4. Implications of ASEAN economic integration on services: a global computable general equilibrium analysis

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1. INTRODUCTION

The economies of the Association of Southeast Asian Nations (ASEAN) are aware of the key role services trade can play in development. And they have made services central to their integration agenda (ASEAN-World Bank 2015). At the 5th ASEAN Summit in Bangkok in 1995, ASEAN Economic Ministers (AEMs) signed the ASEAN Framework Agreement on Services (AFAS), which requires members to enhance market access and guarantee equal national treatment for service suppliers among ASEAN countries. Another landmark framework agreement related to services trade is the 2007 ASEAN Economic Community (AEC) Blueprint. ASEAN members agreed to subsequent rounds of AFAS negotiations and schedule liberalization commitments to 2015—based on the parameters and timelines outlined in the AEC Blueprint. Detailed targets were set for integrating services markets, culminating in the free flow of services, investment and skilled labor by 2015. AFAS would substantially eliminate restrictions on services trade among ASEAN countries to improve the efficiency and competitiveness of ASEAN services suppliers and to accelerate economic growth and job creation (ASEAN-World Bank 2015).

The commitments cover services such as air transport, business, construction, distribution, education, the environment, finance, healthcare, maritime transport, telecommunications and tourism. The AEMs also concluded eight mutual recognition arrangements (MRAs) for architects, medical and dental practitioners, and engineering, nursing and tourism professionals along with framework agreements for surveyors and accountants. The MRAs enable professional service providers certified

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or registered in their home country to be mutually recognized by other signatories (ASEAN-World Bank 2015).

The ASEAN Vision 2020—of a single market and production base—is an essential step toward liberalizing services trade. Its success depends on how it is implemented and measured. Identifying barriers to services trade, the degree of liberalization and regulatory reforms must be examined and analyzed. As of 2016, ASEAN members generated 37% to 74% of gross domestic product (GDP) from services, far exceeding GDP from agriculture and industry.[1] ASEAN services exports grew from $113.6 billion in 2005 to $291.9 billion in 2013—a 12.5% average annual growth. Over the same period, services imports increased from $140.7 billion to $298.6 billion (9.9% annual growth). In particular, liberalizing services trade requires policy reforms that attract investment and technology and create jobs for skilled labor (ASEAN-World Bank 2015).

On average, ASEAN services trade policies are more restricted than those of any other region in the world, except the Gulf States. The average Services Trade Restrictive Index (STRI) for the region is 60% above the global average—although restrictions vary widely across ASEAN countries and across income levels. Cambodia and Singapore have the most open policies. Myanmar and Viet Nam are also relatively open with few restrictions, while services trade in Indonesia, Thailand, the Philippines, and Malaysia is tightly restricted.

Even with AFAS in place, ASEAN countries have not moved further. While there are some instances of markets opening up, there are also instances of new restrictions. For the six ASEAN members originally surveyed in 2008, there was little change in overall policy regime through 2012. Even with AFAS and some further liberalization, the goal of free flow of services remains a long way off (ASEAN-World Bank 2015).

There are two areas, however, where progress in services integration is clear. The first is in air transport, where some steps have been taken toward a regional open sky policy. The second is in the MRAs for skilled professionals. These suggest that regionalism could have incremental value when focusing on areas not addressed multilaterally—such as in professional services and transportation.[2]

Malaysia pioneered open, private higher education by fostering cross-border trade in educational services, implementing both the requisite regulatory framework and developing quality assurance infrastructure. Singapore strengthened its position as the regional financial hub by preparing an open domestic financial sector alongside its reformed regulatory framework. Thailand has been proactive in targeting high-value-added markets. While initially focusing on tourism, it has aggressively moved into healthcare through complementary policies such as compulsory public

service for medical graduates and financial incentives for rural doctors. The Philippines has been successful in capturing a significant share of the global business process outsourcing market using a holistic approach.[3]

ASEAN has signed several services trade agreements with its "+3" partners—the People's Republic of China (PRC), Japan, and the Republic of Korea. In October 2003, Japan and ASEAN signed a general free trade agreement (FTA) framework that led to a formal FTA coming into force on 1 December 2008. ASEAN and Japan continue to work within World Trade Organization (WTO) rules to progressively eliminate discriminatory measures on services trade, facilitate entry and temporary movement of business people, and enhance cooperation for greater efficiency and competitiveness.

ASEAN and the Republic of Korea signed and implemented the ASEAN-Korea Trade in Services Agreement (AKTIS) in 2009. In January 2007, the PRC and ASEAN signed an agreement on trade in services, effective July 2007.

The ASEAN-India Free Trade Agreement in Services and Investment was signed in September 2014 and came into force in July 2015. It covers telecommunications, information technology (IT), transportation and logistics, financial services, education, real estate, business services, health and social services, and the "Mode IV" free movement of semi-skilled labor and professionals.[4] India and ASEAN set trade targets of $100 billion by 2015 and $200 billion by 2022. In 2015, however, total merchandise trade was just $58.7 billion, down 13.29% from the 2014 $67.7 billion total. During the same period, foreign direct investments (FDI) from India leapt 164%—from $606 million (2014) to $1.6 billion (2015).[5] In the other direction, ASEAN investments to India grew to $5.3 billion in 2014/15.[6] India holds a comparative advantage over the ASEAN nations in IT services, telecommunications, e-commerce, and engineering services—whereas ASEAN has the advantage in construction services, shipping and transportation, and logistics. Both are equally competitive in financial and insurance services (East Asia Forum 2013).

Using a global computable general equilibrium (CGE) framework, this chapter evaluates the effects ASEAN services trade liberalization would have in 2030 within ASEAN, between ASEAN and Japan, the Republic of Korea, the PRC, the +3 as a group, and between ASEAN and India. The Global Trade Analysis Project (GTAP) is primarily a tool for global trade analysis, and useful in studying the impact of service trade agreements. Results show that liberalizing services trade within ASEAN has a significant impact on output and trade. It finds that reducing tariffs to ASEAN's +3 partners significantly benefits ASEAN members. Moreover, it shows job creation in various service sectors across ASEAN, with the

greatest impact in trade and transport—except in smaller ASEAN members, where employment growth is higher in agriculture and semi-skilled manufacturing.

Developing an effective cooperative regulatory framework is essential to promote both bilateral cooperation and ensure long-term benefits reach all ASEAN members (Vo and Bartlett 2006). Implementing the 15-year-old AFAS requires that efficient coordination between ASEAN working committees and specialized working groups must be accelerated. Working groups have been established for six sectors—business services, construction, maritime services, telecommunications, tourism, and healthcare. Air transportation, banking, and insurance are also expected to be liberalized. The results here found that these two sectors have huge scope to generate benefits across ASEAN and its neighbors.

The rest of the chapter is organized as follows. Section 2 reviews existing studies. Section 3 explains the methodological framework, data, and defined scenarios. Section 4 discusses the results. The chapter concludes with a summary of the findings and offers several policy suggestions.

2.   LITERATURE REVIEW

The services sector is the next frontier in trade liberalization, with progress likely to bring enormous economic benefits to ASEAN. However, one major impediment is the lack of rigorous analytical work on its potential impact. Existing studies adopt different types of modelling to address the impact and consequences of liberalizing services trade. CGE models are often used to assess economy-wide effects of trade liberalization—which can be useful in policy deliberations.

Restrictions on services trade are far more complex than those on goods. Fukui and McDaniel (2010) described a set of stylized facts using CGE modelling research: they found that: (i) barriers to services trade are complex and heterogeneous across sectors; (ii) services have significant effects on downstream industries; (iii) market structure assumptions are crucial; (iv) foreign presence is often necessary for services trade; and (v) entry or fixed-cost barriers that restrict new foreign and domestic entrants are common. Benjamin and Diao (2000) studied services trade liberalization in the Asia-Pacific Economic Cooperation (APEC) forum using a global, multi-country, multi-sector applied general equilibrium model with an imperfectly competitive services sector. They applied the reduction in nontariff barriers in services by eliminating the possibility of price-discriminating oligopolistic firms between client countries within APEC. The results suggest that liberalizing services trade reinforces exist-

ing sectoral trade balances. More advanced APEC members gained the most from services trade liberalization, while developing economies gained more only if tariffs were eliminated.

