Does Regionalism Lead to More Global Trade Integration in East Asia?

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Abstract

Since early 1999, global trade liberalization has moved to the wayside as regional preferential trade agreements have become the preferred choice in East Asia. Does this shift toward regional trade agreements (RTA) suggest that global trade and welfare levels will be raised? Regional preferential trade arrangements, in contrast to unilateral trade liberalization, may well cause both 'trade creation' and 'trade diversion'. If an RTA raises trade and welfare among its members but hurts the welfare of non-members, its net effect on global trade and welfare becomes ambiguous. The hypothesis of 'natural trading partners' suggests that RTAs comprising natural trading partners are more likely to create trade between member countries, and less likely to divert trade from non-member countries, and thus leading to large improvements of economic welfare. Based on the existing RTAs in the world, we find that if an RTA forms between geographically proximate countries (measured either by distance or border), trade significantly increases between member countries. At the same time, we find that geographical proximity also contributes to increasing trade between a member and the rest of the world. We apply our findings to East Asia and examine how the existing or proposed East Asian trading blocs affect intra-bloc and extra-bloc trade, and thereby global trade. We find the East Asian RTAs are likely to create more trade among members without diverting trade from non-members.

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1. Introduction

Since early 1999, global trade liberalization has moved to the wayside as regional trade agreements have become the preferred choice in East Asia. East Asian countries began to actively participate in joining or creating regional trade agreements (RTAs)[1]. The momentum toward regional trading blocs in East Asia raises many questions that are important not only for the economies in the region but also all their trading partners.

Does this shift toward regional trade agreements suggest that global trade and welfare levels will be raised?[2] Regional preferential trade arrangements, in contrast to unilateral trade liberalization, may cause both trade creation and trade diversion. If an RTA raises trade and welfare among its members but hurts the welfare of non-members, its net effect on global trade and welfare becomes ambiguous. If RTAs damage the economies of non-members, RTAs could become a stumbling block, rather than a building block, in Bhagwati (1993)'s term, toward global free trade.

In this context, a simple conceptual criterion of assessing trade creation and trade diversion effects of RTAs is whether the member countries are natural trading partners or not. The hypothesis of natural trading partners, which has been raised by a series of papers by Wonnacott and Lutz (1989), Summers (1991), Krugman (1993), and Frankel et al. (1995), suggests that RTAs constituting natural trading partners are more likely to create trade between member countries, and less likely to divert trade from non-member countries, thus leading to large improvements of economic welfare. In this

1 While we use the term "Regional Trade Agreement", a more precise terminology would be "Preferential Trade Agreement" because it is not necessarily an agreement between regionally close countries. In this paper, however, we use the two terms inter-changeably, by taking RTA broadly to cover trade agreements among geographically apart countries,

2 This question has been raised by, among others, Bhagwati (1993). Recently Lee, Park and Shin (2004) empirically investigated why regional trade agreements (RTAs) are proliferating. They find that while RTAs on average increase global trade by raising intra-bloc trade without damaging extra-bloc trade, it is

theory, geographically proximate countries are more likely to be natural partners for preferential trade arrangements. The key point is that geographical transportation costs permits proximately situated countries to have higher volumes of trade with each other than countries further away from each other. If an RTA reinforces trade among natural trading partners, trade diverting effects would become smaller. In contrast, trade relations between distant nations are more likely to be less efficient because member countries with high transportation costs, divert trade from less costly neighborhood countries.

While the natural trading partners hypothesis is a critical claim in practice as well as in theory, there have been surprisingly few empirical studies that support this argument in academic literature.[3] This paper tries to fill this gap and focuses on assessing empirically how RTAs contribute to global trade. Specifically, we test whether geographical proximity contributes to maximizing net benefits of RTAs based on the gravity model.

We consider two characteristics of member countries that represent geographical proximity: (i) the geographical distance between members; and (ii) whether a land border is shared between member countries or not; evaluating if they affect trade diversion as well as trade creation of RTAs. In addition, we consider one more characteristic of member countries that are also considered to influence transportation costs: (iii) whether a common language is used by members or not. We find that these three country characteristics are significantly important determinants of RTA trade creation and diversion. Especially, if an RTA is created between

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less likely that the currently proliferating RTAs will lead the world economy to globally free trade.

3 Panagariya (1997) criticizes the 'natural trading partners' hypothesis on theoretical grounds. A recent study by Krishna (2003) empirically tests the validity of the natural trading partner theory using U.S. trade data and finds no supporting evidence.

geographically proximate countries, either measured by distance or border, trade significantly increases between member countries. At the same time, we find that geographical proximity also contributes to an increase in trade between a member and the world.

We apply our findings to East Asia and examine how the existing or proposed East Asian trading blocs affect intra-bloc and extra-bloc trade, and thereby global trade. We find that East Asian RTAs are likely to create more trade among members without diverting trade from non-members. Considering average geographical distance between members as well as the other characteristics, East Asian economies are projected to constitute natural trading partners.

The paper is organized as follows. Section 2 provides a brief discussion of the recent trends of regional trade and preferential trade arrangements in East Asia. Section 3 reviews the trade creation and diversion effects of RTAs, focusing on the implications of the natural trading partners theory. Section 4 discusses the empirical bilateral gravity model and relevant data. Section 5 estimates how RTAs create and divert trade, and examines the validity of the natural trading partners theory. Section 6 explores the effects of proposed East Asian RTAs on trade creation and trade diversion. Concluding remarks follow in Section 7.

2. Trade Integration and Regional Trading Agreements in East Asia

Prompted by their export-led growth strategy and trade liberalization efforts, the East Asian countries continued to expand their integration into the world markets. East Asia's share in total global exports increased from 11% in 1970 to 21% in 1990 and

then to 25% in 2001. East Asia's share of total global imports also increased from 11% in 1970 to 20% in 2001 (see Table 1).

Recently, China has been instrumental in leading the global integration of trade in East Asia. China's total exports, which were merely 63 bln USD in 1990, jumped more than five times to 322 bln USD in 2001. Consequently, China's share in world exports increased rapidly from 1.9% in 1990 to 5.2% in 2001. Over the same period, China's import share also increased from 1.5% to 4.1%.

With the increasing globalization, the integration of trade among East Asian economies has also been reinforced. Table 2 presents intra-regional trade as a percent of total trade at an aggregate level for the East Asian economies. Asian trade showed an escalating trend upwards. The percentage of intra-regional exports in total exports was about 46% on average in East Asia in 2000, increasing from 31% in 1980 and 39% in 1990. The corresponding percentage of intra-regional imports in total imports increased from 31% in 1980 to 42% in 1990 and then jumped to 54% in 2000. ASEAN had relatively higher intra-regional shares in exports and imports of about 53% and 59% in 2000, respectively. Among the economies in East Asia, Japan had the lowest intra-regional trade (exports and imports) share of about 40% in 2000.

The increase in intra-Asian trade is primarily attributed to the rise of bilateral trade of Asian economies with China. For example, China's share in Korea's total external trade has steadily increased over the 1990s, from 4.0% in 1992 to 9.4% in 2000. Currently, China is the largest trading partner for South Korea. Trade between China and Japan has also continued to increase. In 2000, China's export to Japan amounted to about 14.5% of Japan's total imports, while Japan's export to China was about 6.3% of Japan's total exports.

On average, the share of intra-regional trade in East Asia was somewhat lower than the corresponding value for Euro area, which was 66% in 2000. One reason for relatively lower levels of regional trade in Asia is that they trade relatively more with the United States than European countries do. The share of trade with the United States of total trade was about 19% for East Asian economies on average, contrasting to about 8% for European countries in 2000. But, East Asia's trade with the U.S. tended to decline gradually over the past decade as these countries grew rapidly and traded more amongst each other. This trend is likely to continue as intra-industry trade among the East Asian economies is expected to increase.

