

Park, Donghyun; Park, Innwon; Estrada, Gemma Esther B.

Working Paper

Prospects of an ASEAN-People's Republic of China Free Trade Area: A Qualitative and Quantitative Analysis

ADB Economics Working Paper Series, No. 130

Provided in Cooperation with:

Asian Development Bank (ADB), Manila

Suggested Citation: Park, Donghyun; Park, Innwon; Estrada, Gemma Esther B. (2008) : Prospects of an ASEAN-People's Republic of China Free Trade Area: A Qualitative and Quantitative Analysis, ADB Economics Working Paper Series, No. 130, Asian Development Bank (ADB), Manila, <https://hdl.handle.net/11540/1785>

This Version is available at:

<https://hdl.handle.net/10419/109334>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/3.0/igo>

ADB Economics Working Paper Series



Prospects of an ASEAN–People’s Republic of China Free Trade Area: A Qualitative and Quantitative Analysis

Donghyun Park, Innwon Park, Gemma Esther B. Estrada
No. 130 | October 2008

Asian Development Bank



ADB Economics Working Paper Series No. 130

Prospects of an ASEAN–People’s Republic of China Free Trade Area: A Qualitative and Quantitative Analysis

Donghyun Park, Innwon Park, Gemma Esther B. Estrada
October 2008

Donghyun Park is Senior Economist and Gemma Esther B. Estrada is Economics Officer, Economics and Research Department, Asian Development Bank; Innwon Park is Professor of International Economics, Division of International Studies, Korea University.

Asian Development Bank

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org/economics

©2008 by Asian Development Bank
October 2008
ISSN 1655-5252
Publication Stock No.: _____

The views expressed in this paper
are those of the author(s) and do not
necessarily reflect the views or policies
of the Asian Development Bank.

The ADB Economics Working Paper Series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed research and policy studies undertaken by the Asian Development Bank (ADB) staff, consultants, or resource persons. The series deals with key economic and development problems, particularly those facing the Asia and Pacific region; as well as conceptual, analytical, or methodological issues relating to project/program economic analysis, and statistical data and measurement. The series aims to enhance the knowledge on Asia's development and policy challenges; strengthen analytical rigor and quality of ADB's country partnership strategies, and its subregional and country operations; and improve the quality and availability of statistical data and development indicators for monitoring development effectiveness.

The ADB Economics Working Paper Series is a quick-disseminating, informal publication whose titles could subsequently be revised for publication as articles in professional journals or chapters in books. The series is maintained by the Economics and Research Department.

Contents

Abstract	v
I. Introduction	1
II. Existing Literature	2
III. Qualitative Analysis: Theory of Economic Integration and ACFTA	4
A. Types of Economic Integration	4
B. Theory of Customs Union	4
C. Prospects of ACFTA	5
IV. Quantitative Analysis: Application of CGE Model	9
A. Model and Data	9
B. Empirical Results	10
V. Concluding Remarks	16
References	17

Abstract

The Association of Southeast Asian Nations (ASEAN) and the People's Republic of China are economic partners as well as economic competitors. The ASEAN–People's Republic of China Free Trade Area (ACFTA), which is set to come into effect around 2010, is designed to boost trade between the two sides. In this paper, we use insights from customs union theory for a qualitative analysis of whether ACFTA would be beneficial for both sides. We also apply a computable general equilibrium model to perform a quantitative analysis of the same issue. Both our qualitative and quantitative analyses provide grounds for guarded optimism about ACFTA's prospects as a vehicle for strengthening economic partnership between ASEAN and the People's Republic of China.

I. Introduction

The economies of the Association of Southeast Asian Nations (ASEAN) have been an integral part of the East Asian miracle. Singapore is a newly industrialized economy along with Hong Kong, China; Republic of Korea (henceforth Korea); and Taipei, China. Meanwhile, Indonesia, Malaysia, and Thailand have also transformed themselves from stagnant agricultural economies to dynamic manufacturing economies through sustained growth and industrialization. More recently, other ASEAN economies, in particular Viet Nam, are also beginning to achieve consistently rapid growth. Since the Asian currency crisis of 1997–1998, however, there has been an unmistakable loss of momentum and self-confidence among the once high-flying economies of the region.

Compounding this growing uncertainty is the remarkable economic emergence of the People's Republic of China (PRC), which is fast becoming the world's factory. This obviously poses a threat to the ASEAN economies, whose own success was based largely on producing and exporting manufactured products to the rest of the world. A specific example of the growing economic competition between the PRC and ASEAN is competition for foreign direct investment (FDI). At the same time, the emergence of the PRC as a globally influential economic heavyweight presents a wide range of significant opportunities for ASEAN. Above all, the PRC represents a large and growing market for ASEAN's goods and services. In fact, trade between the PRC and ASEAN has been growing rapidly in recent years. In the context of international trade, the 21st century is set to become the PRC's century in East Asia and beyond. The ASEAN economies would do well to position themselves to benefit from the PRC's fast-growing demand for goods and services.

At the same time, the PRC's phenomenal economic performance inevitably has geopolitical implications. The PRC's growing economic strength has been accompanied by a corresponding growth in military capability, causing considerable concern within ASEAN. Such geopolitical tension between the PRC and ASEAN has encouraged the former to reach out to ASEAN and reassure the latter that it does not pose a threat. Therefore, it is possible to view the PRC's active interest in promoting an ASEAN–PRC free trade area (henceforth ACFTA) as a strategic move to strengthen the PRC's ties with and provide geopolitical reassurances to the ASEAN economies. At the same time, it is also in the geopolitical self-interest of the ASEAN economies to engage and remain on friendly terms with the region's emerging giant, rather than to have a distant or indifferent relationship.

