value.

5. Conclusion

By estimating the impact of ASEAN+1 FTAs using sector trade data in 2002–2012, we found several characteristics of these regional FTAs. Trade creation effects of ACFTA and AKFTA appear in trade in intermediate and capital goods between ASEAN countries and China or Korea. Also, trade in consumption goods are facilitated by ACFTA in all member countries. These results suggest that each regional FTA stimulates intra-regional trade by developing production and sales networks in the region. Moreover, ACFTA and AKFTA promote trade in industrial supplies and capital goods of emerging ASEAN members such as Cambodia and Viet Nam. It suggests that a region-wide FTA in this region takes the role of expanding the existing production and sales networks to newer developing members.

While trade creation effects are found in many sectors and countries in the case of ACFTA and AKFTA, the impact of AJCEP is not revealed in many cases even though wide and deep production and sales networks have formed since an early sample period between Japan and ASEAN countries. A possible reason for this is that existing bilateral FTAs between Japan and seven ASEAN countries are utilised more often than AJCEP. This implies that a newer FTA formed between the same members of precedent FTAs should be more liberalised or should have a lower utilisation cost than the precedent FTAs to form an effective regional FTA.

Although further analysis of updated data that include sample periods after all tariff elimination schedules are completed are necessary to draw a more rigorous conclusion, our estimation indicates that five ASEAN+1 FTAs already have some positive impact on regional trade in many sectors during their early phase. Also, the trade creation effect seems to be based on existing production and sales networks between ASEAN countries and their dialogue partners. ASEAN+1 FTAs are expected to continuously promote regional trade of intermediate, capital, and consumption goods.

Analysis on the dynamic transition of these trade creation effects of each ASEAN+1 FTA is also an interesting issue. In the long run, a free trade regime formed by regional FTAs in East Asia needs to develop production and sales networks and encourage narrowing the development gap in this region. Such regional FTAs are expected to be conducive to extending an effective fragmented division of labour. Therefore, regional FTAs should set not only full tariff elimination but also liberalisation of trade in services and FDI. In addition, from the perspective of effectiveness, the newer regional FTAs such as RCEP need to incorporate a higher level of liberalisation and more inexpensive procedures to utilise the FTA compared to existing ASEAN+1 FTAs.

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Appendix Table 1: Sample Countries

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

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

ACFTA			AKFTA		AJCEP		AANZKFTA		AIFTA	
	Normal Track	Early Harvest		Normal Track		Normal Track		Normal Track		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 of FTA/EPA brought by Japan External Trade Organization.

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