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Assessing the impact of ASEAN economic integration on labour markets

Michael G. Plummer, Peter A. Petri
and Fan Zhai
September 2014

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Preface

In 2015, the ASEAN Economic Community (AEC), envisioned as a single common market and production base, will become a reality. This will lead to the freer flow of goods, services, investment capital and skilled labour in the region. Tariffs and non-tariff barriers will be reduced, which will have implications for intraregional trade and investment. New opportunities for growth and prosperity are likely to emerge, but the challenge is to ensure that growth is inclusive and prosperity is shared.

Ultimately, the success of ASEAN regional integration will depend on how it affects the labour market and therefore how it improves the quality of life of women and men in the region. To prepare for the impact and find the opportunities, the International Labour Organization and the Asian Development Bank initiated a joint study to examine the impact of the AEC on labour. Findings from the series of studies that were initiated are collected in the 2014 publication, *ASEAN Community 2015: Managing integration for better jobs and shared prosperity*. That report highlights the challenges and opportunities that will accompany the AEC, including managing labour migration, boosting productivity and wages and improving job quality. The report offers policy recommendations for creating better jobs and ensuring that the benefits of the AEC are equitably shared among different countries and sectors.

The background papers to the joint publication are available as part of the ILO Asia–Pacific Working Paper Series, which is intended to enhance the body of knowledge, stimulate discussion and encourage knowledge sharing and further research for the promotion of decent work in Asia and the Pacific. This paper, by Michael Plummer, Peter Petri and Fan Zhai, uses a state-of-art computable general equilibrium model to examine the impact of ASEAN economic integration on labour markets through 2025.

The ILO is devoted to advancing opportunities for women and men to obtain decent and productive work. It aims to promote rights at work, encourage decent employment opportunities, enhance social protection and strengthen dialogue in handling work-related issues. As countries in the Asia and the Pacific region continue to recover from the global economic crisis, the ILO's Decent Work Agenda and the Global Jobs Pact provide critical policy frameworks to strengthen the foundations for a more inclusive and sustainable future.

Yoshiteru Uramoto
Assistant Director-General and
Regional Director for Asia and the Pacific

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Abstract

Enhancing regional economic integration, both across Member States and with their neighbours in the Asia–Pacific region, has become an important priority in Association of Southeast Asian Nations (ASEAN). Building on the ASEAN Free Trade Area, ASEAN has been implementing the ASEAN Economic Community (AEC) since 2007, scheduled for completion in 2015. The AEC is in many ways the most ambitious economic cooperation programme in the developing world, with its goal being the creation of an economic space in which there will be a free flow of goods, services, foreign direct investment and skilled labour. In addition, ASEAN has cemented free trade areas with six regional partners (Japan, Republic of Korea, People’s Republic of China, Australia, New Zealand and India) and, together with these economies, launched the Regional Economic Comprehensive Partnership (RCEP) in November 2012, also with the goal of completion in 2015. The RCEP is intended to be a modern, comprehensive regional free-trade area, covering a wide variety of issues, from trade in goods and services to intellectual property protection.

This study estimates the implications of the regional initiatives on ASEAN Member States using a cutting-edge computable general equilibrium model. In addition to gauging the effects on welfare, trade and economic structure, it considers the ramifications for labour markets. Using detailed data from the Labour Force Surveys available for six ASEAN markets (Cambodia, Indonesia, the Lao People’s Democratic Republic, the Philippines, Thailand and Viet Nam), the paper captures the effects of these initiatives on seven categories of labour defined at the occupational level (three types of skilled labour, three types of semi-skilled labour and unskilled labour). It also includes estimates of the distributional effects of these initiatives for labour compared with other factors (capital and land) and on gender.

In general, the paper estimates impressive welfare and export gains from deepening and expanding economic cooperation. These gains are larger than those estimated in other studies because our approach – under the assumption of persistent unemployment for some categories of labour – also models how overall employment would increase as liberalization improves the competitiveness of ASEAN economies. All ASEAN economies benefit in the AEC and RCEP scenarios; overall income growth is estimated to rise by 8 per cent (AEC scenario) and 18.4 per cent (RCEP scenario) at the aggregate ASEAN level, and export growth mirrors these gains. We also estimate significant increases in wages and employment, depending on the scenario, with the AEC and RCEP scenarios generating the largest effects.

