ADB Working Paper Series on Regional Economic Integration

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Abstract

The role of the People's Republic of China (PRC) in East Asia's recovery from the recent global financial and economic crisis highlighted the PRC's growing role as an engine of growth for the region. From the viewpoint of the PRC, there are many potential gains from entering into free trade agreements (FTAs) with its neighbors, who collectively form a large and fast-growing market. In this paper we qualitatively and quantitatively assess the four main permutations of the PRC's FTAs with the region's major economies: PRC–ASEAN, PRC–Japan, PRC–Republic of Korea, and ASEAN+3. We compare the effects of the FTAs on the PRC's output and welfare. Our comparative analysis shows that the PRC would gain from all three bilateral FTAs, while gaining the most from a larger region-wide FTA such as ASEAN+3.

1. Introduction

The People's Republic of China's (PRC) rapid and sustained growth over the past 30 years is a feat unparalleled by any other major economy in recent history. Never before has such a huge country grown so fast over such a long period. With growth averaging about 10% per year the PRC's share of world gross domestic product (GDP) rose to 14% in 2010 from only about 2% in 1980. In terms of purchasing power parity, the PRC now ranks as the world's second largest economy after the United States (US), having moved ahead of Japan in 2010. The PRC's significant integration into the world economy, especially the global trading system, goes a long way toward explaining its rapid growth. Its share of world exports rose from only 1% in 1980 to about 10% in 2009. In the 1980s, East and Southeast Asia, led by Japan and Hong Kong, China, absorbed the bulk of the PRC's exports. But since the end of the 1990s major industrial economies, particularly the US and members of the European Union (EU), have become the PRC's most important trading partners, accounting for nearly 40% of its annual exports.

The rise of the PRC's trade with major industrial economies paralleled its emergence as a center of regional production networks based on the exchange of parts, components, other intermediate products, and capital goods. The PRC assembles parts and components from East and Southeast Asia into final goods for export to the US and other industrial economies. In fact, exports to the PRC as a share of total exports rose sharply in major East and Southeast Asian economies between 1990 and 2008 (Figure 1). By the same token, the share of imports from the PRC also increased in these economies (Figure 2). Growth of the PRC's trade with East and Southeast Asia largely reflects growth in intra-Asian production fragmentation, or vertical specialization (ADB 2009).

Figure 1: Exports to the PRC as Share of Total Exports among Select East and Southeast Asian Economies, 1990–2008
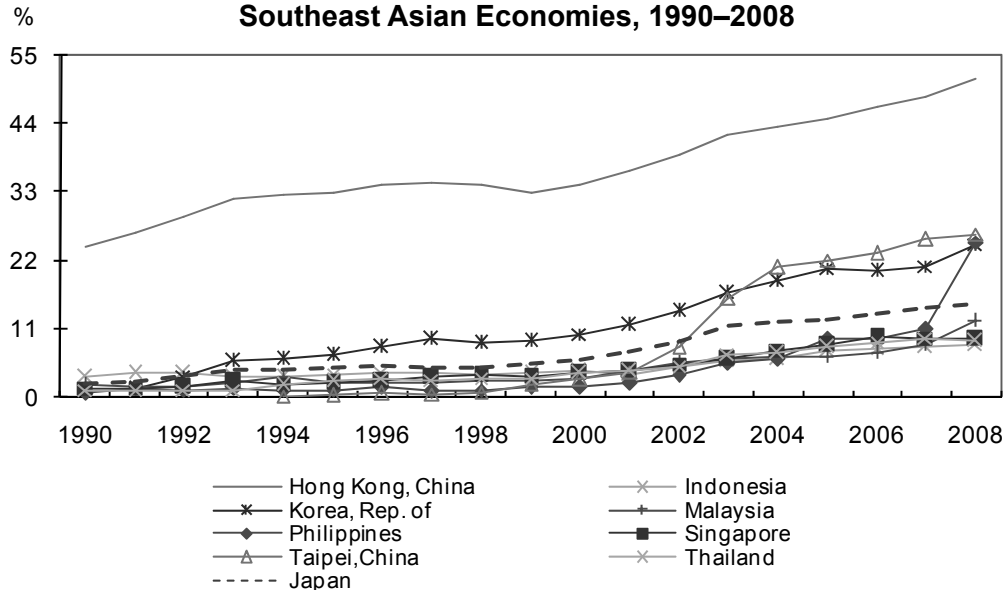
Source: Estimates based on data from CEIC Data Company Ltd. (downloaded 6 July 2009) and International Monetary Fund, Direction of Trade Statistics (May 2009).

Figure 2: Imports from the PRC as Share of Total Imports among Select East and Southeast Asian Economies, 1990–2008
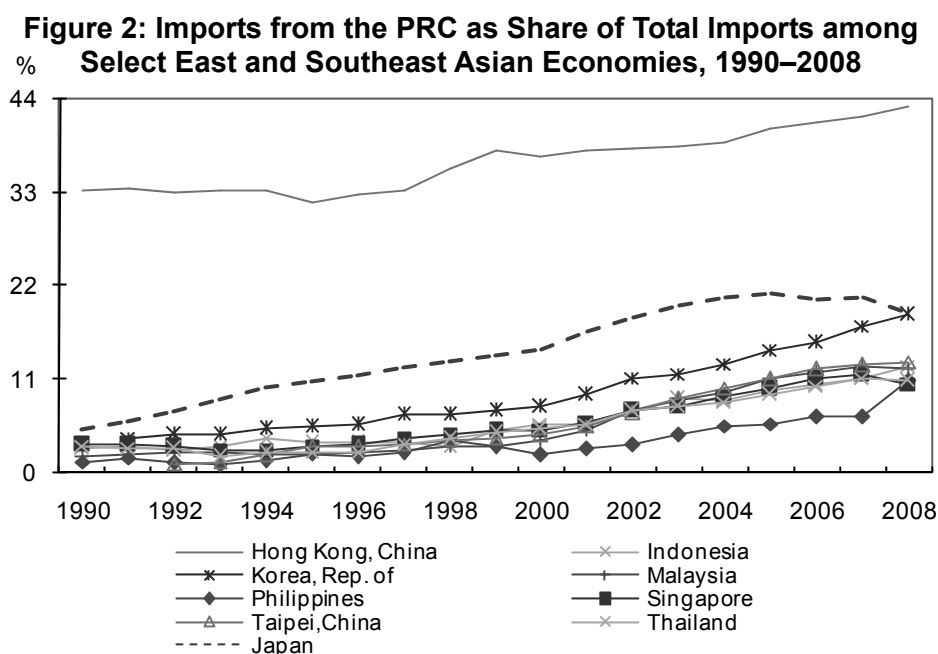
Source: Staff estimates based on data from CEIC Data Company Ltd. (downloaded 6 July 2009) and International Monetary Fund, Direction of Trade Statistics (May 2009).

