

Vietnam Integrating with the Regional Economy: A Dynamic Simulation Analysis

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Abstract:

Through liberalization of trade and investment regimes conducted over the last two decades, Vietnam has developed profound trade and investment relations with East Asian countries. Vietnam's integration with the regional economy has been recently accelerated with its participation into several regional FTAs. This paper attempts to give an overview of the ongoing regional integration and conducts a dynamic simulation analysis based on a global CGE model to quantify the impacts of regional economic integration on Vietnam's economy. The main conclusion is that regional economic integration generally has positive impacts on Vietnam's economic growth and industrialization, but these positive impacts are in large part brought about by the greater capital inflows. The realization of the potential benefits of regional integration would depend on the capability of Vietnam to attract foreign investment through the liberalization of investment regimes and improvements in infrastructures and human resources.

1. Introduction

The implementation of the open-door policies and progressive trade and investment reforms conducted over the last two decade has led to an increasing integration of Vietnam with the regional economy. East Asian countries are the major sources for Vietnam's imports of machine and production materials, and are also the market for half of Vietnam's exports. A large part of FDI inflows to Vietnam has so far originated in East Asia. Together with unilateral reform measures and its recent accession to the WTO, Vietnam has accelerated the integration with the regional economy. Vietnam is now a signatory to several FTAs, while several other FTAs with the participation of Vietnam have been under negotiation or discussion. The effort to integrate with the regional economy began in 1995 when Vietnam became a member of ASEAN, and was then followed by APEC membership in 1998 and the signing of the bilateral trade agreement between Vietnam and the US in 2000. As a member of ASEAN, Vietnam has participated in the recently established FTAs between ASEAN and Japan, China and Korea.

While the increasing integration with the regional economy offers various opportunities to

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Vietnam in terms of greater market access for Vietnam's exports and greater inflows of foreign investment, concerns have been raised among Vietnamese policy makers and academic circle over the possible adverse impacts of the ongoing regional integration on the future development and industrialization in Vietnam. Domestic producers would face increasingly competitive pressures from the regional imports as tariffs are reduced. The pressure of competition occur not only in the domestic market, but there is also increasing competition in the export market and for foreign investment.

This paper attempts to give an overview of the ongoing regional integration and conduct a dynamic simulation analysis based on a global CGE model to quantify the impacts of regional economic integration on Vietnam's economy. The paper is organized as follows. Sections 2 discuss in brief the liberalization of Vietnam's trade and investment regimes and the country's integration with the regional economy. It is followed by section 3 giving an overview of Vietnam's participation into regional FTAs. The structure of the global CGE model employed in the dynamic simulation analysis is presented in section 4, and simulation scenarios are performed and discussed in section 5. Concluding remarks and policy implications are given in section 6.

2. Integration through Trade and Investment Liberalization

2.1. Trade liberalization

Since the late 1980s, Vietnam's trade reforms have been progressed steadily, consisting of the creation and amendment of a system of taxation of imports and exports, the gradual removal of non-tariff barriers, progressive deregulation of trade regimes and relaxation of restrictions on entry to trading activities. Over time, the tariff system has been simplified and rationalized, and tariff rates have been lowered. The average weighted tariff rate dropped from nearly 20% in early 1990s to around 15% in the early 2000s prior the accession to the WTO.

Vietnam's trade regimes have been further liberalized upon its accession to the WTO. Under the WTO deal, Vietnam has agreed to further lower the tariff- and non-tariff barriers and bring the trade policies in conformity with WTO rules and regulations. The tariffs on industrial products are to be cut by 13% on average, and the tariffs on agricultural products will be reduced by 21% over the period of 3 to 5 years. Quantitative restrictions and state-trading rights are to be abolished for all products with the exception of petroleum and sugar industries. Export subsidies of all kinds are no longer allowed, while other subsidies need to be brought in conformity with WTO rules and regulations.

Despite the progressive trade reforms, Vietnam's trade regimes have remained rather restrictive. High tariff rates and non-tariff barriers are employed to protect many consumer goods. While most of capital goods and production inputs are subject to low tariffs, imports of some intermediate inputs, which are being domestically produced such as cement, fertilizers, or steel, have been subject to high tariffs. Protection through tariffs and non-tariffs barriers is also provided to some so-called infant

industries, such as automobile or petroleum products. The automobile sector continues to enjoy the high level of protection after the accession to the WTO as the tariff reduction for this sector is scheduled until 2019.

East Asian countries have remained the major trading partners of Vietnam since Vietnam started the open-door policy. The large trade between Vietnam and Asian trading partners reflects not only the geographical proximity but also the FDI inflows from regional economies. Despite the recent decline in Vietnam's trade with East Asian countries caused by the redirection of Vietnam's exports of labor-intensive products toward the US and EU markets, Vietnam still trades intensively with the East Asian countries. Nearly 50% of Vietnam's exports are shipped to the regional market, while two-thirds of the country's imports are sourced from regional trading partners. Within East Asia, ASEAN countries as the whole have been the largest trading partners, but most of Vietnam's trade with ASEAN is with Singapore¹. The two-way trade with other ASEAN countries remains limited, but has been recently on rise following the tariff reductions under the AFTA. Japan has been one of the largest trading partners of Vietnam, and is the largest regional market for Vietnam's agricultural and labor-intensive products. The regional pattern of trade has shifted toward China in recent years, with the two-way trade with China increased more than ten times over the last decade (see Table 1).

Vietnam's trade with regional countries reflects its general composition of trade and comparative advantage. Most of Vietnam's exports to regional markets are natural-resource based and agricultural products. Vietnam is a large supplier of crude oil to China, and to a lesser extent, it exports crude oil to Japan, Singapore and some other East Asian countries. Fishery and other agricultural products are the major exports to regional countries, particularly to Japan, China, Korea and Singapore. Exports of textile, garment and footwear are shipped to high-income regional economies, largely to Japan and Korea. Exports of electronics have begun from the late of 1990s, but the volume of exports remains limited. Electronic parts and products are currently exported to Japan, Korea and some other ASEAN countries. Most of these products are produced by foreign firms in Vietnam and are exported to their affiliates in the region.

Machinery, equipment and production inputs constitute a large proportion in Vietnam's imports as the country heavily depends on the import of these products for investment and domestic production. Most of Vietnam's imports from the region are production inputs, ranging from petroleum, iron and steel, fertilizers, plastics and chemical, electronic parts and products and materials for textile and garments. Vietnam has trade deficits with the regional trading partners, but these trade deficits are stimulated by the regional investment flows into Vietnam, as can be observed in the case of Japan, Korea and Taiwan. The recent shift to the cheap import source in China also leads to the large increase in imports from China.