The 1990s witnessed a worldwide proliferation of regional or preferential trade agreements. The decade began with an implementation of the ambitious single European market and closed with the launch of the Euro currency. The NAFTA (North American Free Trade Agreement) was created among Canada, the U.S. and Mexico. In contrast, until the late 1990s, East Asian economies were involved with merely partial or loosely institutionalized groupings such as AFTA (ASEAN Free Trade Area) and APEC (Asia Pacific Economic Cooperation). In particular, the major three East Asian countries— China, Japan, and South Korea— tended to sidestep the tide of regionalism, and remain within the global trade arrangements under GATT and the WTO. But since early 1999, there was a clear shift away from globalism toward regionalism in East Asia. Numerous proposals for bilateral and plurilateral trading arrangements have emerged in East Asia. Table 3 summarizes existing RTAs, including countries in East Asia and on-going proposals for East Asian RTAs. Japan and Singapore launched an RTA in 2002. China and ASEAN agreed to launch an RTA in 2010. The Korea -Japan RTA has been under active negotiation since 1998. For the last two years, new intra-

and inter-regional RTAs have proliferated: they include Japan-Mexico, Singapore-US, Singapore-EFTA, Korea-Chile, Korea-Singapore, and Thailand-Australia.

There are several motivations behind the recent regional initiatives toward regional trade agreements (see Lee and Park 2005). First, global negotiations under the WTO and APEC lost some momentum in the end of the 1990s. The WTO's failure to launch the New Round in 1999 and APEC's failure to implement EVSL (Early Voluntary Sector Liberalization) in 1998, raised questions about the effectiveness of the global liberalization approach. The slow progress of global trade liberalization made East Asian economies shift their interest to regionalism. They also needed to dispel the fear of being left out from the world-wide proliferation of regionalism.

Second, there has been an increased demand for regional economic cooperation including trade and financial cooperation in the regions. The outbreak of the East Asian financial crisis in 1997 called for closer economic policy cooperation among East Asian economies. The interdependence among the East Asian economies through regional trade and financial linkages continues to increase to the present day. In addition, recent developments in individual economies such as China's rapid economic growth and entry into the WTO, Japan's prolonged recession and desire to regain its leadership role in the region, South Korea's reform efforts toward a more liberalized economic system, and Singapore's active goal to become a hub of regionalism also contributed to East Asia's push toward regionalism.

Third, East Asian countries keep strong initiatives to liberalize their trade to other countries within and outside the region. As they continued trade liberalization efforts in the past decades, they are now actively participating in bilateral and plurilateral trade negotiations toward trade liberalization. The domestic resistance

against liberalization is relatively less powerful in these export-oriented economies. In addition, because the members of East Asian trade blocs do not have significant intentions to build discriminatory trading blocs, they are more open to the expansion of the membership. For instance, ASEAN continues to support the extension of membership to other countries, including the big three Asian countries— China, Japan, and South Korea.

3. Impacts of Regional Trade Agreements on Trade Creation and Diversion

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The question of whether RTAs actually increase trade among members (or at least not decrease trade between members and non-members) can be conveniently analyzed by employing the concepts of trade creation and trade diversion effects introduced by Viner (1950). These two concepts are further developed, among others, by Kemp and Wan (1976). Since then there have been numerous studies analyzing the welfare effects of RTAs from both theoretical and empirical bases. [4]

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The concepts of trade creation and diversion, originally developed by Viner (1950) and Kemp and Wan (1976), are closely related to the efficiency gains achieved through RTAs. The mere fact that bilateral trade flows increase between member countries does not necessarily mean that the efficiency is enhanced by the introduction of RTAs. Trade creation (the increase in bilateral trade between member countries) is likely to occur at the expense of trade diversion (the decrease in imports from non-member countries). Viner (1950) pointed out that an RTA improves a nation's economic efficiency only if the RTA partner is a low-cost producer of the imported

[4] See the discussions in Baldwin and Venables (1995), Bhagwati, Greenaway and Panagariya (1998), and

product. This is the case even when compared with producers at home, but also with those in other countries outside the RTA (even without the price discrimination against them). Otherwise the increased imports from the partner country would not be the best choice, since the third country may have been a cheaper source if the price discrimination were not introduced by the RTA.

While the above argument shows that the RTA does not necessarily increase the welfare of member countries, Kemp and Wan (1976) demonstrated that there is always a way to prevent this undesirable consequence if we allow the possibility of costless redistribution of gains between partners. Basically, this is done by fixing the initial extra-bloc trade flows and letting external tariffs adjust endogenously, in which case neither the RTA members nor the rest of the world can lose from the RTA.

The most relevant literature pertaining to the arguments in this paper are studies examining how some characteristics of member countries determine the net gains from an RTA. Especially Wonnacott and Lutz (1989), Summers (1991), Krugman (1993), and Frankel et al. (1995) introduce the concept of "natural trading partners" by arguing that, to maximize the positive welfare gains from RTAs, a lower transportation cost between members is the most desirable characteristic. This conclusion reasons that, since trade diversion occurs when discriminatory tariff liberalization leads member countries to import from the suppliers who are not the lowest-cost suppliers, trade diversion is likely to be small if the RTA partners are initially low-cost producers.[5]

While trade creation and diversion effects are theoretically elegant, in practice,

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Krishna (2003).

5 Bhagwati and Panagariya (1996), and Krueger (1999), however, argue that neighbors are not necessarily natural trading partners. They emphasize the importance of pre-RTA bilateral trade volume instead of geographical proximity between trading partners. In addition, Krueger (1999) and Lawrence (1996) argue that natural trading partners may not generate a net trade creation effect when neighbors have similar endowments. We plan, in a subsequent paper, to examine if other characteristics, in addition

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it is extremely difficult to accurately measure their magnitude. A convention in the empirical analyses (adopted in this paper) is to use the gravity model to evaluate the trade effects of RTAs. This approach has limitations not based on the welfare measure. Trade creation and diversion effects are measured by additional trade between member countries and between members and non-members, respectively. However, this approach can be justified if welfare gains from RTAs are maintained in proportion to the volume of trade increases between members subtracted by the volume of trade losses from non-members.[6]

4. Data and Empirical Methodology

Most data came from Rose (2004), which covered 175 countries from 1948 to 1999.[7] The original Rose data set has a measure for RTAs, but it consists of only eleven RTAs. We expanded the data set by adding more observations comprising of seventeen (mostly multilateral) RTAs over the same sample period based on data from the WTO.[8] We also counted the accession of new parties to agreements that already exist (e.g. Portugal and Spain's entry into the EC in 1986) as well as a new agreement between the existing RTA and new parties (e.g. EC-Switzerland FTA since 1972).

The data set has features of a panel structure consisting of 234,597 annual observations clustered by 12,150 country pair groups from 1948 to 1999. The number of observations varies per year and summary statistics for the whole data used in the

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to geographical proximity, also constitute the criteria of natural trading partners.

6 Lipsey (1957) shows that this is not entirely true. See Krishna (2003) for a simple reduced-form measure of welfare effect from preferential tariff reduction.

7 The data set uploaded in the web page of Rose's is greatly appreciated.

8 The plurilateral RTAs included are represented in Table 5.

estimation are presented in column (1) in Table 4. Of all observations, 8,436 country-pairs (about 3.6 %) belong to RTAs (trade creation) and 114,657 country pairs (about 48.9 %) belong to the member-non-member (trade diversion) relationship. Summary statistics for each case are reported in columns (2) and (3) respectively. In Table 4, we observe at least three notable findings.[9] First, the logarithmic mean of trade in column (2) is much higher than that in column (1) or that in column (3). This indicates that bilateral trade between RTA members is much higher than the average bilateral trade in the whole sample or between member and non-members. On the other hand, the logarithmic mean of trade in column (3) is comparable to that in column (1), indicating that bilateral trade between members and non-members is not that different from the average volume of bilateral trade in the whole sample. From these figures, we could expect that RTAs create more trade among members without diverting trade from non-members. Since other important variables such as year, distance and the size of country are not appropriately controlled, this becomes a casual observation.