Results on wages and other factor returns vary across broad factors (labour, capital and land) and for labour across skill levels and by gender. In particular, in terms of this latter point, in Indonesia, the Lao People’s Democratic Republic and Thailand, the increase in men’s wages exceeds those of women in every policy scenario. Although labour always gains, so do the returns to capital and, in most scenarios and countries, to land. In addition, skilled labour usually benefits in terms of wages more than semi-skilled labour, which in turn gains relative to unskilled labour. Taken together, these results suggest that the economic “pie” will become much bigger with these initiatives, but lower-wage workers will feel the benefits through better access to employment rather than higher wages.

The structural changes driving these results could also have an important effect on informality. In the AEC and RCEP scenarios, the rise in sector employment tends to be dominated by increasing jobs in the informal sectors, with the exception of the Philippines. For example, informal jobs account for almost two-thirds of the impressive growth in total employment in Viet Nam under the AEC scenario and more than three-fourths of employment growth in Indonesia under the RCEP scenario.

Thus, even though we expect these initiatives to generate large returns to ASEAN countries and to labour overall, it is important for governments to take into account the mixed effects on the distribution of these gains and act accordingly to ensure that the benefits are fairly spread.

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Acronyms

ACIA	ASEAN Comprehensive Investment Agreement
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AIC	ASEAN Industrial Complementation
AICO	ASEAN Industrial Cooperation Scheme
AIJV	ASEAN Industrial Joint Ventures
AIP	ASEAN Industrial Projects
APEC	Asia–Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BBC	Brand-to-Brand Complementation
CEPT	Common Effective Preferential Tariff
CES	constant elasticity of substitution
CGE	computable general equilibrium
FDI	foreign direct investment
GDP	gross domestic product
RCEP	Regional Comprehensive Economic Partnership
TPP	Trans-Pacific Partnership

1. Introduction

Over the past quarter-century, the economies of the Association of Southeast Asian Nations (ASEAN) have increasingly adopted an outward-oriented economic development strategy. Although the Asian financial crisis that began in 1997 underscored the importance of a well-planned approach to financial liberalization, all Member States have progressively reduced, to various degrees, their respective barriers to international trade and investment, such that today the region is, perhaps, the most open among developing economies. The results have been impressive, with the region registering among the highest growth rates in the world. The region is inhabited by more than 600 million citizens, boasts a gross domestic product (GDP) of US\$1.9 trillion and a 2011 GDP per capita of about \$3,500–\$4,500 for the ASEAN-6 (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand) and \$1,100 for the newest members (Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam – the CLMV economies) (ADB, 2014). All but three members are classified as middle- or high-income countries. As well, the Asian Development Bank estimates that these figures will rise to 710 million population, \$5.5 trillion GDP value and \$7,700 GDP per capita by 2030 (ADB, 2014). The region also is making great strides in terms of deepening economic cooperation, including the ASEAN Free Trade Area (AFTA) already in place, the ASEAN Economic Community (AEC) in the works since 2007 and the Regional Comprehensive Economic Partnership (RCEP) just beginning.

