TRADE STRATEGY IN EAST ASIA

From Regionalization to Regionalism

Fithra Faisal Hastiadi

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Universitas Indonesia

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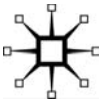

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Preface

Regionalism occurs when a group of countries establishes a beneficial association to create formal institutions by pooling set resources within the region. As described by Mace and Therien (1996) in Kacowicz (1998), regionalism can be best described as the integration of a geographical region that includes a variety of actors (regional institutions) that share the same interests. Regionalization, on the other hand, reflects undirected processes that form an economic interface within the region. Technically speaking, regionalization is a part of a dynamic process that can be explained as a persistent forming or alignment of regions and/or regional communities (Whiting, 1993 in Kacowicz, 1998).

Regionalism is institution-driven, while regionalization is a market-driven process. This book argues that a certain region can thrive if it experiences an institution-driven process, that is, regionalism, which fosters sustainability and hence solid regional growth. The process towards regionalism is a long and complex process. To set up formal regional economic institutions, a country must endure several stages of integration, as Balassa (1960) argues. These stages differ in the degree of unification of economic policies, with the most difficult level to achieve being the completed economic integration of the states, which would most likely involve political integration as well. By comparison, integrating under the auspices of a free trade agreement (FTA) – in which at least two states partially or fully abolish customs tariffs on their inner border, is more easily accomplished. To exclude regional exploitation of zero tariffs within the FTA, a certificate of origin for the goods originating from an FTA member state is required. The next step is a customs union, which applies unified tariffs on the exterior borders of the union, called common external tariffs (CETs). A "monetary union" is created to introduce a shared currency. The next step is creating a common market, which adds to the free movement of services, capital, and labor on top of the FTA. The most advanced part of regionalism is an economic union that combines a customs union with a common market. In order to be successful, the more advanced integration steps are typically accompanied by unification of economic policies (taxes, social welfare benefits, etc.), reductions in the rest of the trade barriers, introduction of supranational bodies, and gradual moves towards the final stage: a political

union. However, as Hastiadi (2011) argues, the 10 members of the Association of Southeast Asian Nations (Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) plus the PRC, Japan, and Korea (ASEAN + 3) should put more focus on trade integration, as this region has a huge gap in development proximities. This gap will only constrain integrations as it moves beyond trade integration. Nevertheless, this very gap is actually beneficial for trade integration because differences in comparative advantage will post a significant contribution in trade flows, thus leading to trade integration.

Another question that may arise is whether or not the East Asian regionalism can move beyond ASEAN + 3. On the basis of the gravity equation, we learn that geographical distance, shared language, and shared culture are very important for trade. So, instead of the integration of half a globe, as in ASEAN + 6, the proposed scheme of ASEAN + 3 seems to offer better results.

With that in mind, we are currently witnessing East Asian countries coming to understand that they cannot escape the integration that is currently happening. Regionally speaking, East Asia has been nurtured by a market-driven expansion of trade and foreign direct investment (FDI). According to Linn (2011), an integrated East Asia will become significantly important for the region's overall development for at least six reasons. First, in order to sustain region-wide economic growth; second, to have positive spillovers and better respond to global challenges; third, to create long-term stability and prosperity; fourth, to set up a stepping stone for poorer countries so that they can move up the value chain and maximize their growth potential; fifth, to be an important bridge between the interactions of individual East Asian countries and the rest of the world; and last but not least is to have the voice and influence in the global agenda that is commensurate with its economic weight.

The process of trade regionalization can be associated with a growing tendency of trade flows among countries in the same region. This process is often named intra-regional trade. Increasing numbers of regional integration agreements (regionalism) is deemed an influential factor in the intra-regional trend. This trend is well matched by the tendency of firms to expand their activities within the region (market-driven regionalization).

A Distinguished Speakers Seminar (DSS) held by the Asian Development Bank Institute (ADBI) in Tokyo in 2011 has led to a powerful conclusion that the European mess is getting messier. As stated by Wyplosz (2011), since late 2009 the European debt crises have not given any

sign of recovery. For some reason, the policy responses have been wrong. Wyplosz argues that the mother of all mistakes may lay in the policy options to provide 110 billion Euros to save Greece through its tough austerity program. There are two major flaws to this policy. First, it violates the no–bail out clause in the European Central Bank (ECB) system; second, austerity in the midst of recession cannot act as a remedy. These measures have eventually led to a liquidity crisis that overwhelmed the European banking system (Collignon, 2011). Colloquially speaking, the liquidity shock caused a sudden deterioration in specific classes of asset values that spilled over into banks, which were in dire need of liquidity. The liquidity shortage then created a bank distress, since the deteriorating asset prices put their balance sheets into difficulties, thus reducing banks' capital. These difficulties then spilled over into real economy in the form of recession. The recession could most likely cause Europe to sink into irrelevance.

On the other hand, ASEAN is fueled by a youthful spirit that could bring new hope to the global imbalances. ASEAN members are becoming more connected. It experiences sustainable growth in its intra-regional trade share. In 1990, the intra-regional trade share was only 17%, but in 2010 the figure went up to 25.2%. If we expand the coverage to the plus three countries (China, Japan, and Korea), the intra-regional trade figure becomes more robust. In 1990, it already reached 47.2%; over a decade later, it had jumped to 58.4%. The FTAs and economic partnership agreement (EPAs) that have been emerging since the mid-2000s have made a significant contribution to the closer relations among the ASEAN + 3 countries. An important factor explaining the success of the ASEAN + 3 economies has been their participation in a dynamic, regionally integrated economic structure beyond just ASEAN + 3. Strong and dynamic production networks have progressively linked East Asian and ASEAN + 3 countries. The fragmentation of manufacturing production and fragmented trade linked to rising intra-industry trade have enabled ASEAN + 3 countries to maintain their competitiveness and successfully pursue an export-led development strategy. ASEAN + 3 countries also developed robust, flexible, and vibrant small- and medium-size enterprise (SME) sectors. Although this region has experienced two economic crises (late 1997 and late 2008), it bounced back both times. For the first crisis, total ASEAN + 3 intra-regional exports fell from US$179,732.1 million in 1997 to 146,166.3 million in 1998. The imports also declined from US$186,630.5 million in 1997 to US$141,979.3 million in 1998. This number contributed to an almost 3% decline of ASEAN + 3's intra-regional trade from 49.9% in 1997 to 47.2% in 1998. It bounced back well in

1999 to 49% followed by 51.4% in 2000. This level of recovery was a big help for East Asian countries at that time.

The second crisis, in late 2008, also caused regional trade imbalances in the ASEAN + 3 countries, as total exports and imports fell from US$547,427.5 million and US$518,966.8 million in 2008, respectively, to US$450,665.6 million and US$411,663.3 million in 2009. The region again bounced back in 2010, with exports rising to US$630,089.6 million and imports to US$609,465.3 million. This recovery was also reflected in the intra-regional trade share figure, which experienced a hike from 55.8% in 2008 to 58.4% in 2010.

If we compare the two crises periods, we can conclude that East Asia has learned well in coping with such crises. For instance, the speed of recovery in 2010 was better than that of 1999. Also, the closer integration among the countries has created a vaccine-like treatment in the region. Looking into the future, based on the Asian Development Bank (ADB) projection, in 2030, per capita GDP in 2007 constant US dollars will mount to 9,012 for ASEAN, 12,361 for China, 40,415 for Japan and 41,674 for Korea.

The figures give a very optimistic path for the region in taking a powerful role globally.

In the short run, there might be rivalry between China and ASEAN, which depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter's economies are able to exploit their complementary opportunities and overcome the competitive threats.

In order to create integration in East Asia, more formal institutional mechanisms for trade need to be established. It is rational for such mutually dependent countries in the region to institutionalize de facto integration through the establishment of regional arrangements (Kawai, 2005). The growing significance of the China, Japan, and Korea markets to ASEAN as a whole, along with other economic modalities such as product complementarities, comparative advantage, and intra-industry trade in the region will then serve as the basis for a single East Asian-wide FTA.

In East Asia, tariff cuts are unilateral, which in turn creates complexity for East Asian firms. But this complexity acts as the building blocks for regionalism, since efforts to form regionalism will be more successful in a low tariff environment. As the membership of ASEAN +3 expands, regionalism will have a greater grip in East Asia via the domino effect. Nonetheless, the domino effect only happens when a race to the bottom (RTB) mentality about unilateralism is present, thus preventing

complexity from becoming a problem while the opposite is still likely to happen. As Baldwin (2006) suggests, the combination of complexity and unbundling may create a new political and economic force, which in turn creates a big push from East Asian multinationals.

These findings are coherent with the study conducted by the Asian Development Bank in 2006, which identified four solid pillars for the East Asian regional cooperation and integration. Those pillars are (i) trade and investment; (ii) money and finance; (iii) infrastructure and connectivity; and (iv) regional public goods.

These four factors can be classified as technical pillars, which, when accomplished, necessitate the need for non-technical factors. Among those non-technical factors, some have proven to be major obstacles. First is the historical factor. Previously, there was an influential clash among China, Japan, and Korea during World War II. Second, there is an ideological facet. Political polarization, which occurred during the Cold War, has had a major impact on the current relations among countries in East Asia. Although ideological leanings, that is, either communist or democratic, is now becoming insignificant, but there are cases where conflicting interests among countries are deemed to be indirectly related to the pre-existing ideological concept. The absence of political bonds among countries in East Asia would be a major problem when they have to face a common enemy, such as a global economic crisis. This book defines political bonds as either regionalism or institutionalism.

Regionalism is important for giving guidance, providing a vision, and in setting up the principles behind organizing a regional community. The overall roles have given rise to important questions of what kind of regional organizations should be formed, and how they should be formed and operated (He, 2004). Moreover, Kawai (2005) views a mounting need for institutionalization in East Asia in order to internalize externalities of the spillover effects on technological transfer and economic welfare.

Attempts to create effective East Asian regionalism are ongoing, although efforts have been made in the past. The FTAs in East Asia have created the so called "noodle bowl," a tangle of FTAs between ASEAN nations, each with its own stipulations and terms. However, the connection between RTB and the domino effect will clean up the mess. Given the overall tariff protection and the non-resistance from the anti-membership side, the pro-membership side will urge the government to join the existing FTA. Due to this big push and the prospect of higher profits, the government is expected to set a region-wide FTA into force. Moreover, the principles of a good policy are credibility, flexibility, and

political legitimation. Rule of law could create credibility if the rule is widely known and well understood by the public. With credibility, it will be easier to handle any economic turbulence with the policy instrument that is controlled by the economic authority. Credibility will be strengthened when there is a transparent and accountable framework of political legitimacy. Policy makers need the ability to react promptly to every unprecedented shock, and to act with consistent transparency, to build their credibility. With a high level of transparency, any economic shock would be easily diminished. Without transparency, every economic and fiscal policy would become obsolete, as the public could not compare between the actual policy and the other existing policies. Moreover, political legitimacy would become very important since the policies being made should reflect regional consensus. This legitimacy in turn creates a balance of power and a sense of responsibility, which could reduce the negative effect from an uncoordinated policy.

Regionalism in East Asia will enable the region to cope with the future challenges of globalization and remain internationally competitive. An integrated East Asia would lead to advancement in economies of scale and more robust development of production networks. Moreover, Chia (2007) states that East Asian regionalism could hold together the less developed East Asian economies, which would otherwise become marginalized as they lack the attraction of a sizeable market and lack negotiating resources.

Having said this, institution-led regionalism is expected to replace the existing market-led regionalism. Doing so will help create one bloc of countries from East Asia, which will yield not only powerful political and economic abilities, but will also create sustainability with the shared welfare among the members. As the former Indonesian Minister of Foreign Affairs Ali Alatas said in 2001, ASEAN plus three is equal to peace plus prosperity as it can contribute substantively to the achievement and maintenance of sustained and sustainable peace, stability, and security and welfare in this part of the world (Alatas, 2001).

Despite its benefits, regionalism in East Asian does have some problems. Although the regional co-operation regarding trading is considered a factor in the region's economic growth, a trade diversion effect has also been observed. Thus the question then arises: do such arrangements benefit regional trade and increase overall welfare? The answer depends upon the difference between the trade creation effect and the trade diversion effect.

The trade creation effect is caused by the extra output produced by the member countries. This extra output is generated due to the freeing up

of trade between them. Increased specialization and economies of scale should increase productive efficiency within member countries.

The trade diversion effect exists because countries within the trading blocs, protected by trade barriers, will now find themselves able to produce goods more cheaply than countries outside the trade bloc. Production will be diverted away from those countries outside the trade bloc that have a natural comparative advantage to those within the trading bloc. From the point of view of developing countries, that is ASEAN4, the existence of trading blocs depends on a number of factors: including whether the country is in the trading bloc; and, which other countries are also members. Forming a trade bloc with other developing countries may result in only a small trade creation effect, as the share of world trade involving developing countries is relatively small, resulting in limited influence on the market price and quantity. If the country joins a trade bloc with developed countries, that is China, Japan, and Korea (CJK), then there may be real advantages to the developing countries as resources flow within the bloc to the countries where there are cost advantages, and the potential market for exports is significantly expanded.

By building trade liberalization on the foundation of discrimination, preferential trade agreements (PTAs) create a fundamental conflict with multilateralism. The ill-effects of this key difference become manifest when one examines the recent proliferation of PTAs. This proliferation has led to a crisscrossing of trade preferences assigned to countries, hence the term "spaghetti bowl," where products in many important markets today enjoy access to varying terms depending on where they supposedly originate. Owing to the globalization of production, the ability to identify the country of origin for products is increasingly problematic. Because the spaghetti bowl's inefficiencies are increasingly magnified by unbundling and the rich/poor asymmetry, the region must find a solution. Since regionalism is here to stay, the solution must work *with* existing regionalism, not *against* it. The solution must be in the form of multilateralizing regionalism. The task should be conducted by the WTO.

This book analyzes the effect of CJK's trade strategy on ASEAN countries. As closer economic ties between countries in the area have greatly expanded in the past decade, economic regionalization in East Asia has proceeded in a much more dynamic fashion than regionalist projects. This book argues that regionalism in the form of regional trade agreements (RTAs) is better than the present regionalization because it promotes sustainability in the future. CJK countries have an inevitable

role for East Asian regionalism as discussed in Chapter 2. From the two periods (with and without FTAs) using the error correction mechanism, it is found that FTA/RTAs create economic sustainability in CJK countries. Although CJK countries have not concluded an RTA among themselves, Baldwin's limited domino effect suggests that CJK RTAs will be most likely to happen in the future. The model describes a political equilibrium resulting from a balance on the interaction of the two major forces. The pro-membership forces will gain preferential access if the nation decides to join the RTA; if the nation opts to stay out, it will experience marginalization. On the other hand, the anti-membership forces will be marginalized if the nation decides to join while it will win the domestic market if the nation stays out. Using vector auto regression (VAR) simulation, it was found that the individual decision of China, Japan, or Korea to create an RTA/ FTA is most likely influenced by their past and their neighboring countries' (China, Japan, or Korea) strategies.

While the process of regionalism is still an ongoing work in the CJK countries, the economic growth of these countries spills over into their neighboring countries in ASEAN4 as proven by using the two stage least squares regression. One clear factor that creates the spillover effect is CJK's vertical intra-industry trade (Vertical IIT) to ASEAN4 countries, as discussed in Chapter 3. Japanese and Korean Vertical IITs to ASEAN4 are proven to have a direct impact on increased income growth. As the thresholds calculation (15% and 25%) identifies China IIT as horizontal IIT, the Chinese vertical IIT provides an insignificant impact to ASEAN4's income growth. Yet, as proven in Chapter 4, the data disaggregation (from total trade to parts and components) gives a more pronounced result in confirming the vertical IIT not only for Japan and Korea but also for China. Given the importance of CJK's vertical IIT for the income growth in ASEAN4, Chapter 4 also identifies the determinants of CJK's vertical IIT to ASEAN4. In the case of Japan's vertical IIT to ASEAN4, the growth of wages and the exchange rate in ASEAN4 countries plays a significant role. While in the case of Korea, logistic performance, exchange rates, and income gaps contribute more. With China, logistic performance, income gaps, the exchange rate, and the industrialization process, have a more pronounced effect. From each of these cases, we can draw a clear line showing the logistic performance and how differences in wage or income are major determinants for the CJK's Vertical IIT trend in ASEAN4 countries. With regards to the income and wage gap, a dummy VIIT described in Chapter 4 captures the factor price equalization. In other words, the gap will eventually diminish along with the

expansion of the production networks. So we can see a more horizontal relationship (horizontal IIT) replacing the vertical one (vertical IIT) in the future.

Chapter 5 analyzes the FTA strategies of CJK toward ASEAN countries using a three-player game. It explores the implications of China, Japan, and Korea participating in an FTA with ASEAN and the corresponding rewards in a payoff matrix. The Nash equilibrium occurs when China, Korea, and Japan all choose to participate in an FTA with ASEAN. Dominant strategies and response functions for each country are analyzed using the error correction mechanism (ECM) and VAR models.

Only a limited number of efforts to empirically evaluate the degree of economic integration among East Asian economies based on FTA analysis have been conducted. In addition, no study has yet critically investigated the possible formation of an East Asian FTA related mainly to FTA strategies consisting of ASEAN and CJK countries using a game theoretical approach. Chapter 5 defines FTA strategies as the options between creating or withholding FTAs. It sets up a three-player game incorporating China, Japan, and Korea with their FTA strategies toward ASEAN member countries. Regionally speaking, it is very important to see how CJK countries decide their FTA strategies so as to reach the goal of setting up an East Asian-wide FTA.

Chapter 5 concludes by finding that Japan's action to create an FTA will be the most effective one for regional settings. Although the game analysis is backward-looking, it is a useful benchmark for understanding future FTA policies in East Asia.

Chapter 6 deals with the determinants of East Asian regionalism. Regionalism, as the chapter argues, needs sound transportation infrastructure, good governance, competitive taxation policy, a sizeable market, good educational institutions, democracy, and the trend towards industrialization. All these factors function as building blocks for East Asian Regionalism. Chapter 7 wraps up the book with a clear mapping of integrated environment in ASEAN + 3.

1
Introduction: Making East Asian Regionalism Work

1.1 Background

For years, regionalism has become a trend in East Asia. East Asian countries have been focusing on ways to expand intra-regional trade that include: the establishment of regional trade agreements (RTAs) in the form of free trade agreements (FTAs) and economic partnership agreements (EPAs). The United Nations classifies East Asia as the entirety of the People's Republic of China (PRC; including all special administrative regions (SARs) and autonomous regions), Republic of China (commonly known as "Taiwan"), Japan, North Korea, South Korea, and Mongolia. However, this book defines East Asia as ASEAN + 3 countries, referring to the work of Stubbs (2002).

The study of regionalism is vital as the trend has created a profound regional and global significance (Harvey and Lee, 2002). Japan, Korea, and China are regarded as the key actors for such action in East Asia. Regionalism acts as a powerful mantra: "either you are with us or against us." Being excluded from regionalism will only lead to marginalization. Therefore, knowing how to make regionalism work is key. And, because it is that important, we need to know the basic assumptions about regionalism. The author has identified the following as the reasons for regionalism:

The increasing reliance of economies on each other: Because each country cannot fulfill all their needs, trade then emerges as a means of fulfilling needs in a country. Each country has specific resources, which differentiates it from others. Even though a country may have abundant resources, it cannot meet all of the needs and demand within the country, therefore a country needs to rely on other countries.

> *The opportunities to be able to buy and sell in the region*: In a world overrun with voluntary export restraints, administered protections, and a strong tendency toward the formation of trading blocs, the difference between discriminatory and nondiscriminatory liberalization may be blurred. Thus, East Asian integration may be the key to achieving regional trade liberalization. This trade liberalization would promote international specialization and increase regional output. Moreover, it is also regarded as an efficient way to use and allocate regional resources, thus facilitating the working of the international market system and price signals to ensure efficient allocation of resources, international competition, and the associated benefits for all parties.
>
> *Free flow of capital and labor*: The free movement of labor is one of the possible outcomes from regionalism. Therefore, a more effective labor structure would be created.
>
> *Regionalism will go beyond trade*: Regional integration can go far beyond trade liberalization. In East Asia, intra-regional labor mobility, foreign direct investment, and financial-capital flows will play an increasingly important role in the coming years. To the extent that harmonization of policies across countries can help facilitate such movements, regional integration can offer unique gains.
>
> *Harmony*: Regional integration can help reduce political tensions and promote political harmony amongst former enemies.

Moreover, Kawai and Wignaraja (2008) describe three fundamental factors that brought FTAs to East Asia: (i) the rising trend of market-driven economic integration; (ii) the progress of European and North American economic integration; and (iii) the Asian financial crisis:

> First, the most fundamental factor behind the emergence of recent initiatives for FTAs is the progress of regional economic links and interdependence. Market-driven economic integration eventually requires policy measures to support and further it – that is, harmonization of policies, rules, and standards governing trade and FDI [foreign direct investment]. Policymakers in East Asia are increasingly of the view that FTAs, if designed with a wide scope, can support expanding trade and FDI activities through further elimination of cross-border impediments, facilitation of trade and FDI, and harmonization of various rules, standards, and procedures. In this way, FTAs can be regarded as part of a supporting policy framework for the deepening production

networks and supply chains formed by global multinational corporations and emerging East Asian firms. Second, economic regionalism in Europe and North America – including the successful launch of an economic and monetary union by euro area countries and the expansion of the European Union (EU) to its eastern neighbors, as well as the success of NAFTA and its incipient move to the Free Trade Area of the Americas (FTAA) in North, Central, and South America – has motivated the East Asian economies to pursue regional trade arrangements. Governments in East Asia fear that the two giant blocs – the EU and the US – might dominate the rule-setting in the global trading system while marginalizing the role and weight of Asia in global competition and multilateral negotiations. They have increasingly realized the importance of stepping up their own process of integration and uniting themselves to strengthen bargaining power in the global arena, and raise the region's voice in, and for, global trade issues. In addition, facing the slow progress of the WTO/Doha negotiation process and the perceived loss of steam in the APEC process, FTAs can be considered as an insurance policy against the periodic difficulties with multilateral trade liberalization. Third, the Asian financial crisis of 1997/1998 has taught the important lesson that East Asia needs to strengthen economic cooperation in order to sustain economic growth and stability. The global initiative to strengthen the international economic system in this regard has been unsatisfactory, while the national efforts to strengthen individual economic fundamentals take time to bear fruit. Hence, the general sentiment in Asia has been that the region must establish its own "self-help" mechanism for economic management. The financial crisis nurtured the sense of a "region" with a common set of challenges.

Being acknowledged as the East Asian economic front runners, Japan, China, and Korea are assumed to have more responsibility for the economic welfare in the East Asian region. It is very obvious that East Asian regionalism (EAR) cannot be put into practice without these countries' strong support. China-Japan-Korea (CJK) are key to the success of EAR, as they account for about 17% of both world GDP and trade. Unfortunately, the lack of institutional arrangements among China, Japan, and Korea has stalled the overall welfare benefit for the East Asian communities. The present driving force of the CJK relationship is the market, which is not enough. Therefore, the more institutionalized approach is needed to join these market activities so that CJK can sustain the economic growth in the long run. The main focus of the

institutionalization of trade is to make these countries grow together so that positive externalities will be felt throughout the East Asian region.

Tracing back the relations since the post-World War II era, economic ties between Japan, Korea, and China have evolved gradually. The evolution of trade activities emerged from China, which has had a substantial transformation of its trade structures. In the early 1990s, primary commodities accounted for more than one-third of China's total exports to Japan and Korea. In the new millennium, primary commodities are still the leading Chinese export to Japan and Korea, followed by the fast-growing machinery and transport category (Chan and Chin Kuo, 2005). From this point of view, trade within the North East Asian region is deemed to have substantial movement as a result of the shift of trade towards a more industrialized structure. The emergence of China as a regional manufacturing center is a dominant factor that contributes to this trade shift.

It is clear that trade activity within the North East Asian region is very intense, which acts as the major contributing factor for economic growth in the region. The vast amount of trade has very likely been steered by the amount of foreign direct investments (FDIs) flows among them, with Japan as the leader (Watanabe, 2008). In other words, the economic transformation in China and Korea that geared up trade was enhanced by Japan's role in making investments in those countries. Thus, trade within the North East Asian region has had substantial movement as a result of the shift of trade towards a more industrialized structure. The present driving force of the China-Japan-Korea relationship is the market, which is not enough by itself. A top-down regionalism needs to be in place to work with market forces. The main focus of the regionalism is to make these countries grow together so that positive externalities can spread throughout the East Asian region. In the long run, it is expected that CJK will lead regionalism in East Asia.

Regionally speaking, East Asia has been nurtured by a market-driven expansion of trade and FDI. Kawai (2007) describes the data of a heavily expanded region's trade and FDI over the past two decades:

> East Asia's exports, rose accordingly from 14% of world total exports in 1980 to 27% in 2006, while its imports expanded from 15% to 24% during 1980–2006.2 FDI inflows into East Asia (including Japan) more than tripled from 5% of world total FDI inflows in 1980 to 16% in 2005, while East Asian FDI outflows increased from 5% to 11% of world total outflows over the same period. East Asia's global

> expansion of trade and FDI has been accompanied by rising intra-regional concentration of trade and FDI activities.

In this book, EAR is defined by the joint region of CJK and the Association of Southeast Asian Nations ASEAN (ASEAN plus three [China, Japan, and Korea]), which refers to the World Bank 1993 publication, "The East Asian Miracle" that defines East Asia as the North East Asian and emerging Southeast Asian economies. Due to data limitation, ASEAN4 (Malaysia, Thailand, Indonesia, Philippines) will serve as a proxy for ASEAN countries. In the last decade, the share of intra-regional trade of ASEAN+3 is almost 60% and is still increasing. The coalition of ASEAN and CJK has become more strategic in recent years. Firms have openly responded to the challenges of globalization by starting a process of product integration across national boundaries. Production stages are often conducted in more than one country rather than producing it in a single country. This trend is still largely driven by the market rather than the FTAs, so it is fair to say that ASEAN+3 is experiencing regionalization (bottom-up process) but still not reaching true regionalism. In order to have long term sustainability, this market-driven process should be matched by institutionalization, that is, region-wide FTAs.

Having said this, a concrete structure of region-wide FTAs is needed both for short- and long-term goals. As a starter, a single East Asia-wide FTA needs to be put into action. Numerous estimations[1] have openly described the potential benefits from an ASEAN+3 FTA. But it is important to note that this action would face major challenges, as Kawai (2005) argues:

> Establishing a single East Asia-wide FTA, however, is no easy task once there is a proliferation of many different FTAs/EPAs [economic partnership agreements] in the region. Each FTA/EPA may have different external tariffs, exclusion lists and rules of origin…. To make the task easier, each FTA/EPA should have transparent, simple rules with regard to external tariffs, exclusion lists, rules of origin, and harmonization of standards, procedures and regulations. Convergence towards identical rules and common tariff rates, rules and standards is highly desirable.

The challenges cited by Kawai can be classified as technical challenges; should they be solved, non-technical challenges will still need to be addressed. Among those non-technical challenges, some have proven to be major obstacles. Foremost is the history among China, Japan, and

Korea, which is marred by clashes. Secondly, ideological differences and political polarization, remnants from the Cold War, have continued to have a major impact on the relationships among the countries in East Asia. Although such ideological concentration is becoming less significant, the absence of a common political bond among the countries in East Asia could be a major problem when faced with a common enemy, such as a global economic crisis. This book defines political bond as regionalism/institutionalism.

Regionalism plays some important roles: guiding directions, providing a vision, and setting up the guiding principle in organizing and creating a regional community. These overall roles have led to the important question of what kind of regional organizations should be formed, and how they should be formed and operated:

> Should Asia follow the EU model to transfer national sovereignty to a regional organization so as to develop a great unity of East Asia? Or should East Asia develop its own model of regionalism that defends national sovereignty, and adopt the more informal, weakly organized dialogue forum, incrementalism, consensus-building, and ASEANization approaches? *(He, 2004)*

The 2007 ASEAN+3 Singapore meeting was a giant leap towards a better bond among the East Asian countries. One of the points in the chairman's statement was outlining the next steps for member countries. The understanding is that ASEAN+3 members will operate under a broad scope of economy, security, politics, and social cooperation (Yoshida 2002). Since ASEAN has already become a mature institution, they will be in the driver's seat to eliminate the non-technical problems facing East Asian Regionalism.

1.1.1 The political economy of trade liberalization

An East Asian–wide FTA is not the ideal form of regionalism. The ultimate goal will be the World Trade Organization (WTO), which is a totem of multilateralism. Departures from multilateralism create the so-called "spaghetti bowl effect." The term was originally introduced by Jagdish Bhagwati in his works with Ann Krueger, *The Dangerous Drift to Preferential Trade Agreements*, AEI Press, 1995. He then made it more pronounced through his later papers (e.g. Jagdish Bhagwati, David Greenaway, and Arvind Panagariya, "Trading Preferentially: Theory and Policy"; *The Economic Journal* 108: 1128–1148; Jagdish Bhagwati, "Testimony, Subcommittee on Domestic and International Monetary Policy," *Trade*

and Technology; April 1, 2003; U.S. House of Representatives). Bhagwati stressed that FTAs created the scheme of the production network, which is not consistent with the principle of economic efficiency. He then named the result as the spaghetti bowl phenomenon: crisscrossing lines likened to strands of spaghetti tangled in a bowl. The spaghetti bowl phenomenon as referred to by Bhagwati is an inevitable result of FTAs that reduce or eliminate tariffs on imports from specific countries and cannot be circumvented simply by changing the format of FTAs (Kotera, 2006). In other words, the spaghetti bowl phenomenon acts as a stumbling block for achieving regionalism.

But according to Richard Baldwin (2006), the spaghetti bowl can also be considered one of the building blocks on the path to global free trade. Understanding the basic framework behind the trade liberalization process is a necessary first step in tackling the spaghetti bowl problem, Baldwin suggests. The framework focuses on three mechanisms: the juggernaut effect, the domino effect, and the "race to the bottom" (RTB). The first one is heavily related to multilateral trade liberalization, the second goes deep into regional trade liberalization, while the latter is linked to unilateral trade liberalization.

The juggernaut framework

The juggernaut scheme involves three major actors: (i) the government/policy makers, (ii) export-competing firms,[2] and (iii) import-competing firms. In order to expand the market abroad, the export-competing firms need to lobby import-competing firms to accept lower tariffs so that foreign markets will lower their tariffs reciprocally. Lower tariffs also mean an increasing volume of import goods competing with the small domestic industries (import-competing firms). Naturally, the small domestic industries would resist any kind of tariff cuts. Export-competing firms must pay expensive lobbying costs. In this scheme, the government sets the optimal tariff, resulting in the juggernaut effect.

For the government, the principles of setting an optimal realistic objective are credibility, flexibility, and political legitimation. Rule of law could create credibility if the rule is widely known and well understood by the public. With credibility, it will be easier to handle any economic turbulence with the policy instrument that is controlled by the economic authority. Credibility could function more when there is a transparent and accountable framework, which strengthens political legitimation. Effective policy exists if the policy makers have the ability to react promptly to every unprecedented shock. Credible policy makers are those who make policy with transparency. With high level

transparency, any economic shock would be easily diminished. Without transparency, every policy with regards to economic targets and fiscal rule would become obsolete since the public could not compare between the target and the realization. Moreover, political legitimacy becomes very important since the policies being made should reflect a national consensus. This consensus in turn creates a balance of power and assigns general responsibilities, which could reduce the negative effect from an uncoordinated policy.

Reciprocal trade talks (in the form of multilateral trade Negotiations [MTNs]) conducted by the government will have a direct impact on a politically optimal tariff. This period will shift down the Government First Order Condition (GFOC) curve since the government has a new set of optimal tariff. The shifting GFOC will in turn drive some import-competing firms to be out of business since they face cheaper import goods. This situation will decrease the cost of lobbying since the political resistance from the import-competing sectors is decreasing linearly with the size. Conducting another reciprocal talk then becomes cheaper resulting in a further cut on tariffs. The cycle repeats itself until new equilibrium (E′) is met.

The domino framework

The next framework is the domino effect theory. This theory is used to explain the formation of trading blocs (regionalism) throughout the globe. There are two major actors here: pro-membership (export-competing firms) and anti-membership (import-competing firms) forces. The model describes a political equilibrium resulting from a balance between the two major forces. The pro-membership side will gain preferential access if the nation decides to join the RTA and experience marginalization if the nation stays out. On the other hand, the anti-membership forces will be marginalized if the nation decides to join while it will win the domestic market if the nation stays out.

Naturally, the export-competing firms have larger output than the import-competing ones. Having said this, the shock resulting from a nation's decision not to join an RTA would be bigger for the pro-membership side. Thus, policy makers will be forced to join the existing RTA. As the membership expands, the incentive to join the RTA becomes more attractive, even for those who previously found it politically optimal to stay out. The cycle repeats itself until a new political equilibrium membership in an RTA is met.

The domino effect is illustrated in Figure 1.1. The EE curve describes the rising pressure on nations to join as membership in the bloc expands. The RR curve describes the resistance of nations to joining the bloc,

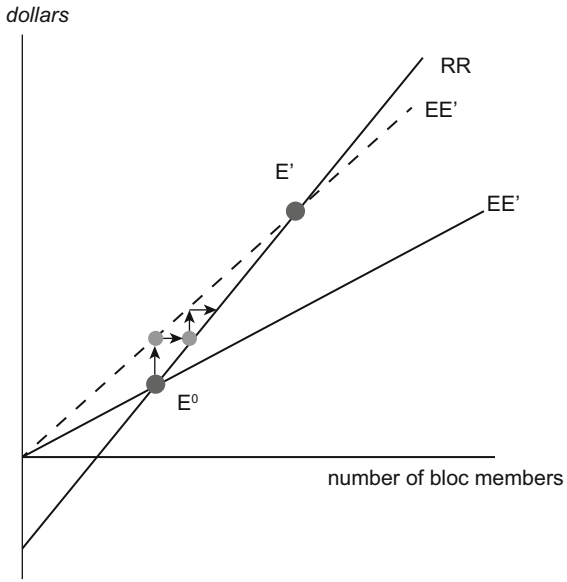

Figure 1.1 The Domino theory of regionalism
Source: Baldwin and Nicoud (2008).

represented by the domestic anti-membership force. EE and RR intersect at the equilibrium point of bloc membership (E^0). A deeper integration in the block will rotate EE up and result in a new political economy equilibrium (E′). The dynamic process of new members coming in will eventually generate a further shift in policy that favors joining the bloc. This effect even triggers nations that previously found that it was politically optimal to stay out. The red arrows illustrate the process.

Race to the bottom

The next framework is the race to the bottom (RTB). The world has witnessed trade liberalization flows through multilateralism and regionalism. In recent years, however, a new trend is emerging from many developing nations – they are now keener to cut tariffs unilaterally. The trend is more pronounced in East Asia, which prefers unilateral tariff cuts rather than preferential trade agreements (PTAs)/RTAs. The strategy goes hand-in-hand with the global trend on the unbundling process in manufacturing sectors. The so-called hollowing out happens because of the wage gap between the developed and developing nations, notwithstanding the decreasing costs of trade and communication. In turn,

offshore investment triggers lower tariffs in intermediate goods since the low-wage nations are competing to get foreign direct investments. Lower tariffs on intermediate goods is harmless for the import-competing firms since the goods have nothing to do with domestic demand. Therefore, the force of opposition for the unilateral tariff cuts become insignificant, resulting in further cuts (that is, race to the bottom) to acquire greater chance of inward FDI.

Putting it all together: the way to tame the tangle

The trend of unilateral tariff cuts (RTB) creates a very low tariff in the region, which also means lower trade costs. Lower trade costs will level the playing field between local and foreign firms. The magnitude of shifting industry from foreign to home is larger when the countries face lower trade costs. In other words, small changes in relative market access have a more pronounced effect on the location of industry when facing low trade costs.

From the trade policy view point, the cut in tariffs will be more distinct when the overall industrial protection is low. In East Asia, tariffs are cut unilaterally, which in turn creates complexity for East Asian firms. But the complexity is acting as building blocks for regionalism since efforts to form regionalism will gain more in the low tariff environment. As the membership expands, regionalism will have a greater grip in East Asia (domino effect). But we have to note that this only happens when RTB unilateralism prevents complexity from becoming a problem, while the opposite is still likely to happen. If this happens then, as Baldwin suggests, the combination of complexity and unbundling may create a new political and economic force, which in turn creates a big push from the East Asian multinationals.

The FTAs happening in East Asia have created the so called "noodle bowl." However, the connection between RTB and the domino effect will untangle the mess. Given the overall tariff protection and the non-resistance from the anti-membership side, the pro-membership side will urge the government to join the existing FTA. Due to this big push and the prospect of higher profits, governments are expected to set region-wide FTAs into force.

Initial action towards regionalism is expected to come from the three big actors in East Asia: China, Japan, and Korea. East Asian *de facto* unilateralism makes the preferential rates go along with the most favored nations (MFNs) applied rates. Thus, the problems of crisscrossing preferential rates become irrelevant in East Asia; and therefore the task of setting regionalism in East Asia becomes relatively easy. According to

Baldwin and Frédéric (2008), the government standpoint towards RTAs is a derivation of a political equilibrium between anti- and pro-RTA forces. Baldwin uses the example of a bilateral FTA, outlining the domino logic, which this book uses as an ex-ante approach to formation of an RTA in East Asia. As far as regionalism is concerned, deeper integration will enhance the welfare of participating nations, that is, the East Asian multinationals – thereby urging export-competing firms to be heavily involved in pro-RTA political activity. The RTAs signed in the North East Asian countries will trigger others to join, even those nations who previously declined joining. This effect can be thought of as one domino knocking down the next one, and so forth. Countries that are out of the scheme will be marginalized due to the shrinkage of foreign market access. In the political sphere this new disadvantage will result in greater political pressure – pressure on their own governments to negotiate with the existing RTA.

This book will discuss the pedagogical reasons for an East Asia-wide FTA and this section will also detail how countries can reach their ultimate goals, that is, multilateralizing regionalism.

The emerging RTAs have gone in line with MTNs, given this characteristic connecting these two into a simple analytical framework would be useful. Figure 1.2 gives detailed picture of the framework.

As Baldwin argues, the free entry (FE) curve assumed that there was only one foreign nation and thus only one domestic tariff. When one allows two trade partners, an RTA with one of them will shift the FE curve to the left. The argument is simple. The relationship shown by the FE curve gives *n* as a function of the MFN tariff rate *T*. But a preferential

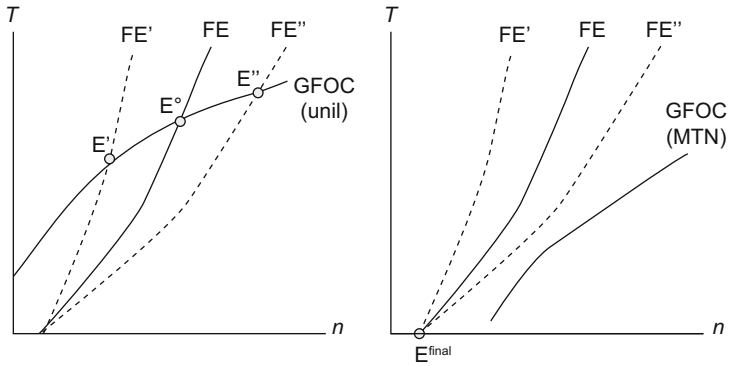

Figure 1.2 Dominos start juggernauts
Source: Baldwin and Nicoud (2008).

tariff cut that boosts the nation's imports from the preferred partner implies that domestic firms face a higher degree of competition for any given level of the MFN tariff. Consequently, a schedule relating the MFN tariff to *n* will shift when tariffs are cut preferentially. The shift, from FE to FE' in Figure 1.2, depicts the situation where the preferential liberalization has increased the domestic economy's total imports. Notice that in this case, the RTA would change the politically optimal MTN tariff from E° to E'. Or, to use Jadish Bhagwati's memorable phrase, trade blocs would be building blocks. Viner's ambiguity, however, tells us that an RTA may instead lower the amount of imports (and thus competition in the import-substituting sector) that corresponds to a given MFN tariff; in this case, the FE curve would shift the other way, from FE to FE". The result would be that trade blocs are stumbling blocks, that is, that the politically optimal MFN tariff is higher after the bloc is formed. Notice however, that if MTN reciprocity is sufficiently strong, MTNs will grind the MFN tariff to zero (E final) regardless of whether the RTAs are trade-creating or trade-diverting; this is shown in the right panel.

1.1.2 East Asian regionalism: trade and FDI integration

According to Kawai (2007), several factors currently play a major role in constituting trade and FDI integration in East Asia. The first factor is the continuous trend of trade and investment liberalization (race to the bottom) as a conjunction with the multilateral framework under the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) and open regionalism through the Asia-Pacific Economic Cooperation (APEC). As a result, a domestic economy must find a way to complement the liberalization measures as well as to compete with them. Trade policy reform is regarded as the best way to cope.

Kawai's second factor is a combination of the production networks and supply chains throughout East Asia, which are a result of the inward FDI trend and the footloose effect (that is, global MNCs). As Baldwin (2006) suggests, East Asian countries have a trend of unbundling production processes into multiple sub-process, leading to the hollowing out phenomenon. In turn, the whole of East Asia becomes one big factory. Kawai adds that the whole process has undoubtedly created a dynamic evolution of an intra-regional division of labor leading to an emerging vertical intra-industry trade in parts and components. The process also implies a significant connection between large inflows of FDI with the trade agreement in the region. The first group to lead would be the North

East Asian countries followed by ASEAN. This process follows the flying-geese hypothesis that was developed by a Japanese economist, Kaname Akamatsu (1935). This model has frequently been proposed to examine the patterns and characteristics of East Asian economic integration. The premise of the flying-geese pattern suggests that a group of nations in this region are flying together in layers, with Japan at the front layer (Xing, 2007). The layers signify the different stages of economic development achieved in various countries. In the flying-geese model of regional economic development, Japan as the leading goose leads the second-tier geese (China, Korea) which, in their turn, are followed by the third-tier geese (ASEAN4).

The third factor is the physical infrastructure, that is, roads, bridges and electricity, improved means of communication, and the development of logistics services. These items will provide steadiness and assuredness in making investments among members. In other words, good infrastructure will only lead to sustainable intra-country trade and investment.

The fourth factor is that China continues to grow at a fast pace. The China Factor has been spurring deeper linkages among East Asian economies. As Kawai suggests, growing China has been strongly supporting the production networks and supply chains due to its export expansion, which requires imports of industrial materials, parts, and components from their trade partners in East Asia.

Although East Asia is still considered *de facto* unilateralism while they talk about *de jure* regionalism, the joint factors discussed above will lead to reaching *de jure* regional integration of trade and FDI. In other words, these four factors without doubt have created a solid track towards regionalism.

1.1.3 Variables

Given the scope of my research/the research data available, the data I am using covers CJK and ASEAN countries that constitute ASEAN+3. Due to data availability for ASEAN, ASEAN4 countries were used as proxy. The four countries are Indonesia, Malaysia, Philippines, and Thailand. The next section discusses the variables.

Export and import

Exports are commodities (goods or services) sold to a foreign country; imports are goods and services produced by the foreign sector and purchased by the domestic economy. The data used here are taken from the China Economic Database (CEIC) and Asian Regional Integration Center (ARIC) from 1985 to 2009. The export and import disaggregation into parts and components are taken from Research Institute of Economy

Trade and Industry-Trade Industry Database (RIETI-TID), starting from 2000 and continuing to 2007.

GDP

The gross domestic product (GDP) is calculated by taking the total market value of all final goods and services produced in a country in a given year (equal to total consumer, investment, and government spending), plus the value of exports, minus the value of imports. The data are taken from ARIC annually, starting from 1990 and continuing to 2009. Quarterly data used are from the World Development Indicator (WDI), starting in 1989 and continuing to 2007.

Consumption

Consumption is the value of goods and services bought by people. Individual buying acts are aggregated over time and space. Quarterly data are collected from the WDI, from 1989 to 2007.

Foreign direct investment inflows

Foreign direct investment (FDI) inflows are foreign capital reported as balance-of-payments net inflows. FDI is also a measure of foreign ownership of productive assets, such as factories, mines, and land. Increasing foreign investment can be used as one measure of growing economic globalization. Quarterly data are collected from the WDI, from 1989 to 2007.

Industry

Industry is defined as a group of firms producing goods or services that are close substitutes-in-consumption. It is taken as a percentage value of GDP (value added). Annual data are collected through the WDI from 1998 to 2007.

