

Options and Implications of Free Trade Arrangements in East Asia

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Abstract

This paper evaluates the impact of alternative free trade area proposals in Asia after China enters the WTO by means of a recursive dynamic, 18-region, 26-sector computable general equilibrium (CGE) model simulated from 1997 to 2015, based on version 5 GTAP data. With China and Taiwan's WTO accession set as the baseline scenario, we simulated the economic implications of four different FTA proposals: (1) ASEAN plus China/Hong Kong, (2) ASEAN plus Japan, (3) ASEAN plus China/Hong Kong, Japan, and Korea, and (4) ASEAN plus China/Hong Kong, Japan, Korea, and USA.

We found that under the ASEAN plus China version, the most significant winner is Singapore, whose GDP growth will be enhanced by 3.9 percentage points over the ten year period (cumulatively) from 2003-2012, followed by Thailand, Indonesia, and China. The ASEAN plus Japan (without China), as expected, benefits Japan at the expense of China. Under the version of ASEAN plus Three (China/Hong Kong, Japan, and Korea), all countries will gain more than in the FTA proposals with limited memberships. This can be explained by the fact that the inclusion of all three North Asian Countries (China/Hong Kong, Japan and Korea) in the FTA offers a substantially larger market for its members, compared with those of ASEAN countries.

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I. Introduction

The formation of regional free trade arrangements (FTAs) has been a worldwide trend in the past decades. There are currently more than 130 such agreements in place (WTO, 2000). The proponents of FTAs have argued that the European Union, the North America Free Trade Agreement (NAFTA) and MERCOSUR have been particularly effective at promoting intra-regional trade. Nevertheless, there have been intense debates among trade economists as to the merits of these FTAs. In the words of Bhagwati: “Are they building blocks or are they stumbling blocks?”

Whether the merits of FTAs outweigh their demerits, the fact is that the FTAs have been enthusiastically embraced by countries not wanting to be left out – and by those who have become frustrated with the slow pace of multilateral trade negotiations. Nowhere is this enthusiasm for FTAs more evident than in Asia in recent years. For example, Japan – long a staunch proponent of multilateral – has performed an “about-face” on this issue, signed a “new-age” free trade agreement with Singapore and is negotiating on FTAs with Korea and many other trading partners.

One of the factors influencing the Japanese position on FTAs is the emergence of China onto the world trading stage. China’s accession to the WTO opens the way for further regional agreements. The most significant development in this regard, is the decision announced at the ASEAN-China summit in November 2001, to start negotiations on the formation of a free trade area between China and the ten-member Association of South-East Asian Nations (ASEAN). This decision sparked fears of being excluded on the part of others in the region. Subsequently, Japan has offered to strike a trade agreement with ASEAN by sending its Prime Minister to the region in January 2002. Korea is pursuing agreements with Japan and ASEAN as well. Another significant proposal on the table involves formation of a Northeast Asia Free Trade Area, which would involved adding China to the proposed Japan-Korea FTA.

Such a competition will likely increase the odds of the formation of an East Asia economic bloc in the coming decade. In South Asia, Sri Lanka and India signed a bilateral free trade agreement in the end of 1998 and started its implementation in March 2000. Under the umbrella of the South Asian Association for Regional Corporation (SAARC), a South Asia Free Trade Agreement has now reached the final stage of negotiation. In light of these developments, a number of important questions arise. What are the underlying economic forces that drive the re-emergence of Asian regionalism? How much of this momentum is driven by real economic gains – and how much is merely due to political posturing? What role will China’s WTO accession play in further economic integration in the region? What opportunities and challenges will such regional trading arrangements bring to economies in Asia and other countries around the world? Who will gain? Who will lose? What are the geographical and sectoral distributions of those gains and losses?

To answer those questions and better understand the future patterns of Asia trade into the next century, we use a 18-region, 26-sector recursive dynamic Computable General Equilibrium (CGE) model with import embodied technology transfer to estimate the differences in world trade and economic growth under alternative FTA proposals. Our objective is to identify the major economic forces driving the new wave of FTA

initiatives in Asia and provide a systematic quantitative assessment of the impact of those alternative FTA proposals on world trade patterns and economic growth.

The rest of the paper is organized as follows: the next section outlines the basic structure of the model used. Section 3 describes major assumptions about calibrating the baseline and in designing simulation scenarios. Major simulation results are presented and discussed in Section 4. Section 5 concludes the paper with major policy implications and model limitations.

II. Structure of the Model

The model used in this paper is an extension of the CGE models used in the China WTO accession study by Wang (1997, 1999) with import embodied technology transfer and trade policy induced Total Factor Productivity (TFP) growth. It is part of a family of models used widely to analyze the impact of global trade liberalization and structural adjustment programs. It focuses on the real side of the world economy and incorporates considerable detail on sectoral output and real trade flows, both bilateral and global. However, this structural detail is obtained at the cost of not explicitly modeling financial markets, interest rates, and inflation. While not designed to generate short-term macroeconomic forecasts, the model could be linked to a macro economic model including asset flows and generating macro scenarios. Given a macro scenario, however, this model could then be used to determine the resulting real trade flows and sectoral structural adjustments for each region in a recursive dynamic framework. Under assumptions on a likely path of future world economic growth, it generates the pattern of production and trade resulting from world economic adjustment to the shocks specified in the alternative macro scenarios.

In this study, 18 fully endogenized regions and 26 production sectors in each region are specified to represent the world economy. The 18 regions include: (1) China, (2) Hong Kong, (3) Taiwan, (4) Singapore, (5) Korea, (6) Malaysia, (7) Thailand, (8) the Philippines, (9) Indonesia, (10) Viet Nam, (11) India, (12) Japan, (13) the United States, (14) European Union (15) Rest of OECD, (16) Former FSU bloc, (17) Latin America, (18) Rest of the World.

The 26 sectors include three food and agricultural sectors: (1) land-intensive crops, (2) other primary agricultural products, (3) processed agricultural products; three natural resource based sectors: (4) forest and fishery, (5) oil and gas, and (6) other mining; 14 manufacturing sectors: (7) textiles, (8) wearing apparel, (9) leather, shoes and sporting goods, (10) other light manufactures, (11) wood and paper products, (12) petroleum and coal products, (13) chemical, rubber, and plastic products, (14) other mineral products, (15) metals, (16) metal products, (17) motor vehicles and parts, (18) other transport equipment, (19) electronic equipment, (20) machinery and equipment; and six service sectors: (21) trade and transportation (a portion of which is allocated to international shipping), (22) telecommunication, (23) financial services, banking, and insurance, (24) other traded services, (25) utilities, and (26) housing and construction. (The correspondence between sectors in the model, GTAP and ISIC is listed in Appendix A).

There are six primary factors of production: agricultural land, natural resources, capital, agricultural labor, unskilled labor, and skilled labor. Skilled and unskilled labor have basic education in common, with skilled-labor having more advanced training. Agricultural labor has little or no education and works only in the farm sector. Natural resources are sector specific, while other primary factors are assumed to be mobile across sectors, but immobile across regions. Land and agricultural labor are only employed in agricultural sectors. The intra-period equilibrium structure and inter-period linkages are similar with what is described in Wang (1999).¹

Three types of gains from trade liberalization are captured by the model:

- (1) The gains from more efficient utilization of resources, which lead to a one-time permanent increase in GDP and social welfare.
- (2) More rapid physical capital accumulation from a "medium-run growth bonus" which compounds the efficiency gain from trade liberalization and leads to higher saving and investment.
- (3) The model incorporates a capital and intermediate goods imports embodied technology transfer among regions, which links sector specific TFP growth with each region's imports of capital and technology intensive products. The technology transfer is assumed to flow in one direction -- from more developed regions to less developed regions. Empirical evidences suggest that there is strong positive feedback between trade expansion and productivity growth. Trade liberalization increases the prevalence of technology transfer as trade barriers are reduced. Firms in the liberalized regions will import more capital and technology intensive goods as both investment and intermediate inputs from abroad are available at cheaper prices. Those goods are usually embodied with advanced technology from other countries, thus stimulating productivity growth for all production factors.

Accumulation patterns for capital stock in the model depend upon depreciation and gross real investment rates, the latter set exogenously based on forecasts from the Oxford world macroeconomic model (Oxford Economic Forecasting, 1999). However, household savings, government surplus (deficit), and foreign capital inflows (foreign savings) are assumed to be perfect substitutes and collectively constitute the source of gross investment in each region. It means that changes in the trade balance, which directly affect foreign savings, are assumed to have only a partial effect on aggregate real investment in the region. Instead, they lead to an equilibrium adjustment in the domestic savings rate, which partially offsets the change in foreign savings.

Government surplus (deficit) is the difference between government tax revenues and its expenditures, the latter fixed as a percentage of each region's real GDP based on forecasts from the Oxford model. Foreign capital inflows or outflows are determined by the accumulation of the balance of trade, which is also fixed as a percentage of GDP in each region based on the Oxford model's projections except for the United States.

¹ A detailed algebraic specification of the model is available from the authors upon request.

There are an economy-wide and a set of sector specific TFP growth variables for each region in the model. The economy-wide TFP variable is solved endogenously in the baseline calibration to match a pre-specified path of real GDP growth in each region based on forecasts from the Oxford model. Then the economy-wide TFP variable is fixed when alternative scenarios are simulated, in such a case, the growth rate of real GDP and the sector-specific TFP variables that link productivity growth and imports are solved endogenously.

Similar to Hertel et al. (1995), the MFA quota rents are assumed to be captured by exporting countries as export taxes. These export tax rates are adjusted endogenously to equate with quotas. Such a treatment assumes that all quotas are binding constraints at the equilibrium. Consistent with this modeling practice, we divide developing countries subject to MFA quota restrictions into quota binding and non-binding regions² based on historical trade statistics (Linkins, 1999). Quantity constraints only apply to those regions with binding quotas. The tariff rate quota of major agricultural commodities are modeled as mixed complementarity problems (MCP), allowing a lower tariff within quota limits and a higher tariff for imports above quotas.

The model was calibrated around a world Social Accounting Matrix (SAM) estimated for 1997 based on version 5 of the Global Trade Analysis Project (GTAP) database (Dimaranan and McDougall, 2001). Details of this type of multi-regional SAM and its construction from the GTAP database are described in Wang (1994). The model is implemented in GAMS and solved in levels. The relative size of model regions and their net trade flows in the base year are listed in Table 1 and Table 2, respectively.

III. Simulation Design

Because both China and Taiwan just became members of the WTO and their market accession commitments to WTO entry will be phased in over a transition period, a baseline from 1998–2012 is established first as Scenario I under a set of assumptions. It generates a reference growth path of the world economy with the implementation of the Uruguay Round trade liberalization and China's and Taiwan's WTO commitments³. This calibrated 'benchmark' will serve as a basis of comparison for counterfactual simulation conducted in other scenarios.

2 There are eleven developing regions in the model, nine of them are subject to binding MFA quotas. They are Korea, Singapore, Taiwan, Hong Kong, China, ASEAN, South Asia, Latin America MFA restricted countries, Mid-east and Africa MFA restricted countries. While low income Africa countries and the rest of the world are modelled as MFA quota non-binding countries.

3 Both China's and Taiwan's market accession commitments for WTO membership include a complex package of trade and investment liberalization measures. In our baseline calibration, however, only the following five aspects are included: (1) tariff reduction in both agricultural and manufacturing products (China and Taiwan); (2) elimination of non-tariff barriers in manufacturing sectors (China and Taiwan); (3) reduction of non-tariff barriers in agricultural commodities and liberalization of import quotas on major agricultural products (China and Taiwan); (4) opening of major service sectors in China and further liberalization of traded service in Taiwan (via reduction of non-tariff barriers); and (5) the phase out of MFA quotas on textiles and clothing.