Second, RTAs have been formed among relatively smaller countries, in terms of both economic and geographical size. The logarithmic mean of GDP in the pairs in column (2) is slightly smaller than in column (1). Taking into considerations that the mean year in column (2) is much higher, this implies that RTAs tend to be formed among economically less significant countries. This is confirmed by the fact that the logarithmic mean of GDP in the pairs in column (3) is much higher than in column (2). In addition, the logarithmic mean of area in the pairs in column (2) is smaller than that in column (1) indicating that RTAs tend to be formed among geographically smaller

9 These findings are also noted, among others, by Lee, Park and Shin (2004), while they also include many other bilateral RTAs as well. However the differences are mostly not statistically significant since other important variables are not appropriately controlled.

countries as well. Considering that small countries tend to be more open, more active RTA membership among small countries is quite plausible. Interestingly, however, the logarithmic mean of per capita GDP in the pairs in column (2) is much higher than that in either column (1) or (3) suggesting that RTAs have been formed among relatively wealthier countries.

Third, RTA membership seems to be chosen after taking account of some specific, possibly external characteristics. Aside from the geographical size noted before, the logarithmic mean of distance is shorter in column (2) than that in column (1). Further, member countries in column (2) are more likely to share a common land border, language and common colonizer. These all suggest that there should be some preferable country characteristics that naturally lead to regional integration . Countries that may be close to being natural trading partners may tend to form an RTA together.

While the above interpretations are suggestive, they are subject to serious limitations in that when each variable is discussed, the other variables are not appropriately controlled. A more systematic approach will follow in the next section. In particular, we will investigate quantitatively: (i) how much trade creation and diversion has occurred in general; and (ii) how the characteristics of member countries contribute to trade creation and diversion effects (e.g. whether there is any evidence of natural trading partners). By doing so, we evaluate whether RTAs in general lead the global economy to global free trade.

We set up a conventional gravity model of international trade with a number of extra variables.[10] The extended gravity model of international trade takes the following form:

[10] We extend Rose (2004) for the empirical specification.

$$\begin{aligned}\ln(Trade_{ijt}) = {} & \beta_0 + \beta_1 \ln(GDP_i GDP_j)_t + \beta_2 \ln(GDP_i GDP_j / Pop_i Pop_j)_t \\ & + \beta_3 \ln Dist_{ij} + \beta_4 \ln(Area_i Area_j) + \beta_5 Border_{ij} + \beta_6 Language_{ijt} \\ & + \beta_7 ExComColony_{ij} + \beta_8 ExColony_{ij} + \beta_9 CurColony_{ij} + \beta_{10} CuUnion_{ijt} \\ & + \gamma_1 RTA/Creation_{ijt} + \gamma_2 RTA/Diversion_{ijt} + \delta YEAR_t + \varepsilon_{ijt}\end{aligned} \quad (1)$$

Where i and j denote countries, t denotes time, Tradeijt denotes the average value of the real bilateral trade between i and j at time t, GDP is real GDP, Pop is Population, and Dist is the distance between i and j. Area is the land mass of the country, Border is a binary variable which is unity if i and j share a land border, Language is a binary variable which is unity if i and j have a common language, and ExComColony is a binary variable which is unity if i and j were ever colonies after 1945 under the same colonizer. ExColony is a binary variable which is unity if i ever colonized j or vice versa, CurColony is a binary variable which is unity if i and j are colonies at time t. CuUnion is a binary variable which is unity if i and j join a currency union at time t, and Year denotes a set of binary variables which are unity in the specific year t.

We constructed two RTA dummy variables, one for all intra-bloc country pairs (creation) and the other for all member-non-member country pairs (diversion): RTA/Creation is a binary variable which is unity if i and j belong to the same RTA, and RTA/Diversion is a binary variable which is unity if i belongs to an RTA and j does not, or vice versa. We posited that the estimate of the coefficient of RTA/Creation measures the degree of trade-creation effects of the RTA members, while that of RTA/Diversion captures the degree of trade-diversion effects from non-members, compared to the normal bilateral trade flows.

This approach has been extensively utilized since the studies by Aitken (1973)

and Bergstrand (1985) on trade creation by the European trade blocs in the 1960s and 1970s. More recent studies by Frankel and Wei (1993) that broadened the sample to include more than 60 developed and developing countries tested for trade creation in the EU, NAFTA, ASEAN and APEC during the 1980s found strong evidence of trade creation for EU and APEC. While the above studies focused on trade creation from the estimated coefficient of RTA/Creation, later studies by Frankel et al. (1995), Frankel Wei (1995), and Frankel (1997) included the trade diversion dummy, RTA/Diversion. They also found trade creation in most RTAs and some evidence of trade diversion in EU and NAFTA.

5. Impacts of Member Country Characteristics on Trade Creation and Diversion of RTAs

5.1. Overall Trade Creation and Diversion Effects

Estimates of equation (1) demonstrate the impacts of RTAs in general on bilateral trade flows for intra- and extra-bloc memberships. Table 5 reports two different estimates: column (1) presents the random effects and column (2) presents estimates for the fixed effects. A major part of the variation in bilateral trade flows seems to more than adequately be explained by the factors appearing in the gravity model which is well documented in the literature.[11] The estimated coefficients of the conventional variables are statistically significant and the correct sign follows much the same way as the model predicts. To summarize briefly, the estimated coefficients for the bilateral

[11] See Evenett and Keller (2002) for a recent survey of the success of the gravity model.

distance and log of area in pair are both negative and significant. The estimated coefficient for the log of the bilateral distance (-1.219, s.e.=0.025) imply that a decline in the log of the bilateral distance by 0.809 (its standard deviation) leads to an increase of bilateral trade by 168.1 %. The estimated coefficients for log of GDP in pair, log of per capita GDP in pair, common land border dummy, common language dummy, ex-common colonizer dummy, ex-colony-colonizer dummy, and current colony dummy are significantly positive. Thus, larger GDP and per capita GDP lead countries to greater trading levels. Using estimates in column (1), a 10% increase in GDP increases trade by 8.7%. A 10% increase in per capita GDP raises trade by 0.2%. A common land border or common language connection increases trade by about 96.4% or 46.5%, respectively.[12]

Our primary interest is in the impact of RTAs on intra- and extra-bloc trade. In column (1), the estimated coefficient on RTA/Creation is positive and statistically significant. The estimate (0.515, s.e.=0.023) implies that a pair of countries that join an RTA experience an increase in bilateral trade by 67.4% with other variables holding constant.[13] The estimate on RTA/Diversion (0.085, s.e.=0.010) is also positive and statistically significant. The estimate implies that the RTA members' trade with the non-members is estimated to rise by 8.9% on average. Hence, RTAs do not divert

[12] For example, since $e^{0.675}=1.964$, an increase from 0 (no common border) to 1 (common border) in the common border dummy variable raises bilateral trade by 96.4%.