Deepening intraregional integration within ASEAN and with its neighbours in North-East Asia and beyond has become an important policy priority for the region and its leaders. ASEAN is increasingly reliant on Asia for its growth and prosperity, a trend that is likely to continue into the future as the Pacific Century unfolds. The share of Asia in ASEAN trade and investment has been rising impressively over the past decade. China, in particular, has increased its share of ASEAN total trade, from about 5 per cent in 2001 to 13 per cent in 2012, while the respective share of the United States and the European Union almost halved, to 18 per cent from 30 per cent.¹ Today ASEAN's trade is relatively balanced between the shares of its own intraregional trade (China and Japan, the United States and the European Union (EU) and the rest of the world. With its outward-oriented development strategy, ASEAN has also been rapidly “internationalizing”, with exports as a percentage of GDP rising in all Member States. For ASEAN as a whole, exports value to GDP came to 61 per cent in 2010, up from just 28 per cent in 1984 (WTO, 2012). This is a phenomenal increase in absolute terms and relative to the rest of the world. China and India, with respective export to GDP shares in 2010 of 27 per cent and 13 per cent, were relatively closed when compared with ASEAN (WTO, 2012). Additionally, there is a great deal of variance in trade as a share of GDP among the individual ASEAN member countries, from 28 per cent in Myanmar to 155 per cent in Viet Nam and 305 per cent in Singapore in 2012 (Chia and Plummer, forthcoming 2014).

The rising importance of Asia and the growing internationalization of the ASEAN economies are to no small degree being influenced by the increasing significance of regional production chains, which in turn are closely related to trends in foreign direct investment (FDI). After a slowdown in FDI in the wake of the Asian financial crisis, FDI inflows to ASEAN have made a strong comeback, despite the difficult global economic environment since 2008. In fact, ASEAN has always pulled in considerably more FDI than India, and the region substantially closed its gap with China in terms of FDI inflows in 2012, with its \$111 billion total comparing favourably with China's \$121 billion (and \$26 billion for India).²

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¹ UNCOMTRADE.

² UNCTAD, *World Investment Report 2013*, http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf [accessed 24 Sep. 2014].

As part of its integration strategy, ASEAN is pursuing internal and external approaches to enhancing economic cooperation. With respect to internal integration, it launched the AEC in 2007 to create free flow of goods, services, FDI and skilled labour as well as freer flow of capital by 2015. This “stylized common market” is arguably the most ambitious among any major region in the developing world.³ At the external level, ASEAN has five bilateral free-trade areas (FTAs) with six economies in Asia (China, India, Japan, Republic of Korea and New Zealand and Australia together); in November 2012, ASEAN launched the RCEP initiative, which is slated to be a cutting-edge regional FTA in 2015 (it finished its second round of negotiations in September 2013 and began its third round in January 2014). The RCEP represents a desire shared by ASEAN leaders to take an economic leadership role, based on “ASEAN centrality”.

The goal of this paper is to capture the economic effects of these internal and external initiatives for the ASEAN economies and, in particular, the workers of those Member States. Specifically, we have used a state-of-the-art computable general equilibrium (CGE) model to estimate the economic effects of various ASEAN-based initiatives (various scenarios of ASEAN economic integration) and the ongoing ASEAN-centric initiative, RCEP. The study uses a detailed employment data set and special modelling features that make it possible to calculate the expansion of employment as a result of integration, based on the assumption that some categories of labour are initially not fully employed. In addition to welfare and trade effects, we have also examined the implications of these agreements for factor returns, wages by occupation and sex as well as total employment and its distribution across sectors.

The rest of the paper is organized as follows: In section 2, we review the progress to date of ASEAN economic integration initiatives, followed in section 3 by a summary of the existing empirical literature of the effects of economic cooperation accords in the region. Section 4 presents the details of the CGE model employed and the data used, and section 5 summarizes the results of the simulations for various initiatives. Section 6 concludes.

2. Progress on the ASEAN economic integration initiatives

Embracing cooperation as a means of enhancing the interests of its Member States has been the goal of ASEAN since its foundation with the Bangkok Declaration in 1967. But economic cooperation programmes established in the wake of the First ASEAN Summit were nominal. The ASEAN Preferential Trading Agreement (PTA) was signed in February 1977 by the ASEAN foreign ministers, but the limited positive-list approach with low margins of preference ensured that the PTA would have little effect (one famous example is preferential treatment of imports of snowploughs in South-East Asia, although not a particularly high-demand good in the region). In 1984, the PTA was extended to include a negative-list approach, with extensive exclusion lists; the margin of preferences was further deepened at the Third ASEAN Summit in 1987. No study, however, has captured any significant effect on trade during those years preceding AFTA.⁴

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³ We say “stylized” because a true common market would require a customs union and free flows of all labour and capital, whereas we note below that the AEC envisions free flows of only goods, services, skilled labour and FDI, with freer flow of capital and no mention of unskilled labour.