Tax rate

Tax can be defined as any sort of forced or coerced payment to a government. The primary reason governments collect tax is to get the revenue needed to finance public goods and pay administrative expenses. Annual data are collected through the WDI from 1998 to 2007.

Democracy

Democracy is literally "rule by the people." This is a dictionary definition and is not considered sharp enough for academic use. Schumpeter (1942) contrasts two definitions (below) and regards only the second one as useful and plausible enough to work with:

> The eighteenth-century philosophy of democracy may be couched in the following definition: the democratic method is that institutional arrangement for arriving at political decisions which realizes the common good by making the people itself decide issues through the election of individuals who are to assemble in order to carry out its will. *(p. 250)*

This "classical" definition has the problem that the will of the people is not clearly defined here (e.g., consider voting paradoxes) or known (perhaps even to the people at the time), and this situation can lead to ambiguity about whether a given political system is democratic. The following definition is preferred for its clarity but has a modern feel that is at some distance from the original dictionary definition. Political representation is assumed to be necessary here:

> The democratic method is that institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people's vote. *(p 269)*

More clearly: the democratic method is one in which people campaign competitively for the people's votes to achieve the power to make public decisions. This definition is the sharpest. Annual data are collected through the Polity IV project dataset from 1998 to 2007.

Population

A population is a group of individuals or items that share one or more characteristics from which data can be gathered and analyzed. Annual data are collected through the WDI from 1998 to 2007.

Inflation

Inflation is the rate at which the general level of prices for goods and services rises with a drop in purchasing power. Central banks attempt to stop severe inflation, along with severe deflation, in an attempt to keep the excessive growth of prices to a minimum. Annual data are collected through the WDI from 1998 to 2007.

Gross enrollment ratio

Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education. Primary education provides children with basic reading, writing, and mathematics skills along with an elementary

understanding of such subjects as history, geography, natural science, social science, art, and music. Annual data are collected through the WDI from 1998 to 2007.

Railways

This variable is used as a proxy for infrastructure development in ASEAN4 countries. It takes the form as goods transported (million ton-km). Annual data are collected through the WDI from 1998 to 2007.

Intra-industry trade index (IIT Index)

Intra-industry trade is trade activity in which a country exports and imports in the same industry, in contrast to inter-industry trade. Much IIT is due to aggregation, hence it can be horizontal or vertical. Grubel and Lloyd (1975) wrote the book on IIT and introduced the Grubel-Lloyd index to measure it.

The intra-industry trade index provides an overall measure of the relative importance of intra-industry trade in an economy's trade profile. Higher ratios suggest that the economies of scale and variety sources of gains are being exploited. The index ranges from 0 to 1, with 0 indicating pure inter-industry trade, and 1 indicating pure intra-industry trade. Annual data are collected through ARTNET-APTIAD from 2000 to 2007.

Regional Hirschman index (RHI)

The Hirschmann index is a measure of the geographical concentration of exports. It tells the degree to which a region or a country's exports are dispersed across different destinations. High concentration levels are sometimes interpreted as an indication of vulnerability to economic changes in a small number of export markets. The regional Hirschmann index is defined as the square root of the sum across destinations of the squared export shares for the region under study to all destinations. It takes a value between 0 and 1. Higher values indicate that exports are concentrated on fewer markets. A value of 1 indicates that all exports go to a single destination. Annual data are collected through ARTNET-APTIAD from the year of 2000 to 2007.

Logistic performance index (LPI)

The logistic performance index is the weighted average of the country scores on six key dimensions: (i) Efficiency of the clearance process (speed, simplicity, and predictability of formalities) by border control

agencies, including customs; (ii) Quality of trade and transport-related infrastructure (e.g., ports, railroads, roads, information technology); (iii) Ease of arranging competitively priced shipments; (iv) Competence and quality of logistics services (e.g. transport operators, customs brokers); (v) Ability to track and trace consignments; (vi) Timeliness of shipments in reaching their destinations within the scheduled or expected delivery time.

The scorecards demonstrate comparative performance – the dimensions are shown on a scale from 1 to 5 relevant to the possible comparison groups – all countries (world), region and income groups. Annual data are collected through the WDI from 2000 to 2007.

Revealed comparative advantage (RCA) indices

The comparative advantage underlies economists' explanations for the observed pattern of inter-industry trade. In theoretical models, comparative advantage is expressed in terms of relative prices evaluated in the absence of trade. Since these are not observed, in practice we measure comparative advantage indirectly. Revealed comparative advantage indices use the trade pattern to identify the sectors in which an economy has a comparative advantage by comparing the country of interests' trade profile with the world average. Or, to put it colloquially, it is the ratio of the exports of the commodity from the source to total exports from the source, over the same ratio for the world.

The RCA index is defined as the ratio of two shares. The numerator is the share of a country's total exports of the commodity of interest in its total exports. The denominator is share of world exports of the same commodity in total world exports. It takes a value between 0 and $+\infty$. A country is said to have a revealed comparative advantage if the value exceeds unity. Annual data are collected through Asia Pacific Research and Training Network on Trade (ARTNET)-Asia-Pacific Trade and Investment Agreement Database (APTIAD) from 2000 to 2007.

Trade complementarity index (TCI)

The complementarity index is a type of overlap index. It measures the degree to which the export pattern of one country matches the import pattern of another. A high degree of complementarity is assumed to indicate more favorable prospects for a successful trade arrangement. Changes over time may tell whether the trade profiles are becoming more or less compatible.

The value is calculated by taking the sum of the absolute value of the difference between the import category shares and the export shares of

the countries under study, divided by two. The index is converted to a percentage form. It takes a value between 0 and 100, with 0 indicating no overlap and 100 indicating a perfect match in the import or export pattern. Annual data are collected through ARTNET-APTIAD from 2000 to 2007.

1.2 Limitation

The limitations of this study include the limited amount of time available. Thus, the research could not fully explain the case of East Asian regionalism. Another limitation is that the choice of variables may be over simplified. Since regionalism in East Asia is an abstract term, it is very difficult to construct a solid model. This book discusses the regionalization process using a bottom-up approach, rather than discussing the regionalism itself. Baldwin's domino effect, spill-over effect, and vertical IIT, which will be covered in the following chapters, are less straightforward than expected. While Baldwin's domino effect gives us an explanation of the China, Japan, and Korea FTA compared with others that could evolve into a CJK RTA, no solid conclusion has been reached. Likewise, the CJK's vertical IIT, as the key factor that creates the spill-over effect to other ASEAN countries, does not not even come close to the describing East Asian Regionalism although the vertical IIT and the spill-over effect are powerful variables that can explain regionalization (*de facto* regionalism). Chapter 5 provides an explanation that could connect all the dots: the joint CJK joint FTA strategy resulting from Nash Equilibrium, is proven to be the key variable that can bring the region into *de jure* regionalism. But, again, this explanation is less straightforward, as a good model should incorporate all the variables into one solid system or equation. No actual field survey was undertaken, which creates relatively minimum objectivity.

1.3 Organization of the book

The book is organized into six chapters, excluding this introduction and the epilogue. Chapter 1 deals with the background of the research, the methodology, research questions and general hypotheses, gives a brief summary of the whole book, data sources and variables used, and also discusses the limitations of the research. It serves to give a framework for the whole book. East Asian regionalism is covered in Chapters 2–5 of the book, with Chapter 2 discussing regionalism in North East Asian countries. In Chapter 3, the vertical intra-industry

trade for CJK and ASEAN4's exports and GDP per capita are discussed. Chapter 4 describes the determinants of CJK's Vertical Intra-Industry Trade in ASEAN4. Chapter 5 is titled China-Japan-Korea's FTA Strategy towards ASEAN Countries, while Chapter 6 handles is Determinants of East Asian Regionalism. Chapter 7 consists of the general conclusion and also policy recommendations.

2
East Asian Regionalism: The Role of Northeast Asian Nations

2.1 Introduction

Regionalism began to emerge in East Asia just since the beginning of the new millennium. East Asian countries have been focusing on ways to expand intra-regional trade that includes the establishment of regional trade agreements (RTAs) in the form of free trade agreements (FTAs) and economic partnership agreements (EPAs). The trend towards regionalism has created a profound regional and indeed global significance (Harvey and Lee 2002). Japan, Korea, and China are regarded as the key actors for such action in East Asia.

Acknowledged as the economic front runners, Japan, China, and Korea have a major responsibility for the economic welfare in the East Asia region. It is obvious that East Asian regionalism (EAR) cannot be put into practice without these countries' total support. Unfortunately, the lack of institutional trade arrangements among these three major countries has stalled the overall welfare effect for the entire East Asian community. The present driving force of the China-Japan-Korea (CJK) relationship is the market, which, in some sense is not enough. Therefore, the more institutionalized approach is needed to join these activities so that economic growth can be sustained. The main focus of the institutionalization in trade is to make these countries grow together, with which the CJK FTA can assure that positive externalities are felt throughout the East Asia region. In the long term, it is expected that CJK will lead the process toward regionalism in East Asia.

This chapter offers a literature review and describes the materials and methods used to gather data. Results of regressions are detailed, and lastly I present my conclusions.

2.2 Literature review

2.2.1 Regionalism versus regionalization

Both regionalization and regionalism are very recent phenomena in East Asia, a vast and heterogeneous region in terms of ethnicity, culture, language, religious beliefs, political regimes, socioeconomic development, and topography. By definition, regionalism is the expression of a common sense of identity and purpose combined with the creation and implementation of institutions that express a particular identity and shape collective action within a geographical region. Regionalization, on the other hand, means a process of closer trans-national cooperation among neighbor states caused by non-political forces; it reflects the increased commercial and human transactions in a defined geographical region (Liu, 2003 and Bhalla and Bhalla, 1997). Regionalism is an institution-driven approach while regionalization is a market-driven approach.

Facilitated by institutions, common norms and values, regional cooperation among states and trans-national actors is regarded by certain theorists, especially neoliberal institutionalists, as a promising method for handling the global environment, notably globalization processes, security threats, or interdependence issues (Keohane 2002; Burchill 2001; Dunne 1997). Eventually, regional cooperation and integration, also labeled regionalism, can lead to the creation of regional organizations and regimes, that is, a system of regional governance. Interlinking different territorial levels, such a system delegates and disperses political decision-making power to state, sub-state, and non-public actors alike. Although the policy outcome might be more efficient, the new modes of governance applied in this complex network, such as private-public or public-semi-public partnerships, also raise crucial questions of democratic legitimacy and responsibility (Gerstl 2002; Scholte 2002; Gerstl/Pernicka 2001; Kersbergen/van Waarden 2001).

2.2.2 CJK's triangular trade

Economic ties between Japan, Korea, and China have evolved in somewhat gradual ways since the post–World War II era. The evolution of trade activities emerged from China, which has had a substantial transformation of trade structures. In the early 1990s, primary commodities accounted for more than one third of China's total exports to Japan and Korea. In this new millennium, it is still the top category of exports from China to Japan and Korea, but it is followed by the fast growth of

machinery and transport products (Chan, Chien, Kuo 2005). From this point of view, trade within the Northeast Asian region is deemed to have substantial movement as a result from the shift of trade towards a more industrialized structure. The emergence of China as a regional manufacturing center is a dominant factor that contributes to this shift.It is clear that trade activity is very intense in the China, Japan, and Korea area, which is the major contributing factor for economic growth in the region (Watanabe 2008). The vast amount of trade has very been likely steered by the amount of FDI flows among them, with Japan as the leader. Economic transformation in China and Korea was influenced strongly by Japan's role in making investments in those countries.We have witnessed the deepening of economic activity between China, Japan, and Korea, yet regionalism in the Northeast Asian countries is considered a long and complex process beset by various obstacles. There are historical, cultural, political, ideological, and other factors at play that hinder the move towards the formation of a formal economic grouping. Although it is beyond the scope of this chapter, a solid understanding is needed as a background study. Socio-cultural challenges are clearly stated by Moon (2009):

> The cultivation of a common regional identity continues to be hampered by lingering parochial nationalism and deepening mutual distrust. Memories of the past history characterized by domination and subjugation still haunt people of the region. As ongoing disputes over historical distortion among Korea, China and Japan demonstrate, the greatest problem the region must be wary of is excessive nationalistic sentiment. Nationalism, collective memory of the historical past and subsequent cognitive dissonance pose another critical obstacle to region-building in Northeast Asia. China and South Korea are still haunted by the historical memory of Japanese colonial domination and subjugation. Cognitive barriers emanating from the past history of bitter enmity have forged a national ambiance critical of intra-regional cooperation and its institutionalization.

An argument from Lu (2008) points to political reasons factors that are slowing the adoption of regionalism:

> "Japan's attitude toward the history of Japanese aggressions against China and Korea is the inflammable factor and the key political obstacle. China and Korea request the Japanese government avoid hurting the feeling of the two peoples who had suffered from the Japanese aggressions, especially with text books to young generations,

> senior government officials' visits to the Yasukuni Shrine where the war criminals were worshiped. Disputes on the territory of some islets and nearby sea areas between Japan and the other two are also the political obstacles to the bilateral relations between Japan and the other two. Japan and China request the territory of Diaoyu Island (Japanese called Senkaku Islands) and some areas of East Sea. Japan and Korea request the territory of Dokdo, the Japanese called Takeshima, and some sea areas between them give spur to the conflict."

However, the obstacles are deemed to be gradually diminished given the massive importance of the CJK's triangular trade. This pattern of trade began after the Asian financial crisis in 1998, when China, Japan, and Korea began to show great interest in establishing FTAs with major trading partners, especially with countries within the East Asia region. Also, a trilateral FTA between China, Japan, and Korea (CJK FTA) was raised as a possibility to cope with the European Union (EU) and the North American Free Trade Agreement (NAFTA). In November 1999, the three countries made an official attempt to discuss stronger economic bonds in Northeast Asia, during the trilateral summit in Manila. Two years later (in November 2001), many issues were raised at the trilateral summit meeting in Brunei. Through this process, the three countries were finally able to take the first step toward trilateral economic cooperation and integration.

According to Wong et al. (2004), the significance of a CJK FTA would be seen in terms of regional integration. First, the CJK FTA will bring massive economic benefits to the three countries in terms of trade, production, and economic welfare. Moreover, the establishment of an FTA will also contribute to introducing suitable agreements that will accelerate trade and investment in the region. Trilateral FTAs will be much more beneficial to all three countries in the region compared with the bilateral FTAs among the countries. Moreover, a solid groundwork of CJK trilateral FTAs will initiate true East Asian integration.

As far as the CJK FTA is concerned, until recently, China, Japan, and Korea have not been able conclude the negotiations. They have made significant progress in the wake of FTA signings with other countries, none of which have been completed or enacted. Tables A.1, A.2 and A.3 summarize the FTAs and PTAs in development for China, Japan, and Korea. The ongoing economic integration in Northeast Asia is exclusively informal, driven by market forces without any institutional support framework.

As Lu (2008) argues, a CJK FTA was not Japan's priority in its FTA guideline announced in October 2002. A Japan-China FTA is "a mid- to

long-term effort," it said, and an East Asian FTA was a "far-reaching objective." The three countries' FTA negotiations look like three "N+1" radiation lines from Northeast Asia, without being fastened together.

2.2.3 East Asian regionalism

A study by Kawai (2005) cites a mounting need for institutionalization in East Asia in order to internalize the externalities of the spill-over effects:

> ... There is a need for concerted efforts to internalize externalities and spill-over effects, because macroeconomic/financial developments and policies of one country can easily affect other countries' performance and developments. It makes sense for such interdependent regional economies to institutionalize de facto integration through the establishment of regional frameworks for trade and investment liberalization and macroeconomic and financial management. Given that one country's turbulence, shocks and crises could be easily transmitted to other economies within the same region, it is critical to establish financial safety nets. Joint action among such economies would be easier because they are small in number – so the transactions cost for collective action is small – and tend to face similar shocks and similar policy challenges.

In the context of East Asia – a region that until the mid-1990s lacked regional institutions and regimes in all political spheres (Ikenberry/Tsuchiyama 2002; Hemmer/Katzenstein 2002) – ASEAN plays the role as a creative director and the hub in a loosely institutionalized network that links Southeast with Northeast Asia. ASEAN has established or contributed to the establishment of dialogue and cooperation forums in the fields of economics, trade, and security; for example, the ASEAN Free Trade Area (AFTA), the Asia Pacific Economic Cooperation (APEC), the East Asian Economic Caucus (EAEC), the ASEAN Regional Forum (ARF) or ASEAN plus 3 (APT). Thus it has indeed "ASEAN-ized" the regional political structures, as all these institutions have ingrained the "ASEAN way" of equal sovereignty, non-interference, consensual decision-making, and voluntarism (Haacke 2003; Acharya 2001) – values based on traditional Javanese norms for conflict resolution (Katsumata 2004; Liu 2003). These achievements were also possible because the major powers tended to regard ASEAN as an honest broker who lacked the military power (and the political will) to act as a regional hegemony.

As noted earlier, the Asian financial crisis undoubtedly drove the process of regional economic cooperation. Multilateral institutions have made little movement toward the global free trade movement, not to mention the "going nowhere" process of the Bogor Goals completion under APEC, which has also pushed East Asia to make its own cooperation under the regional scheme (Park 2008). Although it is mainly market driven, the whole dynamism has created an informal path to regionalism. The so-called institutionalization in East Asia has been spurred by the deepening intra-regional interdependence.

Moreover, the interest in becoming a hub for regional trade agreements (RTAs) will create Baldwin's (1993) domino effect, which is expected to encourage most of the East Asian countries to join the RTA. Major countries signing an FTA can trigger other countries to sign. This trend is true even for countries whose governments previously decided against joining an FTA on political grounds. The basic logic is simple, as Baldwin argues: the decision to join or not to join FTA is a function of a political equilibrium that meets the balance of anti-FTA and pro-FTA forces. Typically, the pro-FTA group is made up of exporters who would like better market access; the anti-FTA group is made up of import-competing firms and workers employed by them. Deeper integration among CJK is considered beneficial and a benchmark decision for Southeast Asian countries. Moreover, Baldwin believes that the regionalization in Northeast Asia stimulates exporters in Southeast Asia to be more pro-FTA politically. For example, if one of the other nations' government was previously close to indifferent, politically speaking, to signing an RTA with China, Japan, or Korea, then the extra political activity of their exporters may tilt the balance, leading the country to sign an RTA. This can be thought of as one domino knocking down the next one, and so forth. Countries that are out of the scheme will be marginalized due to the shrinkage of foreign market access. In the political sphere, this new disadvantage will result in greater political pressure – pressure on their own governments to negotiate with the existing RTA.

The spirit of regionalism in East Asia is not entirely new. It was first introduced as the East Asian Economic Caucus (EAEC) in 1990 by former Malaysian Prime Minister Dr. Mahathir bin Mohammad and encompasses the ASEAN member states China, South Korea, and Japan. Japan, though, refused participation due to the exclusion of the Western nations, which were already members of APEC and many other notable regional organizations in East Asia.

The EAEC was a reaction to ASEAN's integration into the Asia-Pacific Economic Cooperation (APEC) by Dr. Mahathir. His suggestion apparently articulated his dissatisfaction with ASEAN joining APEC, which includes Western nations, an idea he was strongly opposed to. The aggressive Western-critical speech by Mahathir – who spoke without consultations with his colleagues in other states – scared most East Asian countries away from this idea. Japan especially felt compromised by his stance. The way he introduced the idea of EAEC was perceived as greatly ineffectual, as this idea was even rejected by his colleagues in ASEAN. Mahathir tried to support the idea by stressing that the EAEC conforms to the General Agreement on Tariffs and Trade (GATT), but this step also brought few results. The exclusion of Oceania and Australia was found especially unfitting. Japan could not go along with this, as it was re-orienting itself after the collapse of the Eastern Bloc and the end of the Cold War. The EAEC was never put into action officially.

2.3 Methodology

2.3.1 Analyzing the trade structure of CJK

Measuring the short- and the long-run equilibrium of export to GDP

To some extent, trade is almost synonymous with a country's welfare. More specifically, according to research, a country's exports can be considered an engine of economic growth (Hastiadi 2011). Thus, it is important to measure export sustainability levels and their relation to the economy.

As mentioned, Japan, China, and Korea are currently experiencing a golden era in exports among themselves. While economic welfare is the most notable result of exports, it may not be sufficient to boost the economy in the long-run. A pure market-driven activity without a specific regional trade agreement might sometime create bias. It is clear that Japan, Korea, and China are lacking such agreements (Urata and Kiyota 2003). To create effective regionalism, Japan, China, and Korea should support each other. Therefore, intra-regional cooperation within CJK must take place, so that these countries can create sustainable growth in the East Asian region. The following sections describe how export sustainability leads to economic growth in the absence of trade arrangements, for both the short- and long-run. The Engle-Granger Cointegration and error correction mechanism (ECM) tests are then employed. These tests use time series for GDP and export data for Japan, China, and Korea ranging from 1985 to 2009.

Defining the long-run equilibrium: Engle-Granger cointegration test

The cointegration method is the best way to measure the long-run equilibrium (Dritsakis et al. 2004, Habibi and Rahim 2009; Khosravi and Karimi 2010). In doing the Engle-Granger cointegration test, this study divides the export relationship into three parts, which are described in the following equations:

(i) China and Japan export relationship

$$JPGDP = \beta_0 + \beta_1 ExportCH + U_t s \quad (2\text{–}1)$$

$$CHGDP = \beta_0 + \beta_1 ExportJP + u_t \quad (2\text{–}2)$$

(ii) Korea and Japan export relationship

$$KRGDP = \beta_0 + \beta_1 ExportJP + U_t \quad (2\text{–}3)$$

$$JPGDP = \beta_0 + \beta_1 ExportKR + U_t \quad (2\text{–}4)$$

(iii) China and Korea export relationship

$$CHGDP = \beta_0 + \beta_1 ExportKR + u_t \quad (2\text{–}5)$$

$$KRGDP = \beta_0 + \beta_1 ExportCH + U_t \quad (2\text{–}6)$$

In these equations, JPGDP, CHGDP and KRGDP are Japan's GDP, China's GDP and Korea's GDP, respectively, while Export JP, Export CH and Export KR are the variables of export destinations to Japan, China, and Korea, respectively. It is possible to cointegrate export and GDP, as the trend in export and GDP offset each other, creating a stationary residual, called a cointegration parameter. In the data, if we find that the initial regression of the residual (u_t) gives stationarity it means that u_t is stationary at order 0 (level) and it is notated as I(0). But if u_t is stationary in the first difference, the variables of export and GDP will be cointegrated in the first difference, which can be notated with I(1).

Defining the short-run equilibrium: error correction mechanism

We have already defined the long-run relationship between export and GDP. However, in order to make it objective, we should also define

the short-run. The technique to correct short-run disequilibrium to its long-run equilibrium is in the form of error correction mechanism (ECM). The equation of ECM is as follows:

$$\Delta GDPCountryX = \beta_0 + \beta_1 \Delta ExportCountryY + \beta_2 u_{t-1} + e_t \quad (2\text{–}7)$$

u_{t-1} Is a cointegrated error lag 1, or could be noted mathematically as:

$$U_{t-1} = GDPCountryX_{t-1}\beta_0 - \beta_1 Export\ Country_{t-1} \quad (2\text{–}8)$$

2.3.2 RTA/FTA

Greater economic interdependence between Japan, China, and Korea will act as the base for creating regionalism. In this sense, triangular trade agreements that dismantle trade barriers will smooth the progress of improved trade flows among these countries by means of greater market access. But unfortunately, this supporting environment only operates in theory. The process of regionalism in this area has proven to be difficult.

These countries may have aggressively reached out to other countries in making FTAs and EPAs, but none of them have been progressing (see Tables A.1, A.2 and A.3). The reason for this lack of progress is the subject for another research project; this section tries to focus on the effect of such an agreement to the economy. The lack of trade arrangements is noted as the main factor contributing to intra-regional trade ineffectiveness in Northeast Asia. This hypothesis will be proved in the following sections in this chapter.

Openness with customized RPL index

While the export lead growth approach, which has been done with the cointegration and ECM, provides the basis for measuring a country's openness to trade, but in some ways these tests are not enough. The cointegration and ECM tests only confirm the paradigm of trade as an engine of growth, but do not provide a more robust pattern of openness. Therefore, we then may have to address dollar's relative price level (RPL) index. According to Dollar (1992), openness naturally comes from a combination of two factors: (i) a low level of protection, especially for inputs into the production process (resulting in a sustainable level of the real exchange rate that is favorable to exporters); and (ii) low variance

in the real exchange rate, resulting in a consistent trend over time. Later on, Dollar developed a technique for estimating a cross-country index of real exchange rate distortion, using the international comparison of prices prepared by Robert Summers and Alan Heston. The norm for this index, he added, is the price level that corresponds to a country's particular resource endowment. Using the United States (US) as the benchmark country, the index of country *i*'s RPL is:

$$RPL_i = 100 \times {}^{P_i}\!/_{P_{us}} \times {}^{1}\!/_{e} \tag{2–9}$$

Where e is the exchange rate and P_i is the consumption price index for country i and P_{us} is the consumption price index for US. Therefore, we can use the formula to measure the inward- or outward-orientation of a trade policy. Using the same analogy, this paper then customizes the RPL index into this formula:

$$RPL_i = 100 \times {}^{P_i}\!/_{P_{tp}} \times {}^{1}\!/_{e} \tag{2–10}$$

Where P_{tp} is the consumption price index for the trading partner and e is the exchange rate (no. of units of domestic currency per unit of trading partner currency). The customized RPL then becomes a powerful tool to analyze trade openness between the trading countries.

2.3.3 Economic modalities

This chapter argues that the spill-over effect, product complementarities, intra-industry trade, and comparative advantage along with the trend of convergence form the so called economic modalities. The first three factors have a direct relationship to ASEAN welfare through an income perspective. The following models give the formulation:

$$\begin{aligned} GDPCAP\left(ASEAN4\right) = {} & \beta_0 + \beta_1 IITCountryY_t + \beta_2 TCI\left(CountryY\right)_t \\ & + \beta_3 SOE\left(CountryY\right)_t + \beta_4 TAX\left(CountryY\right)_t + e_t \end{aligned} \tag{2–11}$$

In equation 2–11, GDPCAP (ASEAN4) is the level of income in ASEAN4 countries, while IIT, TCI and SOE are, respectively, the intra-industry

trade, product complementarities, and the spill-over effect. Country Y is the country under study (CJK) in terms of relation to the ASEAN4 income level. TAX is the tax level in East Asia, which functions as a control variable.

The next factor of economic modalities is the comparative advantage; in this paper, the comparative advantage functions to determine the type of industry trade – whether it is vertical or horizontal (Faustino 2008). Below is the model:

$$IIT_t = \beta_0 + \beta_1 RCA_t + e_t \tag{2–12}$$

Vertical IIT has an underlying hypothesis that goods are produced under different factor proportions and are exported according to comparative advantages. It is expected that we will find a positive correlation between vertical IIT and revealed comparative advantage (RCA) and a negative correlation between horizontal IIT and RCA.

The last factor of economic modalities is regional convergence. It is actually a forecast toward the formation of EAR. A positive trend of convergence between ASEAN and CJK will act well to create EAR.

The following sections give detailed descriptions about the variables included in the economic modalities.

The spill-over effect from Japan-Korea-China triangular trade to ASEAN4

The spill-over effect from CJK to ASEAN4 is a direct consequence from regionalism in CJK, and it serves as one of the building blocks for the formation of EAR (Hastiadi 2010). As giants of Asia, Japan, Korea, and China's growth will most likely create a positive effect for their neighboring countries. Regionally speaking, the growth of Northeast Asia will boost the East Asian growth as a whole; in this sense, we might want to exercise its effect to all ASEAN countries. However, to simplify things, this paper limits the effect to ASEAN4 as these countries have the same economic characteristics. Another reason to use ASEAN4 countries is because of data limitation for the Cambodia-Lao-Myanmar-Vietnam (CLMV) countries and the incompatibility of Singapore and Brunei. This chapter employs a static panel data model for this purpose. The panel data are analyzed annually from 1989 to 2007 and consist of ASEAN4's export, import, consumption, investment, government expenditure, and GDP, as well as the GDP of Japan, China, and Korea. The data are taken from the WDI online database. The model is described as follows:

$$Y_{it} = \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + \ldots + \gamma_N W_N + \delta_1 Z_{i1} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + \ldots + \delta_t Z_{iT} + e_{it} \quad (2\text{–}13)$$

Where:

Y_{it} = GDP growth of ASEAN4 for time t and country i

X_{it} = Independent Variables (ASEAN4 consumption growth, investment growth, government expenditure growth, export-import growth and Japan-China-Korea GDP growth for time t)

W_{it} and Z_{it} are dummy variables, which are defined as follows:

W_{it} = 1 for country i, where i = Indonesia, Malaysia, Philippines, Thailand
= 0 for others

Z_{it} = 1 for Period t where t = 1989, 1990…, 2007
= 0 for others

The above structural equation is actually a simultaneous equation, which employs a causality relationship. To see the simultaneity, the above model can be decomposed into four parts:

$$Y_t = \beta_1 + \beta_2 C_t + \beta_3 I_t + \beta_4 G_t + \beta_5 X_t + \beta_6 JGDP_t + \beta_7 CGDP_t + \beta_8 KGDP_t \quad (2\text{–}14)$$

$$C_t = \beta_1 + \beta_2 C_{t-1} + \beta_3 Y_t \quad (2\text{–}15)$$

$$I_t = \beta_1 + \beta_2 r_t + \beta_3 Y_t \quad (2\text{–}16)$$

$$X_t = \beta_1 + \beta_2 EX_t + \beta_3 C_t + \beta_4 JGDP_t + \beta_5 CGDP_t + \beta_6 KGDP_t \quad (2\text{–}17)$$

Equation 2–14 describes the effects of ASEAN4 consumption (C_t), investment (I_t), government expenditure (G_t), export growth (X_t) and the Northeast Asian GDP growth ($JGDP_t$, $CGDP_t$, $KGDP_t$) on ASEAN4 GDP growth (Y_t). From the model, it is clear that consumption growth, investment growth, and export growth have their own determinants that simultaneously form the structural equation. Consumption growth (C_t) is formed by last year's consumption growth (C_{t-1}), and the present GDP growth (Y_t), investment (I_t) on the other hand are influenced by the interest rate (r_t) and the GDP growth (C_t). It is also expected that the exchange rate (EX_t), consumption growth (C_t) and trading partners' economic growth ($JGDP_t$, $CGDP_t$, $KGDP_t$) have some influence on export growth (X_t) for ASEAN4.

From the structural equation, we can divide the variables into two – endogenous and predetermined (exogenous). The first one is treated as stochastic while the latter as non-stochastic. To see which simultaneous model can satisfy the need, we have to address the identification process. If K is the number of exogenous variables within the model, k is the number of exogenous variables within the equation and M is the number of endogenous variables within the model, so the criteria to state whether an equation is unidentified, just identified, or over identified are as follows:

If K–k < M–1, the equation is unidentified
If K–k = M–1, the equation is exactly identified
If K–k > M–1, the equation is over identified

Based from the above criteria, Table 2.1 summarizes the order condition from the system:

Ordinary least squares estimation does not yield unbiased or consistent estimates of the parameters in the spatially autoregressive model, because the error terms are correlated with the spatially weighted dependent variable. For the case of over identified, we might want to employ two-stage least squares (2SLS) approach as an elegant way to deal with such problem. While 2SLS does not give unbiased estimates, it does give consistent estimates.

The regressor that is correlated with the error term can be called an endogenous regressor. Regressors that are uncorrelated with the error term are exogenous. An instrumental variable approach to getting consistent estimates when there is an endogenous regressor (or regressors) requires that some variables are available that are correlated with the endogenous regressor, but are not correlated with the error term in the model. These variables are called instruments. Instruments are variables that only influence the dependent variable through their effect on the endogenous regressor.

Table 2.1 Order condition

No	Equation	Criteria	Conclusion
1	Y_t	6 > 2	Over Identified
2	C_t	9 > 1	Over Identified
3	I_t	9 > 1	Over Identified
4	X_t	6 > 1	Over Identified

As far as the structural model is concerned, below is the detailed procedure of 2SLS:

In stage one, least squares regression on the reduced form equation has to take place by which it can yield C_{t-1}, Y_{t-1}, r_t, G_t, EX_t, $JGDP_t$, $CGDP_t$, $KGDP_t$ as the instrumental variables, we have the reduced form equation as the following:

$$Y_t = \Pi_1 + \Pi_2 C_{t-1} + \Pi_3 Y_{t-1} + \Pi_4 r_t + \Pi_5 G_t + \Pi_6 EX_t + \Pi_7 JGDP_t + \Pi_8 CGDP_t + \Pi_9 KGDP_t \quad (2\text{–}18)$$

$$C_t = \Pi_{10} + \Pi_{11} C_{t-1} + \Pi_{12} Y_{t-1} + \Pi_{13} r_t + \Pi_{14} G_t + \Pi_{15} EX_t + \Pi_{16} JGDP_t + \Pi_{17} CGDP_t + \Pi_{18} KGDP_t \quad (2\text{–}19)$$

$$I_t = \Pi_{19} + \Pi_{20} C_{t-1} + \Pi_{21} Y_{t-1} + \Pi_{22} r_t + \Pi_{23} G_t + \Pi_{24} EX_t + \Pi_{25} JGDP_t + \Pi_{26} CGDP_t + \Pi_{27} KGDP_t \quad (2\text{–}20)$$

$$X_t = \Pi_{28} + \Pi_{29} C_{t-1} + \Pi_{30} Y_{t-1} + \Pi_{31} r_t + \Pi_{32} G_t + \Pi_{33} EX_t + \Pi_{34} JGDP_t + \Pi_{35} CGDP_t + \Pi_{36} KGDP_t \quad (2\text{–}21)$$

Note: Π is $\dfrac{\beta}{1-\beta}$

From stage one we get $\hat{Y}_t, \hat{C}_t, \hat{I}_t, \hat{X}_t$ as the fitted values, with which we can run for the second stage. In stage two, these fitted values are then plugged into the main equation. The last step is to run least squares on each of the above equations to get the 2SLS estimation, which will be described in the fourth section.

Complementarity

A high degree of complementarity is assumed to indicate more favorable prospects for a successful trade arrangement in East Asia vis á vis regionalism. The best way to measure product complementarities is through the trade complementarity index (TCI), a type of overlap index. It measures the degree to which the export pattern of one country matches the import pattern of another. Changes over time may tell us whether the trade profiles are becoming more or less compatible.

Mathematical definition:

$$TCI = \left[1 - \left[\Sigma \left| \frac{\Sigma_w m_{iwd}}{\Sigma_w M_{wd}} - \frac{\Sigma_w x_{isw}}{\Sigma_w X_{sw}} \right| \right] : 2 \right] \times 100 \qquad (2\text{–}22)$$

Where d is the importing country of interest, s is the exporting country of interest, w is the set of countries under study, i is the set of industries, x is the commodity export flow, X is the total export flow, m the commodity import flow, and M the total import flow. In words, we take the sum of the absolute value of the difference between the sectoral import shares of one country and the sectoral export shares of the other. Dividing by 2 converts this to a number between 0 and 1, with 0 indicating all shares matched and 1 indicating none did. Subtracting from 1 reverses the sign, and multiplying by 100 puts the measure in percentage terms. It takes a value between 0 and 100, with 0 indicating no overlap and 100 indicating a perfect match in the import/export pattern.

Comparative advantage

Comparative advantage underlies economists' explanations for the observed pattern of inter-industry trade. In theoretical models, comparative advantage is expressed in terms of relative prices evaluated in the absence of trade. Because these are not observed, in practice we measure comparative advantage indirectly. Revealed comparative advantage indices use the trade pattern to identify the sectors in which an economy has a comparative advantage, by comparing the country of interests' trade profile.

$$RCA = \frac{\Sigma_d x_{isd} / \Sigma_d X_{sd}}{\Sigma_{wd} x_{iwd} / \Sigma_{wd} X_{wd}} \qquad (2\text{–}23)$$

Where s is the country of interest, d and w are the set of all countries in the world, i is the sector of interest, x is the commodity export flow and X is the total export flow. The numerator is the share of good i in the exports of country s, while the denominator is the share of good i in the exports of the world. It takes a value between 0 and $+\infty$. A country is said to have a revealed comparative advantage if the value exceeds infinity.

Intra-industry trade

The intra-industry trade (IIT) is a measure of the degree to which trade in a particular sector represents intra-industry trade (based on scale

economies and/or market structure). By engaging in IIT, a country can reduce the number of similar goods it produces, and benefit from scale economies. Higher IIT ratios suggest that these sources of gains are being exploited. IIT may also indicate that adjustment costs would be lower with trade expansion.

$$IIT = \frac{\left[(X_{ij} + M_{ij}) - \left|X_{ij} - M_{ij}\right|\right]}{(X_{ij} + M_{ij})} \tag{2–24}$$

Where X_{ij} and M_{ij} are home country's exports of industry *i* goods to country *j* and imports of industry *i* goods from country *j*, respectively. The absolute value of $X_{ij} - M_{ij}$ denotes that the sign of the trade balance is ignored. $IIT_{ij} = 1$ if all trade in industry *i* goods is intra-industry trade, that is if $X_{ij} = M_{ij}$ and $IIT_{ij} = 0$ if all trade in industry *i* goods is inter-industry trade, that is $X_{ij} = 0$ or $M_{ij} = 0$. In other words, higher index values are associated with greater intra-industry trade as a proportion of total trade, which serves best for creating regionalism in East Asia.

Regional convergence

In this paper, we have already measured the trend toward openness vis-á-vis regionalism by using ECM for the RPL index in Northeast Asia (CJK). But that model is not robust enough. We still have to know whether or not the region has a prospect to converge into one economic region. Since we include two sub regions, the best way to measure it is by using a test of convergence of the terms of trade (TOT) for CJK and ASEAN4. TOT is a relationship between the prices at which a country sells its exports and the prices paid for its imports. If the prices of a country's exports rise relative to the prices of its imports, one says that its terms of trade have moved in a favorable direction, because, in effect, it now receives more imports for each unit of goods exported. The terms of trade, which depend on the world supply of and demand for the goods involved, indicate how the gains from international trade will be distributed among trading countries. The concept is also applied to different sectors within an economy (e.g. agricultural and manufacturing sectors). An abrupt change in a country's terms of trade (e.g. a drastic fall in the price of a primary product that is a country's main export) can cause serious balance-of-payments problems if the country depends on the foreign exchange earned by its exports to pay for the import of its manufactured goods and capital equipment.

Many theories have been postulated to explain movements in the terms of trade, but none of them have been accurately confirmed by close examination of trade statistics. One long-held belief was that the terms of trade tended to move against less-developed countries because their exports consisted chiefly of primary products (such as coffee or rubber) while their imports largely comprised manufactured and, consequently, more expensive goods from developed countries. More recent studies have examined what effects labor inflows (through immigration) and capital inflows (through foreign investment) might have on a country's terms of trade. It is calculated by dividing the value of exports by the value of imports, then multiplying the result by 100. If a country's terms of trade is less than 100%, there is more capital going out (to buy imports) than there is coming in. A result greater than 100% means the country is accumulating capital.

The notion of convergence implies that differences between the series must follow a stationary process (Bernard and Durlauf 1996; Oxley and Greasley 1995). Thus, stochastic convergence implies that the sub regions will form the so-called EAR.

Following Bernard and Durlauf (1995), stochastic convergence occurs if the differential log trade system, yt, follows a stationary process, where $y_t = ASEAN4tot_t - CJKtot_t$ where ASEAN4tot$_t$ is the logarithm term of trade of ASEAN4, and CJKtot$_t$ is logarithm term of trade of CJK. Both series are in the first difference (I(1)).

2.4 Results and discussion

2.4.1 The short- and long-run equilibrium

In this part, two periods are included. In the first period, the author used the period when FTAs/EPAs were not a major trend while in the second period the author used the period when the FTAs/EPAs grew with a so-called snowball effect. As we can see from Tables A.1, A.2, and A.3, Most FTAs/EPAs are in force after 2005. Therefore, the periods are differentiated by the FTA's intensity within the region. In the first period, the author used data from 1985 to 2005; in the second period, data from 1990 to 2009 were used.

First period

The long-run equilibrium. From Table 2.2 we can see that the GDP and export relationship in CJK yields stability in the long run. It is proven by the stationary nature of the error term in each of the cases. The

cointegration test that proves long-run equilibrium indicates that the model is not spurious. Exports are proven to be the engine of economic growth in these countries. This test supports some previous research, including that by Doraisami (1996), Ekanayake (1999), and Fosu et al. (2006) of the relationship between exports and economic growth. But it is important to note that long-run equilibrium can have stability problems if the short-run shock cannot be tackled.

The short-run equilibrium. Equation 2–13 shows that the long-run relationship between exports and GDP in Japan, China, and Korea would be balanced by the previous error. Table 2.3 provides the short-run output for CJK.

China: The residuals for the relationship between China's GDP with China's exports to Japan and Korea are significant. These residuals suggest that there is an equilibrium error in the short run. The negative signs put the exports in a constant rise to reach the long-run equilibrium. In China's case the adjustment rate, or the phase of acceleration for the long-run equilibrium, is very fast. It can be seen through the absolute value of the equilibrium error coefficients, which are 1.09 and 1.33 for China's relationship to Korea and Japan, respectively.

Table 2.2 Cointegration parameters

Dependent variables	**GDP (Japan)**	**GDP (China)**	**GDP (Korea)**
Independent variables			
Exports to Japan	n/a	Stationary	Stationary
Exports to China	Stationary	n/a	Stationary
Exports to Korea	Stationary	Stationary	n/a

Note: Number of observations: 96.

Table 2.3 Equilibrium errors

Dependent variables	**GDP (Japan)**	**GDP (China)**	**GDP (Korea)**
Independent variables			
Equilibrium error for exports to Japan	n/a	–1.09***	–0.23*
Equilibrium error for exports to China	–0.18***	n/a	–0.48***
Equilibrium error for exports to Korea	0.017	–1.33***	n/a

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of Observations: 96.

Japan: In the short run, there is an equilibrium error for Japan's exports to China with its relationship to Japan's GDP. The coefficient of residual gives a –0.18, which means that Japan's exports to China are below the long-run equilibrium. This situation will only lead to a rise in exports for the periods that follow. However, it is important to note that the absolute value of the coefficient (adjustment rate) is very small, -0.18, which suggests that Japan's exports to China are moving at a slow rate to reach the long-run equilibrium.

As for the relationship between Japan and Korea, the equilibrium error of the export trend is not significant. These findings suggest that Japan's GDP is adjusting to the change in its export to Korea in the same period of time. In other words, Japan and Korea's relationship in terms of exports has already reached a steady-state level.

Korea: Korea's case is somewhat similar to China's. The residuals for the relationship between Korea's GDP and Korea's exports to Japan and China are significant, and the explanation is similar to that for China's case. However, the adjustment rate for Korea's case is slower than that for China, but it is still faster than that for Japan. It gives the absolute value of –0.23 and –0.48 for Korea's trade relationship with Japan and China, respectively

From the ECM result in period one, we can conclude that the Northeast Asian region is not moving at the same pace to reach long-run equilibrium; Japan is at the slowest rate. The insignificant value of the acceleration rate in Japan's trade relationship with Korea is also important point to note, since it can be interpreted as an exhausted Korean market for Japanese products (steady-state condition). These facts are crucial, as they diminish Japan's role as the sole leader in Northeast Asia. Being the lead county in this parameter is not all important; however, the stalled effect of a country's economic growth in this region will only serve as stumbling blocks in improving East Asian welfare. The rising growth of China and Korea will soon level out, mimicking the pattern of Japan, if no serious action is begun. The absence of an appropriate action will only lead to a shock for the long-run equilibrium, hence lowering the projected welfare growth. Therefore, in order to strengthen regional welfare and accelerate the phase of adjusting, economic integration must take place.

Second period

Long-run equilibrium. Based on the cointegration result in period two, we can conclude that in the long run, exports will still play a vital role for the economic growth. Table 2.4 summarizes the results.

Short-run equilibrium. The majority of FTAs/EPAs that have been in force since 2005 have made a considerable impact in the CJK countries' constellation.

In period one, we see Japan as a sick partner within the CJK triangular scheme. But in period two, Japan has successfully revitalized its condition. This rejuvenation can be seen from the change in coefficients of acceleration, which are improving compared with the coefficients in period one. In particular, we can see that Japan is no longer facing a steady-state level with Korea; that is, Japanese products have recovered their market in Korea. Korea has also grown well in this scheme. The coefficients of acceleration for Korea have also improved compared with the coefficients in period one, thereby giving a major boost in improving welfare. However, the improving condition of Japan and Korea has given a slight shock to China, as described by the decreasing rate for the coefficients of acceleration. Nevertheless, the shock is not significant when the overall welfare impact from the FTAs/EPAs are calculated. Table 2.5 summarizes the ECM result in period two.