Table 1 Vietnam's Merchandise Trade 1995–2006

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
A. Exports												
Total value (mill. USD)	5448.9	7255.9	9185.0	9360.3	11541.4	14482.7	15029.2	16706.1	20149.3	26485.0	32447.1	39826.2
Annual growth (%)	33.2	33.2	26.6	1.9	23.3	25.5	3.8	11.2	20.6	31.4	22.5	22.7
Geographical Composition of Exports (%)												
East Asia (a)	68.8	68.2	62.0	53.9	52.2	54.8	51.9	46.5	44.8	44.9	45.1	40.2
China	6.6	4.7	5.2	4.7	6.5	10.6	9.4	9.1	9.3	10.9	9.9	7.6
Japan	26.8	21.3	18.2	16.2	15.5	17.8	16.7	14.6	14.4	13.4	13.4	13.1
Hong kong	4.7	4.3	4.7	3.4	2.0	2.2	2.1	2.0	1.8	1.4	1.1	1.1
Taiwan	8.1	7.4	8.9	7.2	5.9	5.2	5.4	4.9	3.7	3.4	2.9	2.4
Korea	4.3	7.7	4.5	2.4	2.8	2.4	2.7	2.8	2.4	2.3	2.0	2.1
ASEAN-5 (b)	18.3	22.8	20.5	20.0	19.6	16.6	15.5	13.1	13.0	13.5	15.7	13.8
Of which, Singapore	12.7	17.8	13.2	7.9	7.6	6.1	6.9	5.8	5.1	5.6	5.9	4.1
United States	3.1	2.8	3.1	5.0	4.4	5.1	7.1	14.7	19.5	19.0	18.3	19.7
European Union	12.2	11.7	17.5	22.2	21.8	19.6	20.0	18.9	19.1	18.8	17.0	-
B. Imports												
Total value (mill. USD)	8155.4	11143.6	11592.3	11499.6	11742.1	15636.5	16218.0	19745.6	25255.8	31968.8	36761.1	44891.1
Annual growth (%)	36.6	36.6	4.0	-0.8	2.1	33.2	3.7	21.8	27.9	26.6	15.0	22.1
Geographical Composition of Imports (%)												
East Asia (a)	74.7	74.8	75.3	74.5	76.0	78.3	75.8	75.5	73.0	74.5	76.5	76.6
China	4.0	3.0	3.5	4.5	5.7	9.0	9.9	10.9	12.4	14.4	16.0	16.5
Japan	11.2	11.3	13.0	12.9	13.8	14.7	13.5	12.7	11.8	11.1	11.1	10.5
Hong kong	5.1	7.1	5.2	4.8	4.3	3.8	3.3	4.1	3.9	3.4	3.4	3.2
Taiwan	11.1	11.3	12.8	12.0	13.3	12.0	12.4	12.8	11.5	11.6	11.7	10.7
Korea	15.4	16.0	13.5	12.4	12.7	11.2	11.6	11.5	10.4	10.5	9.8	8.6
ASEAN-5 (b)	27.8	26.1	27.3	27.9	26.2	27.5	25.1	23.5	22.9	23.6	24.5	27.1
Of which, Singapore	17.5	18.2	18.4	17.1	16.0	17.2	15.3	12.8	11.4	11.3	12.2	14.0
United States	1.6	2.2	2.2	2.8	2.7	2.3	2.5	2.3	4.5	3.5	2.3	2.2
European Union	8.7	10.3	11.5	10.8	9.3	8.4	9.3	9.3	9.8	8.4	7.0	-

Sources: Vietnam's Statistical Yearbooks, various issues

Notes: (a) East Asia includes ASEAN-5 countries; (b) ASEAN-5 consists of Malaysia, Indonesia, Philippines, Singapore and Thailand

2.2. Investment Liberalization

Together with trade liberalization, the investment regimes have been gradually liberalized during the last 20 years to attract foreign investment. Restrictions on trading activities have been removed and foreign firms are now no longer required to balance their foreign exchange account. Export requirements and the local content requirement previously imposed to promote the spillover effect on the domestic economy were recently abolished as part of WTO commitments. The differentiated pricing of some production inputs were abolished, and in many aspects, foreign firms are now treated on an equal basis with the domestic firms. Foreign investors are allowed to set up their own plant, and enterprises fully owned by foreign investors now account for more than 70% of total FDI flows in Vietnam.

The investment regimes have been further liberalized with the promulgation of the Law of Investment in 2005, which combined the two separate laws on domestic investment and foreign investment in an attempt to create an equal playing field for all enterprises. The Investment Law has further improved the environment for both foreign and domestic investment through the simplification of administration procedures and deregulation, and has provided a greater autonomy for investors through sectoral liberalization. Except for the sectors of conditional and prohibited investment, most of other sectors are now opened up for domestic and foreign investors, and they are allowed to conduct business in any sector that they wish. The conditional investment sectors, as stipulated in the Law of Investment, consist mostly of service sectors, whereas the prohibited list is specified for health and security purposes².

In addition to the new Investment Law, restrictions on foreign investment have been relaxed in a substantial way through the extensive WTO commitments made by Vietnam in regards to trade in services. During its accession to the WTO, Vietnam has committed itself to open most of the service sectors to foreign providers, ranging from trade, transports, telecommunication, banking and finance to tourism and consultancy services. In many cases, foreign investors are allowed to set up their own establishment without limits on the scope of activity and equity participation³. Foreign investors are allowed take different forms of investment, ranging from direct investment, acquisition and merging to portfolio investment.

Thank to the favorable economic situation in Vietnam as well as the progresses in liberalizing investment regimes, the inflows of FDI to Vietnam has been on steady increase since the late of 1980s. The acquisition of WTO membership has led to a surge in the inflows of FDI in the last two years. The amount of foreign direct investment reached over 10 billion USD in 2006, and it doubled in 2007 to 21 billion USD. In total, the FDI flows amounted to 85 billions USD between 1988 and 2007 on a commitment basis. However, only around one third of the committed FDI, or 29 billion USD, has been implemented so far. Together with the surge in direct investment, the opening of financial market to foreign investment has recently invited large inflows of portfolio investment, amounting to

around 10 billions USD in 2007.