Table 4 summarizes the major macroeconomic assumptions and results from the baseline calibration. It uses the economy-wide TFP variable in each region as a residual and adjustment mechanism to match the pre-specified real GDP growth rate under assumptions on the three major macroeconomic variables (gross investment, government spending, and balance of trade) in the model. It incorporates the impact of the recent Asian financial crisis by imposing actual negative GDP growth during 1998–99 and current account surplus of the affected regions. All the three macro-variables from 2002–2012 are specified as percentages of GDP and are based on forecasts by the Oxford model. China’s imports of land intensive crops are subject to tariff rate quota (TRQ) controls. The extent of China’s tariff reduction is aggregated from the Harmonized Commodity Description and Coding System (HS) tariff schedules at the 6-digit level based on China’s final official offer (November, 2001) and weighted by 2000 import data from the World Bank. Taiwan’s tariff reduction is based on Taiwan’s official WTO offer downloaded from the WTO website. It is also aggregated from the 6-digit HS tariff schedules and weighted by Taiwan’s import data during 1998–2000 from the World Bank. The import quotas for land intensive crops under TRQ control are assumed to grow at a 5 percent annual rate, and the above quota tariff rates are reduced according to China and Taiwan’s final official offers. All non-tariff barriers of manufacturing products in both China and Taiwan are reduced by 20 per cent each year from 2002 and set to zero in 2006, while non-tariff barriers of agricultural commodities are reduced 10 per cent a year and eliminated to zero in 2011. A 50 per cent cut in protection on the traded service sector is also implemented to represent the opening of major service sectors in China’s WTO offer and further liberalization of traded services in Taiwan’s offer. The base year service sector protection rates in China and Taiwan were adopted from Hertel, Walmsley and Itakura (2001). Both China’s and Taiwan’s tariff rates for all sectors each year in the simulation period and China and Taiwan’s initial and final NTB rates are listed in Appendix B and C respectively. Because China and Taiwan both are WTO members under the baseline, their exports of textiles and apparel are subject to the same treatment as other developing countries.

It is well known that China’s tariff collection is significantly below its nominal tariff level because of a large volume of processed trade and extensive import duty exemptions. By 1998, about 49 per cent of all imports in China were inputs used in production of exports and exempted from tariff collections. This implies that the Chinese economy is more open than it seems and the existing import restriction by tariff measures has been largely lifted prior to China’s WTO accession. Several studies have shown that failing to account for the presence of duty exemptions in China’s trade regime leads to a serious overestimate of the impact of China’s WTO entry at both aggregate and sectoral levels (Ianchovichina, Martin and Fukase, 2000; Lejour, 2000). By using China’s 1998 Custom Statistics, we incorporated China’s processing trade and duty exemption pattern by sectors and by import sources into the baseline calibration, which scales down the tariff level by routine-specific information. The tariff rates in the lower panel of Appendix B are the tariff levels that take duty exemption into consideration, which are substantially lower than the normal tariff (listed in the up panel of Appendix B) and is much closer to China’s actual tariff collect rate at the aggregate level (about 4 percent in 2000).

In Scenario II (ASEAN plus China), the impact of creating a free trade area between ASEAN and China/Hong Kong, after China's and Taiwan's WTO entry is simulated.⁴ All barriers to imports among China, Hong Kong and ASEAN countries are assumed to be reduced to zero within ten years starting from 2003, with each of them retaining their current level of protection with other regions. The exceptions are China and Taiwan, which will follow their WTO commitments for reduction of tariff and non-tariff barriers against non FTA members. The actual import protection levels (tariffs plus NTBs) at the beginning of the Free Trade Area are listed in Table 3A. The protection levels of these countries in 2012 are summarized in Table 3B. Note these the figures in Table 3B reflect the protection level for each region after the assumed reduction in trade barriers among member countries under the FTA (ASEAN plus China) is taken into account.

In Scenarios III and IV, the FTA proposals of ASEAN plus Japan and ASEAN plus Three (China/Hong Kong, Japan and Korea) are simulated respectively, while an additional simulation including the United States in the East Asia FTA is conducted in Scenario V as reference. For each of these scenarios, we assume that members of the FTAs reduce their tariffs and non-tariff barriers to zero within ten years (2003-2012), while maintaining their current level of protections against imports from other regions (non-member countries). The exceptions are China and Taiwan, which will follow their WTO commitments for reduction of tariff and non-tariff barriers against non FTA members.

For each of the five scenarios, the CGE model generates results on the impact of FTAs' effects on social welfare, terms of trade, volume of trade, output, consumption, real wages, and changes in prices and resource allocation. The differences in results generated by the four FTA scenarios (II-V) and the baseline scenario provide estimates of the impact of each alternative FTA option after China and Taiwan enter the WTO. However, these estimates should be regarded as outcomes from conditional projections rather than as forecasts. In reality, actual trade and output patterns are affected by many more factors than just trade liberalization, such as domestic macroeconomic and income policy changes.

IV. Simulation Results

This section presents the main results from simulations of the four FTA scenarios and compare with the baseline scenario. We will focus on the distributional implications of these FTA proposals, namely, identifying the winners and losers and quantify their gains and losses.

1) ASEAN plus China

⁴ We assume that Hong Kong will enjoy the same privilege as China in the proposed ASEAN plus China FTA, as we believe that China will insist on helping Hong Kong maintain its competitiveness in trade intermediation in the region. We have assumed that Taiwan will not be included in the ASEAN plus China FTA, as senior Chinese trade officials have indicated that Taiwan is even unlikely to be included in a FTA discussion between China and Hong Kong.

Macroeconomic implications

From Table 5 one can see that a FTA covering ASEAN and China/Hong Kong would benefit all member countries in terms of GDP growth, but will result in a slight loss of GDP growth in non-member countries. ***The most significant winner is Singapore, whose GDP growth will be enhanced by 4.0 percentage points over the ten year period (cumulatively) from 2003-2012, followed by Hong Kong, Thailand, Indonesia, and China,*** whose GDP growth will rise by 1.0, 1.0, 0.7 and 0.4 percentage points, respectively. Malaysia, the Philippines, and Vietnam will also benefit, but the magnitude of their benefits is less significant⁵.

The benefits for the FTA members come from two sources. (1) Increased trade among members allows them to realize their comparative advantages thereby increasing the efficiency of their resource allocation. In particular, ASEAN countries' average trade growth rate under the FTA scenario is about 5 percentage points higher than the baseline scenario. Most of these gains are results of their increased trade with China, as China reduces its protection rate against FTA members from 11.9% to zero percent in 10 years. ***(2) The dominance of trade creation effect***, that is, intra-regional trade grows at a much higher rate than the decrease of inter-regional trade between FTA members and non-FTA members. For example, the implementation of the FTA will increase China's exports to ASEAN by USD37.5bn (7.6% increase from the baseline level) and ASEAN exports to China by USD22.1bn (more than 10 % increase from the baseline) during the ten years. While total trade between FTA members and non-members would fall only by USD11.6bn, indicating the trade creation effect is much larger than the trade diversion effect such bring economic gains for members at the expense of non-members.

Looking at the changes in real purchasing power (or economic value), the world as a whole will benefit from the FTA. However, the distribution of the benefits is not even. ***ASEAN countries gain more than China/HongKong. Measured in 1997 US dollars, the total increase in real purchasing power by ASEAN countries over the next ten years amounts to USD47.2bn, about 57% of total welfare gain in the world. China will gain a smaller USD36.6, or 44% of total welfare gain in the world. Non-member countries will lose about USD10.5bn, equivalent to about 13% of total welfare gain in the world. Most of these losses are to be born by the US, Japan, and EU.***

Sectoral implications

At the sectoral level, the general trade pattern we have observed from Table 6a is that under the ASEAN plus China/Hong Kong FTA, China will increase its net imports of land and resource intensive products, at the same time raising its net exports of labor

⁵ Additional GDP growth is defined as the difference between the cumulative GDP growth rate for 2003-2012 under the FTA scenario and the cumulative GDP growth rate for 2003-2012 under the baseline (China's and Taiwan's WTO entry scenario).

intensive and capital intensive products. ASEAN countries will export more land-intensive products to China, mainly via Singapore, which has a strong agricultural processing capacity. As for labor intensive products, the ASEAN countries with the lowest income levels, i.e., Vietnam and Indonesia, will benefit the most due to increased exports to China. For capital intensive products, almost all FTA member countries will enhance their net exports to mainly the US and EU by using cheaper intermediate manufactured inputs they imported from China due the FTA agreement.

In terms of production, ***the sectoral impact on China is not very significant*** (at least compared with the impact of China's WTO entry on its industrial sectors). Most sectors will see a 0.1 to 0.5 percentage points increase in their 2012 production levels. The only three sectors that will see a slightly negative impact are wearing apparel, leather and shoes, and petroleum products. Apparently, these are the products which ASEAN countries will be able to export more to China. ***Singapore, for example, will increase its production of petroleum products and processed food products by 4.8% and 5.0%, respectively, in the next ten years due to the FTA. Vietnam, on the other hand, will be able to increase their production of wearing apparel by 19% due to the FTA.***

2) ASEAN plus Japan

In terms of GDP growth, the largest beneficiaries are again Singapore, Thailand, Vietnam, and Indonesia. Their gains over the next ten years are 3.9, 1.7, 0.7, and 0.4 percentage points, respectively. Other ASEAN countries (such as Malaysia and the Philippines) would experience a slight loss due possibly to adverse terms of trade effects. Japan, due to its large GDP size, will gain only 0.1 percentage points in GDP growth. However, in terms of changes in real purchasing power, Japan will gain a significant USD22.9bn (or 45% of total welfare gain in the world) over the next ten years, while ASEAN as a whole will gain an even larger USD44.3bn (or 88% of total welfare gain in the world). The rest of the world will suffer a loss of USD 17.4bn (equivalent to 34% of total welfare gain in the world). The main losers will be the US, EU, Korea, and China.

3) ASEAN plus Three (China, Japan, and Korea)

When all three major North Asian economies--China, Japan, and Korea – are included in the FTA with ASEAN, the overall benefits for members will rise further from the previous two scenarios. Almost all member countries of the FTA will gain in terms of GDP growth, with Singapore, Thailand, Vietnam, Indonesia, Korea and China benefiting the most. In particular, Singapore's GDP growth will be enhanced by 4.5 percentage points over the next ten years. Korea will turn from a loser in Scenarios I and II to a winner in this scenario, with GDP growth rising by 0.9 percentage points in ten years. In terms of changes in real purchasing power, the total benefits to FTA members will amount to USD181.7bn, while non-members will suffer a loss of USD24.8bn.

For member countries of the previous two FTA proposals (Scenario I and Scenario II), it is a Pareto improvement for them to welcome previously excluded East Asian countries in the regional trade agreement. For example, by including Japan in the

FTA, China's benefits in terms of change in real purchasing power will rise from USD21.9bn (Scenario I) to USD24.7bn. By including China in the FTA, Japan's benefits will rise from USD22.9bn (Scenario II) to USD39.0bn. These results should become important arguments for China, Japan, as well as Korea, to support the more inclusive ASEAN plus Three version of the FTA.

4) ASEAN plus China, Japan, Korea, and USA

While maybe less feasible than the previous three proposals due to geographical barriers, a FTA including ASEAN, China, Japan, Korea, and the US is also simulated here as a reference. We found that the overall benefits to member countries in this scenario are greater than in any of the previous three scenarios. This is true both in terms of GDP growth and in terms of changes in real purchasing power. In terms of changes in real purchasing power, the largest winners are Japan and China, which will gain USD83.0bn and USD73.9bn, respectively, about twice those in the ASEAN plus three FTA. The US will also become a beneficiary, gaining USD35.3bn. The reason for such results is obvious because of the close trade and economic ties between the United States and the East Asia countries and indicates the opportunity cost of isolating the United States from East Asia is high for both the US and economies in that region.