It is true that China, Japan, and Korea have not formalized or institutionalized an RTA scheme for Northeast Asia. But at least from this period on, we can see how the FTAs/EPAs have played a major role for improving those countries' welfare. Based on this finding, it is safe to expect that an RTA will be implemented for this region.

Table 2.4 Cointegration parameters

Dependent variables	**GDP (Japan)**	**GDP (China)**	**GDP (Korea)**
Independent variables			
Exports to Japan	n/a	Stationary	Stationary
Exports to China	Stationary	n/a	Stationary
Exports to Korea	Stationary	Stationary	n/a

Note: Number of observations: 96.

Table 2.5 Equilibrium errors

Dependent variables	**GDP (Japan)**	**GDP (China)**	**GDP (Korea)**
Independent variables			
Equilibrium error for export to Japan	n/a	–0.45**	–0.88***
Equilibrium error for export to China	–0.54*	n/a	–1.07***
Equilibrium error for export to Korea	–0.57*	–0.29*	n/a

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of Observations: 96.

2.4.2 RTA/FTA

Trade openness

From Table 2.6 we can see that, generally, trade openness is having a positive effect on CJK's GDP. But in the short run, trade openness in these countries is still below the equilibrium. This observation suggests that trade openness is still finding its form in China, Japan, and Korea. Although we might not see evidence of regionalism, which liberalizes trade in the short run, the trend towards openness in trade vis-á-vis regionalism is progressing. We can see this through the adjustment rate for the long-run equilibrium (the coefficients of residuals) that yields an average of 1.1; consequently, we might see regionalism in Northeast Asia happen in the future.

2.4.3 Economic modalities

Income relation

As expected, IIT, TCI and the spill-over effect for the case of Japan (Table 2.7), Korea (Table 2.8), and China (Table 2.9) have a positive influence on ASEAN4's income (GDPCAP). The result shows us the importance of these factors for ASEAN's welfare.

Table 2.6 Cointegration parameters

Dependent variables	**GDP (Japan)**	**GDP (China)**	**GDP (Korea)**
Independent variables			
Equilibrium error for openness to Japan	n/a	–1.23***	–1.31***
Equilibrium error for openness to China	–1.15***	n/a	–0.97***
Equilibrium error for openness to Korea	–0.72**	–1.24***	n/a

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of Observations: 96.

Table 2.7 Japan-ASEAN4 relationship

Dependent variable: LOG(GDPCAP(ASEAN4))	
Independent variables	**Coefficient**
IIT Japan-ASEAN4	2.383***
TCI Japan-ASEAN4	0.019***
Spill-over Effect (Japan-ASEAN4)	3.461***
TAX	–0.256***
R-squared 0.919	

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 8.

Table 2.8 Korea-ASEAN4 relationship

Dependent variable: LOG(GDPCAP[ASEAN4])	
Independent variables	**Coefficient**
IIT Korea-ASEAN4	3.412***
TCI Korea-ASEAN4	0.027**
Spill-over effect (Korea-ASEAN4)	1.425**
TAX	–0.072**
R-squared	0.85

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 8.

Table 2.9 China-ASEAN4 relationship

Dependent variable: LOG(GDPCAP(ASEAN4))	
Independent variables	**Coefficient**
IIT China-ASEAN4	0.233
TCI China-ASEAN4	0.019
Spill-over effect (Korea-ASEAN4)	0.389
TAX	–0.232***
R-squared	0.526

Note: Number of observations: 8.

The spill-over effect variable, which is included in the above regression, has a more detailed specification. Below is the explanation:

Spill-over effect: From Table 2.10 we can conclude that the Northeast Asian (Japan, Korea and China) economic growth boosts ASEAN4's economic growth, and confirms the proposition of this study. Investment flows, in the form of FDI, has also operated as a dominant integrating power in East Asia as a whole. Although we cannot find a legitimate determinant for FDI in the output, it is clear that FDI is trade-related in nature. With its essentially open and outward-looking economies, the region is highly dependent on foreign investment for its economic growth. Still, the boosting power of foreign investment is not as strong as that felt from the spill-over effect from the giant countries of Japan, Korea, and China. Japan, in terms of GDP growth, has the biggest influence on ASEAN4, followed by China and Korea at the second and third places, respectively. This fact is described by the coefficient parameter, which gives the value of 0.546, 0.311, and 0.250 for Japan, China, and Korea, respectively.

Table 2.10 Two-stage least squares regression output

Dependent variables	**Y**	**C**	**I**	**X**
Independent variables				
Y	n/a	0.776***	–0.087	n/a
C	0.470***	n/a	n/a	–0.64**
I	0.025	n/a	n/a	n/a
X	0.072*	n/a	n/a	n/a
Instrumental variables				
Y (Japan)	0.546**	n/a	n/a	2.949***
Y (China)	0.311**	n/a	n/a	1.112***
Y (Korea)	0.250**	n/a	n/a	–3.760
C (–1)	n/a	0.01	n/a	n/a
R	n/a	n/a	0.137	n/a
Y (–1)	n/a	n/a	n/a	n/a
EX	n/a	n/a	N/a	0
G	0.122**	n/a	n/a	n/a

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%).

The ranking of influence is presumably caused by the number of FDI inflows to ASEAN from China, Japan, and Korea. The only bias is seen with China and Korea; even though the cumulative FDI from Korea to ASEAN4 was bigger than China's, it does not seem to be reflected in the ranking of influence. It is assumed that the high economic growth rate of China has been the major contributing factor (Urata, 2008) that overtook the influence of Korea's cumulative FDI flow to ASEAN4. Data from the ECM simulation found that China has taken over Japan's role in East Asia, which is true only if we address the long-run effect. This section, Economic modalities, only measures the present condition in the absence of the intertemporal problem. Japan's influence on ASEAN4's economic growth outweighed China's more than one hundred fold.

The flying-geese hypothesis, developed by the Japanese economist, Kaname Akamatsu (1935), is frequently proposed as a way to examine the patterns and characteristics of East Asian economic integration. "The premise of the flying-geese pattern suggests that a group of nations in this region are flying together in layers with Japan at the front layer. The layers signify the different stages of economic development achieved in various countries." (Xing 2007) In the flying-geese model of regional economic development, Japan as the leading goose leads the second-tier geese (China and Korea) which, in turn, are followed by the third-tier geese (ASEAN4).

The low significant value of exports within ASEAN4 in terms of creating GDP growth is important to note. These are intriguing facts, as exports are considered the main determinant of GDP growth. It is suspected that the effect of rivalry between ASEAN4 members and China is the main factor that creates this insignificant value. This factor is supported by Holst and Weiss (2004), who point out China's reputation for creating short- and medium-term direct and indirect competition between ASEAN and China. They argue that ASEAN and China are experiencing intensified export competition in prominent third markets. This competition can lead to painful domestic structural adjustments within the ASEAN countries in the short run. Then again, the mind-set in viewing the economic opportunity or threat depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter economies are able to exploit their complementary opportunities and overcome the competitive threats.

Chia (2006) argues that "the differences in resource and factor endowments, production structures and productivities lead to a complementary relationship, whereas similarities in these areas lead to a competitive relationship."

The nexus between RCA and IIT

A priori, we expected that RCA would explain the variation of the vertical IIT and that the correlation would be positive. The results confirm that prediction. Table 2.11 gives proof that the IIT used in the model is the vertical IIT.

As we used only a simple model, we must be careful with our conclusions. Nevertheless, there is some empirical evidence against the prediction made by the theory for separating the determinants of horizontal and vertical IITs. According to the theory, horizontal IIT is explained by the interaction between economies of scale and (horizontal) product

Table 2.11 RCA-IIT nexus

Dependent variable: IIT	
Independent variable	**Coefficient**
RCA	0.016***
C	0.511
R-squared	0.412

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 16.

differentiation. Vertical IIT can be explained by comparative advantages in the context of Heckscher-Ohlin (H-O) or Ricardo-Heckscher-Ohlin (R-H-O) framework, without recourse to economies of scale.

Following Tharakan and Kerstens (1995), "The latter study (Tharakan,1989) which carries out a product-by-product analysis (corresponding to SITC 5-digit) suggests that the observed IIT is partly due to H-O-type determinants and partly caused by other factors such as vertical, and in some cases, horizontal product differentiation." Fukao et al. (2003) argue that vertical IIT is likely to be driven by differences in factor endowments. Therefore, it is expected that vertical IIT would be more clearly seen between developing and developed economies.

Regional convergence

Stochastic convergence is tested by using the conventional Augmented Dickey-Fuller (ADF) regression, which shows significance in proving stationarity for y_t (Table 2.12). This indicates long-run convergence between the two trading systems.

A major drawback of the standard ADF unit root test procedure is that the power of the test is quite low. To overcome this problem, I have utilized a cointegration test as suggested by Baharumshah et al. (2007). The following is the Engle-Granger Cointegration:

$$U_t = ASEANtot_t - \beta_0 - \beta_1 CJKtot_t \tag{2–25}$$

The residual (U_t) gives a stationary result (see Table 2.13), which means that the two regions have a long-run relationship (convergence). It is

Table 2.12 ADF test for term of trade

ADF test statistic	–3.519465	1% critical value*	–3.7204
ADF test statistic		5% critical value	–2.9850
ADF test statistic		10% critical value	–2.6318

Note: * Significant at 1 % critical value.

Table 2.13 ADF test for cointegration residual

ADF test statistic	–5.623714	1% critical value*	–3.7204
ADF test statistic		5% critical value	–2.9850
ADF test statistic		10% critical value	–2.6318

Note: *MacKinnon critical values for rejection of hypothesis of a unit root.

worth noting that with the test of convergence, EAR should stay in the long run. The robust finding surely creates an optimistic view for EAR.

2.5 Conclusion

We have made an interim conclusion that exports lead the overall growth in Northeast Asia. However, it is important to note that Japan's phase of adjustment, in the absence of FTAs/ EPAs, towards long-run equilibrium is quite slow compared with the likes of Korea and China, and acts as a stumbling block to forming regionalism in East Asia. However, a rough proof is found from the period in which we include the periods when FTAs and EPAs began to emerge in the mid-2000s. The result is quite good since it accelerates Japan's phase of adjustment. The hard task is about making these countries move together in the same phase, which is why regionalism is needed.

Because regionalism is an abstract term, the use of the RPL index is essential. The RPL index is a proxy of the outward orientation of a country; or in other words, it serves as a representation of regionalism. Regionalism in this case goes hand-in-hand with openness, in which it creates trade arrangements that liberalize some sectors in the economy. The ECM simulation gives a clear picture of the current form of openness, which is below the equilibrium. It suggests that the trend towards regionalism is still lagging, and it somewhat confirms the ineffectiveness of the current triangular trade in Northeast Asia. It is expected that regionalism can eliminate such bias in trade. Baldwin's limited domino effect shows us that the bilateral FTAs conducted by China, Japan, and Korea toward other countries will eventually converge the region into one RTA. This tendency is accentuated by the test of convergence, which shows the potential convergence not only in the Northeast Asian countries (CJK) but also the East Asian countries that include the Southeast Asian region.

The spill-over effect from CJK to the ASEAN4 countries is fueling the hope for potential regionalism. We will see in Chapter 5 that the GDP that comes from the spill-over effect is bridging the path towards EAR.

In the short run, there might be a rivalry competition between China and ASEAN, then again the mind-set in viewing the economic opportunity or threat depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter economies are able to exploit their complementary opportunities and overcome the competitive threats.

We can see from the tables in this chapter that the degree of the products' complementarity is quite significant. On average, more than 70% of the CJK products can complement the one that is produced in ASEAN countries. In particular, the trend is continuously rising for the China-to-ASEAN path. The complementary sectors and products available between CJK countries and ASEAN will serve as a basis for greater cooperation.

In order to create integration in East Asia, there is a need to set up more formal institutional mechanisms for trade. It is rational for such mutually dependent countries in the region to institutionalize *de facto* integration through the establishment of regional arrangements (Kawai 2005). The growing significance of the China, Japan, and Korea market for ASEAN4 along with other economic modalities such as product complementarities, comparative advantage, and intra-industry trade in the region will then serve as the basis for a single East Asian-wide FTA.

In East Asia, the tariff is cut unilaterally, which in turn creates complexity for East Asian firms. This complexity, however, acts as building blocks for regionalism, since efforts to form regionalism will gain more in the low-tariff environment. As the membership expands, regionalism will have a greater grip in East Asia (domino effect). But we have to note that this only happens when RTB unilateralism acts to prevent complexity from becoming stumbling blocks. As Baldwin (1993) suggests, the combination of complexity and unbundling may create a new political economic force, which in turn creates a big push from the East Asian multinational corporations.

In summary, EAR will enable the region to cope with the future challenges of globalization and remain internationally competitive. An integrated East Asia would lead to the advancement in economies of scale and allow fuller development of production networks. Moreover, Chia (2007) states that EAR could help the less developed East Asian economies, which would otherwise become marginalized as they lack the attraction of a sizeable market and negotiating resources. As Baharumshah et al. (2007) argue, regional integration through RTAs is expected to widen the markets of the participating member countries. Large and growing markets will create greater confidence for both domestic and foreign investors. RTAs will allow participating countries to increase their production, capacity utilization, and employment as well as investment. At the same time, RTAs will help reduce vulnerability to external shocks, capture economies of scale, improve

a country's bargaining position in international markets, and increase the average standard of living. In addition to an investment creation effect, RTAs can also lead to new prospects for improved business, and, without tariffs and quotas on trade within the region, they may also propel local firms to rearrange production facilities within the group.

3

The Impact of CJK's Vertical Intra-industry Trade on ASEAN4's GDP Per capita

3.1 Introduction

This past decade has witnessed the unprecedented change of international trade patterns in East Asia. Before 1980, a typical North-South inter-industry pattern overwhelmed the East Asian trade (Ando 2006). At that time, the traditional theory of comparative advantage, that is differences in the endowment factor, was more than enough to explain such trade patterns,

If we look at East Asia now, it is clear that the traditional comparative advantage theory has become obsolete in regards to trade patterns. For instance, trade in machinery parts and components drastically increased in both exports and imports in East Asia, pushing up the share of machinery products, and the commodity compositions of exports and imports became similar. This fact leads us to believe that intra-industry trade (IIT) in East Asia has become far more important than it was.

As Ando (2006) argued, IIT is defined as vertical and horizontal. The typical model of IIT that appears in textbooks is the horizontal IIT model, which is usually accompanied by horizontal product differentiation. Another popular theoretical model of intra-industry trade is the vertical product differentiation model, in which high-income countries export high-price, high-quality products while low-income countries export low-price, low-quality products. IIT in East Asia is classified as the vertical differentiation where production stages are dispersed across the national boundaries in order to capitalize locational advantages such as

easy access to markets and low-cost labor (Clark 2005). In this chapter, ASEAN4 countries are used as a proxy for Southeast Asia due to data limitation for the Cambodia-Lao-Myanmar-Vietnam (CLMV) countries and the incompatibility of data from Singapore and Brunei.

As we have seen from Chapter 2, vertical ITT from CJK to ASEAN4 countries is considered one of factors that can explain the direct relationship between the increased welfare in CJK with the ASEAN4 countries' economic growth. This chapter seeks to prove that premise by constructing an appropriate model. In addition, as one third of the globe is now in recession, proper identification of ASEAN4's export pattern is becoming an important task. The ASEAN4 countries have the possibility of becoming a hub for CJK, hence shaping the future of East Asia. Should we know to which degree ASEAN4's exports are dispersed, we could easily extract the proper policy to cope with any economic shocks. Section 3.2 of this chapter gives a literature review of intra-industry trade while Section 3.3 covers materials and methods. Section 3.4 examines the result of the regressions, and Section 3.5 presents concluding remarks.

3.2 Literature review

This section provides the development of the theory of international trade. As this chapter deals with the new trade theory that incorporates intra-industry trade, knowing the basics of international trade will help us to better understand the East Asia trade story.

3.2.1 Intra-industry trade

This section is inspired from the work of Donald Davis (1995). He delicately combined the Heckscher-Ohlin and David Ricardo (1817) comparative advantage theory. Pure theory of international trade, through its restrictive list of assumptions, provides important insights into a complicated world. Characteristics of modern trade, in particular product differentiation, intra-industry trade (IIT), and imperfect competition, mean that predictions of orthodox theory no longer adequately model international trade; IIT reflects 20% of world trade and is particularly prevalent between developed nations where there is often no clear comparative advantage. New theories have therefore attempted to explain the existence of this important development on the world exchange and in particular exchanges between countries with relatively similar factor endowments and no comparative advantages. New trade

theories include, among others, the gravity model of trade, the theory of a technological gap, and Vernon's product life cycle theory.

This section concentrates on the demand-side theories, which focus on economies of scale and the supply-side theories, which focus on increasing income levels giving rise to demand for a greater variety of goods. This section also provides an overview of institutional theories that explain trade barriers and the impact of multinational corporations.

The classical, or Ricardian model of international trade explains the existence of international exchange through differences in productivity between countries; countries will then specialize in the production of commodities in which they possess a comparative advantage. There are therefore universal welfare gains from specialization and subsequent exchange. This theory overlooked an important aspect of international trade, however: differences in resources amongst countries. The Heckscher-Ohlin (H-O) model therefore attempted to explain differences in international costs (and therefore the potential gains from exchange) by differences in the distribution of factors of production; countries will specialize in commodities that are intensive in the factor of production that they possess in relative abundance. Although the comparative advantage explanation of international trade fits neatly into the world of inter-industry trade, it does not predict the existence of intra-industry trade: the two-way exchange in commodities within the same industrial sector; furthermore, the famous work of Leontief (1953, 1956) has put the significance of the H-O theorem into doubt. It has been argued that the introduction of economies of scale adequately explains the existence of such trade; comparative advantage explains the existence of inter-industry exchange, economies of scale, and the existence of intra-industry trade.

According to comparative advantage–based theories, industrialized countries should not trade with each other (trade should occur between developed and developing countries but not within each of the groups). Given that developed nations are similar in their productive capabilities (and demand patterns) they are likely to have similar comparative advantages and factor endowments (skilled labor, capital), hence trade between such countries would be limited at best. In actual fact, industrialized countries trade extensively with each other, with more than two thirds of all developed-country trade taking place with other developed countries. The other empirical fact is the existence of intra-industry trade, which appears to be inconsistent with the comparative advantage based theories.

Grubel and Lloyd (1975) devised a measure of intra-industry trade (first noted in the early 1960s) in equation 3–1:

$$IIT = 1 - \left(\frac{\sum_{i=1}^{N} |X_i - M_i|}{\sum_{i=1}^{N} X_i + M_i} \right) \tag{3–1}$$

There are two types of intra-industry trade: (i) Horizontal intra-industry trade is the exchange of differentiated products produced with identical factor intensities, featuring the same product quality and carrying the same price; and (ii) Vertical intra-industry trade, which alludes to quality-differentiated products utilizing different factor intensities and sold at different prices. Eighty per cent of IIT was discovered to be vertical ITT, where in empirical analysis price differences are used to distinguish between the two (15%–20%); Grubel and Llyod (1975).

Economies of scale may act as an incentive for international trade – concentrating production in one country may lead to increased world production at a given level of labor. There may therefore be mutual gains from trade without differences in factor endowments. However, specialization reduces the scope for the domestic production of a range of goods to meet domestic consumers' demands. By introducing the possibility of international exchange, countries can specialize in production to benefit from these increasing returns, thereby reducing the number of products that a country produces and increasing the variety available to the domestic consumer. This theory explains the existence of horizontal intra-industry trade between developed countries: as national income increases, the demand for characteristics of a specific good increases. The industrial structure of a country's economy will still be determined by its factor endowments, but economies of scale limits the subsets of production within that industry. Intra-industry specialization and subsequent exchange then occurs to satisfy demand by concentrating production in arbitrary products within the specified industry (Krugman 1983). The classic example of this two-way flow of similar goods within the same industry is that of car production and trade. Car production takes place in a variety of economies, yet we see the existence of car trade flows between these countries. This pattern reflects the internal economies of scale argument for international trade, leading us away from a world of perfect competition into the realms of imperfect competition.

Not all scale economies, however, lie at the level of the individual firm. Concentrating industries within a certain geographical area may create economies even if the individual firms remain small. Rather than specialization occurring due to the relative abundance of factors, specialization reflects the external economies of scale: specialized suppliers, labor market pooling, and knowledge spill over. The concentration of industries represents these external economies of scale. Firms would find it hard to establish production in other areas due to the highly specialized and technical requirements of inputs – one firm would not be able to provide a large enough market to keep its suppliers in business. Indeed, many of the firms and personnel within this industry are based domestically, but are under foreign ownership.

This shift to imperfect competition allows for the introduction of "dumping," and in particular reciprocal dumping, into the analysis of international trade. If monopolies in two countries each produce the same good with identical marginal and transport costs, then neither has a lower relative cost and mutually beneficial trade is not possible under the law of comparative advantage. Trade may occur with the introduction of dumping: each firm limits production in its home market to keep prices high, but if one can sell a small quantity in the other's market, it will add to profits even if the price is below its domestic price; the negative effect on the price of existing sales is met by the foreign country and each therefore has an incentive to "raid" the other. Intra-industry trade is thus stimulated and contradicts the law of comparative advantage.

Both these theories argue against the traditional analysis. It can equally be argued, however, that comparative advantage, combined with factor endowments, can explain the existence of intra-industry trade without resorting to the increasing returns theory. Empirical evidence has failed to explain the role of scale economies in determining intra-industry trade, and tests based on the Grubel-Lloyd measure of IIT have consistently shown a significant negative relationship between IIT and proxies for scale economies. Davis (1995) argues that the conditions that characterize IIT allow for an extremely simple account based on comparative advantage theory – scale economies provide one explanation but are not the only reason. Intra-industry trade fits into the essence of Ricardian theory: technical differences are relevant to trade patterns when the expansion of an individual sector does not drive up marginal opportunity costs. This is the very definition of intra-industry trade – the trade in goods of similar factor intensity; substitution possibilities would therefore be excellent, and marginal costs may remain constant when sectors are expanded or contracted if the number of goods is relatively

large in comparison to the number of factors. Davis (1995) went on to show that intra-industry trade arises quite naturally in a *constant* returns setting and bears a special relation to traditional Ricardian determinants of international trade. Small technical differences induce specialization and trade in the intra-industry trade setting. It has also recently been argued that the criticisms of the H-O theory are greatly exaggerated and that both the H-O and new trade theories have different but complementary strengths and can therefore co-exist (Wood, 1994). In Falvey (1981) and Falvey and Kierzkowski (1987), IIT with vertical product differentiation takes place under perfect competition. Falvey and Kierzkowski (1987) assume that the differentiated product sector is of the H-O type with constant returns to scale technology identical across countries, but Ricardian in terms of technology, with fixed and different factor intensities at the variety level; higher (lower) quality variety is produced with a higher (lower) capital-labor-ratio technology and has a higher (lower) price. Each individual demands only one type of differentiated product according to the individual's income, resulting in an aggregate demand for a variety of quality-differentiated goods. Vertical ITT occurs when two countries with differences in income distribution have different factor endowments or different technologies in the homogeneous product sector.

As highlighted in the earlier increasing returns theory, product differentiation may account for much of the intra-industry trade in the world economy. Balassa and Bauwens (1988) show that product differentiation tends to increase intra-industry trade and standardization tends to decrease it. The gravity equation, predicting that the volume of bilateral trade is positively related to the product of the countries' domestic products and negatively related to trade barriers between partners, has also been successful in describing international trade. However, both the Heckscher-Ohlin and the increasing returns–based model predict the gravity equation. The work on "geography and trade" (Krugman and Venables 1990) takes the product differentiation and increasing returns theories one step further with the addition of trade costs: reductions in trade costs may lead to increased concentration and a decreased share of intra-industry trade. With the introduction of multinationals, however, similarities in country size may not lead to increased intra-industry trade, as this trade can be replaced by activities of multinationals. Finally, Vernon's product life cycle analysis moves away from comparative advantage to the strategic behavior of the firm.

A new trade theory is therefore needed as a response to the (apparent) failure of traditional analysis to explain the existence of trade

between similar countries and, more specifically, intra-industry trade. Comparative advantage theory is apparently contradicted by the flow of similar goods between developed countries (and to a lesser extent between rich and poor countries); by allowing for increasing returns, intra-industry trade can be explained between developed countries by the demand for characteristics of goods. The structure of a country's industry will still be related to its comparative advantage, but countries will arbitrarily specialize production within those industries in order to take advantage of economies of scale. International exchange then allows the satisfaction of consumers' demands for characteristics of goods. Sufficiently large external economies of scale will also lead to international exchange if production is concentrated in particular geographical areas. Trade can also occur (without countries possessing a comparative advantage) if markets are segmented, allowing for the possibility of reciprocal dumping. However, Ricardian theory still plays an important role in the theory of international exchange, explaining the existence of inter-industry and, it can be argued, intra-industry trade. New trade theory is therefore a complement and not an alternative to the classical analysis.

3.2.2 Vertical ITT and regional integration

Many previous studies, including Athukorala (2006), Ng and Yeats (2001), and Yeats (2001) provide statistical evidence to show that the expansion of trade in East Asia has been accompanied by a rise in vertical ITT. Wakasugi (2009) used the gravity equation to prove that vertical ITT has been a major contribution to trade expansion in East Asia and considers it a benchmark towards regional economic integration in East Asia. East Asia is more heterogeneous compared to other regions; for instance, there is a huge income gap within the region. Table A.4 provides data for GDP per capita and the openness for ASEAN countries and CJK. As seen in that table, for the last 30 years, there was little variation in income. Singapore, Japan, Korea, and Brunei are are considered as high income countries with the GDP per capita ranging from US$25,000 to US$45,000; on the other side we also have Malaysia, Thailand, and China, which are classified as upper middle income countries with the GDP per capita ranging from US$7,000 to US$10,000. Indonesia, Vietnam, the Philippines, and Laos are lower middle income countries with the GDP per capita ranging from US$2,500 to US$4,000. And in the lowest income level are Cambodia, with the GDP per capita of US$1,700. This income variance has undoubtedly been a major factor in the trend of fragmentation in East Asia. The fragmentation that leads

to delicate production network is expected to fuel regional integration with the help of vertical ITT. Wakasugi (2009) proves that the share of vertical ITT has been rising in East Asian countries, and that it has a significant impact on the expansion of trade among these countries. With the trade expansion, the factor of production has experienced a change in price.

Jones and Kierzkowski (2001) mention the changes in price of production factors caused by the increase of fragmentation. We see that fragmentation improves the welfare of a country in two ways. First, it increases the wage rate in countries where labor is a relatively abundant production factor, while it lowers the wage rate in countries where capital is abundant. In the long-term this equalizes the wage rate between the two countries. Second, the development of fragmentation raises productivity through a realization of the scale economy. Even assuming that the fragmentation is induced by FDI, and that a part of the benefit from FDI is refluxed to the investing country as a reward of capital, the fragmentation still contributes to a rise of income through the increase in wage rates and job opportunities. Or to put it in a colloquial manner, as the production networks expand in the region, the income gap is expected to diminish in the future. Having said this, we might see a more homogeneous environment in the future with horizontal intra-industry trade. Since the development of fragmentation enhances welfare, introducing the policies to provide favorable conditions for fragmentation should be a common goal for East Asian countries.

It is also interesting to see from Table A.4 that the growth of GDP per capita is influenced by a higher percentage of openness. This trend implies that regional integration may help the region to develop even more than the current condition. This expected future pattern will create sustainable growth in East Asia.

3.2.3 Export regional concentration and economic growth

So far, theories of international trade have been discussed so that the concept of vertical ITT as a combination from some classical international trade theories can be understood. Vertical ITT is deemed to be variable of economic integration given the recent development in East Asia. In order to construct an appropriate model, the author uses a control variable that measures exports and geographical concentration. Because the existing literature on the impact of export regional concentration on economic growth is limited, this section gives a broad, common sense discussion of the concept.

In general terms, if a group of countries has a very high market concentration in specific regions, it takes only a few changes in the export markets to cause significant changes to their economy. High levels of export regional concentration are sometimes interpreted as an indication of vulnerability to economic changes in a small number of export markets. This chapter employs the regional Hirschman index (RHI) to measure the degree of export regional concentration.

3.3 Methodology

3.3.1 Intra-industry trade (IIT)

Intra-industry trade or IIT is a measure of the degree to which trade in a particular sector represents intra-industry trade (based on scale economies and/or market structure). By engaging in IIT, a country can reduce the number of similar goods it produces, and benefit from scale economies. Higher IIT ratios suggest that these sources of gains are being exploited. IIT may also indicate that adjustment costs would be lower with trade expansion. Equation 3–2 below gives us the formula:

$$IIT = \left[(X_{ij} + M_{ij}) - \left| X_{ij} - M_{ij} \right| \right] \Big/ (X_{ij} + M_{ij}) \qquad (3\text{–}2)$$

Where X_{ij} and M_{ij} are the home country's exports of industry *i* goods to country *j* and imports of industry *i* goods from country *j*, respectively. The absolute value of $X_{ij} - M_{ij}$ denotes that the sign of the trade balance is ignored. $IIT_{ij} = 1$ if all trade in industry *i* goods is intra-industry trade, that is $X_{ij} = M_{ij}$ and $IIT_{ij} = 0$ if all trade in industry *i* goods is inter-industry trade, that is $X_{ij} = 0$ or $M_{ij} = 0$. When it is expressed in percentage terms, it should be multiplied by 100; the index would vary from 0 to 100 and can be expressed as a percentage of the total trade. In other words, higher index values are associated with greater intra-industry trade as a proportion of total trade, which serves best for creating regionalism in East Asia.

As already indicated in this section, to some extent intra-industry trade can be considered a classification problem, as different types of goods and services are lumped together in the same sector. In practice, international trade flows are classified in various ways. Using the standard international trade classification we can distinguish ten different broad sectors (the so-called 1-digit level). Each of these 1-digit sectors can, in principle, be subdivided into ten more detailed 2-digit sectors. Each of

the 2-digit sectors can in turn, in principle, be subdivided into ten even more detailed 3-digit sectors, and so forth. Sector 6 at the 1-digit level, for example, consists of "manufactured goods." One of the sub-sectors at the 2-digit level is sector 61, "leather manufactures," while another is sector 63, "cork/wood manufactures." Analyzing intra-industry trade at the very broad 1-digit level therefore classifies trade of leather manufactures in exchange for cork/wood manufactures as intra-industry trade, which seems unwarranted. Looking at the more detailed 2-digit level, this problem partially disappears and a smaller extent of trade is therefore classified as intra-industry trade. A further reduction occurs if we look at even more detailed levels of aggregation. The 3-digit level, for example, distinguishes between cork manufacturers (sector 633) and different types of wood manufacturers (sectors 634 and 635) separately. IIT itself is divided into two types, horizontal IIT and vertical ITT. This chapter provides two formulas for identifying the types.

Revealed comparative advantage (RCA)

Comparative advantage underlies economists' explanations for the observed pattern of inter-industry trade. In theoretical models, comparative advantage is expressed in terms of relative prices evaluated in the absence of trade. We measure comparative advantage indirectly. Revealed comparative advantage indices use the trade pattern to identify the sectors in which an economy has a comparative advantage, by comparing the country of interests' trade profile. Equation 3–3 shows the formula:

$$RCA = \frac{\sum_d x_{isd} / \sum_d X_{sd}}{\sum_{wd} x_{iwd} / \sum_{wd} X_{wd}} \tag{3–3}$$

Where *s* is the country of interest, *d* and *w* are the set of all countries in the world, *i* is the sector of interest, *x* is the commodity export flow and *X* is the total export flow. The numerator is the share of good *i* in the exports of country *s,* while the denominator is the share of good *i* in the exports of the world. It takes a value between 0 and +∞. A country is said to have a revealed comparative advantage if the value exceeds unity.

The RCA functions to determine the type of industry and whether it is vertical or horizontal (Faustino, 2008). Equation 3–4 below gives us the model:

$$IIT_t = \beta_0 + \beta_1 RCA_t + e_t \tag{3–4}$$

Faustino argues that vertical ITT has an underlying hypothesis that goods are produced under different factor proportions and are exported according to comparative advantages, thus it is expected that we will find a positive correlation between vertical ITT and RCA and a negative correlation between horizontal IIT and RCA.

Threshold system

This chapter employs two types of thresholds; the first one follows the works of Abd-el-Rahman (1991), Greenaway, Hine, and Milner (1994), and Fontagné, Freudenberg, and Péridy (1997), which mainly use a 15% threshold to distinguish between horizontally and vertically differentiated products; the second one is based on the work of Fukao (2003) that employs a 25% threshold for the IIT identification. This chapter used the SITC data up to a five-digit classification of UN Comtrade. Although the classification is a bit more complex, it reflects the raw materials used in production, production stages, product descriptions, technological progress, and other factors as its characteristics, which is appropriate for reflecting the inter-process division of labor. Equations 3–5 and 3–6 give the horizontal IIT and vertical ITT formulas, respectively. Where unit values of imports (UV_{ij}^{m}) and exports (UV_{ij}^{x}) for a particular dispersion factor (α) satisfy the condition,

$$H\ IIT = 1 - \alpha \leq \frac{UV_{ij}^{x}}{UV_{ij}^{m}} \leq 1 + \alpha \tag{3–5}$$

$$VIIT = \frac{UV_{ij}^{x}}{UV_{ij}^{m}} < 1 - \alpha \ or\ \frac{UV_{ij}^{x}}{UV_{ij}^{m}} > 1 + \alpha \tag{3 6}$$

Where: $\alpha = 0.15$ or 0.25

3.3.2 Regional Hirschman index (RHI)

The Hirschman index is a measure of the geographical concentration of exports. It tells us the degree to which a region or country's exports are dispersed across different destinations. High concentration levels are sometimes interpreted as an indication of vulnerability to economic changes in a small number of export markets. The regional Hirschman index is defined as the square root of the sum across destinations of the squared export shares for the region under study to all destinations. It takes a value between 0 and 1. Higher values indicate that exports

are concentrated on fewer markets. Equation 3–7 below gives us the formula:

$$RHI = \sqrt{\sum_d \left(\frac{\sum_s X_{sd}}{\sum_s X_{sw}} \right)^2} \tag{3–7}$$

Where s is the set of source countries under study, d is the set of destinations, w is the set of countries in the world, and X is the bilateral flow of exports from the source to the destination. Since we want to sum over all destinations, the sets d and w contain the same elements. But RHI has limitations; for instance, it is subject to an aggregation bias, thus data that is more disaggregated gives more reliable results.

3.3.3 The panel data model

There are several reasons for the increasing interest in panel data sets. An important one is that their use may offer a solution to the problem of bias caused by unobserved heterogeneity, a common problem in the fitting of models with cross-sectional data sets, which will be discussed in the Section 3.4. A second reason is that it may be possible to exploit panel data sets to reveal the dynamics that are difficult to detect with cross-sectional data.

The log linear form below in equation 3–8 is the specific model used in this chapter:

$$\begin{aligned} LogGDPCAP\left(ASEAN4\right)_{it} = {} & \beta_0 + \beta_1 IIT\left(China\right)_{it} + \beta_2 IIT\left(Japan\right)_{it} \\ & + \beta_3 IIT\left(Korea\right)_{it} + \beta_4 TAX_{it} \\ & + \beta_5 Inflation_{it} + \beta_6 RHI_{it} + e_{it} \end{aligned} \tag{3–8}$$

Where:

$LogGDPCAP\ (ASEAN4)_{it}$	= The log form of GDP per capita for ASEAN4 countries. Log form is used to capture the growth
$IIT\ (China)_{it}$	= China's *v*ertical ITT to ASEAN4 countries
$IIT\ (Japan)_{it}$	= Japan's *v*ertical ITT to ASEAN4 countries
$IIT\ (Korea)_{\mathrm{it}}$	= Korea's *v*ertical ITT to ASEAN4 countries
TAX_{it}	= The tax rate of ASEAN4 countries
$Inflation_{it}$	= The inflation rate of ASEAN4 countries
RHI_{it}	= The Regional Hirschman Index of ASEAN4 countries

β_0 = Intercept
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = The variable's coefficients
e_t = Error term

The overall economic growth in China, Japan, and Korea has a significant impact on all Southeast Asian countries, and the key variable is the IIT. Because East Asia is now facing a rising share of vertical ITT (Wakasugi, 2007), it is important to measure its effect especially when it plays an important role in explaining the recent expansion of trade within East Asia.

This book uses vertical ITT rather than IIT. We expect that China, Japan, and Korea's vertical ITT will give positive signs for ASEAN4's GDP per capita growth. Or to put it in other words, CJK's vertical ITT is expected to give a boost to the South East Asian countries' welfare because of the linear relation between vertical ITT with the GDP per capita growth in ASEAN4 countries.

Vernon's product life cycle theory explains that when the stage of production is mature enough, it will find ways to expand its capacity. One of the ways will be on the production relocation. This relocation will lead to a vertical ITT in the selected region. We can also use this theory to understand the process that happens in CJK countries. The integration process in CJK will help them to increase their overall growth in the long run, hence creating fast product maturity. When the production process is on the verge of maturity, the CJK will try to expand their production process to Southeast Asia, which will create a boost to the Southeast Asian economy.

As one of the control variables, the regional Hirschman index (RHI) was used to measure ASEAN4's export geographical concentration. The expected result is that the export regional concentration has a negative effect to the growth of GDP per capita in ASEAN4 countries. We also expect to have negative signs for tax and inflation rate for the growth of GDP per capita.

3.4 Results and discussion

3.4.1 Determining the types of IIT

The nexus between revealed comparative advantage and intra industry trade

Before we move on to the regression result, it is important to know the "behind the scenes" process by having RCA figures for ASEAN4 and CJK countries (see Table 3.1). From the RCA table, we can see each country's comparative advantage head-to-head with others.

Table 3.1 RCA in ASEAN4 + CJK

RCA	China	Japan	Korea	Indonesia	Malaysia	Thailand	Philippines
Agricultural products	0.308	0.115	0.184	3.155	1.342	2.375	0.663
Food	0.516	0.066	0.114	2.785	1.344	0.551	0.736
Fuels and mining products	0.298	0.197	3.397	1.847	0.731	0.537	0.264
Fuels	0.212	0.318	0.434	1.790	2.150	3.482	0.331
Manufacturing	1.781	47.276	1.126	0.649	31.007	20.471	33.568
Iron and steel	2.346	5.757	4.431	1.962	1.426	0.068	0.414
Chemicals	5.850	11.771	0.808	0.715	7.024	13.528	2.322
Pharmaceuticals	0.041	0.035	0.024	0.024	0.006	0.243	0.004
Machinery and transport equipment	20.579	27.943	29.055	14.113	44.676	22.628	7.656
Office and telecom equipment	6.823	6.956	9.858	1.439	15.965	4.321	23.071
Electronic data processing and office equipment	13.125	1.297	1.492	0.556	4.965	9.854	4.034
Telecommunications equipment	1.284	5.392	26.481	0.402	7.655	2.846	2.189
Integrated circuits and electronic components	1.935	7.041	3.784	0.542	14.954	1.520	15.867
Automotive products	1.012	10.829	5.098	1.760	0.256	6.012	1.779
Textiles	0.703	0.602	0.334	0.747	0.071	0.526	0.048
Clothing	1.609	0.021	0.070	1.587	0.460	0.554	0.609

Source: Author's own calculation.

Among the countries, Japan shows a clear comparative advantage in automobiles, China is strong in electronics, Korea is dominant in telecommunication, Malaysia is powerful in office and telecom equipment, and Thailand is strong in chemicals. Indonesia has the advantage in agricultural and mining products, while the Philippines is strong in integrated circuits and electronic components.

A summary of each country's strengths and weaknesses includes China's strong comparative advantage in electronics, but it lags behind in fuels and mining products. Japan has a strong comparative advantage in automotive products, electronics, and general machinery, whereas its agricultural and textile industries show weaknesses. Korea has a comparative advantage in telecommunication equipment and automotive products but its comparative advantage is quite low in textiles. Indonesia has a comparative advantage in agricultural products and iron and steel; while Indonesia shows some weaknesses in manufacturing. Malaysia

has a strong comparative advantage in general machinery and manufacturing that is driven by electronic components and telecom equipment, whereas its iron and steel products show weaknesses. Thailand has a comparative advantage in automotive products, electronics, and manufacturing especially chemical products but its comparative advantage is quite low in textiles. The Philippines has a considerable comparative advantage in integrated circuits and electronic components, while it lags behind on textiles.

East Asia has several modalities with which to realize regionalism, based on the RCA comparison. Even if they have the same comparative advantage, trade will still occur, and countries will still have gains from trade. This is true if we also include the intra-industry trade. Different factor proportions make the trade possible, that is, vertical intra-industry trade. In this sense, the dissimilarities among the countries can be seen as a positive. Overall, high RCA tends to create high IIT. We expect that RCA would explain the variation of the vertical ITT and that the correlation would be positive. As the Heckscher-Ohlin model can explain vertical ITT and has an underlying hypothesis that goods are produced under different factor proportions, it is expected that we will find a positive correlation between vertical ITT and RCA and a negative correlation between horizontal IIT and RCA. The results confirm that prediction. From the regression result in Table 3.2, it is clear that the RCA is positively affecting the IIT. The trend also shows the positive correlation between RCA and IIT (see Figure 3.1). This trend can also be explained by Vernon's PLC Theory. The theory explains that when the stage of production is mature enough, it will find ways to expand its capacity. One of the ways will be on the production relocation. This relocation will lead to a vertical ITT in the selected region. We can apply this theory to the process of what happens in CJK countries. The integration process in CJK will help them increase their overall growth in the

Table 3.2 RCA-IIT nexus

Dependent variable: IIT	
Independent variable	**Coefficient**
RCA	0.0160***
C	0.511
R-squared	0.412

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 8.

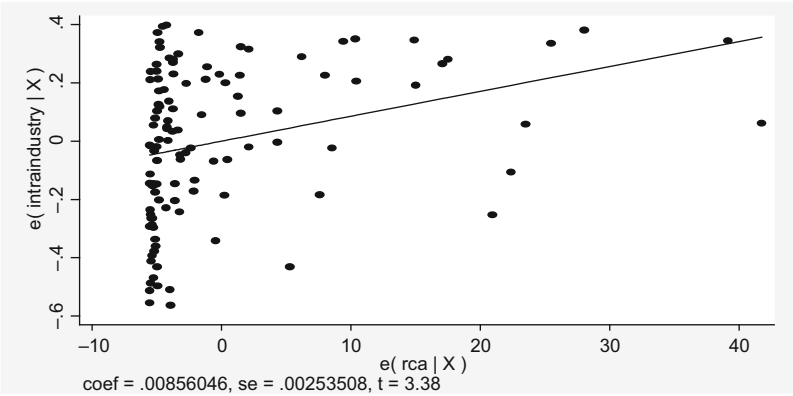

Figure 3.1 RCA and IIT

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

long run, hence creating a rapid product maturity. When the production process is on the verge of maturity, China, Japan, and Korea will try to expand their production process to Southeast Asia, thus creating a boost for the Southeast Asian economy.

Because a simple model was used, caution should be employed when making conclusions. But, there is some empirical evidence against the prediction made by the theory for separating the determinants of horizontal and vertical ITT. According to the theory, horizontal IIT is explained by the interaction between economies of scale and (horizontal) product differentiation. Vertical ITT can be explained by comparative advantages in the context of the Heckscher-Ohlin or Ricardo-Heckscher-Ohlin framework, without recourse to economies of scale.

The threshold system

As mentioned in Section 3.3, the threshold system helps differentiate the types of IIT. This chapter combines two thresholds (15% and 25%) in order to have a credible result (see Table 3.3)

15% Threshold. China's IITs to ASEAN4 countries are classified as horizontal. This conclusion is a solid one since between 2000 and 2008, horizontal IIT (68.75%) dominated China's IIT compared with vertical ITT (31.25%). Japan's IITs to ASEAN4 countries are classified as vertical ITT during 2000 to 2008, when 62.50% of its IIT trade was deemed vertical (versus horizontal IIT, 37.50%). Korea's IITs to ASEAN4 countries are also classified as vertical ITT. From 2000 to 2008, vertical

Table 3.3 Threshold system, 2000–2008

Country	Thresholds (%)	HIIT	VIIT
China	15	0.687	0.312
	25	0.781	0.218
Japan	15	0.218	0.781
	25	0.375	0.625
Korea	15	0.218	0.781
	25	0.281	0.718

Note: The table is derived from the total goods that are traded between CJK and ASEAN4 countries. The HITT and VIIT column is given as a proportion of all the horizontal IIT and vertical ITT on each of the CJK countries to ASEAN4 from the year 2000 to 2008. The thresholds column classifies IIT into two threshold calculations, 15% and 25%.