⁴ See, for example, Naya and Plummer (1991) for a survey.

The same is true of the meagre attempts at investment cooperation in the 1970s and 1980s, which came in the form of the ASEAN Industrial Projects (AIPs), ASEAN Industrial Complementation (AIC) and ASEAN Industrial Joint Ventures (AIJV) programmes. The AIP initiative was an attempt to allocate state-owned projects across ASEAN countries, consistent with the “import substitution” approach to development embraced by most ASEAN Member States at that time. The AICs were intended to foster vertically integrated production across the region. Neither had much effect; a few AIPs emerged but with little to do with the ASEAN programme, and the AIC did not have any takers until the Brand-to-Brand Complementation (BBC) scheme was devised, with success mainly limited to auto parts (Shimizu, 1999). The AIJV approach, created in 1983 and expanded at the Third ASEAN Summit, was aimed at stimulating ASEAN joint ventures in the private sector, but it, too, produced disappointing results due to a variety of inhibiting factors, including: bureaucratic costs, some confusion in terms of regional and national legal applications and jurisdictions and lack of active promotion (Naya and Plummer, 1991).

In short, ASEAN economic cooperation before AFTA in 1992 was limited. Hence, the decision to create an FTA in 1992 was highly significant because it sent the message that ASEAN cooperation would continue and that economics would take on an increasing priority. AFTA was established at the Fourth ASEAN Summit in 1992 and originally was envisioned to cover ten manufacturing sectors, with intraregional tariffs between 0 and 5 per cent; later, it was expanded to include all goods (subject to some exclusion lists) and zero tariffs. It has essentially been completed, with the exception of the CLMV economies, which were given more time for implementation.

ASEAN also embarked on deeper cooperation in the area of investment as AFTA proceeded. Because it rendered the tariff preferences under the AIJV and AIC/BBC schemes essentially redundant, a transitional programme was put in place in 1996, called the ASEAN Industrial Cooperation Scheme (AICO), to supersede them. The AICO reduced preferential tariff rates on ASEAN joint ventures to between 0 and 5 per cent and featured some additional advantages, such as a guaranteed rapid turnaround on applications, references to dispute settlement and benefits in terms of more liberal equity restrictions for foreign investors. The ASEAN Investment Area (AIA) superseded the AICO in October 1998. Rather than merely expanding existing programmes in the new context of AFTA (like the AICO), the AIA was designed to enhance a process of FDI policy liberalization, promotion and, to some extent, harmonization across ASEAN Member States as well as having certain investment facilitation features. The ASEAN Comprehensive Investment Agreement (ACIA), which entered into force in April 2012, constitutes the groundwork for investment cooperation in the context of the AEC.

Although the AFTA and the AIA/ACIA represent considerable progress in economic cooperation, the AEC goes much further in trying to create a borderless South-East Asia. It is one of the three pillars of the ASEAN Community, the others being the ASEAN Political-Security Community and the ASEAN Socio-Cultural Community. The inclusion of these pillars under the ASEAN Community umbrella implicitly underscores the important interdependence of these three areas. For example, as discussed further on, the AEC includes the “equitable economic region” component, with its roots in the other two pillars. As well, the Political-Security and Socio-Cultural Communities have clear economic dimensions. This interrelationship is also an important feature of the European economic integration experience.

In November 2002, leaders at the ASEAN Heads of Government meeting in Phnom Penh proposed that ASEAN consider the possibility of establishing an economic community by 2020. The ASEAN leaders agreed

at the Bali ASEAN Summit in October 2003 to create a region in which goods, services and skilled labour would flow freely and capital would enjoy freer movement. In the 2007 Cebu Declaration, the ASEAN leaders pushed the AEC deadline forward to 2015. In November 2007, the region approved the ASEAN Economic Community Blueprint, which puts flesh to the bones of the commitment to create a unified market. The Blueprint was accompanied by a Strategic Schedule, which stipulates a timetable for the implementation of the various measures in the AEC. As part of this process, ASEAN developed the ASEAN Charter, which significantly enhances the formal nature of ASEAN integration by making it an international legal entity. The Charter was signed in November 2007 and went into effect after being ratified by the ASEAN Member States in December 2008.