Jensen et al. (2007) modelled the Russian Federation's potential accession to the WTO, including explicit treatment of foreign direct investment. They estimated economic welfare gains equivalent to 11% of GDP, and found FDI a key channel of economic benefit. In related work, Rutherford et al. (2005) found that real income effects from liberalization increased from 2% to 25%, with a decomposition of the results indicating liberalizing FDI was a principal component of welfare gains. In later work, Jensen et al. (2008) highlighted the importance of coordinated domestic regulations and trade reform in services. They used a CGE model to assess the potential impact of liberalizing regulatory barriers against foreign and domestic service providers in Tanzania. They found that the largest gains derived from liberalizing 12 nondiscriminatory barriers. In addition, their model illustrated that greater access to business services improved labor and capital productivity across all sectors of the economy—and that, in the long run, the increased productivity of capital induced capital accumulation and increased capital stock, which in Tanzania resulted in a general expansion in manufacturing.

Chadha et al. (2000) used a CGE model to assess the impact of future services trade liberalization on India's economy. They found that barriers to services trade were likely to be more complex than tariff barriers. They estimated that India's real income would rise 1.6% after services trade reform. Also using a CGE model, Robinson et al. (2002) evaluated the impact on the world economy of liberalizing services trade as technology transferred from developed countries to developing economies. They found that services trade liberalization not only directly affected global services production and trade, but also had significant implications for other economic sectors. Developed countries gained relatively more from increasing services exports compared with developing countries, while developing economies gained more from increased access to developed country markets for their manufactured export. Trade liberalization also affects an economy through growth in total factor productivity—induced by intermediate inputs, capital goods, and professional services imported into developing countries from advanced economies.

Whalley (2003) assessed quantitative studies on the potential effects liberalizing services trade has on developing countries. He highlighted the importance of firm and worker mobility, the heterogeneity of services, and the relatively large effect of capturing capital flows, typically in the form of FDI. In their study on Tunisia, Konan and Maskus (2006) also used CGE to quantify the economy-wide effects of services trade liberalization, focusing

on foreign investment in services. Their results showed that removing barriers against FDI was an essential component of potential welfare gains.

Few studies deal with ASEAN trade and investment liberalization. Ishido (2011) investigated the degree of liberalization of ASEAN services trade under four FTAs. The study found that effects differ greatly between sensitive and less sensitive sectors, and that there were sector-wide similarities across countries in commitments under each FTA studied. Dee (2012) mapped policy space in three key service sectors—air transport, maritime services (both shipping and port services), and telecommunications—attempting to find evidence on whether ASEAN Single Windows help achieve the broader revised Kyoto Convention objectives on customs procedures.

This chapter helps determine what is needed in each ASEAN member to effectively liberalize services trade. Most ASEAN countries are relatively transparent about their trade regulations. Yet very few assess the results of reforms, for example, in the time needed to clear customs.

3.   ANALYTICAL FRAMEWORK

The GTAP CGE modelling framework is one of the best ways of analyzing the economic consequences of multilateral trade agreements, as it integrates national, regional, and global linkages both by product and input markets. A CGE model consists of a system of equations that describes an economy as a whole and the interactions among its various parts. The equilibrium obtained from CGE models satisfies important macroeconomic and market clearing constraints like the equality of aggregate supply and demand for goods and services, full employment, and capital stock and equality/ratio of national or global savings to investment. The structure of the GTAP model is specified and described in Hertel (1997) and Mukhopadhyay and Thomassin (2010, p.209). The model includes industries, households, governments, and global links across economies through trade. Prices and quantities are generated simultaneously in both factor and commodity markets. These models begin by classifying variables in the equation as exogenous and endogenous (Burfisher 2012). The details of the model are described in Appendix 4A.1.

Experiments in CGE modelling are conducted by creating shocks to exogenous variables—by creating disequilibrium—in the models. The CGE model equations then determine new values for all the endogenous variables, creating a new equilibrium where supply across the economy once again equals demand at a new set of prices. The simulations give comparative static results—the models study the impact that changes in exogenous parameters (shocks) have on allocating goods among consum-

ers and resources among productive activities, along with the consequences for economic efficiency. The models compare alternative equilibrium states without considering the path between the two states. Thus, the models do not have an explicit time dimension. They are used to represent different time frames by changing the microeconomic elements of the closure.[7] The results of static simulations are often interpreted as representing what the economic system would look like if the new policy had been in place in the base year after relevant adjustments had taken place (Gilbert 2001).

This chapter uses the GTAP database, which includes input-output tables, bilateral trade flows, transport costs, information on tariff and nontariff barriers, and all other data included in the Social Accounting Matrices (SAM) used in CGE models (Burfisher 2012).

A standard GTAP model selects exogenous variables assuming there is full employment in factor markets. This is a neoclassical approach whereby the endowments of productive factors are fixed, allowing market prices to adjust so as to maintain full employment. But full employment is rarely achieved in the real world, particularly for unskilled labor in developing countries.[8] Hence, the simulations conducted here replace the assumption of full employment with unemployment for unskilled labor for all the countries/regions under consideration. This is done by swapping the fixed endowment of unskilled labor in all ASEAN countries and India, the PRC, Japan, and the Republic of Korea with fixed real wages of unskilled labor.[9] Thus, market prices of unskilled labor no longer adjust to ensure full employment, but instead capture unemployment with respect to unskilled labor in each economy.

3.1 Data Aggregation

As the main purpose here is to analyze the possible economic impact of liberalizing ASEAN service trade, aggregation is done on the original database. The 129 regions in the original database were aggregated into 14 regions with a focus on ASEAN.[10] In addition to regional aggregation, sectors in the GTAP 8 database are aggregated based on the proposed service tariffs used (Narayanan et al. 2012). With the broad disaggregation of service sectors considered,[11] the original 57 sectors are aggregated into 30 sectors. The detail aggregation scheme of regions and sectors are given in Appendix 4A.2.

3.2 Experimental Design

Six scenarios were simulated to analyze the impact of services trade liberalization within ASEAN. The initial benchmark equilibrium was based

on the 2007 model to create counterfactual equilibrium benchmarks—the Business as Usual (BAU) scenario—for 2014 and 2030 through a recursive process using estimated macroeconomic variables (Fouré et al. 2010).[12] New structures are generated for 2007–2014 and 2014–2030 using macroeconomic shocks for the key variables. The exogenous shocks include capital, population, skilled labor, unskilled labor, and total factor productivity. The projection of each economy to 2014 is made using the actual growth rate for each variable. The projection growth rate for total factor productivity for non-agricultural sectors is sourced from Fouré et al. The growth rate for total factor productivity for agriculture is based on the estimations of Ludena et al. (2007). The population growth rate projection was taken from United Nations (2012). Growth rates for skilled labor, unskilled labor, and capital are taken from Fouré et al. GDP is endogenously determined to accommodate the combination of these exogenous shocks.

Results provide a projection for the global economy in 2014 that is in equilibrium. The forecast economy in 2014 is the starting point for subsequent simulation exercises. This forecasting procedure is also applied to update each economy studied to 2030.