Source: Author's own calculation.

ITT (78.13%) dominated Korea's IIT compared with those classified as horizontal IIT (21.88%).

25% Threshold. China's IITs to ASEAN4 countries are classified as horizontal IIT, and from 2000 to 2008, accounted for 78.13% of its IIT, versus those classified as vertical ITT (21.88%). Like China, Japan's IITs to ASEAN4 countries are classified as vertical ITT. From 2000 to 2008, Japan's vertical IIT accounted for 78.13% of its IIT compared with horizontal IIT (21.88%); and Korea's IITs to ASEAN4 countries are also classified as vertical ITT. Vertical IIT accounted for 71.88% of Korea's IIT from 2000 to 2008. Korea's horizontal IIT made up only 28.12% of its intra-industry trade.

Both thresholds (15% and 25%) confirm the same thing: That China's IIT to ASEAN4 countries is horizontal IIT while Japan's and Korea's are vertical ITT. This finding is understandable since Japan and Korea experience a substantial income gap with ASEAN4 countries while China is considered on the same level with the ASEAN4 countries. If we look in absolute values, China can be placed as the front runner in East Asia given its significant impact on the volume of traded goods. But looking at GDP per capita, China does not show a substantial difference with the ASEAN4 countries. This is true for the case of aggregated products that are traded, but with product fragmentation, results will differ. This specific issue will be discussed in more detail in Chapter 4 when the determinants of CJK's vertical IIT to ASEAN4 countries is covered.

What happens if ASEAN4 is looked at by each individual country? We might see unique characteristics of a country facing the China, Japan, and Korea's vertical IIT. Since Japan and Korea's results are the most coherent with the goal of this chapter, we shall look deeper into these cases only.

Based on the author's simulation, Japan is doing vertical IIT mostly with the Philippines, followed by Malaysia, Thailand, and Indonesia. The vertical ITT flow from Japan to the ASEAN4 countries is mainly influenced by each country's comparative advantage in manufacturing. Given the high comparative advantage in manufacturing (see Table 3.3), the Philippines is experiencing a large flow of vertical ITT from Japan. The Philippines is also benefiting from the huge income gap with Japan, compared with other ASEAN4 countries. This income gap explains why Indonesia lies on the ground level while the Philippines sits at the top. It is also implied that Japan has more of a focus in developing its manufacturing industries as it expands production abroad. This fact is also supported by Fukao et al. (2003) who believes that vertical ITT is closely related to offshore production by multinational enterprises.

Korea is more focused on expanding its capacity in telecommunications equipment to ASEAN4 countries (see Table 3.3). The simulation states that Korea is doing vertical ITT mostly with Malaysia followed by Thailand, the Philippines, and Indonesia (again at the ground level). Malaysia is benefiting from the RCA index in telecommunications equipment, which is slightly better than other ASEAN4 countries (see Table 3.3).

The failure of Indonesia to catch an opportunity from Japan and Korea is an interesting case. Because Indonesia has some weaknesses in manufacturing, it faces the problem of compatibility to vertical ITT from Japan and Korea. But this is only true when data from total trade is included. Product fragmentation will give different results, as will be shown in Chapter 4. If Indonesia does not seriously shift to a more industrialized structure it will face serious issues. Unfortunately for Indonesia, it underwent a de-industrialization process after being severely hit by multiple crises in 1997 (Mansur 2008).

3.4.2 Regional Hirschman index (RHI)

From the explanation in Section 3, it is already clear that RHI gives a good description on the degree of the regional concentration of exports in a country. Knowing the figures will help countries to shape their trade

policy in the future. Countries with high RHI indices will be more prone to economic shocks.

The simulation proves that Indonesia and Malaysia are clearly making progress in diversifying their exports to other regions and/or countries. On the other contrary, exports from Thailand and the Philippines are becoming more concentrated to certain markets. If the trend continues (which is likely, given the upward trend of the RHI), Thailand and also the Philippines will have a higher chance of experiencing a crisis. Serious action should be taken to cope with the problem since the crisis has the potential to spread to the neighboring countries, as happened in 1997.

3.4.3 Panel data model-regression result

Table 3.4 contains the regression result. Earlier in the chapter, we expected to see a positive and significant effect on China, Japan, and Korea vertical IIT with respect to income per capita growth in ASEAN4 countries. But, as shown in Table 3.4, this is true only for Japan and Korea.

No pronounced effect on China was seen, as that country is at the same level as the ASEAN4 countries in terms of income per capita and therefore it does not face a substantial income gap with ASEAN4 countries. Since vertical ITT happens as a result of a difference in proportion, measuring China's vertical ITT at this point is not relevant. Additionally, Table 3.3 showed that China's IIT is the horizontal type instead of vertical. Running the data for total trade amounts yields the same result. Product fragmentation into parts and components will also yield different results, which will be discussed further in Chapter 4.

Table 3.4 Regression result

Dependent variable: Log(GDPCAP-ASEAN4)		
Independent Variable	**Coefficient**	**t-Statistic**
IIT (China to ASEAN4)	–0.394	–0.567
IIT (Japan to ASEAN4)	1.309	2.378**
IIT (Korea to ASEAN4)	1.080	1.794*
TAX	–0.146	–3.816***
INFLATION	–0.045	–2.461**
RHI	–5.897	–4.088***
R-squared	0.91393	
Adjusted R-squared	0.893278	

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); included observations: 8.

The RHI, as expected, has a negative sign, which is a clear indication that a high regional export concentration will only hamper the income per capita growth in ASEAN4 countries. A single increase on the index will have an immense negative impact on the ASEAN4 income per capita growth. Sound policy measures are needed to help the region from falling prey to this kind of crisis. It is therefore necessary for policy makers from ASEAN and China, Japan, and Korea to come together to build institutions that will help create a policy that will lead to regionalism. It is also interesting to see the impacts of tax and inflation on ASEAN4's income per capita growth. Economic theory provides an explanation for a negative relationship between taxes and income per capita growth. Taxes raise the cost or lower the return to the taxed activity. Income taxes create a disincentive to earn taxable income. Individuals and firms have an incentive to engage in activities that minimize their tax burden. As they substitute activities that are taxed at a lower rate for activities taxed at a higher rate, individuals and firms will engage in less productive activity, leading to lower rates of income per capita growth. The negative sign on tax confirms this theory. A reduction in a single percentage of tax rate will lead to 1.4% increase in income per capita growth in ASEAN4 countries. Therefore, persistent taxation reform in ASEAN countries will have a long-run impact on the overall welfare, which will be fundamental as a stepping stone towards the formation of East Asian regionalism.

Inflation also has a significant and negative effect on income per capita growth. A reduction in inflation of even a single percentage point leads to an increase in per capita income growth of 0.45%. Andrés and Hernando (1999) found that even low or moderate inflation rates have a temporary negative impact on growth rates, leading to significant and permanent reductions in per capita income.

Since 1984, inflation control has become the unquestioned mantra of economic policymakers worldwide. Even a whisper of "the I-word" by Alan Greenspan in the financial press creates havoc in global stock markets. Monetary policymakers have assumed that faster sustainable growth can only occur in a climate where the inflation monster is tamed.

Andrés and Hernando (1999) point out that inflation is not neutral and in no case does it favor rapid economic growth. Higher inflation never leads to higher levels of income in the medium- and long-run, which is the time period they analyze. This negative correlation persists even

when other factors are added to the analysis, including the investment rate, population growth, schooling rates, and the constant advances in technology. Even when they factor in the effects of supply shocks characteristic of a part of the analyzed period, there is still a significant negative correlation between inflation and growth.

Inflation not only reduces the level of business investment, but also the efficiency with which productive factors are put to use. The benefits of lowering inflation are great, according to Andrés and Hernando, but are also dependent on the rate of inflation. The lower the inflation rate, the greater the productive effects of a reduction. It is therefore more costly for a low inflation country to concede an additional point of inflation than it is for a country with a higher starting rate. Given their detailed analysis, they conclude that "efforts to keep inflation under control will sooner or later pay off in terms of better long-run performance and higher per capita income" (Andrés and Hernando 1999).

Thus, up to this point, it has been clearly described that Japan and Korea vertical IIT, together with low export regional concentration, low inflation, and a business-friendly tax rate are helping the ASEAN4 countries to reach high income per capita growth.

3.5 Conclusion

Vertical ITT is a crucial component for regional integration in East Asia. By relocating their production offshore to Southeast Asia countries, China, Japan, and Korea are spurring regionalization within East Asia. Vertical ITT can be seen clearly in Japan and Korea, which have substantial income gaps with the ASEAN4 countries. These gaps are fueling the vertical ITT process. Regionalism in East Asia is driven by the market – the bottom-up process of regionalism.

However, the process should be matched with the top-down process, which brings leaders and policy makers together for negotiation. This is important since the present scenario will most likely give way to serious problems in the future. Other threats to regionalism include high regional export concentration countries, high inflation, and high tax rates in some ASEAN countries, which is why a sound policy needs to be in place. Institution-led regionalism should replace the existing market-led regionalism. Doing so will not only mold East Asian countries into a bloc that will have powerful political and economic abilities, but also create sustainability with the shared welfare among

the members. As the former Indonesian Minister of Foreign Affairs Ali Alatas said in 2001, ASEAN plus three is equal to peace plus prosperity as it can contribute substantively to the achievement and maintenance of sustained and sustainable peace, stability, and security and welfare in this part of the world.

4

The Determinants of CJK's Vertical Intra-industry Trade to ASEAN4 Countries

4.1 Introduction

Firms have openly responded to the challenges of globalization by giving a process of product integration across national boundaries. Production stages are often conducted in more than one country. This practice exploits inherent locational advantages such as proximity to markets and access to low-cost labor, and it gives rise to a sequential method of production in which one country exports a component to another country that uses it to produce a product which is subsequently shipped back to that country or is exported to other countries (Clark 2005). Hummels et al. (1998) uses the term "vertical specialization" to describe this pattern of production and trade. Outputs from different stages of production that are exported for processing and are subsequently imported contribute to intra-industry trade (ITT) because resulting trade flows involve exchanges of related goods that are often recorded under the same industry classification.

We learned in Chapter 3 that China, Japan, and Korea's (CJK's) vertical IIT to ASEAN4 countries is an important variable, which could lead to enactment of regionalism. Therefore, it is crucial to identify the factors that determine the CJK's vertical IIT in Southeast Asia. This chapter will do a country-by-country analysis to discover the factors causing CJK's vertical IIT to ASEAN4 countries. So, instead of doing a regression as CJK, I have put them separately as China, Japan, and Korea. By doing this, we shall have a more pronounced result compared with the results found in Chapter 3. The ASEAN4 countries, again, are used as a proxy for Southeast Asia due to data limitation for the Cambodia-Lao-Myanmar-Vietnam

(CLMV) countries and the incompatibility of data from Singapore and Brunei.

In view of the fact that East Asian vertical IIT in parts and components rose more rapidly than that of vertical IIT in goods as a whole, the author employs vertical IIT in parts and components in this chapter, as Ando (2006) suggests. This data treatment is different than the one we have in Chapter 3 which aggregated the data into total trade. Thus said, we will see different results when it comes to China.

In Chapter 3 we saw that China participated in horizontal IIT rather than vertical IIT with ASEAN4 countries. Given that the product fragmentations are posing two-way transactions, China's IIT ASEAN4 countries might take the form of vertical IIT. This fact is clearly supported by Ando (2006), who found out that the drastic increase in vertical IIT in East Asia was largely posed by expansion of back-and-forth transactions in vertically fragmented production processes, rather than trade of quality-differentiated commodities. Or to put it colloquially, the increasing trend of vertical IIT does not necessarily have to do with the difference in income and/or quality of the product.

Section 4.2 studies the basic concepts from the literature reviews. Section 4.3 covers materials and methods use, and Section 4.4discusses the result of the regressions. Section 4.5 presents conclusions.

4.2 Literature review

4.2.1 Foreign direct investment (FDI) and vertical intra-industry trade (VIIT)

Foreign direct investments from Northeast Asian countries have been playing a crucial role in the economic transformation of the Southeast Asian countries. As a result, the technological gap between Southeast Asian and the Northeast Asian countries has been decreasing over time. Recently, the FDI inflow to Southeast Asia, especially to the ASEAN4 countries, has been connected with the fragmentation of production process (Ando, 2006).

The publication of Helpman and Krugman (1985) was deemed the first article mentioning the impact of the FDI on the vertical IIT. The authors shed light on the emergence of multinational corporations as leading actors who made the link between differences in relative factor endowments and the share of IIT. As long as the capital-rich country a net exporter of manufactured goods, the difference in factor composition will become large enough to encourage the emergence of multinational corporations. This difference in factor composition will eventually

restore the negative association between factor dispersion and the share of vertical IIT. Or, in other words, the larger the involvement of multinational corporations in the world economy, the effect of changes in the degree of dispersion in income per capita on the share of intra-industry trade would be weaker. Furthermore, Helpman and Krugman argue that the volume of vertical IIT will depend on how narrowly defined product categories are. If the industrial classification of finished products is different from the intermediate products, then only two-way trade in finished products will signifies the volume of vertical IIT.

Fukao, Ishido, and Ito (2003) made an attempt to answer the question on how trade patterns were influenced by FDI costs, trade costs, and the factor price gap between two countries. The authors studied the following three situations: first, zero trade costs coupled with prohibitively high FDI costs; second, zero trade and FDI costs; and third, substantial trade costs and zero FDI costs. First, vertical IIT occurs only when both FDI and trade costs are small. When FDI costs are substantial, they will lower any possible gains in using an international division of labor. Firms in the developed country will not carry out vertical FDI, which is an important factor for the vertical IIT. If it is very costly to trade products from the developed country to the developing country, then firms in the developed country will replace their exports from their home country with local production in the developing country. Because of this horizontal FDI, vertical IIT is reduced.

Second, and again if FDI costs are substantial, the share of vertical IIT in total trade will depend on the factor proportion gap between the two countries. If the factor proportion gap is small, then firms will have limited incentives to engage in the international division of labor through FDI, and vertical IIT will decrease. Then, it should follow Fukao et al.'s (2003) famous words: "Vertical intra-industry trade is a fragile flower, which flourishes only when both FDI costs and trade costs are small."

Moreover, Okubo (2004) acknowledges that the recent increase in IIT is mainly determined by trade between developed and developing countries. The author suggests that vertical IIT or fragmentation in the production process would become the best explanation for this fact. He then adds that when technology transfer is introduced into the model through FDI, it can well explain the current vertical IIT process. Favorable circumstances for technology transfer in host countries, such as a small difference in educational level, enhances FDI, which in turn, increases re-imports. In the presence of wage and technology gaps, IIT increases when the degree of technology transfer is small, but a large

degree of technology transfer decreases vertical IIT. Furthermore, if the technology transfer corresponds to production networks, the production networks can work to promote vertical IIT.

4.2.2 Factor proportions and vertical IIT

There are some reasons to expect IIT between the developing countries and the developed countries. Balassa (1960) points out that vertical integration of industries across national boundaries could show up as vertical IIT. When multinational corporations ship components to subsidiaries in developing countries assembling, and then ship them back the assembled components to home markets is an example of vertical ITT. As noted by Falvey (1981) and Falvey and Kierzkowski (1987), IIT with vertical product differentiation takes place under perfect competition. Falvey and Kierzkowski (1987) assume that the differentiated product sector is of the Heckscher–Ohlin type, with constant-returns-to scale technology identical across countries, but Ricardian in terms of technology, with fixed and different factor intensities at various levels. Varieties in quality occur when there is a higher capital-labor-technology ratio, which also leads to more variety in prices (higher quality = higher capital-labor technology ratio; lower quality = lower capital-labor technology ratio; higher ratio = higher price; lower ratio = lower price). Each individual demands only one type of differentiated product according to the individual's income, resulting in an aggregate demand for a variety of quality-differentiated goods. Vertical IIT occurs when two countries with differences in income distribution have different factor endowments or different technologies in the homogeneous product sector. Helpman and Krugman argue that the bilateral share of IIT will increase when countries become more similar in both economic size and relative factor endowments. They added that a proportional reallocation of productive factors that makes two countries more or less equal in economic size is shown to increase or reduce the IIT share. When a reallocation of factors does not alter the relative size of the trading partners, but decreases (increases) the disparity in relative factor endowments, the IIT share will increase (decrease). As Helpman (1991) has outlined, relative factor endowments are proxied by per capita GDP.

4.2.3 Trade and logistics

The increasing trend in global production sharing, the shortening of product life cycles, and the intensification of global competition help to make logistics a strategic source of competitive advantage. Since the influx of modern trade several centuries ago, freight forwarders have

dominated the international movement of goods. Typically, these forwarders have large networks of companies with worldwide coverage, capable of handling and coordinating the diverse actions required to move goods across long distances and international borders.

As the world has become more competitive over time, the quality of logistics is an important factor in a firm's decision to locate in countries that have an abundance of suppliers to buy from, and which consumer markets to enter. High logistics costs and, in particular, low levels of service are the latent barriers to trade and FDI and thus to economic growth. In other words, countries facing high logistics costs are more likely to miss any gain from trade (World Bank Report 2007).

This chapter discusses the relationship between logistic performance and the vertical IIT. Unfortunately, there is only a relatively small amount of literature on this topic. There is, however, an ample amount of literature offering substantial evidence linking improvements in logistics directly to improvements in export performance. An increased export performance is expected to lead the way to increased vertical IIT.

Hummels (1999) compares sales by manufacturers of similar products and estimates that exporters with 1% lower shipping costs will enjoy a 5–8% higher market share. Next, Limão and Venables (2001) estimate the differences in infrastructure quality, which accounts for 40% of the variation in transport costs for coastal countries and up to 60% for landlocked countries. Fink et al. (2002) estimated that liberalizing the provision of port services and regulating the exercise of market power in shipping could reduce shipping costs by nearly a third, hence providing better export performance. A World Bank study by Wilson and others (2005) shows that the Asia Pacific Economic Cooperation (APEC) countries differ substantially in the quality of their logistics and trade facilitation across a broad range of measures, including port infrastructure, customs clearance, regulatory administration, and e-business use. They found that these differences yield a significant impact to differences in trade performance, and concluded that substantial growth in trade within their bloc could be accomplished by bringing lagging countries up to median performance levels.

Frankel and Romer (1999) show that countries that are closer to world markets enjoy higher levels of trade, and that a 1% rise in the trade-to-GDP ratio increases income per person by at least 0.5%. Redding and Venables (2002) estimate that more than 70% of the variation in per capita income across countries can be explained by the geography of the market and supplier access. Better access to coasts alone raises incomes by 20%.

4.2.4 Exchange rate and trade

Exchange rate depreciation raises the domestic price and/or lowers the foreign currency price of exports. The elasticities of export supply and demand will determine the magnitude of depreciation to the extent it is passed on to the foreign consumers that as lower-priced exports. For pedagogical reasons, we will assume that countries are divided into two: price taker and price maker.

In a small country model, export firms are regarded as price takers for the international market (as they face an infinite demand for exports). The elasticity of supply determines the reaction of exports to the depreciation. Greater the elasticity will lead to a higher rise in exports. In contrast, in an economy with excess capacity and the ability to affect prices in the international market, the depreciation is fully passed-through to foreign consumers, leading to a fall in the foreign currency price of domestic exports. In this case, the response by exports depends on the elasticity of export demand. If the country is facing a highly inelastic export demand, export volumes, and thus the domestic currency value of exports, only rise by a small amount. This situation will lead to the well-known Marshall-Lerner condition, which describes that if both supply curves are perfectly elastic and the trade balance is zero, a devaluation and/or depreciation of the exchange rate will put the trade balance into a negative condition if the sum of the demand elasticities is less than 1. This condition is more likely to be satisfied in the short run when import and export demand curves are inelastic. Thus, depreciation may initially worsen the trade balance prior to its improvement in the long run. This is known as the J-curve effect.

4.2.5 Factor price equalization theorem

Since product fragmentation tends to equalize the wage rate among trade partners, we might want to refer to the theory of factor price equalization so that we can have a credible conclusion. The theory is taken from the traditional the Heckscher-Ohlin model. It says that when the prices of the output goods are equalized between countries as they move to free trade, then the prices of the factors (capital and labor) will also be equalized between countries. Thus, it is implied that free trade will equalize the wages of workers and the rents earned on capital throughout the world. The theorem derives from the assumptions of the model, the most critical of which is the assumption that the two countries share the same production technology and that markets are perfectly competitive. In a perfectly competitive market, the return to a factor of production depends upon the value of its marginal productivity. The marginal

productivity of a factor, like labor, in turn depends upon the amount of labor being used as well as the amount of capital. As the amount of labor rises in an industry, labor's marginal productivity falls. As the amount of capital rises, labor's marginal productivity rises. Finally, the value of productivity depends upon the output price commanded by the good in the market.

In autarky (economic independence or self-sufficiency), the two countries face different prices for the output goods. The difference in prices alone is sufficient to cause a deviation in wages and rents between countries, because it affects the marginal productivity. In addition, however, in a variable proportions model the difference in wages and rents also affects the capital-labor ratios in each industry, which in turn affects the marginal products. All of this means that for various reasons the wage and rental rates will differ between countries in autarky. Once free trade is allowed in outputs, output prices will become equal in the two countries. Since the two countries share the same marginal productivity relationships, it follows that only one set of wage and rental rates can satisfy these relationships for a given set of output prices. Thus, free trade will equalize goods prices and wage and rental rates. Since the two countries face the same wage and rental rates, they will also produce each good using the same capital-labor ratio. However, because the countries continue to have different quantities of factor endowments, they will produce different quantities of the two goods.

The Stolper-Samuelson theorem can best describe the changes in prices due to the fluctuation of the output prices. It happens when positive production and zero economic profit are maintained in each industry. Having said this, analyzing the effects on factor income is becoming very useful in the context of Heckscher–Ohlin (H-O) model. Thus, we have the Stolper-Samuelson theorem: An increase in the price of a good will cause an increase in the price of the factor used intensively in that industry and a decrease in the price of the other factor.

4.3 Methodology

4.3.1 Intra-industry trade (IIT)

Several alternative measures have been developed in the literature to estimate the degree of intra-industry trade. To measure the extent of IIT, this study uses the most widely preferred index, Grubel-Lloyd (G-L). This index measures intra-industry trade as a percentage of a country's total trade, which is assumed to be balanced; that is, exports equal imports.

For an individual product group or industry i the share of IIT is formulated as:

$$GLi = 1 - (|Xi - Mi| / (Xi + Mi)) \quad (4–1)$$

where Xi and Mi stand, respectively, for the exports and imports of industry i. If all trade was balanced, GLi would equal 1. On the other hand, if all trade was one-way, GLi would equal zero. Thus, the closer GLi is to 1 (i.e. Xi = Mi), the more trade in industry i is intra-industry trade. The closer GLi is to 0 (i.e. either Xi = 0 or Mi = 0), the more trade in industry i is inter-industry trade. Therefore, the index of intra-industry trade takes values from:

0 to 1 as the extent of intra-industry trade increases, that is, $0 \leq GLi \leq 1$

Threshold system

As discussed in Chapter 3, this chapter also employs two types of thresholds, which follow the works of Abd-el-Rahman (1991), Greenaway, Hine, and Milner (1994), and Fontagné, Freudenberg, and Péridy (1997). Equations 4–2 and 4–3 give the Horizontal IIT and Vertical IIT formulas, respectively.

$$HIIT = 1 - \alpha \leq \frac{UV_{ij}^{x}}{UV_{ij}^{m}} \leq 1 + \alpha \quad (4–2)$$

$$VIIT = \frac{UV_{ij}^{x}}{UV_{ij}^{m}} < 1 - \alpha \text{ or } \frac{UV_{ij}^{x}}{UV_{ij}^{m}} > 1 + \alpha \quad (4–3)$$

Where $\alpha = 0.15$ or 0.25

4.3.2 Logistic performance index (LPI)

The indicator taken from the World Bank Report (2007) summarizes the performance of countries in seven areas that capture the current logistics environment. They range from traditional areas such as customs procedures, logistics costs (such as freight rates), and infrastructure quality to new areas like the ability to track and trace shipments, timeliness in reaching a destination, and the competence of the domestic logistics industry. None of these areas alone can ensure good logistics performance. The selection of these areas is based on the latest theoretical and

empirical research and on extensive interviews with logistics experts. The LPI and its indicators are given on a numerical scale, from 1 (worst) to 5 (best). This scale can also be used to interpret performance outcomes measures.

4.3.3 The panel data model

This paper employs the static panel data model, which can be specified as follows:

$$IITJP_{it} = \beta_0 + \beta_1 \log wage_{it} + \beta_2 FDIJP_{i(t-1)} + \beta_3 EXrate_{it} + \beta_4 Industry_{it} + \beta_5 Dummy_{it} + e_{it} \quad (4\text{–}4)$$

$$IITKR_{lt} = \beta_0 + \beta_1 \log wage_{it} + \beta_2 gdpcap_{i(t-1)} + \beta_3 EXrate_{it} + \beta_4 Industry_{it} + \beta_5 Logistic_{it} + \beta_6 Dummy_{it} + e_{it} \quad (4\text{–}5)$$

$$IITCH_{it} = \beta_0 + \beta_1 gdpcap_{i(t-1)} + \beta_2 Industry_{it} + \beta_3 Logistic_{it} + \beta_4 Dummy_{it} + e_{it} \quad (4\text{–}6)$$

Where:

$IITJP_{it}$ = IIT from Japan to ASEAN4 countries

$IITKR_{it}$ = IIT from Korea to ASEAN4 countries.

$IITCH_{it}$ = IIT from China to ASEAN4 countries.

$FDIJP_{i(t-1)}$ = Japan's FDI to ASEAN4 countries, it is taken as lag form to avoid autocorrelation problem

$log\ wage_{it}$ = log form of wage. Log form is used to capture the growth

$EXrate_{it}$ = The exchange rate of ASEAN4 countries

$DUMMY_{it}$ = Dummy for the types of IIT; 1 for VIIT and 0 for HIIT

$Industry_{it}$ = Industrialization in ASEAN4 countries. It takes as percentage value of GDP (value added)

$Logistic_{it}$ = Logistics Performance Index (LPI)of ASEAN4 countries. It is the weighted average of the country scores on the six key dimensions: (i) Efficiency of the clearance process (i.e. speed, simplicity and predictability of formalities) by border control agencies, including Customs; (ii) Quality of trade and transport-related infrastructure (e.g. ports, railroads, roads, information technology); (iii) Ease of arranging competitively priced shipments; (iv) Competence and quality of logistics services (e.g., transport operators, customs brokers); (v) Ability to track and trace consignments; (vii) Timeliness of shipments in reaching destination within the scheduled or expected delivery time.

β_0 = Intercept
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = The variable's coefficients

Japan: Japan's VIIT for ASEAN4 countries is expected to be determined from different factors of proportion, FDI inflows from Japan to ASEAN4, the exchange rate depreciation in ASEAN4 (Japan will face cheaper products from ASEAN4), and the trend of industrialization in ASEAN4. Having said this, we expect the yield to have a positive and significant effect on log wage, FDI lag, EXrate and Industry. Japan's VIIT's to ASEAN4 countries is also expected to be diminished over time due to the rapid expansion of production networks, which is captured by a negative sign on VIIT DUMMY.

Korea: Korea's VIIT for ASEAN4 countries is expected to be determined from different factors of proportion, good logistic performance in ASEAN4 countries, the exchange rate depreciation in ASEAN4 (Korea will face cheaper products from ASEAN4), and the trend of industrialization in ASEAN4. We expect the yield will have a positive and significant effect on log wage, GDP cap, Logistic, EXrate and Industry. Korea's VIITs to ASEAN4 countries is also expected to be diminished over time due to the rapid expansion of production networks; this is expected be captured by a negative sign on VIIT DUMMY.

China: China's VIIT for ASEAN4 countries is expected to be determined from different factors of proportion, good logistic performance in ASEAN4 countries, and the trend of industrialization in ASEAN4 countries. The yield have a positive and significant effect on GDPcap, Logistic and Industry. China's VIIT's to ASEAN4 countries is also expected to be diminished over time due to the rapid expansion of production networks; this is expected be captured by a negative sign on VIIT DUMMY.

4.4 Results and discussion

4.4.1 The threshold system

As explained in Section 4.3, the threshold system helps us differentiate the types of IIT. This chapter combines two thresholds (15% and 25%) in order to have credible results. Table 4.1 summarizes the results.

The table is derived from traded goods between CJK and ASEAN4 countries that are already fragmented into parts and components. The HIIT and VIIT column is given as a proportion of all the horizontal IIT and vertical IIT on each CJK country to ASEAN4 from 2000 to 2007. The Thresholds column classifies IIT into two threshold calculations: 15% and 25%.

Table 4.1 Threshold system

Country	Threshold(%)	HIIT	VIIT
China	15	0.031	0.968
	25	0.031	0.968
Japan	15	0.031	0.968
	25	0.063	0.937
Korea	15	0.406	0.593
	25	0.468	0.531

Source: Author's own calculation from 2000 to 2007.

15% threshold

(i) China's IITs to ASEAN4 countries are classified as vertical IIT. This conclusion is robust since from 2000 to 2007, vertical IIT (96.88%) dominated China's IIT compared with the horizontal IIT (3.12%). (ii) Japan's IITs to ASEAN4 countries are classified as vertical IIT. From 2000 to 2007, vertical IIT (96.88%) dominated Japan's IIT compared with horizontal IIT (3.12%). (iii) Korea's IITs to ASEAN4 countries are classified as vertical IIT; this is true since within the years 2000 to 2007, vertical IIT (59.38%) was greater than Korea's IIT compared with the ones that are classified as horizontal IIT (46.88%).

25% threshold

(i) China's IITs to ASEAN4 countries are classified as vertical IIT. We can say this, because, from 2000 to 2007, VIIT (96.88%) dominated China's IIT compared with horizontal IIT (3.12%). (ii) Japan's IITs to ASEAN4 countries are classified as vertical IIT, since from 2000 to 2008, vertical IIT (93.75%) is the dominant category of Japan's IIT compared Horizontal IIT (6.25%). (iii) Korea's IITs to ASEAN4 countries are classified as vertical IIT. This distinction can be seen from the minor dominance of vertical IIT (53.13%) on Korea's IIT from 2000 to 2008, compared with horizontal IIT (46.88%).

If we compare these results with the ones we have in Chapter 3, we will find different outputs generate different conclusions. Recalling the result in Chapter 3, China's type of IIT is horizontal, which is different from Japan and Korea (vertical type). Here, in Chapter 4 we see that all CJK countries share the same type of IIT, which is vertical. The reason for this result is caused by the differing treatment if the data in chapters 3 and 4. In Chapter 3 the author treats the data as total trade while in Chapter 4 the data are derived from product fragmentation. This treatment is supported by Ando (2006), who found out that the drastic

increase in vertical IIT in East Asia was largely posed by expansion of back-and-forth transactions in vertically fragmented production processes, rather than trade of quality-differentiated commodities. Thus, the increasing trend of vertical IIT does not necessarily have to do with the difference in income and/or quality of the product.

If we break down the individual relationships into econometric simulation, we might find unique characteristics for each country.

From the simulation we can argue that China has the most vertical IIT compared with Indonesia, followed by Philippines, Malaysia, and Thailand. In ASEAN4 countries, China is mostly focused on developing its clothing products. As shown in Table 4.2, Indonesia has the comparative advantage in clothing, which explains why it is top ranked.

On the other hand, Japan is doing vertical IIT mostly to the Philippines followed by Indonesia, Malaysia, and Thailand. The vertical IIT flows from Japan to ASEAN4 countries are mainly influenced by each country's comparative advantage in manufacturing. Given the high comparative advantage in manufacturing (see Table 4.2), the Philippines is

Table 4.2 RCA in ASEAN4 + CJK

RCA	China	Japan	Korea	Indonesia	Malaysia	Thailand	Philippines
Agricultural products	0.308	0.115	0.184	3.155	1.342	2.375	0.663
Food	0.516	0.066	0.114	2.785	1.344	0.551	0.736
Fuels and mining products	0.298	0.197	3.397	1.847	0.731	0.537	0.264
Fuels	0.212	0.318	0.434	1.790	2.150	3.482	0.331
Manufacturing	1.781	47.276	1.126	0.649	31.007	20.471	33.568
Iron and steel	2.346	5.757	4.431	1.962	1.426	0.068	0.414
Chemicals	5.850	11.771	0.808	0.715	7.024	13.528	2.322
Pharmaceuticals	0.041	0.035	0.024	0.024	0.006	0.243	0.004
Machinery and transport equipment	20.579	27.943	29.055	14.113	44.676	22.628	7.656
Office and telecom equipment	6.823	6.956	9.858	1.439	15.965	4.321	23.071
Electronic data processing and office equipment	13.125	1.297	1.492	0.556	4.965	9.854	4.034
Telecommunications equipment	1.284	5.392	26.481	0.402	7.655	2.846	2.189
Integrated circuits and electronic components	1.935	7.041	3.784	0.542	14.954	1.520	15.867
Automotive products	1.012	10.829	5.098	1.760	0.256	6.012	1.779
Textiles	0.703	0.602	0.334	0.747	0.071	0.526	0.048
Clothing	1.609	0.021	0.070	1.587	0.460	0.554	0.609

Source: RCA calculation in Chapter 3.

experiencing a big flow of vertical IIT from Japan. The Philippines is also benefiting from the huge income gap with Japan compared with other ASEAN4 countries. Malaysia and Thailand are actually having higher revealed comparative advantage (RCA) in manufacturing compared with Indonesia. As we saw in Chapter 3, Malaysia and Thailand have better rankings compared with Indonesia, which was ranked last. But, again, since the products are fragmented into parts and components, the result is slightly different from what we have in Chapter 3. In this case, Japan puts more priority on its income gap[1] instead of the quality of the products.

Korea, on the other hand, has more focus on expanding its capacity in machinery and transport equipment to ASEAN4 countries. She is doing vertical IIT mostly to the Philippines, followed by Thailand, Indonesia, and Malaysia. When it comes to parts and components, Korea and Japan are alike in the way that they put a priority on income gap rather than quality. This similarity explains why the Philippines is on the highest ground compared with Thailand, Malaysia, and Indonesia, which have higher RCA. Indonesia's ranking look like a like roller coaster ride. At the end of the last period of data analysis, her position is taken over by Philippines and Thailand. This fact will pose a serious problem in the future if Indonesia does not make sound policy in capturing the potential gains from the vertical IIT.

4.4.2 Logistic performance index (LPI)

The logistic performance in ASEAN4 will determine the flow of vertical IIT such that the ASEAN4 countries are expected to provide efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time.

Table A.5 gives the scorecards that demonstrate comparative performance. The dimensions show, on a scale from 1 to 5, the relevant scores of the possible comparison groups – all countries (world), region, and income groups. Annual data are collected through the WDI from 2000 to 2007.

Looking at the table, we can say that the ASEAN4 countries need to develop better logistic capabilities. Indonesia, the Philippines, Thailand, and Malaysia are ranked 75, 44, 35, and 29, respectively, on the international

logistic performance index ranking from the 155 countries surveyed. These modest figures are certainly not enough, and it is clear the region has a serious challenge regarding the process of regionalism.

4.4.3 Panel data model-regression result

This section will serve to describe the result from the regression. As the model is differentiated into three parts, we will analyze the results individually for Japan, Korea, and China.

i. Japan

From Table 4.3 we can see that the EXrate yields a positive and significant impact on the Japan's vertical IIT to ASEAN4, while Log wage gives negative one. Thus, the flow of vertical IIT from Japan is a result of the difference in wage. A bigger gap in wage will lead to higher vertical IIT. We also have an exchange rate depreciation that points to vertical IIT, as it lowers the price of exports in ASEAN4 countries. As a result, Japan is facing cheaper products from ASEAN4 countries. Since trade in vertically differentiated products distinguished by quality and price, cheaper price leads to a rise in vertical IIT. Or to put in other words, the exchange rate depreciation clearly increases the share of vertical IIT.

Product fragmentation increases the wage rate in countries where labor is a relatively abundant production factor, while it lowers the wage rate in countries where capital is abundant. This scenario eventually equalizes the wage rate between the two countries in the long term. The negative sign in VIIT DUMMY captures this wage-equalization phenomenon.

Table 4.3 Regression result – Japan

Dependent variable: VIIT (Japan to ASEAN4)		
Independent variable	**Coefficient**	**Std. error**
Log wage	–.061	.022***
LagFDI(Japan to ASEAN4)	.000	.000
EXrate	.000	.000***
GDPCap	–6.68e-06	.000
INDUSTRY	–.005	.004
DUMMY VIIT	–.217	. .093**
Constant	. 1.50	.126 ***
R Square	0.685	

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 8.

As a result, in the long run, we might see a pattern change in IIT, from vertical to horizontal.

ii. Korea

Table 4.4 gives us the picture of the determinants of Korea's vertical IIT to ASEAN4 countries. The log wage and GDP cap to yield a negative and significant impact. This result concludes that the flow of vertical IIT from Korea is a result of the difference in wage and also the income gap. The bigger gap will lead to higher vertical IIT. Logistic gives a positive and significant impact with a high coefficient, meaning that Korea's vertical IIT to ASEAN4 is largely influenced by the efficiency of the customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The positive sign in EXrate means that exchange rate depreciation gives rise to the vertical IIT as it lowers the price of exports in ASEAN4 countries. As a result, Korea is facing cheaper products from ASEAN4 countries. Cheaper price is certainly giving a pronounced effect for the vertical IIT. The negative sign in Dummy VIIT captures the wage-equalization phenomenon as a result of the product fragmentation. As a result, in the long run, we might see a pattern change in IIT, from vertical to horizontal.

iii. China

As shown in Table 4.5, Logistic gives a positive sign with high coefficient, thus China's vertical IIT to ASEAN4 is largely influenced by:

Table 4.4 Regression result – Korea

Dependent variable: VIIT (Korea to ASEAN4)		
Independent Variable	**Coefficient**	**Std-Error**
Log wage	–.077	.027***
GDP cap	–.000	.000***
Logistic	.815	.213***
EXrate	.000	.000***
INDUSTRY	–.009	.0081
Dummy VIIT	–.150	.020***
Constant	–.423	.349 ***
R Square:	0.832	

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 8.

Table 4.5 Regression result – China

Dependent variable: VIIT (China to ASEAN4)		
Independent variable	**Coefficient**	**Std. error**
LOGISTIC	.732	.153***
GDPCap	–.000	.000***
INDUSTRY	.0194726	.005***
Dummy VIIT	–.234	.0871***
Constant	–1.984	.299 ***
R-squared – overall	0.904	

Notes: Statistical significance is indicated by *(10%), **(5%), and ***(1%); number of observations: 8.

the efficiency of the customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. GDP cap yields a negative and significant impact. This result concludes that the flow of vertical IIT from China is a result of the income gap. But it is important to note that China and the ASEAN4 countries actually have on the same income classification. Because of this, we will not see a pronounced effect of the income gap affecting the vertical IIT. This fact is captured by relatively small coefficient for the GDP cap. The negative sign in DUMMY VIIT serves to capture the wage-equalization process.

4.5 Conclusion

The regression result concludes the three models. For the case of Japan's vertical IIT to ASEAN4, the growth of wages and the exchange rate in ASEAN4 countries plays a significant role. While for the case of Korea, logistic performance, the exchange rate, and income gap contribute more. In China's case, logistic performance, income gap and exchange rate, and the industrialization process show a more pronounced effect.

From each of the cases, we can draw a clear line that logistic performance and the difference in wage or income are major determinants for the CJK's vertical IIT trend in ASEAN4 countries. Income and wage gap are already unique characteristics of vertical IIT motivation. The gap will eventually diminish along with the expansion of the production networks (fragmentation). So we can see a more horizontal relationship replacing the vertical one in the future. This phenomenon is captured

by the negative sign of DUMMY VIIT. To understand the logic behind the phenomenon, we can take the work of Jones and Kierzkowski (2001) as they argue that the change in price of production factors is caused by the increase of fragmentation.

It is fair to say that vertical IIT among the ASEAN4 countries has been progressing at a strong pace over the past 10 years. Vertical IIT is a crucial component for regional integration in East Asia. By relocating their production offshore to Southeast Asia countries, CJK is spurring regionalization within East Asia. This gap is fueling the vertical IIT process, which actually incorporates different factor proportions across each country. Thus, we can conclude that regionalism in East Asia is driven by the market or in other words, the bottom-up process of regionalism. However, more needs to be done to secure a transition to regionalism. The process should be matched with the top-down process in which assembles leaders and policy makers from all countries begin serious negotiations.

5
China-Japan-Korea (CJK)'s FTA Strategy toward ASEAN Countries

5.1 Introduction

As noted in previous chapters, we have concluded that the formation of East Asian regionalism will be the responsibility of the CJK countries. In addition, we have already proven that the CJK and ASEAN are on the trend of merging. We have at least two specific models to serve as the basis for robust conclusion. First, in Chapter 2, the author employed the augmented Dickey-Fuller (ADF) test and the Engle-Granger cointegration test to measure stochastic convergence in terms of trade. The result shows us that the two sub regions, Northeast Asia and Southeast Asia, will eventually converge into one region. Second, in Chapter 4 we saw that the DUMMY VIIT from the random effect method captures the phenomenon of factor price equalization. Trade increases the wage rate in countries where labor is a relatively abundant production factor (ASEAN4), while it lowers the wage rate in countries where capital is abundant (CJK). These factors will eventually lead to a bottom-up regionalization, so-called because the market plays a dominant role in the process. It follows the trade and FDI nexus, which leads to an increased share of intra-regional trade of ASEAN+ 3 over the last decade. The share is now reaching a staggering figure as it almost reaches 60%. If we compare it with the figure in early 1990s, 47%, we can conclude that the countries of East Asia are becoming more interconnected to each other.

But, as already proven in Chapter 2, the bottom-up process alone is not enough. A more institutionalized approach is needed to make the regionalism robust and sustainable. Although the leaders of the ASEAN+3 countries have repeatedly held meetings to discuss institutionalizing regionalism, the top-down process in East Asia is still not

reaching its potential. It is fair to say, as Capannelli (2011) argues, that the increased economic interdependence in East Asia over the last few decades has been heavily dominated by the markets rather than government policies. Coordinated intergovernmental initiatives for cooperation, including the creation of regional institutions, have lagged behind. As opposed to Europe, economic integration in Asia has emerged without a clear strategy for creating a unity across the countries in the region (ADB 2008; Drysdale 2006; Kawai 2005; Petri 2006; Soesastro 2006).

Unfortunately, there have been only a limited number of efforts that empirically evaluated the degree of economic integration among East Asian economies based on FTA analysis. In addition, no study has yet critically investigated the possible formation of an East Asian Free Trade Agreement (EAFTA) related mainly to FTA strategies consisting of ASEAN and CJK countries using a game theoretical approach. This chapter sets up the three player game incorporating CJK's FTA strategies toward ASEAN member countries. Regionally speaking, it is very important to see how CJK countries decide their FTA strategy as the ultimate aim is setting up the East Asian–wide FTA.

Section 5.2 gives a literature review of this topic; Section 5.3 covers materials and methods used; Section 5.4 gives the results of the regressions performed, and the last section presents conclusions.

5.2 Literature review

5.2.1 Setting the payoff matrix

What is the incentive (payoff) for countries in doing a FTA? On the theoretical side, we have the so-called "endogenous growth theories" embracing the proposition that trade liberalization with greater openness might promote long-run economic growth under certain conditions. For example, Grossman and Helpman (2004) and Feenstra (1995) argue that if a free trade system is formed under conditions in which technology transfer occurs between the involved economies, production efficiency can be improved, and thus free trade can ultimately induce economic growth among the FTA member countries. Another theoretical link between trade and growth was described in a "learning-by-doing" model, as emphasized by Lucas (1988) and Young (1991). If free trade allows countries to specialize in industries with economies of scale, then their long-run economic growth can be increased. These examples demonstrate that certain economic conditions are required in order to realize a positive relationship between free trade and economic growth; thus, it can be inferred that the theoretical models do not necessarily

yield an unambiguous prediction regarding the relationship between free trade and economic growth. In this chapter, I will empirically prove that an FTA between China, Japan, and Korea toward ASEAN can leading to the enhancement of GDP regionally.