Despite the huge amount of FDI attracted so far, the FDI inflows have been biased toward import-substituting and non-traded sectors. It has been the policies of Vietnamese government to use protection barriers to attract FDI and promote the development of certain import-substituting industries. Consequently, foreign investors have been in large part seeking for natural resources and domestic market. Market-seeking FDI tends to flow to highly protected industries in order to overcome the tariff- and non-tariff barriers and exploit the domestic market, while natural resource seeking FDI tends to involve in oil and gas sectors. Beside that, large proportion of FDI has been flowed to service sectors, and particularly hotels, and real estates. The FDI flows to services increased substantially in the last two years, and indeed largely accounted for the recent surge in FDI flows.

The geographical composition of FDI shows a strong interdependent between Vietnam and East Asia with around two-thirds of the foreign investment in Vietnam has been from East Asian countries. When Vietnam started its open-door policies 20 years ago, it was also the time the Asian New Industrialized Countries (NICs) had matured and accumulated a large amount of funds, and started to invest abroad. The four Asian NICs, i.e. Korea, Taiwan, Hong Kong and Singapore were the initial foreign investors, and has so far remained the largest foreign investors in Vietnam. Foreign investments from Japan and the Europe have become significant since the later half of 1990s, while US investment only increased in recent years after the signing of the bilateral trade agreement (see Table 2).

3. Current Regional Integration Plan

Together with unilateral reform measures and its accession to the WTO, Vietnam has recently accelerated regional economic integration. Vietnam is now a signatory to several FTAs, while several other FTAs with the participation of Vietnam have been under negotiation or discussion. The effort to integrate with the regional economy began in 1995 when Vietnam became a member of ASEAN and was committed itself to tariff reductions under the ASEAN free trade area (AFTA). It was then followed by APEC membership in 1998 and the signing of the bilateral trade agreement between Vietnam and the US in 2000. As a member of ASEAN, Vietnam has participated in the recently established FTAs between ASEAN and Japan, China and Korea (ASEAN+1 FTAs). ASEAN countries, including Vietnam, are negotiating FTA agreements with the EU, India, Australia and New Zealand.

Except for the FTA agreement between Japan and ASEAN that is waiting for the approval by ASEAN countries and Japan, the AFTA and the FTAs between ASEAN and China and Korea have been under implementation. All the ASEAN+1 FTAs are wide in scope, covering not only merchandise trade, but also trade in services and investment liberalization. Member countries are

Table 2 Vietnam's FDI Inflows 1988–2007

Unit: million USD

	Number of Projects	Total Committed Investment		Implemented Investment
		Total	Of which Equity	
Total	8684	85057	35887	29234
By countries and regions				
East Asia	6,673	58,248	23,497	19,221
Japan	934	9,180	3,963	4,987
Korea	1,857	14,398	5,168	2,738
Taiwan	1,801	10,763	4,599	3,079
China	550	1,792	884	253
Hongkong	457	5,933	2,167	2,161
ASEAN	1,074	16,181	6,716	6,002
Thailand	167	1,665	704	833
Malaysia	245	2,823	1,797	1,083
Singapore	549	11,059	3,894	3,858
The US	376	2,789	1,450	746
The EU	645	8,441	4,908	4,138
Australia & New Zealand	186	1,070	526	402
Other countries	804	14,510	5,506	4,728

Sources: Department of Foreign Investment, Ministry of Planning and Investment
Homepage: <http://www.mpi.gov.vn/>

obliged to completely eliminate, or substantially reduce, tariffs and non-tariff barriers, and the majority of commodities will be subject to liberalization in the end. Tariff reductions are to be completed in large part within 5 to 10 years for the normal track, but sensitive products have a longer implementation period and lesser reduction requirement. Beside that, preferential treatments are provided to less developed ASEAN members, including Vietnam, through the longer period of implementation and the greater number of products that can be classified into the sensitive list. As for Vietnam, the country would have up to 10 years before it is obliged to complete tariff reductions for the products in the normal list. Vietnam is also allowed to phase many of the highly protected products into the sensitive list, including automobile, iron and steel, and certain plastic and electronic products (see Table 3).

Although initial proposals for a closer economic cooperation in the region was put forward more than 10 years ago, economic integration in East Asia has gained its momentum since 2001 with the signing of China-ASEAN free trade area. There has been a rapid proliferation of free trade agreements in East Asia in recent years, reflecting various considerations, economically, politically and culturally. On the economic aspect, East Asian countries are motivated to secure the market access for their exports for sustaining economic growth in the face the slow progress in the trade liberalization at the WTO and the APEC forum as well as the regional integration in Europe and North America. The

Table 3 Vietnam's liberalization commitment under ASEAN + 1 FTAs

FTAs	Normal track	Sensitive products
China-ASEAN Free Trade Area (CAFTA)	Tariff cuts begin in 2005 and all tariffs will be completely removed by 2015 or 2018; Tariff lines with the rates of over 40% will be cut by more than a half in the first five years.	Tariff reduction will be completed in 2020. The tariff rates for highly sensitive products are only subject to less than 50% tariff cuts by 2018; No more than 500 tariff lines can be classified in the sensitive list.
Korea-ASEAN free Trade Area (KAFTA)	Tariff removal is completed between 2006 and 2016; The tariff lines with the rates of over 20% will be reduced by more than half to two-thirds between 2006 and 2011, and the maximum tariffs will be less than 20% by 2011	Tariffs are to be reduced to 0 to 5% by 2021 for the product in the sensitive list; Highly sensitive products are not subject to substantial reductions, but are classified into different groups with different tariff ceilings and reduction requirements; less than 10% of tariff lines and 25% of import value are allowed to be phased in the sensitive list.
ASEAN-Japan Comprehensive Economic Partnership (AJCEP)	Tariff reductions follow 12 schedules with the implementation period ranging from 1 to 18 years from the day of entry into force. Some products are exempted from reduction commitments including automobiles; many electronic products and steel and iron have a long time frame for tariff reductions, lasting from 16 to 18 years.	

Sources: Author's summarization based on the corresponding agreements.

motives for pursuing FTAs are different from country to country. Some countries like Thailand and Singapore have signed FTAs with a large numbers of trading partners in an attempt to make them a production hub with low costs of production, greater market access for exports and better capacity for attracting foreign investment⁴. Motivated by different strategic and economic considerations, East Asian countries have followed regional integration individually rather than collectively, and are engaged in FTAs in pairs or group. According to Kumar (2005), there are more than 60 FTAs with the participation of East Asian countries, including the FTAs within East Asia and those with countries outside East Asia.