On 5 November 2002, ASEAN and the PRC signed a framework agreement in Phnom Penh that committed them to establish the ASEAN–People’s Republic of China Free Trade Area (ACFTA) within 10 years, beginning in 2010. The two sides are currently negotiating the details of ACFTA on the basis of that agreement. Realistically, at this stage, economic integration between the PRC and ASEAN refers to expanding international trade between the two sides before considering more advanced levels of integration. While ACFTA has geopolitical implications, it is first and foremost an economic initiative. The central objective of this paper is to examine whether ACFTA is feasible and desirable from an economic perspective. To do so, we use the conventional theory of economic integration to perform a qualitative analysis of ACFTA’s prospects. To complement our qualitative analysis, we also perform a quantitative analysis based on a computable general equilibrium (CGE) model to quantify ACFTA’s welfare, output, and trade impacts.

The rest of this paper is organized as follows. Section II discusses the existing literature that assesses ACFTA’s impact on ASEAN economies and the PRC. Section III presents a qualitative analysis of the ACFTA based on customs union theory. Section IV reports and discusses the CGE results, i.e., ACFTA’s estimated impact on welfare, output, and trade. Section V summarizes our main findings and concludes.

II. Existing Literature

One part of the existing literature on ACFTA highlights the competitive pressures that ASEAN economies face from ACFTA. Tongzon (2005) finds that the PRC’s export structure is similar to the ASEAN economies’ export structure in many respects. He finds that the PRC’s top export industries, which account for 84% of its total exports, are also ASEAN’s major export industries. The PRC also enjoys a lower unit labor cost relative to ASEAN in those industries. Therefore, ACFTA is likely to intensify the competitive pressures on ASEAN producers in those industries in both third-country markets and ASEAN domestic markets. In fact, Roland-Holst and Weiss (2004) found some evidence that export competition between the ASEAN economies and the PRC has intensified in major third-country markets such as Japan and the United States. Applying econometric analysis to highly disaggregated data, their results show that ASEAN suffered a substantial loss of export market share to the PRC in 1995–2000. Wong and Chan (2002) point out that the PRC will pose an even greater competitive threat to ASEAN as it moves up the manufacturing value chain from labor-intensive products to capital- and technology-intensive products.

Another part of the literature highlights the potential complementarity between ASEAN and the PRC. Indeed some studies examine both competitive and complementary aspects. For example, while Tongzon (2005) warns about ASEAN’s lack of competitiveness vis-à-vis the PRC, he also argues that the PRC’s market liberalization under ACFTA provides ASEAN economies with promising economic opportunities. In particular, preferential market access under ACFTA will help ASEAN exporters to compete more effectively in industries where the PRC has a comparative disadvantage, especially intermediate and capital goods. ACFTA would also provide better market access to ASEAN exporters of agricultural products; mineral products; and services, especially tourism, financial services, and education. Roland-Holst (2002) also maintains that ASEAN economies are likely to experience sustained current account surpluses with the PRC due to the latter’s rapid import growth. Liu and Luo (2004) also optimistically conclude that for ASEAN economies, the benefits arising from increased trade with the PRC are likely to be much larger than the costs due to greater competition with the PRC.

A number of empirical studies have attempted to quantify the potential trade and welfare effects of regional trade agreements. Such studies often use a CGE model. Lloyd and Maclaren (2004), among others, provide a comprehensive theoretical and empirical survey of CGE modeling of regional trade agreements. One CGE study on ACFTA is that by Chirathivat (2002), who applies a variant of the model known as Global Trade Analysis Project (GTAP). Overall, he finds net trade gains for both ASEAN and the PRC, i.e., trade creation exceeds trade diversion for ASEAN while there is almost no trade diversion for the PRC. His simulation results also point to a substantial positive impact on real gross domestic product and welfare for both ASEAN and the PRC. Applying another CGE model, Lee and van der Mensbrugghe (2007) also finds welfare gains for both ASEAN and the PRC under ACFTA. Kawai and Wignaraja (2008) apply a CGE model to the GTAP dataset to examine the effects of various East Asian free trade agreement scenarios. For ACFTA, their results show income gains for the region as a whole as well as for individual member countries.

These studies, however, fail to adequately highlight country-specific effects. Yet doing so is important for ASEAN, which is characterized by wide disparities in per capita income among its members. It is necessary to explicitly account for country-specific effects since the aggregate ASEAN-wide impacts may mask substantial variations across countries. While welfare effects may be positive and substantial for ASEAN as a whole, the gains are less certain for less developed ASEAN members such as Cambodia, Lao PDR, and Myanmar, which are less well-equipped to compete. Therefore, applying the CGE model to determine individual country effects, as we do in this paper, is a meaningful empirical exercise. Another major contribution of the paper is that we complement such quantitative analysis with a qualitative analysis, discussed in the next section, which evaluates whether traditional theoretical considerations are conducive for ACFTA. In short, by combining quantitative and qualitative analysis, we hope to contribute to the existing literature on ACFTA by providing a more comprehensive and systematic examination of ACFTA’s prospects.

III. Qualitative Analysis: Theory of Economic Integration and ACFTA

Viner (1950) pioneered the theory of customs union, the forerunner of the theory of economic integration. Regional economic integration is a process whereby various economies of a region undergo a progressive removal of the barriers to free movement of goods, services, capital, and labor. Reduction or removal of tariffs and nontariff barriers will promote and accelerate regional economic integration by facilitating the flow of goods, services, capital, and labor.

A. Types of Economic Integration

There are different types or stages of economic integration. Countries usually start off at a lower level of integration and move on to higher levels of integration if and when conditions become more appropriate. Broadly speaking, there are six types of economic integration: preferential trade agreement, free trade area, customs union, common market, economic union, and supranational union (see De Lombaerde 2006, Jovanovic 2006). In the context of ACFTA, economic integration realistically means the expansion of trade between ASEAN and the PRC. The ultimate aim of economic integration is to remove all barriers to the movement of goods and services, capital, and labor between the PRC and the 10 ASEAN economies.

B. Theory of Customs Union

A customs union has two salient features. First, tariffs and quantitative restrictions on imports are eliminated among member-states. Second, common external tariffs are imposed by member-states on imports from third countries. The difference between a customs union and a free trade area is that in the former, there are common external tariffs against nonmembers as well as free trade, whereas in the latter, each member retains its own tariffs against nonmembers. It is thus possible to view a free trade area as a variant of the customs union or vice versa. What is important for our purposes is that the theory of customs union provides the basic theoretical framework for analyzing free trade areas, even as the two are not the same.