Recent evidence indicates a weakening of the PRC's role as an assembler and a corresponding strengthening of its role as a consumer. The share of parts and components in the PRC's total imports is much higher than in its total exports throughout 1996–2008. However, the share of parts and components in the PRC's imports from the rest of the region has been declining, while that of final goods has been increasing (Figure 3). This suggests that direct demand for final goods may be increasingly impacting the PRC's imports from the region. The shift from trade in parts and components toward final goods provides evidence of the PRC's growing role as a consumer. This indirect evidence of more substantive trade between the PRC and the rest of Asia based on demand for final goods strengthens the argument for the PRC as an engine of growth. The rising influence of the PRC on growth in other economies in the region through trade can lessen the vulnerability of these economies to downturns in the US and EU. The same argument also applies to the PRC, since strengthening trade links with its neighbors can help reduce its over-dependence on exports to the US and EU.

Among East Asian countries the PRC was the most resilient during the recent global financial crisis, growing by over 9% in both 2008 and 2009. There is some evidence that the PRC, through strong trade ties, helped countries in the region to recover swiftly from the global crisis. Although Asia's exports to the PRC fell sharply during the crisis, they rebounded more strongly than exports to the US, thus helping support growth (Figure 4). The recent slowdown in advanced countries strengthens the need for regional economies to seek additional sources of growth. Given its large size, resilience during the global economic downturn, and tight trade links with other East Asian economies, the PRC is in a strong position to lead vibrant and sustainable growth in the region.

Figure 3: The PRC's Imports from East and Southeast Asia by Commodity Classification, 1996–2008

□ Parts and Components   □ Construction Materials   ■ Basic Products   ■ Final Goods
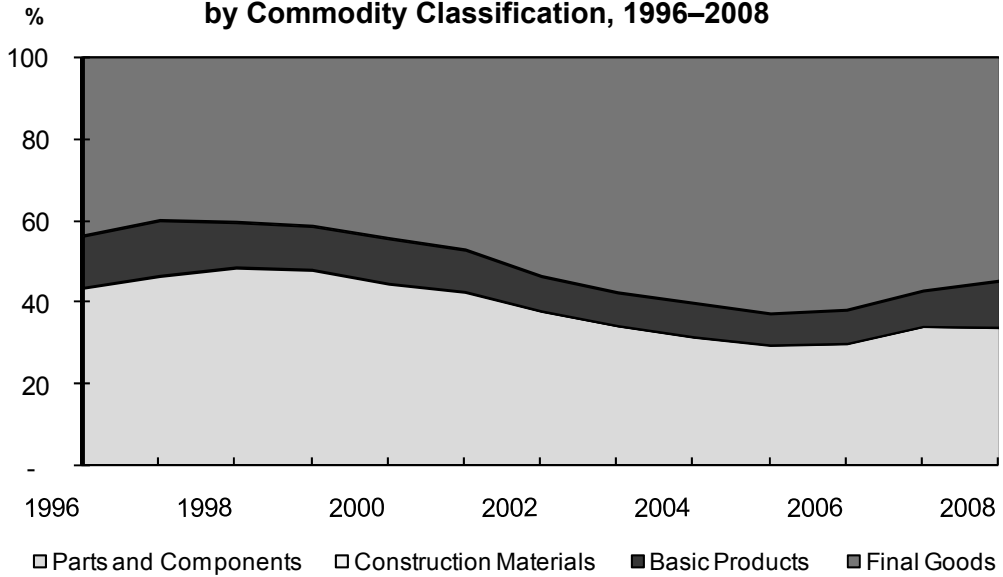
Source: TradeData International Pty. Ltd.

Figure 4: ASEAN-6 Quarterly Export Volumes to the PRC, 2008Q1–2010Q1

2008Q1=100

—◆— Indonesia   —■— Malaysia   —▲— Philippines
—✕— Singapore   —✱— Thailand   —●— Viet Nam
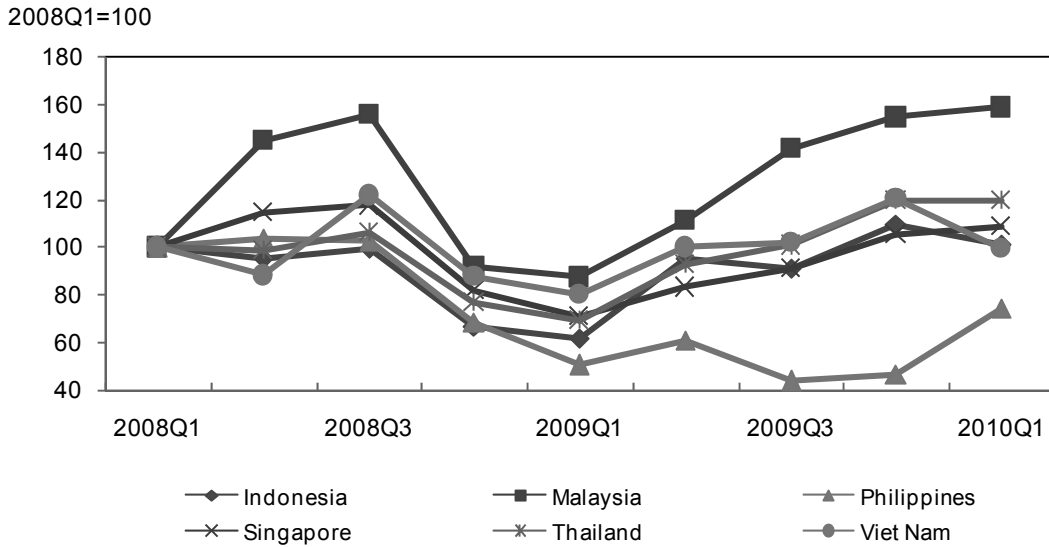
Source: CEIC Data Company (accessed 6 September 2010).