Together with the establishments of bilateral and pluralateral trading arrangements among East Asian countries, discussions have been going on the formation of a region-wide FTA in East Asian. In addition to the discussion among academic circles, more official mechanisms have been well established to facilitate the economic cooperation in East Asia, including the East Asian Summit and ASEAN + 3 forum. Various scenarios have been put forward for a region-wide FTA, including ASEAN + 3 (ASEAN, China, Japan, Korea) FTAs, East Asian FTA (ASEAN, China, Japan, Korea, Taiwan and Hongkong), and a broader FTA covering all East Asian countries, India, Australia, and New Zealand.

The ongoing discussion on regional integration covers not only trade and investment liberalization, but also financial cooperation and the formation of a currency union in East Asia. It is expected that the current network of FTAs will be finally merged into a single FTA for East Asia. However, it will take time for the formation of a region-wide FTA due to the region's diversity in economic development and the resulting hesitation to trade liberalization, the concern over trade diversion as well as the lack of political leadership (Kawai, 2005).

Similar to ASEAN countries and China, Vietnam has followed an outward-oriented development path. The strong growth of exports and the inflows of FDI have significantly contributed to the overall economic growth in Vietnam over the last two decades. Deeper integrating with the regional economy would offer Vietnam with greater market access for its exports and further opportunities for attracting foreign investment, all of which are in badly need for the future development of Vietnam. However, regional integration also comes at cost. Tariff reductions would put increasingly competition pressures on domestic producers, and possibly leading to excessive adjustment in the domestic economy. The pressure of competition would not only occur in the domestic market but also in the export market due to the similarities in economic structure between ASEAN countries and China. The expansion of export markets brought about by regional integration does not guarantee the increasing inflow of foreign investment. There is also the possibility that foreign investment will be diverted to other countries with better investment environment and higher quality of human resources. There has already been a competition for foreign investment among ASEAN countries and China⁵. The possible negative impacts of regional economic integration on the domestic economy have raised concerns over the academic circle and policy-maker, and in large part have explained for the reluctance on the side of Vietnam to pursue further integration with the regional economy.

4. The Model Specification

This paper employs a global CGE model to perform a dynamic simulation analysis of the impacts of regional economic integration on Vietnam's economy. The global CGE model has been developed by Nguyen and Ezaki (2005), and has been employed to conduct static simulation analysis of the impacts of regional integration on Vietnam, Indonesia and Thailand⁶. The global CGE model specifies 20 industries and 16 countries and regions. The regional classification is focussed on East Asia, consisting of 5 ASEAN countries (Malaysia, Indonesia, Thailand, Singapore and Vietnam), five Northeast Asian countries (China, Hong kong, Taiwan, Korea and Japan), and India, Australia and New Zealand, the US, the EU and the rest of the world. Industrial activities are specified with an emphasis on the agricultural and manufacturing sectors, taking into consideration the diversified pattern of production and comparative advantage as well as the structure of protection in each individual country and region.

The global CGE model consists of 16 country models linked together through international trade and foreign investment. Country models generally follow the standard neoclassical CGE model, in which capital and labor are mobile across economic sectors with the assumption of full employment. Three production factors are specified for each country model, i.e. capital, skilled labor and unskilled labor. Households get incomes from labor and capital, and save a proportion of their incomes. The rest of household income is spent on consumer goods in fixed expenditure shares under the assumption of Cobb-Douglas utility function. Government revenue is derived from taxes. Nine types of taxes and subsidies are specified in each country model, consisting of tariffs, export duties, production taxes, capital and output subsidies, and sales taxes imposed on consumer goods, intermediate inputs and capital goods. Total government revenue is allocated to savings and consumption in fixed proportions.

The external sector in country models is modeled with the assumption of product differentiation, in which domestic and foreign goods are imperfect substitutes. The supply for domestic and foreign markets is determined from the revenue maximization condition, using the Constant Elasticity of Transformation (CET) function. Total domestic demand is satisfied through domestic production and imports, and the demand for imports and domestically produced goods is modeled using the Armington structure. The demand for imports is further disaggregated into the demand for import from different sources, which are by assumption considered as imperfect substitutes. International transportation services are incorporated and create a gap between the f.o.b prices in exporting countries and the c.i.f. prices in importing countries. The global demand for transportation services is computed by summing across all countries and industries, and the demand for transportation services is then determined for countries and regions from the cost minimization condition based on the CES functional form.

The partial adjustment approach discussed in Hertel (1997) is employed to allow for international capital mobility. Investment decisions are made in such a way that the rates of return on capital are equalized across countries and regions. In this treatment, investment only partially adjusts in response to the changes in the rate of return caused by trade liberalization. At a low value of the flexibility parameter, the expected rate of return to capital is not very sensitive to the change in capital stock, thus a large change in investment is required to equalize the expected rate of return to capital. A low flexibility parameter means a greater capital mobility and vice versa.

The CGE model is run for 15 years using the recursively dynamic method. In each period, total stocks of capital and labor are held fixed, but are updated over time. The change in domestic savings and capital inflows, and the resulting change in domestic investment, is added to the capital stock in the next period. No movement of labor across countries and regions are allowed, and labor stocks are updated using exogenous growth rates. GTAP database version 6.0 constructed for 2001 is employed, and is aggregated into 20 industries and 16 countries or regions in accordance with the model⁷.

5. Dynamic Simulation Analysis

5.1. Simulation scenarios

The CGE model is employed to conduct dynamic simulation analysis of regional economic integration in East Asia. We focus on the three ASEAN + 1 FTA agreements, which have now been concluded or under implementation. In addition to the ASEAN + 1 FTAs, we also investigated the possible formation of a broader FTA in East Asia covering all ASEAN countries, Hong kong, Korea, Taiwan, China and Japan. Our simulation analysis is not only restricted to the case of trade liberalization, but also takes into account the possible impacts of investment liberalization within the FTA region. For each FTA, two simulation exercises are performed. The first assumes only the removal of tariffs, while the second examines the case of the combined trade and investment liberalization.

In the scenarios of trade liberalization, we simply assume the complete removal of tariffs imposed on bilateral trade for all FTA member countries. In the simulations with investment liberalization, we reduce the parameters of flexibility assuming the liberalization of investment regimes will lead to the greater degree of capital mobility. The parameter of flexibility is set at 10 in the base run, and is reduced to 5 for all the countries involved in the FTA for the scenarios with combined trade and investment liberalization. Indeed the degree of capital mobility are not only affected by the barriers to foreign investment, but it also reflects the availability of institutional and economic infrastructures and the business environment favorable to foreign investment. Thus the simulations with investment liberalization do not simply imply the removal of investment barriers, but also broader institutional and economic reforms to attract foreign investment.