2.1 Internal integration: The AEC and its four pillars

The AEC Blueprint has four principle components: (i) single market and production base, including the free flow of goods, services, investment, skilled labour and a freer flow of capital; (ii) competitive economic region, with competition policy, consumer protection, commitments to greater protection of intellectual property rights, infrastructure development, e-commerce and avoidance of double-taxation; (iii) equitable economic development to help close development gaps in the region; and (iv) integration into the global economy, including the need for ASEAN centrality and enhanced participation in global supply networks (Plummer and Chia, 2009). Table 1 gives a brief summary of the basic elements of these components.

Table 1. Overview of the AEC Blueprint

Core elements	Actions
A. Single market and production base	
1. Goods	- Eliminate duties and non-tariff barriers - Simplify rules of origin - Trade facilitation, customs integration, single window - Harmonize standards and regulations
2. Services	- Remove restrictions on service trade - Allow at least 70% equity participation - Schedule commitments for mode 4 - Extend mutual recognition arrangements, liberalize financial services
3. Investment	- Investment protection, facilitation, promotion, liberalization - Non-discrimination, national treatment
4. Capital	- Harmonize regulations - Promote cross-border capital raising
5. Labour	- Facilitate movement of skilled and professional labour in cross-border trade - Enhance movement of students - Work towards harmonizing qualifications
6. Priority sectors	Projects in 12 priority sectors
7. Food, agriculture, forestry	- Harmonize best practices, sanitary and phytosanitary standards, safety and quality standards, chemical use, regulation of products derived from biotechnology - Promote technology transfer
B. Competitive economic region	
1. Competition policy	Introduce competition policies and develop regional networks and guidelines
2. Consumer protection	Develop regional networks and guidelines
3. Intellectual property rights (IPR)	- Implement ASEAN IPR Action Plan - Promote regional cooperation

4. Infrastructure	- Facilitate multimodal transport - Complete Singapore–Kunming rail link - Integrated maritime transport, open sky policies, single aviation market - High-speed IT interconnections - ASEAN power grid, gas pipeline
5. Taxation	Complete bilateral agreements
6. E-commerce	Adopt best practices and harmonize legal infrastructure
C. Equitable economic development	
1. SMEs	ASEAN Blueprint of best practices
2. Initiative for integration	Technical assistance and capacity building in CLMV economies
D. Integration in to the global economy	
1. Coherent approach	- Review free trade area and closer economic partnership commitments - Establish coordination and possibly common external approaches
2. Supply networks	- International best practices and standards - Technical assistance

Source: Petri, Plummer and Zhai, 2012.

According to the ASEAN Scorecard, intended to assess progress made by Member States in meeting the implementation goals of the AEC Blueprint, approximately two-thirds of the measures under the first three components had been achieved by 2011 and more than three-fourths of the integration-into-the-global-economy measures were on track.⁵ In October 2013, the Chairman’s Statement at the 23rd ASEAN Summit (in Bandar Seri Begawan) noted that 279 measures (or 79.7 per cent of the total) had already been implemented.⁶ Although the region has a long way to go before reaching its goal of a single market and production base, it has made tremendous progress.