5.2.2 Domino effect of FTA

The interest to become a hub for a regional trade agreement (RTA) will create Baldwin's (2006) domino effect, which is expected to induce most of the East Asian countries join the RTA. When the larger countries sign such an agreement, it can trigger other countries to also sign, even in the case of countries whose governments previously declined joining an FTA. We have two major actors here, which are pro-membership (export-competing firms) and anti-membership (import-competing firms) forces. The model describes a political equilibrium resulting from a balance between the two major forces. The pro-membership will gain preferential access if the nation decides to join the RTA and experience marginalization if the nation stays out. On the other hand, the anti-membership forces will be marginalized if the nation decides to join while it will win the domestic market if the nation stays out. Naturally, the export-competing firms have larger output than the import-competing one. Having said this, the shock resulting from the nation's decision for not joining the RTA would be bigger for the pro-membership side, which will, in turn will force the policy makers to join the existing RTA. As the membership expands, the incentive to join the RTA becomes more attractive even for those who previously found the politically optimal decision to stay out. The cycle repeats itself until a new political equilibrium membership in RTA is met.

The basic logic is simple. As Baldwin argues, the decision to join or not to join an FTA is a function of a political equilibrium that meets the balance of anti-FTA and pro-FTA forces. Typically the pro-FTA group is made up of exporters who would like better market access; the anti-FTA group is made up of import-competing firms and workers employed by them. Deeper integration among the CJK countries is beneficial, and will be considered as South East Asian countries reach a benchmark decision. Moreover, Baldwin believes that the economic grouping in the Northeast Asia stimulates exporters in Southeast Asia to be engaged in greater pro-FTA political activity. The mechanism is as follows: if one of the other nations' government was previously close to indifferent, politically speaking, to signing an RTA with CJK countries, then the extra political activity of their exporters may tilt the balance, leading the country to sign an RTA. This scenario can be thought of as one

domino knocking down the next one – think of the first RTA signing as someone pushing over the first domino, and the second RTA signing as the second domino falling. Countries that are out of the scheme will be marginalized due to the shrinkage of foreign market access. In the political sphere, this new disadvantage will result in greater political pressure on governments to negotiate with the existing RTA.

5.2.3 FTA strategy using game theoretical approach

Since Baldwin and Clarke's article in 1985, there are very limited publications discussing FTA strategy using game theory. Harrison and Rutstrom (1991) and Gander (2008) are among the relatively few. Baldwin and Clarke (1987) use actual trade and tariff data for the US (US) and the European community to demonstrate how to model a Tokyo Round (as a form of trade negotiation) into a game among countries attempting to minimize individual welfare loss functions. They construct welfare functions based on suggested trade negotiation goals and then compute both the non-cooperative Nash-Cournot equilibrium tariffs and the cooperative Nash equilibrium tariffs implied by these welfare functions. Welfare outcomes under the computed equilibrium tariffs are compared with those arising from the initial tariff structure, as well as the tariff structure actually determined by the negotiation. They found that, while the game model tracks closely the decisions of the negotiators in the Tokyo Round, later unilateral political decisions resulted in less optimal tariffs.

Harrison and Rustrom (1991) suggest an alternative approach to the quantitative analysis of trade policy evaluation suggested by the notions of non-cooperative trade wars and cooperative trade negotiations. Specifically, they illustrate their approach by computing the outcome of a trilateral trade war between the US, the European Union (EU) and Japan, and then a bilateral trade war between the US and Canada. In each case they assume that other trading blocs do not react against the warring blocs. They found out that the US and the EU would each "win" in the former trade war while Japan would lose, using the trilateral Free Trade outcome as a basis for comparison. They also found that both Canada and the US would lose from a bilateral trade war, with the losses to Canada around ten times larger than those of the US as a percentage of GNP. They also showed that most of the substantive aspects of a trilateral agreement between the EU, the US, and Japan could be achieved bilaterally by the EU and the US, whether or not Japan reacted strategically to that bilateral negotiation process.

Gander (2008) uses a game theory approach to an FTA made within ASEAN countries and between ASEAN countries and outside countries

and the rest of the world (ROW). Using dynamic game theory, he found that as the number of players within ASEAN increases, the number of potential coalitions increases very rapidly. The FTA's multiply and become very complex. The same potential complexity holds for FTAs between ASEAN as a single entity and non-member countries.

Given the limited amount of scholars using game theory for FTA strategy, let alone East Asian FTA, this chapter aims to enrich the shelf of knowledge by doing a game theoretical approach on CJK FTA strategy towards ASEAN countries.

5.3 Methodology

5.3.1 Assumptions

Non-cooperative game

The most fundamental solution concept in game theory is the Nash equilibrium. A game model with n-countries and their strategies can be formulated as G = (S, u), where S = (s_1, s_2, ….s_i) is the strategy of every country i and u = (u_1, u_2, …..u_i) is the utility (payoff) of country i. From a specific combination of possible strategies of n-country game, a collective strategy s_i^{*}, for every country i, is the Nash equilibrium if no country i could improve its payoff by changing only its own strategy. In other words, in the Nash equilibrium, no country wants to deviate from its strategy if the other countries do not deviate from their strategies. A collective strategy (s_i^{*}, s_{-i}^{*}), where s_i^{*}played by country i and s_{-i}^{*} played by other countries (except country i), is a Nash equilibrium if and only if u_i (s_i^{*}, s_{-i}^{*}) ≥ u_i (s_i, s_{-i}^{*}) for every country i, and s ∈ S .We can say that for country i and its strategy s_i, (s_i^{*}, s_{-i}^{*}) is at least as good as (s_i, s_{-i}^{*}). Under the non-cooperative Nash game model, a country is assumed to have concern only for the impact of proposed tariffs on its own welfare. We can find the Nash equilibria of a game in which each country has only a few actions by examining each action profile in turn to see if it satisfies the conditions for equilibrium. Consider country i, for any given action of the players other than i, country i's actions yield various payoffs. We denote the set of country i's best actions when the list of the other country's actions is a_{-i} by B_i (a_{-i}). Then we can define function B_i by B_i (a_{-i}) = { a_{-i} in A_i : u_i (a_i, a_{-i}) ≥ u_i (a_i', a_{-i}) for all a_i' in B_i }: any action in B_i (a_{-i}) is at least as good for country i as every other action of country i when the other countries' actions are given by a_{-i}. We call B_i the best response function of country i. The function B_i is set-valued, as it associates a set of actions with any list of other countries' actions. Every member of the set

B_i (a_{-i}) is the best response of country i to a_{-i} if each other country adheres to a_{-i}, then country i can do no better than choose a member of B_i (a_{-i}).

Players

The players involved in this game are China, Japan, and Korea. Being acknowledged as the economic front runners, Japan, China, and Korea are assumed to have a major responsibility for the economic welfare in the East Asian region. It is very obvious that East Asian regionalism cannot be put into practice without these countries' strong support.

Strategies

This chapter divides the strategies into two: (i) creates an FTA with ASEAN member countries or (ii) withholds an FTA with ASEAN member countries. The agreement data is compiled from the UNESCAP Interactive Trade Indicators (ITI) component of the Asia Pacific Trade and Investment Agreement Database (APTIAD). Given the nature of the data (*ex post*), the strategy is described as backward-looking in the sense that strategy selection is based on experience measured by relative past realized outputs. Although China, Japan, and Korea are involved in a non-cooperative game, this chapter assumes that each country shares a common goal, which is to reach a sound regional economic growth in East Asia. A sound trading partner within the region is a prerequisite for ensuring a sustainable market in the future.

5.3.2 Payoff scheme

As we have defined that the players are aiming regional target (economic growth) as their common goal, we can now set the payoff for each countries. The Payoff scheme is taken from the work of Barro (1996) on GDP determinants. He finds that GDP is enhanced by higher initial schooling and life expectancy, lower fertility, lower government consumption, better maintenance of the rule of law, lower inflation, and improvements in the terms of trade. Edwards (1997) contributes his idea suggesting to add productivity as one of influential variable for GDP. Many recent studies including Hansen and Rand (2006), Agrawal and Khan (2011) also include FDI as one of GDP determinants. Furthermore, Grossman and Helpman (1991) and Feenstra (1995) show that FTA is also enhancing the signatory country's economy. The macroeconomic data are taken from World Development Indicators (WDI) while the FTA data are taken from the UNESCAP Trade Agreement database. The data are from 1998 to 2007 so that it can match the emerging FTA, which mostly took part within this period.

The paper employs a panel data model to generate the payoff schedule. Below is the specific model used in this chapter:

$$GDP_{it} = \beta_1 Wage_{it} + \beta_2 Governance_{it} + \beta_3 FTA(CJK)_{it} + \beta_4 Tax_{it} + \beta_5 FDI_{it} + \varepsilon_{it} \quad (5\text{–}1)$$

Where GDP_{it}, $Wage_{it}$, $Governance_{it}$, FDI_{it}, Tax_{it} are Gross Domestic Product, monthly wage, governance indicator, FDI inflows and Tax rate, respectively, for CJK and ASEAN4 at time t. The monthly wage is used to measure labor productivity within the East Asian region. We expect to have a positive and significant impact of labor productivity on regional GDP. Along with productivity, we also expect to have a positive and significant impact of FDI inflows on GDP. Tax rate is rather ambiguous, since it could create a positive or negative impact to GDP, although the latter is more common.

Governance is measured by the six governance indicators following the work of Kaufmann et al. (2003). These indices describe various aspects of the governance structures of a broad cross section of countries, including measures of voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. In general, the governance index provides explanatory power to explain the capability and quality of governance from each member country. The better indicator a country has, the more chance it has to enhance the regional welfare.

$FTA(CJK)_t$ is the key variable in this chapter that explains the China, Japan, and Korea FTA to ASEAN countries. The coefficient (incremental) value of the FTA of China, Japan, and Korea to the GDP will serve as a corresponding value for the payoff matrix.

5.3.3 Response function

In some cases, we cannot decide a player's best response function. Thus said, Nash Equilibrium cannot be decided. Fortunately for this FTA game, we have an alternative that is called Baldwin's domino effect. Baldwin (1993) argues that the decision of a country to create an RTA/ FTA will cause others to adopt the same policy measures.

To simulate this logic, the author constructs a simultaneous equation model on RTA/FTA in China, Japan, and Korea. Although they have individual actions, most of them are influencing each other.

The chapter employs vector auto regression (VAR) as a part of simultaneous equation model. The VAR model is one of the most successful,

flexible, and easy-to-use models for the analysis of multivariate time series. It is a natural extension of the univariate autoregressive model to dynamic multivariate time series. VAR is a statistical model used to capture the linear interdependencies among multiple time series. VAR models generalize the univariate autoregression (AR) models. All the variables in a VAR are treated symmetrically; each variable has an equation explaining its evolution based on its own lags and the lags of all the other variables in the model. VAR modeling does not require expert knowledge, which previously had been used in structural models with simultaneous equations.

VAR models were advocated by Christopher Sims, who criticized the claims and performance of earlier modeling in macroeconomic econometrics. Sims recommended VAR models, which had previously appeared in time series statistics and system identification, a statistical specialty in control theory. Sims advocated VAR models as providing a theory-free method to estimate economic relationships, thus being an alternative to the "incredible identification restrictions" in structural models. Sims was awarded the 2011 Nobel Prize in Economics for his work in applying VAR models to macroeconomic analysis.

Let Yt = (y_{1t}, y_{2t},, …, y_{nt},) denote an (n×1) vector of time series variables. The basic p-lag vector autoregressive (VAR(p)) model has the form:

$$Y_t = c + \Pi_1 Y_{t-1} + \Pi_2 Y_{t-2} + \ldots + \Pi_p Y_{t-p} + e_t; t = 1, \ldots, T \tag{5–2}$$

where $\prod_i$ are (n× n) coefficient matrices and e_t is an (n × 1) unobservable zero mean white noise vector process (serially uncorrelated or independent) with time invariant covariance matrix Σ. For example, a bivariate VAR model equation by equation has the form:

$$\begin{pmatrix} y_{1t} \\ y_{2t} \end{pmatrix} = \begin{pmatrix} c_1 \\ c_2 \end{pmatrix} + \begin{pmatrix} \Pi_{11}{}^{1} & \Pi_{12}{}^{1} \\ \Pi_{21}{}^{1} & \Pi_{21}{}^{1} \end{pmatrix} \begin{pmatrix} y_{1t-1} \\ y_{2t-1} \end{pmatrix} + \begin{pmatrix} \Pi_{11}{}^{2} & \Pi_{12}{}^{2} \\ \Pi_{21}{}^{2} & \Pi_{21}{}^{2} \end{pmatrix} \begin{pmatrix} y_{1t-2} \\ y_{2t-2} \end{pmatrix} + \begin{pmatrix} e_{1t} \\ e_{2t} \end{pmatrix} \tag{5–3}$$

where cov(e_{1t}, e_{2t}) = σ_{12} for t = s; 0 otherwise. Notice that each equation has the same regressors – lagged values of y_{1t} and y_{2t}.

The VAR approach assumes all variables in the system are potentially endogenous, so each variable is explained by its own lags and lagged

values of the other variables. The author will start by formulating a general VAR model of the relationship between China, Japan, and Korea's individual RTA. The RTA/FTA information is taken from the Figures 7.1, 7.2 and 7.3.

$$CFTA_t = \alpha_1 + \sum \beta_{1j} CFTA_{t-j} + \sum \lambda_{1j} JFTA_{t-j} + \sum \gamma_{1j} KFTA_{t-j} + \varepsilon_1 \quad (5\text{–}4)$$

$$JFTA_t = \alpha_2 + \sum \beta_{2j} JFTA_{t-j} + \sum \lambda_{2j} KFTA_{t-j} + \sum \gamma_{2j} CFTA_{t-j} + \varepsilon_2 \quad (5\text{–}5)$$

$$KFTA_t = \alpha_3 + \sum \beta_{3j} KFTA_{t-j} + \sum \lambda_{3j} JFTA_{t-j} + \sum \gamma_{3j} CFTA_{t-j} + \varepsilon_3 \quad (5\text{–}6)$$

Where:

$CFTA_t$ = Chinese FTA at year t
$JFTA_t$ = Japanese FTA at year t
$KFTA_t$ = Korean FTA at year t
$CFTA_{t-j}$ = Chinese FTA at year t-j
$JFTA_{t-j}$ = Japanese FTA at year t-j
$KFTA_{t-j}$ = Korean FTA at year t-j
$\alpha, \beta, \lambda, \gamma$ = constant terms
ε = Error term

Equation 5.6 shows that all variables are endogenous variables within the simultaneous equation. The variables are influencing each other, as for example the growth of Chinese FTA in year t is influenced by the Chinese FTA, Japanese FTA, and Korean FTA from the previous period. Likewise, the growth of the Japanese FTA at year t is influenced by Japanese FTA, Chinese FTA, and Korean FTA from the previous period. Furthermore, Korean FTA at year t is influenced by Korean FTA, Japanese FTA, and Chinese FTA from the previous period.

5.3.4 Dominant strategy

A strategy is dominant if, regardless of what any other countries do, the strategy earns a country a larger payoff than any other. Hence, a strategy is dominant if it is always better than any other strategy, for any profile of other countries' actions. Depending on whether "better" is defined with weak or strict inequalities, the strategy is termed strictly dominant or weakly dominant. If one strategy is dominant, the other is dominated. This chapter employs error correction mechanism (ECM) to describe this phenomenon.

5.4 Results and discussion

5.4.1 Payoff matrix

This game scheme yields the payoff matrices shown in Table 5.1. Payoffs in the three-player game are given to the row player (Korea), the column player (China), and the matrix player (Japan, respectively. Below is the detailed explanation of the table.

Japan

If Japan decides to conduct an FTA with ASEAN member countries, it will yield several payoffs depending on other countries' actions. Japan will yield 5362.959 if China and Korea decide the same thing. Japan will have 5679.006 as a reward if Korea decides to create an FTA while China withholds action. Japan's payoff will be 5679.006 if Korea decides to withhold while China is creating an FTA. If China and Korea withhold from the FTA, Japan will have 1097.702.

On the other hand, Japan's action to withhold from an FTA with ASEAN member countries will give zero (0) contribution given other countries' actions. With these facts in mind, we can say that Japan's best response function is to create an FTA with ASEAN member countries. This is the best response since it produces the most favorable outcome for Japan, taking other countries' strategies as given. It is also a dominant strategy in view of the fact that creating an FTA earns Japan larger payoffs than withholding from signing an FTA.

Table 5.1 Payoff matrix

		Japan: Creates	
		China	
		Creates	**Withholds**
Korea	Creates	3240.14, 4809.101, 5362.959	3194.533, 0, 5679.006
	Withholds	0, 4788.361, 5265.277	0, 0, 1097.702

		Japan: Withholds	
		China	
		Creates	**Withholds**
Korea	Creates	2368.986, 6090.883, 0	815.065, 0, 0
	Withholds	0, –82.758, 0	0, 0, 0

Note: The numbers in the matrices are taken from the coefficient value of the CJK FTA to the GDP after regressing equation 5–1.

Korea

Korea's strategy to create an FTA with ASEAN member countries will result in several payoffs given other countries' actions. Korea will take 3240.14 if China and Japan decide to do the same thing. Korea's reward will be 3194.533 if Japan decides to create an FTA while China withholds action. Korea will get 2368.986 as a payoff if China decides to do the same while Japan withholds. If China and Japan withhold from the FTA, Japan will have 815.0657.

Alternatively, Korea's action to withhold from the FTA with ASEAN member countries will give zero (0) contribution given other countries' actions. Since creating an FTA with ASEAN member countries produces the most favorable outcome for Korea, taking other countries' strategies as given, we can say that it is the best response function for Korea. It also functions as a dominant strategy for Korea since creating an FTA give Korea better payoffs than withholding from it.

China

Following the same scheme, China's strategy to create an FTA with ASEAN member countries will yield several payoffs given other countries' actions. China will get 4809.101 if Korea and Japan act in unison. If Korea withholds engaging in an FTA while Japan decides to create an FTA, China will yield 4788.361 as its payoff. China will have 6090.883 as a payoff if Korea chooses to create an FTA while Japan withholds. But China will suffer if it is the only country that creates an FTA with ASEAN countries, since the payoff will be a negative number, -82.75891.

Then again China's strategy to withhold from an FTA with ASEAN member countries will give zero (0) contribution given other countries' actions. Unfortunately, from the facts we have from the payoff matrix, China's best response function and dominant strategy are still ambiguous. This conclusion is fair because China's strategy still has the possibility to deviate from creating to withholding an FTA with ASEAN member countries.

Given the less ideal situation above, we cannot employ the Nash Equilibrium yet. It still has the tendency to deviate from the *Pareto superior* to *Pareto inefficient* equilibrium that is often associated with strategy traps. Baldwin's domino effect using VAR simulation should give an answer.

5.4.2 Response functions

From the VAR output shown in Table 5.2, we can see that the Chinese FTA is influenced by its own FTA in t-1, the Japanese FTA in t-1, while Korean action to conduct an FTA does not have a significant influence

Table 5.2 VAR result

Sample(adjusted): 1992–2009
Number of Observations: 17

Standard errors & t-statistics in parentheses

	CHINA_FTA	JAPAN_FTA	KOREA_FTA
CHINA_FTA(-1)	0.628	0.948	0.410
	(0.260)	(0.270)	(0.094)
	(2.415)	(3.512)	(4.338)
CHINA_FTA(-2)	–0.517	–0.726	0.811
	(0.427)	(0.443)	(0.155)
	(–1.210)	(–1.637)	(5.226)
JAPAN_FTA(-1)	0.088	0.391	–0.331
	(0.192)	(0.200)	(0.070)
	(0.456)	(1.953)	(–4.727)
JAPAN_FTA(-2)	0.873	0.223	0.408
	(0.255)	(0.264)	(0.092)
	(3.424)	(0.845)	(4.404)
KOREA_FTA(-1)	0.191	–0.663	–0.294
	(0.510)	(0.529)	(0.185)
	(0.375)	(–1.251)	(–1.585)
KOREA_FTA(-2)	–0.141	1.670	–0.960
	(0.349)	(0.363)	(0.127)
	(–0.405)	(4.597)	(–7.553)
C	0.0846	0.0461	0.031
	(0.093)	(0.0971)	(0.034)
	(0.904)	(0.475)	(0.904)
R-squared	0.866	0.914	0.951
Adj. R-squared	0.793	0.867	0.925
Sum sq. resids	1.137	1.227	0.150

on the Chinese FTA strategy. The Japanese FTA, on the other hand, is clearly influenced by her FTA in t-1, the Chinese FTA in t-1, and the Korean FTA in t-2. It is implied that Japan puts more attention on the Chinese FTA rather than the Korean FTA, which is supported by the difference in time lag. Korean strategy in conducting an FTA is unique when compared with the Japanese and Chinese approach to enacting an FTA. The Korean FTA is unlike its previous FTA policy, as it now places more focus on Japanese and Chinese actions. The Chinese FTA in t-1 and t-2 show a clear dominance for the Korean FTA while the Japanese FTA has a different influence in t-1 and t-2. The Japanese FTA in t-2 boosts

the tendency of the Korea to have its FTA with others while the Japanese FTA in t-1 stalls the Korean FTA. From the regression, we can now decide that China's strategy is relatively dependant with Japan's strategy. Since we already have Japan's best response function, the decision to create an FTA with ASEAN countries will be the Nash Equilibrium for this game.

5.4.3 Discussion

As it has been stated in Section 5.4.2, China, Japan, and Korea's strategy to create an FTA with ASEAN member countries is the Nash equilibrium for this game. In this game, we found that China, Japan, and Korea's strategy is interdependent to each other, with China having the most influence on the other countries s in making their moves toward creating an FTA. But with the absence of Japan and Korea, China's strategy will have a negative economic impact given that country's weak and unclear FTA/RTA strategy in ASEAN. According to Nakagawa and Liang (2011), China has excluded seitive sectors and issues that may be difficult to deal with in the short term, such as intellectual property protection, dispute settlement mechanisms, special sectoral liberalization, the environment, and labor standards. Moreover, they argue that China and ASEAN have placed a wide range of important industrial products (such as automobiles, appliances, chemical products, iron and steel, and textiles) as well as farm goods (such as rice and palm oil) on the sensitive track. China has negotiated more than half of its FTA agreements by placing geopolitical/security/strategic goals over economic considerations (Nakagawa and Liang 2011).

China's attempt with a China-ASEAN FTA (CAFTA) is widely seen as an example of the dominance of geopolitical considerations in its engagement in the Southeast Asia region. A disharmoniuous region can only be a distraction from a focus on economic development. China also accepts a very flexible plan, requested by its FTA partners, to reach an FTA with them. As with China's FTA negotiation with ASEAN members, China agreed to negotiate a trade-in-goods agreement (signed in 2004) separately from a trade-in-services agreement (signed in 2007) to ease the political tensions in some of the ASEAN countries.

The greater flexibility demonstrated by China unilaterally also shows that reaching agreements with these ASEAN countries will primarily meet its political and foreign policy objectives instead of reaching its economic targets, one of which is GDP growth. In fact, Chinese government officials admitted that geopolitical considerations trump any economic benefit when China is negotiating economic issues with its neighboring countries (Nakagawa and Liang, 2011). This stance is quite

understandable since the rivalry between ASEAN4 members and China has been ongoing for years. Holst and Weiss (2004) point out China's pattern of creating short- and medium-term direct and indirect competition between ASEAN and China. They argue that ASEAN and China are experiencing intensified export competition in prominent third markets. This situation can lead to painful domestic structural adjustments within the ASEAN countries in the short run. Then again, the mind set in viewing the economic opportunity or threat depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter economies are able to exploit their complementary opportunities and overcome the competitive threats.

In constituting East Asian regionalism, leadership plays a very important role. *The Korea Herald* once posed the crucial question for the future direction of Asian regionalism: "Which country is capable of taking the lead? It boils down to either China or Japan" (*Korea Herald*, October 10, 2002). Sino-Japanese antagonism and aspirations to leadership on both sides have, in consequence, been a major source of structural change in the region, resulting in a dynamic interplay between bilateral FTA and multilateral institutions. This chapter argues that it is important for East Asia to give Japan an extensive role in designing East Asian–wide FTA given the weak impact of China's FTA the region.

Japan's comprehensive trade strategy has already proven to be helpful to the region economically. The possibility Japan taking a leadership role in East Asia is faint, would be difficult to achieve, but nevertheless is a worthwhile objective, as it has the potential for enhancing the region's welfare. A Japan-China joint strategy to create FTA will eventually bring the East Asian region to the next level.

5.5 Conclusion

The Nash equilibrium in this game happens when China, Korea, and Japan are using the same strategy, which is to create an FTA with the ASEAN member countries. Although the game is analyzed as backward looking, we have gleaned a benchmark towards the future FTA policy in the East Asia region. In order to build more integration in in East Asia governments need to set up more formal institutional mechanisms for trade. As noted by Kawai (2005), it is rational for such mutually dependent countries in the region to institutionalize de facto integration through the establishment of regional arrangements. The growing significance of the Chinese, Japanese, and Korean markets for ASEAN will then serve as

the basis for a single East Asian–wide FTA. Eventually, China, Japan, and Korea's FTA will have a greater influence in East Asia (the domino effect). As Baharumshah et al. (2007) argues, regional integration through RTAs is expected to widen the markets of the participating member countries. Large and growing markets will create greater confidence for both domestic and foreign investors. RTAs will give the chance for the participating countries to increase their production, capacity utilization, and employment as well as improve their investment potential, reduce vulnerability to external shocks, capture economies of scale, improve their bargaining positions in international markets, and increase the average standard of living. In addition to an investment creation effect, new prospects for improved business without tariffs and quotas on trade within the region may propel local firms to rearrange production facilities within the group.

6
The Determinants of East Asian Regionalism

6.1 Introduction

As already proven in the previous chapters, a more institutionalized approach is needed to make the East Asian regionalism solid and sustainable. Feng and Genna (2003) argue that homogeneity of domestic institutions is needed to go hand-in-hand with the regional integration process. Moreover, they point out that inflation, taxation, and government regulation as representative factors for the economic institutions. Another variable that might enhance integration is population, as already identified by Tamura (1995). He argues that a large population is a catalyst for integration due to economic agglomeration. Scholars such as Milner and Kubota (2005) even show that democracy is an important factor that could foster regionalism. Their empirical work on the developing countries from 1970–1999 showed that regime change toward democracy was associated with trade liberalization and regionalization.

Having said this, knowing the factors that determine the formation of regionalism (top-down process to match the existing bottom-up process) is becoming more crucial. This chapter tries to identify the variables that provide a clear path for the formation of EAR. Thus, a unified East Asia could accelerate the momentum of overall trade liberalization and boost regional economic growth.

The remainder of this chapter is organized as follows: Section 6.2 studies the basic concepts, Section 6.3 covers materials and methods, Section 6.4 examines the results of the regressions, and Section 6.5 presents conclusions.

6.2 Basic concepts

6.2.1 Democracy and regionalism

Many scholars believe that the type of regime can influence the choice to join or not to join the free trade scheme. But whether or not democracy promotes free trade still prompts some ambiguous arguments among scholars. Given the global trend toward democracy (Freedom House 2002), the answer is of more than pedagogical interest. If democracy indeed promotes free trade, then the spread of democracy should reinforce the regionalism and creates a path to open the markets for poor countries, which have historically lacked market access. However, if democracy can lead to protection, the formation of regionalism will face substantial problems. Either way, understanding and predicting the future of regionalism requires an understanding of the democracy and trade policy relationship.

Consider, in a Heckscher-Ohlin world, a relatively labor (capital) abundant country for which the initial selectorate consists of a large fraction of capital (labor) owners. Suppose that this body is then gradually eroded as democratization expands the proportional weight of the relatively abundant non-capital– (non-labor)–owning class. Vote-maximizing governments will find that high tariff rates –even when fully redistributed back to voters –no longer compensate the income loss due to protection. The result is an increasing bias toward a trade policy that maximizes electorate welfare, and hence one that maximizes the gains from trade. In this case, democracy unambiguously spurs trade.

Milner and Kubota (2005) argue that democratization, which implies an increase in the selectorate's size, has a direct consequence in changing the calculations of political leaders about the optimal level of trade barriers. They see that democratization induces the adoption of trade policies that better promote the welfare of consumers/voters at large, which implies trade liberalization in this context. Although the interest of the protectionist group remains important as the dynamic of democracies, other groups preferring lower trade barriers become more important for political leaders since they are now part of the selectorate upon which leaders can depend upon for their political survival.

The work of Grossman and Helpman (1994) on the political economy of protection tells a somewhat different story compared with the one mentioned above. They argue that if rational policymakers (government, parliament) maximize a weighted sum of campaign contributions and

general welfare, the equilibrium tariff depends on the relative weights placed on each in the government's objective function. To the extent that special interest groups are more active in a democracy (Olson 1982), they might constitute a greater weight, and therefore a greater level of democracy would lead to higher trade barriers. Conversely, political competition generated in an active democracy might imply that policy makers weight more heavily in general versus special interest welfare. These models are silent as to which influence might dominate; however, empirical work testing the Protection for Sale model has yielded results that are supportive of a positive linkage between democracy and trade (Mitra, Thomakos and Ulubasoglu 2002).

To simulate the logic, we will go through the juggernaut framework as briefly described in Chapter 2. Although it is known best for explaining the behavior of exporters and importers, it also serves well when it comes to politics. The main similarity would be the involvement of actors that seek to find a political optimal point (equilibrium point). Those actors are; (i) policy makers, (ii) anti-free trade actors, and (iii) pro-trade actors. Consider the scenario where anti-free trade actors have the dominant lobbying power that influences the whole system. In this scenario, the pro-trade group will try its best to ensure its safety. To do so, the anti-free trade actors need to lobby the policy makers to impose high tariffs by reciprocally giving the policy makers a more sound prognosis of consumer welfare.

Naturally, the pro-trade activist would resist any kind of tariff hikes. For the anti-trade actors, the given characteristic means lobbying cost. Since the first scenario assumes that the anti-trade actors have an ample amount of resources to handle the cost, the policy makers will then be stirred to set cuts on sanction.

The number of anti-trade actors is determined by a free entry condition, which is a function of the tariff. Higher tariff rates will lead to an increasing number of anti-trade actors as they face lesser barriers to entry. The tariff itself is determined by the policy makers' action when it optimizes a "politically realistic objective function." The objective function here is defined as way to maximize one's preference. The intersection of politically realistic objective function with the free entry conditions gives us set combinations where the policy makers are choosing the politically optimal rule while letting the anti-trade actors enter the game up to the point of no return.

Reciprocal talks (taking the form of negotiation between anti trade actors and policy makers) will have a direct impact for a politically optimal tariff. This scenario will shift down the objective function

of the policy makers since they have a new set of optimal rules. The shifting will in turn drive some pro-trade actors to be marginalized since they face an increasing number of anti-trade actors, which also means increasing lobbying power against them. This situation will decrease the cost of lobbying since the political resistance from the pro-trade actors is decreasing linearly with the increasing size of anti-trade actors. As far as Baldwin's juggernaut effect is concern, the political economy forces driving the effect are strengthened by the tendency of special interest groups to fight harder to secure gains. For them, joining an anti-trade scheme will give new commercial opportunities. Having said this, the higher tariff may play a particularly important role in generating new, anti-trade political economy activity. Holding another reciprocal talk is cheaper now, resulting in further hikes on tariffs. The cycle repeats itself until a new equilibrium is met (the juggernaut effect).

As Geddes (1995) summarizes:

Until recently, it was widely accepted that democracies, especially fragile, uninstitutionalized new democracies have difficulty carrying out economic liberalization because its costs make it unpopular and hence politically suicidal to elected officials. Consequently, it was argued, authoritarian governments should be more capable of initiating and sustaining major economic reforms"

The effect of democracy on trade can also be determined by the characteristics of the voters. Mayer (1984), in his work on the political economy of trade, produces interesting findings concerning the voter's unique characteristics using the Heckscher-Ohlin framework (two factors and two sectors). The findings emphasize the endowment of the median voter. If the median voter is well-endowed with labor, he/she will support imports of capital-intensive goods but oppose imports of labor-intensive goods. On the other hand, if the median voter is well endowed with capital relative to the national mean, then he/she will support imports of labor-intensive goods but oppose imports of capital-intensive goods. To correspond with Mayer's work, Dutt and Mitra (2002) explain that inequality raises trade barriers in capital-rich countries and lowers them in capital-scarce ones, and that left-wing governments adopt more protectionist policies in capital-rich countries but more free trade policies in labor-rich economies than do right wing governments.

6.2.2 Good governance and regionalism

Only recently did the development literature include some excessive study on the terms governance and good governance. Bad governance, as the antithesis of good governance, is often regarded as a major root of

all problems. Major donors and international financial institutions are increasingly basing their aid and loans on the condition that reforms that ensure good governance are undertaken.

The concept of "governance" is not new. It is as old as human civilization. According to UNESCAP, governance means: the process of decision-making and the process by which decisions are implemented (or not implemented). Governance can be used in several contexts, such as corporate governance, international governance, national governance, and local governance. Given the fact that governance is the process that involves decision-making and implementing such decisions, any analysis concerning governance should focus on the actors, formal and informal, that are drawn in the process.

Putting the concept to practicality, government is deemed as one of the actors in governance. Other actors that are involved in governance vary depending on the level of government that is under discussion. In rural areas, for example, other actors may also include influential land lords, associations of peasant farmers, cooperatives, non-governmental organizations, research institutes, religious leaders, financial institutions, political parties, the military, etc. The situation in urban areas is much more complex.

In the relation to regionalism, various studies have demonstrated that governance is crucial for regionalism. Adam Smith (1776) noted that private contracting is an important factor for the mutually beneficial exchanges that promote specialization, innovation, and growth, which are also the main factors for the gains from free trade leading to regionalism.

Bolaky and Freund (2004) demonstrate that regulatory quality influences the interaction between trade and economic growth. They also argue that countries with excessive regulations do not benefit from trade. The argument is relatively simple: Trade only benefits countries that have relatively low adjustment costs. Or to put it in other words, countries that are facing a low cost for reallocation of labor and capital – from the import-competing sector to the export sector – will get a high benefit from trade. On the other hand, countries with too much regulation may face a relatively rigid economic structure. In this case, production factors can face difficulties in moving to the sectors where large welfare gains can be achieved. The economy may eventually end up in a situation where trade does not have a beneficial impact on the allocation of resources within and between sectors. Furthermore, excessive regulations may encourage a country to produce goods for which the country has no comparative advantage and/or the terms of trade have been unfavorable over recent decades.

Moreover, Fisman and Sarria-Allende (2004) found two different outcomes for industries in countries that either have or do not have excessive regulations. In response to shocks, industries with high tariff barriers expand the existing firms, while industries with low entry barriers create new firms. In addition, in countries facing high entry barriers, the industries characterized by large sales turnover tend to have only a few large firms while countries with low entry barriers have many smaller firms. Thus, their results suggest that regulations create distortion in industrial structure, increases industrial concentration, and influences the amount of entrants to an industry in the case of external shocks. Similarly, Klapper et al. (2004) examine data on firms in Western and Eastern Europe and discover that entry regulations lead to less entry, especially in industries with naturally high entry barriers. In addition to that, they also find that excessive regulations deter the investment related to labor-intensive industries.

6.2.3 Transport infrastructure and regionalism

Good infrastructure, especially transport infrastructure such as roads, railways, and ports will provide steadiness and assuredness in making trade investment in a country. Solid infrastructure tends to lower the cost of trade. Good infrastructure will only lead to a sustainable intra trade and investment. Thus said, it lays foundation for the formation of regionalism.

According to WTO (2004), this sector is crucial for moving goods and services from exporting to importing countries. Poor transport infrastructure or inefficient transport services are reflected in higher direct transport costs and longer delivery time while an improvement in a country's infrastructure lowers the costs of trading. A study conducted by Limão and Venables (2001) shows that if there is an improved infrastructure in a country –above the median point to the top 25% of all countries being surveyed – will cause a significant reduction on transportation cost of up to 481 kilometers of overland travel and 3,989 kilometers of travel by sea. This shift will also cause an increased volume of trade – by 68% – which is equivalent to being 2,005 kilometers closer to other countries. Meanwhile, countries facing inefficient transport services will experience higher overall transport costs. A poor quality infrastructure increases total transport costs as it increases direct transport costs and the time of delivery. A study conducted by Wilson et al. (2005) demonstrates that transport costs and lack of infrastructure wear down the potential income of local producers. A study by WTO recognizes the negative impact a lack of infrastructure has on domestic income.

Transportation infrastructure has been proven to have a pronounced effect on trade as it channels through the effect on a country's comparative advantage to trade.

Yeaple and Golub (2002) make a quantification that explains to which extent the difference in government infrastructure is affecting a country's existing total factor productivity (TFP) at the sectoral level. They found that a road infrastructure provision is a significant factor in a sector's productivity growth and in a country's production specialization. Moreover, the road infrastructure turns out to be significant not only as a factor affecting productivity growth in the transportation equipment sector but also as a factor influencing the process of specialization in the production of textiles and apparel.

One study estimated a standard gravity model augmented with a variable measuring the quality of infrastructure of the importing and exporting country. The study showed that better infrastructure for sea, land and air transport have joint significance for raise the volume of trade. The quality of ports seems to have the largest impact on trade. According to the report, an increased efficiency in a country's ports has a significant, positive impact on trade, which lays the foundation towards regionalism. When it comes to air transport infrastructure, the study found that if the number of paved airports per square kilometers in a country is doubled, it will boost imports by 14%. Moreover, a country that does trade with a partner with twice as many airports will increase bilateral trade by a further 15%. Good quality of land infrastructure also has a positive effect on trade. Doubling the number of paved roads per 100 square-kilometers is estimated to increase trade by 13%. A country importing from a partner country with twice as many kilometers of paved roads per 100 square kilometers than itself increases trade by 12% (Nordås and Piermartini, 2004). For a more comprehensive look on the WTO study, please see Box A.1.

6.2.4 Industrialization and regionalism

By definition, industrialization means the process in which a society or country (or region) transforms itself from a primarily agricultural society into one based on the manufacturing of goods and services. Individual manual labor is often replaced by mechanized mass production and craftsmen are replaced by assembly lines. Characteristics of industrialization include the use of technological innovation to solve problems as opposed to superstition or dependency upon conditions outside human control such as the weather, as well as a more efficient division of labor and economic growth. Industrialization is a historical phase

and experience. Industrialization is the overall change in circumstances accompanying a country's movement of its population and resources from primary production activities to manufacturing production and associated services. In relation to regionalism, industrialization in developing countries creates mechanization for the parts and components that are being channeled from the developed countries. Regionally speaking, the industrialization process will help to enhance the region as factory for the overall product fragmentation process. For East Asia, the example of Japan's production networks in relation to the South East Asian countries is an example of this fragmentation. Japan is well known as the producer of value-added engine parts and components. Actually, however, the whole process of production includes several Southeast Asian countries. Indonesia is responsible for assembling the gasoline engines and horns. The Philippines specialize in making the transmissions and combination meters. Malaysia assembles the engine parts and condensers. Thailand assembles diesel engines and air conditioning units. This whole process of production networks is spurred by the industrialization in the Southeast Asian countries.

6.2.5 Population and regionalism

A large population serves well not only for the demand for the goods from trade but also as a supply of labor for the industrialization process. It creates a sustainable path towards regionalism. However, looking at the literature, the effect of population on trade is a bit equivocal.

Matyas (1997) finds that population has positive trend in raising trade volumes and the level of specialization in which it produces gains from specialization. On the other hand, Dell`Ariccia (1999) finds a negative relation between population and the volume of trade. In addition, Bergstrand (1989) reports a positive effect of GDP per capita on trade. He describes a negative GDP per capita coefficient in a way that the product group that is subject to the estimation is not capital intensive but labor intensive. Since a higher population decreases GDP per capita on a labor-intensive basis, we can see a negative relationship between population and trade flows.

Moreover, according to Nuroglu (2010), who studies the six Organization of the Islamic Conference (OIC) economies, the impact of population on trade will differ as it depends on the length of the period of estimation (short-term vs. long-term). In the short run, population may have a positive impact on trade flows as it may raise the number of those in the labor force, the level of specialization and increase the number of products to export. However, in the long run, a larger

population has a high likelihood of decreasing income per capita, which makes every individual poorer, which may cause production and exports to decrease. In addition, lower income per capita tends to decrease the demand for imports as well. Having said this, we might see different results across time periods and regions when the effect of population on trade is measured.

6.2.6 Education and regionalism

Policies concerning enhancement in the field of education have long been known and have played a significant role in a country's development. High quality human resource development is regarded as the genuine product of education that can improve any strategy related to competitiveness. Good education is the key to reach economic growth and to escape from poverty.

Some developing countries have been successful in attracting FDI due to qualified human skills. In the East Asian context, sound policy that promotes education can eventually diminish the income gap between the Northeast and Southeast Asian countries. The fact that product fragmentation is becoming a trend in this region also serves to enhance regional convergence. As stated by Jones and Kierzkowski (2001), fragmentation increases the wage rate in countries where labor is a relatively abundant production factor, while it lowers the wage rate in countries where capital is abundant. This phenomenon eventually equalizes the wage rate between two countries in the long term. This equalization in wage is true if the educational gap among the countries becomes smaller.

6.3 Methodology

This chapter employs a fixed effects model in panel data. The model is specified as follows:

$$Open_{it} = \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + \ldots + \gamma_N W_{Nt} + \delta_1 Z_{i1} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + \ldots + \delta_t Z_{iT} + e_{it} \quad (6.1)$$

Where:

$Open_{it}$ = Regionalism for time t and country i

X_{it} = Independent Variables (ASEAN4 + CJK's rail ways, tax, democracy, governance, industry, gross school enrolment rate, inflation and population)

W_{it} and Z_{it} are dummy variables which are defined as follows:
W_{it} = 1 for country i, where i = Indonesia, Malaysia, Philippines, Thailand China, Japan, Korea
= 0 for others
Z_{it} = 1 for Period t where t = 1998, 2000 ... , 2007
= 0 for others

Following are the explanations for the variables used:

(i) The variable of trade openness is used as a proxy of regionalism. The variable of openness is used to represent regionalism since regionalism creates openness for some sectors of the economy. Openness here functions as dependent variable that is determined by some independent variables.

(ii) Railways as goods transported (million ton-km) is used to explain physical infrastructure readiness. Pairing up with this variable is the gross school enrollment rate, which serves as the basis for human capital infrastructure. Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Primary education provides children with basic reading, writing, and mathematics skills along with an elementary understanding of such subjects as history, geography, natural science, social science, art, and music. Sound infrastructure (both physical and human) will provide steadiness and assuredness in investments among members. In other words, good infrastructure will only lead to a sustainable intra trade and investment that serve as the basis of EAR. (iii) To measure democracy, the indices produced by Freedom House (2000), including the index of democracy called POLITY (see Box A.2), are used. Democratization is expected to open up new avenues of support for freer trade vis-à-vis regionalism.

(iv) The next variable is the taxation policy; the higher the rate, the more it will diminish the prospects of EAR.

(v) Other variables include governance, which is measured by the six governance indicators estimated by Kaufmann et al. (2003). These indices describe various aspects of the governance structures of a broad cross section of countries, including measures of voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. In general, the Governance index provides explanatory power to explain the capability and quality of governance from each member country (see Box A.3). The better indicator a country has, the more chance it has to capitalize on regionalism.

(vi) The macroeconomic variable, which is represented by inflation, creates an ambiguous expectation. High inflation might deter the formation of EAR, but some scholars prove the opposite. One of arguments supporting the latter proposition is given by Cohen (1997), who argued that the inflationary policy (high inflation) resulting from government action will tend to raise the obstacles to private investors, which in turn increases demand for greater integration. The loss of discretion in the fiscal and monetary policy will then reduce the risk of uncertainty.

(vii) A large market, together with the ongoing industrialization process, sums up the last aspects of EAR formation. The sheer size of the East Asian population creates not only the potential demand for the goods traded in the region but also the supply of labor force and the low absolute level of wages. In other words, Lewis's unlimited supply of labor will persist longer in East Asia than in other parts of the world. The process will lead to an upward trend towards industrialization (value added as percentage from GDP) in the region. This trend is very important since homogeneity in industrialization among countries in the region will smooth the progress of EAR.