From the vantage point of the PRC, strengthening trade links with countries in East Asia is beneficial in terms of access to (i) a large, growing, and proximate market for its exports; and (ii) more diverse sources of primary inputs, raw materials, and high-tech capital goods. Collectively, East and Southeast Asia (ex-PRC) is a large, fast-growing economy with major potential. While the PRC's phenomenal rise has garnered more attention, the PRC's neighbors have also been growing rapidly if not as spectacularly as the PRC. (Prior to the rise of the PRC eight East and Southeast Asian economies were collectively known as the "East Asian Miracle".) Stronger trade links may also help to facilitate the PRC's investment in the region. Moreover, trade links with its neighbors can be viewed as an opportunity for the PRC to strengthen its economic power and influence in the region.

The PRC has been active in pursuing free trade initiatives with countries in East and Southeast Asia. Recently, the ASEAN–PRC Free Trade Area (ACFTA) came into effect, establishing free trade between the PRC and the six original members of ASEAN (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand). Other ASEAN members (Cambodia, Lao People's Democratic Republic, Myanmar, and Viet Nam) are expected to participate in ACFTA by 2015. The establishment of an FTA with ASEAN is viewed as an important step in the economic integration of the entire East Asian region. Furthermore, the PRC already has bilateral agreements with Singapore and Thailand, while negotiations for bilateral agreements with Japan and the Republic of Korea are under way. A region-wide FTA covering ASEAN, the PRC, and the two other big economies in East Asia—Japan and the Republic of Korea—has been a subject of great interest among proponents of free trade in the region. Once formed such an agreement would encompass about 2.1 billion people and account for nearly one-fourth of the world's total output. However, establishing a region-wide FTA is seen as a long-term goal given the daunting economic and political obstacles that stand in the way. Therefore, forming bilateral FTAs is widely viewed as a realistic alternative strategy in the medium-term.

The objective of this paper is to qualitatively and quantitatively assess the PRC's FTAs and potential FTAs with ASEAN, Japan, and the Republic of Korea, as well as a possible region-wide FTA (ASEAN+3). Our qualitative analysis is based on the theory of economic integration and our quantitative analysis is based on a computable general equilibrium (CGE) model. Our analysis will focus on the relative benefits of each arrangement, especially from the point of view of the PRC.

2.   Qualitative Assessment of the PRC–ASEAN FTA and Potential FTAs with Japan and the Republic of Korea

The theory of economic integration provides a basic framework for analyzing the extent to which each of the PRC's actual and potential FTAs with ASEAN, Japan, and the Republic of Korea satisfy the theoretical criteria for successful integration. Viner (1950) is credited with providing the analytical foundation for the theory of economic integration through his pioneering work on customs unions. While there are different levels of economic integration, an advanced stage entails members agreeing not only on the free

movement of goods and services, but also of capital and labor, among the economies of a region. As the process toward high-level integration is expected to be slow and complex, a more realistic and immediate goal is the liberalization of the goods trade.

There are both positive and negative welfare effects when members of a customs union agree to phase-out tariffs and quantitative restrictions on imports from within the union and impose a set of common external tariffs on imports from outside the union. The positive effect—trade creation—arises from the replacement of high-cost domestic products with less costly imports from FTA member countries. The negative effect—trade diversion—occurs when less costly imports from nonmember countries are replaced with high-cost imports from member countries. Countries are more likely to enter into a customs union if trade creation is expected to outweigh trade diversion. Static factors can be used to assess the welfare effects arising from the establishment of a customs union. These include the size of the free trade area, levels of economic development, geographical proximity, complementarity of economic structures, pre-integration trade relationships, substitutability between products of members and products of nonmembers, and tariff structures. We examine these factors with respect to potential bilateral FTAs between the PRC and ASEAN, Japan, and the Republic of Korea, and a potential region-wide ASEAN+3 FTA.

2.1 Size of FTA

Studies have shown that the potential gains from an FTA tend to increase with membership size. Table 1 shows a comparison of the sizes of the PRC's actual and potential FTAs within East and Southeast Asia. In terms of GDP in current US dollars based on purchasing power parity, an ASEAN+3 FTA would be the largest followed by a PRC–Japan FTA (CJFTA). In terms of population, an ASEAN+3 FTA would rank first with 2.1 billion people, followed by the FTA between the PRC and ASEAN (ACFTA). The smallest FTA in terms of both population and GDP would be one between the PRC and the Republic of Korea (CKFTA).

2.2 Income and Development Level

Comparable income and development levels among member countries of a potential FTA matter for successful integration. Countries with similar income levels tend to have similar consumption patterns, suggesting some scope for intra-industry trade. Pre-FTA income disparities also matter as integration may lead to either income convergence or divergence among member economies. Table 2 shows that the PRC's per capita income is similar to the average income among ASEAN members, but lags far behind the income levels of the developed economies in East Asia. In particular, the PRC's current per capita income in purchasing power parity terms is only about 20% of the levels in Japan and the Republic of Korea. The distribution of income levels across East and Southeast Asia indicates that the scope for intra-industry trade would be higher under an ACFTA than a CJFTA or CKFTA.