The potential benefit of a customs union is increased specialization and trade. The positive effect, trade creation, means the replacement of higher-cost domestic products by lower-cost imports from member countries, i.e., a more efficient foreign producer replaces a less efficient domestic producer. For example, in the case of ACFTA, Thailand may be better off by importing textiles from the PRC instead of producing them locally, and the PRC may be better off by importing automobiles from Thailand rather than producing them locally.

Trade diversion, on the other hand, refers to the replacement of low-cost imports from nonmember countries by higher cost imports from member nations. The differential tariff treatment diverts trade away from nonmembers toward members. Trade diversion has an adverse effect on welfare since it implies a shift toward a more costly source of supply.

Whether there will be any net gain from a customs union depends on which effect is larger. In other words, the formation of a customs union can be seen as simultaneously moving toward both freer trade and greater protectionism. The net effect on welfare will be positive, negative, or neutral depending on the relative magnitudes of trade creation and trade diversion.

Whether a customs union is beneficial depends on whether the magnitude of trade creation is greater or less than trade diversion. A number of factors are relevant in answering this critical question. One set of factors is called static, in the sense that they are considerations that help us to compare the one-shot change in welfare due to a customs union, before and after its formation. These include (i) size of market; (ii) pre-union level of tariffs among members and against nonmembers; (iii) pre-union level of intraregional and extraregional trade; (iv) levels of economic development; (v) geographical proximity and transport infrastructure; (vi) substitutability between products of member states and products of nonmember states; and (vii) complementarity in economic structures among member states (see El-Agraa 1999 and 1989, Robson 2006 and 1987).

In addition to static factors, there are also possible dynamic effects resulting from removing trade barriers and restructuring the economy associated with the creation of a customs union. Dynamic factors are difficult to measure and often overlooked. Positive dynamic effects include: (i) greater competition and hence an improvement in efficiency; (ii) gains from greater specialization, economies of scale, and learning-by-doing; (iii) reduction of intraregional transactions costs; (iv) some protection from adverse developments in the world markets; and (v) bargaining power vis-à-vis industrialized countries. Both dynamic and static factors form the bases of our qualitative evaluation below.

C. Prospects of ACFTA

In this section, we ask ourselves the following central question; “Do the theoretical considerations we have discussed in the preceding section bode well for the success of ACFTA?” At this stage, ASEAN–PRC trade is largely between the richer ASEAN inner core—Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, and Thailand—with the PRC. However, we can expect the poorer ASEAN periphery of Cambodia, Lao PDR, Myanmar, and Viet Nam to also benefit substantially from ACFTA as their economies and trade grow in the future.

1. Static Factors

In the preceding section, we have looked at the criteria that theoretically favor the creation of a customs union. Below, we examine the extent to which ACFTA would satisfy those criteria falling under static factors.

a. *Size of Union*

The theory of customs union suggests that the larger the collective economic size of the union, the larger the possibility of trade creation. While ACFTA is smaller compared to the North American Free Trade Agreement and European Union (EU), it is certainly large enough for an effective customs union. ACFTA comprises 11 economies, which, as of 2007, have a combined population of around 1.88 billion, and a combined gross national income (GNI) of US\$4.27 trillion. While there are no well-defined objective criteria as to the optimal number of countries or the size of the common market, ACFTA does appear to pass the test in this regard.

b. *Initial Tariff Structure*

First, it should be stressed that the potential for trade creation is larger, the higher the initial intraregional tariffs. Despite a general trend toward trade liberalization in the PRC and ASEAN, including the PRC's entry into the World Trade Organization in December 2001, tariffs and other trade barriers between the two sides remain high enough to create significant opportunities for trade creation. According to Chirathivat (2002), the PRC's average tariff rate on goods from the ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore, Thailand) was 9.4% in 2001; while ASEAN-5's average tariff rate on goods from the PRC was 2.3%. Second, the higher the level and variance of tariffs against nonmembers, the larger the possibility of trade diversion. For both agricultural and nonagricultural goods, the simple average of ad valorem tariff rates of PRC, Indonesia, Malaysia, Philippines, Singapore, and Thailand as of 2004 ranged between 0.0% and 15.4%, with higher tariffs imposed on agricultural goods compared to nonagricultural goods (WTO 2005). Considering the wide variance in tariff rates of ASEAN economies and the PRC across product groups, we cannot rule out a possible significant trade diversion.

c. *Pre-Integration Intraregional Trade*

Countries that trade heavily with each other prior to intraregional trade stand to gain the most from the elimination of impediments to trade. On the other hand, doing away with such impediments will be of limited value to those who trade little with each other. It is clear that ASEAN and the PRC are already important for each other as export markets and import sources. According to data from IMF (2008), in 2006, ASEAN's exports to and imports from the PRC reached US\$89.5 billion and US\$71.3 billion, respectively. ASEAN has become the PRC's third largest trading partner. Around 8.5% of ASEAN's total exports go to the PRC, while around 11.6% of ASEAN's total imports in 2006 came from

the PRC. The PRC’s exports to ASEAN accounted for around 7.4% of its total exports, and imports from ASEAN accounted for around 11.3% of its total imports in the same year.