[13] Note that we treat RTAs as exogenous. However, it is plausible that RTA members trade more even before they form RTAs. If we do not control all the important factors explaining the bilateral flows of trade, the RTAs dummy could capture the uncontrolled factors, not the effects of RTAs. This problem can be avoided by employing fixed effects estimation that basically compares the bilateral trade flows before and after RTAs are formed for the same country pairs. The fixed-effects estimation results in column (2) of Table 2 are slightly lower, if any, and hence this problem is not likely to be too serious. Another problem is that countries may have joined RTAs when they expect to increase trade. Then, the large effect of RTAs may reflect reverse causality. This endogeneity issue can in principle be handled with instruments. A recent study by Baier and Bergstrand (2004) show that the instrumental variables estimation generates much larger effects of RTAs on trade flows than the ordinary least squares (OLS) results. Hence, the positive effects of RTAs on trade in OLS estimation do not seem to reflect the reverse

trade from the rest of the world if they do not belong to the bloc.

Column (2) of Table 5 presents the fixed effect within estimates. By capturing the influences from omitted country-specific factors, we are able to produce more consistent estimates when we add country pair dummy variables.[14] This estimate from time-series variation is useful in answering the question of "What would happen to a country's intra- and extra-bloc trade after joining an RTA?". One drawback to this fixed-effect approach is, since the fixed effect estimator exploits only the variation over time, we cannot obtain the estimates for time-invariant factors such as distance, area, land border, and ex-colonial relationship.

The fixed-effects estimate on Trade/Creation (0.416, s.e.=0.024) shows that joining an RTA raises intra-bloc trade by 51.6%, which is slightly smaller than that from the random effects estimate. The estimated coefficient on Trade/Diversion (0.063, s.e.=0.010) is also slightly smaller than that for the random effects, but is statistically significant. Overall, however, the fixed effects estimate is very consistent with the random effects estimate. Both estimates show that after a joining an RTA, its intra-bloc trade increases considerably, without having any negative impact on its extra-bloc trade. This suggests that RTAs can lead to an increase in global trade. Nevertheless, the following sections will further examine this issue.

While there is no doubt that the elimination of tariffs for member countries leads to trade creation, the finding of increased trade with non-member countries also warrants some explanations. In fact, there are quite a few empirical studies, focusing on

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causality that runs from trade to the choice of joining an RTA.

[14] For example, Anderson and van Wincoop (2003) show that the typical gravity model does not incorporate the 'relative distance effect', i.e., the likelihood that a country pair that is located more distantly from the world market will trade more than otherwise. As shown by Feenstra (2002), the fixed-effect estimation can provide consistent-estimates by controlling for the unobserved (time-invariant) relative distance term.

the cases of individual RTAs, suggesting that RTAs expand intra-bloc trade, but contract trade with non-member countries. Frankel and Wei (1998) show that the European Free Trade Association (EFTA) has a significant trade-diversion effect. In theory, if imports from RTA members substitute imports from non-members, trade diversion can be positive. In addition to this static effect, there are dynamic effects too. If increased trade between member countries expands markets, creates more investment, and results in income growth, RTAs can provide non-members with increased opportunities to exploit the larger market, thereby reducing the problem of diverting trade. This growth effect may lead RTAs to increase trade with non-member countries. Lawrence (1996) indicates that the growth effects of RTAs can offset the initial trade diversion effect because import demands from non-members can be stimulated by growth or economies of scale. Wonnacott and Lutz (1989) and Wonnacott (1996) also highlight the importance of economies of scale that increase the efficiency of unproductive members by lowering their production costs enough to reduce the possibility of trade diversion. In addition, Wonnacott (1996) argues that trade diversion may force import-competing industries in member country to reduce their trade barriers against non-members because of increased competition from RTAs. It is also likely that trade liberalization with members can help to reduce domestic distortions in the overall economy.

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5.2. Are There Natural Trading Partners?

Wonnacott and Lutz (1989), Summers (1991), Krugman (1993) and Frankel et al. (1995) argue that RTAs are more likely to improve welfare levels if member countries are considered as natural trading partners. In order to investigate this possibility, we test

if there are some desirable characteristics that lead to more trade creation while reducing trade diversion.[15].

As surveyed in section 3, one important factor that is often considered in association with natural trading partners is low transaction costs. Based on this idea we adopted two criteria to select natural trading partners: geographical distance and language. That is, we assume that transaction costs will be lower if two countries are situated close together or if two countries share a common language. According to our classification, natural trading partners are defined as closely located countries or those using a common language (e.g. Canada and the U.S.). As an indication of geographical proximity, we use either a common land border or geometric distance. Following the convention in the literature, geographical distance is measured between capitals. One important advantage in considering these characteristics is that they are regarded as external to trade, since it is impossible to relocate countries and extremely unlikely for a language to change because a country trades more with its partner country.[16]

In Table 6, we report statistics on three characteristics of member countries for RTAs in the sample. If the accession of new parties is made, we report the same statistics for the year of the most recent accession. In the sample, there are five RTAs to which the accession of new parties is made: CARICOM, CEFTA, EC, EFTA and MERCOSUR. There are three important findings from Table 6. First, while there are substantial differences in the average distance across RTAs, the average distance between pairs of member countries for every RTA is smaller than the average distance

[15] The similar issue is recently examined by Lee, Park and Shin (2004). We extend their analyses in the following way. While Lee, Park and Shin (2004) focuses on characteristics of RTA member countries that enhance trade creation only, this paper considers characteristics of RTA member countries that may affect on trade diversion as well.

[16] While a common land border and a common language are quite exogenous, the distance measure is relatively less so because the location of the capital can be endogenously determined after taking into

between pairs of the whole sample in Table 4. The average distance for 6 out of 17 RTAs belongs to the lowest 5 % tail of the distance of the whole sample. Also the average of the land border dummy is , high, in most cases. For 7 RTAs, more than half of the country pairs share a common land border. In sum, these results confirm that RTAs tend to be formed by geographically proximate countries.

Second, the average of the common language dummy is also high. For 7 out of 17 RTAs, more than half of the country pairs in the same RTA use a common language. Especially, five RTAs - CACM, CAN, CARICOM, CER and GCC - comprise only the countries using a common language. This reinforces the finding that RTAs are more likely formed by countries with a common language.

In order to investigate how the three characteristics of member countries affect trade creation and diversion, two new variables are introduced, corresponding to each characteristic. For example, we have defined two interaction terms between the intra- and extra-bloc RTA dummies and distance: $RTA/CreatDist_{ij}$ and $RTA/DiversDist_{ij}$. We construct $RTA/CreatDist_{ij}$ by interacting the bilateral distance between country (i, j) with the intra-bloc dummy, (Trade/Creation), to examine the effect of the distance between member countries on trade creation. However, caution is warranted to define $RTA/DiversDist_{ij}$. Since $RTA/DiversDist_{ij}$ represents the effect of member country characteristics on trade diversion, it is nonzero only if either i or j or both are members of some other RTA, but not the same. For example, suppose that country i belongs to an RTA. We need to examine how the distance of member countries affect trade diversion of country i from a non-member country. Hence, we calculate the average

consideration of the location of major trading partners.

distance between country i and other member countries and use it to interact with the extra-bloc dummy, RTA/Diversion. If country i belongs to multiple RTAs, we calculate the average distance with member countries for all RTAs that country i belongs to.[17] In this way, we define six interaction terms between the intra- and extra-bloc RTA dummies and the three characteristics: $RTA/CreatDist_{ij}$, $RTA/DiversDist_{ij}$, $RTA/CreatBorder_{ij}$, $RTA/DiversBorder_{ij}$, $RTA/CreatLang_{ij}$, $RTA/DiversLang_{ij}$.