Actual tariff equivalents of nontariff barriers on services applied on the model come from Lee and Itakura (2013) before reducing barriers. *Ad valorem* tariff equivalents of nontariff barriers in nine service sectors are computed as weighted averages of the gravity-model estimates of Wang et al. (2009) and the values employed by the Michigan Model of World Production and Trade (see, for example, Brown et al. 2010). The full reduction in service trade barriers was applied to six scenarios at 2030:
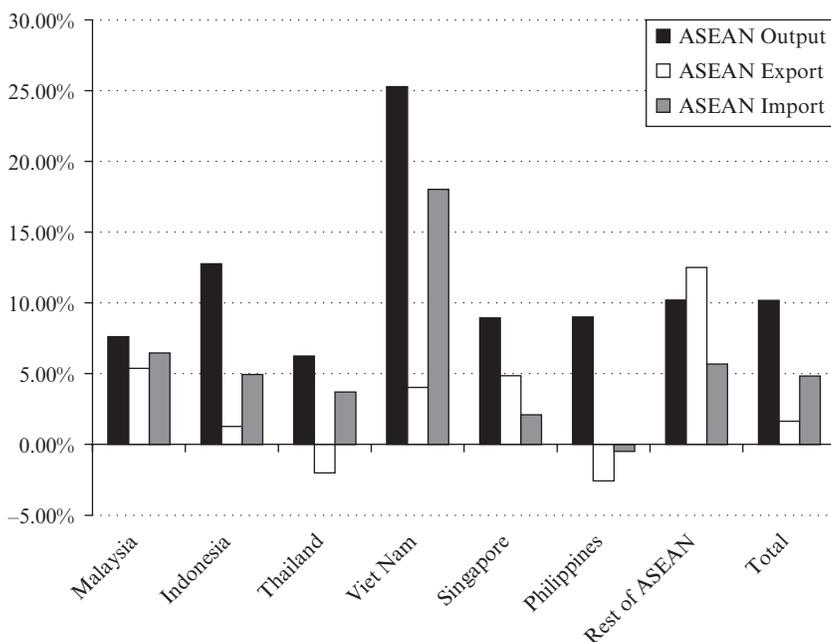
1. S-ASEAN—tariff reductions of selected service sectors within ASEAN;
2. S-ASEAN+3—tariff reductions of selected service sectors within ASEAN and between ASEAN and the PRC/Japan/Republic of Korea;
3. S-ASEAN+Japan—tariff reductions of selected service sectors between ASEAN and Japan;
4. S-ASEAN+Republic of Korea—tariff reductions of selected service sectors between ASEAN and the Republic of Korea;
5. S-ASEAN+PRC—tariff reductions of selected service sectors between ASEAN and the People's Republic of China; and
6. S-ASEAN+India—tariff reductions of selected service sectors between ASEAN and India.

4.   RESULTS AND DISCUSSION

This section examines six scenarios of how ASEAN countries would be affected by liberalizing services trade. Figures 4.1 to 4.6 show the impact service trade liberalization would have on output, exports and imports in 2030, as well as its implications on employment generation for skilled and unskilled labor in the member countries.

4.1   Economic Impact

Reducing barriers to services trade within ASEAN (scenario 1) has a significant positive impact on output in all ASEAN countries. Total ASEAN output in 2030 under scenario 1 increases $295.8 billion (10.2%)

Note: * S-ASEAN = tariff reductions of selected service sectors within ASEAN compared with Business as Usual (no liberalization).

Source: Author's calculations.

Figure 4.1   Scenario 1—impact of service trade liberalization in 2030 within ASEAN compared to BAU 2030* (%)
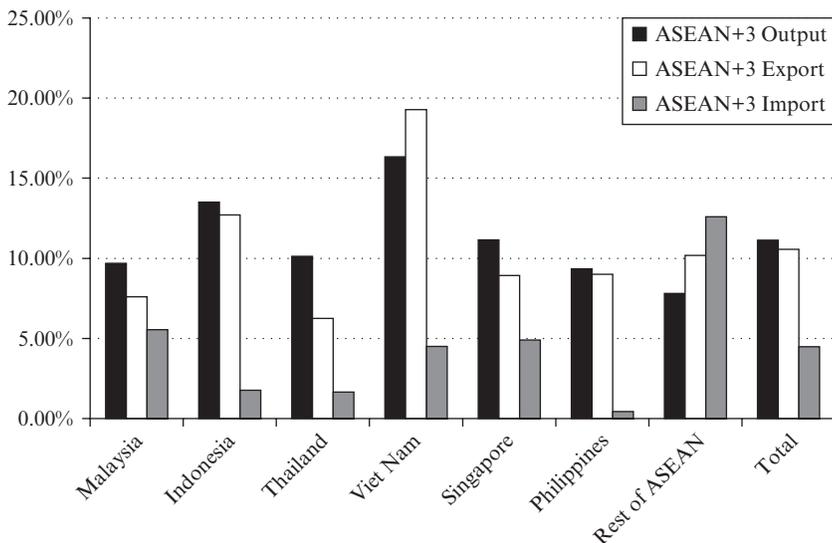
Figure 4.2   Scenario 2—impact of service trade liberalization in 2030 within ASEAN+3 compared to BAU 2030 (%)*

above the BAU 2030 scenario. Indonesia contributes most, with output rising $107.4 billion (up 12.8%). Viet Nam's output increases $38.5 billion (25.3%). Service tariff reductions among the +3 countries in addition to intra-ASEAN service liberalization (scenario 2) would also have significant impact. Output under scenario 2 increased 11.1% above the BAU 2030 benchmark, slightly higher than the increase under scenario 1. Under the ASEAN+3 scenario, Viet Nam's output rises 16.3%, followed by Indonesia, Singapore and Thailand.

ASEAN countries could expect an additional 4.2% growth in output under the ASEAN-Japan service trade liberalization scenario 3. Singapore shows the highest growth (8.15%), while the Rest of ASEAN would grow slowest (2.62%).

Under the ASEAN-Republic of Korea scenario 4, ASEAN's total output growth rises 4.83%. The highest growth is in Indonesia (6.89%), followed by the Philippines, Singapore and Thailand.

Note: * S-ASEAN+Japan = tariff reductions of selected service sectors between ASEAN and Japan compared with Business as Usual (no liberalization).
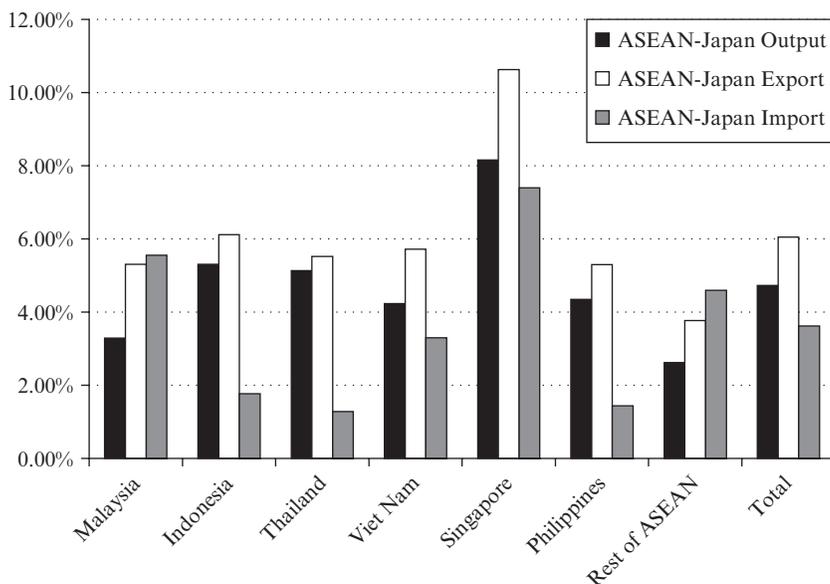
Source: Author's calculations.

Figure 4.3   Scenario 3—impact of service trade liberalization in 2030 within ASEAN and Japan compared to BAU 2030 (%)*

A 3.99% increase in output growth is expected for ASEAN in the case of the ASEAN-PRC scenario 5. Singapore rises 7.12%, with the lowest growth in Malaysia (2.14%). The rest of ASEAN ranges from 3.56% to 4.65%.

Under the ASEAN+India scenario 6, most ASEAN countries gain from services trade liberalization. The expected output growth is most noticeable in Singapore (8.34%), Viet Nam (7.29%) and Indonesia (6.34%).

4.2   Sectoral Output Impact

Analyzing changes in output by sector shows that, as might be expected, services[13] get the biggest boost from a cut in service tariffs. In the S-ASEAN scenario 1, the services sector sees the largest increase in output in all ASEAN members when compared with the BAU 2030 benchmark. In Indonesia, services output rose the most ($89.8 billion). However, output

Note: * S-ASEAN+Republic of Korea = tariff reductions of selected service sectors between ASEAN and Republic of Korea compared with Business as Usual (no liberalization).
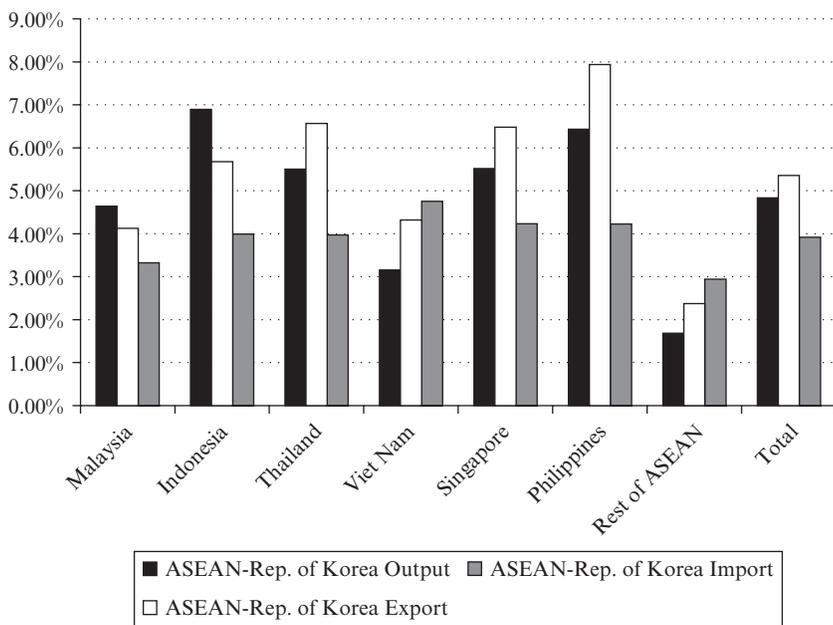
Source: Author's calculations.