Table 1: Population and GDP in East and Southeast Asia

	Population (million)	GDP (current $ billion)	GDP–PPP (current $ billion)
Brunei Darussalam	0.4	14.5	20.2
Cambodia	14.7	9.6	28.0
Indonesia	228.2	514.4	907.3
Lao PDR	6.2	5.2	13.2
Malaysia	27.0	194.9	383.7
Myanmar	49.2	—	—
Philippines	90.3	166.9	317.1
Singapore	4.8	181.9	238.5
Thailand	67.4	260.7	519.0
Viet Nam	86.2	90.7	240.1
ASEAN	574.5	1438.9	2667.2
PRC	1,325.6	4,326.2	7,903.2
Japan	127.7	4,909.3	4,354.6
Republic of Korea	48.6	929.1	1,358.0
PRC–Japan	1,453.3	9,250.0	12,278.0
PRC–Republic of Korea	1,374.2	5,269.8	9,281.5
PRC–ASEAN	1,900.2	5,765.1	10,570.4
ASEAN+3	2,076.5	11,603.5	16,283.0

ASEAN = Association of Southeast Asian Nations, FTA = free trade agreement, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PPP = purchasing power parity, PRC = People's Republic of China.
Note: All figures are from 2008.
Source: World Development Indicators Online (accessed 22 January 2010).

Table 2: Per Capita Income in East and Southeast Asia

	GDP per capita (current $)	GDP per capita–PPP (current $)
Brunei Darussalam	36,634.3	50,919.1
Cambodia	651.3	1,904.6
Indonesia	2,253.6	3,974.9
Lao PDR	837.3	2,134.1
Malaysia	7,221.5	14,215.4
Myanmar	—	—
Philippines	1,847.4	3,509.9
Singapore	37,597.3	49,283.6

Table 2: *continued*

	GDP per capita (current $)	GDP per capita– PPP (current $)
Thailand	3,868.6	7,702.6
Viet Nam	1,052.1	2,785.0
ASEAN	2,713.4	5,042.5
PRC	3,263.5	5,961.8
Japan	38,442.6	34,098.8
Republic of Korea	19,115.0	27,939.1
PRC–Japan–Republic of Korea	6,767.6	9,065.4

ASEAN = Association of Southeast Asian Nations, FTA = free trade agreement, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PPP = purchasing power parity, PRC = People's Republic of China.
Notes: All figures are from 2008. The figures for PRC–Japan–Republic of Korea are weighted by population.
Source: World Development Indicators Online database (accessed 22 January 2010).

2.3 Geographical Proximity and Transport Infrastructure

There is a natural tendency for economies with close geographical proximity to engage in trade with one another, especially those linked by efficient transport systems. Table 3 shows that Japan and the Republic of Korea are located much closer to the PRC than to ASEAN. While this appears to give bilateral FTAs between the PRC and either Japan or the Republic of Korea a competitive edge over ACFTA, geographical barriers no longer pose as serious an impediment to trade since there are now efficient air and sea links between ASEAN, the PRC, Japan, and the Republic of Korea.

2.4 Pre-FTA Trade

Pre-existing trade links among member countries of a potential FTA grouping are an important factor in forming an FTA. Countries with strong pre-FTA trade relationships are more likely to benefit from integration and are therefore more inclined to support an FTA. Table 4 shows how intraregional exports among East and Southeast Asian countries have intensified in recent years. In ASEAN+3, intraregional exports reached USD1.25 trillion in 2008, an increase of 35% from 2006 and the equivalent to 34% of total exports of all ASEAN+3 economies. ASEAN, Japan, and the Republic of Korea have become increasingly important trading partners of the PRC. Exports to ASEAN accounted for 8% of the PRC's total exports in 2008, while the combined exports of Japan and the Republic of Korea were equivalent to 13% of the PRC's total exports. The PRC has also become an important export market for these economies, accounting for 9% of ASEAN's exports, 16% of Japan's exports, and 21% of the Republic of Korea's exports in 2008. Table 5 and Table 6 show that intraregional imports and total trade are indeed relatively high among East Asian countries. This suggests that actual and potential FTAs between the PRC and ASEAN, Japan, and the Republic of Korea either are or would be mutually beneficial for all parties involved.

The PRC had a trade deficit with ASEAN, Japan, and the Republic of Korea in 2008. The largest deficit was with the Republic of Korea and the smallest was with ASEAN. The reluctance of Japan and the Republic of Korea to include agricultural products in their proposed bilateral FTAs with the PRC could further worsen the latter's net trade position with these countries. Thus, in terms of the impact of net exports on GDP, ACFTA is more beneficial for the PRC than its bilateral FTAs with either Japan or the Republic of Korea. Still, trade with Japan and the Republic of Korea might be more beneficial for the PRC in terms of access to capital and technology.

Table 3: Geographical Proximity among Asian Economies (km)

	PRC	Japan	Republic of Korea	EU-27	NAFTA
Brunei Darussalam	3,877	4,248	3,819	10,340	14,999
Cambodia	3,336	4,403	3,629	9,066	14,414
Indonesia	5,194	5,772	5,278	10,695	16,357
Lao PDR	2,757	4,125	3,208	8,379	13,706
Malaysia	4,335	5,318	4,609	9,549	15,350
Philippines	2,840	2,990	2,614	9,916	13,794
Singapore	4,457	5,313	4,667	9,845	15,547
Thailand	3,282	4,603	3,719	8,563	14,163
Viet Nam	2,321	3,670	2,744	8,346	13,367
ASEAN (average)	3,600	4,494	3,810	9,411	14,633
PRC		2,103	962	7,474	11,172
Japan	2,103		1,153	9,096	10,928
Republic of Korea	962	1,153		8,273	11,187
EU-27	7,474	9,096	8,273		6,917
NAFTA	11,172	10,928	11,187	6,917	

ASEAN = Association of Southeast Asian Nations, EU = European Union, Lao PDR = Lao People's Democratic Republic, NAFTA = North American Free Trade Agreement, PRC = People's Republic of China.
Note: The distance is the theoretical air distance (great circle distance) between capital cities. For the EU, the reference city is Prague, Czech Republic, which lies at the approximate geographical center of the EU. The reference city for NAFTA is Washington, DC.
Source: www.timeanddate.com (accessed 22 April 2010).