Some modifications have been made to the partial adjustment model of capital mobility in order to account for the case of investment liberalization within the FTA region of concern. The partial adjustment model is applied separately to the FTA region and non-FTA region. In the first tier, the model of capital mobility is applied to non-FTA countries and the FTA region as the whole. In the second tier, capital is allocated among FTA members. Capital is allocated between FTA member countries, and between FTA region as the whole and non-FTA countries given the rate of return to capital. For this purpose, we also calculate the average and expected rates of return to capital for the FTA region. In the simulations with investment liberalization, we only reduce the parameter of flexibility in the partial adjustment model applied to the FTA region.

The CGE model is run for 15 years. Growth rates of labor forces and productivity are assigned to produce the targeted base-run economic growth. Trade liberalization under the FTAs follows somewhat complicated schedules with different time frame, different extents of reduction and exception being applied to different products and countries. We have adopted a simple way of conducting simulations to avoid the complexity of quantifying the actual tariff reduction schedule. The

Table 4 Simulation Scenarios

Scenarios	Description
CAFTA-TL	China-ASEAN free trade area- trade liberalization only
CAFTA-TIL	China-ASEAN free trade area- combined trade and investment liberalization
KAFTA-TL	Korea-ASEAN free trade area- trade liberalization only
KAFTA-TIL	Korea-ASEAN free trade area- combined trade and investment liberalization
JAFTA-TL	Japan-ASEAN free trade area- trade liberalization only
JAFTA-TIL	Japan-ASEAN free trade area- combined trade and investment liberalization
EAFTA-TL	East Asian free trade area- trade liberalization only
EAFTA-TIL	East Asian free trade area- combined trade and investment liberalization

Note: TL: trade liberalization; TIL: combined trade and investment liberalization

counterfactual shocks are given in the first year, consisting of the tariff removal and greater degree of capital mobility. The simulation exercises are not designed to quantify the actual impacts of these FTAs, but aiming at possible implications of regional economic integration for Vietnam's economic and industrial development.

5.2. Macroeconomic Impacts of Regional Integration

Regional integration could bring various benefits to Vietnam through the increased market access for Vietnam's exports and greater opportunities to attract foreign investment, and thereby promoting industrialization and economic growth in Vietnam. As half of Vietnam's exports are now directed to the regional market, the lowering of tariffs in regional trading partners could greatly improve the market access for Vietnam's exports. In addition, as the tariff rates remain at the high level in some regional countries, the liberalization in the regional trading partners could generate significant benefits. Regional integration also helps to attract foreign investment through improved investment environment and market enlargement. Foreign investors are not restricted to the domestic market, but they can produce for the whole regional market. This would promote the reallocation and adjustment of production within the region. Indeed, attracting foreign investment is one of the major motives for Vietnam and other ASEAN countries to pursue regional integration.

The current structure of the CGE model is capable of capturing the effects of regional economic integration through resources reallocation and greater inflows of foreign investment. The simulation results for the case of trade liberalization are reported in the first part of Table 5 for the initial year (the year 2001) and the last year (the year 2015). In all the FTAs investigated, trade liberalization leads to the expansion of output and welfare gains for Vietnam. There is also export expansion resulting from the reallocation of resources toward exporting industries and the greater market access for Vietnam's exports. The removal of tariffs in the FTA member countries also stimulates the inflows of foreign capital into Vietnam, as it can be observed from the increase in capital stocks and

investment in all the simulations.

In this dynamic analysis, the welfare and output gains accumulate over time as new investment flows in and creates new production capacity. In the first year, when capital stocks are fixed, the inflows of foreign investment and the resulting higher level of domestic investment have only the demand-side effect. Over time, greater capital flows resulting from trade liberalization are added to the capital stock, and thus create even greater welfare and output gains. As can be seen from Table 5, the first year impacts of the FTAs are rather limited, but increase substantially in the later years. The gains in real GDP from the ASEAN + 1 FTAs are less than 1% in the first year, but increase to 2.7% to 5% in the last year. The increase in real GDP from the East Asian FTA scenario triples from 2.5% in the first year to 7.5% in the last year.

Several studies, including Nguyen and Ezaki (2007), have shown the large contribution of foreign investment to the overall output and welfare gains of regional economic integration. The dynamic simulation analysis conducted in this paper again signifies the role of foreign investment in realizing the potential benefit of regional economic integration. The simulations with combined trade and investment liberalization show that much greater gains in output and welfare can be attained by liberalizing investment regimes and creating a more conducive environment for both domestic and foreign investment. In exception of China-ASEAN FTA, large capital inflows brought about by investment liberalization increases production capacity and output to a much greater extent as compared to the simulations with trade liberalization. However, the rate of return to capital declines with the sharp increase in capital stocks and reduces the motive for further capital inflows. Thus, as can be seen in Table 5, the gain in real investment falls over time in the scenarios of trade and investment liberalization.

Even all the investigated FTAs generate output and welfare gains for Vietnam, the impacts of regional integration vary over time and with the FTA in investigation. In the trade liberalization scenarios, the China-ASEAN FTA creates the largest welfare and output gains for Vietnam among the ASEAN + 1 FTAs. This is brought about by the fast growing Chinese economy and the growing trade volume between China and ASEAN countries. The first-year impact of the CAFTA on Vietnam, in terms of real GDP, is of the same extent to the KAFTA and JAFTA. The final year gain in real GDP amounts to nearly 5% for the case of the CAFTA, nearly doubling the respective gains from the KAFTA and JAFTA. Similarly, the first-year gain in exports is lower in the case of CAFTA as compared to other two ASEAN + 1 FTAs, reflecting the fact that China and ASEAN countries are more competitive than complementary in economic structure. Overtime, however, the export gain from the CAFTA exceeds those from the KAFTA and JAFTA.

