

East Asian Regional Trade Agreements: Do They Promote Global Free Trade?*

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Abstract

This paper quantitatively evaluates the effects different paths have on East Asian Regional Trade Agreements (RTAs). By applying a CGE model analysis, it is found that the static effect of the proposed East Asian RTAs on world and members' welfare is sufficiently positive, and will lead to nondiscriminatory global free trade, by triggering the domino effect of regionalism over time if the RTAs take an expansionary path by cooperating with each other, in contrast to competing to achieve the first mover advantage, or hub self-interest. We also find that (i) higher positive welfare and output gains are associated with original members of existing RTAs, (ii) additional positive trade creation effects arise for original members as associated RTAs expand, and (iii) welfare and output gains are in uneven distribution for a hub relative to smaller or even negative gains for spokes.

Keywords: regional trade agreements, global free trade, optimal path, CGE model, East Asia

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I. Introduction

Regional Trade Agreements (RTAs) are proliferating around the world, particularly in East Asia, where regionalism was not visible until the late 1990s. These RTAs can be interpreted as a second best policy, relative to the optimum policy of global free trade. The most important concerns to the second best policy alternative are whether these RTAs can lead the world economy toward the optimum policy objective of global free trade. Grimwade (1996) argues that “first regionalism” in the 1960s had collapsed, because it failed to produce sufficient positive gains from forming RTAs. However, Bhagwati (1993) recognizes that “second regionalism” has been proliferating since the 1980s and has the chance to be long-lasting, compared to the failed first regionalism, if the following two key issues can be positively answered. First, it is important to find out whether the immediate static effect of RTAs on world welfare would be positive. Second, over time, the welfare effect of RTAs leading to nondiscriminatory global free trade by triggering the “domino effect of regionalism”¹ needs to be found. The static and dynamic consequences of regional trade blocs on intra- and extra-bloc trade and welfare are key factors to answer these key issues.

The first issue has been numerously analyzed² since introduced the concepts of trade creation and diversion effects for the customs union by Viner (1950) and further clarified by Kemp and Wan (1976). The second issue concerns how the proliferating RTAs, by interacting with each other, will evolve over time. Countries excluded from particular RTA may join existing RTAs, to share benefits arising from free trade, and to avoid disadvantages of isolation (“expansionary RTAs”). The membership of existing RTAs will increase by attracting new

¹ See Baldwin (1993) for the domino theory of regionalism and Summers (1991), Ethier (1998), Laird (1999), Freund (2000), Bergsten (2001), and Lamy (2002) for the theoretical support for the theory.

² See Baldwin and Venables (1995), Winters (1996) and Bhagwati, Greenaway and Panagariya (1998).

members and the gains from free trade will rise. Alternatively, those excluded nonmember countries create separate RTAs by negotiating new RTAs between them and by competing against existing RTAs (“duplicate RTAs”), therefore causing the proliferation of RTAs. Both the expansionary and duplicate RTAs may trigger the domino effect of regionalism and could lead the world economy towards global free trade. However, some member countries of existing RTAs are currently attempting to form multiple RTAs, in order to be a hub of RTAs (“overlapping RTAs”).³ This “hub-and-spoke”⁴ type of evolution in many overlapping RTAs could result in the “spaghetti bowl phenomenon”⁵ of discriminatory trade blocs that have the potential to stall multilateral liberalization efforts.

In contrast to numerous empirical studies analyzing the issue first presented, there is the lack of empirical evidence to evaluate the evolutionary paths of RTAs, in order to find out whether regionalism harms the world trading system and hinders multilateral trade liberalization. Lee, Park, and Shin (2004) attempt to answer the question by applying extended gravity regression analysis. The ex-post estimation technology of gravity regression analysis adopted, produces very useful and practical results, but precludes the actual welfare and output effects.⁶ Moreover, the gravity analysis of RTAs cannot clarify the detailed effects of different combinations of RTAs concerned, and has limitations when experimenting with ex-ante scenario analysis, for possible RTAs in the future. In order to overcome these weaknesses in gravity regression analysis, a Computable General Equilibrium (CGE) model analysis is

³ Concepts of expansionary, duplicate, and overlapping RTAs are introduced in Lee, Park, and Shin (2004).

⁴ For recent theoretical and empirical discussion about the hub-and-spoke type of RTAs, see Lloyd (2002), Umemoto (2003), Baldwin (2004), Lloyd and Maclaren (2004), Zhai (2005), De Benedictis, De Santis, and Vicarelli (2005), and Deltas, Desmet, and Facchini (2005).

⁵ See Bhagwati, Greenaway, and Panagariya (1998) and Panagariya (1999) for the spaghetti bowl phenomenon caused by RTAs, especially in the case of currently proliferating and overlapping RTAs.

⁶ For a methodological discussion about gravity regression analysis, see Anderson and Wincott (2001), Baier and Bergstrand (2001), and Greenaway and Milner (2002). For methodological comparison between gravity and CGE analysis, see Burfisher, Robinson and Thierfelder (2004) and De Rosa and Gilbert (2005).

adapted in this paper, to answer questions raised relating to the first and second issues. CGE model analysis is theoretically sound, and is able to quantitatively analyze the welfare and output effect, combined with trade effects for each and every RTA concerned, even though the complicated ex-ante simulation methodology sometimes mis-specifies the model economy, as Panagariya and Gupta (2001) have criticized.

There are many studies analyzing the effects of RTAs, using CGE model analysis⁷, however, there is lack of empirical tests to evaluate the evolutionary paths of different approaches of proliferating RTAs over time, with CGE models. This paper fills this gap by explicitly focusing on the evolutionary path of welfare, output, and trade creation and diversion effects of RTAs. For empirical experiment, East Asia is chosen as the most suitable case because currently, this region is the most active region for RTA negotiations.⁸ At the same time, all the three paths of RTAs from existing, proposed, and negotiating RTAs in the region, can be found, such as an ASEAN+3 RTA as an expansionary RTA, an ASEAN-China versus a Japan-Korea RTA as a duplicate RTA, and an ASEAN-China and an ASEAN-Korea RTA, as a hub-and-spoke type of overlapping RTA.

To summarize, the effects of existing and proposed RTAs, are quantitatively estimated in East Asia, with regard to welfare, output production, and trade flows impacting the world economy, members, and nonmembers, using a global CGE model. From simulation analysis, an attempt is made to the problem of how the proliferating RTAs in East Asia, by interacting with each other, evolve over time. In addition, each of the above-mentioned three different types of RTAs, expansionary, duplicate, and overlapping, can be evaluated, in order to find an optimal

⁷ See Lloyd and Maclaren (2004) for a theoretical and empirical survey of RTAs with CGE modeling. Especially for the East Asian RTAs with CGE models, see McKibbin (1998), Scollay and Gilbert (2001), Urata and Kiyota (2003), McKibbin, Lee, and Cheong (2004), Zhai (2005), and Sulamaa and Widgrén (2005).