Table 4: Intraregional Exports within ASEAN+3, 2006–2008

	2006	2007	2008	2006–2008 Average
Total Exports ($ billion)				
PRC–Japan	184.6	211.4	241.2	212.4
PRC–Republic of Korea	114.0	138.1	165.3	139.1
ASEAN–PRC	329.4	389.9	454.1	391.2
ASEAN+3	924.3	1,066.2	1,246.5	1,079.0
Share of Total Exports (%)				
PRC–Japan	11.4	10.9	10.9	11.1
PRC–Republic of Korea	8.8	8.7	8.9	8.8
ASEAN–PRC	19.0	18.8	18.8	18.8
ASEAN+3	34.1	33.7	34.4	34.1

ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China.
Source: Authors' calculations based on data from the International Monetary Fund, Direction of Trade Statistics (January 2010).

Table 5: Intraregional Imports within ASEAN+3, 2006–2008

	2006	2007	2008	2006–2008 Average
Total Imports ($ billion)				
PRC–Japan	234.3	261.7	294.4	263.5
PRC–Republic of Korea	138.4	167.1	189.1	164.9
ASEAN–PRC	331.6	392.4	461.3	395.1
ASEAN+3	1,007.5	1,151.8	1,335.6	1,165.0
Share of Total Imports (%)				
PRC–Japan	17.1	16.6	15.5	16.4
PRC–Republic of Korea	12.6	12.7	12.1	12.5
ASEAN–PRC	22.7	22.8	22.2	22.6
ASEAN+3	42.9	42.7	40.8	42.1

ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China.
Source: Authors' calculations based on data from International Monetary Fund, Direction of Trade Statistics (January 2010).

Table 6: Intraregional Trade within ASEAN+3, 2006–2008

	2006	2007	2008	2006–2008 Average
Total Trade ($ billion)				
PRC–Japan	418.8	473.1	535.6	475.8
PRC–Republic of Korea	252.4	305.2	354.4	304.0
ASEAN–PRC	661.0	782.4	915.4	786.3
ASEAN+3	1,931.8	2,218.0	2,582.2	2,244.0
Share of Total Trade (%)				
PRC–Japan	14.0	13.5	13.0	13.5
PRC–Republic of Korea	10.5	10.5	10.4	10.5
ASEAN–PRC	20.7	20.6	20.4	20.6
ASEAN+3	38.2	37.8	37.4	37.8

ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China.
Source: Authors' calculations based on data from International Monetary Fund, Direction of Trade Statistics (January 2010).

2.5   Substitutability of Products

A wide range of tradable goods among FTA members that can be substituted for those of nonmembers can increase the scope for trade creation. Data on revealed comparative advantage suggest that the PRC can broadly substitute products such as machinery and transport materials from the US and EU with products from Japan and the Republic of Korea (Table 7). Japan and the Republic of Korea are technologically at similar levels to the US and EU, and thus produce many similar manufactured goods. However, substitutability of products between the PRC and ASEAN tends to be limited as both export comparable goods such as electronics and textiles, and have similar key export markets.

2.6   Complementary Economic Structures

It is possible for countries with competitive pre-FTA economic structures to gain from trade creation if their post-economic structures are complementary, as Meade (1995) suggested. As a result of high trade barriers, FTA members may produce similar goods prior to integration. When trade among members expands under an FTA, goods will be produced by more efficient firms and the number of similar goods produced falls. Members derive welfare gains from specialization, technological change, and economies of scale. Table 8 shows the degree to which one country's exports are complementary with another country's import structure. The table indicates a relatively high degree of complementarity between the PRC and ASEAN. Furthermore, the PRC's exports and imports are more complementary with ASEAN's export and import patterns than with other countries, including Japan and the Republic of Korea. The complementarity index

between the PRC's exports and ASEAN's imports is about 80%, while the comparable indices of the PRC's exports with Japan and the Republic of Korea are both about 65%. This suggests that ACFTA augurs more favorably for the PRC than a bilateral FTA with Japan or the Republic of Korea.

**Table 7: Substitutability of Products: Revealed Comparative Advantage,
2006–2008 Average**

	Sectors	ASEAN	PRC	Japan	Republic of Korea	NAFTA	EU-27	ROW
1	Agriculture	0.84	0.49	0.10	0.15	1.50	1.06	1.10
2	Beverage and food Products	1.51	0.41	0.08	0.15	0.69	1.28	1.08
3	Textile and apparel	1.05	3.27	0.25	0.74	0.40	0.84	0.96
4	Chemical products	0.67	0.45	0.80	0.90	0.97	1.33	0.89
5	Metal and steel Products	0.56	1.00	0.91	1.01	0.81	1.03	1.14
6	Vehicle and other transport equipment	0.33	0.40	2.23	1.87	1.42	1.22	0.62
7	Electronic products	2.17	2.28	1.33	1.84	0.99	0.77	0.60
8	Machinery	0.49	0.65	1.65	0.73	1.09	1.22	0.83
9	Other manufacturing	1.00	0.63	0.58	0.60	0.99	0.82	1.39

ASEAN = Association of Southeast Asian Nations, EU = European Union, NAFTA = North American Free Trade Agreement, PRC = People's Republic of China, ROW = rest of world.
Note: The Revealed Comparative Advantage index is defined as the ratio of the share of a country's total exports of a commodity in its total exports to the share of world exports of the same commodity in total world exports.
Source: Author's calculations based on data from United Nations ComTrade Database (accessed 6 April 2010).