Moreover, ASEAN–PRC trade is not only substantial but also growing rapidly, from US\$39.5 billion in 2000 to US\$160.9 billion in 2006. Such rapid growth has increased the share, and hence, relative importance of ASEAN–PRC trade in the trade of each individually. Our discussion clearly suggests that the size and growth of pre-integration trade between ASEAN and the PRC bodes well for ACFTA.

d. *Substitutability of Products*

The greater the substitutability of products of member-states for those of nonmember-states, the greater the chances of trade creation. Substitutability means the production of similar but differentiated products. For example, the PRC can theoretically substitute semiconductors from Taipei, China with similar but slightly different semiconductors from Singapore. In practice, although the PRC and the ASEAN economies now export broadly similar goods, such as electronics products and components, the range of substitutable products remains relatively small. While ASEAN’s trade with the PRC is large and growing, most of ASEAN’s exports go to other markets, and most of its imports come from other sources. More specifically, ASEAN’s biggest trade partners are EU, US, and Japan. On the other hand, the PRC’s most important trading partners are the US; Japan; Hong Kong, China; and Korea. Around 90% of the trade of both ASEAN and the PRC is with third countries. Such trade pattern provides stylized evidence, suggesting limited substitutability of products.

e. *Disparity in Pre-integration Level of Development*

If the pre-integration levels of development and income are similar among members, the gain from integration will be larger and integration will be easier. Similar income levels mean that consumers buy similar baskets of goods and services, increasing the opportunity for intra-industry trade. Broadly speaking, if we view the 10 ASEAN members as a single economy, then the PRC and ASEAN are at similar levels of per capita income and economic development. According to World Bank data, the PRC’s 2007 per capita GNI was US\$2,360 while ASEAN’s 2007 per capita GNI was US\$2,160 (excluding Brunei and Singapore).

However, ASEAN is far from being a homogeneous grouping. The range of income and economic development ranges from Singapore (a mature and developed economy) to Cambodia, Lao PDR, Myanmar, and Viet Nam, which are all among the world’s poorest economies. The heterogeneity of ASEAN economies notwithstanding, the income and economic development of the PRC and ASEAN seem to be broadly similar enough to provide many opportunities for intra-industry trade.

f. *Geographical Proximity and Transportation Infrastructure*

Economic integration is easier among geographically close countries due to lower transportation costs. However, geographical proximity translates into lower transportation costs if and only if there is a good transportation infrastructure of land, sea, and air links that connect the geographical neighbors, as is the case in the EU. ASEAN and the PRC are geographical neighbors, with Lao PDR, Myanmar, and Viet Nam sharing borders with the PRC. However, unlike in the EU, the land transport network of highways and railways connecting the ASEAN economies with the PRC is poor at present. Even the internal transportation infrastructure is inadequate in the parts of the PRC that border ASEAN, and even worse, in the peripheral ASEAN economies bordering the PRC. ASEAN members and the PRC will thus have to make major investments in their transportation infrastructure in order to fully realize the economic benefits of their physical proximity.

g. *Complementary or Competitive Economic Structures?*

Trade creation will be greater if the pre-integration economic structures are competitive but potentially complementary after integration (Meade 1955). This means that due to high tariffs and other protectionist barriers, countries within a group produce similar goods before integration. After integration, the more efficient producers will replace the less efficient ones, and the number of similar goods produced falls, producing welfare gains due to specialization and economies of scale. The more significant issue of whether they will become complementary after ACFTA so that ASEAN and the PRC produce less similar goods remains an open question. The most compelling indirect evidence of a potential complementary relationship between ASEAN and the PRC is the large and rapidly growing ASEAN–PRC trade in recent years. A specific example of a sector that has exhibited this complementarity in production is machinery and electrical equipment, whose products have become the major exports of ASEAN to the PRC, and vice versa. This rising two-way trade has been a result of intra-industry trade, made possible by the growth of production networks and supply chains (Yue 2004).

2. *Dynamic Considerations*

While static benefits are clearly important, potentially large dynamic benefits provide an additional impetus for economic integration. Relative to static welfare gains, dynamic welfare gains are inherently harder to quantify and are usually overlooked. This does not, however, render them any less significant. If they are large enough, it is conceivable that they could justify economic integration even if the static welfare gains are uncertain or negligible.

In particular, we have to take into account the greater competition and improved efficiency that will lead to positive welfare gains for the ASEAN economies as a result of ACFTA. The economic crisis that engulfed the entire region in 1997–1998 highlighted the need for the region's economies to improve their competitiveness and efficiency in the global economy. Greater exposure to competition from the PRC—the factory of the world—will

only add much-needed urgency to their efforts in this direction. In the long term, increased productivity and efficiency is their only route to sustainable economic growth for ASEAN. In this light, the dynamic benefits of economic integration are potentially large indeed. The scope for inter- and intra-industry specialization will also increase over time as ACFTA creates more inter- and intra-industry trade opportunities, producing further welfare gains.

IV. Quantitative Analysis: Application of CGE Model

Having qualitatively analyzed the ASEAN free trade area’s prospects, we now turn to the quantitative analysis of those prospects. Our quantitative analysis is based on the application of a CGE model, as explained in detail below.

A. Model and Data

In the preceding section, we have seen that ACFTA holds out some promise as a vehicle for promoting trade between ASEAN and the PRC, which in turn, could lead to welfare and output gains. In this section, we attempt to quantify these potential gains. By applying a traditional static CGE model simulation technique, we estimate the size of ACFTA’s potential macroeconomic effects, more specifically the creation of trade among member countries and changes in their welfare and output.

The CGE model used in this section is the GTAP6inGAMS¹ model developed by Rutherford (2005). There are three economic agents in the model, namely, producer, representative consumer (private and public), and trading partners. The GTAP6inGAMS is a traditional static Arrow-Debreu type of general equilibrium model, in which a main assumption is that zero-profit condition and market clearance define the equilibrium. The GTAP6inGAMS is a modified version of the GTAP model version 6 developed for GAMS users (see Park 2006 for a discussion of the differences between the GTAP model and GAMS version).

The model aggregates industries into seven broader sectors (see Table 1). The model solution is calibrated, with 2001 as the base year, using Global Trade, Assistance and Production: The GTAP 6 Database (see Dimaranan and McDougall 2006), and implemented using the GAMS MPSGE.² Results are obtained for the region as a whole and for individual member countries. However, owing to data limitations, we will aggregate Cambodia, Lao PDR, and Myanmar into a single economy and exclude Brunei.

¹ Global Trade Analysis Project model version 6 in General Algebraic Modeling System.