⁸ By 2005, East Asia had implemented 14 RTAs (4 in 2005 only), had signed 10 RTAs (9 in 2005 only), and are negotiating about 30 RTAs. See Table 2.

path of RTAs in East Asia, with the goal of leading the world economy toward global free trade, by triggering the domino effect of regionalism and avoiding the spaghetti bowl phenomenon.

The paper is organized as follows. Section II provides a brief discussion of the recent trends and main characteristics of RTAs in East Asia. Section III introduces the CGE model and data used. Section IV evaluates welfare, output, and trade effects of possible RTAs in East Asia on the world economy and related economies, that is, members and nonmembers. Section V presents concluding remarks.

II. Proliferating RTAs in East Asia

1. Recent Trends of RTAs in East Asia

RTAs are proliferating in East Asia⁹ where ‘regionalism’ or ‘free trade area’ was classified as a meaningless foreign language until the late 1990s, with the exception of AFTA (ASEAN Free Trade Area), which went into effect, in 1993. In particular, around this time, countries in Northeast Asia preferred a multilateral trade liberalization approach under the GATT and WTO regulations. In recent years, however, the region's policy stance has shifted from favoring multilateralism to regionalism, after recognizing the necessity for regional economic cooperation since the East Asian financial crisis that occurred in 1997. As presented in Table 1, the deepening but stagnating interdependence among the East Asian economies through intra-regional trade could be another reason for policy change. The East Asian countries require the creation of intra-regional demands to vitalize their economies. In addition, the slow progress of multilateral negotiations, such as the sluggish process of the Doha

⁹ For more detailed information about proliferating RTAs in East Asia, see JETRO (2003), Lu (2003), Kawai (2004), Feridhanusetyawan (2005), and Lee and Park (2005).

Development Agenda (DDA) under the WTO, and insignificant progress of Bogor Goals in the APEC trade and investment liberalization accelerated this shift to regionalism.

Recent developments in individual economies can also be counted as factors behind the strategic change in East Asian commercial policy toward regionalism. In particular, China's entry into the WTO and aggressive approach to form bilateral RTAs can be highlighted. China is using bilateral RTAs strategically, in order to achieve market economy status with trading partners. China has established nine free trade areas with various partners over the last 5 years, and is planning to negotiate RTAs with 27 countries in 2006.¹⁰ Japan's desire to retake its market share, which has significantly reduced, because of being left alone from the worldwide movement toward regionalism, and to regain its leadership role in the region, is also a key factor in explaining the environmental change in the region. Korea's movement toward a more globalized economic system, with the intention of revitalizing its outward-oriented economic growth strategy through trade and investment liberalization, and ambition to be a Northeast Asian business hub by fully utilizing its geographical advantage, should be counted as another key factor. The ASEAN's active intention to become a hub of regionalism in East Asia cannot be ignored. In particular, Singapore is proving to be very aggressive to be a center of the RTA web in the region, as indicated in Table 2.

2. Main Characteristics of RTAs in East Asia

There has been some progress in forming intra-regional RTAs in East Asia such as Singapore-Japan, ASEAN-China, Singapore-Korea, and ASEAN-Korea, as summarized in Table 2. However, most meaningful intra-regional RTAs in East Asia such as ASEAN-Japan, Japan-Korea, China-Korea, and ASEAN+3 are still under negotiation or consideration. This

¹⁰ See <http://www.bilaterals.org>.

means that East Asia still has long way before realizing the gains from free trade through the formation of various RTAs. In particular, there has been no significant outcome achieved in forming the intra-Northeast Asian RTA, with the exception of China-Macao and China-Hong Kong RTAs.

Figure 1 illustrates that ASEAN has strong incentives to open trade liberalization efforts towards bigger blocs, especially within the region. ASEAN continues to support the extension of membership to their Northeast Asian neighbors (named, the plus three countries, including China, Japan, and Korea) and to their long-time trade partners in Australia, New Zealand, India, and the United States of America. As observed from the East Asia Summit (EAS) meeting held in Malaysia on December 14 in 2005, the ASEAN+3 (ASEAN 10 countries, China, Japan, and Korea) or ASEAN+6 (ASEAN+3, Australia, New Zealand, and India) RTAs, may be feasible in the near future.¹¹ At the same time, it is found that the three Northeast Asian countries are still extremely interested in forming bilateral RTAs between each other, especially Japan-Korea and China-Korea RTAs, and possibly an RTA between China, Japan and Korea. Conversely, ASEAN members such as Singapore and Thailand, seek to forge as many bilateral trade arrangements as possible, in an effort to maximize gains arising from free trade, by becoming a hub country, regardless of criticism from other ASEAN member nations for violating the unanimous and collective approach of nonmembers. Other ASEAN members and the Northeast Asian neighbors do not appear to be satisfied with the limited gains from free trade, as a spoke country. They do not appear to desire opening of their markets unilaterally to nonmembers, entering indirectly through a hub country.

Overall, the existing AFTA can be expected to explode to ASEAN+3 or ASEAN+6, and even reach APEC levels of trade bloc. Secondly, China's aggressive approach to ASEAN may

¹¹ For the political economic analysis and empirical evaluation of the ASEAN+3 and the ASEAN+6 RTA, see Drake-Brockman and Drysdale (2002), Kwan and Qiu (2003), Hoa (2003), Soesastro (2003), and Drysdale (2005).

push its Northeast Asian neighbors to create a separate trade bloc, between Japan and Korea. Thus the ASEAN-China and Japan-Korea RTAs will compete with each other in the region. Thirdly, the Northeast Asian three countries' individual approach to ASEAN may result in three separate ASEAN+1 RTAs. In addition, ASEAN, China, Japan, and even Korea may desire taking leading roles in the construction of the East Asian RTA web. This desire may result in a hub-and-spoke type of overlapping RTAs in East Asia, resulting in an extremely complicated web to manage. It is known that some of these three different types of East Asian RTAs have already been effective, are being actively negotiated, or are proposed. Considering these main characteristics, it can be observed that an optimal path of East Asian RTAs needs to be taken in order to maximize both regional and global interests. The optimal path may be to allow East Asian regionalism to be a stepping stone for globalism.

III. CGE Model and Scenarios for the Analysis on East Asian RTAs

1. Model and Data

In this empirical experiment, we explore the level at which the proposed East Asian RTAs will (i) create trade among the trade bloc members and raise their welfare and output, (ii) divert members' trade with nonmembers and lower nonmembers' welfare and output, and (iii) enhance the economic welfare and output of the world economy as a whole. The answers to these questions are formed, by assessing the macroeconomic aggregate effects of the proposed RTAs, by applying a traditional static CGE model simulation technique. For this purpose, a trade-linked multi-sector and multi-country CGE model is adopted, in order to measure the

impact of East Asian regional economic integration efforts on intra- and extra-bloc trade, welfare, and output production.