6.4 Results and discussion

Table 6.1 gives the regression results from the panel data model. The growth of railways, as expected, gives a positive coefficient for openness. One percent growth in railways in kilo meters tends to raise the net export per GDP (openness) by 0.12 point. The result confirms

Table 6.1 Factors affecting openness

Dependent variable: OPENNESS		
Independent variable	**Coefficient**	**t-Statistic**
Log(railways)	0.115860	2.059379**
Tax	–0.029831	–3.530943***
Democracy	–0.004282	–2.051852**
Governance	0.257508	3.860438***
Industry	0.049930	4.861010***
Log(population)	0.863634	2.154852**
Gross education	0.011445	2.217493**
Inflation	–0.001545	–0.441719
R-squared	0.99251	
Adjusted R-squared	0.98975	

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%).

the importance of the transportation infrastructure to create a greater possibility for regionalism. The negative sign of the coefficient for tax describes the opposite relation between the corporate tax rate and the future prospect of EAR – the higher the rate, the more it will the deteriorate the EAR. A one percent tax rate rise tends to lower the likelihood of openness by 0.02 point. The negative sign of democracy suggests that a democratic environment hampers the possibility of joining any regional trade scheme. With democracy, delivering an EAR policy would become difficult since the government has to meet the expectations of all stakeholders. Trade liberalization is surely a controversial topic that can only find political resistance from people who find themselves to be potentially affected by such policy. Fortunately, the magnitude is not very high, since a one point rise in the index only lowers the tendency of openness by 0.004 point. The variable of industry yields a positive coefficient in which we can conclude that the trend towards industrialization in East Asia has opened the chance of making regional groupings. A one point rise in this variable will most likely raise the tendency of openness by 0.04. The variable of population has not only a positive but also the highest coefficient. Population is regarded as the most important variable that serves as a foundation towards EAR. A one point rise in population will raise the likelihood of openness by 0.86. The variable of education also gives a positive coefficient. A one point rise in the coefficient will help to raise the possibility of EAR by 0.01 point. The insignificant role of inflation for EAR is expected due to the ambiguity given. Governance has a positive and significant impact on openness, while a one point rise in the governance index will raise the tendency of openness by 0.26 point. This finding is significant, because it means that corruption control, voice and accountability, regulatory quality, government effectiveness, political stability, and rule of law play an important role for EAR. Having said this, it is interesting to see the individual performance of the CJK and ASEAN4 countries on each index. For the sake of regional comparison, the author also reviewed countries that are not included in the regression.

i) Control of corruption

Over the last decade, New Zealand and Singapore are regarded as the best performers of the countries being analyzed. New Zealand has been on the top since 1998 and Singapore took the lead in 2008. On the contrary, Indonesia and Philippines have been ranked at the bottom since 1998.

ii) Voice and accountability

New Zealand is persistently holding the first position when it comes to political rights and civil liberties. China, as expected, has been on lowest level since 1998.

iii) Political stability

During the past decade, Australia and China have been the most politically stable countries in the region. In the case of China, this condition is achieved because of the impediment on social movements and media suppression. On the other hand, Thailand is deemed the most politically instable country due to the military coup and social riots that have been dominant over the last decade.

iv) Government effectiveness

Because they are the most politically stable countries, it is not surprising that Australia and China also took the lead for government effectiveness. The governments in these countries can deliver good inputs that are required to produce and implement strong policies. On the contrary, Thailand has the most ineffective government in the region.

v) Regulatory quality

Again, China and Australia dominate in this ranking. They are regarded as countries that have the best quality regulation in the region. Interestingly, in 2008 Indonesia took China's position at second place in this category. Indonesia's achievement is a result of its continuous reformation in the public sector. Quite the opposite, Thailand ranked the poorest in quality of regulation in the region.

vi) Rule of law

In the wake of rule of law, or every citizen following the rules of society, the enforceability of contracts, the prevalence of black market activities, and the effectiveness and predictability of the judiciary, Australia and China are considered the best while Thailand ranked as the worst.

6.5 Conclusion

Results from the static panel data simulation demonstrated in this chapter, results show that sound transportation infrastructure, good governance, competitive taxation policy, a sizeable market, good education, democracy, and the trend towards industrialization are the main

factors that serve as building blocks for EAR. The first factor is transportation infrastructure such as railways for the transport of goods (million ton-km). Pairing up with this variable is the gross school enrollment rate, which serves as the basis for human capital infrastructure. Sound infrastructure (both physical and human) will provide steadiness and assuredness in making investments among members. In other words, good infrastructure will only lead to a sustainable intra trade and investment that serve as the basis of EAR. If a country wants to benefit from regionalism, it should at least solve the latent problems of an unprepared infrastructure.

The next factor that also matters is governance, which is measured by the six governance indicators estimated by Kaufmann et al. (2003). These indices describe various aspects of the governance structures of a broad cross section of countries, including measures of voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. In general, the governance index provides explanatory power to explain the capability and quality of governance from each member country. The better indicator a country has, the more chance it has to capitalize on regionalism. This is surely ongoing homework for the region.

Another factor that should be considered for the formation of EAR is democracy. Democracy can function to either increase or decrease the possibility of EAR. It is influenced by the character of a country's stakeholders (voters). Although we find in this chapter that democracy tends to decrease the possibility of EAR, in the future we might see a different result due to the dynamics of political constellations. With taxation policies, the higher the rate, the more it will diminish the prospects of EAR. The good example of tax reform within the region is expected to become the dominant factor for creating EAR.

A large market together with the ongoing industrialization process sums up the last aspects of EAR formation. The sheer size of the East Asian population creates not only the potential demand for the goods traded in the region but also the supply of a labor force and the low absolute level of wages. In other words, Lewis's unlimited supply of labor will persist longer in East Asia. The process will lead to an upward trend towards industrialization in the region. This trend is very important since homogeneity in industrialization among countries in the region will smooth the progress of EAR. These findings are coherent with the study conducted by the ADB in 2006 that identifies four solid pillars for the East Asian regional cooperation and integration. Those

pillars are: (i) trade and investment; (ii) money and finance; (iii) infrastructure and connectivity; and (iv) regional public goods.

Having identified the factors that determine regionalism in East Asia should be equally matched by actual implementation on the field by the East Asian leaders. The question then arises, will they be ready to go through on the path towards regionalism?

7
Conclusion

7.1 East Asia: an integrated environment

Regionalism, which includes any formal preferential trading arrangement between two or more countries, came late to Asia. Before the turn of the twenty-first century, there were few regional trading agreements in existence. While successful Asian economies by and large exploited the international marketplace effectively, they did so in the context of the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) framework. However, regionalization, which we define as a market-led process of increasing economic interaction, has been building up momentum in Asia for decades, spurred by unilateral liberalization, market-oriented reforms, and successful economic growth that was consistently above the global average (with the exception of the Asian Crisis years, 1997–1998). Hence, formal preferential trading arrangements in the region, particularly in the form of free trade areas (FTAs), are being developed as a means of enhancing regionalism ("the flag following trade") rather than the other way around, as was true of such agreements as colonial preferences or even the early years of European economic integration. In most of Asia, regionalism is being used as part of the overall process of economic reform to buttress the outward-oriented development strategies of the region's economies.

In the global marketplace, and in an environment of steadily rising technological, economic, and ecological interconnectedness, states, buffeted by pressures that they cannot adequately control and seldom fully comprehend, have sought to pool their efforts and resources and create collaborative frameworks and mechanisms. These attempts at institutional innovation, often referred to as "multilateralism," have assumed different forms in different places and at different times.

Global multilateralism is perhaps the more dramatic manifestation of the phenomenon, and, many would argue, the primary vehicle for developing legitimate and effective institutional responses that can complement the flagging governance capabilities of nation-states. The significance of globalism cannot be overstated. Evidence of its importance is seen in the work of the United Nations and its multiple organs and agencies, in the role of the World Trade Organization (WTO), the World Bank, the International Monetary Fund, the World Health Organization and numerous other inter-governmental bodies, not to mention the growing corpus of international law. Yet, it is equally clear that regionalism has, particularly in recent decades, come to occupy an increasingly prominent place in international affairs. Although Europe, in particular the European Union, is often viewed as the leader of this trend – it has certainly had an important catalytic effect on other regions – no region, regardless of size, stage of development or societal outlook, can now be said to be immune to the trend. Asia Pacific is no exception.

East Asian countries are now more integrated than previously. Regionally speaking, East Asia has been nurtured by a market-driven expansion of trade and foreign direct investment (FDI). Kawai (2007) described the data of a heavily expanded region's trade and FDI over the past two decades:

> East Asia's exports, rose from 14% of world total exports in 1980 to 27% in 2006, while its imports expanded from 15% to 24% during 1980–2006.2 FDI inflows into East Asia (including Japan) more than tripled from 5% of world total FDI inflows in 1980 to 16% in 2005, while East Asian FDI outflows increased from 5% to 11% of world total outflows over the same period. East Asia's global expansion of trade and FDI has been accompanied by rising intra-regional concentration of trade and FDI activities.

According to Linn (2011), an integrated East Asia will become significantly important for the region's overall development at least for six reasons. First, in order to sustain region-wide economic growth; second, to have positive spillovers and better respond to global challenges; third, to create long-term stability and prosperity; fourth, to set up a stepping stone for poorer countries so that they can move up the value chain and maximize their growth potential; fifth, to be an important bridge between the interactions of individual East Asian countries and the rest of the world; and lastly, is to have the voice and influence in the global agenda that is commensurate with its economic weight.

The process of trade regionalization can be identified by a growing tendency of trade flows among countries that reside in the same region. This process is often named as intra-regional trade. The simplest statistical indicator used to assess the relative importance of intra-regional trade is its share of the region's total trade (intra-regional trade share, S_i): $S_i = t_{ii}/t_i$; $0 \leq S_i \leq 1$ in which: t_{ii} equals region i's intra-regional trade (exports plus imports); and t_i equals region i's total trade. Increasing numbers of regional integration agreements (regionalism) is deemed an influential factor of the trend of intra-regional trend. This trend is well matched by the tendency of firms to expand their activities within the region (market-driven regionalization). Therefore, conducting a deep analysis of trade patterns for the ASEAN+3 countries, as a group as well as individuals, is fundamental.

7.2 Intra-regional trade: ASEAN+3

ASEAN members are becoming more connected. They experience sustainable growth of intra-regional trade share (See Table A.12). In 1990, the intra-regional trade share was only 17% but in 2010 the figure went up to 25.2%. If we expand the coverage to the "plus three" countries, the intra-regional trade figure becomes more robust. In 1990, it had already reached 47.2%, continued to develop over a decade as it leaped to 58.4% in 2010. The FTAs and EPAs that have emerged since the mid-2000s have made a significant contribution to the closer relationships among the ASEAN+3 countries.

Although this region has experienced two periods of crisis (late 1997 and late 2008), it bounced back both times. For the first crisis, total ASEAN+3 intra-regional exports fell from $179,732.1 million (US dollars) in 1997 to $146,166.3 million (US dollars) in 1998 (see Table A.13). The imports also declined from $186,630.5 million (US dollars) in 1997 to $141,979.3 million (US dollars) in 1998 (see Table A.14). This number contributed for an almost 3% decline of ASEAN+3's intra-regional trade from 49.9% in 1997 to 47.2% in 1998. It recovered well in 1999 to 49%, followed by 51.4% in 2000 (see Table A.12). This level of recovery was a big help for East Asian countries at that time.

The second crisis, in late 2008, also caused regional trade imbalances in ASEAN+3 countries, as the total exports and imports fell from 547,427.5 million US dollars and $518,966.8 million (US dollars) in 2008 to a figure of $450,665.6 million (US) dollars and $411,663.3 million (US dollars) in 2009, respectively (see Table A.13 for exports and Table A.14 for imports). But again, it persistently bounced back in 2010 for a figure

of $630,089.6 million (US dollars) for exports and $609,465.3 million (US dollars) for imports. It was also reflected from the intra-regional trade share figure that experienced a hike from 55.8% in 2008 to 58.4% in 2010 (see Table A.12).

If we compare the two crises, we can get a general conclusion that East Asia has learned how to cope with such crises. It is reflected by the speed of recovery in 2010, which was faster than 1999's recovery. Also, the closer integration among the countries has created a vaccine-like treatment in the region.

7.3 Trade patterns: ASEAN countries

7.3.1 Brunei Darussalam

Brunei Darussalam has been exploiting the Japanese market for its export products for over a decade (see Figure 7.1). Although this figure was steadily decreasing due to the dynamics of the ASEAN market's offering a larger opportunity, it bounced back in 2008 as Japan and Brunei signed an Economic Partnership Agreement (EPA) in 2007. The Chinese market is relatively open to Brunei's exports since the ASEAN-China Free Trade Agreement (ACFTA) was enacted in 2005. For import products, Brunei relies heavily on ASEAN, as can be seen by the share of Brunei's import from ASEAN countries that have continued to rise persistently since 1990 (see Figure 7.2).

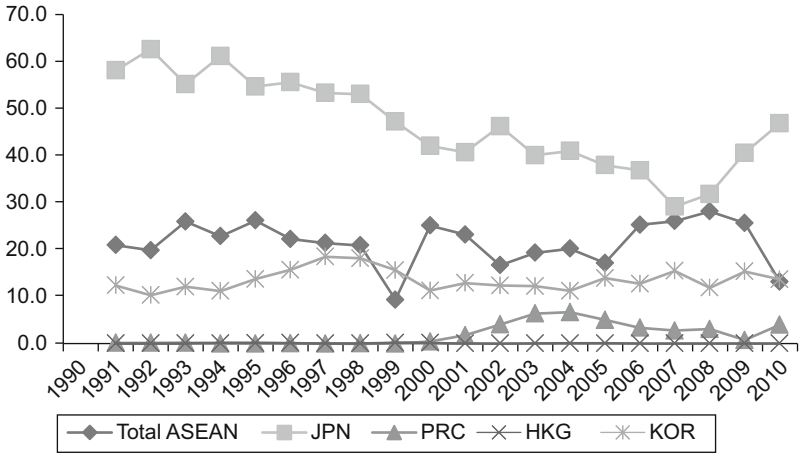

Figure 7.1 Brunei Darussalam exports (FOB) – recipient country (percentage share of total)

Source: IMF Direction of Trade (DOT) Statistics, Processed.

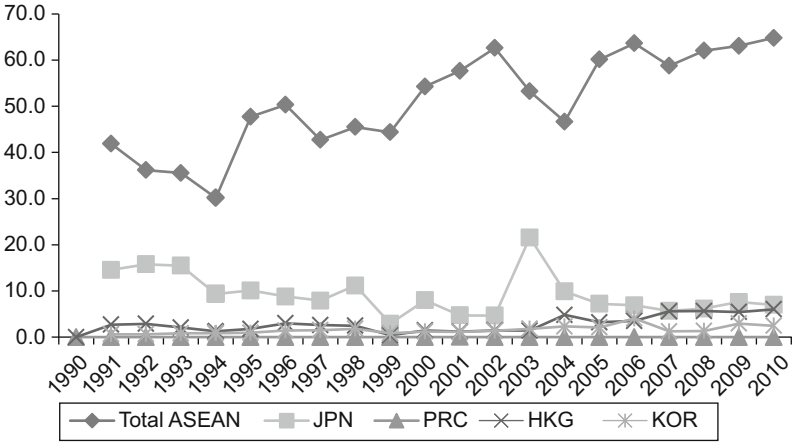

Figure 7.2 Brunei Darussalam imports (CIF) – recipient country (percentage share of total)

Source: IMF Direction of Trade (DOT) Statistics, Processed.

7.3.2 Cambodia

ASEAN countries have been deemed a loyal market for Cambodian export products. However, the figure has been steadily decreasing over the last decade (see Figure 7.3). Hong Kong has taken over ASEAN's position since 2008 due to the ACFTA. It can be seen by the rising share of Hong Kong for Cambodian exports compared with ASEAN. As for imports, Cambodia still relies heavily on ASEAN countries although the figures are decreasing (see Figure 7.4). China has made its mark in Cambodian market since the signing of ACFTA.

7.3.3 Indonesia

The Japanese market has been exploited by Indonesian export products since 1990. But the figure is steadily decreasing due to the increasing importance of the ASEAN market for Indonesia (see Figure 7.5). The Indonesia-Japan EPA (IJEPA) that has been enforced since 2008 has relatively little to do in helping the decreasing importance of the Japanese market. The share of ASEAN took over the share of the Japanese market on Indonesian exports in 2010. ACFTA gives a more pronounced effect than IJEPA, as we see by the way Indonesian export products capitalize on it by the increasing share of the Chinese market (both PRC and Hong Kong) since 2009. As for import products, Indonesia is proven to be heavily dependent on the ASEAN market. Also, import products from

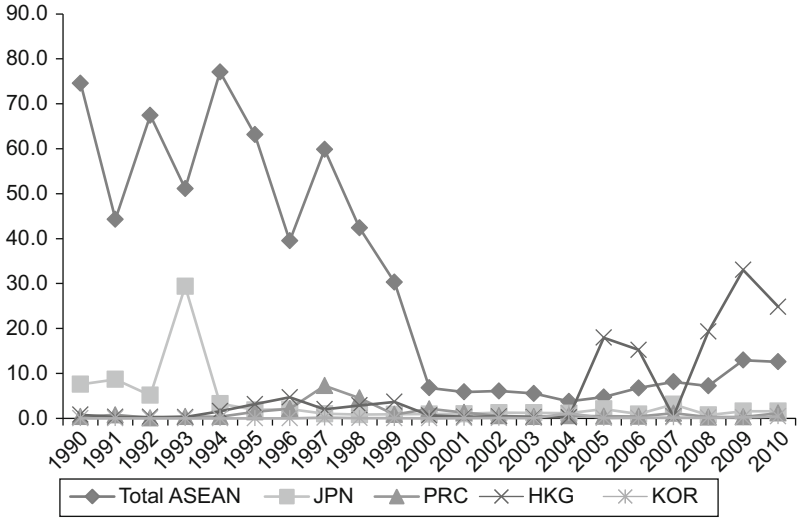

Figure 7.3 Cambodia exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

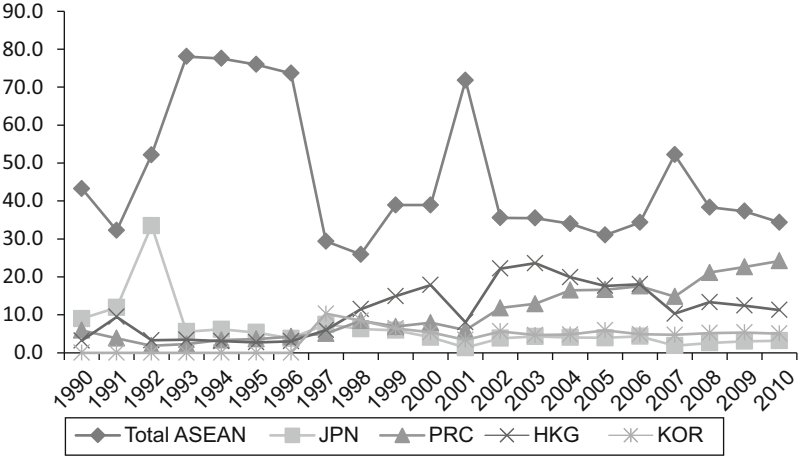

Figure 7.4 Cambodia imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

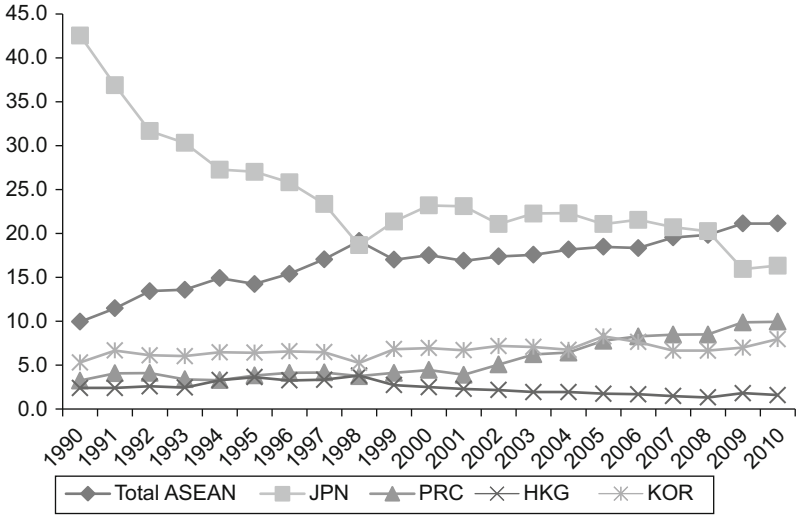

Figure 7.5 Indonesia exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

Japan have been persistently gripping the Indonesian market over the last decade (see .7.6).

7.3.4 Lao PDR

ASEAN countries have been acting as a traditional partner both for Laos' export and import (see Figures 7.7 and 7.8). There is a steady share of both exports and imports to ASEAN countries from Laos compared with the plus three countries. The gap is a very substantial one, although China has been trying to shorten the gap since 2008. The effect of ACFTA is behind the Chinese strategy and dynamics.

7.3.5 Malaysia

The ASEAN market has been loyal to Malaysian export products. This trend can be seen from the share of the ASEAN-to-Malaysian exports that stayed at 30% from 1990 to 2010. Not even the Malaysia-Japan EPA, signed in 2005 and enforced since 2006, could change the constellation. Malaysia could grip the Chinese market as an export destination significantly from 2007 and on (see Figure 7.9). Malaysian imports bring the same pattern. It depends heavily on the ASEAN market while at the same time seeing Chinese exports grow due to the ACFTA (see Figure 7.10).

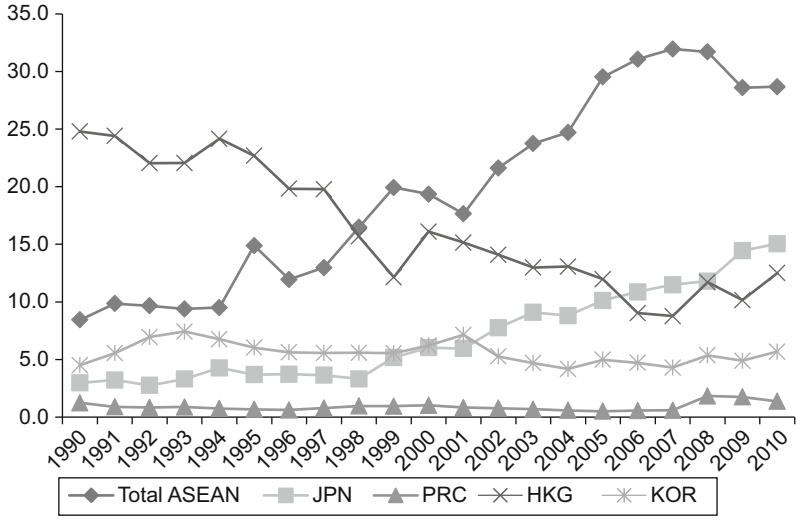

Figure 7.6 Indonesia imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

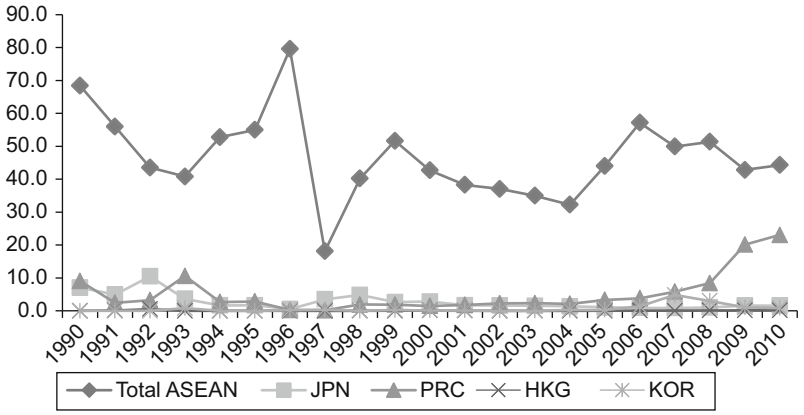

Figure 7.7 Lao PDR exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

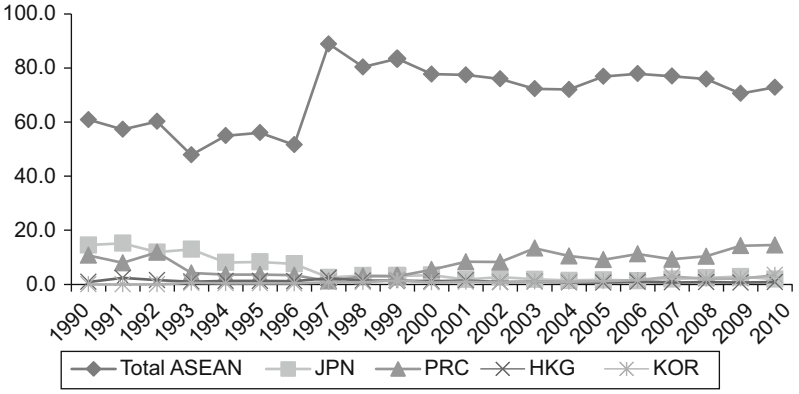

Figure 7.8 Lao PDR imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

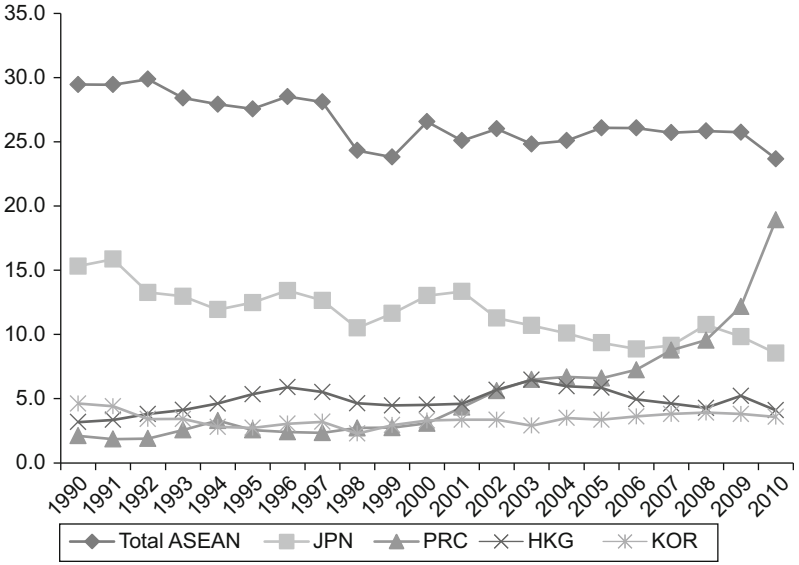

Figure 7.9 Malaysia exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

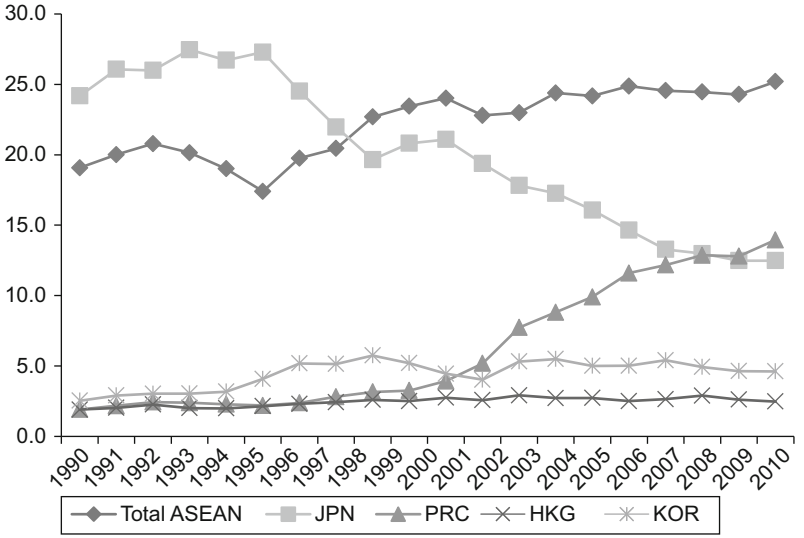

Figure 7.10 Malaysia imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

7.3.6 Myanmar

Myanmar has been capitalizing the ASEAN market for its export products, with the share growing to over 50%. Although it fell slightly in 2010, Myanmar still relies heavily on the ASEAN market (see Figure 7.11). When it comes to import products, Myanmar is also influenced dominantly by ASEAN products; the share is quite large compared with the plus three countries (see Figure 7.12). Again, ACFTA has proven to have a pronounced effect on ASEAN countries, as a group and individuals, and the impact of China, which is growing strongly both for imports and exports to Myanmar, is also noted.

7.3.7 Philippines

The Philippines' export products have benefitted from the Japanese and ASEAN markets. Traditionally, the Japanese market has been linked to Philippines since 1990; the ASEAN market is having a stronger impact with the Philippine market since the late of 1990s and on. A closer economic tie between the Philippines and ASEAN is partly due to the crisis of 1998 (see Figure 7.13). Closer bonds means higher resistance to crisis, and this was proven in 2008, when ASEAN together with the plus three countries helped Philippine exports to bounce back in 2010. Philippines' imports are influenced dominantly by ASEAN and Japanese

products, although we see ASEAN products to be more pronounced in the Philippines market (see Figure 7.14).

7.3.8 Singapore

As a small and open economy, Singapore is highly dependent on its neighboring trade partners. ASEAN has acted as an export destination and import

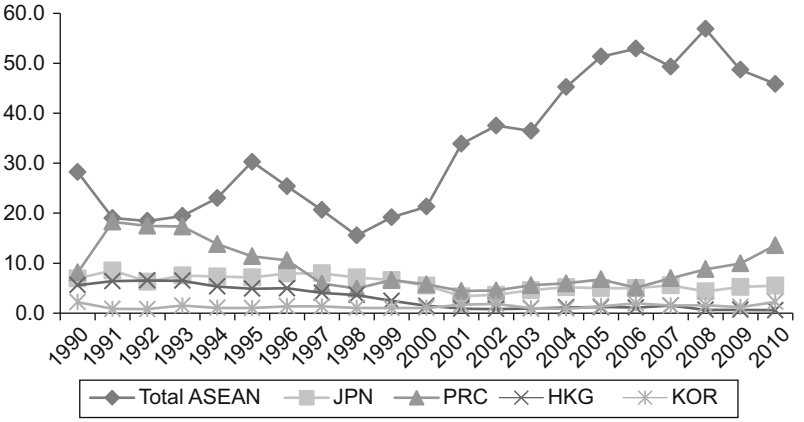

Figure 7.11 Myanmar exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

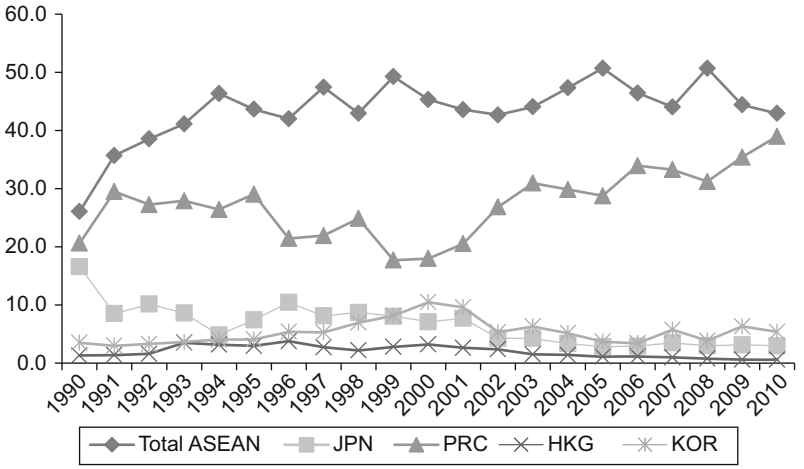

Figure 7.12 Myanmar imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

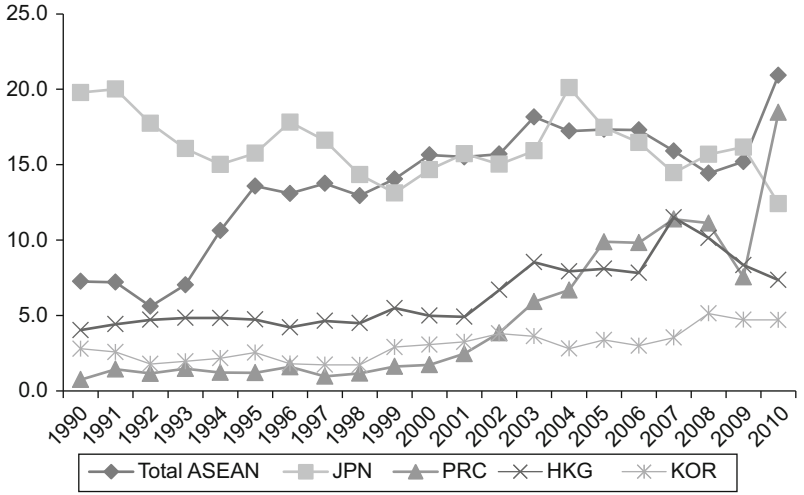

Figure 7.13 Philippines exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

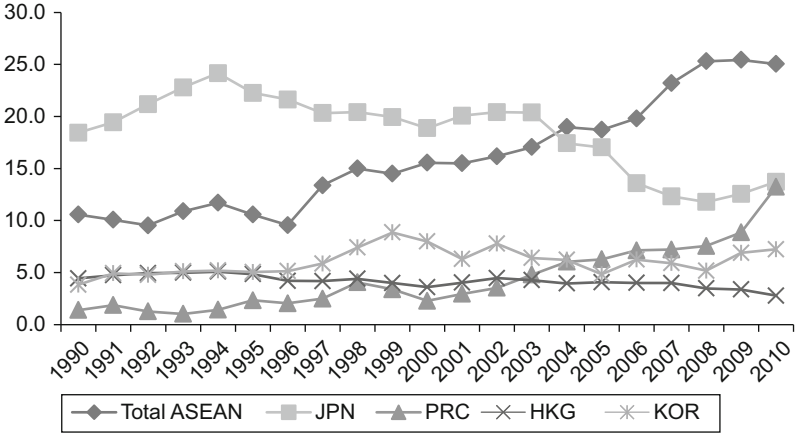

Figure 7.14 Philippines imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

source for Singapore (see Figures 7.15 and 7.16). The Japan-Singapore EPA has not functioned well although Singapore is the first country that ratified the EPA with Japan. The most likely reason the EPA has not done well is that Singapore was already an open market when the agreement

was signed in 2002. This fact is not too surprising given that Japan is not targeting Singapore for solely economic reason but to test Japanese negotiating and market power before doing a significant free trade agreement.

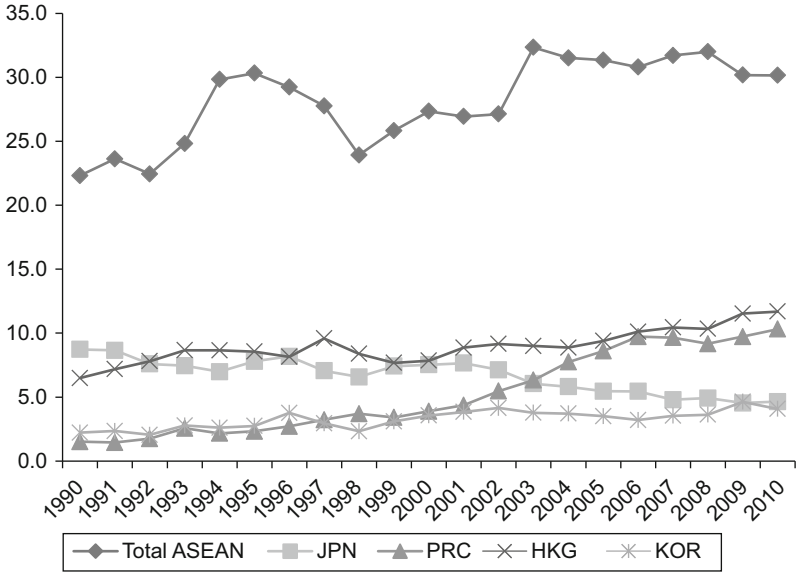

Figure 7.15 Singapore exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

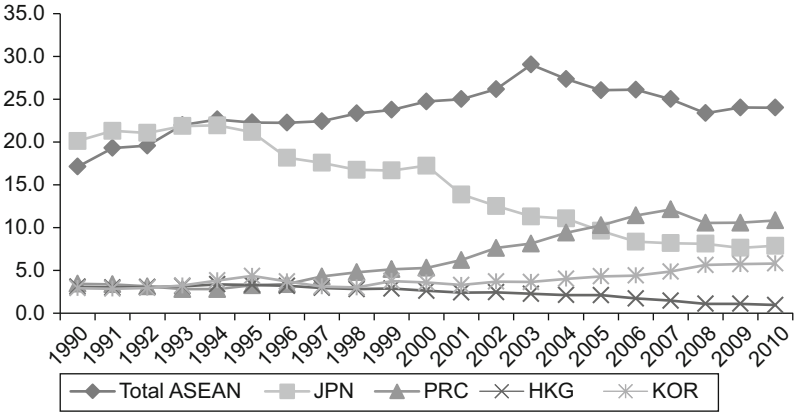

Figure 7.16 Singapore imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

7.3.9 Thailand

Thailand export products benefit from a large market in ASEAN. The share has been growing rapidly over the last decade (see Figure 7.17). On the other hand, Thailand's export have oscillated in the Japanese market since the late 1990s. Thailand is also benefited by the ACFTA, as it is gaining bigger shares of Chinese market. As for imports, Japanese products have a bigger influence than others, they have almost been taken over by ASEAN products. The turning point was most likely in 2010. China products are slowly but surely entering Thailand markets due to the ACFTA (see Figure 7.18).

7.3.10 Vietnam

Vietnamese export products mostly go to Japan and ASEAN. These figures are decreasing persistently since 1990, as the Chinese market is becoming more attractive for Vietnamese exports (see Figure 7.19). The recent signing of ACFTA has helped spur this condition. The effect of ACFTA can be seen clearly by looking at the import share from China. Chinese products have overwhelmed the Vietnamese market since early 2000s and are having a more pronounced effect since the mid-2000s due

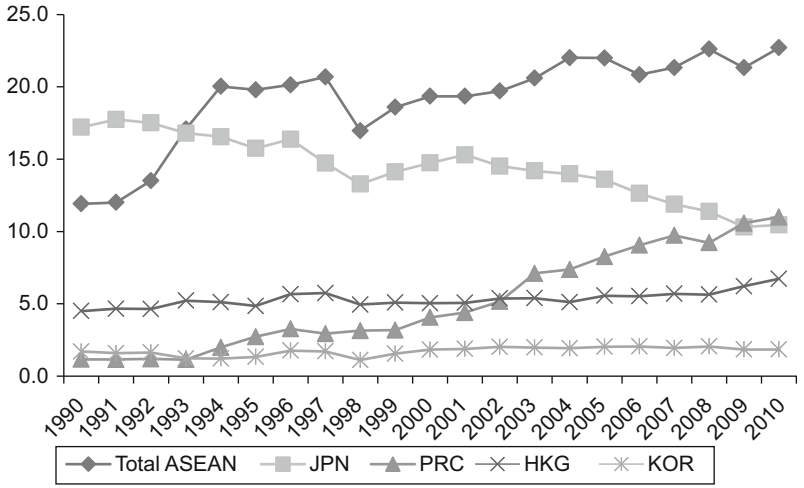

Figure 7.17 Thailand exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

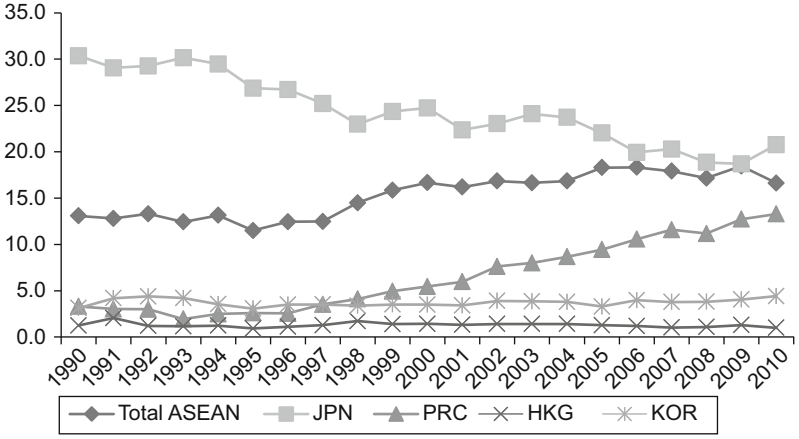

Figure 7.18 Thailand imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

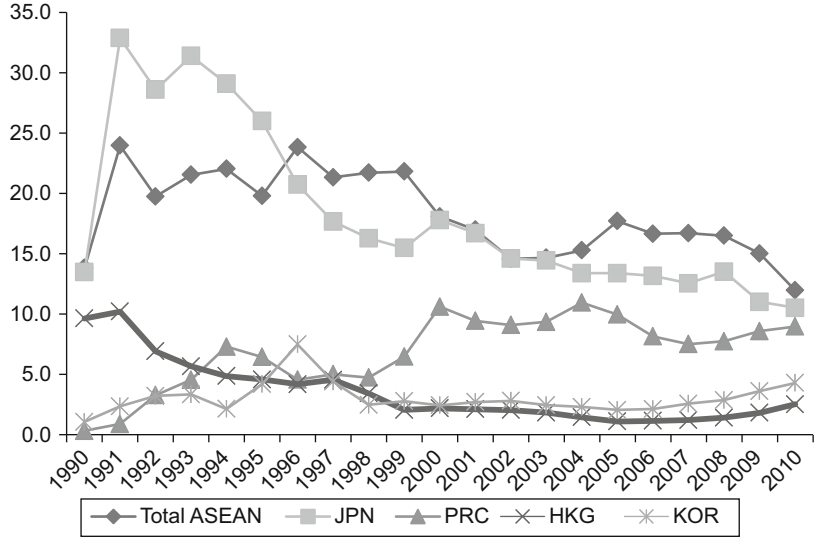

Figure 7.19 Vietnam exports (FOB) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

to ACFTA (see Figure 7.20). Vietnam also signed the Japan-Vietnam EPA in 2008; however, the impact is still not significant for either exports or imports.

It is clear that the ASEAN+3 countries have become closer to each other. To be more specific, the overall trade picture is still largely driven by market forces rather than the free trade scheme. So it is fair to say that ASEAN+3 is experiencing regionalization (bottom-up process) but still not reaching regionalism. In order to have long run sustainability, this market-driven process should be matched by institutionalization, that is, region-wide FTA.

7.4 Making East Asian regionalism work

Among the more significant region-wide organizations to have emerged since the end of the Cold War are the Asia Pacific Economic Cooperation group (APEC), the ASEAN (Association of South East Asian Nations) Regional Forum (ARF), ASEAN plus 3 (comprising the ten ASEAN countries plus China, Japan, and South Korea) and the Asia–Europe Meeting (ASEM). None has as yet developed an elaborate bureaucratic structure. Though each has spawned many meetings and initiatives, they all remain first and foremost consultative arrangements aimed at securing broad declaratory agreements and benchmarks rather than binding targets or obligations. These developments suggest that, despite the

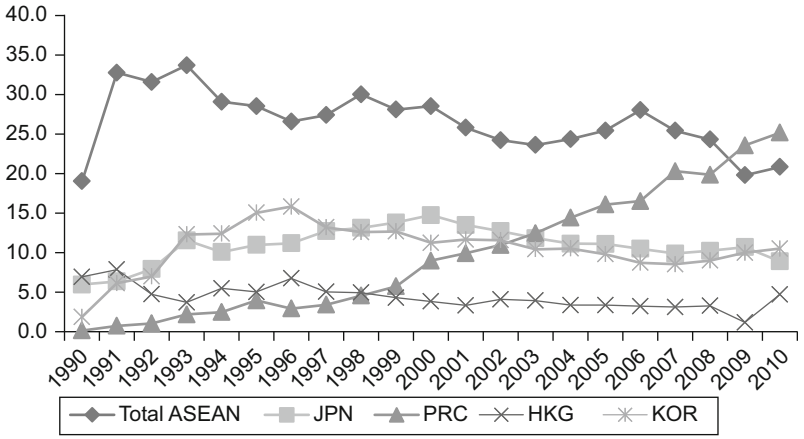

Figure 7.20 Vietnam imports (CIF) – recipient country (percentage share of total)
Source: IMF Direction of Trade (DOT) Statistics, Processed.

inhospitable geopolitical terrain, especially in Northeast Asia, multilateralist approaches and institutions have come a long way in Asia Pacific. On the other hand, regional multilateralism in this part of the world faces a number of fundamental and as yet unresolved ambiguities, which, though not unique to this region, are likely to have far-reaching political, economic, and in the longer run, strategic implications. Foremost among these is the issue of membership, or to be more precise the geographic and political delineation of the region. With the passage of time East Asia has emerged as the core of the ASEAN + 3 project. This is most obviously the case with ASEAN plus 3, since its membership most closely coincides with what is generally understood to be East Asia, the only absentees at this stage being the anomalous regimes of North Korea and Taiwan. As the economic frontrunners in East Asia, Japan, Korea, and China are expected to take the dominant role in creating the so called East Asian Regionalism. Being excluded from regionalism efforts will only lead to marginalization. Therefore, the greatest need learning how to make it work.