Figure 4.4   Scenario 4—impact of service trade liberalization in 2030 within ASEAN and the Republic of Korea compared to BAU 2030* (%)

in several other sectors decline under scenario 1. For example, output in petroleum and coal products in Singapore and Indonesia drops $2.2 billion and $1.8 billion respectively. In Thailand, chemicals, rubber and plastics decline $2.9 billion, while the electronics sector in the Philippines decreases $1.5 billion. Nonetheless, these reductions are far smaller than the gains in overall services output. Additional tariff reduction under the S-ASEAN+3 scenario 2 did not appear to have any significant sectoral impact. In Indonesia, services output increased $2.1 billion. Overall, a similar services sector growth pattern was observed in the case of scenarios 3, 4, 5, and 6. However, a much bigger impact is seen on transport and financial services. Among service subsectors, the highest output increase occurs in financial services under the ASEAN–Japan scenario 3, construction and utilities in
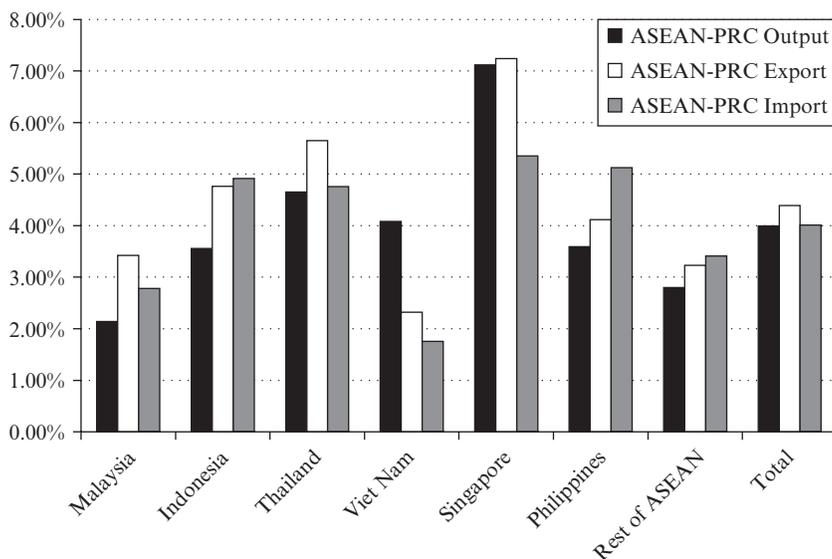
Note: * S-ASEAN+PRC = tariff reductions of selected service sectors between ASEAN and the People's Republic of China compared with Business as Usual (no liberalization).

Source: Author's calculations.

Figure 4.5 *Scenario 5—impact of service trade liberalization in 2030 within ASEAN and the People's Republic of China compared to BAU 2030* (%)*

the ASEAN-Republic of Korea scenario 4, and trade and transportation under ASEAN-PRC scenario 5.

4.3 Trade Impact

The tariff reductions under the six scenarios show that liberalizing services trade will have a small but positive impact on exports and imports. ASEAN exports rise $14 billion (1.65%) under the S-ASEAN scenario 1 compared with the BAU 2030 benchmark. The impact on individual countries, however, varies significantly. Malaysia, Singapore and the Rest of ASEAN see exports increase significantly, growing 5.4%, 4.9% and 10.2%, respectively. Exports from the Philippines and Thailand, on the other hand, would decline marginally. The additional tariff reductions applied under the S-ASEAN+3 scenario 2 does not have much additional impact. Total ASEAN exports rise $26.1 billion
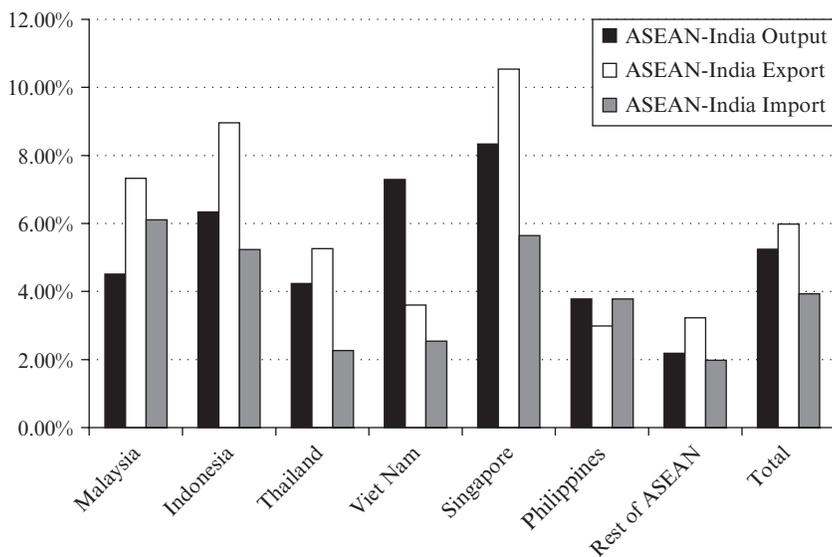
Source: Author's calculations.

Figure 4.6   *Scenario 6—impact of service trade liberalization in 2030 within ASEAN and India compared to BAU 2030* (%)*

and $2.1 billion compared with the BAU 2030 benchmark and S-ASEAN scenario 1, respectively. Most ASEAN members, including the Philippines and Thailand, gain in exports. Viet Nam receives the highest export boost under the S-ASEAN+3 scenario 2 (up 19.27%), with other members' exports increasing from 6.25% to 10.18% (Indonesia's exports rise 12.71% over the benchmark). The ASEAN–Japan scenario 3 receives an additional 6.05% export boost, while the ASEAN-Republic of Korea and ASEAN-PRC scenarios 5 and 6 also show export growth of 5.35% and 4.39% respectively. Singapore gained in terms of exports from the ASEAN-Japan and ASEAN-PRC scenarios 3 and 5, while the Philippines increases exports under the ASEAN-Republic of Korea scenario 4. Under the S-ASEAN+India scenario 6, Singapore's exports gain 10.54%, followed by Indonesia (8.96%) and Malaysia (7.33%).

The benefits under the ex-ASEAN scenarios show some variations. For example, services trade volumes between Japan and ASEAN are considerably smaller than merchandise trade. However, Japan's services exports to

ASEAN are more than its imports. Japan-ASEAN services trade remains highly concentrated on Singapore, which accounts for more than half of both exports and imports of services between Japan and ASEAN.

ASEAN is the Republic of Korea's second-largest trading partner after the PRC. Two-way trade between the Republic of Korea and ASEAN—$131 billion in 2012—benefited substantially from AKTIS. ASEAN is the Republic of Korea's top foreign investment destination. In 2012, the Republic of Korea invested $4.3 billion in ASEAN. The top two destinations for the Republic of Korea's FDI to ASEAN were the Philippines and Indonesia.

Under scenario 4, ASEAN's share of the Republic of Korea's services exports increases 15%, while imports of services from ASEAN rises 13%. It is also clear from historical trade data that the Republic of Korea's services trade with ASEAN has consistently grown since 2006. Most ASEAN countries—Indonesia, Malaysia, the Philippines, Singapore, Thailand and, to some extent, Viet Nam—benefit from AKTIS.