V. Conclusions

This paper evaluates the impact of alternative free trade area proposals in Asia after China enters the WTO by means of a recursive dynamic, 18-region, 26-sector computable general equilibrium (CGE) model simulated from 1997 to 2015, based on version 5 GTAP data. With China and Taiwan's WTO accession set as the baseline scenario, we simulated the economic implications of four difference FTA proposals: (1) ASEAN plus China/Hong Kong, (2) ASEAN plus Japan, (3) ASEAN plus China/Hong Kong, Japan, and Korea, and (4) ASEAN plus China/Hong Kong, Japan, Korea, and USA.

We found that under the ASEAN plus China version, the most significant winner is Singapore, whose GDP growth will be enhanced by 3.9 percentage points over the ten year period (cumulatively) from 2003-2012, followed by Thailand, Indonesia, and China. The ASEAN plus Japan (without China), as expected, benefits Japan at the expense of China. Under the version of ASEAN plus Three (China/Hong Kong, Japan, and Korea), all countries will gain more than in the FTA proposals with limited memberships. This can be explained by the fact that the inclusion of all three North Asian Countries (China/Hong Kong, Japan and Korea) in the FTA offers a substantially larger market for its members, compared with those of ASEAN countries.

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Table 2 Net trade patterns in Asia and the World, 1997 billions of U.S. dollars

	China	Hong Kong	Taiwan	Korea	Singapore	Malaysia	Thailand	Philippine	Indonesia	India	Vietnam	Japan	United States	EU 15	Other OECD	FSU	Latin America	Rest of World
Land-intensive agriculture	-1.4	-0.2	-1.8	-2.6	-0.1	-0.8	-0.7	-0.7	-2.1	0.6	0.0	-7.0	20.1	-5.3	8.3	1.6	-1.3	-6.8
Other agriculture	2.1	-2.1	-0.8	-1.5	-0.8	0.0	0.4	0.1	1.2	1.1	0.8	-5.9	-3.1	-17.3	3.0	-2.5	17.2	8.2
Processed agriculture	0.4	-4.7	-1.7	-2.1	-1.7	2.8	5.3	-0.7	1.9	3.3	0.6	-26.8	3.2	17.3	13.2	-10.2	15.8	-15.9
Food & agricultural product total	1.1	-7.1	-4.3	-6.2	-2.6	2.0	5.0	-1.3	1.1	4.9	1.4	-39.7	20.3	-5.2	24.5	-11.1	31.7	-14.4
Forestry & fishery	-0.1	-0.8	-0.2	-0.5	0.0	0.8	0.2	0.0	0.3	-0.3	0.1	-5.1	1.1	-2.9	2.0	1.7	0.8	2.8
Oil and natural gas	-1.5	-0.2	-4.4	-16.2	-6.8	3.7	-4.1	-2.2	7.6	-3.9	1.2	-33.4	-61.8	-68.9	31.7	14.9	20.3	124.0
Other mineral products	-0.4	-0.3	-1.7	-3.4	-0.1	-0.2	-0.3	-0.3	2.7	0.3	0.1	-11.8	2.5	-14.1	12.7	1.1	6.8	6.3
Paper & wood products	-1.5	-1.4	0.4	-1.3	-0.6	3.5	0.3	-0.2	6.5	-0.5	0.1	-13.2	-12.2	8.2	19.2	1.5	-0.7	-8.1
Resource based product total	-3.6	-2.7	-5.9	-21.3	-7.4	7.8	-3.8	-2.6	17.1	-4.4	1.5	-63.5	-70.5	-77.7	65.6	19.2	27.2	125.1
Textile	4.0	-3.5	9.6	10.1	-1.2	0.4	1.4	-0.9	2.0	5.6	-1.0	-2.0	-9.1	-1.7	-3.7	-5.0	-2.0	-3.1
Wearing apparel	24.8	3.0	1.3	1.3	-0.6	1.1	2.6	2.0	3.4	4.2	1.0	-10.7	-29.4	-20.3	-5.0	2.2	4.4	14.6
Leather, shoes & sports goods	18.6	-0.7	1.6	1.4	-0.4	-0.1	1.6	0.2	2.8	1.2	1.3	-5.0	-17.7	-2.4	-2.7	-1.3	2.4	-0.8
Other light manufactures	20.2	-2.3	3.3	0.5	-0.7	0.4	1.7	0.2	0.5	2.0	0.0	-1.4	-25.5	1.2	-0.2	0.2	-1.7	1.7
Labor-intensive product total	67.7	-3.5	15.8	13.3	-3.0	1.9	7.3	1.5	8.6	13.0	1.4	-19.1	-81.7	-23.2	-11.5	-3.9	3.1	12.3
Chemical rubber plastic products	-11.4	-4.3	1.1	0.9	-1.6	0.5	-0.9	-2.9	-1.2	-1.8	-1.8	15.6	18.0	49.0	-1.1	-10.2	-25.6	-22.2
Petroleum products	-3.3	-1.6	-0.9	0.7	2.5	-0.6	0.4	-0.1	-1.1	-2.8	-1.2	-6.5	-1.5	-1.5	0.4	6.5	1.3	9.5
Metals	-7.6	-8.2	-2.7	-6.5	-3.5	-3.8	-3.8	-1.1	-2.2	-4.3	-0.5	5.5	-16.7	-0.6	19.0	23.8	11.0	2.2
Other mineral products	2.4	-1.5	-0.2	-1.5	-0.8	-0.4	0.3	-0.5	-0.3	0.0	-0.2	1.8	-0.9	11.2	-2.8	-0.4	-0.9	-5.2
Metal products	4.2	-0.6	4.7	1.2	-1.1	-0.4	-0.6	-0.6	-0.9	0.7	-0.3	3.4	-2.7	7.5	-2.7	-1.4	-4.0	-6.3
Motor vehicles and parts	-2.1	-3.8	-1.8	8.6	-1.5	-2.0	-2.1	-1.2	-2.3	-0.1	-0.4	64.0	-52.2	39.8	-7.4	-8.6	-4.6	-22.4
Other transport equipment	-1.1	-1.2	-0.2	3.4	-4.0	-2.8	-1.2	-1.9	-1.7	-0.4	-0.3	11.2	28.1	4.4	-5.6	-0.5	-11.5	-14.8
Electronic equipment	4.6	-14.3	22.6	20.2	15.1	16.8	6.8	2.9	0.3	-1.5	-0.5	66.5	-42.3	-40.3	-19.9	-8.6	-14.8	-13.7
Other machinery	-7.5	-9.0	0.9	-9.0	-8.7	-8.1	-6.1	-4.8	-9.7	-4.5	-1.9	91.1	12.7	98.1	-15.2	-23.1	-30.8	-64.2
Capital-intensive product total	-21.9	-44.5	23.5	18.0	-3.6	-0.8	-7.2	-10.4	-19.0	-14.7	-7.1	252.4	-57.3	167.7	-35.5	-22.5	-80.0	-137.2
Trade & transportation services	2.5	20.4	0.6	-5.0	3.6	1.5	4.6	0.0	1.2	-0.2	0.1	-18.6	6.4	-24.0	0.8	4.2	2.1	-0.1
Communication services	0.0	0.0	0.0	-0.1	0.0	0.0	0.1	0.0	0.2	0.0	0.0	-0.5	-3.0	0.5	0.3	0.9	1.3	0.5
Financial service	-1.1	0.0	-0.1	0.5	-0.1	0.0	-0.6	-0.1	-0.3	-0.3	0.0	-5.1	4.1	7.9	0.7	-0.6	-3.5	-1.5
Other traded services	-2.3	-0.4	-0.5	-1.1	8.3	-1.9	-0.7	2.8	-6.7	0.1	0.0	-12.0	44.2	11.6	-6.2	-6.2	-8.2	-20.8
Utility	0.2	-0.2	0.0	-0.1	-0.1	0.0	0.0	0.0	0.2	-0.1	0.0	-0.3	-1.6	-0.7	3.1	0.1	-0.6	0.3
Housing & construction	-1.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.6	0.0	0.0	0.0	-0.3	2.8	-0.9	0.0	-1.2	-0.2	1.8
Services total	-1.7	19.7	-0.1	-5.7	11.6	-0.3	3.1	2.2	-5.5	-0.5	0.0	-36.8	52.8	-5.7	-1.3	-2.8	-9.1	-19.8
Total	41.6	-38.1	28.9	-1.9	-5.1	10.5	4.4	-10.7	2.3	-1.7	-2.8	93.3	-136.4	56.0	41.8	-21.2	-27.1	-34.0

Table 3A Trade weighted average protection rate by region, 2002, percent of c.i.f. value