Adding the eight new variables, we modify the basic equation (1) as follows:

$$\begin{aligned}\ln(Trade_{ijt}) = \text{Other control variables} &+ \gamma_1 RTA/Creation_{ijt} + \gamma_2 RTA/InDist_{ijt} \\ &+ \gamma_3 RTA/CreatBorder_{ijt} + \gamma_4 RTA/CreatLang_{ijt} + \gamma_5 RTA/Diversion_{ijt} \\ &+ \gamma_6 RTA/DiversDist_{ijt} + \gamma_7 RTA/DiversBorder_{ijt} + \gamma_8 RTA/DiversLang_{ijt} + \varepsilon_{ijt}\end{aligned} \quad (2)$$

윗식에서 첫 줄에 $RTA/CreatDist_{ij}$로 바꾸어 주십시요.

In this setting, total additional trade created by forming RTAs between bordering members is estimated by summing up the coefficients of the two dummy variables, $RTA/Creation$ and $RTA/CreatBorder$. This takes into calculation the coefficient of $RTA/Creation$ which represents trade creation of RTAs for members and that of $RTA/CreatBorder$ which represents additional trade creation for bordering members of the RTA. On the other hand, a different degree of trade diversion from a non-member country, due to the average number of bordering countries in the RTA, is estimated by summing up the coefficients of two dummy variables, $RTA/Diversion$ and $RTA/DiversBorder$. This trade scenario takes into calculation the coefficient of

[17] If both country i and j belong to different RTAs, we also calculate the average distance for each country with its member partners respectively and use the average of the two averages.

$RTA/Diversion$ which represents trade diversion from an excluded country and $RTA/DiversBorder$ which represents additional trade diversion due to the average number of bordering countries in the RTA.

Before we consider the possibility that the three characteristics do indeed affect trade diversion, we focus on how they affect trade creation. In Table 7, the results are reported when we include the three interaction terms with the intra-bloc dummy variable. Since the estimation results with random effects are very similar to those with fixed effects, we have just reported the estimation results with fixed effects. In columns (1), (2) and (3), an interaction term for each characteristic is added separately. Then all three interaction terms are included together in column (4). The first three estimated coefficients for the time-varying control variables (as well as the estimated coefficient of RTA/Diversion), are remarkably similar across columns and with those estimated in Table 7. This justifies the focus on the coefficients of RTA/Creation related variables only.

In column (1), unlike the coefficients of the time-varying control variables, the estimated coefficient of $RTA/Creation$ (2.678, s.e.=0.243) is markedly changed. In contrast, the estimated coefficient of $RTA/CreatDist$ (-0.327, s.e.=0.035) is highly significant and negative which implies that an increase in log of bilateral distance by 0.797 (its standard deviation) leads to a 29.8% decline in bilateral trade creation for the intra-membership. For example, if the distance between member countries is 6.760 (the average distance of member countries in Table 4, trade creation is 0.467 ($=2.678-0.327*6.760$), which is very close to the estimate of trade creation for the RTA in general in Table 5. When we use the border dummy as an alternative measure of proximity, the interaction term is also positive and very significant. If we just take the

figures in column (2), they suggest that trade creation between bordering RTA members (192.0%) is more than three times as large as that between non-bordering members (55.4%).

In column (3), we also find that a common language plays a role in determining the impact of RTAs on trade creation. The estimated coefficient for $RTA/Creation$ is again significantly lower than the estimate in Table 5, and the coefficient of $RTA/CreatLang$ is positive and highly significant. The estimate is, however, smaller than the estimate for the trade creation made by bordering members. This implies that while a common language also contributes to increasing the impact of trade creation of RTAs, it does not increase as much as sharing a common land border.

Overall, our results consistently show that the impact of RTAs can be greater for countries that have considerably lower transaction costs. In column (4), when we use the three interaction terms together as regressors, we also reach the same conclusion. All the coefficients are statistically significant and close to those estimated separately.

삭제됨: are

So far we have considered the possibility of different characteristics of member countries to impact trade creation of RTAs. Now we examine the possibility of the same characteristics of member countries to impact trade diversion from the rest of the world. According to the logic of natural trading partners who rely heavily on low transaction costs, these lower costs between member countries also helps reduce trade diversion from non-member countries. In an extreme case, for example, if the transaction costs with non-member countries are prohibitively high, trade diversion is nil because there is no trade to divert from the beginning.

Table 8 reports the regression results of specification (2) to investigate the impact of the three characteristics on trade diversion and trade creation. As in Table 7,

we report the regression results with one pair of interaction terms separately in each column, then the regression result with all the terms together in the last column. The conclusions drew on the impacts of trade creation are remarkably preserved; all the evidence suggests that lower transaction costs contribute to large trade creation effects.

Now we turn to trade diversion effects. In column (1), when we include a pair of interaction terms related to distance, the estimated coefficient of $RTA/DiversDist$ is negative and highly significant, which indicates that the closer the member countries, the smaller the trade diversion from the rest of the world. For example, for the member countries located apart by the average distance of the whole RTA sample, trade diversion amounts to 0.062 (= 0.258-0.029*6.760). This is very close to the estimate of trade diversion for the RTA in general in Table 5. In column (2), when we put the pair of interaction terms related to the land border dummy, we find that if member countries border each other, trade diversion is diminished, which reinforces the finding for distance. In sum, our results strongly indicate that geographical proximity contributes to decreased trade diversion as well as increased trade creation.

In column (3), when we include the pair of interaction terms related to the common language dummy, the estimated coefficient of $RTA/DiversLang$ is negative and highly significant, which indicates that a common language between member countries actually contributes to raising trade diversion. This contrasted to the finding that common language increases trade creation in Table 7. This discrepancy is puzzling and may reflect the errors inherent in the measurement of language proximity between member countries. Finally in column (4), when we include all the three interaction terms, we find that one interaction term, $RTA/DiversDist$, becomes statistically insignificant, but the other two interaction terms are significant and consistent with the

individually estimated results..

6. Impacts of East Asian RTAs

This section assesses how much the existing or proposed East Asian RTAs will give rise to trade creation and trade diversion effects. We seek for an answer to this question by comparing the characteristics of the East Asian RTAs to those of the other existing RTAs. The empirical results in the previous section show that the three characteristics of RTA members (geographical distance, common borders, common language and area) have significant impacts on trade creation and trade diversion. We find an RTA among natural trading partners that are located more geographically closely sharing a land border or larger in area size, tends to create more trade but less trade diversion.

Table 9 summarizes the three characteristics of member countries for an existing East Asian RTAs and AFTA, as well as various proposed RTAs such as China-Korea, Japan-Korea, China-Japan-Korea, China-AFTA, and AFTA plus 3 (China, Japan and South Korea). The average distance between member pairs is smallest for the Japan-Korea RTA (6.374), which is lower than the average distance of member pairs in all existing RTAs (6.760). With the exception of the Japan-Korea bloc, the average distance between East Asian RTAs is slightly higher than the RTA average in general. The members of the AFTA plus 3 have the highest average distance (7.182). Column (4) in Table 9 presents the estimates of trade creation between members of East Asian RTAs, which are constructed by combining the estimated coefficient on $RTA/Creation$ of the gravity equation in column (1) of Table 8 with the product of

the estimated coefficient on *RTA / CreatDist* and the average distance of individual RTAs. The estimated trade creation effects range from 0.597 for a Japan-Korea RTA to 0.334 for the AFTA plus 3 RTA in terms of log of bilateral trade.

The estimates of trade diversion (considering distance characteristic only) are presented in column (6) of Table 9. The figures are constructed based on the estimated coefficients on *RTA / Diversion* and *RTA / DiversDist* of the gravity equation in column 1 of Table 8 and the average distance of individual RTAs. We found all East Asian RTAs are located within the range of the average geographical distance which does not divert trade from non-members. The estimated (negative) trade diversion effects range from 0.073 for the Japan-Korea RTA to 0.050 for the AFTA plus 3 RTA in terms of log of bilateral trade.

Hence, considering average geographical distances between members, all East Asian RTA members are located close enough to create not only trade among member countries, but also trade between members and non-members.