4.4 Sectoral Trade Impact

A sectoral-level analysis of the changes in ASEAN exports under the six scenarios show different sectors react differently across countries. Results reveal that most services exports under the five ASEAN+ scenarios increase compared with the benchmark BAU and S-ASEAN scenarios. In the S-ASEAN scenario 1, Singapore's $9.8 billion growth in services exports was more than double the $4.3 billion drop in petroleum and coal product exports. Services would gain most—$9.5 billion in exports over the BAU scenario, the largest component of Singapore's export growth.

Electronics also played an important part in export gains in Malaysia and Indonesia, growing $5.8 billion and $4.5 billion, respectively under S-ASEAN scenario 1. Similar trends are seen under S-ASEAN+3 scenario 2, but with much smaller gains compared with the S-ASEAN scenario 1—$198 million for Malaysia and $233 million for Indonesia. These results indicate that indirect effects of tariff reductions under S-ASEAN and S-ASEAN+3 scenarios 1 and 2 are behind the rise in export volumes.

Financial services are an important component of Japan-ASEAN trade in services (scenario 3). In fact, financial services are key to overall trade competitiveness and entry into global value chains. Malaysia, Indonesia and Singapore show important gains. This is true for services itself as well as for manufacturing and production activities where services are inputs. Although Japan has invested in ASEAN services like banking and logistics (Biswas 2014), there remains huge potential for further liberalizing services trade in both directions (Sato 2014). Thus far, however, liberalizing

ASEAN services trade has been far less successful than liberalizing trade in goods (Versetti and Heal 2015).

Construction, utilities, and other private and government services play a key role in ASEAN-Republic of Korea trade (scenario 4). Currently, the Republic of Korea exports significant amounts of construction services to ASEAN. ASEAN is also the Republic of Korea's second most popular tourist destination (after the PRC). Thus, so far, construction, banking and tourism have seen the biggest boost from AKTIS. This is particularly true for Malaysia, Indonesia and the Philippines (Tongzon and Cheong 2016).

The Republic of Korea is expected to export more construction services to Malaysia, while Malaysia will export more healthcare and tourism services to the Republic of Korea. GTAP categorizes healthcare and tourism under "other private and government services." These subsectors are covered by AKTIS with substantial liberalization commitments from both sides. Thus, it is likely growing trade flows in these subsectors will flow from AKTIS. But the increase in tourists visiting the Philippines and Philippine professionals migrating to work in the Republic of Korea was unlikely due to AKTIS. Financial sector exports between the Philippines and the Republic of Korea likely increased due to AKTIS. AKTIS has also led to more robust trade with Singapore. Two-way trade between Singapore and the Republic of Korea has also grown due to their bilateral FTA, which came into force in 2006 (Tongzon and Cheong 2016).

In ASEAN, many sectors have gained since the 2007 PRC-ASEAN trade in services agreement. The ASEAN-PRC scenario 5 shows that construction, sea transportation, communications and financial services will increase for the PRC, while air and sea transportation, communications, financial services, construction and utilities, and other private and government services will grow for ASEAN members.

Currently, half of PRC-ASEAN trade is carried by sea—trade volumes increased 22.7% since 2010 and will likely continue to expand. As trade increases, so should financial services (Yang 2009).

The PRC-ASEAN services agreement has increased services trade, although differences in development among ASEAN members lead to varying gains. For example, Singapore attracts investments in knowledge-intensive services, while it invests in high-technology services—such as construction, electric power and "eco cities" in the PRC.

For ASEAN-India services trade (scenario 6), the results support the findings of the Deloitte and Federation of Indian Chambers of Commerce and Industry joint study (East Asia Forum 2013), which showed that computer and information services, telecommunications, e-commerce and engineering services will benefit India. Financial and insurance services will

benefit both, while ASEAN members would benefit more in construction, engineering, shipping and transportation services. ASEAN investment in India would likely concentrate in energy, transport and logistics. Overall, India has an advantage in the services sectors over the ASEAN nations.

The effect of trade liberalization on imports is also significant. In the S-ASEAN scenario 1, total imports into ASEAN increases 4.8% over the BAU 2030 benchmark. Most ASEAN countries see imports rise. Viet Nam has the largest increase, $12.6 billion (18.0%), followed by Malaysia at $9.9 billion (6.5%). The Philippines would see a marginal rise of $1.7 billion. Additional tariff reduction in the S-ASEAN+3 scenario 2 has a marginal (2.7%) rise in imports over the benchmark. Imports into the Rest of ASEAN, Viet Nam and Malaysia increase 2.3–5% over the BAU2030 benchmark, while imports into the Philippines decline less than 1%. In the case of the ASEAN-India scenario 6, ASEAN's additional import growth ranges between 2.2% and 6.4%.

Services and machinery equipment dominate the increase in imports into most ASEAN nations under the S-ASEAN and S-ASEAN+3 scenarios 1 and 2. In Thailand, imports of services rise $7.0 billion—the largest share of the increases. Services are also highest in Indonesia, Viet Nam and Singapore. In Malaysia and the Philippines, machinery equipment contributes most to the import increase. In Malaysia, machinery equipment imports rise $5.3 billion.

Several sectors show declines under the S-ASEAN import scenario 1. In Singapore, oil declines $1.3 billion. In the Philippines electronics decrease $1.5 billion. Under the S-ASEAN+3 scenario 2, several sectors increase above the S-ASEAN scenario 1 rise. For example, services imports into Thailand rise $0.4 billion, while machinery equipment imports to Malaysia increase marginally ($23 million).

4.5   Welfare Impact

Aside from the increase in output and trade from liberalizing services trade under the six scenarios, ASEAN also receives an overall welfare gain (Figure 4.7). In the S-ASEAN scenario 1, total welfare rises $4.0 billion over the BAU 2030 benchmark—though unevenly distributed. Indonesia captures the largest gain ($860 million), followed by Malaysia ($796 million) and Viet Nam ($716 million). Under the ASEAN+3 scenario 2, ASEAN members gain $6.6 billion. Viet Nam gains most ($1.2 billion), followed by Singapore and Indonesia (both $1.2 billion).

Welfare gains in Indonesia are primarily in technology, while in Singapore it is in terms of trade. Much larger welfare gains accrue under the S-ASEAN+3 scenario 2, despite the marginal effects on output,
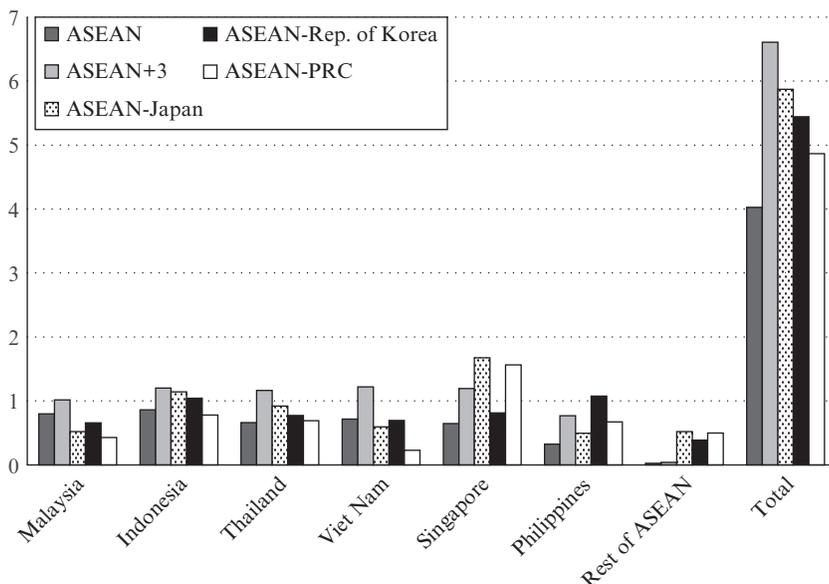
Note: ASEAN = Association of Southeast Asian Nations, BAU = Business as Usual, PRC = People's Republic of China.

Source: Author's calculations.

Figure 4.7 Welfare change under scenarios 1–5 compared with the BAU 2030 benchmark ($ billion)

exports and imports. Most of the additional welfare gains flow to Viet Nam, while the total for Thailand, Indonesia and Singapore is $1.1 billion.