Table 8: Complementarity Index, 2006–2008 (%)

Importing Region or Country	Exporting Region or Country						
	ASEAN	**PRC**	**Japan**	**Republic of Korea**	**EU-27**	**NAFTA**	**ROW**
ASEAN		79.5	72.1	81.1	77.2	82.8	79.5
PRC	83.9		70.8	82.1	75.9	78.8	75.2
Japan	77.3	65.1		62.9	73.4	76.9	89.3
Rep. of Korea	75.4	66.2	65.5		74.3	80.1	87.0
EU-27	76.9	66.1	69.9	74.6		89.4	88.0
NAFTA	79.2	68.3	73.5	75.8	83.2		85.8
ROW	78.8	68.9	69.4	73.4	83.8	87.8	

ASEAN = Association of Southeast Asian Nations, EU = European Union, NAFTA = North American Free Trade Agreement, PRC = People's Republic of China, ROW = rest of world.
Note: The index measures the degree to which the export pattern of one country (region) matches the import pattern of another. It is derived from the sum of the absolute value of the difference between the import shares and the export shares for each product category of two countries (regions) divided by two and multiplied by 100.
Source: Authors' calculations based on data from United Nations ComTrade Database (accessed 6 April 2010).

2.7 Pre-FTA Tariff Rates

There are significant opportunities for trade creation if pre-FTA tariffs are relatively high. Net welfare impacts will be higher the more elevated the pre-FTA tariff rates among members and the lower the level and variability of tariff rates against nonmembers. Table 9 shows the applied tariff rate (simple mean of all products) for ASEAN countries, the PRC, Japan, and the Republic of Korea. The tariff rate of the PRC is higher than in Japan and most ASEAN countries, but similar to that of the Republic of Korea. Since both the PRC and the Republic of Korea maintain relatively high tariff rates, the potential for trade creation is more apparent in CKFTA than in ACFTA or CJFTA if based on tariffs alone. However, overall output and welfare gains of an FTA will depend on the combined impact of the different static factors discussed above.

3. Quantitative Assessment of the PRC's FTAs with ASEAN, Japan, and the Republic of Korea

In this section we apply the CGE model to the various permutations of the PRC's FTAs with ASEAN, Japan, and the Republic of Korea to estimate their quantitative effects on output and welfare. We examine static, one-time, and dynamic effects based on the impacts of FTAs through capital accumulation. Before reporting the results of our CGE analysis, we provide a brief overview of the CGE model and findings from earlier CGE studies that analyzed East Asian FTAs.

Table 9: Applied Tariff Rate—Simple Mean of All Products (%)

	2006	2007	2008	2006–2008 Average
Brunei Darussalam	3.1	3.1	2.7	2.9
Cambodia	0.0	12.5	12.4	8.3
Indonesia	6.0	5.9	-	5.9
Lao PDR	6.5	5.8	9.3	7.2
Malaysia	6.3	5.9	5.5	5.9
Myanmar	4.4	4.1	4.0	4.2
Philippines	5.4	5.0	5.4	5.3
Singapore	0.0	0.0	0.2	0.1
Thailand	10.8	10.3	10.6	10.6
Viet Nam	11.9	11.7	8.0	10.5
PRC	8.9	8.9	8.7	8.8
Japan	3.5	4.2	3.7	3.8
Republic of Korea	9.1	8.5	-	8.8

Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: World Bank, World Databank. http://databank.worldbank.org/ddp/home.do?Step=3&id=4 (accessed 26 May 2011).

3.1   CGE Model and Analysis of the Impact of FTAs–A Brief Overview

A number of studies have used a CGE model and the database of the Global Trade Analysis Project (GTAP) to quantify the economic impact of FTAs. Both static and dynamic effects are considered in recent CGE studies of economic integration. The static model evaluates the one-off, more immediate impact of the removal of trade barriers. The dynamic model incorporates medium- to long-term efficiency gains from resource re-allocation and capital accumulation. Studies generally find bigger welfare gains among member countries from an FTA with a larger aggregate GDP, a feature that gives members the opportunity to exploit larger markets. Sectoral impacts are often also examined to identify groups that are likely to gain or lose from an FTA and inform policymakers. Estimates of welfare gains from trade creation as well as losses from trade diversion have varied across studies. Owing to differences in specifications and underlying assumptions, the literature on FTAs has produced varying results on the value of estimated impacts, the economies that are likely to gain or lose, and which FTAs provide the most gains to one country or region.[1]

There is a dearth of CGE studies that examine the impacts of bilateral and region-wide

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[1]   Cheong (2003); Ando and Urata (2006); Ando (2009); Lee, Roland-Holst, and van der Mensbrugghe (2004); Gilbert, Scollay, and Bora (2004); Francois and Wignaraja (2008); Lee and van der Mensbrugghe (2008); and Kawai and Wignaraja (2008).

FTAs from the point of view of the PRC. Often the studies have assessed the bilateral FTAs of ASEAN with the PRC, Japan, and the Republic of Korea, and compared these with a potential region-wide FTA. A number of studies distinguish between the impacts on the PRC of ACFTA vs. ASEAN+3, but rarely do they show comparisons of the PRC's bilateral FTAs with ASEAN, Japan, or the Republic of Korea. Studies that include a quantitative assessment of the income and welfare impacts on the PRC generally indicate that it stands to gain more from joining a broader FTA. This is consistent with the bulk of the literature on FTAs that finds economic size to be an important indicator of income and welfare gains. Comparing the impacts between the ASEAN–PRC FTA and an ASEAN+3 FTA, estimates by Cheong (2003), Ando and Urata (2006), and Kawai and Wignaraja (2008) show that the income gain for the PRC is about 0.4%–0.6% under the former and 1.3%–1.4% under the latter. The estimates of Lee, Roland-Holst, and van der Mensbrugghe (2004), which are based on a dynamic CGE model, also show that welfare changes for the PRC are far more favorable under an ASEAN+3 FTA than under ACFTA. Past comparisons of the PRC's bilateral FTAs relied on the GTAP version 5 database and found that the PRC was expected to gain more in terms of output or welfare changes from a bilateral FTA with Japan rather than with ASEAN or the Republic of Korea.[2]

Our paper's contribution to the literature is to highlight the potential impacts of the PRC's FTAs with ASEAN, Japan, and the Republic of Korea. Not many studies have focused on making comparisons between the four possible arrangements of the PRC's FTAs with its three neighboring economies, particularly by using both CGE analysis and the indicators discussed in our qualitative analysis.