	China	Hong Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	United States	Taiwan	India	EU 15	Other OECD	FSU	Latin America	Rest of World
Land-intensive agriculture	23.7	0.0	0.0	2.2	11.3	13.5	1.4	2.2	54.0	81.3	0.3	1.3	1.4	1.0	1.5	13.0	11.9	16.0
Other agriculture	13.9	0.0	3.9	26.1	15.6	9.1	7.4	11.9	4.8	20.9	0.6	10.7	12.0	0.9	0.4	14.7	6.9	18.5
Processed agriculture	27.2	0.0	4.0	10.7	23.5	15.9	7.3	32.1	21.5	23.3	1.4	21.4	31.7	2.5	2.7	21.6	14.5	17.0
Food & agricultural average	24.1	0.0	3.9	13.1	19.3	14.5	4.4	27.0	23.8	45.4	1.1	13.5	18.4	1.9	2.0	19.7	12.5	17.0
Forestry& fishery	3.0	0.0	0.0	0.6	5.2	0.4	1.0	3.4	0.9	2.9	0.0	16.2	1.1	0.1	0.0	5.5	4.7	2.4
Oil and natural gas	0.1	0.0	0.0	2.4	0.0	0.2	2.0	na	0.0	4.5	0.2	6.0	23.3	0.0	0.0	0.6	5.6	2.4
Other mineral products	6.5	0.0	0.0	0.1	3.4	4.0	2.0	2.8	0.0	0.8	0.1	0.1	3.3	0.0	0.0	2.1	2.7	3.4
Paper & wood products	8.4	0.0	0.0	7.8	10.7	9.7	4.3	14.0	0.4	4.8	0.2	2.4	10.1	0.4	0.8	10.0	5.0	5.6
Resource based product average	5.3	0.0	0.0	5.1	2.3	2.7	2.9	13.0	0.2	3.9	0.2	4.1	17.6	0.2	0.5	3.4	5.0	4.0
Textile	16.1	0.0	0.0	13.7	22.5	12.6	13.7	26.5	1.3	6.5	2.3	6.4	26.9	0.9	3.4	11.9	7.6	7.8
Wearing apparel	20.6	0.0	0.0	13.5	20.4	17.1	16.4	19.2	7.3	4.6	7.0	12.4	19.0	5.0	6.9	21.5	7.8	7.9
Leather, shoes & sports goods	7.8	0.0	0.0	8.5	14.5	9.8	4.1	10.1	6.7	4.3	5.8	4.6	9.2	1.5	5.8	13.9	9.8	7.0
Other light manufactures	13.7	0.0	0.0	6.3	8.2	13.8	15.5	13.4	0.6	6.2	0.9	3.6	5.6	0.6	1.1	12.4	9.2	3.3
Labor-intensive product average	15.4	0.0	0.0	11.0	16.4	12.6	12.7	22.1	4.1	5.8	4.1	6.7	9.4	2.1	3.8	14.6	8.2	6.5
Chemical rubber plastic products	12.4	0.0	0.0	5.6	13.9	6.5	6.6	4.2	1.2	6.3	1.2	3.1	20.1	0.4	1.0	8.2	5.4	4.2
Petroleum products	6.9	0.0	0.0	5.5	5.7	2.6	2.0	15.5	0.3	5.4	0.4	6.9	1.4	0.8	0.1	4.9	4.4	9.6
Metals	9.2	0.0	0.0	3.8	8.2	6.1	5.1	2.2	0.6	3.1	1.1	2.5	16.4	0.4	0.6	8.0	6.0	4.9
Other mineral products	12.4	0.0	0.0	7.1	12.4	7.6	3.8	14.4	0.5	4.6	1.6	6.4	17.5	0.6	1.0	10.7	6.0	5.4
Metal products	9.3	0.0	0.0	10.3	18.4	9.7	9.0	10.2	0.5	6.1	1.2	7.1	26.7	0.6	1.7	10.8	6.5	6.0
Motor vehicles and parts	33.2	0.0	0.0	26.2	46.3	14.6	39.4	27.0	0.0	5.8	1.1	22.8	27.0	0.8	2.0	15.7	14.0	5.8
Other transport equipment	11.6	0.0	0.0	2.0	4.8	3.6	2.7	29.2	0.0	0.9	0.4	2.4	6.1	0.2	0.2	7.7	4.3	2.7
Electronic equipment	7.4	0.0	0.0	0.7	5.2	2.4	4.2	5.9	0.0	3.9	0.5	1.9	19.3	0.8	0.8	8.5	5.0	3.0
Other machinery	8.8	0.0	0.0	4.9	9.6	5.5	3.4	4.5	0.3	7.4	0.8	3.9	21.1	0.4	1.3	8.2	6.7	3.4
Capital-intensive product average	10.0	0.0	0.0	4.0	11.1	4.8	7.0	8.9	0.4	5.2	0.9	4.0	16.6	0.6	1.2	9.2	6.9	4.4
Trade & transportation services	14.0	0.0	0.0	5.2	5.2	5.2	6.9	0.0	20.6	8.1	9.0	5.1	13.5	9.4	7.2	20.1	6.2	20.0
Communication services	14.0	0.0	0.0	5.2	5.2	5.2	6.9	0.0	20.6	8.1	9.0	5.1	13.5	9.4	7.2	20.4	6.4	19.7
Financial service	14.0	0.0	0.0	5.2	5.2	5.2	6.9	0.0	20.6	8.1	9.0	5.1	13.5	9.4	7.2	19.9	6.3	19.7
Other traded services	14.0	0.0	0.0	5.2	5.2	5.2	6.9	0.0	20.6	8.5	9.0	5.1	13.5	9.4	7.2	20.1	6.6	19.8
Utility	29.6	0.0	0.0	17.8	17.8	17.8	9.6	0.0	29.9	28.8	9.9	20.5	61.7	18.5	24.5	54.1	26.3	29.3
Housing & construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services average	15.0	0.0	0.0	5.2	5.5	5.8	6.9	0.0	21.2	8.3	9.0	5.6	13.9	10.0	7.7	24.2	7.3	20.1
Average	11.9	0.0	0.2	5.7	11.8	6.8	8.0	12.6	8.9	8.7	2.5	5.2	18.0	2.3	2.6	12.9	8.3	10.2

Table 4 Major Assumption for Baseline Calibration in the Global Model

	China	Hong Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	United States	Taiwan	India	EU 15	Other OECD	FSU	Latin America	Rest of World	World Average
<i>Average annual growth rate, %, 2002-2012</i>																			
Real GDP	6.9	4.8	5.4	5.9	5.5	4.0	5.8	6.2	1.4	4.9	3.1	5.0	7.6	2.6	3.3	3.0	4.3	6.1	3.4
Labor Force	0.8	0.2	0.3	2.7	0.8	2.4	2.0	1.9	-0.2	1.1	0.8	0.8	2.0	-0.1	0.7	0.5	2.0	2.9	1.6
Skill Labor	7.9	3.7	3.8	9.1	4.9	5.8	5.8	5.5	3.4	5.6	3.4	5.5	5.2	3.4	3.6	2.4	5.2	6.4	5.1
TFP	3.5	0.9	3.6	1.8	3.6	1.5	2.0	2.0	0.3	2.3	1.0	1.8	3.4	1.2	1.5	1.4	1.4	2.0	1.4
Capital Stock	9.5	4.6	4.8	6.9	2.9	3.4	5.9	7.3	2.1	4.6	4.4	5.1	7.3	3.0	3.3	2.7	3.3	4.0	3.7
Gross Investment	8.1	6.1	4.8	7.1	5.7	4.7	6.9	6.8	1.6	4.4	4.3	4.6	8.2	3.3	3.5	5.8	4.4	6.5	4.3
Government Spending	8.0	2.4	4.0	4.6	3.3	4.2	6.5	6.5	1.3	2.0	2.4	3.6	6.2	1.6	3.3	2.9	4.7	6.8	2.9
Exports	8.2	2.0	5.7	6.5	6.7	4.4	5.8	6.3	2.2	6.1	4.8	5.3	11.9	2.6	2.6	2.5	3.8	2.1	3.8
Imports	6.9	4.2	5.3	6.1	5.0	4.1	5.6	5.4	2.3	4.7	2.9	4.9	6.0	2.6	3.4	3.0	4.1	7.3	3.8
HH. Consump	5.6	5.8	5.7	5.7	5.3	4.0	5.4	5.6	1.3	5.1	2.7	5.4	7.2	2.5	3.2	2.0	4.2	7.2	3.3
Total Absorp.	7.0	5.6	5.1	6.1	5.2	4.1	5.9	6.0	1.4	4.6	3.0	5.0	7.3	2.5	3.3	3.0	4.3	7.0	3.5
<i>Average annual agricultural labor force migration, 1000 persons, 2002-2012</i>																			
Rural labor migration	3181	0	0	38	83	163	485	100	-3	44	4	12	2397	26	3	155	505	4840	12035
<i>Labor composition, %, 2002</i>																			
Agricultural labor	69.4	0.6	0.2	20.3	58.7	39.4	52.8	69.5	4.5	10.8	2.2	9.2	59.8	4.9	3.9	15.6	21.9	53.2	46.0
Unskilled labor	20.1	77.3	68.9	62.3	34.4	51.8	42.7	27.7	74.9	75.9	60.5	73.9	29.0	62.5	59.0	62.4	65.1	39.5	40.3
Skilled labor	10.6	22.0	30.9	17.5	6.9	8.8	4.6	2.8	20.6	13.3	37.3	17.0	11.2	32.6	37.1	22.1	13.1	7.2	13.7
<i>Labor composition, %, 2012</i>																			
Agricultural labor	65.7	0.6	0.2	17.2	56.7	35.6	48.7	67.3	4.5	9.4	2.2	8.0	55.4	4.7	3.8	14.9	19.8	47.3	43.2
Unskilled labor	13.5	68.3	56.2	51.0	33.0	52.3	44.7	28.8	66.0	70.0	49.4	65.1	29.4	49.7	46.6	58.6	62.6	42.6	37.5
Skilled labor	20.8	31.1	43.6	31.8	10.2	12.2	6.6	3.9	29.5	20.7	48.4	26.9	15.2	45.6	49.6	26.6	17.7	10.2	19.3
<i>Gross investment as % of GDP</i>																			
2002	39.3	28.4	34.8	31.0	19.3	19.6	24.5	33.7	24.6	26.1	20.7	20.2	23.8	20.0	19.2	16.5	19.9	20.2	
2012	44.0	31.9	33.0	34.8	19.7	21.0	27.0	35.4	25.1	24.9	23.2	19.6	25.1	21.5	19.5	21.6	20.0	20.9	
<i>Government spending as % of GDP</i>																			
2002	13.9	8.7	11.5	12.0	9.9	7.8	7.4	9.8	17.1	8.6	14.2	12.6	13.8	19.3	17.6	18.9	12.6	16.2	
2012	15.5	6.9	10.1	10.7	8.1	8.0	7.9	10.1	16.9	6.5	13.3	11.0	12.1	17.6	17.7	18.8	13.1	17.2	
<i>Balance of trade as % of GDP</i>																			
2002	1.1	5.5	13.3	11.3	15.3	-5.2	3.7	-12.8	1.7	14.1	-4.8	5.8	0.5	2.7	3.1	5.2	-1.7	-6.1	
2012	-0.2	-1.0	14.6	9.9	18.2	-7.2	3.5	-11.4	2.5	16.6	-3.2	6.2	3.5	3.6	3.3	5.9	-1.8	-16.1	

Data in boldface are set exogenously. Most of them are forecasting from Oxford Macro Economic model.

Table 6a. Impact of ASEAN + China FTA: Changes in Net Trade in billion 1997 US dollar, 2003-2012