The other scenarios also show welfare gains considerably above the S-ASEAN scenario 1. The highest welfare gain flows from the ASEAN-Japan scenario 3 ($5.8 billion), followed by the ASEAN-Republic of Korea scenario 4 ($5.4 billion). Welfare gains under the ASEAN-PRC and ASEAN-India scenarios 5 and 6 are also significant (above $4 billion). With the exception of the ASEAN-Republic of Korea scenario 4, Singapore leads in welfare gains followed by Indonesia. Under scenario 4, the Philippines receive the most significant welfare gain ($1.1 billion). The main source of welfare gains remains technology. Singapore is expected to gain most under the ASEAN-India scenario (Figure 4.8).
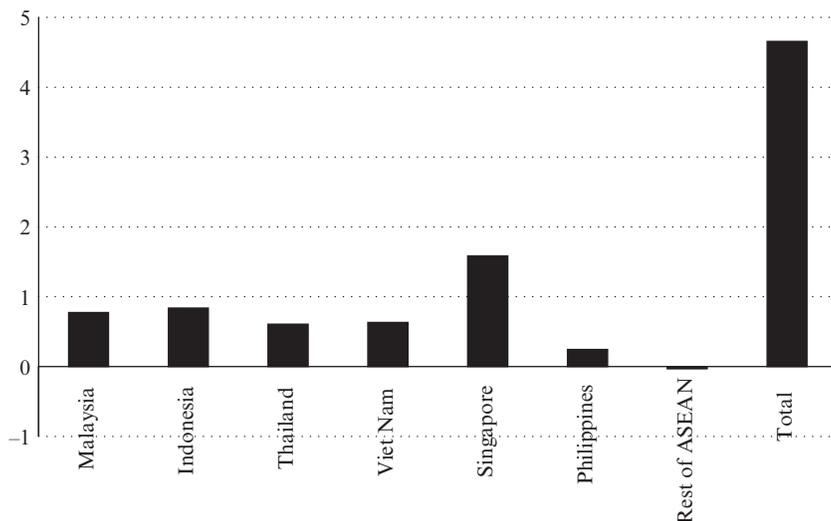
Note: ASEAN = Association of Southeast Asian Nations, BAU = Business as Usual.

Source: Author's calculations.

Figure 4.8   Welfare change under the ASEAN-India scenario 6 compared with the BAU 2030 benchmark ($ billion)

4.6   Social Implications—Skilled vs. Unskilled Labor

Service trade liberalization is expected to have a considerable impact on employment. The removal of service trade barriers would significantly benefit the ASEAN population as it would lead to greater specialization and division of labor—as each member concentrates on producing goods and services where it holds comparative advantage (see Appendix 4A.3). Liberalizing services trade would have both positive and negative effects depending on a member's employment structure. For example, higher-income groups may benefit from more highly competitive markets as they expand production networks. In Thailand, the largest increases are projected for retail sales and semi-skilled services linked to high trade and transport growth. Unskilled workers—many of whom would be employed in the informal sector—also gain.[14] The highest projected wage growth rates fall under a variety of occupations related to trade, transport and construction in the Philippines, Indonesia and Viet Nam.

Employment gains vary widely across scenarios and by country (Table 4.1). Singapore is expected to gain most in skilled-labor employment

Table 4.1   Comparative impact of economic indicators under the six service trade liberalization scenarios

Scenario	Total output increase over BAU	Countries with highest output growth over BAU	Export	Countries with highest export growth over BAU	Import	Welfare	Skilled labor	Semi-skilled labor
1. Within ASEAN	10%	Viet Nam (25%)	2%	Rest of ASEAN (12%)	4.8%	Indonesia	Singapore	Thailand
2. ASEAN+3	11.14%	Viet Nam (16.3%)	10.56%	Viet Nam (19.27%)	4.49%	Viet Nam	Singapore	Thailand
3. ASEAN-Japan	4.2%	Singapore (8%)	6%	Singapore (11%)	3.8%	Singapore	Singapore	Indonesia
4. ASEAN-Republic of Korea	4.8%	Indonesia (6.8%)	5.1%	Philippines (7.9%)	3.9%	Philippines/Indonesia	Philippines	Thailand
5. ASEAN-PRC	4%	Singapore (7%)	4.1%	Singapore (7.1%)	3.9%	Singapore	Singapore	Philippines
6. ASEAN-India	5%	Singapore (8%)	6%	Singapore (10%)	3.8%	Singapore	Singapore	Thailand

Note: ASEAN = Association of Southeast Asian Nations, BAU = Business as Usual, PRC = People's Republic of China.

Source: Author's calculations.

under most scenarios (scenarios 1, 2, 3 and 6). Appendix 4A.3 shows the extent to which additional skilled employment generation rises in comparison with other ASEAN countries. This makes sense given Singapore's high-skill production base—it accounts for half the total volume of high-skill manufacturing exports. Singapore's high-skill technology-intensive manufactured exports rose from 36% to 48% between 2000 and 2012. The impact on unskilled labor is marginal.

Compared with other ASEAN members, Thailand and the Philippines see relatively high employment generation for skilled laborers. The Philippines also appears to have the highest skilled employment generation under the ASEAN-Republic of Korea scenario 4. It also has highest employment gains for unskilled labor under most scenarios. Thailand shows significant positive gains in employment in both skilled and semi-skilled sectors under the various scenarios. The gains are equal under the ASEAN-Republic of Korea scenario 4. Skilled laborers benefit more under the ASEAN-Japan, PRC and India scenarios (3, 5 and 6).

Indonesia's employment generation is minimal under the ASEAN scenario 1, but shows the largest gain for semi-skilled workers under the ASEAN-Japan scenario 3. In general, the results across ASEAN are in line with the levels of skilled versus semi-skilled labor these members produce.

It is important to note, however, that in less-developed ASEAN members, many high-skilled employment opportunities are filled by inadequately qualified laborers. This widens the scope for inefficiency and a potential productivity gap in the services—an argument for the low absolute numbers generated by the GTAP model against the BAU 2030 benchmark. As the analysis indicates, Singapore is expected to gain most under the various scenarios, with Viet Nam and Indonesia also likely to benefit under several scenarios.

5.   CONCLUSION

The ASEAN region is one of the most dynamic, rapidly growing regions in the world. The Asian Development Bank projects that Indonesia, Malaysia, the Philippines, Thailand and Viet Nam—with a population of 525 million and a $2.8 trillion combined GDP—are expected to grow almost 6% per annum between now and 2030. The launch of the ASEAN Economic Community (AEC) in 2015 was an important, significant step in promoting and further accelerating growth within the region by removing tariff barriers between members. Yet, there are few studies that analyze the long-term impact of ASEAN integration focusing on liberalizing service trade. This chapter helps fill this void by assessing its impact on the region.

The results of the projections here indicate that service trade liberalization within ASEAN would have a significant impact on output and trade. Further, by extending tariff reductions to the +3 nations of the PRC, Japan and the Republic of Korea brings significant added benefits to ASEAN. By 2030, service trade liberalization would increase output by $29.6 billion, exports by $14.0 billion and imports by $36.8 billion over the benchmark Business as Usual scenario. Service sector output in Indonesia would rise by $89.8 million, ten times more than the second-highest estimated increase of $8.9 million, registered in rice cultivation. This trend is seen throughout ASEAN, indicating that the effect of service tariff cuts is largely limited to services.

Liberalization in services trade also brings welfare gains, although not evenly distributed among members. Extending service tariff reductions to the +3 countries, collectively and individually, results in an additional marginal rise in output, exports and imports, but a much greater boost in welfare. ASEAN+3 agreements also show welfare gains for almost all ASEAN members, particularly Singapore and Indonesia. But despite the complementarities, trade in services between India and ASEAN still faces considerable challenges. The ASEAN-India services and investment agreement provides opportunities for ASEAN nations to access India's markets in energy, transport and logistics, while India can access ASEAN markets in consultancies, software, maintenance and installation, education, health and social work. Employment growth would be the greatest in trade and transport in all countries except the Rest of ASEAN countries, where employment growth would be higher in agriculture and semi-skilled manufacturing.

Large projected employment growth in trade and transport in all countries implies that a large share of this employment growth is linked to the informal sector. These results are not surprising, as any regional integration initiative can be expected to have asymmetric effects on factors of production within and across service industries. These depend on a variety of factors, including the skills structure of the workforce, factor composition of industries, economies of scale and supply chain linkages. In addition, service trade liberalization appears to have a positive impact on employment generation in all ASEAN member countries across all scenarios tested. While Singapore is expected to see the highest generation of skilled employment, Thailand and the Philippines have the highest demand rise for semi-skilled laborers—in keeping with the general orientation of these economies. The analysis of the effect of service trade liberalization on employment leaves questions regarding the scope for raising potential gains through human capital development and enhancing productivity across economic sectors.