The implications of regional integration are different under the scenarios of combined trade and investment liberalization. The FTAs between ASEAN and Japan and Korea produce far larger impacts on Vietnam, largely brought about by the inflows of foreign capital. This reflects the fact that both

Table 5 Impacts of Regional Economic Integration on Vietnam's Economy- Macroeconomic Variables (Percentage change compared to the base-run scenario)

	CAFTA		KAFTA		JAFTA		EAFTA	
	2001	2015	2001	2015	2001	2015	2001	2015
A. Trade Liberalization								
Consumer price index	-1.0	-1.3	-1.9	-2.4	-1.3	-1.9	-0.8	-1.5
Average wage rate	4.2	8.8	2.7	4.4	3.2	4.7	8.3	14.1
Average wage rate (skilled labor)	3.8	7.8	2.5	4.0	2.9	4.2	7.5	12.3
Average wage rate (unskilled labor)	4.4	9.1	2.7	4.5	3.3	4.8	8.5	14.5
Capital rent	3.2	0.4	1.7	-0.3	2.1	-0.3	5.9	1.1
Capital stock	0.0	7.7	0.0	3.7	0.0	4.0	0.0	10.8
Real GDP	0.8	5.0	0.8	2.7	0.7	2.9	2.3	7.9
Household consumption	4.9	9.7	4.4	6.1	4.3	6.1	8.6	14.6
Government consumption	-27.0	-26.1	-25.1	-23.6	-22.3	-19.8	-43.9	-41.8
Real investment	5.4	11.9	2.9	5.2	3.1	5.6	7.8	15.8
Imports	7.0	12.1	6.5	8.3	6.8	8.2	14.1	19.6
Exports	3.9	7.0	5.7	6.4	5.7	6.0	10.8	12.9
B. Trade and Investment Liberalization								
Consumer price index	0.4	-2.2	5.5	-4.6	8.4	-2.1	4.8	-3.4
Average wage rate	7.4	5.3	18.4	12.8	24.3	32.8	20.9	25.8
Average wage rate (skilled labor)	6.5	4.5	15.9	11.0	20.9	28.2	17.9	21.7
Average wage rate (unskilled labor)	7.7	5.5	19.1	13.4	25.2	34.1	21.7	26.9
Capital rent	5.6	-0.8	13.5	-11.9	18.1	-16.7	15.4	-10.5
Capital stock	0.0	5.6	0.0	29.2	0.0	63.4	0.0	41.2
Real GDP	1.1	3.3	1.5	16.9	1.4	36.1	2.8	24.6
Household consumption	6.3	7.2	10.2	19.0	11.9	38.9	13.6	30.9
Government consumption	-26.5	-26.9	-21.8	-12.6	-17.9	8.0	-42.5	-32.5
Real investment	19.0	0.7	58.1	19.6	73.8	68.5	58.3	38.1
Imports	12.8	6.4	30.7	18.1	38.4	46.0	35.0	33.9
Exports	0.4	7.6	-8.5	17.1	-12.2	21.5	-3.8	23.5

Sources: Author's calculation

Notes: CAFTA: China-ASEAN FTA; KAFTA: Korea-ASEAN FTA; JAFTA: Japan-ASEAN FTA; EAFTA: East Asian FTA

Korea and Japan are the major source of foreign investment in the region. In the scenario of the JAFTA, the capital stocks of Vietnam increase by more than 60%, whereas the gain in real GDP amounts to 36% in the final year. Combined trade and investment liberalization under the KAFTA also produces substantial increases in output and capital inflows, but to a lesser extent as compared to the case of JAFTA. As both China and ASEAN countries have remained the recipients of FDI rather than sources of FDI, investment liberalization in these countries does not create large gains in investment. Indeed, in the case of the CAFTA, the combined investment and trade liberalization seems to divert investment flows toward other countries, thus lowering the gains in real GDP and capital stocks for Vietnam, in comparison with the case of trade liberalization.

The formation of a region-wide FTA could offer greater benefits and opportunities for the regional countries. A regional FTA in East Asia would further open the market access for member countries, improve the efficiency through the greater resource reallocation, and stimulate the inflow of investment and reallocation of production across the region. The East Asian FTA (EAFTA) produces the largest impacts among the scenarios of trade liberalization. Combined trade and investment liberalization even creates far greater gains in terms of output, exports and investment. The gain in real GDP amounts to 10% in the case of trade liberalization, but increase to nearly 25% with investment liberalization included.

5.3. Regional Integration and Industrialization

As discussed in the previous section, regional economic integration has raised various concerns among Vietnam's policy makers and academic circle over its possible negative impacts. Tariff reductions would lead to increasing competitive pressures from the regional imports. Domestic firms, lack of capital and technological capabilities and managerial skills may fail to compete with regional producers, and at the same time, they may not be able to utilize new export opportunities brought about by regional integration. As a consequence, the country may be marginalized, ending up with some low-tech, low value-added industries. The concerns over the possible negative impacts of regional economic integration has largely explained for the reluctance on the side of Vietnam in pursuing further integration with the regional economy.

This section attempts to examine the implication of regional economic integration on the development and upgrading of Vietnam's industries. Based on the dynamic analysis of the four regional FTAs of concern, we track the impacts of regional integration over time and assess the role of trade liberalization and foreign investment. Table 6 presents the sectoral impacts of the investigated FTAs on Vietnam in terms of percentage changes in production output compared to the base-run level. The first part of Table 6 presents the simulation results for the scenarios of trade liberalization, while the simulation results for combined trade and investment liberalization is presented in the latter half.

Table 6 Impacts of Regional Economic Integration on Vietnam's Economy- Sectoral Results(Percentage change compared to the base-run scenario)