Using both qualitative and quantitative analysis allows us to probe deeply into the potential impacts, with our quantitative analysis complemented by our qualitative analysis. To provide some explanation of the results of our CGE analysis, such as why a particular FTA would be more favorable for the PRC, we refer back to the qualitative analysis. Indicators discussed in the previous section, such as pre-FTA trade levels and the complementarity of economic structures, enrich our understanding of the results of the CGE analysis.

3.2   Empirical Framework and Results

In this section we discuss the results of our quantitative assessment based on a traditional static model, which analyzes the one-off effect of an FTA on output and welfare, and a capital accumulation CGE model, which takes into account the positive relationship between trade, investment, and growth. We incorporate dynamic effects by introducing capital accumulation in the model, a feature especially relevant for East Asian economies where high savings and investment have been key components of stellar growth. This is especially true in the case of the PRC. Baldwin (1989, 1992) suggests that higher returns to capital due to trade will induce investment and enhance the output impact of the static effects. We estimate the changes in the capital stock and output by comparing two steady states, following the approach taken by Francois, McDonald, and Nordstrom (1999).

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[2]   Cheong (2003) and Kawasaki (2003).

We implement the CGE model using social accounting data from the GTAP version 7 database, which provides global production and trade data with 2004 as the base year. Our data are aggregated into 10 sectors and 7 regions and economies (Table 10). Quantitative impacts are estimated under a scenario where both import tariffs and export taxes between members are eliminated, but tariff barriers between members and nonmembers are retained.

Table 10: Model Aggregations

Economies (number)	Sectors
ASEAN (9): Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam	Agriculture, fishing, and forestry Beverage and food products Textile and apparel Chemical products
PRC	Metal and steel products
Japan	Vehicle and other transport equipment
Republic of Korea	Electronic products
EU (27)	Machinery
NAFTA (3): Canada, Mexico, and the US	Other manufactures
ROW	Services

ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, EU = European Union, NAFTA = North American Free Trade Agreement, ROW = rest of world.
Note: Brunei Darussalam is excluded because of the data problem in GTAP.
Source: Authors' compilation.

Table 11 presents the output and welfare effects of implementing the CGE model for four combinations of East and Southeast Asian FTAs that include the PRC. We first highlight the results of the static model and then delve into the results of the dynamic model. Based on the results of the static CGE model, which looks at one-off effects of the FTAs, the PRC can expect higher output and welfare gains from a bilateral FTA with ASEAN than with either Japan or the Republic of Korea. Results indicate that the PRC's welfare impacts can even be negative under CJFTA and CKFTA. When compared against an ASEAN+3 FTA, ACFTA is also expected to deliver slightly bigger output gains for the PRC, which may reflect the PRC's negative net trade position with Japan and the Republic of Korea. Between Japan and the Republic of Korea, the PRC should favor a bilateral FTA with the latter, especially based on output impacts: the PRC gains a 0.3% increase in output under CKFTA but will realize almost no output growth under CJFTA. ASEAN, Japan, and the Republic of Korea are also expected to benefit from bilateral FTAs with the PRC, with the biggest gainer being the Republic of Korea due to the latter's strong trade position with the PRC. Nevertheless, the economic gains to ASEAN, Japan, and the Republic of Korea are higher in an ASEAN+3 FTA than from their respective bilateral FTAs with the PRC.

A dynamic model incorporates the impact of trade on growth through investment and thus shows higher gains compared to the static model. For example, the PRC's output and welfare gains under ASEAN+3 are nearly 1 percentage point higher in the dynamic model than in the static model. Estimates of the PRC's welfare and output gains in the dynamic model indicate that ASEAN is a more suitable partner than Japan or the Republic of Korea, similar to the results of the static model. Existing trade patterns between the PRC and the three economies appear to support the findings. The PRC's net exports with ASEAN are much higher than its net exports with either Japan or the Republic of Korea, which may explain why the PRC's output gains are higher under ACFTA. While the value of the PRC's imports from Japan may be higher than imports from ASEAN, tariff levels in most ASEAN countries are still more elevated than in Japan. Therefore, welfare gains are more substantial under ACFTA. As discussed in Section 2, there is also deeper complementarity between the PRC and ASEAN's exports and imports, than in the case of either Japan or the Republic of Korea. The findings of our CGE analysis are therefore somewhat similar to the results of our qualitative analysis.

Among the three potential bilateral partners of the PRC, the Republic of Korea gains the most in terms of output growth and welfare changes, which is similar to the findings of the static model. The Republic of Korea's output increases by nearly 4% under CKFTA, compared with 1.3% for ASEAN under ACFTA and about 1% for Japan under CJFTA. This can be explained by the Republic of Korea's pre-FTA trade pattern with the PRC as well as tariff levels, which are generally higher than those of either Japan or ASEAN.

When dynamic impacts are considered, ASEAN+3 delivers the biggest output and welfare gains for the PRC among the possible FTAs considered in this study. ASEAN, Japan, and the Republic of Korea would also achieve higher output and welfare gains from an ASEAN+3 FTA than from their respective bilateral FTAs with the PRC. The three would also benefit more than the PRC in terms of GDP growth under an ASEAN+3 FTA, given the huge potential for expanding exports to the PRC as well expected increased investment from the PRC. This study suggests that there are strong incentives for East Asian economies to establish FTAs that include the PRC, particularly broader or region-wide FTAs. In the same way, the PRC stands to benefit in terms of output and welfare changes from establishing bilateral FTAs with each of the three East Asian economies, especially if dynamic effects are considered. Still, the scope of the PRC's benefits would be greater under a region-wide FTA. As there has been little progress toward a global free trade agreement under the Doha Round, a regional FTA such as ASEAN+3 could provide a faster and more viable route toward deeper integration.