Much remains to be done, however.⁷ Progress has been achieved in terms of tariffs; since January 2010, 99 per cent of ASEAN-6 (original ASEAN economies plus Brunei Darussalam) total tariff lines had fallen to zero on intraregional trade (Chia and Plummer, forthcoming). For the transitional ASEAN countries, tariff levels were down to the 0–5 per cent level by 2010 and are on track to be eliminated by 2015. Thus, AFTA is essentially in place. However, non-tariff barriers (NTBs) continue to constitute serious impediments to intraregional trade and FDI, though they were supposed to be eliminated by 2012 for the ASEAN-6 (up to 2018 for the CLMV economies). In addition, there are problems associated with the implementation of the ASEAN Single Window, trade facilitation, technical barriers, trade logistics and services liberalization, particularly for the transitional economies (even with extra implementation time). There have been several rounds of services negotiations under the ASEAN Framework Agreement on Services, with considerable progress in cross-border services liberalization (mode 1). But much less has been accomplished in other areas. As Deuden (2012) argues, the AEC ambitions actually fall far below what would be considered a unified market in services, especially with respect to “commercial presence” (mode 3) and “movement of natural persons” (mode 4). With respect to FDI, the commitment to free and open investment by 2015 with most favoured nation status and national treatment for

⁵ ASEAN Secretariat, 2012, *ASEAN Economic Community Scorecard*.

⁶ See www.asean.org/images/archive/23rdASEANSummit/chairmans%20statement%20-%2023rd%20asean%20summit%20-%20text%20-%20final.pdf, paragraph 22. Nevertheless, the Chairman’s Statement noted that countries needed to step up implementation in order to achieve the desired AEC goals by the end of 2015.

⁷ See, for example, Das (2013) for a recent detailed assessment of progress thus far and remaining challenges.

investors (with limited exceptions), fewer restrictions on priority sectors and removal of restrictive investment measures under the ACIA continue to pose formidable domestic policy challenges in many ASEAN economies.

Even with the 79.7 per cent implementation rate underscored at the 23rd ASEAN Summit, no doubt the remaining 20 per cent will prove to be the most challenging. Indeed, both the 22nd ASEAN Summit and the 23rd ASEAN Summit recognized the need to develop a post-2015 programme to deepening economic cooperation.⁸

2.2 External integration and ASEAN centrality

The RCEP was launched in November 2012 by the ten countries of ASEAN and six of its dialogue partners: Australia, China, India, Japan, Republic of Korea and New Zealand. The RCEP explicitly places ASEAN centrality at its core; even eligibility underscores this – partners either have to be ASEAN Member States or have in place an FTA with ASEAN. It is the second “mega-regional” agreement being negotiated in the Asia–Pacific region, the other being the Trans-Pacific Partnership (TPP), which includes 12 Asia–Pacific Economic Cooperation (APEC) economies (Australia, Brunei Darussalam, Canada, Chile, Malaysia, Mexico, New Zealand, Peru, Singapore, United States, Viet Nam and, as of July 2013, Japan) and recently finished its 19th round of negotiations. The TPP was launched as a twenty-first century agreement, covering a variety of trade and trade-related issues, including intellectual property protection, financial services, competition policy, state-owned enterprises, science and technology and even labour and the environment.⁹ The current goal of the TPP leaders is to finish an agreement by the end of 2013. Because the TPP includes four ASEAN Member States, with others (such as the Philippines and Thailand) expressing interest, some scholars and commentators have suggested that it is in competition with the RCEP – for example, it has significant overlapping membership and competes with RCEP for ASEAN Member States. Some commentators also suggested that the TPP is being used as a means to contain China.¹⁰ Petri and Plummer emphasize (2013) that this need not be the case because they both are based on open regionalism, envision inclusive expansion and have been supported by APEC as paths to the creation of the free trade area of the Asia–Pacific region. Additionally, they point out, overlapping membership will ensure that the agreements will not be exclusionary.