In conclusion, there is great potential for cooperation in service trade between ASEAN, East Asia and India. If all parties work to increase collaboration, standardize resource availability, build systems and coordinate relevant policies there would be a better chance for all members to gain evenly. How this would work best is an area for further study.

NOTES

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1. http://asean.org/asean-economic-community/sectoral-bodies-under-the-purview-of-aem/services/.

2. In professional services, domestic regulations are not yet aligned with ASEAN MRAs—some required bilateral negotiations to make them operational. In air transport, further liberalization will be needed for a truly integrated regional air transport services market. In finance, ASEAN members are working to deepen financial services integration. There are initiatives to strengthen and harmonize capital market disclosure standards. And the ASEAN Banking Integration Framework (ABIF) aims in part to promote intraregional trade and investment (ASEAN-World Bank 2015).

3. Competitive salaries and low compensation costs, a large pool of qualified talent, low telecommunication and real estate costs, investment incentives, and fostering tertiary education have been keys to its success.

4. Mode IV access refers to the Restriction on Work Permits and Uniform Qualification Recognition under the FTA that allows greater flexibility in obtaining specified longer-term visas and work permits. While Mode IV access may also cover ASEAN MRAs, they may still require further agreements between India and each ASEAN member (https://www.dfdl.com/wp-content/uploads/2015/04/IPBA_Journal_India-ASEAN_FTA_in_services_and_investments_countdown_to_implementation.pdf).

5. ASEAN Trade Statistics Database as of July 2016.

6. Share of ASEAN in total FDI flow was 21.6%.

7. Neoclassical closure assumes that investment is equalized with savings at a level that guarantees full employment. This rule is essential for the neoclassical model.

8. With the exception of Singapore, all ASEAN members are developing countries.

9. Thus, the endowment of unskilled labor—fixed in a standard GTAP model with market prices adjusting to maintain full employment—is replaced with fixed real wages.

10. The Lao People's Democratic Republic (Lao PDR), Cambodia and the "Rest of Southeast Asia" (Myanmar, Brunei Darussalam and Timor-Leste) comprise "Rest of ASEAN."

11. Construction and utilities, trade, sea transport, air transport, other transport, communications, financial services, other private services and government services.

12. To carry out the desired projections and simulations, it was decided to update the static GTAP model with a 2007 base year to 2030. The process uses recursive updating based on forecasting a country's (region's) economy by exogenously shocking the baseline model with projections of macroeconomic variables.

13. See note 11.

14. Particularly construction workers.

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APPENDIX 4A.1   MODEL DESCRIPTION

The Global Trade Analysis Project (GTAP) model incorporates both demand and supply in its specifications (Hertel 1997). On the demand side, the model uses a Cobb–Douglas aggregate utility function to allocate regional household expenditure among private expenditure, government expenditure and savings along a constant budget share to provide an indicator of welfare for the regional household. Here, a representative household in each region maximizes constant difference of elasticity expenditure (CDE) functions calibrated to an income level and elasticity of demand that vary according to a region's level of development and consumption pattern.

On the supply side, firms combine primary factors and intermediate goods using the Leontief production structure and a constant return-to-scale technology to produce final goods in a perfectly competitive environment. The final goods produced are then sold to both private households and government. There are five primary factors of production in the model—capital, land, natural resources, skilled and semi-skilled labor. The GTAP model uses a nested constant elasticity of substitution (CES) function to determine firm demand for primary and intermediate inputs. The GTAP model utilizes the Armington approach to goods and services. With this approach, goods and services are differentiated by region of origin and are imperfect substitutes. Using this method, an optimal combination of imported and domestic goods can be calculated to be used in production. The GTAP model also incorporates two global sectors apart from regional sectors: (i) the global banking sector that facilitates global savings and investments; and (ii) global transportation to account for the difference between free on board (fob) and cost, insurance and freight (cif) values. In addition, domestic support and trade barriers (tariff and nontariff) are measured in *ad valorem* equivalents. The equilibrium nature of the model is derived from the accounting relationship that makes up the model. For the closure to work, the number of endogenous variables considered has to be equal to the number of equations used. This is a necessary but not a sufficient condition. The choice of exogenous variable will help determine whether the model is in general or partial equilibrium. Finally, in a standard GTAP closure, all markets are in equilibrium, with all firms earning zero profit and regional household on its budget constraint.

Table 4A.1   GTAP 8 database sectors and sectoral aggregation

Number	Code	Sector in GTAP	Name of the aggregated sector	Number
1	PDR	Paddy rice	Agriculture	1
2	WHT	Wheat	Agriculture	1
3	GRO	Cereal grains, nec	Agriculture	1
4	V_F	Vegetables, fruit, nuts	Agriculture	1
5	OSD	Oilseeds	Agriculture	1
6	C_B	Sugarcane, sugar beet	Agriculture	1
7	PFB	Plant-based fibers	Agriculture	1
8	OCR	Crops, nec	Agriculture	1
9	CTL	Bovine cattle, sheep, and goats, horses	Livestock and livestock products	2
10	OAP	Animal products, nec	Livestock and livestock products	2
11	RMK	Raw milk	Livestock and livestock products	2
12	WOL	Wool, silk-worm cocoons	Livestock and livestock products	2
13	FRS	Forestry	Forestry	3
14	FSH	Fishing	Fishing	4
15	COA	Coal	Fuel mineral	5
16	OIL	Oil	Fuel mineral	5
17	GAS	Gas	Fuel mineral	5
18	OMN	Minerals, nec	Fuel mineral	5
19	CMT	Bovine meat products	Livestock and livestock products	2
20	OMT	Meat products, nec	Livestock and livestock products	2
21	VOL	Vegetable oils and fats	Vegetable oils and fats	6
22	MIL	Dairy products	Dairy products	8
23	PCR	Processed rice	Processed rice	8
24	SGR	Sugar	Sugar	7
25	OFD	Food products, nec	Food products and beverages	8
26	B_T	Beverages and tobacco products	Food products and beverages	8
27	TEX	Textiles	Textile and wearing apparel	9
28	WAP	Wearing apparel	Textile and wearing apparel	9
29	LEA	Leather products	Leather products	10

Table 4A.1   (continued)

Number	Code	Sector in GTAP	Name of the aggregated sector	Number
30	LUM	Wood products	Wood products	11
31	PPP	Paper products, publishing	Paper products, publishing	12
32	P_C	Petroleum, coal products	Petroleum, coal products	13
33	CRP	Chemical, rubber, plastic products	Chemical, rubber, plastic products	14
34	NMM	Mineral products, nec	Mineral products, nec	15
35	I_S	Ferrous metals	Metal and metal products	16
36	NFM	Metals, nec	Metal and metal products	16
37	FMP	Metal products	Metal and metal products	16
38	MVH	Motor vehicles and parts	Motor vehicles and parts	17
39	OTN	Transport equipment, nec	Transport equipment nec	18
40	ELE	Electronic equipment	Electronic equipment	19
41	OME	Machinery and equipment, nec	Machinery and equipment, nec	20
42	OMF	Manufactures, nec	Manufactures, nec	21
43	ELY	Electricity	Construction and utilities	22
44	GDT	Gas manufacture, distribution	Construction and utilities	22
45	WTR	Water	Construction and utilities	22
46	CNS	Construction	Construction and utilities	22
47	TRD	Trade	Trade	23
48	OTP	Transport, nec	Transport, nec	24
49	WTP	Water transport	Water transport	25
50	ATP	Air transport	Air transport	26
51	CMN	Communication	Communication	27
52	OFI	Financial services, nec	Financial services, nec	28
53	ISR	Insurance	Other private services	29
54	OBS	Business services, nec	Other private services	29
55	ROS	Recreational and other services	Other private services	29

Table 4A.1   (continued)

Number	Code	Sector in GTAP	Name of the aggregated sector	Number
56	OSG	Public Administration, Defense, Education, Health	Government Services	30
57	DWE	Dwellings	Government Services	30

Note: nec = not elsewhere classified.

Source: Original GTAP database is from Narayanan et al. (2012).