	China	Hong Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	United States	Taiwan	India	EU 15	Other OECD	FSU	Latin America	Rest of World
Land-intensive agriculture	-0.23	-0.01	-0.06	-0.27	-0.35	-0.01	-0.28	0.06	0.04	0.11	0.26	0.02	0.05	0.09	0.35	0.03	0.31	-0.12
Other agriculture	0.31	-0.07	0.17	-0.66	0.12	0.34	-0.12	0.05	0.06	0.02	-0.24	0.01	0.08	0.18	-0.15	-0.01	0.35	-0.44
Processed agriculture	-2.02	1.58	1.65	1.28	1.63	-0.91	0.24	0.13	0.32	-0.12	-0.55	-0.02	-0.28	-1.11	-0.73	-0.14	-0.05	-0.89
Food & agricultural total	-1.94	1.5	1.76	0.35	1.4	-0.58	-0.16	0.24	0.42	0.01	-0.53	0.01	-0.15	-0.84	-0.53	-0.12	0.61	-1.45
Forestry & fishery	-0.12	-0.03	-0.02	-0.08	-0.06	0.01	-0.01	0.02	0.03	0.02	0.04	0.01	0.04	0.06	0.04	0.02	0.02	-0.01
Oil and natural gas	0.29	-0.04	-3	-0.2	-0.12	-0.16	-0.1	0.07	0.11	0.39	0.37	0.05	0.09	0.11	0.38	0.37	0.31	1.09
Other mineral products	-0.21	-0.06	-0.07	-0.07	-0.04	-0.11	-0.05	0.15	0.04	0.03	0.06	0.02	0.03	0.08	0.09	0.02	0.15	-0.06
Paper & wood products	-0.51	0.08	0	-0.58	-0.4	-0.16	0.18	0.06	0.27	0.09	0.27	0.05	0.04	0.49	0	-0.01	0.28	-0.14
Resource based product total	-0.55	-0.05	-3.09	-0.93	-0.62	-0.42	0.02	0.3	0.45	0.53	0.74	0.13	0.2	0.74	0.51	0.4	0.76	0.88
Textile	3.8	1.02	0.46	0.07	-0.45	-0.47	0.51	-1.88	-0.11	-0.21	-1.33	-0.04	-0.04	-0.88	-1.1	0.1	0.9	-0.36
Wearing apparel	-0.22	-1.2	-0.12	0.32	0.95	1.38	0.89	2.53	-0.14	-0.06	-3.95	0	0.07	-1.36	-0.41	-0.02	0.21	1.12
Leather, shoes & sports goods	-1.18	-0.12	-0.05	0.25	-0.31	0.3	1.25	2.85	-0.05	-0.17	-0.37	-0.01	-0.13	-1.46	-0.14	-0.18	-0.11	-0.37
Other light manufactures	0.65	0.23	-0.2	-0.26	-0.42	-0.11	-0.33	-0.02	0.13	-0.12	0.15	0.04	0	0.33	0.05	0.01	0.17	-0.28
Labor-intensive product total	3.05	-0.07	0.09	0.38	-0.23	1.1	2.32	3.48	-0.17	-0.56	-5.5	-0.01	-0.1	-3.37	-1.6	-0.09	1.17	0.11
Chemical rubber plastic products	-0.12	0.52	1.79	-0.49	-0.94	-0.33	-0.05	-0.73	0.22	-0.03	0.14	0.17	0.02	0.25	-0.13	-0.1	0.48	-0.67
Petroleum products	-1.49	-0.05	2.64	-0.16	-0.09	-0.01	-0.23	-0.15	-0.04	-0.35	0.16	-0.03	0.03	0.11	0.03	-0.05	0.09	-0.41
Metals	0.24	-0.75	-1.73	-0.58	-0.66	-0.25	0.03	-0.01	0.92	0.96	0.27	0.36	0.16	0.7	0.18	-0.05	0.55	-0.34
Other mineral products	0.67	-0.04	-0.3	-0.22	0.09	-0.08	0.11	-0.32	0.02	-0.03	0.06	0.01	0.02	0.09	-0.03	-0.01	0.13	-0.16
Metal products	1	0.32	0.97	-0.51	-0.54	-0.14	-0.22	-0.11	-0.15	-0.19	-0.13	0	-0.06	-0.11	-0.05	-0.03	0.12	-0.18
Motor vehicles and parts	0.8	-0.32	0.08	0.02	-1.4	1.02	0.7	-0.17	0.51	0.78	-0.39	0.1	-0.03	-1.04	-0.5	-0.19	0.73	-0.7
Other transport equipment	-0.12	-0.1	-0.47	0.13	1.24	-0.09	0.31	-0.36	0.11	0.05	0.12	0.07	-0.01	-0.56	-0.06	-0.05	0.14	-0.37
Electronic equipment	0.94	-0.92	-0.83	9.4	3.07	2.38	0.1	0.06	-1.98	-1.12	-4.03	-0.6	-0.07	-4.32	-0.66	-0.23	-0.4	-0.78
Other machinery	2.82	1.22	3.54	-1.58	0.07	-0.57	-0.54	-0.24	-0.59	-0.3	-0.71	-0.05	-0.13	-1.99	-0.48	-0.28	0.86	-1.07
Capital-intensive product total	4.74	-0.12	5.69	6.01	0.84	1.93	0.21	-2.03	-0.98	-0.23	-4.51	0.03	-0.07	-6.87	-1.7	-0.99	2.7	-4.68
Trade & transportation services	-0.89	-3.3	-3.01	-0.88	-0.44	-0.06	-0.46	0.26	1.12	0.39	2.05	0.18	0.16	2.6	0.43	0.21	0.98	0.66
Communication services	-0.05	-0.04	-0.04	-0.01	-0.01	0	-0.02	0	0.04	0.03	0.06	0.01	0	0.02	0	-0.01	0.05	-0.05
Financial service	-0.12	-0.13	-0.63	-0.03	-0.08	-0.01	-0.05	0	0.17	0.06	0.22	0.03	0.02	0.39	0.04	0.02	0.17	-0.09
Other traded services	-0.41	-0.56	-4.97	-1.14	-0.05	1.48	-1.13	0.14	0.59	0.5	1.75	0.18	0.14	3.12	0.49	0.17	0.56	-0.87
Utility	0.01	-0.03	-0.05	0	-0.01	0	0	0	0	0	0.02	0	0	0.05	0.01	-0.01	0.04	-0.03
Housing & construction	-0.05	-0.01	-0.01	0	0	0	0	0.03	0.09	0	0.01	0.01	0	-0.02	0	-0.01	0.01	-0.06
Services total	-1.51	-4.07	-8.71	-2.06	-0.59	1.41	-1.66	0.43	2.01	0.98	4.11	0.41	0.32	6.16	0.97	0.37	1.81	-0.44
Total	3.8	-2.8	-4.3	3.7	0.8	3.4	0.7	2.4	1.8	0.7	-5.7	0.6	0.2	-4.2	-2.3	-0.4	7.1	-5.6

Table 6b Impact of ASEAN + Japan FTA: Changes in Net Trade in billion 1997 US dollar, 2003-2012

	China	Hong Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	United States	Taiwan	India	EU 15	Other OECD	FSU	Latin America	Rest of World
Land-intensive agriculture	0.01	0	-0.05	-0.03	-0.94	-0.06	-0.34	0.08	-0.03	0.11	0.3	0.02	0.11	0.19	0.24	0.09	0.25	0.06
Other agriculture	0.22	0.02	0.15	-0.4	-1.04	0.52	-0.09	-0.21	-0.25	0.09	0.01	0.01	0.13	0.39	0.23	0.05	0.37	-0.2
Processed agriculture	-0.41	-0.15	1.29	0.58	10.24	-0.42	0.73	0.7	-7.86	-0.62	-1.12	-0.06	-0.28	-0.39	-1.15	-0.15	0.07	-0.99
Food & agricultural total	-0.18	-0.13	1.39	0.15	8.26	0.04	0.3	0.57	-8.14	-0.42	-0.81	-0.03	-0.04	0.19	-0.68	-0.01	0.69	-1.13
Forestry & fishery	0.04	0	-0.02	-0.07	-0.15	0.01	0.02	-0.02	-0.02	0.03	0.03	0.01	0.04	0.06	0.03	0.01	0.02	-0.01
Oil and natural gas	0.14	0	-1.29	-0.17	-0.23	-0.12	-0.13	0	-0.33	0.15	0.27	0.04	0.08	0.06	0.3	0.29	0.23	0.71
Other mineral products	0.06	0	-0.05	-0.04	-0.04	-0.09	-0.05	0.08	-0.39	0.06	0.04	0.02	0.04	0.09	0.13	0.05	0.12	-0.06
Paper & wood products	0.2	0.08	-0.04	-0.45	-0.41	-0.17	-0.36	-0.07	0.17	0.12	0.16	0.06	0.05	0.46	0.08	0.04	0.23	-0.14
Resource based product total	0.44	0.08	-1.4	-0.73	-0.83	-0.37	-0.52	-0.01	-0.57	0.36	0.5	0.13	0.21	0.67	0.54	0.39	0.6	0.5
Textile	0.84	0.2	0.51	0.09	-0.08	-0.09	0.63	-1.83	1.73	0.33	-1.41	0.17	0.07	-0.74	-1.05	0.12	0.83	-0.33
Wearing apparel	1.04	0.06	0.04	0.54	1.48	0.67	1.02	3.44	-3	-0.04	-4.51	-0.02	0.09	-1.51	-0.44	-0.07	0.05	1.18
Leather, shoes & sports goods	-0.64	0.01	0.1	0.13	0.32	0.17	0.43	1.68	-0.78	0.04	-0.16	0	-0.02	-0.82	-0.07	-0.09	0.01	-0.3
Other light manufactures	0.22	0.03	-0.17	0	-0.07	0.04	-0.07	-0.03	-0.23	0.07	-0.04	0.05	0.16	0.24	0	0.01	0.09	-0.31
Labor-intensive product total	1.46	0.3	0.48	0.76	1.65	0.79	2.01	3.26	-2.28	0.4	-6.12	0.2	0.3	-2.83	-1.56	-0.03	0.98	0.24
Chemical rubber plastic products	0.22	0.18	0.85	-0.45	-2.44	-0.39	-0.64	-0.74	2.83	0.15	-0.06	0.16	0.06	0.61	-0.13	-0.03	0.49	-0.65
Petroleum products	-0.05	0	0.56	-0.11	-0.1	-0.03	-0.21	-0.23	-0.28	0.04	0.17	-0.02	0.04	0.18	0.03	0.08	0.08	-0.14
Metals	0.18	-0.01	-1.86	-0.17	-0.19	-0.26	-0.08	-0.05	3.07	0.22	0.06	0.11	0.05	0.11	-0.3	-0.56	0.32	-0.64
Other mineral products	0.05	0.02	-0.34	-0.07	0.03	-0.08	0.06	-0.2	0.19	0.08	0.07	0.03	0.04	0.2	-0.02	0.01	0.11	-0.18
Metal products	-0.2	-0.01	0.76	-0.24	-0.33	-0.01	-0.11	-0.1	1.29	-0.1	-0.33	-0.08	-0.04	-0.27	-0.08	-0.02	0.08	-0.22
Motor vehicles and parts	-0.17	0.03	-0.76	-2.33	-7.81	0.53	-0.23	-0.18	15.14	-1.93	1.26	-0.13	-0.82	-3.61	0.34	-0.1	1.38	-0.61
Other transport equipment	-0.08	0.01	-0.73	0.43	1	0.09	0.25	-0.32	0.09	0.38	-0.03	0.03	0.04	-1.03	-0.03	-0.02	0.29	-0.37
Electronic equipment	-0.59	-0.07	-0.79	10.81	2.15	2.77	-0.3	-0.1	-9.31	0.28	-2.42	0.39	0	-1.73	-0.38	-0.09	-0.08	-0.53
Other machinery	0.35	0.23	1.83	-0.73	0.84	-0.24	-0.42	-0.47	-0.41	0.29	-0.2	-0.11	-0.06	-0.66	-0.37	-0.07	0.98	-0.79
Capital-intensive product total	-0.29	0.38	-0.48	7.14	-6.85	2.38	-1.68	-2.39	12.61	-0.59	-1.48	0.38	-0.69	-6.2	-0.94	-0.8	3.65	-4.13
Trade & transportation services	0.4	1.35	-1	1.39	2.58	1.09	1.92	0.35	-10.53	0.5	0.25	0.12	0.16	1.83	0.08	0.03	0.56	-1.09
Communication services	0.01	0.01	0.01	0.02	0.09	0.01	0.06	0.01	-0.37	0.05	0.03	0.01	0	0.06	0	0	0.04	-0.04
Financial service	0.03	0.03	-0.13	0.03	0.01	0.03	0.01	0.01	-1	0.07	0.18	0.03	0.03	0.5	0.05	0.04	0.14	-0.06
Other traded services	0.1	0.12	-3.13	-0.06	0.38	0.15	-0.89	0.2	-3.87	0.65	1.46	0.17	0.22	3.63	0.57	0.25	0.48	-0.42
Utility	-0.01	0.01	-0.03	0	0	0.01	0.02	0	-0.05	0	0.01	0	0	0.04	0	-0.01	0.02	-0.02
Housing & construction	0.03	0.01	0	0	0	-0.1	0	0.04	-0.25	0	0.02	0.01	0	0.23	0	0.02	0.01	-0.03
Services total	0.56	1.53	-4.28	1.38	3.06	1.19	1.12	0.61	-16.07	1.27	1.95	0.34	0.41	6.29	0.7	0.33	1.25	-1.66
Total	1.97	2.15	-4.3	8.7	5.3	4.05	1.23	2.05	-14.48	1.02	-5.94	1.02	0.17	-1.88	-1.93	-0.12	7.17	-6.19

Table 6c. Impact of ASEAN + Three FTA: Changes in Net Trade in billion 1997 US dollar, 2003-2012