The CGE model used in this section is the “GTAP6inGAMS” model developed by Rutherford (2005). The model has three economic agents: producer, representative consumer (private and public), and trading partners. The GTAP6inGAMS model is a traditional static Arrow-Debreu type of general equilibrium model in which the zero profit condition and market clearance define the equilibrium. The GTAP6inGAMS is a modified version of the GTAP model version 6 developed for GAMS users.¹² Most of the model specification is the same as the GTAP model, but there are a few differences between the GTAP model and GAMS version of the model as follows. First, the GTAP model is based on a Constant Difference Elasticity (CDE) demand system, but the GAMS model employs Cobb-Douglas preferences. Second, the GTAP model assumes that global capital is endogenously allocated by regional rates of return. However, the GTAP6inGAMS model exogenously fixes the global capital flows for simplicity. The GTAP6inGAMS model is adopted, because the model is a world widely recognized CGE model with simplicity (that is, GAMS version of GTAP CGE model).

As presented in Tables 3 and 4, the current model in this paper uses a classification consisting of 7 sectors and 25 regions. The model solution is calibrated, with 2001 as the base year, using Global Trade, Assistance and Production: The GTAP 6 Database¹³. The model is implemented using the GAMS MPSGE.¹⁴

¹² The GTAP (Global Trade Analysis Project) is providing both a multi-region and multi-sector CGE model and a global economic dataset for use in the quantitative analyses of international economic issues within an economy-wide framework. The GTAP modeling usually works with GEMPACK (General Equilibrium Modelling PACKage) which is a principal programming language. For the GEMPACK, see <http://www.monash.edu.au/policy/gempack.htm>. Alternatively, some researchers are using a different programming language, Generalized Algebraic Modeling System (GAMS). For the GAMS, visit <http://www.gams.com>.

¹³ See Dimaranan and McDougall (2006).

¹⁴ MPSGE (Mathematical Programming System for General Equilibrium analysis) is a subsystem within GAMS. See <http://www.gams.com/solvers/mpsge/index.htm>.

2. Scenarios

From the main characteristics of RTAs in Section II, it is found that the proliferating RTAs in East Asia will mainly take the following three different paths: expansionary RTAs, where the membership of existing RTAs are increasing by attracting new members, duplicate RTAs where separate RTAs are created between nonmembers of existing RTAs and competing with existing RTAs, and overlapping RTAs, where some members are focusing on being a hub of RTAs, by forming multiple membership with countries in the region. In Figure 1, the proliferating RTAs in East Asia are making a very complicated regional web of RTAs. The existing AFTA can be expanded to a bigger trade bloc such as an ASEAN+3 RTA, some RTAs, such as that between Japan-Korea, will be formed in the near future, by competing with existing RTAs such as the AFTA or ASEAN-China RTA, and some RTAs, similar to both the ASEAN-China and ASEAN-Korea RTAs, which will have overlapped membership, making the ASEAN a hub of East Asian RTAs.

In order to quantitatively measure the impacts of the proposed East Asian RTAs on welfare, output production, and trade flows for members, nonmembers, and the world economy, sixteen scenarios are empirically designed. For each of the scenarios, both import tariffs and export taxes between members are eliminated, but the trade barriers between members and nonmembers are retained.¹⁵ For expansionary RTAs, simulation analysis is conducted for cases

¹⁵ RTAs would remove trade barriers between members over a period of several years rather than removing them at any given year. We acknowledge the limitations of using a static model to evaluate the effects of RTAs which are dynamic in nature. These limitations are mainly caused by not having a set of proper and realistic time-varying and country-specific parameters for a dynamic CGE model. Therefore, we are not evaluating the effects of each different path of RTAs over a period of time but comparing the effects with those of benchmark equilibrium values and with those of alternative paths. One more problem in this study is that the additional trade costs caused by the complicated rules of origin are not included as emphasized by Zhai (2005). This will overestimate the effects of RTAs considered,

both with and without including Hong Kong and Taiwan. For overlapping RTAs, alternative scenarios are also designed, with and without considering AFTA. For scenario analysis with considering AFTA, ASEAN countries are treated as a secondary hub. In addition, two bigger trade blocs are designed to test the effect of global free trade in an APEC region and a possible tripolar system consisting of three large groups of countries in the world. The effects of AFTA are included as a reference, because, currently the AFTA is only an effective RTA in East Asia.

Followings are scenarios we will examine.

Currently Effective RTA

- *AFTA*: An RTA among the ASEAN countries as a reference

Expansionary RTAs

- *ASEAN+3 (or Global East Asia)*: An RTA among the ASEAN, China, Japan, and Korea (or including Hong Kong and Taiwan, respectively)
- *ASEAN+6 (or Global Asia)*: An RTA among the ASEAN, China, Japan, Korea, Australia, New Zealand, and India (or including Hong Kong and Taiwan)
- *APEC*: A globally expanding RTA among the ASEAN, China, Japan, Korea, Hong Kong, Taiwan, Australia, New Zealand, India, USA, Canada, Mexico, Chile, Peru, and Russia

Duplicate RTAs

- *AFTA vs CJKRTA*: Two separate RTAs by geographical location: an AFTA in Southeast Asia and a China-Japan-Korea RTA in Northeast Asia
- *ACRTA vs JKRTA*: Two separate RTAs by level of economic development: an ASEAN-China (South-South) and a Japan-Korea (North-North) RTA
- *Tripolar*: Three globally competing RTAs: an Asian RTA including the ASEAN, China, Japan, Korea, Hong Kong, Taiwan, Australia, New Zealand, India; an American RTA

particularly in the case of overlapping RTAs.

including USA, Canada, Mexico, Chile, Peru, and Brazil; an European RTA including Russia, Western Europe, and EFTA member countries

Overlapping RTAs

- ***ASEAN Hub***: Three separate RTAs: ASEAN-China , ASEAN-Japan , and ASEAN-Korea RTAs, assuming that AFTA is effective
- ***China Hub I (or China Hub II)***: Three separate RTAs: China-ASEAN , China-Japan , and China-Korea RTAs, assuming that AFTA is not effective (or AFTA is effective)
- ***Japan Hub I (or Japan Hub II)***: Three separate RTAs: Japan-ASEAN, Japan-China, and Japan-Korea RTAs, assuming that AFTA is not effective (or AFTA is effective)
- ***Korea Hub I (or Korea Hub II)***: Three separate RTAs: Korea-ASEAN, Korea-China, and Korea-Japan RTAs, assuming that AFTA is not effective (or AFTA is effective, respectively)

IV. Empirical Evidence from the Simulation Results

Table 5 provides a comparative summary of the economic effects of the proposed East Asian RTAs by type. Figures 2 – 5 illustrate the effects of all the proposed East Asian RTAs on trade, welfare, and output for members and nonmembers as well as the world economy as a whole.