² The MPSGE (Mathematical Programming System for General Equilibrium analysis) is a subsystem within GAMS. See gams.com/solvers/solvers.htm#MPSGE.

Table 1: Sectoral Aggregation of the CGE Model

Sector	Commodities
Agricultural Products	Paddy rice, wheat, cereal grains nec, vegetables, fruit, nuts, oil seeds, sugar cane, sugar beet, plant-based fibers, crops nec, bovine cattle, sheep and goats, horses, animal products, raw milk, wool silk-worm cocoons, bovine cattle, sheep and goat, horse meat products
Food Products	Meat products nec, vegetable oils and fats, dairy products, processed rice, sugar, food products nec, beverages and tobacco products
Extractive Industry	Forestry, fishing, coal, oil, gas, minerals nec, petroleum, coal products
Light Manufacturing	Textiles, wearing apparel, leather products, wood products
Heavy Manufacturing	Paper products, publishing, chemical, rubber, plastic products, mineral products nec, ferrous metals, metals nec
Technology-intensive Manufacturing	Metal products, motor vehicles and parts, transport equipment nec, electronic equipment, machinery and equipment nec, manufactures nec
Services	Electricity, gas manufacture, distribution, water, construction trade, transport, financial, business, recreational services, public administration and defense, education, health, dwellings and services

nec = not elsewhere classified.

B. Empirical Results

Overall, ACFTA is likely to result in positive net trade creation and higher output and welfare for its member-countries. The magnitude of gains, however, would vary for each country. Greater gains are expected to accrue to the more well-off members, namely, Malaysia, Singapore, and Thailand. A primary reason for this is that the level of pre-integration trade matters, i.e., countries that trade heavily with each other stand to benefit the most from the removal of barriers to trade. Prior to ACFTA, the PRC's trade with the three countries was more substantial compared to its trade with the rest of ASEAN. The reduction of tariff barriers serves to reinforce the strong pre-ACFTA trade linkages. The less developed member-countries may have more limited output or welfare gains, or even become worse off. The initial static effects may be painful, but these could be more than offset by dynamic long-run gains.

1. Trade Effects

ACFTA is expected to increase trade among member countries, but divert trade from nonmember countries. Figure 1 illustrates the trade creation and trade diversion effects, which are computed as percentage deviations from the base value. Overall, total net trade creation is positive, at 3.6%. Although trade with non-ACFTA countries would decrease by 3%, trade among ACFTA members would increase by 32.5%. The PRC's large market opens up considerable trade expansion opportunities for ASEAN member economies. For some individual countries such as Thailand and Viet Nam, trade with

ACFTA member-countries is expected to increase by as much as 60%. For all ASEAN member economies except Cambodia, Lao PDR, Myanmar, and Viet Nam, trade with the PRC would expand by at least 38%. The PRC’s trade with ASEAN is expected to increase by more than 50%, which is much higher than the reduction of its trade with non-ASEAN members.

Figure 1: Trade Creation and Diversion Effects of ACFTA (percent)

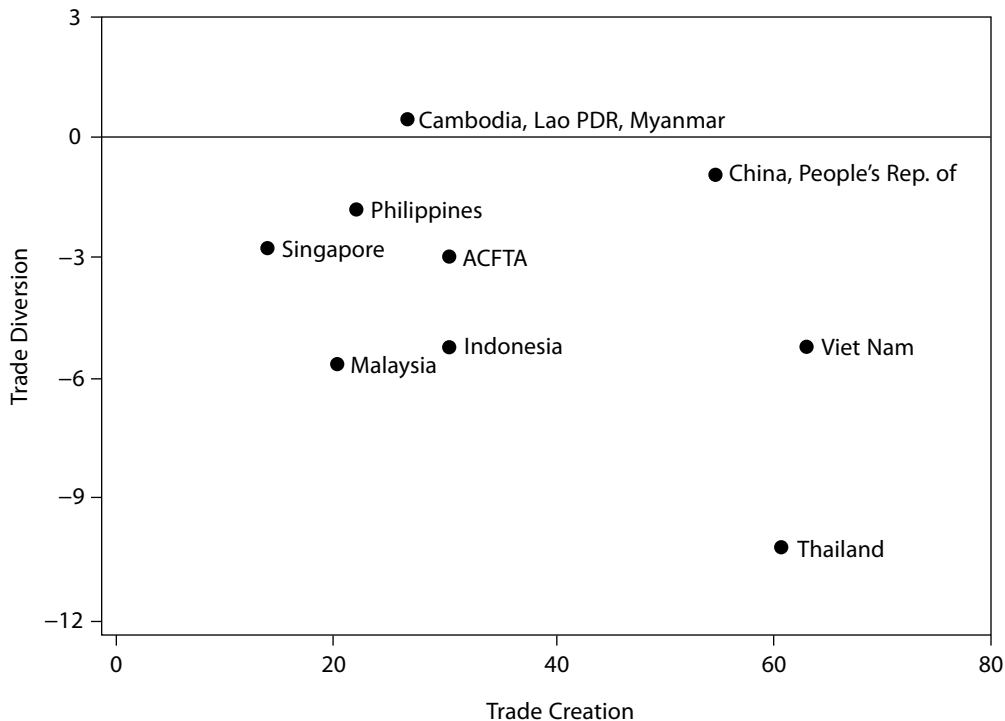
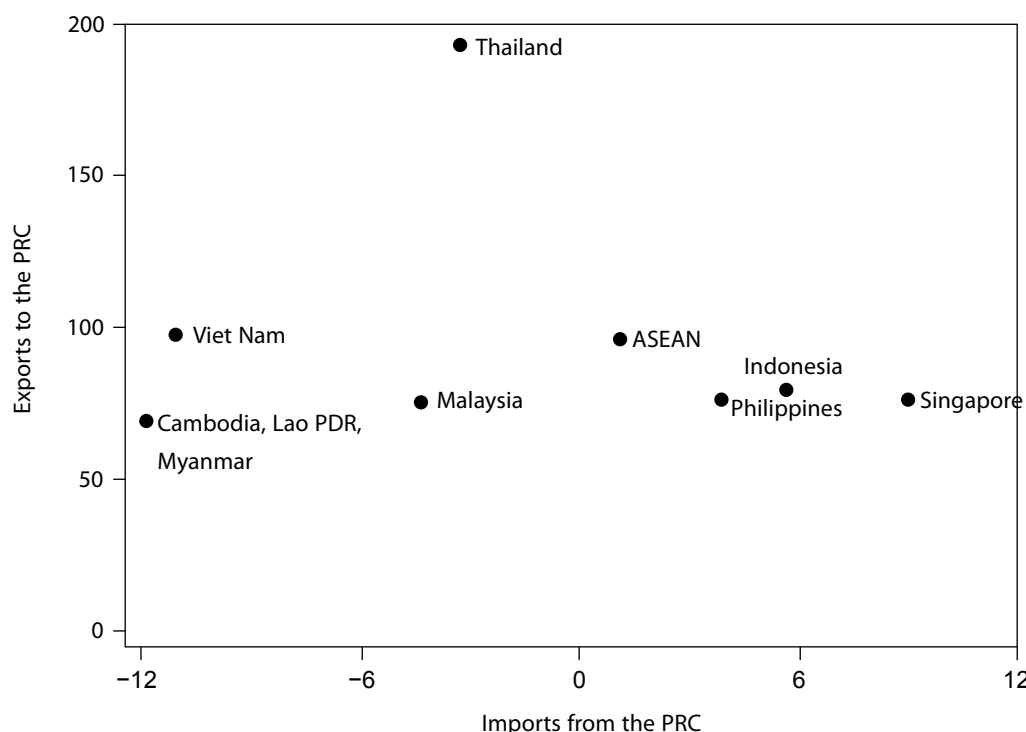