In terms of the border characteristic, there are only a few East Asian countries sharing a land border. In this regard, the trading costs among East Asian countries are higher on average than other RTA members, which provides a relatively unfavorable condition for creating trade among members as well as with non-members.

삭제됨: By contrast, the average geographical size of member countries is relatively larger for East Asian RTAs than for all existing RTAs, which helps contribute to net trade-creation.

The combined impacts from the three characteristics together on trade creation and trade diversion for members of East Asian RTAs are summarized in columns (5) and (7) of Table 9. The figures are constructed by combining the average characteristics of East Asian RTA members with the estimated coefficients in column (4) of Table 8. The result shows that East Asian trading blocs tend to create trade between members without diverting trade from non-members. According to the estimates, the AFTA incurs

the most trade creation effect (0.509) with a (negative) trade diversion effect (0.164). On the other hand, a China-Japan-Korea RTA would generate trade creation by 0.342 and (negative) trade diversion by 0.078. Note that the AFTA plus 3 RTA would be most beneficial among the East Asian blocs, because it involves the largest number of members among the proposed East Asian RTAs and then would increase trade between members (0.405), as well as between a member and a nonmember (0.123). Our estimates show that all the East Asian trade blocs incur larger benefits to non-members than other existing RTAs. Considering the three characteristics together, the RTA in general is estimated to have a (negative) trade diversion effect of 0.031 on average.

삭제됨: both the most
삭제됨: (0.630)
삭제됨: the largest
삭제됨: (0.279) effects
삭제됨: In contrast, t
삭제됨: not
삭제됨: impressively
삭제됨: which increases intra-bloc
삭제됨: by 0
삭제됨: 7
삭제됨: 0
삭제됨: and extra-bloc trade by
삭제됨: 0.149
삭제됨: 0.019
삭제됨: , and area

7. Concluding Remarks

Building on the natural trading partners theory, we have shown that the country characteristics of RTA members (e.g. geographical distance, land borders, and common language), have significant impacts on trade creation and trade diversion. Preferential regional trade agreements involving natural trading partners located in close proximity and sharing a land border tend to create more trade while diverting less trade. We found that East Asian economic characteristics meet the criteria for natural trading partners, increasing trade not only between members, but also between members and non-members.

Our assessments are drawn entirely based on member characteristics of RTAs that are confined specifically to East Asian countries. The current regional efforts toward regionalism in the area are intended toward building non-discriminatory blocs, which may eventually lead to an integrated world economy. However, a number of

existing and suggested RTAs involving East Asian countries, include inter-regional ones grouping with significantly distant nations. RTAs consisting of *unnatural* trading partners may not fully create trade between members and divert substantial trade away from the region. In addition, we observed many countries becoming involved in multiple RTAs, which can increase the costs associated with the use of restrictive rules of origin. Recently Lee, Park and Shin (2004) find that the net trade creation effects of RTAs can be substantially lower for countries participating in multiple RTAs. Unless these undesirable prospects of RTAs are properly dealt with, proliferating regional trading blocs in East Asia may not generate the full effects of net trade creation.

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Table 1: Trade Share of East Asia in the World

(unit: %)

	Exports					Imports				
	1970	**1980**	**1990**	**2000**	**2001**	**1970**	**1980**	**1990**	**2000**	**2001**
World	100	100	100	100	100	100	100	100	100	100
East Asia	11.0	13.9	20.9	25.9	25.0	11.1	14.0	18.7	22.1	19.6
Japan	6.9	7.1	8.5	7.5	6.6	6.4	7.4	6.7	5.7	5.5
Korea	0.3	1.1	2.0	2.7	2.5	0.7	1.1	2.1	2.4	2.2
Other NIES	1.5	2.1	6.0	7.7	6.7	1.8	2.4	5.6	7.4	6.5
ASEAN	1.8	2.6	2.6	4.1	4.1	1.7	2.0	2.8	3.1	3.2
China	0.5	1.0	1.9	3.9	5.2	0.5	1.0	1.5	3.4	4.1
U.S.A.	15.4	12.0	11.6	12.1	11.7	13.5	13.4	14.7	18.7	17.9
EU	45.8	41.0	44.0	35.8	36.5	46.7	44.0	43.8	34.6	34.6
Others	27.8	33.1	23.5	26.1	26.7	28.7	28.6	22.8	24.6	26.0

Source: International Monetary Fund. *Direction of Trade Statistics.*

Table 2: Direction of Trade in East Asian Economies

(unit: %)

Export by	Year	East Asia	Japan	NIEs	ASEAN	China	USA	EU
East Asia	1980	31.2	10.2	12.4	6.1	2.5	22.6	14.7
	1990	39.2	8.6	19.4	7.1	4.1	26.2	17.5
	1995	46.7	8.5	21.1	9.6	7.4	22.4	13.8
	2000	46.3	8.7	21.2	8.3	8.1	23.9	14.9
Japan	1980	21.8	-	10.8	7.0	3.9	24.5	15.2
	1990	29.8	-	19.9	7.7	2.1	31.7	20.4
	1995	42.1	-	25.1	12.1	5.0	27.5	14.8
	2000	40.4	-	24.5	9.5	6.3	30.1	16.4
Korea	1980	29.8	17.4	7.5	4.8	0.1	26.3	14.5
	1990	35.9	19.4	10.5	5.0	0.9	29.8	15.4
	1995	45.8	13.6	17.0	7.9	7.3	19.3	13.0
	2000	43.9	11.9	14.2	7.2	10.7	21.8	13.6
Other NIEs	1980	29.5	7.9	10.3	8.7	2.5	26.7	14.5
	1990	40.4	8.7	11.8	9.3	10.5	26.1	17.1
	1995	46.7	9.5	15.8	11.7	13.3	20.8	13.4
	2000	48.1	8.9	15.4	10.6	14.2	21.8	13.7
ASEAN	1980	54.0	34.5	15.5	3.2	0.8	18.7	13.9
	1990	53.1	24.3	22.5	4.2	2.1	19.3	16.6
	1995	50.0	17.4	24.4	5.3	2.8	19.6	13.7
	2000	53.5	16.3	26.5	7.1	3.5	20.8	15.1
China	1980	52.8	22.2	26.3	4.3	-	5.4	13.7
	1990	64.8	14.7	47.2	2.9	-	8.5	10.0
	1995	55.9	19.1	33.1	3.7	-	16.6	12.1
	2000	47.2	16.7	26.7	3.7	-	20.9	15.3

Table 2: Continued.

(unit: %)

Import by	Year	East Asia	Japan	NIEs	ASEAN	China	USA	EU
East Asia	1980	30.7	12.1	4.9	10.0	3.6	16.4	9.6
	1990	42.2	14.1	13.4	7.6	7.1	18.1	14.3
	1995	49.9	16.5	14.7	8.6	10.1	16.7	14.4
	2000	51.0	14.0	14.4	10.6	12.0	14.6	11.2
Japan	1980	20.7	-	3.6	14.0	3.1	17.4	6.5
	1990	26.5	-	11.0	10.4	5.1	22.5	16.1
	1995	34.4	-	12.3	11.4	10.7	22.6	13.8
	2000	39.2	-	11.9	12.8	14.5	19.1	12.3
Korea	1980	34.7	26.3	2.6	5.9	0.0	21.9	8.6
	1990	39.7	26.6	4.2	5.6	3.2	24.3	13.0
	1995	39.2	24.1	4.1	5.5	5.5	22.5	13.5
	2000	42.3	19.8	6.0	8.5	8.0	18.2	9.8
Other NIEs	1980	43.8	21.8	5.7	8.6	7.7	11.6	12.0
	1990	58.2	21.0	12.9	8.0	16.4	14.7	12.6
	1995	56.9	21.2	14.3	9.9	15.2	15.2	12.4
	2000	58.4	18.4	13.5	12.1	17.3	13.8	9.8
ASEAN	1980	42.0	24.2	11.0	4.0	2.8	16.1	14.9
	1990	50.8	25.7	18.7	3.9	2.6	13.9	16.5
	1995	53.0	26.5	17.8	6.0	2.7	14.1	14.8
	2000	59.1	21.3	25.2	8.8	3.8	14.2	10.9
China	1980	32.8	26.5	3.9	2.4	-	19.6	15.8
	1990	47.4	14.2	29.1	4.0	-	12.2	12.2
	1995	54.5	21.9	28.1	4.5	-	12.2	23.3
	2000	53.6	18.4	28.1	7.1	-	9.9	13.7