1. Trade Creation and Trade Diversion Effects

Figure 2 illustrates the percentage deviation of the intra- and extra-bloc trade flows from the base value, by types of RTAs. All RTAs create a more intra-bloc trade, but divert trade with

nonmembers.¹⁶ Overall, the net trade creation effect is significantly positive. There is only one exception of a Tripolar RTA, which incurs a negative net trade creation effect of 0.59 percent. The net trade creation effect can be maximized by expansionary RTAs, such as ASEAN+6 and Global Asia RTAs. The duplicate RTAs like an ACRTA vs JKRTA and a Tripolar RTA represent the worst strategy for achieving the effect of net trade creation.¹⁷ The hub-and-spoke type of overlapping RTA may create a positive volume of trade effect, but far worse than that of expansionary RTAs. However, if the negative effect of trade diversion is considered, both duplicate and overlapping RTAs are superior to expansionary RTAs. However, if China becomes a hub of East Asian RTAs, a net trade creation effect of 23.2 percent will be induced, which is the second highest gain following the ASEAN+6 RTA (25.6 percent). This is mainly because of the large Chinese market size and their interdependence between members in the RTA. Even though the APEC RTA has the largest membership, the trade creation effect is not as strong because of weaker interdependence between members, than that of East Asian countries.

Considering the smallest positive net trade creation effect of the regionally duplicate ACRTA vs JKRTA, the negative net trade creation effect of the globally competing Tripolar RTAs, and relatively smaller net trade creation effects of overlapping RTAs, the East Asian RTA should initiate an expansionary path, by cooperating with participants, rather than competing to achieve the first mover advantage¹⁸ or inherent hub self-interest.

¹⁶ This positive trade creation effect is similar to the findings in Lee, Park, and Shin (2004) which apply gravity regression analysis to estimate trade effects of RTAs in general. However, unlike the negative trade diversion effect in this paper, they find that RTAs are not harmful, even to nonmembers, because of the strong growth effect.

¹⁷ This is another different result between the CGE model analysis in this paper and the gravity analysis in Lee, Park, and Shin (2004). The CGE model analysis estimates much greater net trade creation effect of expansionary RTAs to that of duplicate RTAs but the gravity analysis figures out to be opposite.

¹⁸ See Freund (2000).

2. Global Effects for the World Economy

As presented in Figure 3 and Table 5, all proposed East Asian RTAs raise world welfare between a minimum of 0.004 percent in the case of a Japan Hub I RTA and a maximum of 1.13 percent in the case of a Global Asia RTA. The output gains range from 0.01 percent for a China Hub I RTA to 1.38 percent for a Global Asia RTA. The welfare gains mainly arise from the positive volume of trade effect ranging between a minimum of 0.24 percent in the case of the ASEAN Hub RTA, and a maximum of 2.53 percent in the case of the APEC RTA. As indicated in Figure 3, expansionary RTAs represent the optimum policy for maximizing world welfare and output. The duplicate RTAs which may well explain the proliferating RTAs in East Asia can be the second best policy strategy for the world economy¹⁹ and the hub-and-spoke type of overlapping RTAs will be the worst type of RTA for the world economy even worse than the existing AFTA. The ASEAN Hub is an exception because it covers almost same number of countries as the ASEAN+3 RTA and there is no single country acting as a hub even though the three spokes (China, Japan and Korea) are not cooperating with each other compared to the ASEAN+3 RTA.

The East Asian RTAs satisfy Bhagwati (1993)'s conditions for regionalism to be long-lasting. First, the static immediate effect of all the proposed East Asian RTAs on world welfare is positive. Second, the welfare effect of all the proposed East Asian RTAs will lead to nondiscriminatory global free trade by triggering the domino effect of regionalism over time if the RTAs take an expansionary path.

3. Regional Effects for Members and Nonmembers

¹⁹ Krugman (1993) argues that the world welfare will be minimized if the world is split into three competing trade blocs. However, our findings do not confirm his argument although the tripolar system is not an efficient strategy in comparison with expansionary RTAs in terms of creating trade and members' welfare as illustrated in Figures 2 and 4.

For members' welfare and output, as presented in Figure 4, expansionary RTAs are the optimum strategies for East Asian participants. The impact of broader membership, such as the APEC RTA, and competition between neighboring countries or worldwide competition in the case of a Tripolar RTA, will limit the benefits. The overlapping RTAs will be the worst for members' in terms of derived benefits, because spokes' benefits are limited and even negative for some RTAs, as presented in Table 5. In particular, the China Hub I RTA results in China incurring negative welfare gains, and spoke countries achieving positive welfare gains. This may be caused by the large Chinese market size relative to that of the spokes. Figure 5 summarizes the welfare and output effects of the East Asian RTAs on nonmembers. The larger membership induces greater loss to nonmembers, as they are excluded.

A. Original and New Membership: why do countries compete for being the First Mover?

As presented in Table 5, the welfare and output gains to original members (ASEAN) are much stronger than those of new members (China, Japan, and Korea in the case of ASEAN+3 and China, Japan, Korea, Australia, New Zealand, and India in the case of ASEAN+6) even though the trade creation effects between original members are much smaller than those of new members. The smaller volume of trade effect is mainly a result of larger market size of new members, compared to the limited market in Southeast Asia. However, expansionary RTAs create additional bilateral trade between original members and new members, which results in an additional trade creation effect, motivating original members to select additional members. The higher positive welfare and output gains to original members and the additional trade creation effect caused, supports the fact that most nonmember countries prefer to create their trade bloc, rather than joining existing blocs. This may explain the proliferating RTAs around the world, especially proliferating bilateral RTAs, in contrast to expansionary RTAs. However,

competing for the first mover advantage may amplify new member's negative gains, as indicated for the duplicate RTAs, such as the ACRTA vs JKRTA case in Table 5. These negative welfare and output effects are mainly a result of trade diversion (-4.28 percent) between members in the two competing trade blocs.

B. Hub and Spokes: why do countries compete for being a Hub?

As indicated in the overlapping RTAs presented in Table 5, if ASEAN is not counted as the secondary hub, the hub-and-spoke type of RTAs distribute the welfare and output gains unevenly for a hub and act against spokes. In particular, the trade creation effect between hub and members are significantly high, ranging from 15.55 percent for an ASEAN Hub RTA to 43.49 percent for a China Hub I RTA, but the trade creation effect between spokes and members is much smaller, ranging from 6.56 percent for an ASEAN Hub RTA, to 16.16 percent for a China Hub I RTA. Furthermore, all RTAs reduce trade between spokes. These findings also explain why most countries are attempting to be a hub of RTAs and provide empirical evidence of proliferating-and-overlapping RTAs. However, the effects on the world economy and participating economies are not comparable to expansionary RTAs. This means that the competition to be a hub may not lead the world economy towards global free trade. This may lead to a stagnant path of regionalism as Bhagwati (1993) emphasizes, by amplifying the spaghetti bowl phenomenon.

V. Concluding Remarks

The estimated effects of different paths of East Asian RTAs—expansionary, duplicate, and overlapping RTAs, are shown quantitatively on welfare, output, and trade volume of

members, nonmembers, and the world economy, by applying CGE model analysis. From the experiment, the effect of proliferating RTAs in East Asia, by interacting with each other over time, can be demonstrated. In addition, an optimal path of RTAs in East Asia is found, which may maximize members' benefits and lead the world economy toward global free trade, by triggering the domino effect of regionalism.