	China	Hong Kong	Singapore	Malaysia	Thailand	Philippines	Indonesia	Vietnam	Japan	Korea	United States	Taiwan	India	EU 15	Other OECD	FSU	Latin America	Rest of World
Land-intensive agriculture	3.1	0.0	-0.1	-0.2	-1.1	-0.2	-0.5	0.1	-0.9	-1.6	0.5	0.1	0.1	0.3	0.3	0.1	0.2	-0.2
Other agriculture	0.1	-0.1	0.1	-0.7	-0.8	1.2	-0.3	-0.1	-0.6	0.5	-0.2	0.1	0.3	0.6	0.3	0.1	0.3	-0.8
Processed agriculture	5.3	1.7	2.2	1.5	10.2	-1.0	0.7	0.0	-16.2	7.3	-2.8	-0.1	-0.6	-1.8	-2.4	-0.5	-0.9	-2.5
Food & agricultural total	8.6	1.6	2.2	0.7	8.3	0.0	-0.1	0.1	-17.7	6.2	-2.6	0.0	-0.3	-1.0	-1.8	-0.3	-0.4	-3.5
Forestry & fishery	-0.2	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0
Oil and natural gas	0.6	0.0	-2.9	-0.1	-0.3	-0.2	-0.1	0.0	-0.7	-2.4	1.0	0.1	0.2	0.3	0.9	0.9	0.5	2.1
Other mineral products	-0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	0.2	-0.7	-0.7	0.2	0.1	0.1	0.2	0.6	0.2	0.3	-0.1
Paper & wood products	-1.4	-0.1	-0.3	-0.4	-0.5	-0.3	0.1	-0.1	0.5	-0.5	0.9	0.3	0.1	1.4	0.2	0.1	0.3	-0.4
Resource based product total	-1.0	-0.2	-3.2	-0.6	-0.9	-0.6	0.0	0.1	-0.9	-3.6	2.2	0.5	0.5	2.1	1.8	1.2	1.2	1.6
Textile	0.1	0.3	0.3	0.1	-1.2	-1.0	-0.8	-5.5	3.4	8.0	-1.4	-0.4	-0.1	-0.8	-1.2	0.1	0.9	-0.9
Wearing apparel	9.5	-1.9	-0.2	0.5	2.4	2.3	3.2	8.9	-17.0	1.3	-3.5	-0.2	0.5	-5.0	-0.6	-0.2	0.2	-0.3
Leather, shoes & sports goods	-1.4	-0.1	-0.1	0.3	0.1	0.5	3.8	6.4	-3.6	2.6	-0.9	-0.1	-0.3	-5.1	-0.3	-0.4	-0.4	-0.9
Other light manufactures	-0.7	0.1	-0.3	-0.1	-0.1	-0.1	-0.4	-0.1	-0.4	-0.6	0.6	0.2	0.4	1.6	0.2	0.1	0.3	-0.7
Labor-intensive product total	7.5	-1.6	-0.3	0.7	1.2	1.7	5.9	9.7	-17.5	11.4	-5.2	-0.4	0.5	-9.4	-2.0	-0.4	1.0	-2.7
Chemical rubber plastic products	-2.8	0.2	0.7	-0.6	-2.8	-0.7	-1.1	-1.8	7.8	2.6	-0.4	0.0	0.0	0.8	-0.4	-0.3	0.5	-1.8
Petroleum products	-2.2	-0.1	2.2	-0.2	-0.2	0.0	-0.3	-0.5	-0.1	0.8	0.4	0.0	0.1	0.3	0.1	0.1	0.2	-0.4
Metals	-1.9	-0.8	-2.1	-0.5	-0.8	-0.4	-0.4	-0.2	7.5	2.8	0.3	0.2	0.0	0.3	-0.9	-1.4	0.1	-1.9
Other mineral products	0.0	-0.1	-0.4	-0.2	0.1	-0.2	-0.1	-0.4	1.0	-0.5	0.3	0.1	0.1	0.6	0.0	0.0	0.2	-0.4
Metal products	-0.3	0.2	0.4	-0.5	-0.6	-0.1	-0.5	-0.3	1.6	0.4	-0.1	0.1	0.0	0.0	-0.1	0.0	0.1	-0.3
Motor vehicles and parts	-6.6	-0.5	-0.9	-2.9	-8.1	0.1	-1.7	-0.5	17.8	1.9	3.8	0.0	-0.8	-2.6	0.6	-0.1	1.7	-1.1
Other transport equipment	-1.3	-0.2	-0.8	0.4	0.5	0.1	0.3	-0.4	-0.2	-0.9	1.5	0.3	0.2	0.0	0.2	0.0	0.8	-0.5
Electronic equipment	0.0	-1.8	-0.6	12.9	4.2	4.4	0.8	-0.2	-13.1	7.1	-5.5	0.3	-0.1	-5.0	-1.0	-0.3	-0.8	-1.6
Other machinery	0.6	0.0	1.0	-1.6	1.0	-0.9	-1.1	-0.7	12.4	-3.2	-1.5	0.0	-0.1	-3.3	-1.1	-0.4	1.1	-2.4
Capital-intensive product total	-14.4	-3.0	-0.5	6.9	-6.7	2.2	-4.0	-5.0	34.7	11.0	-1.1	1.0	-0.6	-8.7	-2.8	-2.5	3.8	-10.4
Trade & transportation services	2.4	-2.5	0.0	1.3	2.8	1.1	1.8	0.3	-15.9	-1.0	3.0	0.5	0.3	4.5	0.5	0.1	0.9	-0.2
Communication services	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	-0.7	-0.2	0.2	0.0	0.0	0.3	0.0	0.0	0.1	-0.1
Financial service	0.0	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	-1.8	0.2	0.5	0.1	0.1	0.9	0.1	0.1	0.2	-0.2
Other traded services	0.2	1.1	-3.3	-0.2	0.6	1.3	-1.3	0.2	-6.9	-2.0	3.4	0.5	0.3	6.2	0.8	0.3	0.7	-2.2
Utility	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.1
Housing & construction	0.0	0.2	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Services total	2.7	-1.0	-3.6	1.1	3.5	2.4	0.6	0.6	-25.4	-3.0	7.1	1.1	0.7	12.0	1.4	0.5	2.0	-3.0
Total	3.5	-4.3	-5.3	8.8	5.5	5.7	2.5	5.4	-26.8	21.9	0.5	2.2	0.8	-5.0	-3.4	-1.5	7.6	-17.9

Table 7a Impact of ASEAN + China FTA: Percentage Changes of Production in Final Year, 2012

	Hong									United				Other		Latin	Rest of	World	
	China	Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	States	Taiwan	India	EU 15	OECD	FSU	America	World	Average
Land-intensive agriculture	0.15	-0.47	-4.24	0.85	-0.06	-0.54	0.10	1.63	0.08	0.21	0.05	0.03	-0.02	0.02	0.15	0.00	0.02	-0.02	0.05
Other agriculture	0.10	-0.13	1.45	-0.32	0.77	0.31	0.05	0.51	0.03	-0.07	-0.03	-0.01	-0.02	0.00	-0.12	-0.02	-0.01	-0.02	0.01
Processed agriculture	0.00	4.16	5.02	1.83	1.19	-0.59	0.19	0.90	0.02	-0.09	-0.02	-0.04	-0.12	-0.03	-0.11	-0.03	-0.03	-0.02	0.02
Forestry & fishery	0.14	-0.10	-0.13	0.12	0.03	0.07	0.26	1.26	0.04	0.01	0.04	0.07	0.00	0.02	0.02	0.01	0.00	0.01	0.05
Oil and natural gas	0.02	0.56	0.67	0.15	0.10	0.78	0.09	0.85	0.11	0.07	0.07	0.01	0.02	0.07	0.08	0.03	0.05	0.07	0.06
Other mineral products	0.33	0.61	0.43	0.42	0.24	0.32	0.34	1.83	0.10	0.06	0.02	0.10	0.03	0.04	0.04	-0.02	0.04	-0.03	0.14
Paper & wood products	0.20	0.57	1.70	-0.08	-0.05	0.23	0.32	2.37	0.01	-0.04	0.01	0.00	-0.01	0.02	0.00	-0.01	0.00	0.00	0.03
Textile	0.45	0.07	5.07	2.64	0.35	2.75	2.49	9.97	-0.09	-0.17	-0.02	-0.32	-0.04	-0.07	-0.23	-0.06	0.00	-0.12	0.14
Wearing apparel	-0.27	-1.79	-0.55	2.97	1.73	7.38	2.19	19.55	-0.03	-0.07	-0.02	-0.19	-0.01	-0.16	-0.08	-0.10	0.00	-0.21	0.07
Leather, shoes & sports goods	-0.32	-0.72	3.36	33.38	-0.57	5.22	2.75	11.25	-0.07	-0.36	-0.17	-0.11	-0.43	-0.44	-0.38	-0.38	-0.17	-0.11	0.12
Other light manufactures	0.29	0.93	-0.30	0.82	-0.55	-0.11	-1.97	3.00	0.01	-0.23	0.05	0.06	-0.04	0.01	0.04	0.00	0.02	-0.07	0.06
Chemical rubber plastic products	0.33	1.59	4.26	1.31	0.25	1.13	1.06	4.39	0.00	-0.12	0.00	-0.03	-0.05	-0.01	-0.04	-0.05	-0.01	-0.05	0.08
Petroleum products	-0.15	4.92	4.75	0.56	0.28	1.07	0.33	0.27	-0.05	-0.24	-0.01	-0.13	-0.08	0.01	0.00	-0.03	0.00	-0.06	0.05
Metals	0.42	1.45	0.59	1.38	0.02	2.63	1.41	2.83	0.09	0.17	0.01	0.19	0.00	0.02	0.00	-0.03	0.01	-0.08	0.11
Other mineral products	0.28	0.25	0.42	-0.36	0.70	0.21	1.05	-2.46	-0.01	-0.11	0.01	-0.07	-0.02	0.00	-0.03	-0.02	0.00	-0.02	0.07
Metal products	0.40	2.10	5.71	-0.12	-0.30	-0.16	0.01	2.23	-0.04	-0.19	-0.02	-0.05	-0.14	-0.03	-0.05	-0.04	-0.01	-0.03	0.06
Motor vehicles and parts	0.59	-0.98	3.78	1.52	-0.10	47.10	7.64	0.90	0.02	0.11	-0.01	0.13	-0.06	-0.03	-0.07	-0.08	-0.03	-0.09	0.06
Other transport equipment	0.16	-1.02	1.29	1.86	8.61	0.93	6.88	-11.42	0.06	-0.02	0.01	0.10	-0.05	-0.11	-0.04	-0.06	0.00	-0.13	0.07
Electronic equipment	0.37	-0.39	0.48	2.93	3.22	3.57	0.75	3.39	-0.12	-0.27	-0.18	-0.16	-0.16	-0.19	-0.31	-0.14	-0.25	-0.20	0.19
Other machinery	0.41	1.51	2.87	2.69	2.90	4.11	2.56	2.70	-0.06	-0.17	-0.02	-0.12	-0.10	-0.05	-0.11	-0.07	-0.03	-0.09	0.12
Trade & transportation services	0.23	0.20	0.68	0.64	0.30	0.19	0.40	3.79	0.00	0.04	0.01	0.00	-0.03	0.03	0.02	0.03	0.01	0.02	0.04
Communication services	0.23	0.29	0.88	0.46	0.36	0.14	0.14	2.70	-0.01	-0.02	0.00	-0.02	-0.04	0.00	0.01	0.00	0.01	0.01	0.02
Financial service	0.23	0.25	0.67	0.63	0.36	-0.09	0.27	1.64	0.00	-0.05	0.00	-0.03	-0.03	0.01	0.01	0.01	0.01	0.01	0.01
Other traded services	0.19	0.22	-0.13	0.10	0.42	1.09	0.07	-0.04	-0.01	-0.04	0.00	-0.03	-0.04	0.00	0.02	0.01	0.01	0.00	0.01
Utility	0.31	0.24	1.70	1.18	0.78	1.28	0.76	1.81	0.00	-0.05	0.00	-0.05	-0.04	0.00	0.00	-0.02	0.00	-0.02	0.04
Housing & construction	0.18	0.44	1.73	0.10	0.41	-0.15	0.68	-0.38	-0.01	-0.05	0.00	-0.05	-0.04	0.00	0.01	0.01	0.00	0.01	0.03
Total	0.24	0.32	1.31	1.28	0.94	1.15	0.63	2.22	-0.01	-0.06	0.00	-0.04	-0.04	-0.01	-0.01	-0.01	-0.01	-0.01	0.05