The first round of RCEP negotiations began in May 2013 and the second round took place in September 2013. The Chairman’s Statement of the 23rd ASEAN Summit notes that groundwork is being laid in working groups on goods, services, investment and an implementation approach that will allow for the RCEP to be operational by the end of 2015. The third round of negotiations will take place in Malaysia in January 2014. Still, the exact scope of the agreement is not yet clear. On the one hand, the November 2012 declaration underscored that the agreement should be ambitious in terms of its scope and coverage. On the other hand, in sharp contrast with the TPP, there is a focus on “flexibility”, justified by the fact that the 16 negotiating partners are so diverse. It is not clear what exactly flexibility means, and emphasizing it as a key characteristic of RCEP has generated a good deal of scepticism: Will it just mean special and differential treatment for low-income economies? Or will it mean only “lowest common denominator” coverage of trade-related issues? If it is the latter, the benefits

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⁸ Chairman’s Statement, www.asean.org/news/asean-statement-communicues/item/chairmans-statement-of-the-22nd-asean-summit-our-people-our-future-together [accessed 24 Sep. 2014].

⁹ The contents of proposals regarding the components of the TPP chapters are generally not publicly available, though some documents have been leaked, such as with respect to intellectual property protection. The labour chapter is not clear, but there is a good deal of interest in it in the United States, for example, with some congress people demanding strong wording in order to support “trade promotion authority” legislation.

¹⁰ For a more in-depth discussion of these arguments, see Petri, Plummer and Zhai, 2012.

of the agreement would be questionable because it would suggest that the value added of the agreement would be low. For example, the ASEAN–India agreement only covers goods and has only 70 per cent coverage. If this is the template, RCEP will likely not be very effective in stimulating intraregional economic integration and creating excitement among foreign investors. Moreover, a weak agreement would not bode well for the future influence of ASEAN centrality.

Given the stakes involved, there is reason to be optimistic. RCEP leaders have stressed the need for RCEP to be ambitious. And although RCEP may not address all the issues covered in the TPP, the latter will no doubt provide a benchmark in negotiations that could facilitate the process of arriving at an ambitious accord. Still, the uncertainties as to coverage render modelling a RCEP scenario difficult. For example, when Petri, Plummer and Zhai (2012) undertook empirical estimates of the effects of region-wide Asian integration, they assumed that the ultimate template would be based on past ASEAN accords. The modelling discussed in this paper used a similar approach.

3. Review of the empirical literature on the effects of ASEAN economic integration

Before reviewing the empirical work that has been done on ASEAN economic integration in the next section, we look first at what the economic effects of integration are expected to be.

Non-discriminatory trade liberalization allows countries to export their products if they are the most efficient producers and to source their imports from the lowest-cost suppliers. In contrast, an FTA might have both positive and negative effects, given that it discriminates by giving preferences in favour of partner-country producers, who may not be the most efficient, so that a member will not necessarily source from the lowest-cost producer. Hence, although an FTA may generate a more efficient division of labour by increasing regional competition and reducing inefficient domestic production due to greater regional competition (trade creation), a Member State may be able to export its products to another Member State simply because it enjoys tariff preferences under the FTA (trade diversion). This suggests that the importing partner will be paying more for its imports; in other words, its terms of trade (the price of exports in terms of imports) deteriorate. The efficiency effects of the FTA would be the net of the positive (trade creation) and negative (trade diversion) effects. Only if the former exceeds the latter would we expect countries to be better off within the context of an FTA. This is unlike multilateral liberalization, which has only positive effects because it is non-discriminatory. Disagreements among economists regarding the economic desirability of preferential trading arrangements centres on this difference. This “second-best” nature of FTAs has provided a strong incentive for empirical work on various FTAs and customs unions for the past half-century.

In addition to these static welfare effects, there are a number of other potentially welfare-changing implications of regional integration, known as “dynamic” effects. These include economies of scale and greater variety of inputs on consumption goods, increases in FDI and technology transfer, greater competition in markets characterized by imperfect competition and incentives to enhance competition via domestic policy reform.¹¹

Of course, even if an FTA is efficient and leads to increases in aggregate economic welfare, as with any policy innovation that leads to greater specialization, there will be an asymmetric effect on participating countries

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¹¹ There are many excellent literature reviews of these effects, such as Frankel (1998) and ADB (2008).

and factors of production, depending on a variety of factors: initial conditions, structure of production, factor endowments, market failures and so forth. The economic literature has been mostly concerned with the overall welfare effects, but the distributive effects are especially relevant from a policy point of view (see, for example, ILO and WTO, 2007). This is why in our modelling we focus on both.