APPENDIX 4A.2   AGGREGATION SCHEME OF REGION AND SECTORS

Table 4A.2   Economies and regions in GTAP 8 database and regional aggregation

Number	Original region	Aggregated region
1	Australia	Australia & New Zealand
2	New Zealand	Australia & New Zealand
3	Rest of Oceania	Rest of World
4	People's Republic of China	People's Republic of China
5	Hong Kong, China	Rest of World
6	Japan	Japan
7	Republic of Korea	Republic of Korea
8	Mongolia	Rest of World
9	Taipei,China	Rest of World
10	Rest of East Asia	Rest of World
11	Cambodia	Rest of ASEAN
12	Indonesia	Indonesia
13	Lao People's Democratic Republic	Rest of ASEAN
14	Malaysia	Malaysia
15	Philippines	Philippines
16	Singapore	Singapore
17	Thailand	Thailand
18	Viet Nam	Viet Nam
19	Rest of Southeast Asia	Rest of ASEAN
20	Bangladesh	Rest of World
21	India	India
22	Nepal	Rest of World
23	Pakistan	Rest of World
24	Sri Lanka	Rest of World
25	Rest of South Asia	Rest of World
26	Canada	Rest of OECD
27	United States of America	Rest of OECD
28	Mexico	Rest of OECD
29	Rest of North America	Rest of World
30	Argentina	Rest of World
31	Plurinational Republic of Bolivia	Rest of World
32	Brazil	Rest of World
33	Chile	Rest of OECD
34	Colombia	Rest of World
35	Ecuador	Rest of World
36	Paraguay	Rest of World
37	Peru	Rest of World
38	Uruguay	Rest of World

Table 4A.2   (continued)

Number	Original region	Aggregated region
39	Venezuela	Rest of World
40	Rest of South America	Rest of World
41	Costa Rica	Rest of World
42	Guatemala	Rest of World
43	Honduras	Rest of World
44	Nicaragua	Rest of World
45	Panama	Rest of World
46	El Salvador	Rest of World
47	Rest of Central America	Rest of World
48	Caribbean	Rest of World
49	Austria	Rest of OECD
50	Belgium	Rest of OECD
51	Cyprus	Rest of World
52	Czech Republic	Rest of OECD
53	Denmark	Rest of OECD
54	Estonia	Rest of OECD
55	Finland	Rest of OECD
56	France	Rest of OECD
57	Germany	Rest of OECD
58	Greece	Rest of OECD
59	Hungary	Rest of OECD
60	Ireland	Rest of OECD
61	Italy	Rest of OECD
62	Latvia	Rest of World
63	Lithuania	Rest of World
64	Luxembourg	Rest of OECD
65	Malta	Rest of World
66	Netherlands	Rest of OECD
67	Poland	Rest of OECD
68	Portugal	Rest of OECD
69	Slovakia	Rest of OECD
70	Slovenia	Rest of OECD
71	Spain	Rest of OECD
72	Sweden	Rest of OECD
73	United Kingdom	Rest of OECD
74	Switzerland	Rest of OECD
75	Norway	Rest of OECD
76	Rest of EFTA	Rest of World
77	Albania	Rest of World
78	Bulgaria	Rest of World
79	Belarus	Rest of World
80	Croatia	Rest of World

Table 4A.2   (continued)

Number	Original region	Aggregated region
81	Romania	Rest of World
82	Russian Federation	Rest of World
83	Ukraine	Rest of World
84	Rest of Eastern Europe	Rest of World
85	Rest of Europe	Rest of World
86	Kazakhstan	Rest of World
87	Kyrgyz Republic	Rest of World
88	Rest of Former Soviet Union	Rest of World
89	Armenia	Rest of World
90	Azerbaijan	Rest of World
91	Georgia	Rest of World
92	Bahrain	Rest of World
93	Islamic Republic of Iran	Rest of World
94	Israel	Rest of World
95	Kuwait	Rest of World
96	Oman	Rest of World
97	Qatar	Rest of World
98	Saudi Arabia	Rest of World
99	Turkey	Rest of OECD
100	United Arab Emirates	Rest of World
101	Rest of Western Asia	Rest of World
102	Egypt	Rest of World
103	Morocco	Rest of World
104	Tunisia	Rest of World
105	Rest of North Africa	Rest of World
106	Cameroon	Rest of World
107	Côte d'Ivoire	Rest of World
108	Ghana	Rest of World
109	Nigeria	Rest of World
110	Senegal	Rest of World
111	Rest of Western Africa	Rest of World
112	Central Africa	Rest of World
113	South Central Africa	Rest of World
114	Ethiopia	Rest of World
115	Kenya	Rest of World
116	Madagascar	Rest of World
117	Malawi	Rest of World
118	Mauritius	Rest of World
119	Mozambique	Rest of World
120	United Republic of Tanzania	Rest of World
121	Uganda	Rest of World
122	Zambia	Rest of World

Table 4A.2   (continued)

Number	Original region	Aggregated region
123	Zimbabwe	Rest of World
124	Rest of Eastern Africa	Rest of World
125	Botswana	Rest of World
126	Namibia	Rest of World
127	South Africa	Rest of World
128	Rest of South African Customs Union	Rest of World
129	Rest of World	Rest of World

Note: ASEAN = Association of Southeast Asian Nations, OECD = Organisation for Economic Co-operation and Development, EFTA = European Free Trade Association.

Source: Original GTAP database is from Narayanan et al. (2012)

APPENDIX 4A.3   IMPACT OF SERVICE TRADE LIBERALIZATION TO LABOR SECTOR

Table 4A.3   Scenario 1: ASEAN—tariff reductions of selected service sectors within ASEAN (%)

	Semi-skilled Labor	Skilled Labor
1. Malaysia	0.173	0.2348
2. Indonesia	0.0963	0.0822
3. Thailand	0.4395	0.4117
4. Viet Nam	0.2065	0.1813
5. Singapore	0.2928	0.4261
6. Philippines	0.0978	0.1332
7. Rest of ASEAN	0.2089	0.4318

Table 4A.4   Scenario 2: ASEAN+3—tariff reductions of selected service sectors within ASEAN and between ASEAN and the PRC-Japan-Republic of Korea (%)

	Semi-skilled Labor	Skilled Labor
1. Malaysia	0.3184	0.3421
2. Indonesia	0.2044	0.1598
3. Thailand	0.935	0.7803
4. Viet Nam	0.3742	0.1828
5. Singapore	0.309	0.9171
6. Philippines	0.1495	0.1586
7. Rest of ASEAN	0.2246	0.3869

Table 4A.5   Scenario 3: ASEAN+Republic of Korea—tariff reductions of selected service sectors between ASEAN and the Republic of Korea (%)

	Semi-skilled Labor	Skilled Labor
1. Malaysia	0.209	0.521
2. Indonesia	0.410	0.611
3. Thailand	0.382	0.742
4. Viet Nam	0.109	0.420
5. Singapore	0.311	0.829
6. Philippines	0.519	0.721
7. Rest of ASEAN	0.360	0.431

Table 4A.6 *Scenario 4: ASEAN + Japan—tariff reductions of selected service sectors between ASEAN and Japan (%)*

	Semi-skilled Labor	Skilled Labor
1. Malaysia	0.212	0.712
2. Indonesia	0.344	0.672
3. Thailand	0.609	0.621
4. Viet Nam	0.441	0.782
5. Singapore	0.311	0.733
6. Philippines	0.572	0.809
7. Rest of ASEAN	0.107	0.209

Table 4A.7 *Scenario 5: ASEAN + the People's Republic of China (PRC)—tariff reductions of selected service sectors between ASEAN and the PRC (%)*

	Semi-skilled Labor	Skilled Labor
1. Malaysia	0.176	0.651
2. Indonesia	0.672	0.812
3. Thailand	0.565	0.721
4. Viet Nam	0.334	0.503
5. Singapore	0.140	0.973
6. Philippines	0.292	0.422
7. Rest of ASEAN	0.120	0.186

Table 4A.8 *Scenario 6: ASEAN+India—tariff reductions of selected service sectors between ASEAN and India (%)*

	Semi-skilled Labor	Skilled Labor
1. Malaysia	0.21	0.2421
2. Indonesia	0.344	0.253
3. Thailand	0.435	0.5803
4. Viet Nam	0.1742	0.2828
5. Singapore	0.209	0.7243
6. Philippines	0.2495	0.2586
7. Rest of ASEAN	0.3246	0.1869