Table 7b Impact of ASEAN + Japan FTA: Percentage Changes of Production in Final Year, 2012

	Hong										United				Other		Latin	Rest of	World
	China	Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	States	Taiwan	India	EU 15	OECD	FSU	America	World	Average
Land-intensive agriculture	-0.02	-0.32	-4.15	1.09	1.32	-0.38	0.08	3.55	-0.79	-0.04	0.04	0.02	-0.01	0.07	0.07	0.06	0.01	0.01	0.03
Other agriculture	0.00	0.22	1.60	-0.60	1.31	0.48	0.07	-0.98	-0.40	-0.02	-0.02	-0.01	-0.01	0.02	-0.02	-0.01	0.00	0.00	0.00
Processed agriculture	-0.04	-0.42	4.36	0.65	6.77	-0.37	0.30	3.34	-0.51	-0.20	-0.04	-0.07	-0.12	-0.01	-0.17	-0.03	-0.02	-0.02	0.01
Forestry & fishery	0.00	0.08	-0.15	0.08	0.24	0.02	0.12	1.44	-0.20	0.00	0.02	0.05	0.00	0.01	0.01	0.00	0.00	0.01	0.01
Oil and natural gas	0.03	-0.09	-0.03	0.17	0.13	0.67	-0.02	0.28	-0.10	0.10	0.05	0.01	0.02	0.05	0.06	0.03	0.03	0.06	0.05
Other mineral products	0.01	-0.01	-0.01	0.30	0.45	0.26	0.21	1.55	-0.07	0.02	0.01	0.04	0.02	0.02	0.03	-0.03	0.02	-0.03	0.02
Paper & wood products	0.04	-0.01	1.52	-0.10	0.12	-0.09	-0.18	1.50	0.06	-0.01	0.00	0.02	-0.01	0.01	0.00	0.00	0.00	0.01	0.02
Textile	-0.09	-0.16	6.49	2.73	1.30	1.65	2.23	10.12	0.95	0.02	-0.03	-0.22	-0.01	-0.06	-0.17	-0.06	-0.02	-0.10	0.06
Wearing apparel	-0.26	-0.14	1.49	4.71	2.61	3.59	2.14	26.24	-0.89	-0.12	-0.09	-0.26	0.01	-0.21	-0.15	-0.15	-0.04	-0.20	0.06
Leather, shoes & sports goods	-0.17	-0.13	7.05	21.79	1.68	3.47	0.89	6.93	-0.86	-0.08	-0.16	-0.05	-0.13	-0.34	-0.26	-0.24	-0.10	-0.09	0.11
Other light manufactures	0.05	-0.10	0.03	1.37	0.22	1.33	-0.37	2.24	-0.01	-0.03	-0.01	0.07	-0.01	0.00	-0.01	-0.02	-0.01	-0.06	0.02
Chemical rubber plastic products	0.01	0.00	3.09	0.61	-1.08	0.23	0.13	2.91	0.38	-0.09	0.00	0.01	-0.05	0.00	-0.03	-0.04	0.01	-0.03	0.05
Petroleum products	-0.03	0.36	2.00	0.51	0.65	0.76	0.19	-0.66	0.11	-0.06	-0.01	-0.11	-0.07	0.02	0.00	0.01	0.01	-0.01	0.05
Metals	0.03	-0.09	-0.98	0.66	-0.81	1.73	0.22	0.25	0.71	-0.08	0.01	-0.03	-0.04	-0.03	-0.08	-0.14	0.00	-0.12	0.05
Other mineral products	-0.01	0.05	0.25	-0.53	0.61	0.16	0.62	-0.91	0.12	-0.04	0.01	0.01	0.00	0.00	-0.03	-0.01	0.01	0.00	0.01
Metal products	-0.03	-0.17	4.68	0.07	0.30	0.41	0.00	-0.10	0.24	-0.16	-0.02	-0.10	-0.09	-0.04	-0.05	-0.03	0.01	-0.02	0.02
Motor vehicles and parts	-0.03	0.23	-3.69	-5.93	-11.93	17.99	-2.56	-14.95	1.83	-0.44	0.05	-0.22	-0.62	-0.10	0.10	-0.04	0.10	-0.03	0.09
Other transport equipment	-0.02	0.11	-0.79	2.60	7.22	2.77	5.59	-14.35	0.15	0.17	-0.02	0.02	-0.01	-0.24	-0.02	-0.04	0.15	-0.11	0.02
Electronic equipment	-0.03	-0.11	0.51	3.13	2.39	3.62	-0.04	1.62	-0.44	-0.02	-0.08	0.14	-0.04	-0.08	-0.16	-0.06	-0.12	-0.10	0.16
Other machinery	0.03	-0.03	2.09	2.96	3.12	4.49	2.37	0.46	0.03	-0.04	0.00	-0.12	-0.08	-0.03	-0.07	-0.03	0.02	-0.04	0.07
Trade & transportation services	0.00	0.04	1.16	1.04	1.24	0.50	0.58	3.70	0.02	0.03	0.00	-0.01	-0.04	0.02	0.01	0.02	0.01	0.02	0.04
Communication services	-0.02	0.02	1.38	0.56	1.49	0.09	0.29	3.05	0.02	-0.03	0.00	-0.03	-0.04	0.00	0.00	0.00	0.01	0.02	0.01
Financial service	-0.01	0.00	1.58	0.60	1.07	-0.03	0.20	2.20	0.02	-0.06	0.00	-0.03	-0.03	0.01	0.01	0.01	0.01	0.03	0.01
Other traded services	-0.02	0.01	0.39	0.17	0.81	0.53	0.02	0.39	0.02	-0.04	0.00	-0.03	-0.03	0.00	0.01	0.01	0.01	0.03	0.01
Utility	-0.02	-0.02	1.61	1.11	1.24	0.87	0.53	2.18	0.16	-0.10	0.00	-0.05	-0.05	-0.01	-0.01	-0.03	0.00	-0.01	0.04
Housing & construction	-0.02	-0.03	1.74	-0.49	0.54	-0.26	0.37	-0.26	-0.01	-0.07	0.00	-0.06	-0.04	0.00	0.00	0.00	0.01	0.03	0.00
Total	-0.01	0.00	1.17	1.06	1.17	0.89	0.39	2.20	0.08	-0.07	0.00	-0.02	-0.05	-0.01	-0.01	-0.01	0.01	0.01	0.03

Table 7c Impact of ASEAN + Three FTA: Percentage Changes of Production in Final Year, 2012

	Hong										United				Other		Latin	Rest of	World
	China	Kong	Singapore	Malaysia	Thailand	Philippine	Indonesia	Vietnam	Japan	Korea	States	Taiwan	India	EU 15	OECD	FSU	America	World	Average
Land-intensive agriculture	1.10	-0.69	-4.13	1.34	0.96	-1.18	0.14	2.51	-2.05	-1.67	0.07	0.06	-0.04	0.07	0.09	0.04	-0.02	-0.03	0.13
Other agriculture	0.10	0.01	1.69	-0.57	1.90	1.26	0.13	0.35	-0.61	0.97	-0.09	-0.08	-0.03	0.01	-0.10	-0.04	-0.03	-0.02	0.01
Processed agriculture	0.60	4.43	6.75	1.92	6.84	-0.81	0.36	1.02	-0.90	2.33	-0.11	-0.14	-0.25	-0.05	-0.35	-0.09	-0.07	-0.04	0.05
Forestry & fishery	0.23	0.15	-0.12	0.25	0.29	0.08	0.44	1.77	-0.26	0.53	0.06	0.15	-0.01	0.04	0.04	0.02	0.00	0.04	0.09
Oil and natural gas	0.14	0.59	0.67	0.39	0.25	1.23	0.25	0.61	0.03	0.13	0.15	0.05	0.06	0.16	0.19	0.08	0.09	0.15	0.14
Other mineral products	0.39	0.66	-0.09	0.31	0.63	0.84	0.49	2.69	0.22	0.18	0.05	0.14	0.09	0.09	0.17	-0.06	0.10	-0.07	0.18
Paper & wood products	0.22	0.35	1.37	0.21	0.34	0.30	0.47	3.55	0.10	0.51	0.01	0.15	-0.03	0.04	0.01	-0.02	-0.01	0.01	0.07
Textile	0.69	-0.71	3.79	2.89	0.38	3.86	3.73	29.68	0.20	4.03	-0.03	-0.43	-0.06	-0.22	-0.43	-0.16	0.00	-0.29	0.42
Wearing apparel	1.14	-2.39	-1.40	4.22	4.12	12.24	7.65	69.40	-5.48	1.92	0.00	-0.85	0.06	-0.85	-0.27	-0.22	-0.02	-0.57	0.26
Leather, shoes & sports goods	-0.51	-0.65	2.32	33.62	1.32	9.48	8.25	25.08	-5.62	4.36	-0.64	-0.89	-0.87	-1.64	-0.95	-0.84	-0.31	-0.26	0.36
Other light manufactures	0.16	0.39	-0.80	1.47	0.45	0.78	-1.89	7.13	-0.10	-0.10	0.17	0.30	0.01	0.09	0.15	0.04	0.06	-0.12	0.09
Chemical rubber plastic products	0.31	0.98	3.16	0.86	-0.82	0.75	0.93	7.10	0.78	1.75	-0.03	-0.18	-0.12	-0.03	-0.11	-0.14	-0.02	-0.11	0.16
Petroleum products	-0.18	3.49	4.55	0.66	0.74	1.34	0.54	0.67	0.29	1.58	-0.04	-0.25	-0.17	0.02	-0.02	-0.03	0.00	-0.05	0.15
Metals	0.24	0.03	-1.67	0.39	-1.11	3.43	0.53	1.17	1.61	1.57	0.02	-0.06	-0.09	-0.05	-0.25	-0.33	-0.05	-0.42	0.25
Other mineral products	0.37	0.16	0.12	-0.82	0.88	0.03	0.61	-2.78	0.38	0.24	0.04	-0.01	-0.01	0.02	-0.05	-0.04	0.00	-0.02	0.13
Metal products	0.33	1.74	4.07	-0.15	0.30	0.44	-0.48	0.09	0.37	0.88	-0.02	-0.07	-0.11	-0.05	-0.09	-0.07	0.00	-0.04	0.09
Motor vehicles and parts	-1.55	-1.40	-4.35	-6.19	-11.49	21.49	-5.66	-18.07	2.13	0.93	0.10	-0.28	-0.65	-0.09	0.12	-0.08	0.10	-0.08	0.15
Other transport equipment	0.05	-1.46	-0.15	2.74	4.20	4.27	8.20	-14.11	0.11	-0.19	0.13	0.34	0.04	-0.04	0.06	-0.02	0.35	-0.19	0.10
Electronic equipment	0.44	-1.09	0.79	3.91	4.18	6.43	1.59	3.95	-0.58	1.87	-0.23	0.06	-0.19	-0.24	-0.42	-0.21	-0.34	-0.35	0.36
Other machinery	0.52	0.37	1.97	3.38	4.66	6.95	4.03	1.46	0.95	0.64	-0.05	-0.30	-0.15	-0.10	-0.21	-0.11	-0.02	-0.17	0.24
Trade & transportation services	0.49	0.38	1.73	1.37	1.52	0.74	1.01	7.08	0.07	0.52	0.00	-0.03	-0.06	0.06	0.04	0.06	0.01	0.07	0.11
Communication services	0.41	0.84	1.74	0.81	1.79	0.23	0.48	5.85	0.03	0.39	0.00	-0.08	-0.08	0.00	0.01	0.01	0.00	0.05	0.06
Financial service	0.37	0.72	1.76	0.89	1.29	-0.11	0.50	3.18	0.03	0.78	-0.01	-0.08	-0.06	0.01	0.02	0.01	0.01	0.06	0.04
Other traded services	0.37	0.99	0.61	0.37	1.12	1.42	0.26	0.12	0.01	0.55	0.00	-0.09	-0.06	0.00	0.03	0.01	0.01	0.04	0.04
Utility	0.39	0.41	1.62	1.40	1.59	1.69	1.19	5.21	0.29	1.36	-0.01	-0.16	-0.09	-0.02	-0.02	-0.09	-0.02	-0.03	0.12
Housing & construction	0.36	0.71	2.00	-0.33	0.76	-0.23	1.08	-0.70	-0.04	0.22	-0.01	-0.16	-0.07	-0.01	0.01	0.00	0.00	0.06	0.05
Total	0.36	0.41	1.44	1.45	1.62	1.73	1.10	5.41	0.13	1.03	-0.01	-0.09	-0.08	-0.02	-0.02	-0.04	-0.01	0.00	0.10