Figure 2 shows that trade links between ASEAN and the PRC would intensify under ACFTA. This is especially true for Thailand, whose exports to the PRC would rise by nearly 200%. All ASEAN economies are expected to increase their exports to the PRC by about 70–100%. Viet Nam is expected to double its exports to the PRC. Given the sharp expansion of exports to the PRC, ASEAN’s exports to key destinations such as Japan and the US may suffer somewhat. For example, the exports of Indonesia and Thailand to Japan and the US are expected to fall by about 10–15%.

Figure 2: Effects of ACFTA on ASEAN's Trade with the People's Republic of China (percent)



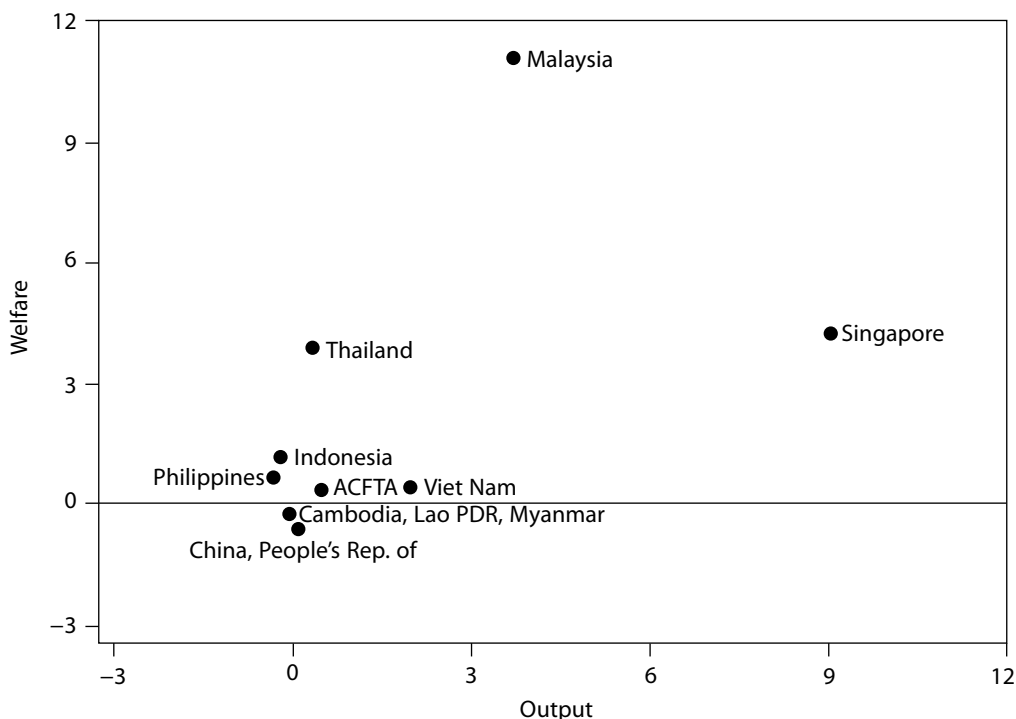
The PRC's exports to ASEAN are not expected to increase by as much as ASEAN's exports to the PRC, contrary to the popular perception that ACFTA would enable the PRC to flood ASEAN markets with cheap goods. In fact, for the less developed countries (Cambodia, Lao PDR, Myanmar, Viet Nam) imports from the PRC would fall. Imports from the PRC are expected to rise only in Indonesia, Philippines, and Singapore. Even though ACFTA has a positive effect on the PRC's trade, the PRC's main export markets will continue to be US; Hong Kong, China; Japan; and Korea.

2. Welfare and Output Effects

Let us now discuss the issue of whether or not ACFTA would enhance welfare and total output. Figure 3 shows that the impact varies across countries, but generally appears more favorable for higher-income countries. The welfare of Malaysia and Singapore would increase by 11.1% and 4.2%, respectively. In contrast, the welfare of Cambodia, Lao PDR, and Myanmar would fall marginally, by 0.24%. Interestingly, the PRC is also expected to experience a drop in welfare, of 0.54%. The ACFTA as a whole and some of its members would gain modestly in terms of real gross domestic product growth. The total output growth gains of the more well-off members (Singapore and Malaysia) are more substantial, at 9.1% and 3.7%, respectively. For the others, output growth is less than 2% and, in the case of Cambodia, Indonesia, Lao PDR, Myanmar, and Philippines,

marginally negative. In the next subsection, we examine how ACFTA affects the export, imports, and output of each sector.