Table 6 summarizes the most and the least effective RTAs in East Asia for the world economy, members, and nonmembers in terms of welfare, output, and bilateral trade. From scenario analysis, it is found that expansionary RTAs such as an ASEAN+3 (or +6) or a Global Asia RTA, are the optimum strategy for East Asian members and the world economy in terms of net trade creation, welfare improvement, and output growth. Duplicating a separate RTA such as an ASEAN-China versus Japan-Korea RTA, may not be desirable for both members and the world economy. Duplicating a separate RTA, such as a Tripolar RTA, is the second optimum strategy for the world economy, but much less attractive than the case of an expansionary RTA. The hub-and-spoke type of overlapping RTAs, such as currently effective ASEAN+1 RTAs (ASEAN-China, ASEAN-Korea, and probable ASEAN-Japan RTA), China Hub RTAs, or Japan Hub RTAs are the worst strategy for both members and the world economy.

Moreover, it is found that the (i) higher positive welfare and output gains to original members of existing RTAs, (ii) additional positive trade creation effect to original members as the existing RTAs explode, and (iii) unevenly distributed welfare and output gains for a hub relative to smaller or even negative gains for spokes, explain why RTAs, driven by the hub-and-spoke type of overlapping RTA or duplicating bilateral RTAs, are proliferating in East Asia. However, the currently proliferating RTAs in East Asia are found to be stumbling blocs, working against global free trade.

It is also confirmed that the static effect of the proposed East Asian RTAs on world and members' welfare is sufficiently positive, and will lead to nondiscriminatory global free trade, by triggering the domino effect of regionalism over time if the RTAs take an expansionary path by cooperating with each other, in contrast to competing to achieve the first mover advantage, or hub self-interest. This finding satisfies Bhagwati (1993)'s conditions for RTAs to be long-lasting.

Based on our findings, it is strongly suggested that East Asian policy makers take an expansionary path of RTAs, such as the proposed ASEAN+3 or the East Asian RTAs, including Hong Kong and Taiwan as members. Alternatively, East Asian countries may invite Australia, New Zealand, and India for a global Asian RTA, as initiated in the first East Asia Summit meeting in 2005.

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Table 1. Intra-regional Trade Share (%)

	East Asia	EU25	NAFTA	MERCOSUR
1980	31	56	34	11
1990	30	60	38	11
1995	38	61	43	19
1999	36	62	48	20
2004	38	69	45	15

Note: East Asia includes ASEAN 6 countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam), China, Japan, and Korea.

Source: IMF, *Direction of Trade Statistics*, Various Issues.

Table 2. Major RTAs including Countries in East Asia

Implemented (year into force)	Signed (year of signing)	Under Negotiation	Under Consideration
AFTA (1992)	Japan-Malaysia (2005)	China-GCC	China-Korea
Singapore-New Zealand (2001)	China-Pakistan (2005)	China-Australia	China-Singapore
Singapore-Japan (2002)	China-Chile (2005)	China-New Zealand	China-India
Korea-Chile (2002)	Singapore-India (2005)	ASEAN-CER	China-Island
Singapore-Australia (2003)	Singapore-Korea (2005)	ASEAN-India	ASEAN-US
Singapore-EFTA (2003)	Korea-EFTA (2005)	ASEAN-Japan	ASEAN-EU
Singapore-US (2004)	ASEAN-Korea (2005)	Japan-Korea	ASEAN-EFTA
China-Macao (2004)	Thailand-India (2004)	Japan-Indonesia	Singapore-Sri Lanka
China-Hong Kong (2004)	Thailand-Peru (2005)	Japan-Thailand	Singapore-EU
ASEAN-China (2005)	Thailand-Australia (2005)	Japan-Philippines	Korea-MERCOSUR
Japan-Mexico (2005)		Japan-Vietnam	ASEAN+3
Singapore-Jordan (2005)		Japan-Swiss	
Thailand-New Zealand (2005)		Japan-Australia	
		Japan-Canada	
		Japan-Chile	
		Singapore-Pakistan	
		Singapore-Qatar	
		Singapore-Panama	
		Singapore-Mexico	
		Singapore-Canada	
		Singapore-Kuwait	
		Korea-Canada	
		Korea-US	
		Korea-Mexico	
		Korea-India	
		Thailand-US	
		Thailand-EFTA	
		Thailand-Pakistan	

Notes: AFTA - ASEAN Free Trade Area
 ASEAN - Association of South East Asian Nations
 ASEAN+3 - ASEAN plus China, Japan, Korea
 CER - Closer Economic Relations between Australia and New Zealand
 EFTA - European Free Trade Association
 EU – European Union
 GCC – Gulf Cooperation Council
 MERCUSOR - Southern Common Market

Sources: Compiled mainly based on WTO website and Bilateral.org website.

Table 3. Regional Aggregation of the CGE Model (25 Regions)

Regions		Countries
Asia and Pacific Countries	Southeast Asian countries as independent 7 regions in the model	Indonesia (IDN) Malaysia (MYS) Philippines (PHL) Singapore (SGP) Thailand (THA) Vietnam (VNM) Rest of Southeast Asia (CLM)
	Northeast Asian countries as independent 5 regions in the model	China (CHN) Japan (JPN) Korea (KOR) Hong Kong (HKG) Taiwan (TWN)
	Other Asia and Pacific countries as independent 10 regions in the model	Australia (AUS) Brazil (BRA) Canada (CAN) Chile (CHL) India (IND) Mexico (MEX) New Zealand (NZL) Peru (PER) Russia (RUS) United States of America (USA)
European Free Trade Association (EFT)	As a group of countries in the model	Iceland, Norway, Switzerland, and Liechtenstein
Western European Countries (WEU)	As a group of countries in the model	Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Cyprus, Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia, Estonia, Latvia, Lithuania
Rest of the World (ROW)	As a group of countries in the model	Bangladesh, Sri Lanka, Colombia, Venezuela, Argentina, Uruguay, Central America, Albania, Bulgaria, Croatia, Romania, Turkey, Morocco, Tunisia, Botswana, South Africa, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe, Madagascar, Uganda, Rest of the world

Table 4. Sectoral Aggregation of the CGE Model (7 Sectors)

Sector	Commodities
Agricultural Products (AGR)	Paddy rice, Wheat, Cereal grains nec, Vegetables, fruit, nuts, Oil seeds, Sugar cane, sugar beet, Plant-based fibers, Crops nec, Bovine cattle, sheep and goats, horses, Animal products, Raw milk Wool silk-worm cocoons, Bovine cattle, sheep and goat, horse meat prods
Food Products (FOO)	Meat products nec, Vegetable oils and fats, Dairy products, Processed rice, Sugar, Food products nec, Beverages and tobacco products
Extractive Industry (EXT)	Forestry, Fishing, Coal, Oil, Gas, Minerals nec, Petroleum, coal products
Light Manufacturing (LGT)	Textiles, Wearing apparel, Leather products, Wood products
Heavy Manufacturing (HVY)	Paper products, publishing, Chemical, rubber, plastic products, Mineral products nec, Ferrous metals, Metals nec
Technology-intensive Manufacturing (TCH)	Metal products, Motor vehicles and parts, Transport equipment nec, Electronic equipment, Machinery and equipment nec, Manufactures nec
Services (SER)	Electricity, Gas manufacture, distribution, Water, Construction Trade, transport, Financial, business, recreational services, Public admin and defence, education, health, Dwellings & Services