Appendix A — Sectors in the Global model and their GTAP-ISIC concordance

Sectors in the Model	GTAP ^a 5 Sector Number and Description	ISIC ^b Rev. 3 CODE
1.Land-intensive crops	1. Paddy rice, 2. Wheat 3. Cereal grains nec , 5 Oil seeds, 7. Plant-based fibers	01111, 01301, 01401, 3116(p), 01112, 01302, 01402, 01113, 01303, 01403, 01116, 01307, 01407
2. Other agriculture	4. Vegetables fruit nuts6. Sugar cane sugar beet , 8. Crops nec., 9 Bovine cattle, sheep and goats, houses, 10 Animal products, n.e.c. 11 Raw milk, 12 Wool, silk-worm cocoons	01121, , 01112,, 01114, 01305, 01405, 01204, 01404, 01117, 01115, 01306, 01406, 01122, 1132, 01308, 01408, 01211, 01212, 01213,0122, 01309, 013010, 013011, 013012, 01409, 014010, 014011, 014012 , 15311
3. Processed Food	18. processed rice , 19 Bovine cattle, sheep and goats, houses meat products, 20 Meat products, n.e.c. 22 Dairy products, 21 Vegetable oils and fats, 24. Sugar, 25 Food products n.e.c. , 26 Beverages & tobacco	3111, 3112,3113,3114,3115,3116(p),3117,3118, 3119,3121,3122,31313132,3133,3134,3140
4. Forestry and fishery	13. Forestry, 14. Fishing	02 Forestry, logging and related service activities; 015 Hunting, trapping and game propagation including related service fish activities; 05 Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing
5. Crude Oil and natural gas	16 Oil, 17 Gas	111 Extraction of crude petroleum and natural gas; 112 Service activities incidental to oil and gas extraction excluding surveying
6. Other Mining	15 Coal, 18 Minerals n.e.c,	101 Mining and agglomeration of hard coal; 102 Mining and agglomeration of lignite; 103 Mining and agglomeration of peat; 12 Mining of uranium and thorium ores; 13 Mining of metal ores; 14 Other mining and quarrying
7. Textile	27 Textiles	17 Manufacture of textiles; 243 Manufacture of man-made fibers
8. Apparel	28 Wearing apparel.	18 Manufacture of wearing apparel; dressing and dyeing of fur
9. Leather & shoes	29 Leather products, footwear & travel goods	19 Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
10. Other light manufactures	42 manufactures n.e.c	36 Manufacturing n.e.c.
11. Wood & paper products	30 wood products, 31 paper products, publishing,	20 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials; 361 Manufacture of furniture; 21 Manufacture of paper and paper products ; 2211 Publishing of books, brochures, musical books and other publications; 2212 Publishing of newspapers, journals and periodicals; 2219 Other publishing (photos, engravings, postcards, timetables, forms, posters, art reproductions, etc.. 222 Printing and service activities related to printing
12. Petroleum coal products	32. Petroleum coal products	231 Manufacture of coke oven products; 232 Manufacture of refined petroleum products
13. Chemical rubber plastic products	33. Chemical rubber plastic products	

14. Mineral products nec	34. mineral products, n.e.c	26 Manufacture of other non-metallic mineral products
15. Metals	36. metals n.e.c.,	271 Manufacture of basic iron and steel; 2731 Casting of iron and steel; 272 Manufacture of basic precious and non-ferrous metals; 2732 Casting of non-ferrous metals
16. Metal products	37 Metal products	28 Manufacture of fabricated metal products, except machinery and equipment
17. Motor Vehicle and Parts	38 Motor vehicles and parts	34 Manufacture of motor vehicles, trailers and semi-trailers
18. Other transport equipment	39 Transport equipment n.e.c.	35 Manufacture of other transport equipment
19. Electronic equipment	40 Electronic equipment	30 Manufacture of office, accounting and computing machinery ; 32 Manufacture of radio, television and communication equipment and apparatus
20. Other machinery	41 Machinery and equipment n.e.c.	2213 Publishing of recorded media; 223 Reproduction of recorded media; 29 Manufacture of machinery and equipment ; 31 Manufacture of electrical machinery and apparatus n.e.c. 33 Manufacture of medical, precision and optical instruments, watches and clocks
21. Trade and transportation	47 Trade, 48. other transportation, , 48. Water transportation, 49. Air transportation	521 Non-specialized retail trade in stores; 522 Retail sale of food, beverages and tobacco in specialized stores; 523 Other retail trade of new goods in specialized stores; 524 Retail sale of second-hand goods in stores; 525 Retail trade not in stores; 60 Land transport; transport via pipelines; 61 Water transport; 62 Air transport; Description 51 Wholesale trade and commission trade, except of motor vehicles and motorcycles 64 Post and telecommunications
22. Telecommunication	51. Communication	
23. Financial services banking and insurance	52. financial service, 53, Insurance	65 Financial intermediation, except insurance and pension funding; 66 Insurance and pension funding, except compulsory social security; 67 Activities auxiliary to financial intermediation; 70 Real estate activities
24. other traded service	54. business service,. 55.recreational and pother services, 56. Public admin and defense education health	37 Recycling; 55 Hotels and restaurants; 63 Supporting and auxiliary transport activities; activities of travel agencies; 711 Renting of transport equipment; 526 Repair of personal and household goods; 712 Renting of other machinery and equipment; 713 Renting of personal and household goods n.e.c. 72 Computer and related activities; 74 Other business activities; 92 Recreational, cultural and sporting activities; 93 Other service activities; 95 Private households with employed persons; 73 Research and development ; 75 Public administration and defence compulsory social security; 80 Education; 85 Health and social work; 91 Activities of membership organizations n.e.c.; 99 Extra-territorial organizations and bodies

25. Utility	43 Electricity, 44 gas manufacture, distribution, 45 Water	401 Production, collection and distribution of electricity ; 402 Manufacture of gas; distribution of gaseous fuels through mains; 403 Steam and hot water supply; 41 Collection, purification and distribution of water
26. Housing, and Construction	46 Construction, 57 dwellings	45 construction; 90 Sewage and refuse disposal, sanitation and similar activities

- a. Global Trade Analysis Project, version 5 (Hertel, 1997).
b. International Standard Industry Classification.

Data Source: China's tariff cut is aggregated by the author from 6 digit Harmonized Commodity Description and Coding System (HS) tariff schedules based on China's final official offer downloaded from the WTO website (http://www.wto.org/english/thewto_e/acc_e/completeacc_e.htm) and weighted by 2000 import data from the World bank. The tariff rate for rice, wheat, other grains, and plant based fiber are in quota rate. China's non-tariff barrier (NTB is the difference between import protection rate in version 5 GTAP database and China's tariff after adjustment for duty exemptions. Industrial products are modified on additional information from Zhang et al. (1998) and Li et al. (1998). Detailed data on processing trade and duty exemption are kindly provided by Dr. Shunli Yao based on the China trade database maintained at the University of California-Davis (Yao, Shunli and Robert Feenstra, 1999). The base year service sector protection rate was adopted Hertel, Walmsley and Itakura (2001). and they are tariff equivalent of no-tariff barriers.

Appendix C Tariff Rates in Taiwan for its WTO Accession (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Rate of Reduction	Initial NTBs	Final NTBs
Land-intensive agriculture	1.25	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	-39.70	0.56	0.00
Other agriculture	12.47	7.47	7.03	6.89	6.77	6.65	6.65	6.65	6.65	6.65	6.65	-46.72	3.57	0.00
Processed agriculture	18.21	13.67	12.53	12.27	12.17	12.07	12.07	12.07	12.07	12.07	12.07	-33.71	9.45	0.00
Forestry & fishery	13.84	10.76	8.64	8.28	7.96	7.89	7.89	7.89	7.89	7.89	7.89	-42.97	6.56	0.00
Oil and natural gas	6.73	5.58	5.50	5.42	5.35	5.35	5.35	5.35	5.35	5.36	5.36	-20.37	0.38	0.37
Other mineral products	7.86	6.92	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	-24.05	0.00	0.00
Textile	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-9.80	0.03	0.00
Wearing apparel	6.09	5.79	5.54	5.44	5.43	5.43	5.43	5.43	5.43	5.43	5.43	-10.80	0.81	0.00
Leather, shoes & sports goods	13.29	12.37	11.47	11.27	11.27	11.27	11.27	11.27	11.27	11.27	11.27	-15.23	0.03	0.00
Other light manufactures	4.36	4.16	3.99	3.83	3.67	3.67	3.67	3.67	3.67	3.67	3.67	-15.82	0.61	0.00
Paper & wood products	3.85	2.99	2.17	2.12	2.07	2.07	2.07	2.07	2.07	2.07	2.07	-46.19	0.78	0.00
Chemical rubber plastic products	3.49	2.10	0.77	0.76	0.75	0.75	0.75	0.75	0.75	0.75	0.75	-78.40	0.40	0.00
Petroleum products	3.59	2.98	2.38	2.36	2.35	2.35	2.35	2.35	2.35	2.35	2.35	-34.53	0.12	0.00
Metals	2.57	1.60	0.64	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	-75.69	1.17	0.00
Other mineral products	6.28	5.73	5.20	5.04	4.95	4.95	4.95	4.95	4.95	4.95	4.95	-21.22	0.84	0.00
Metal products	7.42	6.57	5.72	5.63	5.55	5.55	5.55	5.55	5.55	5.55	5.55	-25.24	0.61	0.00
Motor vehicles and parts	23.45	21.11	18.97	17.89	17.28	16.69	16.09	15.57	15.05	14.53	14.53	-38.05	2.11	0.00
Other transport equipment	1.54	1.38	1.23	1.19	1.16	1.16	1.16	1.16	1.16	1.16	1.16	-24.79	1.27	0.00
Electronic equipment	0.43	0.27	0.22	0.22	0.21	0.21	0.22	0.21	0.21	0.21	0.21	-50.58	2.03	0.00
Other machinery	3.35	2.85	2.43	2.41	2.39	2.39	2.39	2.39	2.39	2.39	2.39	-28.86	1.31	0.00
Trade & transportation services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		5.68	2.27
Communication services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		5.68	2.27
Financial service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		5.68	2.27
Other traded services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		5.68	2.27
Utility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		22.80	9.12
Housing & construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Average	4.39	3.60	3.09	3.03	2.96	2.92	2.88	2.85	2.82	2.79	2.77	-36.83	1.90	0.25

Data Source: Taiwan's tariff cut is aggregated by the author from 6 digit Harmonized Commodity Description and Coding System (HS) tariff schedules based on Taiwan's final official WTO offer downloaded from WTO website (http://www.wto.org/english/thewto_e/acc_e/completeacc_e.htm) and weighted by its import data from 1998-2000 from World Bank. The weights of each year are 0.2, 0.3, and 0.5 respectively. Taiwan's non-tariff barrier (NTB is the difference between import protection rate in version 5 GTAP database.