Figure 3: Welfare and Output Effects of ACFTA on Member-Countries (percent)



3. Sectoral Impact

Just as the impact of ACFTA is likely to differ across countries, it is also likely to differ across sectors. Identifying which sectors will gain or lose from opening up to trade helps inform policymakers to identify the sectors that require adjustment assistance. Vulnerable sectors may require government support to cushion the impact of trade liberalization on adversely affected firms and industries. Such support will facilitate the reallocation of resources toward areas of comparative advantage. Producers in those sectors should also make greater efforts to enhance their competitiveness to compete more effectively in the post-ACFTA period.

Table 2 shows that the sectors that would benefit most ASEAN members are agricultural products, food products, and extractive industry. The same sectors are expected to contract in the PRC. The expansion of trade will also have diverse sector effects in individual countries, with some sectors gaining more than others. For example, in Thailand, output of agricultural products and extractive industries would rise by 10–20% while output of light manufacturing and food products would fall by 3%. In general, for ASEAN members, the output of most sectors is expected to increase. The exception

is Cambodia, Lao PDR, and Myanmar, where most sectors are likely to contract. For the PRC, ACFTA is expected to have a negative effect on output of agricultural, food products, extractive, and service industries; and a positive effect on output of the three manufacturing sectors.

Table 2: Sectoral Impacts of ACFTA on Output (percent deviation from the base)

Member	Total Output	Agricultural Products	Food Products	Extractive Industry	Light Manufacturing	Heavy Manufacturing	Technology-Intensive Manufacturing	Services
Indonesia	-0.17	2.78	4.99	0.91	1.19	-2.12	2.10	1.76
Malaysia	3.68	-8.81	23.45	3.22	6.76	-1.03	0.28	0.07
Philippines	-0.33	5.04	0.46	1.89	-2.33	0.78	2.59	1.60
Singapore	9.07	0.27	58.59	13.60	3.07	2.11	2.24	1.61
Thailand	0.29	10.58	-3.24	21.11	-2.78	1.01	0.22	3.11
Viet Nam	1.92	2.10	-1.86	3.28	4.30	-0.20	9.78	0.11
Cambodia, Lao PDR, Myanmar	-0.04	-1.15	-3.25	1.41	1.50	-1.06	-2.44	-0.80
China, People's Rep. of	0.08	-1.16	-1.22	-1.33	0.31	0.33	0.17	-0.39

Tables 3 and 4 show that ACFTA is expected to benefit the manufacturing exports of poorer ASEAN members. More specifically, Cambodia, Lao PDR, Myanmar, and Viet Nam would increase their manufacturing exports by 11–15%, with the biggest jump occurring in technology-intensive products. On the other hand, the more established ASEAN members are likely to suffer a fall in manufacturing exports. This is especially true for Indonesia and Philippines, whose heavy manufacturing exports would fall. Our CGE simulations indicate that imports of heavy manufacturing products would grow faster than exports for many ASEAN members, while the reverse is true for the PRC. This confirms the conventional wisdom that improving manufacturing competitiveness remains an urgent structural challenge for ASEAN, in light of more competition from the PRC. The import growth of the PRC's agricultural products, food products, and extractive industries would exceed the export growth of its manufacturing industries.

Table 3: Sectoral Impacts of ACFTA on Exports (percent deviation from the base)

Member	Total Exports	Agricultural Products	Food Products	Extractive Industry	Light Manufacturing	Heavy Manufacturing	Technology-Intensive Manufacturing	Services
Indonesia	1.45	–7.71	20.14	0.54	0.03	–3.95	3.70	–6.57
Malaysia	1.30	45.19	31.99	4.89	10.16	2.61	–0.72	–6.54
Philippines	2.83	64.81	–1.06	16.58	–3.77	–2.72	2.54	–5.91
Singapore	1.90	–0.77	90.34	15.65	1.84	0.84	1.19	–12.43
Thailand	4.63	27.30	–10.78	60.05	–8.65	5.88	1.24	–13.70
Viet Nam	15.28	12.55	34.90	15.76	8.03	–2.95	36.97	–3.23
Cambodia, Lao PDR, Myanmar	10.46	11.70	31.29	9.84	10.21	7.10	28.56	2.65
China, People’s Rep. of	3.44	–1.64	2.90	4.65	2.81	3.59	3.84	1.92

Table 4: Sectoral Impacts of ACFTA on Imports (percent deviation from the base)

Member	Total Imports	Agricultural Products	Food Products	Extractive Industry	Light Manufacturing	Heavy Manufacturing	Technology-Intensive Manufacturing	Services
Indonesia	4.44	6.64	16.20	5.16	5.15	2.67	3.54	3.22
Malaysia	3.38	32.06	13.06	7.37	9.61	0.96	1.15	2.29
Philippines	2.82	10.29	17.92	2.54	1.10	3.89	1.59	3.34
Singapore	3.27	12.26	17.75	8.24	7.63	1.15	0.89	6.04
Thailand	9.28	15.07	40.71	16.87	15.23	1.13	4.41	8.30
Viet Nam	8.75	13.26	87.07	6.96	10.42	4.43	7.26	1.55
Cambodia, Lao PDR, Myanmar	10.86	–2.24	45.96	5.13	5.63	–0.57	12.04	–1.46
China, People’s Rep. of	3.57	4.79	11.97	7.04	3.28	–0.29	3.76	–1.16

V. Concluding Remarks

The economic rise of the PRC poses a competitive threat to ASEAN economies. At the same time, there are unmistakable elements of potential complementarity between ASEAN and the PRC. The PRC's remarkable appetite for imports, especially intermediate and capital goods, agricultural products and raw materials, presents enormous potential opportunities for ASEAN exporters. From the PRC viewpoint, the sizable collective economic size of ASEAN means that the region offers a meaningful opportunity to diversify both its export markets and its import sources. In short, even though ASEAN and the PRC will continue to compete with each other for export markets and foreign investment, economic integration holds out the promise of substantial tangible benefits for both sides.