Table 5. Impacts of RTAs by Type (% Deviations from the Base)

I. Expansionary RTA		Welfare (EV*)	Output	Bilateral Trade				
				Members	Nonmembers	World		
AFTA	Members	1.06	2.10	23.01	-2.84	0.15		
	Nonmembers	-0.03	-0.03	-2.84	0.07	-0.15		
	World	0.28	0.57	0.15	-0.15	0.08		
				Members	Original Members	New Members	Nonmembers	World
ASEAN+3	Members	2.33	2.38	23.12	10.66	32.04	-4.50	3.46
	Original Members	2.69	2.44	10.66	19.02	7.22	-4.81	1.33
	New Members	1.50	2.24	32.04	7.22	57.56	-4.39	4.38
	Nonmembers	-0.18	-0.21	-4.50	-4.81	-4.39	0.38	-0.64
	World	0.82	0.83	3.46	1.33	4.38	-0.64	1.07
				Members	Original Members	New Members	Nonmembers	World
ASEAN+6	Members	2.22	2.53	30.54	29.42	37.27	-4.96	4.72
	Original Members	3.01	3.24	29.42	28.26	35.73	-5.23	3.86
	New Members	-0.42	0.17	37.27	35.73	55.81	-2.48	11.72
	Nonmembers	-0.19	-0.29	-4.96	-5.23	-2.48	0.46	-0.74
	World	1.06	1.18	4.72	3.86	11.72	-0.74	1.31
				Members	Nonmembers	World		
Global East Asia	Members	1.86	2.18	25.88	-5.09	3.96		
	Nonmembers	-0.18	-0.12	-5.09	0.39	-0.76		
	World	0.80	0.98	3.96	-0.76	1.40		
				Members	Nonmembers	World		
Global Asia	Members	1.98	2.42	27.54	-5.83	4.61		
	Nonmembers	-0.14	-0.18	-5.83	0.49	-0.91		
	World	1.13	1.38	4.61	-0.91	1.74		
				Members	Nonmembers	World		
APEC	Members	1.47	1.58	14.25	-3.94	4.59		
	Nonmembers	-0.24	-0.21	-3.94	0.79	-0.64		
	World	1.11	1.20	4.59	-0.64	2.53		

*: Equivalent Variation

Table 5. Impacts of RTAs by Type (% Deviations from the Base): continued

II. Duplicate RTA		Welfare (EV)	Output	Bilateral Trade					
	by location			Members	Southeast Asia (AFTA)	Northeast Asia (CJKRTA)	Nonmembers	World	
AFTA vs CJKRTA (China-Japan-Korea)	Members	0.78	2.13	15.54	0.86	26.04	-3.80	1.77	
	Southeast Asia (AFTA)	0.38	2.02	0.86	25.02	-9.08	-1.35	-0.48	
	Northeast Asia (CJKRTA)	1.70	2.38	26.04	-9.08	62.15	-4.64	2.75	
	Nonmembers	-0.16	-0.18	-3.80	-1.35	-4.64	0.34	-0.52	
	World	0.21	0.75	1.77	-0.48	2.75	-0.52	0.95	
	by economy			Members	South-South (ACRTA)	North-North (JKRTA)	Nonmembers	World	
ACRTA vs JKRTA (ASEAN-China vs Japan-Korea)	Members	2.00	1.45	3.72	7.19	-0.67	-1.50	0.15	
	South-South (ACRTA)	2.54	1.82	7.19	32.65	-4.28	-2.64	0.60	
	North-North (JKRTA)	-0.18	-0.05	-0.67	-4.28	23.44	-0.24	-0.37	
	Nonmembers	-0.06	-0.05	-1.50	-2.64	-0.24	0.09	-0.24	
	World	0.76	0.55	0.15	0.60	-0.37	-0.24	0.26	
				Members	Asia	America	Europe	Nonmembers	World
Tripolar (Asia vs Europe vs America)	Members	1.14	1.35	1.18	5.65	-0.84	0.04	-1.77	0.87
	Asia	1.88	2.39	5.65	27.73	-6.20	-6.61	-5.46	4.40
	America	-0.08	-0.02	-0.84	-6.20	5.57	-0.69	0.44	-0.69
	Europe	-0.18	-1.13	0.04	-6.61	-0.69	1.50	-1.04	-0.06
	Nonmembers	-0.32	-0.10	-1.77	-5.46	0.44	-1.04	2.17	-1.15
	World	1.08	1.29	0.87	4.40	-0.69	-0.06	-1.15	2.29

Table 5. Impacts of RTAs by Type (% Deviations from the Base): continued

III. Overlapping RTA (Hub and Spoke)		Welfare (EV)	Output	Bilateral Trade				
				Members	Hub	Spoke	Nonmembers	World
ASEAN Hub	Members	2.54	1.77	10.31	15.55	6.56	-1.50	1.90
	Hub	3.77	2.56	15.55	16.32	15.24	-6.39	2.33
	Spoke	-0.33	-0.07	6.56	15.24	-2.36	0.18	1.72
	Nonmembers	-0.06	-0.07	-1.50	-6.39	0.18	0.09	-0.24
	World	0.98	0.67	1.90	2.33	1.72	-0.24	0.24
China Hub I	Members	0.86	0.18	24.29	43.49	16.16	-2.07	5.54
	Hub	-1.30	0.03	43.49		43.49	-0.81	12.91
	Spoke	1.10	0.20	16.16	43.49	-3.90	-2.54	2.71
	Nonmembers	-0.09	-0.11	-2.07	-0.81	-2.54	0.15	-0.31
	World	0.29	0.01	5.54	12.91	2.71	-0.31	0.61
Japan Hub I	Members	0.09	0.37	15.37	22.90	11.15	-1.63	3.61
	Hub	0.32	0.16	22.90		22.90	-4.03	4.41
	Spoke	0.06	0.39	11.15	22.90	-3.84	-0.33	3.17
	Nonmembers	-0.07	-0.08	-1.63	-4.03	-0.33	0.14	-0.22
	World	0.00	0.10	3.61	4.41	3.17	-0.22	0.41
Korea Hub I	Members	0.13	0.22	12.44	33.01	7.27	-1.14	2.43
	Hub	2.13	1.41	33.01		33.01	-7.73	7.12
	Spoke	-0.09	0.08	7.27	33.01	-1.38	-0.20	1.63
	Nonmembers	-0.05	-0.05	-1.14	-7.73	-0.20	0.08	-0.17
	World	0.02	0.06	2.43	7.12	1.63	-0.17	0.24
China Hub II (China as a Major Hub and ASEAN as the Secondary Hub)	Members	1.59	1.62	25.76	42.33	18.74	-2.56	5.61
	Hub	-1.35	0.03	42.33		42.33	-0.57	12.72
	Spoke	1.92	1.80	18.74	42.33	1.41	-3.29	2.89
	Nonmembers	-0.11	-0.14	-2.56	-0.57	-3.29	0.18	-0.39
	World	0.57	0.57	5.61	12.72	2.89	-0.39	0.68
Japan Hub II (Japan as a Major Hub and ASEAN as the Secondary Hub)	Members	0.80	1.82	16.71	21.84	13.83	-2.13	3.67
	Hub	0.30	0.15	21.84		21.84	-3.81	4.23
	Spoke	0.85	2.01	13.83	21.84	3.62	-1.22	3.37
	Nonmembers	-0.09	-0.11	-2.13	-3.81	-1.22	0.17	-0.30
	World	0.26	0.66	3.67	4.23	3.37	-0.30	0.49
Korea Hub II (Korea as a Major Hub and ASEAN as the Secondary Hub)	Members	0.86	1.69	14.44	32.27	9.96	-1.64	2.59
	Hub	2.08	1.37	32.27		32.27	-7.55	6.97
	Spoke	0.73	1.72	9.96	32.27	2.46	-0.79	1.85
	Nonmembers	-0.07	-0.08	-1.64	-7.55	-0.79	0.11	-0.25
	World	0.30	0.63	2.59	6.97	1.85	-0.25	0.32