We have made an interim conclusion that export leads the overall growth in Northeast Asia. However, it is important to note that Japan's phase of adjustment, in the absent of FTAs/ EPAs, towards long run equilibrium is quite slow compared to Korea and China. This situation only acts as a stumbling block in forming regionalism in East Asia. But, in the mid=2000s, FTAs and EPAs began to emerge in East Asia. The result of these agreements is quite good since they have accelerated Japan's phase of adjustment. The hardest task is making these countries move together in the same phase, which is crucial to implementing regionalism.

Since regionalism is an abstract term, the use of the RPL index is essential. The RPL index is a proxy of outward orientation of a country; in other words, it is a representation of regionalism. Regionalism in this case goes hand-in-hand with openness in which it creates trade arrangements that liberalize some sectors in the economy. The ECM simulation gives a clear picture of the current form of openness, which is below the equilibrium. It suggests that the trend towards regionalism is still far behind. It somewhat confirms the ineffectiveness of the current triangular trade in Northeast Asia. It is expected that regionalism can eliminate such bias in trade. Baldwin's limited domino effect shows that the bilateral FTAs conducted by China, Japan, and Korea towards others will eventually converge the region into one RTA. This tendency is accentuated by the test of convergence, which shows the potential convergence of not only the Northeast Asian countries (CJK) but also the East Asian countries that include the Southeast Asian region.

The spill-over effect from the CJK to ASEAN4 countries is filling the hope for potential regionalism. We have seen in Chapter 5 that the GDP that comes from the spill-over effect is bridging the path towards EAR.

In the short run, there might be a rivalry competition between China and ASEAN. Whether this rivalry is seen as an economic opportunity or threat depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter economies are able to exploit their complementary opportunities and overcome the competitive threats.

Along with the spill-over effect, Vertical IIT is a crucial component for regional integration in East Asia. By relocating its production offshore to Southeast Asian countries, CJK is spurring regionalization within East Asia. Vertical IIT can be seen clearly for the case of Japan and Korea, which have a substantial income gap with the ASEAN4 countries. This gap is fueling the Vertical IIT process.

Looking at the result, it is fair to say that Vertical IIT among the ASEAN+3 countries has been progressing at a strong pace over the past ten years. Thus, we can conclude that regionalism in East Asia is driven by the market or in other words, is forming via the bottom-up process.

In East Asia, there is a need to set up more formal institutional mechanisms for trade. It is rational for such mutually dependent countries in the region to institutionalize de facto integration through the establishment of regional arrangements (Kawai, 2005). The growing significance of China, Japan, and Korea market for ASEAN4 along with other economic modalities such as product complementarities, comparative advantage, and IIT in the region will then serve as the basis for a single East Asian–wide FTA.

In East Asia, tariffs are cut unilaterally, which in turn creates complexity for East Asian firms. But the complexity is acting as the building blocks for regionalism since efforts to form regionalism will gain more in a low tariff environment. As the membership expands, regionalism will have a greater grip in East Asia (domino effect). But we have to note that this only happens when "Race to the Bottom" (RTB) unilateralism prevents complexity from a becoming problem while the opposite is still likely to happen. If this happens then, as Baldwin (2006) suggests, the combination of complexity and unbundling may create a new political economy force, which in turn creates a big push from the East Asian multinationals.

The next task is to shape the future of EAR. Using the test of convergence, it can be shown that EAR will be in place for a long period. The robust finding creates an optimistic view of EAR. But finding the right

path to a sustainable EAR is essential. What are the paths then? From a static panel data simulation, it can be shown that sound transportation infrastructure, good governance, competitive taxation policy, sizeable market, good education, democracy and the trend towards industrialization are the main factors that serve as building blocks for EAR.

These findings are coherent with the study conducted by the Asian Development Bank in 2006 that identified four pillars for the East Asian regional cooperation and integration. Those pillars are: (i) trade and investment; (ii) money and finance; (iii) infrastructure and connectivity; and (iv) regional public goods.

The factors above can be classified as technical pillars. Should they be reached, non-technical factors still need to be tackled. Among those factors, some have proven to be major obstacles. First is the historical factor, what has affected China, Japan, and Korea for many years and is still in some degree occurring. Second is the ideological factor, or political polarization, which began in the Cold War and has had a major impact for the relations among countries in East Asia. Although most ideological concentration is now becoming insignificant, in some cases the conflicting interests among countries are deemed to be the indirect exposure of the remaining ideological concept. The absence of a political bond among countries in East Asia would be a major problem when they have to face a common enemy that takes form as a global economic crisis. This book defines a political bond as regionalism/institutionalism.

Regionalism has some important roles in guiding directions, providing a vision, and setting up the principle in organizing and creating a regional community. These roles have given rise to important questions of what kind of regional organizations should be formed and how they should be formed and operated:

> Should Asia follow the EU model to transfer national sovereignty to a regional organization so as to develop a great unity of East Asia? Or should East Asia develop its own model of regionalism that defends national sovereignty, and adopt the more informal, weakly organized dialogue forum, incrementalism, consensus-building, and ASEANization approaches? (He 2004)

Kawai (2005) views a mounting need for institutionalization in East Asia in order to internalize externalities of the spillover effects:

> ... There is a need for concerted efforts to internalize externalities and spillover effects, because macroeconomic/financial developments and

> policies of one country can easily affect other countries' performance and developments. It makes sense for such interdependent regional economies to institutionalize de facto integration through the establishment of regional frameworks for trade and investment liberalization and macroeconomic and financial management. Given that one country's turbulence, shocks and crises could be easily transmitted to other economies within the same region, it is critical to establish financial safety nets. Joint action among such economies would be easier because they are small in number – so the transactions cost for collective action is small – and tend to face similar shocks and similar policy challenges.

The top-rank meeting of ASEAN+3 in Singapore 2007 is a giant leap toward stronger bonds among East Asian countries. One of the points in the Chairman's Statement gave signs of acceptance for the "plus three" concept, which in turn creates the prospect of going beyond the next level. In concept, ASEAN+3 will have a broad scope of economy, security, politics, and social cooperation (Yoshida 2004). Since ASEAN has already become a mature institution, it will be in the driver's seat to eliminate the non-technical problems facing East Asian regionalism.

After identifying the factors that determine regionalism in East Asia, actually implementing such a scheme is an equally important task for the East Asian leaders. A question then arises: will they be ready to go through the path towards regionalism?

A 2011 study by Capannelli may help answer the question:

> Given the relatively high degree of global integration that characterizes Asian economies, the prosperity that can be generated by a more deeply integrated region is to be shared not only by individual Asian countries but with the entire world. Asian political leaders should be ready, however, to translate into action their declarations of intent regarding closer regionalism, create proper structures and new institutions to start a top-down approach to regional integration, as well as mobilize sufficient financial resources to ensure that future initiatives will be solid and sustainable. The 1,000 Asian opinion leaders who replied to the ADB survey are largely confident that the benefits of regionalism outweigh its costs by a substantial margin. They are part of an expanding and vibrant knowledge community which provides intellectual support to the progressive move towards closer Asian integration. The challenge facing the creation of a regional economic community is to bring this enthusiasm to the grassroots

level and give new impetus to the bottom-up approach by involving the civil society in the process.

The current efforts to enact East Asian regionalism are not the first; however, these earlier attempts have not been done effectively. The FTAs happening in East Asia have created the so called "noodle bowl" (adapting the term of spaghetti bowl – a symbolic description of the twisted lines made up of different trade agreements instead of one overarching agreement). However, the connection between RTB and the domino effect will clean the mess. Given the tariff protection and the non-resistance from the anti-membership side, the pro-membership side will urge their governments to join the existing FTA. Due to this "peer pressure" and the prospect of higher profits, governments are expected to create a region-wide FTA. Moreover, the principles of a good policy are credibility, flexibility, and political legitimation. Rule of law could create credibility if the rule is widely known and well understood by the public. With credibility, it will be easier to handle any economic turbulence with the policy instrument that is controlled by the economic authority. Credibility could function more when there is a transparent and accountable framework in which political legitimation is strengthened. Effective policy would come about if the policy makers have the ability to react promptly in every unprecedented shock. Credible policy makers are those who make the policy in a transparent manner. With a high level of transparency, any economic shock would be easily diminished. Without transparency, every policy with regards to economic targets and fiscal rules would become obsolete since the public could not compare between the target and the realization. Moreover, the political legitimation is very important since the policies being made should reflect regional consensus; in turn, a balance of power would be created. General; responsibilities which could reduce the negative effect from the uncoordinated policy.

Regionalism in East Asia will enable the region to cope with the future challenges of globalization and remain internationally competitive. An integrated East Asia would lead to the advancement in economies of scale and fuller development of production networks. Moreover, Chia (2007) states that East Asian regionalism could help the less developed East Asian economies, which would otherwise become marginalized as they lack the attraction of sizeable market and negotiating resources

But there are problems inherent with regionalism in East Asia. The trade creation effect of regional co-operation is being viewed as an important driver of economic growth. However, the impact of trading blocs

also has a trade diversion effect. Do such arrangements benefit regional trade and increase overall welfare? The answer depends upon the difference between the trade creation effect and trade diversion effects.

The trade creation effect is caused by the extra output produced by the member countries. This extra output is generated due to the freeing up of trade between them. Increased specialization and economies of scale should increase productive efficiency within member countries.

The trade diversion effect exists because countries within trading blocs, protected by trade barriers, will now find they can produce goods more cheaply than countries outside the trade bloc. Production will be diverted away from those countries outside the trade bloc that have a natural comparative advantage to those within the trading bloc. From the point of view of developing countries, that is ASEAN4, the existence of trading blocs depends on, firstly, whether the country is in the trading bloc and secondly, whether other countries are also members. Forming a trade bloc with other developing countries may result in only a small trade creation effect as the share of world trade involving developing countries is relatively small, provided that the trade bloc has limited influence on market price and quantity. If the country joins a trade bloc with developed countries, that is, CJK, then there may be real advantages to the developing countries as resources flow within the bloc to the countries where there are cost advantages and the potential market for exports is significantly expanded.

By building trade liberalization on the foundation of discrimination, PTAs create a fundamental conflict with multilateralism. The ill effects of this key difference become evident when one examines the recent proliferation of PTAs. This proliferation has led to a criss-crossing of trade preferences assigned to countries, hence the term "spaghetti bowl" or "noodle bowl", where products in many important markets today enjoy access on varying terms depending on where they supposedly originate. Owing to the globalization of production, the ability to identify the country of origin for products is increasingly problematic. Since the noodle bowl's inefficiencies are increasingly magnified by unbundling and the rich/poor asymmetry, the region must find a solution. Since regionalism is a given, the solution must work *with* existing regionalism, not *against* it. The solution must be in the form of multilateralizing regionalism. The task should be conducted by the WTO.

While East Asian regionalism has made considerable strides on multiple fronts since the end of the Cold War, the existing regional architecture

needs to be given a more solid normative foundation, a stronger institutional base, and a more coherent set of functions. At the normative level, it is important that each institutional arrangement reflect a commitment to a broad set of principles that goes beyond the aims and objectives of the particular organization. All regional institutions should be expected to conform to and actively promote a normative framework that defines appropriate forms of state conduct and spells out the values that are to guide the complex relationship between states, markets, and civil society on the one hand, and between the national, regional, and global tiers of governance on the other.

Indeed, regional trade liberalization is an important and complex issue on an increasing globalized economy. It requires difficult answers about whether and, if so, how, and with whom regional preferential integration should be pursued (Bhagwati, Krisna, and Panagariya 1999; Dutta 1999; and Winters 1997. To make such an assessment, focusing on some of the important questions must be done. The issue of costs and benefits will come first to mind and whether the formation of regional integration arrangements will help to raise or lower welfare. Then, there is also the debate over the virtues and dangers of regional preferential treatment and whether these arrangements can reinforce or hinder multi-lateral trade liberalization. Answers to these questions have never been easy. As East Asia is about to embark on its own vision of a region-wide free trade arrangement, as part of a step towards an East Asian Community (East Asia Vision Group Report 2001), it is timely to look closely at the formulations and recommendations of such an establishment. Doing so will ensure that an East Asian free trade Agreement (EAFTA) is well conceptualized to bring about more opportunities for the region and is also contributing to the multi-lateral trade liberalization and global competition. The key questions are, what are the costs and benefits of this attempt and what are the pay-offs. This is particularly important when one considers additional requirements of "deeper integration" in an EAFTA which hopes to improve welfare both regionally and globally for East Asia.

7.5 Concluding remarks

In 2011, the ADB launched a study entitled ASIA 2050. This study mentions some key strategies to use for helping Asia continue on the path of rapid integration to 2050. This book has identified some factors deemed important to support the work of ADB.

7.5.1 Set up the Northeast Asian FTA

Being acknowledged as the East Asian economic front runners, Japan, China, and Korea are assumed to have heavy responsibility for the economic welfare in the East Asian region. It is obvious that EAR cannot be put into practice without these countries' strong support. CJK are the key since these three countries occupy about 17% of both world GDP and trade. Unfortunately, the lack of institutional arrangements among these major countries has stalled the overall welfare effect for the East Asian communities. The present driving force of the CJK relationship is the market, which is not enough by itself to ensure regionalism. Therefore, the more institutionalized approach is needed to join these activities so that East Asia can sustain the economic growth in the long run. The main focus of the institutionalization in trade is to make these countries grow together, which can create positive externalities throughout the East Asian region. In the long run it is expected that CJK will lead to regionalism in East Asia.

Tracing back the relations since the post – World War II era, economic ties between Japan, Korea, and China has evolved in somewhat gradual ways. The evolution of trade activities emerged from the likes of China, which has had a substantial transformation of trade structures. In the early 1990s, primary commodities accounted for more than one third of China's total export to Japan and Korea. In this new millennium, it is still top Chinese exports to Japan and Korea, but it is persistently followed by the fast growth of machinery and transport (Chan and Chien Kuo, 2005). From this point of view, trade within the Northeast Asian region is deemed to have substantial movement as a result from the shift of trade towards a more industrialized structure. The emergence of China as a regional manufacturing center is a dominant factor that contributes to this trade shift.

In constituting East Asian regionalism, leadership plays a very important role. *The Korea Herald* once posed the crucial question for the future direction of Asian regionalism: "*Which country is capable of taking the lead? It boils down to either China or Japan*" (*The Korea Herald*, 10 October 2002). Sino-Japanese antagonism and aspirations to leadership on both sides have, in consequence, been a major source of structural change in the region, resulting in a dynamic interplay between bilateral FTA and multilateral institutions. This book argues that it is important for East Asia to give Japan an extensive role in designing East Asian–wide FTA given the shallow impact of China's FTA in the region.

Japan's comprehensive trade strategy is already proven to have helped the region become economically sound. Although the possibility of

Japan rising as the leader for East Asia may be difficult to achieve, it is worth trying, given the potential effect for enhancing the regional welfare. Japan's joint strategy to create FTA will eventually bring the East Asian Region to the next level.

7.5.2 Production networks and regional gap

East Asia should ensure that the region and countries within the region that are lagging behind eventually catch up with the rest of East Asia. Sound policy measures that incorporate the expansion of production networks should be set as a common goal as the development of fragmentation enhances welfare.

Fragmentation improves welfare in two ways. First, it increases the wage rate in countries where labor is a relatively abundant production factor, while it lowers the wage rate in countries where capital is abundant. This scenario eventually equalizes the wage rate between two countries in the long term. Second, the development of fragmentation raises productivity through a realization of the scale economy. Even assuming that the fragmentation is induced by FDI, and that a part of the benefit from FDI is refluxed to the investing country as reward of capital, the fragmentation still contributes to a rise of income through the increase in wage rates and job opportunities. So, as the production networks expand in the region, the income gap is expected to diminish in the future.

In conclusion, EAR will enable the region to cope with the future challenges of globalization and remain internationally competitive. If supported by the appropriate policies, the scope of further East Asian integration is enormous. Deepened integration will result from continued high growth and investment, which, in turn will be a driver of further high growth. An integrated East Asia would lead to the advancement in economies of scale and fuller development of production networks. Moreover, Chia (2007) states that EAR could help the less developed East Asian economies, which would otherwise become marginalized as they lack the attraction of sizeable market and negotiating resources. As Baharumshah et al. (2007) argue, regional integration through RTAs is expected to widen the markets of the participating member countries. Large and growing markets will create greater confidence for both domestic and foreign investors. RTAs will give the chance for the participating countries to increase their production, capacity utilization, and employment as well as investment, reduce vulnerability to external shocks, capture economies of scale, improve bargaining position in international markets, and increase average standards of living. In addition

to an investment creation effect, new prospects for improved business without tariffs and quotas on trade within the region may propel local firms to rearrange production facilities within the group.

7.6 Future considerations

Since regionalism in East Asia is an abstract term, it is very difficult to construct a solid model. This book has mostly talked about the regionalization process (bottom-up approach) rather than discussing the regionalism itself. Baldwin's domino effect, spill-over effect, and Vertical IIT are less straightforward than expected. It is true that Baldwin's domino effect gives us an explanation of the China, Japan, and Korea FTA to others that should evolve to a CJK RTA. However, it is still an open game without reaching any solid conclusions. Likewise, the CJK's Vertical IIT, as the key factor that creates a spill-over effect to ASEAN countries, is not even close to the described East Asian regionalism although the Vertical IIT and the spill-over effect are powerful variables that can explain regionalization (*de facto* regionalism). Chapter 5 provided an explanation that could connect all the dots. To begin with, the joint CJK – FTA strategy as a result from Nash Equilibrium is proven to be the key variable that can bring the region into *de jure* regionalism. But this is again less straightforward since a good model should incorporate all the variables into one solid equation. Because of this, with any future econometric model, one should be able to explain regionalism in a more direct manner.

Appendix

Table A.1 Japan's FTAs/PTAs

ID	Title	Scope	Type	Signed year	Status	Year	Notification	Notified year
AJCEPA	Agreement on Comprehensive Economics Partnership among Japan and the Member States of the ASEAN	Country – Bloc	Free Trade Agreement	2008	In force since	2008	GATT Art XXIV	2009
AUSTRALIA–JAPAN	Australia–Japan Trade and Economic Framework	Bilateral	FTA & EIA		Under negotiation since	2007	Early announcement	
JAPAN–BRUNEI	Japan–Brunei Darussalam Economic Partnership Agreement	Bilateral	FTA & EIA	2007	In force since	2008	GATT Art XXIV, GATS Art V	2008
JAPAN–CHILE	Agreement between Japan and the Republic of Chile for a Strategic Economic Partnership	Bilateral	FTA & EIA	2007	In force since	2007	GATT Art XXIV, GATS Art V	2007
JAPAN–GCC		Country – Bloc	Free Trade Agreement		Under negotiation since	2006	Early announcement	
JAPAN–INDIA	Comprehensive Economic Partnership Agreement between Japan and the Republic of India	Bilateral	Free Trade Agreement	2011	Pending country ratification		Early announcement	
JAPAN–INDONESIA	Japan–Indonesia Economic Partnership Agreement	Bilateral	FTA & EIA	2007	In force since	2008	GATT Art XXIV, GATS Art V	2008
JAPAN–KOREA	Japan–Korea Free Trade Agreement	Bilateral	Free Trade Agreement		Under negotiation since	2003	Early announcement	

Continued

Table A.1 Continued

ID	Title	Scope	Type	Signed year	Status	Year	Notification	Notified year
JAPAN–MALAYSIA	Japan–Malaysia Economic Partnership Agreement	Bilateral	FTA & EIA	2005	In force since	2006	GATT Art XXIV, GATS Art V	2006
JAPAN–MEXICO	Agreement between Japan and the United Mexican States for the Strengthening of the Economic Partnership	Bilateral	FTA & EIA	2004	In force since	2005	GATT Art XXIV, GATS Art V	2005
JAPAN–PERU	Japan–Peru Economic Partnership Agreement	Bilateral	Free Trade Agreement	2011	Pending country ratification	2011		
JAPAN–PHILIPPINES	Agreement between Japan and the Republic of the Philippines for an Economic Partnership	Bilateral	FTA & EIA	2006	In force since	2008	GATT Art XXIV, GATS Art V	2008
JAPAN–SINGAPORE	Agreement between Japan and the Republic of Singapore for a New-Age Economic Partnership	Bilateral	FTA & EIA	2002	In force since	2002	GATT Art XXIV, GATS Art V	2002
JAPAN–SWITZERLAND	Agreement on free trade and economic partnership between the Swiss Confederation and Japan	Bilateral	FTA & EIA	2009	In force since	2009	early announcement	
JAPAN–THAILAND	Agreement between Japan and the Kingdom of Thailand for an Economic Partnership	Bilateral	FTA & EIA	2007	In force since	2007	GATT Art XXIV, GATS Art V	2007
JAPAN–VIET NAM	Agreement between Japan and Viet Nam on Economic Partnership	Bilateral	Free Trade Agreement	2008	In force since	2009	GATT Art XXIV, GATS Art V	2009

Source: Asia pacific trade and investment database.

Table A.2 China's FTAs/PTAs

ID	Title	Scope	Type	Signed year	Status	Year	Notification	Notified year
ACFTA	Agreement on Trade in Goods of the Framework Agreement on Comprehensive Economic Co-operation between the Association of Southeast Asian Nations and the People's Republic of China	Country – Bloc	Preferential Trade Agreement	2004	In force since	2005	Enabling clause	2005
APTA	Asia-Pacific Trade Agreement (previously known as Bangkok Agreement)	Regional	Preferential Trade Agreement	1975	In force since	1976	Enabling clause	1976
AUSTRALIA–CHINA	Australia–China Free Trade Agreement	Bilateral	FTA & EIA		Under negotiation since	2005	Early announcement	–
CHINA–CHILE	Free Trade Agreement between the Government of the People's Republic of China and the Government of the Republic of Chile	Bilateral	Free Trade Agreement	2005	In force since	2006	GATT Art XXIV	2007
CHINA–HONG KONG, SAR	Mainland and Hong Kong Closer Economic Partnership Agreement	Bilateral	FTA & EIA	2003	In force since	2004	GATT Art XXIV, GATS Art V	2003
CHINA–KOREA	China–Korea Free Trade Agreement	Bilateral	Free Trade Agreement		Under negotiation since	2005	No notification	
CHINA–MACAO, SAR	Mainland and Macao Closer Economic Partnership Agreement	Bilateral	FTA & EIA	2003	In force since	2004	GATT Art XXIV, GATS Art V	2003

Continued

Table A.2 Continued

ID	Title	Scope	Type	Signed year	Status	Year	Notification	Notified year
CHINA–NORWAY		Bilateral	FTA & EIA		Under negotiation since	2008	Early announcement	
CHINA–PAKISTAN	Free Trade Agreement between the Government of the People's Republic of China and the Government of the Islamic Republic of Pakistan	Bilateral	Free Trade Agreement	2006	In force since	2007	GATT Art XXIV	2008
CHINA–PAKISTAN–SERVICES	China–Pakistan Agreement on Trade in Services	Bilateral	Free Trade Agreement	2009	In force since	2009		
CHINA–PERU	Free Trade Agreement between the Government of the People's Republic of China and the Government of the Republic of Peru	Bilateral	Preferential Trade Agreement	2009	In force since	2010	GATT Art XXIV, GATS Art V	2010
CHINA–SINGAPORE	Free Trade Agreement between the Government of the People's Republic of China and the Government of the Republic of Singapore	Bilateral	FTA & EIA	2008	In force since	2009	GATT Art XXIV, GATS Art V	2009
CHINA–TAIWAN POC	Cross-Straits Economic Cooperation Framework Agreement	Bilateral	Framework Agreement	2010	Pending country ratification			2011
CHINA–THAILAND	China–Thailand FTA	Bilateral	Preferential Trade Agreement	2003	In force since	2003	No notification	
NEW ZEALAND–CHINA	New Zealand–China Free Trade Agreement	Bilateral	FTA & EIA	2008	In force since	2008	GATT Art XXIV, GATS Art V	2009

Source: Asia pacific trade and investment database.

Table A.3 Korea's FTAs/PTAs

ID	Title	Scope	Type	Signed Year	Status	Year	Notification	Notified year
AKFTA	Agreement on Trade in Goods under the Framework Agreement on Comprehensive Economic Co-operation Among the Governments of the Member Countries of the Association of Southeast Asian Nations and the Republic of Korea	Country – Bloc	Free Trade Agreement	2006	In force since	2010	GATT Art XXIV, GATS Art V	
APTA	Asia-Pacific Trade Agreement (previously known as Bangkok Agreement)	Regional	Preferential Trade Agreement	1975	In force since	1976	Enabling clause	1976
CANADA–KOREA	Canada–Korea Free Trade Agreement	Bilateral	Free Trade Agreement		Under negotiation since	2005	Early announcement	
CHINA–KOREA	China–Korea Free Trade Agreement	Bilateral	Free Trade Agreement		Under negotiation since	2005	No notification	
EFTA–KOREA	Free trade agreement between the EFTA States and the Republic of Korea	Country – Bloc	FTA & EIA	2005	In force since	2006	GATT Art XXIV, GATS Art V	2006
GSTP	Global System of Trade Preferences among Developing Countries	Global (developing countries)	Preferential Trade Agreement	1988	In force since	1989	Enabling clause	1989
JAPAN–KOREA	Japan–Korea Free Trade Agreement	Bilateral	Free Trade Agreement		Under negotiation since	2003	Early announcement	

Continued

Table A.3 Continued

ID	Title	Scope	Type	Signed Year	Status	Year	Notification	Notified year
KOREA–CHILE	Free Trade Agreement between the Republic of Korea and Chile	Bilateral	FTA & EIA	2003	In force since	2004	GATT Art XXIV, GATS Art V	2004
KOREA–EU	Free Trade Agreement between the European Community and its Member States and the Republic of Korea	Country – Bloc	Free Trade Agreement	2010	In force since	2011	Early announcement	
KOREA–INDIA	Korea–India Comprehensive Economic Partnership Agreement	Bilateral	Free Trade Agreement		In force since	2010	No notification	
KOREA–MEXICO		Bilateral	Free Trade Agreement		Under negotiation since	2006	Early announcement	
KOREA–PERU		Bilateral	Free Trade Agreement	2011	Pending country ratification		No notification	
KOREA–SINGAPORE	Free Trade Agreement Between the Government of the Republic of Korea and the Government of the Republic of Singapore	Bilateral	FTA & EIA	2005	In force since	2006	GATT Art XXIV, GATS Art V	2006
KORUS	Korea–USA Free Trade Agreement	Bilateral	Free Trade Agreement	2007	Pending country ratification		Early announcement	
MALAYSIA–KOREA	Malaysia–Korea Free Trade Agreement	Bilateral	Free Trade Agreement		Under negotiation since	2005	No notification	
NEW ZEALAND–KOREA		Bilateral	Free Trade Agreement		Under negotiation since	2009	No notification	

Source: Asia pacific trade and investment database.

Table A.4 GDP per capita and openness for ASEAN + CJK Countries

Country	Year	GDP per Capita	Openness
Brunei	2009	46205.63	101.06
Cambodia	2009	1767.83	115.49
China	2009	7008.17	58.58
Indonesia	2009	4073.82	56.94
Japan	2009	31980.32	24.31
Korea, Republic of	2009	25048.08	85.32
Laos	2009	2636.06	66.93
Malaysia	2009	11308.67	190.27
Philippines	2009	2839.33	87.79
Singapore	2009	47312.92	408.51
Thailand	2009	7799.44	131.83
Vietnam	2009	2870.91	161.22

Source: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.0, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, May 2011.

Table A.5 Logistic performance index

International LPI rank	Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
1	Germany	4.11	4	4.34	3.66	4.14	4.18	4.48
2	Singapore	4.09	4.02	4.22	3.86	4.12	4.15	4.23
3	Sweden	4.08	3.88	4.03	3.83	4.22	4.22	4.32
4	Netherlands	4.07	3.98	4.25	3.61	4.15	4.12	4.41
5	Luxembourg	3.98	4.04	4.06	3.67	3.67	3.92	4.58
6	Switzerland	3.97	3.73	4.17	3.32	4.32	4.27	4.2
7	Japan	3.97	3.79	4.19	3.55	4	4.13	4.26
8	United Kingdom	3.95	3.74	3.95	3.66	3.92	4.13	4.37
9	Belgium	3.94	3.83	4.01	3.31	4.13	4.22	4.29
10	Norway	3.93	3.86	4.22	3.35	3.85	4.1	4.35
11	Ireland	3.89	3.6	3.76	3.7	3.82	4.02	4.47
12	Finland	3.89	3.86	4.08	3.41	3.92	4.09	4.08
13	Hong Kong, China	3.88	3.83	4	3.67	3.83	3.94	4.04
14	Canada	3.87	3.71	4.03	3.24	3.99	4.01	4.41
15	United States	3.86	3.68	4.15	3.21	3.92	4.17	4.19
16	Denmark	3.85	3.58	3.99	3.46	3.83	3.94	4.38
17	France	3.84	3.63	4	3.3	3.87	4.01	4.37
18	Australia	3.84	3.68	3.78	3.78	3.77	3.87	4.16
19	Austria	3.76	3.49	3.68	3.78	3.7	3.83	4.08
20	Taiwan	3.71	3.35	3.62	3.64	3.65	4.04	3.95
21	New Zealand	3.65	3.64	3.54	3.36	3.54	3.67	4.17
22	Italy	3.64	3.38	3.72	3.21	3.74	3.83	4.08
23	Korea, Republic of	3.64	3.33	3.62	3.47	3.64	3.83	3.97
24	United Arab Emirates	3.63	3.49	3.81	3.48	3.53	3.58	3.94
25	Spain	3.63	3.47	3.58	3.11	3.62	3.96	4.12

26	Czech Republic	3.51	3.31	3.25	3.42	3.27	3.6	4.16
27	China	3.49	3.16	3.54	3.31	3.49	3.55	3.91
28	South Africa	3.46	3.22	3.42	3.26	3.59	3.73	3.57
29	Malaysia	3.44	3.11	3.5	3.5	3.34	3.32	3.86
30	Poland	3.44	3.12	2.98	3.22	3.26	3.45	4.52
31	Israel	3.41	3.12	3.6	3.17	3.5	3.39	3.77
32	Bahrain	3.37	3.05	3.36	3.05	3.36	3.63	3.85
33	Lebanon	3.34	3.27	3.05	2.87	3.73	3.16	3.97
34	Portugal	3.34	3.31	3.17	3.02	3.31	3.38	3.84
35	Thailand	3.29	3.02	3.16	3.27	3.16	3.41	3.73
36	Kuwait	3.28	3.03	3.33	3.12	3.11	3.44	3.7
37	Latvia	3.25	2.94	2.88	3.38	2.96	3.55	3.72
38	Slovak Republic	3.24	2.79	3	3.05	3.15	3.54	3.92
39	Turkey	3.22	2.82	3.08	3.15	3.23	3.09	3.94
40	Saudi Arabia	3.22	2.91	3.27	2.8	3.33	3.32	3.78
41	Brazil	3.2	2.37	3.1	2.91	3.3	3.42	4.14
42	Iceland	3.2	3.22	3.33	3.1	3.14	3.14	3.27
43	Estonia	3.16	3.14	2.75	3.17	3.17	2.95	3.68
44	Philippines	3.14	2.67	2.57	3.4	2.95	3.29	3.83
45	Lithuania	3.13	2.79	2.72	3.19	2.85	3.27	3.92
46	Cyprus	3.13	2.92	2.94	3.13	2.82	3.51	3.44
47	India	3.12	2.7	2.91	3.13	3.16	3.14	3.61
48	Argentina	3.1	2.63	2.75	3.15	3.03	3.15	3.82
49	Chile	3.09	2.93	2.86	2.74	2.94	3.33	3.8
50	Mexico	3.05	2.55	2.95	2.83	3.04	3.28	3.66
51	Panama	3.02	2.76	2.63	2.87	2.83	3.26	3.76
52	Hungary	2.99	2.83	3.08	2.78	2.87	2.87	3.52
53	Vietnam	2.96	2.68	2.56	3.04	2.89	3.1	3.44
54	Greece	2.96	2.48	2.94	2.85	2.69	3.31	3.49
55	Qatar	2.95	2.25	2.75	2.92	2.57	3.09	4.09

Continued

Table A.5 Continued

International LPI rank	Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
56	Costa Rica	2.91	2.61	2.56	2.64	2.8	3.13	3.71
57	Slovenia	2.87	2.59	2.65	2.84	2.9	3.16	3.1
58	Senegal	2.86	2.45	2.64	2.75	2.73	3.08	3.52
59	Romania	2.84	2.36	2.25	3.24	2.68	2.9	3.45
60	Oman	2.84	3.38	3.06	2.31	2.37	2.04	3.94
61	Tunisia	2.84	2.43	2.56	3.36	2.36	2.56	3.57
62	Kazakhstan	2.83	2.38	2.66	3.29	2.6	2.7	3.25
63	Bulgaria	2.83	2.5	2.3	3.07	2.85	2.96	3.18
64	Malta	2.82	2.65	2.89	2.91	2.89	2.56	3.02
65	Dominican Republic	2.82	2.51	2.34	2.59	2.42	3.17	3.85
66	Uganda	2.82	2.84	2.35	3.02	2.59	2.45	3.52
67	Peru	2.8	2.5	2.66	2.75	2.61	2.89	3.38
68	Uzbekistan	2.79	2.2	2.54	2.79	2.5	2.96	3.72
69	Benin	2.79	2.38	2.48	2.65	2.64	3.07	3.49
70	Honduras	2.78	2.39	2.31	2.67	2.57	2.83	3.83
71	Ecuador	2.77	2.32	2.38	2.86	2.6	2.84	3.55
72	Colombia	2.77	2.5	2.59	2.54	2.75	2.75	3.52
73	Macedonia, FYR	2.77	2.55	2.55	2.83	2.76	2.82	3.1
74	Croatia	2.77	2.62	2.36	2.97	2.53	2.82	3.22
75	Indonesia	2.76	2.43	2.54	2.82	2.47	2.77	3.46
76	Paraguay	2.75	2.37	2.44	2.87	2.59	2.72	3.46
77	Uruguay	2.75	2.71	2.58	2.77	2.59	2.78	3.06
78	Bahamas, The	2.75	2.38	2.4	2.69	2.69	2.81	3.46
79	Bangladesh	2.74	2.33	2.49	2.99	2.44	2.64	3.46
80	Syrian Arab Republic	2.74	2.37	2.45	2.87	2.59	2.63	3.45
81	Jordan	2.74	2.31	2.69	3.11	2.49	2.33	3.39

82	Mauritius	2.72	2.71	2.29	3.24	2.43	2.57	2.91
83	Serbia	2.69	2.19	2.3	3.41	2.55	2.67	2.8
84	Venezuela, RB	2.68	2.06	2.44	3.05	2.53	2.84	3.05
85	Congo, Dem. Rep.	2.68	2.6	2.27	2.56	2.93	2.43	3.2
86	El Salvador	2.67	2.48	2.44	2.18	2.66	2.68	3.63
87	Bosnia and Herzegovina	2.66	2.33	2.22	3.1	2.3	2.68	3.18
88	Madagascar	2.66	2.35	2.63	3.06	2.4	2.51	2.9
89	Azerbaijan	2.64	2.14	2.23	3.05	2.48	2.65	3.15
90	Guatemala	2.63	2.33	2.37	2.16	2.74	2.71	3.52
91	Kyrgyz Republic	2.62	2.44	2.09	3.18	2.37	2.33	3.1
92	Egypt, Arab Rep.	2.61	2.11	2.22	2.56	2.87	2.56	3.31
93	Georgia	2.61	2.37	2.17	2.73	2.57	2.67	3.08
94	Russian Federation	2.61	2.15	2.38	2.72	2.51	2.6	3.23
95	Tanzania	2.6	2.42	2	2.78	2.38	2.56	3.33
96	Togo	2.6	2.4	1.82	2.42	2.45	3.42	3.02
97	Guinea	2.6	2.34	2.1	2.43	2.68	2.89	3.1
98	Haiti	2.59	2.12	2.17	3.17	2.46	2.43	3.02
99	Kenya	2.59	2.23	2.14	2.84	2.28	2.89	3.06
100	Nigeria	2.59	2.17	2.43	2.84	2.45	2.45	3.1
101	Yemen, Rep.	2.58	2.46	2.35	2.24	2.35	2.63	3.48
102	Ukraine	2.57	2.02	2.44	2.79	2.59	2.49	3.06
103	Iran, Islamic Rep.	2.57	2.22	2.36	2.44	2.65	2.5	3.26
104	Moldova	2.57	2.11	2.05	2.83	2.17	3	3.17
105	Cameroon	2.55	2.11	2.1	2.69	2.53	2.6	3.16
106	Niger	2.54	2.06	2.28	2.66	2.42	2.45	3.28
107	Nicaragua	2.54	2.24	2.23	2.63	2.31	2.51	3.21
108	Jamaica	2.53	2	2.07	2.82	2.32	3.07	2.82
109	Cote d'Ivoire	2.53	2.16	2.37	2.44	2.57	2.95	2.73
110	Pakistan	2.53	2.05	2.08	2.91	2.28	2.64	3.08
111	Armenia	2.52	2.1	2.32	2.43	2.59	2.26	3.4
112	Bolivia	2.51	2.26	2.24	2.53	2.38	2.38	3.2

Continued

Table A.5 Continued

International LPI rank	Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
113	Gambia, The	2.49	2.38	2.17	2.54	2.37	2.27	3.15
114	Turkmenistan	2.49	2.14	2.24	2.31	2.34	2.38	3.51
115	Chad	2.49	2.27	2	2.75	2.04	2.62	3.14
116	Congo, Rep.	2.48	2.02	1.62	2.33	2.42	2.33	4
117	Ghana	2.47	2.35	2.52	2.38	2.42	2.51	2.67
118	Lao PDR	2.46	2.17	1.95	2.7	2.14	2.45	3.23
119	Albania	2.46	2.07	2.14	2.64	2.39	2.39	3.01
120	Comoros	2.45	1.96	1.76	2.56	2.26	2.79	3.23
121	Montenegro	2.43	2.17	2.45	2.54	2.32	2.44	2.65
122	Gabon	2.41	2.23	2.09	2.29	2.31	2.67	2.87
123	Ethiopia	2.41	2.13	1.77	2.76	2.14	2.89	2.65
124	Papua New Guinea	2.41	2.02	1.91	2.55	2.2	2.43	3.24
125	Maldives	2.4	2.25	2.16	2.42	2.29	2.42	2.83
126	Djibouti	2.39	2.25	2.33	2.5	2.17	2.42	2.67
127	Liberia	2.38	2.28	2	2.33	2.16	2.38	3.08
128	Bhutan	2.38	2.14	1.83	2.44	2.24	2.54	2.99
129	Cambodia	2.37	2.28	2.12	2.19	2.29	2.5	2.84
130	Algeria	2.36	1.97	2.06	2.7	2.24	2.26	2.81
131	Tajikistan	2.35	1.9	2	2.42	2.25	2.25	3.16
132	Libya	2.33	2.15	2.18	2.28	2.28	2.08	2.98
133	Myanmar	2.33	1.94	1.92	2.37	2.01	2.36	3.29
134	Botswana	2.32	2.09	2.09	1.91	2.29	2.59	2.99
135	Solomon Islands	2.31	2.08	2.23	2.18	2.27	2.03	3.05
136	Mozambique	2.29	1.95	2.04	2.77	2.2	2.28	2.4
137	Sri Lanka	2.29	1.96	1.88	2.48	2.09	2.23	2.98
138	Zambia	2.28	2.17	1.83	2.41	2.01	2.35	2.85
139	Mali	2.27	2.08	2	2.17	2.13	2.31	2.9

140	Guyana	2.27	2.02	1.99	2.31	2.25	2.28	2.7
141	Mongolia	2.25	1.81	1.94	2.46	2.24	2.42	2.55
142	Angola	2.25	1.75	1.69	2.38	2.02	2.54	3.01
143	Afghanistan	2.24	2.22	1.87	2.24	2.09	2.37	2.61
144	Fiji	2.24	1.95	1.98	2.48	2.11	1.96	2.82
145	Burkina Faso	2.23	2.22	1.89	1.73	2.02	2.77	2.77
146	Sudan	2.21	2.02	1.78	2.11	2.15	2.02	3.09
147	Nepal	2.2	2.07	1.8	2.21	2.07	2.26	2.74
148	Iraq	2.11	2.07	1.73	2.2	2.1	1.96	2.49
149	Guinea–Bissau	2.1	1.89	1.56	2.75	1.56	1.71	2.91
150	Cuba	2.07	1.79	1.9	2.32	1.88	2.03	2.41
151	Rwanda	2.04	1.63	1.63	2.88	1.85	1.99	2.05
152	Namibia	2.02	1.68	1.71	2.2	2.04	2.04	2.38
153	Sierra Leone	1.97	2.17	1.61	2.33	1.53	1.73	2.33
154	Eritrea	1.7	1.5	1.35	1.63	1.88	1.55	2.21
155	Somalia	1.34	1.33	1.5	1.33	1.33	1.17	1.38
Regions								
1	Europe & Central Asia	2.74	2.35	2.41	2.92	2.6	2.75	3.33
2	Latin America & Caribbean	2.74	2.38	2.46	2.7	2.62	2.84	3.41
3	East Asia & Pacific	2.73	2.41	2.46	2.79	2.58	2.74	3.33
4	Middle East & North Africa	2.6	2.33	2.36	2.65	2.53	2.46	3.22
5	South Asia	2.49	2.22	2.13	2.61	2.33	2.53	3.04
6	Sub-Saharan Africa	2.42	2.18	2.05	2.51	2.28	2.49	2.94
Income groups								
1	High income: all	3.55	3.36	3.56	3.28	3.5	3.65	3.98
2	Upper middle income	2.82	2.49	2.54	2.86	2.71	2.89	3.36
3	Lower middle income	2.59	2.23	2.27	2.66	2.48	2.58	3.24
4	Low income	2.43	2.19	2.06	2.54	2.25	2.47	2.98

Source: World Development Indicators, accessed in August 2011.

Box A.1 Transportation infrastructure – World Trade Report (2004)

INFRASTRUCTURE IN TRADE AND ECONOMIC DEVELOPMENT

This subsection focuses on transport infrastructure and related services for sea, land and air transport. It looks at the role that transportation services play in trade and international integration. Then it discusses the market structure of the transportation industry. Finally, it assesses the options available to the policy maker to render transport services more effective.

(i) Sea transport

World seaborne trade amounted to 5.9 billion tons of loaded goods in 2002, up by 0.8 per cent from the previous year. In 2002, the share of seaborne exports of developing countries was equal to 49.4 per cent, while that of developed countries was 40.4 per cent. Sea transport represents for many countries the most important mode of transport for trade. Sea freight rate differentials across countries between westbound and eastbound routes and across regions. Among these are trade imbalances, the product composition of exports, the extent to which containers are used for transport, the average distance of importing countries, terminal handling charges and port efficiency. Focusing on port efficiency, a recent study estimates that being among the 25 per cent least efficient ports is equivalent to being 5000 miles farther away from the nearest major market compared to being among the 25 per cent most efficient ports. This is equivalent to a reduction in shipping costs by more than 12 per cent (Clark et al., 2004).

Determinants of port efficiency are quality of port infrastructure and the market structure of port services. On the one hand, better infrastructure facilitates port operations, such as maritime cargo handling, storage, fueling and watering, and emergency repair facilities. It reduces the time required to perform these operations and ameliorates the quality of the services provided. On the other hand, better regulation, more domestic competition and international liberalization of the transportation service industry increases allocative efficiency (i.e. pricing close to costs) and internal efficiency (i.e. reduction of operational costs), thus reducing transport costs. These observations are confirmed by empirical evidence. A recent study finds that public restrictive trade policies, such as cargo reservation schemes (that require that part of the cargo carried in trade be transported only by national ships), and other restrictions imposed on potential foreign suppliers of a service, as well as private non-competitive practices (such as price fixing carrier agreements and cooperative working agreements) significantly increase liner transport prices (Fink et al., 2002).