In November 2002 ASEAN and the PRC agreed to form ACFTA as a concrete means of strengthening their economic partnership. Our paper has examined the economic feasibility of ACFTA as well as its desirability, especially from the ASEAN perspective, based on both qualitative and quantitative assessments. On balance, our examination of the extent to which ACFTA satisfies the theoretical static criteria for integration provides some support for ACFTA's feasibility and desirability. On the other hand, our CGE simulation results show that while integration brings about net trade, output, and welfare gains for the region as whole, country-specific effects vary considerably. More precisely, ACFTA is expected to benefit the richer members of ASEAN such as Malaysia and Singapore more than the poorer members such as Cambodia, Lao PDR, and Myanmar. Overall, both our qualitative and quantitative analysis provides grounds for cautious optimism about ACFTA's prospects.

Furthermore, a number of additional considerations bode well for the success of ACFTA. In particular, ACFTA can help to bring about significant dynamic improvements in the productivity and efficiency of the ASEAN economies by subjecting them more fully to competitive pressures from the PRC. In the short run, competition from the PRC will undoubtedly lead to painful structural adjustment in some manufacturing industries where ASEAN has little comparative advantage. However, in the long run, such competitive pressures will force the ASEAN economies to invest more in human capital, physical capital, and technological upgrading, which will enable them to find new areas of comparative advantage. Last but not least, it is clearly in the geopolitical self-interest of both ASEAN and the PRC to engage the other side. As such, the governments of ASEAN and the PRC are likely to provide the political commitment, will, and leadership critical for the success of ACFTA.

References

- Chirathivat, S. 2002. “ASEAN-China Free Trade Area: Background, Implications and Future Development.” *Journal of Asian Economics* 13(5): 671–86.
- De Lombaerde, P., ed. 2006. *Assessment and Measurement of International Economic Integration*. New York: Routledge.
- Dimaranan, B.V., and R.A. McDougall, eds. 2006. *Global Trade, Assistance, and Production: The GTAP 6 Data Base*, Center for Global Trade Analysis, Purdue University, West Lafayette.
- El-Agraa, A. M. 1989. *The Theory and Measurement of International Economic Integration*. London: Macmillan.
- . 1999. *Regional Integration: Experience, Theory and Measurement*, 2nd ed. Basingstoke, UK: Macmillan.
- GAMS Development Corporation. n.d. “Solver Descriptions.” Available: gams.com/solvers/solvers.htm#MPSGE.
- IMF. 2008. *Direction of Trade Statistics*. International Monetary Fund, Washington, DC.
- Jovanovic, M. 2006. *Economics of International Integration*. Cheltenham, UK: Edward Elgar.
- Kawai, M., and Wignaraja, G. 2008. Regionalism as an Engine of Multilateralism: A Case for a Single East Asian FTA. Working Paper Series on Regional Economic Integration No. 14, Asian Development Bank, Manila.
- Lee, H., and van der Mensbrugghe, D. 2007. Regional Integration, Sectoral Adjustments and Natural Groupings in East Asia. Discussion Paper 07E008, Osaka School of International Public Policy, Osaka University.
- Liu, Y., and H. Luo. 2004. “Impact of Globalization on International Trade Between ASEAN-5 and China: Opportunities and Challenges.” *Global Economy Journal* 4(1):1–8.
- Lloyd, P., and D. Maclaren. 2004. “Gains and Losses from Regional Trading Agreements: A Survey.” *The Economic Record* 80:445–67.
- Meade, J. 1955. *The Theory of Customs Union*. Amsterdam: North Holland.
- Park, I. 2006. “East Asian Regional Trade Agreements: Do They Promote Global Free Trade?” *Pacific Economic Review* 11(4):547–68.
- Robson, P. 2006. 1987. *The Economics of International Integration*. London: Unwin & Allen.
- . *The Economics of International Integration*, 5th ed. New York: Routledge.
- Roland-Holst, D. 2002. An Overview of PRC’s Emergence and East Asian Trade Patterns to 2020. Research Paper No. 44, Asian Development Bank Institute, Tokyo.
- Roland-Holst, D., and J. Weiss. 2004. “ASEAN and China: Export Rivals or Partners in Regional Growth?” *World Economy* 27(8):1255–74.
- Rutherford, T. F. 2005. “GTAP6inGAMS: The Dataset and Static Model.” Paper presented at the Workshop on Applied General Equilibrium Modelling for Trade Policy Analysis in Russia and the CIS, 1–9 December, Moscow.
- Tongzon, J. 2005. “ASEAN-China Free Trade Area: A Bane or Boon for ASEAN Countries?” *World Economy* 28(2):191–210.
- Viner, J. 1950. *The Customs Union Issue*. London: Stevens.
- Wong, J., and S. Chan. 2002. “China’s Emergence as a Global Manufacturing Centre: Implications for ASEAN.” *Asia Pacific Business Review* 9(1):79–94.
- WTO. 2005. *World Trade Report 2005*. World Trade Organization, Switzerland.
- Yue, C.S. 2004. “ASEAN-China Free Trade Area.” Paper presented at the AEP Conference, 12–13 April, Hong Kong, China.

About the Paper

Donghyun Park, Innwon Park, and Gemma Esther B. Estrada assess the prospects of the ASEAN–People’s Republic of China Free Trade Area (ACFTA) as a vehicle for promoting trade between the Association of Southeast Asian Nations and the People’s Republic of China. To do so, they use both qualitative analysis using insights from customs union theory, and quantitative analysis based on computable general equilibrium model simulations. Both their qualitative and quantitative analyses provide grounds for guarded optimism about ACFTA’s prospects.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two thirds of the world's poor. Six hundred million people in the region live on \$1 a day or less. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance. In 2007, it approved \$10.1 billion of loans, \$673 million of grant projects, and technical assistance amounting to \$243 million.