Table 6. The Most and The Least Effective RTAs in East Asia

	Most Effective 2 RTAs**	Least Effective 2 RTAs**
Global Effects		
World Welfare	Global Asia (E) APEC (E)	Japan Hub I (O) Korea Hub I (O)
World Output	Global Asia (E) Tripolar (D)	China Hub I (O) Korea Hub I (O)
World Trade	APEC (E) Tripolar (D)	ASEAN Hub (O) Korea Hub I (O)
Trade Creation	ASEAN+6 (E) Global Asia (E)	Tripolar (D) ACRTA vs JKRTA (D)
Regional Effects		
Members' Welfare	ASEAN Hub (O) ASEAN+3 (E)	Japan Hub I (O) Korea Hub I (O)
Members' Output	ASEAN+6 (E) Global Asia (E)	China Hub I (O) Korea Hub I (O)
Intra-bloc (M-M)* Trade	ASEAN+6 (E) Global Asia (E)	Tripolar (D) ACRTA vs JKRTA (D)
Negative Externality		
Trade Diversion	Korea Hub I (O) ACRTA vs JKRTA (D)	Global Asia (E) Global East Asia (E)
Nonmembers' Welfare	Korea Hub I (O) ACRTA vs JKRTA (D)	Tripolar (D) APEC (E)
Nonmembers' Output	Korea Hub I (O) ACRTA vs JKRTA (D)	ASEAN+6 (E) APEC (E)
Extra-bloc (M-NM)* Trade	Korea Hub I (O) ACRTA vs JKRTA (D)	Global Asia (E) Global East Asia (E)

*: Capital letters in parenthesis (M-M, or M-NM) represent Members-Members or Members-Nonmembers, respectively.