(ii) Land transport

Land transport includes road transport, rail transport and pipelines. In the United States the share of total trade transported by land is 34 per cent. Of this, freight transport by road is the principal mode of land freight transport, accounting for 60 per cent of total trade (in value terms) by land. A comparison

between transport costs by land and by sea shows that transport by land is more expensive than by sea. Using data on the cost of transporting a standard container from Baltimore to selected destinations, Limão and Venables (2001) estimate that land transport is about seven times costlier than sea transport. An extra 1,000 kilometres by sea adds on average 190 dollars whereas by land it adds on average 1,380 dollars to the transport cost. As a consequence, at a given distance, being landlocked increases transport costs and represents a disadvantage for trade. Despite the higher costs, there is evidence that land transport is gaining market share relative to sea transport and that the cost of overland transport has declined relative to ocean transport (Hummels, 1999). As discussed below, the growing importance of timeliness for trade is one factor explaining this trend.

(iii) Air transport

The importance of air transport for trade has been increasing over time. The share of US imports shipped by air increased from 7 per cent in 1965 to 23 per cent in 2001 in value terms. In terms of ton-miles, air cargo grew at an annual average rate of 10 per cent between 1970 and 1996, while ocean shipping grew at an average rate of 2.6 per cent over the same period (World Bank, 2005b). Air transport is also very important for developing countries, accounting for nearly 30 per cent of their exports by value (World Bank, 2003). More than 20 per cent of African exports to the United States are shipped by air. The products exported from Africa to the United States by air are mainly precious stones, scientific instruments, clocks and watches (Amjadi and Yeats, 1995). Air transportation is particularly important for time-sensitive products such as agricultural products and intermediate inputs traded within international production networks. In 1995, the most important air cargo commodities in US trade, by weight, were machinery parts (10 per cent of trade), electronics (13 per cent), high-tech instruments (4.6 per cent) and cut flowers and fish (each representing 4 per cent of trade) (OECD, 1999). Low air transport costs relative to ocean transport costs, for example, may contribute to creating comparative advantage in time-sensitive goods.

(iv) Integrated transport and logistic services

Total logistics costs (packaging, storage, transport, inventories, administration and management) are estimated on average at 20 per cent of total production costs in OECD countries. Transport usually accounts for a quarter of total logistics costs, storage for a fifth and inventories for a sixth. Integrated transport and communication links are essential for cost-efficient transport networks. Border delays, transport coordination problems and direct charges that may be required by transit countries constitute an important part of trade costs. After controlling for the distance between countries, empirical analysis suggests a positive border effect on trade – that is, adjacent countries trade more than two otherwise identical countries for reasons other than distance. Efficient logistics is an important determinant of a country's competitiveness. The international transport system may suffer from insufficient cross-country

coordination of the network, such as non-integrated time schedules, customs delays, incompatible standards or an insufficient flow of information about delays.

Logistics services help to solve these problems. For example, they assist clients to save costs by concentrating cargo flows, reducing the ratio of empty voyages and favouring the sharing of information across transport operators. Efficient logistics do not just reduce costs of transport and transit time, but also decrease the costs of production. If logistics services are inefficient, firms are likely to maintain higher inventories at each stage of the production chain, requiring additional working capital (bigger warehouses to store larger inventories). Gaush and Kogan (2001) estimated that developing countries could reduce the unit cost of production by as much as 20 per cent by reducing inventory holdings by half. At the sectoral level, logistics is most important for the electronic, pharmaceutical, fashion clothes and automotive sectors, where timeliness is important

Box A.2 Polity IV Project

The Polity IV Project continues the Polity research tradition of coding the authority characteristics of states in the world system for purposes of comparative, quantitative analysis. The original Polity conceptual scheme was formulated, and the original Polity I data collected, under the direction of Ted Robert Gurr; the Polity scheme was informed by foundational, collaborative work with Harry Eckstein, *Patterns of Authority: A Structural Basis for Political Inquiry* (New York: John Wiley & Sons, 1975). The Polity project has proven its value to researchers over the years, becoming the most widely used data resource for studying regime change and the effects of regime authority. The Polity IV Project carries data collection and analysis through 2009 and is under the direction of Monty G. Marshall at the Center for Systemic Peace.

The Polity conceptual scheme is unique in that it examines concomitant qualities of democratic and autocratic authority in governing institutions, rather than discreet and mutually exclusive forms of governance. This perspective envisions a spectrum of governing authority that spans from fully institutionalized autocracies through mixed, or incoherent, authority regimes (termed "anocracies") to fully institutionalized democracies. The "Polity Score" captures this regime authority spectrum on a 21-point scale ranging from –10 (hereditary monarchy) to +10 (consolidated democracy). The Polity scores can also be converted to regime categories: we recommend a three-part categorization of "autocracies" (–10 to –6), "anocracies" (–5 to +5 and the three special values: –66, –77, and –88), and "democracies" (+6 to +10); see "Global Regimes by Type, 1946–2006" above. The Polity scheme consists of six component measures that record key qualities of executive recruitment, constraints on executive authority, and political competition. It also records changes in the institutionalized qualities of governing authority. The Polity

data include information only on the institutions of the central government and on political groups acting, or reacting, within the scope of that authority. It does not include consideration of groups and territories that are actively removed from that authority (i.e. separatists or "fragments"; these are considered separate, though not independent, polities) or segments of the population that are not yet effectively politicized in relation to central state politics.

The Polity project has evolved through three earlier research phases, all under the direction of Ted Gurr. The Polity III phase updated core Polity data through 1992 and was later updated through 1998 and released as the Polity98 version. Through its evolution, the format of the Polity data has been transformed from its original focus on "persistence and change" in the "polity" as the unit of analysis (i.e. polity-case format) to its present country-year case format, which is the preferred format for inclusion in time-series analyses. The original Polity I format was revisited by a research team under the direction of Nils Petter Gleditsch and information concerning the dates of polity changes was updated in 1994 and made available in the original polity-case format as Polity IIId. In the late 1990s, Polity became a core data project in the U.S. Government's State Failure Task Force global analysis project (since, renamed the Political Instability Task Force; PITF). The special focus on "state failure" problem events within a general context of societal and systemic development processes requires information pertinent to both Polity foci, that is, state continuity and change (country-year format) and regime persistence and change (polity-case format), be combined in a single data resource base. The fourth phase of the project, Polity IV, combines information from those two formats in a single data resource. Annual Polity IV records code the regime characteristics in effect on December 31 of the record year and provide the dates and magnitide of Polity changes that occurred during the record year.

The Polity IV dataset covers all major, independent states in the global system (i.e. states with total population of 500,000 or more in the most recent year; currently 164 countries) over the period 1800–2010. With the support of the PITF, the Polity IV Project has been transformed into a living, data collection effort, meaning that it constantly monitors regime changes in all major countries and provides annual assessments of regime authority characteristics and regime changes and data updates. It is also the most closely scrutinized data series on political issues as analysts and experts in academia, policy, and the intelligence community regularly examine and often challenge Polity codings. Monitoring real-time events requires Polity analysts to make tentative assessments of the trajectories of unfolding political dynamics and their effect on the essential qualities of governing institutions, or patterns of authority. Recent annual Polity records are routinely re-examined during each annual update and may be revised in light of further information regarding institutional practice. In addition, historical cases are often re-examined, often as a result of questions raised by users and country experts, and may be refined in conformance with new information or the correction of errors in the records. Along with the annually updated version of the Polity IV data series, we provide a separate record of substantive changes made to the

data records during the annual update procedure (simple corrections are not reported). We also provide a separate version of the dataset in "polity-case" format: Polity IVd. The standard method for documentation of data collection in the social sciences, that is, coding sheets, has been replaced by a more detailed description of Polity characteristics and changes for each individual country in the data series: the annual Polity IV Country Report series. We have also compiled a list of non-constitutional changes in executive leadership (e.g. coups d'etat, revolutions, or forced resignations) that may not be captured in changed Polity scores or may result in only minor changes of Polity scores.

Box A.3 Measuring institutional quality (Busse and Hefeker, 2007)

A team of researchers at the World Bank (Kaufmann et al., 2005) constructed six indicators measuring the quality of institutions by comparing good governance across countries. According to their classification, governance itself can be broadly defined as the set of traditions and institutions by which authority in a country is exercised. This includes (1) the process by which governments are selected, monitored and replaced, represented by two indicators: Voice and Accountability and Political Stability. Furthermore, governance includes (2) the capacity of the government to effectively formulate and implement sound policies, which is represented by the indicators Government Effectiveness and Regulatory Quality. Finally, governance implies (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them, which is represented by the indicators Rule of Law and Control of Corruption. Hence, the indicators describe informal and formal public institutional quality and address different dimensions of the overall government performance. The six dimensions of governance can be described as follows:

1. Voice and Accountability, representing different aspects of political rights and civil liberties, such as free and fair elections, the influence of the military in politics and the independence of the media.
2. Political Stability, describing perceptions of the likelihood that the government in power will be destabilized or even overthrown by unconstitutional and/or violent means, due to, for example, ethnic tensions.
3. Government Effectiveness, measuring perceptions of "inputs" that are required for the government to be able to produce and implement good policies, including the quality of government, bureaucracy and public administration, the competence of civil servants, the management time spent with bureaucrats, and the independence of the civil service from political pressure.

4. Regulatory Quality, combining measures of the incidence of government intervention in the economy, such as wage or price controls, regulations on foreign trade, and legal restrictions on business ownership or equity by non-residents.
5. Rule of Law, representing the extent to which agents have confidence in and follow the rules of society, that is, the enforceability of contracts, the prevalence of black market activities and the effectiveness and predictability of the judiciary.
6. Control of Corruption, describing the exercise of public power for private gain, ranging from the incidence of improper practices, through effects of corruption on the attractiveness of the country as a place to do business, to the likelihood that additional payments are required to "get things done."

These indicators are based on several hundred individual variables measuring perceptions of governance, drawn from 37 separate data sources constructed by 31 different organizations. Their dataset, covering 209 countries, is exceptionally large and provides information for five time periods: 1996, 1998, 2000, 2002 and 2004. Kaufmann and associates standardize all six indicators, ranging from about –2.5 to +2.5, with higher values corresponding to better governance outcomes.

Table A.6 Control of corruption index

Country/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NEW ZEALAND	2.2116954	2.1901033	2.1685112	2.2271564	2.2858017	2.3435418	2.38724	2.2336238	2.3352134	2.3693442	2.3182257
SINGAPORE	2.1888979	2.1864772	2.1840566	2.2778191	2.3715817	2.3149524	2.3104671	2.1719409	2.1899946	2.217286	2.3445258
AUSTRALIA	1.9108389	1.9059837	1.9011286	1.8744901	1.8478516	1.975002	2.0320536	1.9077788	1.9261486	1.9995664	2.0278183
JAPAN	1.2689799	1.287487	1.3059941	1.1487734	0.9915527	1.1467023	1.1607719	1.2281279	1.3387145	1.1675069	1.2464232
MALAYSIA	0.6089895	0.5029359	0.3968823	0.3799714	0.3630604	0.317279	0.421487	0.3153463	0.3599166	0.2285346	0.1436974
KOREA, SOUTH	0.2116365	0.2418833	0.2721301	0.3685878	0.4650455	0.4043925	0.3788284	0.62544	0.3925721	0.4627903	0.4477348
THAILAND	0.015197	–0.0898934	–0.1949838	–0.2611346	–0.3272854	–0.2647736	–0.2097631	–0.1261984	–0.2366254	–0.4071032	–0.3843552
CHINA	–0.3124336	–0.2676846	–0.2229356	–0.3160832	–0.4092308	–0.3702223	–0.5774518	–0.6650918	–0.5266657	–0.6119043	–0.4379455
PHILIPPINES	–0.3711235	–0.4596574	–0.5481913	–0.5326032	–0.5170151	–0.5134181	–0.6175213	–0.6396662	–0.79166	–0.7929815	–0.7461315
INDONESIA	–1.156125	–1.0698197	–0.9835145	–1.0554508	–1.1273872	–0.9740358	–0.9110362	–0.8675404	–0.7669251	–0.6895013	–0.6420935

Source: World Governance Index.

Table A.7 Voice and accountability index

Country/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NEW ZEALAND	1.6134379	1.6779209	1.742404	1.6410053	1.5396067	1.6037814	1.6770565	1.660113	1.5180571	1.4796878	1.4772768
AUSTRALIA	1.4302553	1.4690794	1.5079036	1.4515216	1.3951397	1.4077362	1.5015163	1.5203333	1.3865071	1.3558842	1.3642004
JAPAN	0.887792	0.8808407	0.8738894	0.9295471	0.9852047	1.0337079	1.0077357	0.9952182	0.9721176	0.9689099	0.9522867
KOREA, SOUTH	0.6176746	0.6128422	0.6080097	0.6715494	0.7350891	0.7545422	0.7085085	0.7458826	0.6136411	0.6538884	0.5857603
THAILAND	0.3979576	0.4536849	0.5094123	0.4242856	0.3391588	0.2586449	0.1247402	0.0306213	–0.547065	–0.6112154	–0.5574934
PHILIPPINES	0.388061	0.2864986	0.1849361	0.1611706	0.1374051	0.0565303	0.0277664	0.0313207	–0.081042	–0.1585096	–0.2004452
SINGAPORE	0.265492	0.2573896	0.2492872	0.1610054	0.0727235	–0.011043	0.0160626	0.0383125	–0.479344	–0.4547818	–0.4065702
MALAYSIA	–0.2119419	–0.249304	–0.286666	–0.36368	–0.440693	–0.413483	–0.2525518	–0.1736494	–0.546898	–0.5719558	–0.5807728
INDONESIA	–1.0426617	–0.719463	–0.396265	–0.400947	–0.405629	–0.414141	–0.3322623	–0.1813655	–0.176980	–0.1521017	–0.1445004
CHINA	–1.3762972	–1.330684	–1.285071	–1.430553	–1.576036	–1.532397	–1.4612098	–1.5161047	–1.675246	–1.7179466	–1.7235692

Source: World Governance Index.

Table A.8 Political stability and absence of violence/terrorism

Country/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
AUSTRALIA	1.4033194	1.3486817	1.2940441	1.3271688	1.3602935	1.3353152	1.5049031	1.3150545	1.3231316	1.2986328	1.1642741
CHINA	1.2509304	1.2702214	1.2895123	1.2470024	1.2044925	0.8754229	0.9323511	0.9001772	0.9046792	0.8971807	1.0772058
INDONESIA	1.2289157	1.1705841	1.1122525	1.1518953	1.1915382	1.1913149	1.0766941	1.0313333	1.0969577	1.0298911	0.9372253
JAPAN	1.1066754	1.1675418	1.2284083	1.2860544	1.3437005	1.023565	1.1522955	1.1777582	1.2994796	1.2227193	1.3287957
KOREA, SOUTH	0.4045119	0.3779405	0.3513691	0.3632539	0.3751387	–0.0067832	–0.4116864	–0.604242	–0.8917647	–1.0116398	–1.1876703
MALAYSIA	0.1403393	0.1568675	0.1733957	0.2399387	0.3064818	0.3295295	0.4887683	0.5599189	0.4128201	0.4464406	0.4076634
NEW ZEALAND	0.1277525	0.2057454	0.2837383	0.3515157	0.4192931	0.3323165	0.2901376	0.4734166	0.3357329	0.2256723	0.1299771
PHILIPPINES	–0.0872097	–0.1010091	–0.1148084	–0.1491883	–0.1835681	–0.3231105	–0.1415363	–0.2452632	–0.3116583	–0.2795335	–0.3170125
SINGAPORE	–0.1652648	–0.4729157	–0.7805666	–0.721214	–0.6618613	–1.1774437	–1.2088703	–1.0461519	–1.297573	–1.3093154	–1.4134343
THAILAND	–1.3889154	–1.5395031	–1.6900907	–1.6481819	–1.6062732	–1.9933275	–1.5387945	–1.2477838	–1.2050204	–1.0776572	–1.002121

Source: World Governance Index.

Table A.9 Government effectiveness

Country/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
AUSTRALIA	2.1295049	2.1935365	2.2575681	2.181929	2.10629	2.1866775	2.2312359	2.1293451	2.2884354	2.4491399	2.5312514
CHINA	1.918864	1.8753789	1.8318937	1.8254997	1.8191057	2.0056741	2.0986377	1.9263959	1.9091335	1.9883987	1.903797
INDONESIA	1.7679903	1.7157588	1.6635273	1.7350717	1.806616	1.9774618	2.0966794	1.9113774	1.8594055	1.8820966	1.760011
JAPAN	1.0059529	1.0641514	1.1223499	1.0858995	1.0494491	1.1812349	1.2857973	1.3139166	1.5568042	1.3813153	1.4594172
KOREA, SOUTH	0.6818001	0.7964974	0.9111947	0.9942226	1.0772505	1.1700195	1.2549304	1.1621931	1.1708003	1.059504	0.8797549
MALAYSIA	0.5343701	0.7114605	0.888551	0.8671046	0.8456582	0.9589542	0.9920824	0.9946292	1.0554671	1.1082759	1.12793
NEW ZEALAND	0.3870001	0.5889755	0.790951	0.8731957	0.9554403	0.9447434	0.9862316	1.0276933	1.1796204	1.2871812	1.258755
PHILIPPINES	0.1028103	0.088046	0.0732816	0.121472	0.1696625	0.292026	0.2221831	0.3643869	0.2454241	0.1722183	0.1097701
SINGAPORE	–0.262200	–0.228264	–0.1943285	–0.1839724	–0.1736163	–0.1528893	–0.2770474	–0.1097448	–0.0873801	–0.0358005	0.0005807
THAILAND	–0.852370	–0.677561	–0.5027514	–0.5672111	–0.6316708	–0.5585887	–0.4276336	–0.4629937	–0.3745113	–0.3872662	–0.2908707

Source: World Governance Index.

Table A.10 Regulatory quality

Country/ Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
AUSTRALIA	2.0278899	1.9924288	1.9569676	1.9276667	1.8983658	1.8380871	1.8229357	1.7986144	1.7585741	1.8656427	1.9178342
CHINA	1.8822898	1.7228136	1.5633374	1.5898988	1.6164601	1.7126476	1.799365	1.6785963	1.7349931	1.7375204	1.720954
INDONESIA	1.4927596	1.5580157	1.6232718	1.532535	1.4417982	1.5955306	1.7316787	1.6168191	1.6630309	1.7059907	1.7766799
JAPAN	1.0376389	1.0837377	1.1298366	1.0587162	0.9875957	0.9381016	1.1469177	1.0763627	0.9185204	0.937793	1.0719803
KOREA, SOUTH	0.6480102	0.7406641	0.833318	0.6999683	0.5666185	0.9862289	1.1070195	1.1657536	1.1854154	1.0514079	1.2266471
MALAYSIA	0.5841109	0.483612	0.3831131	0.4259484	0.4687837	0.6589774	0.4832454	0.5186006	0.5082864	0.5326117	0.2684416
NEW ZEALAND	0.3305507	0.4544018	0.5782529	0.6735698	0.7688867	0.6677461	0.7897124	0.7930941	0.6975847	0.8752988	0.7296798
PHILIPPINES	0.3022238	0.2250559	0.1478879	0.0252065	–0.0974749	–0.0590726	–0.2519112	–0.048696	–0.124696	–0.132825	–0.053457
SINGAPORE	0.1628056	0.3105856	0.4583657	0.3019148	0.1454639	0.2396442	0.2358586	0.4116746	0.2314305	0.1132247	0.2607449
THAILAND	–0.271482	–0.288568	–0.3056536	–0.5087043	–0.7117551	–0.6519716	–0.6293051	–0.478208	–0.307080	–0.297326	–0.269931

Source: World Governance Index.

Table A.11 Rule of Law

Country/ Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
AUSTRALIA	1.8783346	1.8176799	1.7570252	1.76014	1.7632547	1.8316942	1.8761309	1.8787537	1.8577589	1.9016852	1.8518138
CHINA	1.7810446	1.7603305	1.7396165	1.7449391	1.7502618	1.8161182	1.8093738	1.7385327	1.7921425	1.7845851	1.7645825
INDONESIA	1.4691268	1.421955	1.3747832	1.4375278	1.5002725	1.6628434	1.7834141	1.790726	1.7311035	1.7354165	1.7286184
JAPAN	1.4668581	1.4315525	1.396247	1.3217527	1.2472585	1.2573426	1.2672886	1.2867602	1.3833927	1.3454706	1.3966077
KOREA, SOUTH	0.8605213	0.8811908	0.9018602	0.8782822	0.8547042	0.8849171	0.8601583	0.8926324	0.7100875	0.6924263	0.7656895
MALAYSIA	0.735569	0.7682986	0.8010283	0.8217214	0.8424145	0.7018293	0.7524057	0.8524806	0.741081	0.8965314	0.7908138
NEW ZEALAND	0.4833369	0.4891543	0.4949717	0.3734544	0.2519371	0.0734894	0.0538601	0.11373	0.0045115	–0.0716318	–0.0305331
PHILIPPINES	0.4744077	0.4123622	0.3503167	0.3860103	0.4217039	0.4555984	0.5526517	0.5766498	0.5634524	0.518807	0.4904548
SINGAPORE	–0.087474	–0.289821	–0.4921675	–0.5036738	–0.51518	–0.5815873	–0.6206966	–0.4165692	–0.4379204	–0.5409019	–0.4891095
THAILAND	–0.722854	–0.768662	–0.8144706	–0.9099627	–1.0054547	–0.9523479	–0.7821123	–0.8401014	–0.7381481	–0.7019639	–0.6559381

Source: World Governance Index.

Table A.12 ASEAN + 3 intra-regional trade share

Time period	Intra Regional Trade share															
	ASEAN										Total ASEAN	JPN	China		KOR	ASEAN + 3
	BRU	CAM	INO	LAO	MAL	MYA	PHI	SIN	THA	VIE			PRC	HKG		
1990	0.4	0.0	0.4	0.0	5.8	0.2	0.7	6.6	2.6	0.1	17.0	19.6	2.3	5.1	3.2	47.2
1991	0.3	0.0	0.5	0.0	6.4	0.1	0.6	7.4	2.6	0.2	18.1	19.7	2.4	5.4	3.6	49.1
1992	0.4	0.1	0.5	0.0	5.9	0.1	0.6	7.7	2.8	0.3	18.5	18.9	2.4	5.2	3.6	48.6
1993	0.3	0.2	0.6	0.1	6.6	0.1	0.8	7.7	2.8	0.5	19.6	19.0	2.4	5.3	3.7	50.0
1994	0.3	0.2	0.6	0.1	7.8	0.2	0.8	7.7	3.0	0.6	21.3	18.3	2.5	5.5	3.7	51.2
1995	0.3	0.2	0.7	0.1	7.6	0.2	0.9	7.2	3.3	0.6	21.0	18.0	2.7	5.4	3.8	50.9
1996	0.4	0.2	0.7	0.1	7.2	0.2	1.1	7.4	3.5	0.6	21.2	17.1	2.8	5.3	4.2	50.7
1997	0.3	0.2	0.9	0.1	7.2	0.2	1.3	7.4	3.3	0.6	21.3	15.9	3.2	5.5	4.0	49.9
1998	0.2	0.1	1.0	0.1	6.8	0.2	1.6	7.1	3.0	0.8	21.0	14.0	3.6	5.0	3.6	47.2
1999	0.2	0.2	1.0	0.1	7.1	0.2	1.8	7.1	3.2	0.8	21.8	15.0	3.7	4.5	4.1	49.0
2000	0.2	0.1	1.0	0.1	7.7	0.2	1.8	7.5	3.2	0.8	22.7	15.6	4.2	4.6	4.2	51.4
2001	0.2	0.2	1.1	0.1	7.4	0.3	1.7	7.0	3.4	0.8	22.1	15.0	4.8	4.6	4.1	50.7
2002	0.2	0.2	1.3	0.1	7.5	0.3	1.7	7.0	3.5	0.9	22.6	14.1	6.1	5.0	4.5	52.4
2003	0.2	0.2	4.1	0.1	7.2	0.3	1.7	6.4	3.5	0.9	24.4	13.6	7.1	5.1	4.2	54.4
2004	0.2	0.2	4.1	0.1	6.9	0.3	1.7	6.2	3.7	1.0	24.4	13.2	8.0	4.9	4.2	54.6
2005	0.2	0.2	4.2	0.1	6.8	0.3	1.7	6.5	3.7	1.2	24.9	12.4	8.8	4.9	4.2	55.1
2006	0.2	0.2	4.2	0.1	6.8	0.3	1.6	6.3	3.8	1.2	24.8	11.5	9.5	4.7	4.3	54.9
2007	0.2	0.2	4.4	0.1	6.8	0.3	1.6	6.2	3.7	1.4	25.0	11.1	10.3	4.8	4.3	55.5
2008	0.2	0.3	4.5	0.1	6.5	0.4	1.4	6.4	3.7	1.5	24.9	11.2	9.8	4.8	4.6	55.4
2009	0.2	0.3	4.3	0.2	6.3	0.4	1.5	5.9	3.8	1.6	24.3	10.7	10.9	5.0	4.9	55.8
2010	0.1	0.3	4.2	0.2	6.0	0.3	1.6	7.3	3.8	1.3	25.2	10.6	12.5	5.1	4.9	58.4

Source: IMF Direction of Trade (DOT) Statistics, Processed.

Table A.13 ASEAN + 3 Exports

Time period	Export: (FOB) – million USD															
	ASEAN										Total ASEAN	JPN	China		KOR	ASEAN + 3
	BRU	CAM	INO	LAO	MAL	MYA	PHI	SIN	THA	VIE			PRC	HKG		
1990	668.1	22.2	583.4	82.3	7,884.0	318.4	1,558.8	10,987.5	5,188.2	72.0	27,364.8	27,298.4	2,633.1	6,615.6	4,827.9	68,739.7
1991	710.2	18.2	778.5	80.4	10,014.1	346.4	1,351.4	13,665.6	5,604.6	215.3	32,784.6	30,581.2	3,272.5	8,112.1	5,851.8	80,602.2
1992	866.4	355.4	850.1	141.5	9,542.0	366.3	1,767.4	16,750.3	6,441.8	723.2	37,804.3	31,471.8	4,006.9	9,611.5	6,057.0	88,951.4
1993	904.6	696.5	831.6	203.4	12,462.1	478.3	2,420.0	19,266.5	7,143.9	1,472.2	45,878.9	34,232.3	5,266.8	12,000.7	7,098.4	104,477.2
1994	1,127.7	811.9	1,298.3	344.8	21,861.3	647.9	2,840.9	24,289.7	8,654.2	2,511.3	64,387.8	37,511.4	6,880.4	15,710.9	8,181.8	132,672.2
1995	1,822.4	1,086.7	2,073.2	420.8	25,713.8	928.8	3,647.0	28,871.0	11,932.8	3,047.2	79,543.8	46,363.1	8,753.0	19,798.7	10,196.8	164,655.5
1996	2,140.1	1,090.1	2,148.0	435.0	26,482.4	1,021.3	4,729.9	30,398.5	12,574.4	3,029.6	84,049.3	50,280.4	10,003.4	20,933.0	13,020.1	178,286.2
1997	1,784.0	1,007.3	2,888.0	484.2	26,673.3	1,233.7	5,836.9	31,074.4	11,206.9	3,173.5	85,362.1	48,132.1	10,709.2	23,242.3	12,286.4	179,732.1
1998	941.4	775.5	2,432.6	470.9	21,182.9	920.5	5,502.0	25,835.4	8,522.5	3,225.2	69,809.0	38,321.0	10,549.1	18,996.1	8,491.2	146,166.3
1999	771.5	898.3	2,830.3	613.2	24,383.5	1,131.2	6,151.1	27,746.9	10,226.6	3,135.9	77,888.6	44,640.8	11,549.9	19,152.4	11,927.9	165,159.5
2000	811.2	1,040.6	3,526.2	487.3	31,697.7	1,251.9	7,496.6	34,976.7	12,813.5	3,958.0	98,059.8	57,363.8	16,377.5	22,570.0	15,687.1	210,058.3
2001	746.4	1,118.6	3,379.2	505.2	27,157.4	1,055.9	6,719.1	29,210.8	12,585.0	3,850.5	86,328.0	53,306.3	16,704.0	21,398.2	14,561.6	192,298.2
2002	787.7	1,177.8	4,077.5	498.4	28,768.7	1,152.1	6,764.6	30,612.4	13,557.3	4,283.8	91,680.3	50,742.5	21,807.9	24,451.4	16,133.8	204,815.8
2003	855.2	1,413.6	21,073.5	531.7	32,212.2	1,292.6	7,582.7	31,554.3	15,083.7	5,230.9	116,830.4	56,559.7	30,947.3	30,216.9	17,338.3	251,892.6
2004	897.1	1,616.1	26,414.5	692.6	38,404.8	1,487.7	9,422.6	36,336.1	19,061.3	7,601.6	141,934.3	67,198.9	41,547.0	35,076.7	20,907.2	306,664.2
2005	966.0	1,984.1	31,432.8	887.5	43,256.1	1,648.0	10,453.1	42,414.7	23,321.1	9,094.3	165,457.7	72,618.3	52,603.0	41,703.9	24,945.5	357,328.3
2006	1,047.0	2,705.1	35,113.6	1,169.9	50,407.5	1,651.9	12,032.6	47,747.7	27,514.5	12,002.1	191,391.9	82,639.0	66,660.1	49,156.8	28,377.1	418,224.8
2007	1,239.6	3,100.8	42,810.2	1,474.2	55,841.7	2,239.6	14,400.1	51,441.7	29,290.6	14,888.5	216,727.0	88,310.3	78,964.6	56,330.7	31,884.5	472,217.2
2008	1,502.8	4,416.6	51,710.7	1,956.9	61,316.4	3,213.9	17,475.4	57,810.9	33,332.1	18,692.7	251,428.4	106,300.1	88,915.1	61,962.7	38,820.8	547,427.0
2009	1,504.9	3,807.0	37,440.3	1,856.1	48,671.1	2,857.6	13,964.2	45,154.0	27,463.0	16,187.3	198,905.5	78,144.0	82,150.2	57,042.0	34,423.9	450,665.6
2010	1,703.3	5,373.7	50,563.5	2,389.9	65,943.4	3,833.6	19,681.4	65,487.1	33,883.9	19,114.5	267,974.3	102,263.9	138,769.7	74,450.7	46,631.0	630,089.6

Source: IMF Direction of Trade (DOT) Statistics, Processed.

Table A.14 ASEAN + 3 Imports

Time Period	IMPORT(CIF) – million USD															
	ASEAN										Total ASEAN	JPN	China		KOR	ASEAN + 3
	BRU	CAM	INO	LAO	MAL	MYA	PHI	SIN	THA	VIE			PRC	HKG		
1990	422.6	34.2	756.3	48.5	10,095.5	218.1	639.8	9,454.5	2,853.0	323.0	24,845.6	32,963.6	4,378.6	9,120.4	5,137.0	76,445.1
1991	472.7	28.0	985.1	50.5	12,317.5	109.2	630.5	12,127.3	3,513.8	323.0	30,557.7	38,540.6	5,002.0	10,708.9	6,822.6	91,631.8
1992	578.8	122.7	1,231.2	49.5	13,505.7	138.6	737.3	13,397.8	4,449.9	406.7	34,618.2	42,326.3	5,221.6	10,574.0	7,984.2	100,724.3
1993	449.6	135.6	1,836.9	105.5	16,996.8	184.7	966.5	15,071.7	5,576.9	704.4	42,028.6	51,075.9	5,317.1	11,540.0	9,647.2	119,608.8
1994	459.5	206.1	2,094.4	175.5	21,152.2	238.1	1,539.9	17,970.9	7,845.2	803.4	52,485.2	62,732.0	6,806.3	14,680.3	11,938.0	148,641.8
1995	524.6	248.1	2,910.1	164.5	26,635.9	398.8	2,255.1	21,050.9	10,785.2	945.4	65,918.7	78,393.2	9,869.8	17,746.2	16,324.4	188,252.2
1996	444.8	127.3	2,718.7	140.6	25,870.2	283.6	2,904.0	23,353.6	12,748.5	993.3	69,584.6	73,975.8	10,179.1	17,729.9	17,652.0	189,121.4
1997	331.5	183.3	3,559.8	114.1	25,920.1	257.0	3,622.5	22,998.6	12,872.0	1,416.5	71,275.4	68,477.0	12,551.0	17,367.7	16,959.4	186,630.5
1998	203.0	140.5	3,475.7	163.9	20,270.9	193.8	4,542.5	17,736.3	10,053.8	1,765.3	58,545.7	47,438.5	11,200.9	11,477.0	13,317.1	141,979.3
1999	354.8	157.2	4,048.9	262.7	22,227.3	293.5	5,506.6	19,266.4	11,166.1	2,085.9	65,369.5	53,798.0	12,828.1	10,468.2	15,209.6	157,673.5
2000	776.1	142.2	4,773.3	183.7	29,608.5	463.8	6,642.3	25,079.9	13,016.6	2,243.4	82,929.9	67,033.8	16,956.7	14,277.6	17,656.7	198,854.7
2001	611.3	113.1	4,765.4	158.1	26,259.7	1,027.8	5,684.4	21,189.6	12,176.3	2,132.2	74,117.9	55,141.1	18,243.1	12,280.7	15,409.4	175,192.0
2002	730.0	184.0	5,410.6	157.2	28,479.3	1,137.5	6,401.2	22,618.8	12,847.2	2,223.5	80,189.2	56,372.7	24,659.8	13,343.3	18,028.5	192,593.4
2003	648.1	193.0	14,588.6	168.3	30,012.4	1,109.1	7,624.3	23,778.7	14,942.4	2,636.3	95,701.2	61,884.6	30,927.7	13,775.2	19,311.1	221,599.8
2004	854.5	217.2	18,030.0	189.8	35,975.9	1,570.6	9,014.3	30,421.0	20,299.5	3,486.5	120,059.4	73,909.9	43,738.0	17,258.4	24,119.2	279,084.9
2005	1,563.5	302.4	19,873.7	337.0	41,381.5	2,089.1	10,309.8	37,861.5	22,955.2	5,214.3	141,888.0	80,229.9	55,587.1	19,191.5	27,315.2	324,211.7
2006	2,031.4	338.7	25,478.4	740.4	47,188.3	2,629.9	11,344.2	43,207.2	26,474.4	5,886.7	165,319.4	82,019.9	70,378.2	18,845.7	33,075.7	369,639.0
2007	2,213.2	362.7	27,994.0	727.0	54,938.8	2,624.7	11,622.9	49,032.6	30,757.2	8,227.8	188,501.0	91,382.7	87,359.3	21,144.3	37,938.0	426,325.4
2008	2,880.6	440.1	34,020.2	908.6	63,091.1	4,167.3	10,427.6	64,545.5	38,537.8	9,283.6	228,302.2	110,383.3	100,039.1	30,203.8	50,038.4	518,966.8
2009	932.6	711.7	28,534.0	716.0	48,036.5	3,168.7	9,149.4	45,383.4	31,523.4	8,499.0	176,654.6	87,261.9	86,403.7	20,428.0	40,915.1	411,663.3
2010	1,010.7	509.7	38,696.7	1,079.4	62,516.8	3,246.1	14,648.8	90,426.3	46,190.4	9,425.0	267,749.9	122,957.3	127,539.8	33,372.6	57,845.7	609,465.3

Source: IMF Direction of Trade (DOT) Statistics, Processed.

Table A.15 ASEAN: EXPORT (FOB) – recipient country (percentage share of total)

ASEAN : EXPORT(FOB) – recipient country, percentage share on total

Time Period	ASEAN										Total ASEAN	JPN	China		KOR	ASEAN + 3	EU	US	RoW	World
	BRU	CAM	INO	LAO	MAL	MYA	PHI	SIN	THA	VIE			PRC	HKG						
1990	0.5	0.0	0.4	0.1	5.5	0.2	1.1	7.6	3.6	0.0	18.9	18.9	1.8	4.6	3.3	47.6	16.0	19.4	17.0	100.0
1991	0.4	0.0	0.5	0.0	6.0	0.2	0.8	8.2	3.4	0.1	19.7	18.4	2.0	4.9	3.5	48.5	16.3	18.2	16.9	100.0
1992	0.5	0.2	0.5	0.1	5.1	0.2	0.9	8.9	3.4	0.4	20.1	16.7	2.1	5.1	3.2	47.2	16.4	19.4	16.9	100.0
1993	0.4	0.3	0.4	0.1	5.8	0.2	1.1	9.0	3.3	0.7	21.3	15.9	2.5	5.6	3.3	48.6	15.6	19.7	16.1	100.0
1994	0.4	0.3	0.5	0.1	8.3	0.2	1.1	9.2	3.3	0.9	24.3	14.2	2.6	5.9	3.1	50.1	14.7	19.4	15.8	100.0
1995	0.6	0.3	0.6	0.1	7.9	0.3	1.1	8.9	3.7	0.9	24.4	14.2	2.7	6.1	3.1	50.5	14.6	18.4	16.5	100.0
1996	0.6	0.3	0.6	0.1	7.7	0.3	1.4	8.8	3.7	0.9	24.4	14.6	2.9	6.1	3.8	51.8	14.4	17.9	15.9	100.0
1997	0.5	0.3	0.8	0.1	7.5	0.3	1.6	8.7	3.1	0.9	23.9	13.5	3.0	6.5	3.4	50.2	15.1	18.3	16.4	100.0
1998	0.3	0.2	0.7	0.1	6.4	0.3	1.7	7.8	2.6	1.0	21.0	11.5	3.2	5.7	2.6	44.1	17.2	20.6	18.2	100.0
1999	0.2	0.3	0.8	0.2	6.8	0.3	1.7	7.7	2.8	0.9	21.7	12.4	3.2	5.3	3.3	46.0	16.5	20.1	17.4	100.0
2000	0.2	0.2	0.8	0.1	7.4	0.3	1.8	8.2	3.0	0.9	23.0	13.4	3.8	5.3	3.7	49.2	15.0	19.0	16.8	100.0
2001	0.2	0.3	0.9	0.1	7.0	0.3	1.7	7.6	3.3	1.0	22.3	13.8	4.3	5.5	3.8	49.7	15.2	17.9	17.1	100.0
2002	0.2	0.3	1.0	0.1	7.1	0.3	1.7	7.6	3.3	1.1	22.7	12.5	5.4	6.0	4.0	50.6	14.4	17.7	17.3	100.0
2003	0.2	0.3	4.5	0.1	6.8	0.3	1.6	6.7	3.2	1.1	24.7	12.0	6.6	6.4	3.7	53.3	13.8	15.9	17.0	100.0
2004	0.2	0.3	4.6	0.1	6.7	0.3	1.7	6.4	3.3	1.3	24.9	11.8	7.3	6.2	3.7	53.8	13.8	15.0	17.4	100.0
2005	0.1	0.3	4.8	0.1	6.6	0.3	1.6	6.5	3.6	1.4	25.3	11.1	8.1	6.4	3.8	54.7	12.7	14.4	18.2	100.0
2006	0.1	0.4	4.6	0.2	6.6	0.2	1.6	6.2	3.6	1.6	24.9	10.8	8.7	6.4	3.7	54.5	12.8	14.0	18.7	100.0
2007	0.1	0.4	5.0	0.2	6.5	0.3	1.7	6.0	3.4	1.7	25.2	10.3	9.2	6.6	3.7	55.0	12.6	12.4	20.0	100.0
2008	0.2	0.4	5.3	0.2	6.2	0.3	1.8	5.9	3.4	1.9	25.6	10.8	9.0	6.3	3.9	55.6	11.8	10.6	22.0	100.0
2009	0.2	0.5	4.6	0.2	6.0	0.4	1.7	5.6	3.4	2.0	24.5	9.6	10.1	7.0	4.2	55.5	11.5	10.1	22.9	100.0
2010	0.2	0.5	4.6	0.2	6.0	0.3	1.8	5.9	3.1	1.7	24.3	9.3	12.6	6.8	4.2	57.2	10.7	9.6	22.5	100.0

Source: IMF Direction of Trade (DOT) Statistics, Processed.

Table A.16 ASEAN: IMPORT (CIF) – recipient country (percentage share of total)

ASEAN : IMPORT(CIF) – recipient country, percentage share on total

Time Period	ASEAN										Total ASEAN	China				ASEAN + 3	EU	US	RoW	World
	BRU	CAM	INO	LAO	MAL	MYA	PHI	SIN	THA	VIE		JPN	PRC	HKG	KOR					
1990	0.3	0.0	0.5	0.0	6.2	0.1	0.4	5.8	1.7	0.2	15.2	20.2	2.7	5.6	3.1	46.8	15.6	14.5	23.1	100.0
1991	0.3	0.0	0.5	0.0	6.7	0.1	0.3	6.6	1.9	0.2	16.5	20.9	2.7	5.8	3.7	49.6	15.2	14.3	21.0	100.0
1992	0.3	0.1	0.6	0.0	6.7	0.1	0.4	6.6	2.2	0.2	17.1	20.9	2.6	5.2	3.9	49.8	15.1	14.8	20.3	100.0
1993	0.2	0.1	0.8	0.0	7.3	0.1	0.4	6.5	2.4	0.3	18.0	21.9	2.3	5.0	4.1	51.3	14.9	14.9	18.9	100.0
1994	0.2	0.1	0.7	0.1	7.4	0.1	0.5	6.3	2.8	0.3	18.5	22.1	2.4	5.2	4.2	52.3	14.8	14.2	18.7	100.0
1995	0.1	0.1	0.8	0.0	7.3	0.1	0.6	5.7	2.9	0.3	17.9	21.3	2.7	4.8	4.4	51.3	14.8	13.8	20.2	100.0
1996	0.1	0.0	0.7	0.0	6.8	0.1	0.8	6.1	3.3	0.3	18.3	19.4	2.7	4.7	4.6	49.6	14.9	14.5	21.0	100.0
1997	0.1	0.0	0.9	0.0	6.9	0.1	1.0	6.1	3.4	0.4	19.0	18.2	3.3	4.6	4.5	49.6	14.8	15.5	20.1	100.0
1998	0.1	0.1	1.2	0.1	7.3	0.1	1.6	6.4	3.6	0.6	21.0	17.0	4.0	4.1	4.8	50.9	13.5	17.1	18.6	100.0
1999	0.1	0.1	1.4	0.1	7.4	0.1	1.8	6.4	3.7	0.7	21.8	18.0	4.3	3.5	5.1	52.7	12.3	15.6	19.5	100.0
2000	0.2	0.0	1.3	0.0	8.0	0.1	1.8	6.8	3.5	0.6	22.5	18.2	4.6	3.9	4.8	53.9	11.0	14.0	21.1	100.0
2001	0.2	0.0	1.4	0.0	7.8	0.3	1.7	6.3	3.6	0.6	21.9	16.3	5.4	3.6	4.6	51.9	12.1	14.3	21.7	100.0
2002	0.2	0.1	1.5	0.0	8.0	0.3	1.8	6.4	3.6	0.6	22.6	15.9	7.0	3.8	5.1	54.4	11.3	13.1	21.2	100.0
2003	0.2	0.0	3.7	0.0	7.6	0.3	1.9	6.0	3.8	0.7	24.1	15.6	7.8	3.5	4.9	55.8	11.1	12.4	20.6	100.0
2004	0.2	0.0	3.6	0.0	7.2	0.3	1.8	6.1	4.0	0.7	23.9	14.7	8.7	3.4	4.8	55.6	11.2	11.2	22.0	100.0
2005	0.3	0.1	3.4	0.1	7.1	0.4	1.8	6.5	3.9	0.9	24.3	13.8	9.5	3.3	4.7	55.6	10.3	10.5	23.6	100.0
2006	0.3	0.1	3.8	0.1	7.1	0.4	1.7	6.5	4.0	0.9	24.8	12.3	10.5	2.8	5.0	55.3	10.1	10.5	24.0	100.0
2007	0.3	0.0	3.7	0.1	7.2	0.3	1.5	6.4	4.0	1.1	24.8	12.0	11.5	2.8	5.0	56.0	10.6	9.6	23.7	100.0
2008	0.3	0.0	3.6	0.1	6.7	0.4	1.1	6.8	4.1	1.0	24.2	11.7	10.6	3.2	5.3	55.1	9.9	9.0	26.0	100.0
2009	0.1	0.1	3.9	0.1	6.5	0.4	1.2	6.2	4.3	1.2	24.1	11.9	11.8	2.8	5.6	56.1	10.8	9.2	23.9	100.0

Source: IMF Direction of Trade (DOT) Statistics, Processed.

Notes

1 Introduction: Making East Asian Regionalism Work

1. See, for example, Scollay and Gilbert (2001, 2003); Pangestu and Gooptu (2003).
2. The export-competing firms are usually big industries which can produce goods not only for domestic but also foreign markets.

4 The Determinants of CJK's Vertical Intra-Industry Trade to ASEAN4 countries

1. Japan is facing a bigger income gap with Indonesia than to what it is facing with Malaysia and Thailand.

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