Table 11: Output and Welfare Effects of FTAs—CJFTA, CKFTA, ACFTA, and ASEAN+3

	Static CGE Model			Capital Accumulation CGE Model		
	GDP (%)	Welfare (%)	Welfare ($ million)	GDP (%)	Welfare (%)	Welfare ($ million)
PRC–Japan						
ASEAN	–0.37	–0.17	–1,170	–0.50	–0.32	–2,174
PRC	0.03	–0.03	–379	0.37	0.32	4,895
Japan	0.98	0.16	6,408	0.97	0.24	9,711
Republic of Korea	–0.16	–0.16	–936	–0.64	–0.31	–1,865
PRC–Republic of Korea						
ASEAN	–0.23	–0.11	–735	–0.26	–0.14	–974
PRC	0.32	0.00	–11	0.47	0.14	2,158
Japan	–0.11	–0.01	–407	–0.11	–0.02	–728
Republic of Korea	2.70	0.95	5,642	3.82	2.13	12,678
ASEAN–PRC						
ASEAN	0.65	0.31	2,104	1.34	1.09	7,444
PRC	0.57	0.13	1,942	0.90	0.46	6,981
Japan	–0.15	–0.03	–1,092	–0.16	–0.05	–1,807
Republic of Korea	–0.29	–0.12	–688	–0.37	–0.20	–1,200
ASEAN+3 FTA						
ASEAN	0.15	0.44	3,010	1.83	2.36	16,179
PRC	0.53	0.04	674	1.30	0.81	12,260
Japan	1.51	0.25	9,850	1.54	0.40	15,844
Republic of Korea	2.76	0.91	5,442	4.31	2.54	15,157

ACFTA = ASEAN–PRC Free Trade Agreement, ASEAN = Association of Southeast Asian Nations, CJFTA = PRC–Japan Free Trade Agreement, CKFTA = PRC–Republic of Korea Free Trade Agreement, CGE = computable general equilibrium, GDP = gross domestic product, PRC = People's Republic of China.
Note: % refers to percentage deviation from the baseline and millions of dollars refers to the value of deviation from the baseline. Estimated GDP and welfare effects of the FTAs on NAFTA, EU, and rest of the world are available from authors upon request.
Source: Authors' estimates.

4. Concluding Observations

The PRC's rise as a key player in the global economy has been reinforced by the recent global financial crisis. There is some evidence that during the recent crisis, the PRC supported the growth of East Asian economies through trade, which counterbalanced feeble export demand from major industrial economies. Until now the PRC's role in intra-Asian trade has largely been that of an assembler of parts and components from East and Southeast Asia for the production of final goods for export to the US and other industrial economies. Recent trade patterns, however, signal the PRC's rising role as a consumer of final goods. Such a shift will be beneficial for the region as it implies that the PRC can be a source of growth for its neighbors through trade, therefore lessening their dependence on industrial markets for exports. Given its huge economic size and remarkable growth, the PRC is in a strong position to be an engine of growth for the region.

From the point of view of the PRC, strengthening trade links with its East Asian neighbors through FTAs offers the opportunity to enhance its economic and political position in the region. It will strengthen the PRC's role as a regional center of production networks by expanding access to the region's primary inputs, raw materials, and capital goods. More generally, East Asia offers a huge market for the PRC's exports and an equally huge source of imports. More substantive intraregional trade, based on trade in final goods along the lines of intra-EU trade, can benefit both the PRC and its neighbors by creating a large, dynamic, and self-sustaining common market. The PRC as well as ASEAN, Japan, and the Republic of Korea can leverage this common market to reduce their heavy dependence on exports to the US and EU. This would also contribute to resolving the problem of global current account imbalances. Strengthening intra-Asian trade, especially in final goods, is a win-win option for the PRC, its neighbors, and the world economy. Finally, it could also help defuse some of the geopolitical tensions that inevitably accompany the rapid rise of a huge new economic and geopolitical giant in East Asia.

The objective of this paper has been to qualitatively and quantitatively examine four possible FTAs involving the PRC and ASEAN, Japan, and the Republic of Korea: ACFTA, CJFTA, CKFTA, and ASEAN+3. According to the results of our qualitative and quantitative analysis, the PRC would benefit most from an ASEAN+3 FTA, which is the largest possible FTA within East Asia. This finding is consistent with past CGE studies that have found that broader FTAs generate higher welfare and output gains for member countries. Among the three bilateral FTAs, the PRC will gain more from ACFTA than from CJFTA or CKFTA. From the results of our qualitative analysis, the PRC should prioritize ACFTA since it has income levels closer to and a trade structure more complementary with ASEAN than with either Japan or the Republic of Korea. In addition, our analysis of pre-FTA trade structures indicates that the PRC's net trade position with ASEAN is more favorable than its position with either Japan or the Republic of Korea. Our CGE findings also show that the PRC would enjoy output and welfare gains from bilateral FTAs with ASEAN, Japan, and the Republic of Korea. However, among these three possible bilateral FTAs, an agreement with ASEAN is most beneficial for the PRC in terms of output and welfare impacts in both the static and dynamic models.

As the path to a region-wide FTA such as ASEAN+3 is expected to be gradual and complex, bilateral FTAs can be a medium-term alternative trade strategy for the PRC. In the long-term, however, the PRC should pursue a region-wide FTA since the output and welfare gains from larger FTAs tend to be bigger. Ultimately, the creation of bilateral and region-wide FTAs can also help pave the way toward global trade liberalization.

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The PRC's Free Trade Agreements with ASEAN, Japan, and the Republic of Korea
A Comparative Analysis

The People's Republic of China (PRC) stands to reap sizable gains from entering into free trade agreements (FTAs) with its neighbors. The authors qualitatively and quantitatively analyze the four main permutations of the PRC's FTAs with the region's major economies: PRC–ASEAN, PRC–Japan, PRC–Republic of Korea, and ASEAN+3. Their comparative analysis reveals that the PRC would gain from all three bilateral FTAs, while gaining the most from a larger region-wide FTA such as ASEAN+3.

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