** : Capital letter in parenthesis (E, D, or O) represents Expansionary, Duplicate, or Overlapping RTA, respectively.

Figure 1. Proliferating RTAs in East Asia as of 2005

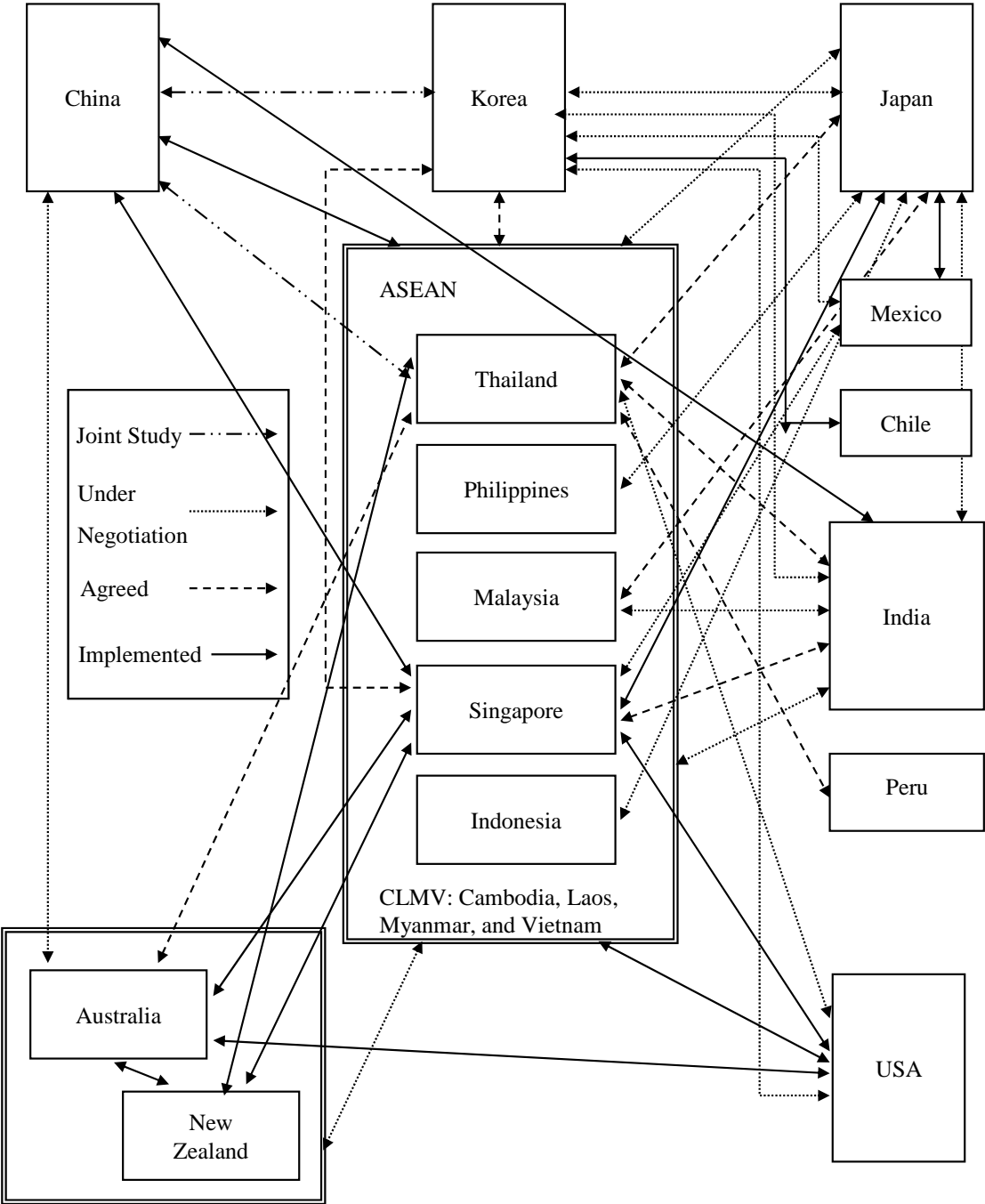


Figure 2. Trade Creation and Diversion Effect of East Asian RTAs

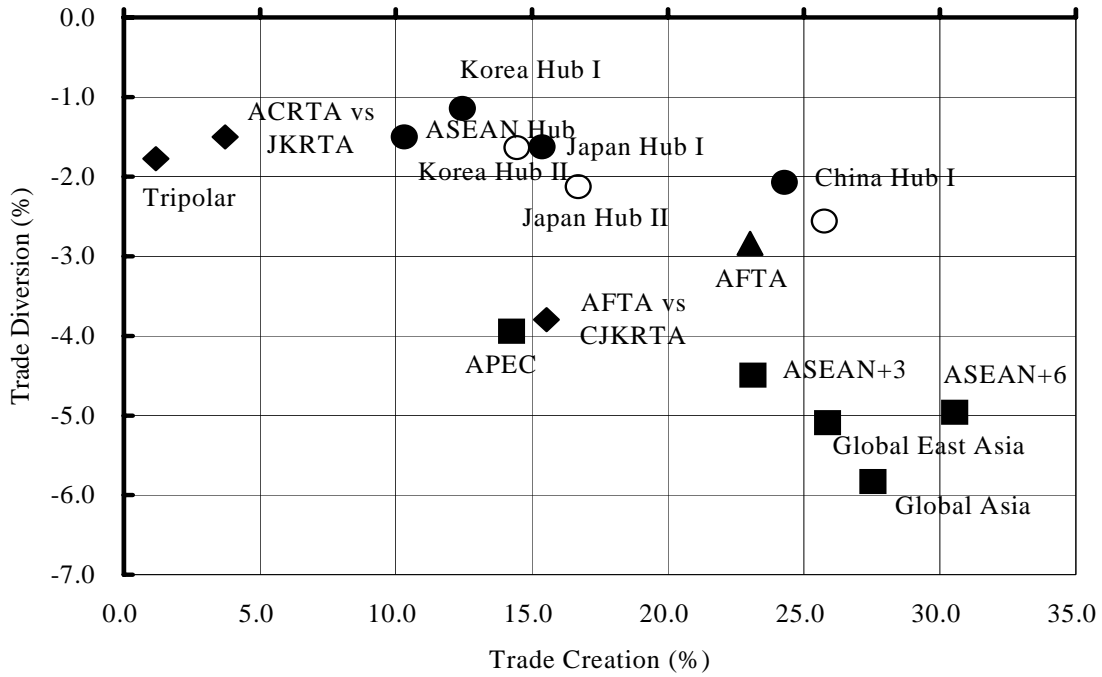


Figure 3. Effects of East Asian RTAs on the World Economy

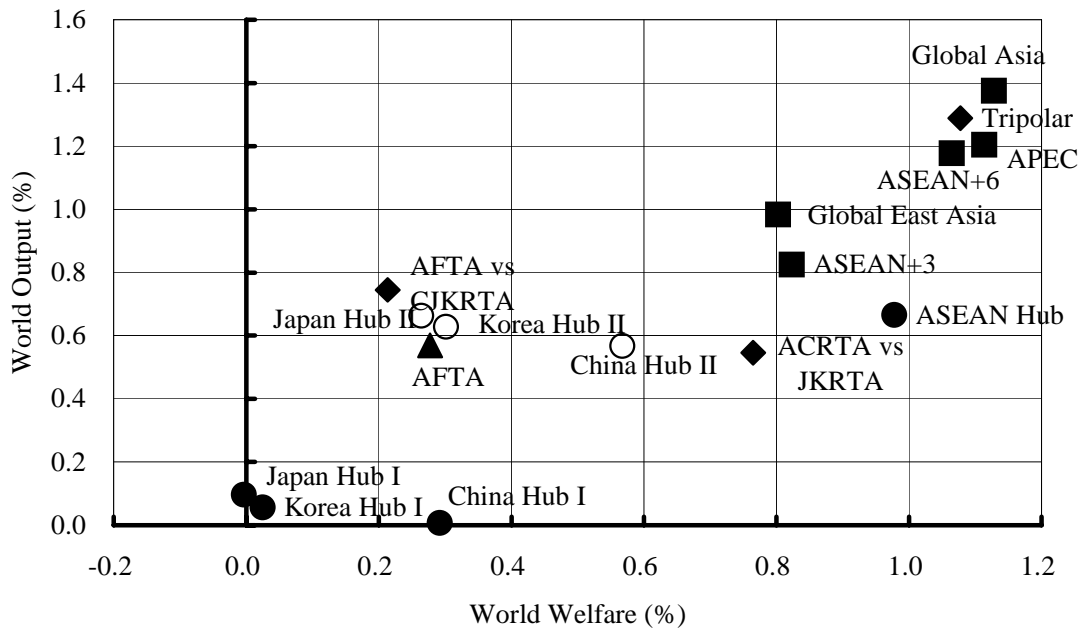


Figure 4. Effects of East Asian RTAs on Members

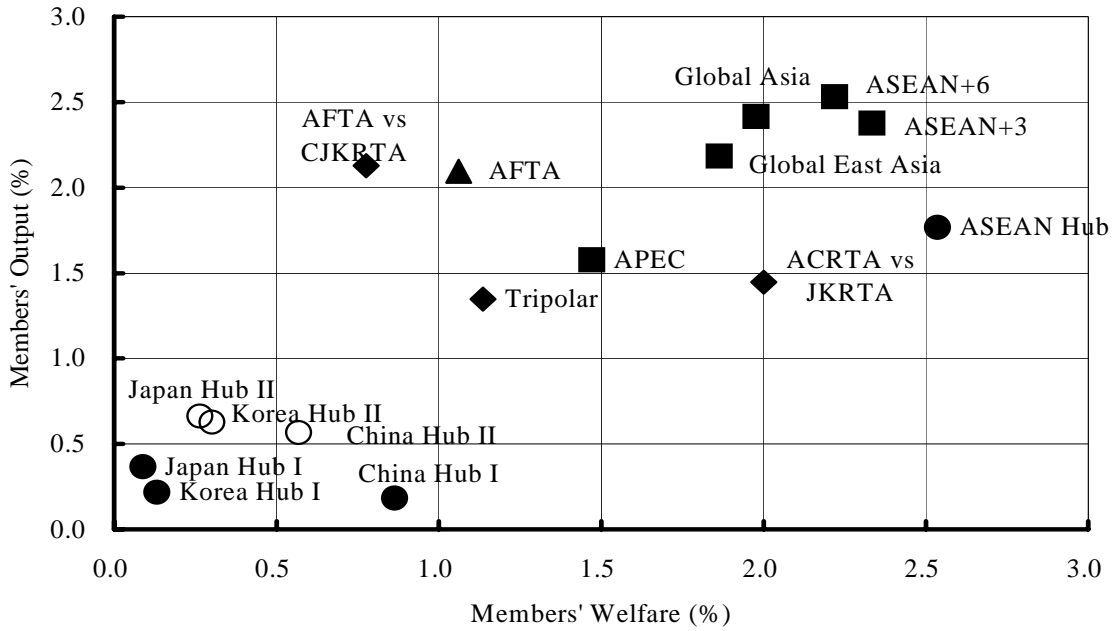


Figure 5. Effects of East Asian RTAs on Nonmembers