Source: International Monetary Fund. *Direction of Trade Statistics.*

Table 3: Major RTAs including Countries in East Asia (June 2005)

PTAs established (year of signing the agreement, year into force)

AFTA(ASEAN Free Trade Area, 1992, 1993)

SAPTA(SAARC Preferential Trading Arrangement, 1993, 1995)

PICTA(Pacific Island Countries Trade Arrangement, 2001, 2001)[3]

TPSEPA(Trans-Pacific Strategic Economic Partnership Agreement, 2005, 2006)

Australia-New Zealand (1983, 1983)

India-Sri Lanka (1998, 2000)

New Zealand-Singapore (2000, 2001)

Japan-Singapore(2002, 2002)

Australia-Singapore(2003, 2003)

Singapore-United States(2003, 2004)

Chile-Korea(2003, 2004)

China-Macao SAR(2003, 2004)

China-Hong Kong SAR(2003, 2004)

China-Thailand(2004, 2004)

India-Thailand(2004, 2004)

Australia-Thailand(2004, 2004)

Australia-United States(2004, 2005)

Japan-Mexico(2004, 2005)

New Zealand-Thailand(2005, 2005)

Pakistan-Sri Lanka(2005, 2005)

PTAs under negotiation (framework agreement has been signed)

ACCEC(ASEAN-China Comprehensive Economic Cooperation)

AFTA-CER CEP(AFTA-CER Closer Economic Partnership)

AICEP(ASEAN-India Comprehensive Economic Partnership)

AJCEC(ASEAN-Japan Comprehensive Economic Cooperation)

AKCCP(ASEAN-Korea Comprehensive Cooperation Partnership)

BIMSTEC(Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan, Nepal Economic Cooperation)

SAFTA(South Asian Free Trade Area)

Australia-China

Australia-Japan

Australia-Malaysia

Canada-Singapore

China-India

China-New Zealand

Hong Kong SAR-New Zealand

India-Singapore

Indonesia-Japan

Japan-Korea

Japan-Malaysia

Japan Philippine

Japan-Thailand

Korea-Mexico

Korea-Singapore

Malaysia-Pakistan

Malaysia-New Zealand

Mexico-Singapore

Panama-Singapore

Peru-Thailand

Peru-Singapore

Singapore-Sri Lanka

Thailand-United States

PTAs under discussion (framework agreement has not been signed)

ASEAN+3(ASEAN-China-Japan-Korea)

ASEAN-United States EAI(Enterprise for ASEAN Initiative)

Australia-Chile

Canada-Korea

Chile-Japan

India-Malaysia

Korea-Malaysia

Korea-New Zealand

Korea-United States

Mexico-New Zealand

New Zealand-United Stated

Philippine-United States

Note: ASEAN - Association of South East Asian Nations; SAARC-South Asian Associations for Regional Cooperation, CER - Closer Economic Relations between Australia and New Zealand

Sources: Feridhanusetyawan (2005) and WTO web site (www.wto.org).

Table 4: Summary Statistics (1948-1999)

	(1) All (N=234,597)		(2) RTA/Creation (N=8,436)		(3) RTA/Diversion (N=114,657)	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Year	1981.0	12.472	1990.1	8.219	1986.8	9.954
Log of trade	10.062	3.336	12.540	3.293	10.040	3.553
Log of distance	8.165	0.809	6.760	0.797	8.255	0.730
Log of GDP in pairs	47.881	2.676	47.864	4.114	48.105	2.670
Log of per capita GDP in pairs	16.034	1.503	17.260	1.600	16.517	1.360
Log of area in pairs	24.206	3.280	22.102	3.843	23.599	3.260
Common land border dummy	0.031	0.172	0.113	0.316	0.012	0.107
Common language dummy	0.223	0.416	0.328	0.470	0.187	0.390
Ex-common colonizer dummy	0.100	0.300	0.204	0.403	0.069	0.254
Ex-colony-colonizer dummy	0.021	0.142	0.031	0.173	0.026	0.159
Current colony dummy	0.002	0.044	0	0	0.001	0.036
Currency union	0.014	0.118	0.039	0.193	0.001	0.032

Note: The summary statistics are based on the bilateral variables for the whole sample (All), the members sample (RTAs/Creation), and the member-non-member sample (RTAs/Diversion). See the text for an explanation of variables.

Table 5: Effects of RTAs on Trade Flows

	(1) Random Effects	(2) Fixed Effects
Distance	-1.219** (0.025)	--
GDP in pair	0.874** (0.009)	0.404** (0.018)
Per Capita GDP in pair	0.023** (0.010)	0.270** (0.017)
Area in pair	-0.078** (0.008)	--
Common land border	0.675** (0.132)	--
Common language	0.382** (0.052)	--
Ex-common colonizer	0.111 (0.065)	--
Ex-colony-colonizer	2.310** (0.171)	--
Current colony	0.237** (0.087)	0.306* (0.087)
Currency union	0.608** (0.049)	0.644** (0.050)
RTA/Creation	0.515** (0.023)	0.416** (0.024)
RTA/Diversion	0.085** (0.010)	0.063** (0.010)
R-squared	0.60	0.51

Note: The dependent variable is the log of real bilateral trade. All the explanatory variables except the dummy variables are taken logarithms. RTA/Creation indicates a binary variable which is unity if i and j belong to the same RTA. RTA/Diversion indicates a binary variable which is unity if i belongs to an RTA and j does not belong to the same RTA or *vice versa.* The panel data estimation techniques were applied to 234,597 country pairs in total over the period from 1948 to 1999. The summary statistics for all variables are shown in Table 1. Robust standard errors of the estimated coefficients are reported in parentheses. Intercept and year dummy variables are included (not reported). ** and * indicate that the estimated coefficients are statistically significant at 1 % and 5 %, respectively.