	Trade Liberalization						Trade and Investment Liberalization									
	CAFTA		KAFTA		JAFTA		EFTA		CAFTA		KAFTA		JAFTA		EFTA	
	2001	2015	2001	2015	2001	2015	2001	2015	2001	2015	2001	2015	2001	2015	2001	2015
Total output	1.1	5.1	1.2	2.7	1.3	2.9	2.5	7.5	1.4	3.6	2.7	16.9	3.2	35.3	3.3	23.7
Manufacturing sector	1.9	5.0	3.4	4.1	3.6	4.0	6.8	9.2	-1.2	5.3	-7.8	15.9	-10.6	24.5	-6.0	20.3
Light manufactures	3.4	5.5	6.2	6.3	7.2	6.3	13.9	14.4	0.0	7.0	-8.2	14.8	-11.2	17.0	-2.3	21.3
Heavy manufactures	-0.1	4.5	-0.5	1.9	-1.3	1.6	-3.0	3.8	-2.8	3.4	-7.3	17.1	-9.8	32.2	-11.1	19.2
Changes in manufacturing output																
Crop	1.3	4.1	1.5	2.4	1.9	2.8	3.7	7.2	-2.0	5.2	-9.7	10.8	-12.2	13.9	-6.7	16.3
Livestock	1.5	4.7	0.9	2.1	1.0	2.3	1.6	5.6	1.2	3.8	0.1	11.8	0.1	22.2	0.7	16.5
Forestry	-0.6	4.3	-1.9	0.2	-2.2	0.2	-2.1	4.9	-1.4	4.6	-5.7	15.8	-7.1	31.0	-5.2	23.3
Fishing	2.8	6.0	1.6	2.8	2.0	3.2	3.2	7.3	1.4	5.6	-1.9	12.5	-2.4	21.9	-0.9	17.9
Mining	1.5	6.5	0.5	3.0	-0.1	2.8	0.0	6.8	4.0	5.2	7.3	20.2	8.6	39.9	9.8	29.6
Food processing	3.0	5.0	2.5	3.4	3.5	4.1	3.1	5.8	-1.3	6.1	-9.0	11.8	-10.8	15.2	-9.2	13.6
Beverage	-0.9	3.3	-1.8	-0.1	-1.6	0.1	-0.3	5.3	-0.6	1.7	0.5	12.1	1.4	29.1	1.4	20.2
Wood	-2.2	1.7	-3.2	-1.5	-3.5	-1.5	-4.4	1.6	-4.1	2.7	-9.9	13.1	-12.0	25.3	-11.8	17.2
Chemical	0.7	6.6	-1.7	0.8	-2.1	0.7	-1.0	7.3	0.3	7.2	-6.6	18.7	-8.4	35.8	-2.3	28.8
Automobile	-3.2	-1.0	-23.7	-23.1	-18.0	-15.2	-33.6	-30.7	-4.6	-1.4	-29.0	-14.2	-25.3	3.6	-42.4	-24.4
Other transport means	-34.4	-35.8	-10.4	-7.7	-10.6	-7.7	-36.6	-38.1	-34.2	-36.9	-8.6	5.2	-9.2	20.6	-38.7	-32.7
Electronics	-3.8	-0.8	-4.3	-2.9	-5.2	-3.2	-7.2	-2.7	-5.8	-3.6	-9.6	9.4	-12.5	23.2	-17.8	8.8
Machine	11.0	16.0	11.3	15.7	8.3	13.6	7.1	14.8	-1.6	8.7	-3.0	26.9	-7.3	40.6	-21.7	17.2
Metal	-1.9	1.4	-2.2	0.0	-3.0	0.1	-7.8	-2.2	-3.6	0.2	-7.3	16.1	-9.8	32.1	-13.2	13.6
Textile	8.8	12.9	17.9	20.6	23.5	22.3	45.6	50.3	5.6	14.8	-2.5	27.2	-4.5	23.8	13.7	48.0
Leather	4.1	3.9	10.2	10.7	7.7	7.5	18.6	17.8	0.0	7.8	-13.9	12.0	-21.8	-4.2	0.5	17.7
Other manufactures	-0.4	2.3	-0.7	0.9	-1.0	0.5	-3.3	0.9	-2.7	3.1	-12.4	12.0	-15.7	18.5	-14.2	11.5
Utility	2.1	6.0	1.3	2.9	1.1	2.8	2.6	7.5	1.8	4.6	0.7	15.4	0.4	30.5	1.4	21.7
Construction	5.4	11.8	2.9	5.2	3.1	5.6	7.7	15.7	18.6	1.0	55.8	19.7	70.5	67.8	56.0	38.0
Service	-1.9	3.1	-1.6	0.9	-1.7	1.2	-3.6	3.5	-3.1	2.4	-6.6	17.8	-8.2	37.0	-8.1	22.6

Sources: Author's calculation

Notes: light industries consist of processed food, beverage, wood and paper, textile and leather. The remaining is classified as heavy industries

The initial year impacts show the substantial adjustments in Vietnam's production following the removal of tariffs and investment liberalization in all the simulation scenarios. While some industries expand, other industries suffer a sharp contraction. The expanding industries consist of agriculture and mining, and labor-intensive industries. At the same time, the contracting industries consist mostly of capital-intensive industries, which are highly protected in Vietnam. The first-year's sectoral impacts can be viewed as static one, and are also in line with the current pattern of Vietnam's regional trade and comparative advantage. Most of Vietnam's current exports to the regional market are natural resources based and labor intensive products. These are also the products that Vietnam possesses a comparative advantage as compared to the regional countries.

The pattern of sectoral adjustments is similar for all the FTAs in investigation, but there are some variations between different FTA scenarios, depending on whether the countries involved are competitive or complementary in trade and production to Vietnam. The structure of trade and production of China and ASEAN countries are more competitive than complementary to Vietnam. All these countries are extensively engaged in the exporting of agricultural and labor intensive products. Middle-income ASEAN countries and China are also the major exporters of electronic products. By contrast, Japan and Korea have more advanced production structure and are more complementary in terms of trade and production to Vietnam. Japan is the third largest export markets of Vietnam and the largest regional market for Vietnam's exports of textile and garments.

The simulation results for the CAFTA show less expansionary impacts on Vietnam's agriculture and labor-intensive industries and less contractionary effects on capital-intensive industries. By contrast, the FTAs between ASEAN and Korea and Japan lead to greater sectoral adjustments in Vietnam. The liberalization in Japanese and Korean markets appear to have strong impacts on labor-intensive industries, and textile, garment and leather in particular, as these industries experience substantial production expansion. Automobile and other transportation means suffer a larger contraction in the case of the KAFTA and JAFTA as compared to the case of the CAFTA.

Under the scenarios of trade liberalization, the pattern of changes in sectoral production is maintained in large part for the whole simulation period, with agriculture and labor-intensive industries expanding while capital-intensive industries contracting. Over time, as more capital flows in and is added to the production capacity, agriculture and labor-intensive industries expand even more, while heavy industries appear to contract less. In aggregate, output of the manufacturing sector expands in all simulations at the rate ranging from 4% in the case of the JAFTA to more than 9% in the case of the EAFTA. The output expansion in the manufacturing sector is brought about in large part by the expansion of light manufactures.

The scenarios of trade liberalization obviously give rise the concern that Vietnam could get stuck into the low tech, low value-added industries as the protection barriers are removed. The simulations with trade and investment liberalization, however, bring about very different implication for Vietnam's

industrial development. In these simulations, large capital inflows following investment liberalization lead to substantial additional output gains in the manufacturing sectors. This is especially the case when the major investing countries in the regions, that is Japan and Korea, are included. Total manufacturing output increases by 15.9% in the final year in the KAFTA, 24.5% in the JAFTA scenario, and 20.3% in the EAFTA scenarios.