Table 6: Characteristics of RTAs

(1) RTAs	(2) Formation/ Most Recent Accession Year	(3) Number of Countries	(4) Average Distance	(5) Border	(6) Common Language
AFTA	1992	10	6.816 (0.653)	0.264 (0.448)	0.088 (0.288)
BAFTA	1994	3	4.907 (0.515)	0.667 (0.577)	0.000
CACM	1961	5	5.613 (0.450)	0.500 (0.527)	1.000 (0)
CAN	1988	6	6.876 (0.454)	0.500 (0.527)	1.000 (0)
CARICOM	1973	10	6.303 (0.972)	0.000 (0)	1.000 (0)
	1997	14	6.424 (0.920)	0.011 (0.107)	0.852 (0.357)
CER	1983	2	7.827 (.)	0.000 (.)	1.000 (.)
CEFTA	1993	4	5.414 (0.371)	0.667 (0.516)	0.000 (0)
	1999	7	5.801 (0.444)	0.333 (0.483)	0.000 (0)
CIS	1994	11	7.038 (0.724)	0.264 (0.445)	0.000 (0)
EAEC	1997	5	7.150 (0.765)	0.400 (0.516)	0.000 (0)
EC	1958	6	5.781 (0.637)	0.600 (0.507)	0.200 (0.414)
	1998	41	6.884 (0.640)	0.072 (0.259)	0.067 (0.251)
EFTA	1960	2	6.816 (0.653)	0.264 (0.448)	0.088 (0.288)
	1999	17	6.764 (0.743)	0.095 (0.295)	0.019 (0.137)
GCC	1981	6	5.925 (0.673)	0.333 (0.488)	1.000 (0)
MERCOSUR	1991	4	6.848 (0.501)	0.833 (0.408)	0.500 (0.547)
	1997	6	6.840 (0.411)	0.667 (0.488)	0.667 (0.488)
NAFTA	1994	3	7.387 (0.439)	0.667 (0.577)	0.333 (0.578)

PATCRA	1977	2	7.448 (.)	0.000 (.)	0.000 (.)
SAPTA	1995	7	6.878 (0.527)	0.235 (0.437)	0.176 (0.393)
SPARTECA	1981	8	7.455 (0.489)	0.000 (0)	0.346 (0.485)

Note: The full name of the RTAs is as follows: the ASEAN Free Trade Area (AFTA), Baltic Free Trade Area (BAFTA), Central American Common Market (CACM), Andean Community (CAN), Caribbean Community and Common Market (CARICOM), Central European FTA (CEFTA), Closer Economic Relations Trade Agreement between Australia and New Zealand (CER), Commonwealth of Independent States (CIS), Eurasian Economic Community (EAEC), European Communities/European Union (EC/EU), European Free Trade Association (EFTA), Gulf Cooperation Council (GCC), Southern Common Market (MERCOSUR), North American Free Trade Agreement (NAFTA), Papua New Guinea - Australia Trade and Commercial Relations Agreement (PATCRA), SAARC Preferential Trading Arrangement (SAPTA) and South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA). The number of RTA member countries is counted by including other individual countries that have formed trade agreements with each RTA. For example, the number of EC countries is 41, not 15, because we have included countries such as Malta, Cyprus and so on that formed free trade agreements with EC. The standard deviation is reported in parenthesis. Out of 17 RTAs, only CER and PATCRA are bilateral RTAs for which the standard deviation is not reported.

Table 7: RTA Member Characteristics and the Effects on Trade Creation

	(1) Distance	(2) Border	(3) Language	(4) All Three
GDP in pair	0.403**	0.403**	0.394**	0.393**
	(0.018)	(0.018)	(0.018)	(0.018)
Per capita GDP in pair	0.273**	0.273**	0.283**	0.285**
	(0.017)	(0.017)	(0.017)	(0.017)
Current colony	0.289**	0.289**	0.302**	0.288**
	(0.087)	(0.087)	(0.087)	(0.087)
Currency union	0.651**	0.651**	0.654**	0.655**
	(0.050)	(0.050)	(0.050)	(0.050)
RTA/Creation	2.678**	0.441**	0.338**	1.715**
	(0.243)	(0.087)	(0.027)	(0.285)
RTA/CreatDist	-0.327**			-0.201**
	(0.035)			(0.040)
RTA/CreatBorder		0.629**		0.431**
		(0.070)		(0.083)
RTA/CreatLang			0.317**	0.154**
			(0.054)	(0.056)
RTADiversion	0.061**	0.061**	0.061**	0.061**
	(0.010)	(0.010)	(0.010)	(0.010))
R-squared	0.52	0.52	0.51	0.52

Note: All the estimations are based on panel regressions with fixed effects. RTA/CreatDist is an interaction term between RTA/Creation and a common land border dummy. Other variables starting with RTAs/Creat are similarly defined. For the others, see also the note in Table 5.

Table 8: RTA Member Characteristics and the Effects on Trade Diversion

	(1) Distance	(2) Border	(3) Language	(4) All Three
GDP in pair	0.397**	0.360**	0.419**	0.384**
	(0.018)	(0.018)	(0.018)	(0.018)
Per capita GDP in pair	0.280**	0.315**	0.253**	0.286**
	(0.017)	(0.017)	(0.017)	(0.017)
Current colony	0.289**	0.274**	0.306**	0.264**
	(0.087)	(0.087)	(0.087)	(0.087)
Currency union	0.652**	0.652**	0.662**	0.672**
	(0.050)	(0.049)	(0.050)	(0.050)
RTACreation	2.675**	0.339**	0.353**	1.716**
	(0.243)	(0.025)	(0.027)	(0.305)
RTA/CreatDist	-0.326**			-0.196**
	(0.035)			(0.040)
RTA/CreatBorder		0.695**		0.452**
		(0.070)		(0.082)
RTA/CreatLang			0.294**	0.105**
			(0.054)	(0.057)
RTA/Diversion	0.258**	-0.017	0.140**	0.127
	(0.092)	(0.012)	(0.013)	(0.105)
RTA/DiversDist	-0.029*			-0.007
	(0.014)			(0.015)
RTA/DiversBorder		0.321**		0.418**
		(0.023)		(0.026)
RTA/DiversLang			-0.192**	-0.293**
			(0.019)	(0.021)
R-squared	0.51	0.51	0.52	0.52

Note: All the estimations are based on panel regressions with fixed effects. RTAs/DiversDist is an interaction term between the average distance with other RTA members and RTA/Diversion. Other variables starting with RTAs/Divers are similarly defined. For the others, see also the note in Table 5.

Table 9: The Characteristics and Trade Creation and Diversion Effects of East Asian RTAs

RTAs in East Asia	Member Country Characteristics (Average of all member pairs)			Trade Creation Effects (Average) by considering		Trade Diversion Effect (Average) by considering	
	(1) Average Distance	(2) Border	(3) Common Language	(4) Average Distance	(5) All three Charact.	(6) Average Distance	(7) All three Charact.
AFTA	6.816	0.265	0.088	0.453	0.509	0.061	0.164
China-Korea	7.139	0	0	0.348	0.317	0.051	0.077
Japan-Korea	6.374	0	0	0.597	0.462	0.073	0.082
China-Japan-Korea	7.011	0	0	0.389	0.342	0.055	0.078
AFTA-China	6.941	0.279	0.093	0.412	0.491	0.057	0.168
AFTA-China-Korea-Japan	7.182	0.188	0.109	0.334	0.405	0.050	0.123
Reference: All existing RTAs	6.760	0.113	0.328	0.471	0.477	0.062	0.031

Notes: The estimate of trade creation in Column 4 in Table 9 is constructed by combining the estimated coefficient on *RTA*/*Creation* with the product of the estimated coefficient on *RTA*/*CreatDist* of the gravity equation in column 1 of Table 8 and the average distance of individual East Asian RTAs. The positive estimate indicates an increase of trade between members on average in unit of log of bilateral trade. The estimate of trade creation in Column 5 in Table 9 is constructed by considering the estimated coefficients of the gravity equation in column 4 of Table 8 and the averages of the three characteristics of individual East Asian RTAs. The estimates of trade diversion in Columns 6 and 7 in Table 9 are constructed similarly based on the estimated coefficients on diversion terms of the gravity equation in Table 8. The positive estimate indicates an increase of trade between member and non-member on average in unit of log of bilateral trade.

삭제됨: 192
삭제됨: 56
삭제됨: Korea-
삭제됨: 169
삭제됨: Korea-
삭제됨: 7
삭제됨: 131
삭제됨: Korea-
삭제됨: 630
삭제됨: 179
삭제됨: 564
삭제됨: 107
삭제됨: 70
삭제됨: 149
삭제됨: 01
삭제됨: 19
삭제됨: 5
삭제됨: 6
삭제됨: 5
삭제됨: 7
삭제됨: 8