Large capital inflows do not only promote stronger expansion in light manufactures but also in heavy manufactures. In aggregate, both light manufactures and heavy manufactures expand to a greater extent compared to the case of trade liberalization in the final year. Light manufactures experience a continuous and increasing expansion as more capital flows in over time. By contrast, heavy manufactures suffer initial contraction as in the scenarios of trade liberalization, but many of which expand over time and have substantial output gain in the final year. This is the case for metal, chemical, electronics and other manufactures. As an example, the electronics industry declines by 17.8% in the first year, but finally has an output gain of 8.8%. If the expansion in the light manufactures are largely driven by higher export demand resulting from the removal of tariff in the regional countries, the expansion in the later years in heavy manufactures are led by higher domestic demand.

Trade and investment liberalization in East Asia would lead to the reallocation of resources across the region based on each country's factor endowments and comparative advantages, and thereby increasing the efficiency and competitiveness of the region as the whole. While certain industries are more efficient to be allocated in Vietnam, other products could be more efficiently produced in other countries. The simulation results show that the automobile sector and other transportation means suffer a sharp contraction in all simulations with or without investment liberalization. Both these industries are among the most highly protected in Vietnam, and to different extents, have suffered from inefficiency and low competitiveness due to the small size of domestic market⁸.

Despite the possible contraction in certain industries, regional integration seems largely to promote industrial development in Vietnam. The dynamic simulation analysis signifies the role of foreign investment in realizing the potential benefits of regional economic integration. Large capital inflows do not only generate substantial increases in output and income, it also promotes the development of both light and heavy industries. Trade liberalization needs to be accompanied by adequate policies to attract investment toward potential exporting industries through the liberalization of investment regimes and establishment of favorable investment environment. It should be noted that the simulation analysis has not taken into account the transfers of technology and managerial skills associated with foreign investment. When these effects are incorporated, one can expect even greater implication of regional integration for Vietnam's industrial development and upgrading.

As discussed in section 3, the current regional FTAs that Vietnam has engaged in seem not lead to excessive pressures and adjustment for Vietnam in the near future, as the country are allowed to

phase in many of highly protected products in the sensitive list. For these products, Vietnam would have 10 years or more before it is obliged to substantially reduce the protection barriers. However, it is a doubt that the period of 10 years is long enough for the domestic market to grow and allow some industries like automobile to exploit the economies of scale and stand firmly in the domestic market, putting aside the possibility of gaining international competitiveness. In addition, Vietnam's current policy lines of liberalizing investment regimes while maintaining protection barriers could further divert investment flows toward import-substituting and non-traded sectors as it has occurred in recent years⁹.

Our simulation analysis suggests that, instead of continued protection of certain industries, it could be a better policy option for Vietnam to promote exports and foreign investment through deeper integration with the regional economy. Vietnam could attract FDI and promote exports through the greater participation in regional production networks that have been established in various industries across Asia. Further improvements in legal environments, infrastructures and human resources are needed for future export growth and FDI attraction. The availability of well-trained labor forces are required to make Vietnam a regional production base and allow the country to participate successfully into the regional production networks.

6. Concluding Remarks

This paper has conducted a quantitative analysis of the impacts of regional economic integration on Vietnam, using a global CGE model. Different from our previous studies, this paper has investigated the implication of investment liberalization in addition to trade liberalization, and has performed a dynamic simulation analysis to investigate the impacts of regional integration. Four regional trading arrangements, that are of relevance for Vietnam have been examined, including the three ASEAN + 1 FTAs between ASEAN and China, Korea and Japan and the possible formation of a broader free trade area in East Asia.

The simulation analysis has shown the positive impacts of regional economic integration on Vietnam's economy. The implication of regional integration varies with the FTAs depending on the economic structure of the countries involved, but all the FTAs in investigation lead to output and welfare gains, while stimulating exports. Despite the concern over the increasing competition for foreign investment in the region, regional integration seems further stimulate capital inflows to Vietnam, especially in the case trade liberalization is combined with the removal of investment barriers. Furthermore the gains from greater capital inflows brought about by regional economic integration far exceed those of the tariff removal.

The simulation analysis also signifies the role of foreign investment in realizing the potential benefits of regional economic integration. Greater capital inflows do not only create additional output

gains, but also promoting the industrial development in Vietnam, for both exporting industries and import-substituting industries. Thus trade liberalization needs to be accompanied by adequate policies to attract foreign investment through the removal of investment barriers and creation of a better investment environment. The availability of well-trained labor forces is of great importance for Vietnam to move up the development ladder and promote the industrial development.

Notes

- 1 Singapore, like Hong kong, has been acting as a sub-contractor for Vietnam in the international market, and the statistics of Vietnam's trade with these countries also include re-exports. The decreasing trade shares with these countries, as shown in Table 1, partly reflect the fact that an increasing portion of Vietnamese products has been directly exported to the foreign market without going through Singapore and Hong kong.
- 2 According to the Investment Law, conditional sectors include banking and insurance, telecommunication, transportation, postal, education and health, broadcastings, mining and fishing. The conditional list and the conditions for investment, however, can be adjusted with some sectors can be added up in accordance with the economic situation and development policy. In addition to conditional investment, large-scale projects are still subjects to screening and approval by the government.
- 3 For example, foreign investors are allowed to set up 100% foreign establishment in the distribution services (both whole sale and retail), banking sector, financial services and telecommunication. Certain limitations on the scope of activity and foreign ownership are imposed temporarily but will be phased out within 5 years.
- 4 See, for example, Kawai (2005) and Rajan and Sen (2005) for a discussion of the motives underlying the recent proliferation of FTAs in East Asia.
- 5 The recent emergence of China and the progressive liberalization in Asian developing countries has resulted in increasing competition for FDI and export markets, and has attracted a lot of discussion and debate in the literature. For example, see Eichengreen (2006) or Tan and Khor (2006) for different discussion of China emergence and its implications for developing Asia.
- 6 See Nguyen and Ezaki (2005, 2007), Chaiwoot et al (2007) and Hartono et al (2007)
- 7 More details about GTAP database version 6 can be found in GTAP homepage (<http://www.gtap.agecon.purdue.edu/>).
- 8 A study by Ohno (2005) shows that the automobile sector still suffers small domestic markets, low capacity utilization, high cost and the low level of localization. At the same time, some other protected industries like motorcycles were able to perform better than to the availability of local demand.
- 9 Even it is not reported here, we have conducted some simulations, in which investment regimes are liberalized but tariff barriers are maintained. In these simulations, investment flows increase substantially, but largely flowing toward service sector and heavy industries at the expense of exporting industries. Some light manufactures experiences small output gains, while others suffer output losses.

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