3.1 Empirical estimates of ASEAN economic integration

Several past studies have examined the implications of reducing tariffs and non-tariff barriers in AFTA, which forms the core of the AEC, and there are a few studies that consider explicitly the AEC. The following gives a brief review of them.¹²

Even though modelling a “traditional” FTA that focuses on tariff liberalization is a straightforward exercise, it is an unsatisfactory approach in gauging the effects of modern FTAs in general and ASEAN economic integration in particular. As noted, ASEAN tariffs tend to be relatively low and thus the potential gains from further liberalization would be limited. However, the AEC focuses on non-traditional areas, from NTBs to services and investment policy. Trying to incorporate these latter effects into a CGE modelling is more realistic but makes the estimation template much more complicated. This is why there tends to be a good deal of variance in the empirical literature when it comes to modelling non-tariff and non-border effects.

To begin, Brooks, Roland-Holst and Zhai (2005) estimated the differences between narrow measures of liberalization, such as the removal of tariff and obvious NTBs, and broad measures, such as improving customs clearance, aligning standards, lower transaction costs and facilitation of international market access. They used simulations to compare the impact of narrow and broad liberalization efforts on real income, exports and terms of trade.¹³ Under a narrow scenario limited to tariff changes, real income rises in the range of 0.9–2.9 per cent for East Asia, 1.9–6.6 per cent for South-East Asia and 0.3–0.6 per cent for South Asia. Such magnitudes are typical of the literature. In the broad scenario, they assumed that non-tariff-related trade costs were around 120 per cent; they also cut those impediments into half over a 20-year period for East Asia, South-East Asia and South Asia.¹⁴ These assumptions make the gains many times as large, in the ranges of 8–54 per cent, 36–116 per cent and 10–22 per cent for the three subregions, respectively. The AEC aims at efficiency increases similar to those in the broad scenario, and the comparison suggests that the gains could be a multiple of those obtained through AFTA.

Other studies of trade facilitation also show large gains. De Dios (2006) estimated that a 10 per cent savings in transport costs would increase trade by approximately 6 per cent. Wilson and Shepherd (2008) showed that the gains from improvements in trade facilitation in ASEAN would yield far greater gains than comparable tariff reforms. For example, improving port facilities alone in ASEAN should expand trade by 7.5 per cent, or \$22 billion. Infrastructure improvements noted in the AEC Blueprint in Indonesia, Malaysia, the Philippines and Thailand should increase per capita GDP by 2–12 per cent.¹⁵

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¹² This section builds on Petri, Plummer and Zhai (2012).

¹³ Brooks, Roland-Holst and Zhai (2005) model the scenario 2 liberalization as an “iceberg effect,” in which a fraction of goods and services “melt away in transit due to the trade costs” (p. 4, fn 4).

¹⁴ This value is a guesstimate and is not derived systematically or empirically.

¹⁵ As is discussed at length in Plummer and Chia (2009, Chapter 5), this assumes convergence to the level of efficiency of the best-performing ASEAN countries in this regard, which is Singapore. Although 2–12 per cent is a wide range (which is to be expected,

A natural experiment for gauging the benefits of the AEC is the European Community's single market programme. At the time the single market was adopted, the European Community was already a customs union, but it did not have a common commercial policy,¹⁶ and its markets were still segmented in various ways. The Cecchini Report (Cecchini, 1988) estimated that the Single Market Programme would increase the European Community's GDP by up to 6.5 per cent. This gain would come on top of integration measures already in place after 30 years of regional cooperation. Economies of scale, seen as a key motivation for the single market and production base, accounted for a 2 per cent increase in the European Community's GDP. A direct comparison, however, is not possible; the European project included measures that go beyond those incorporated in the AEC, and the AEC envisions steps that were not required in Europe. ASEAN has further to go,¹⁷ and potentially more to gain, from integration than Europe at the time of the single market. The AEC also places more emphasis on best practices than mere national treatment, and its effects might well be larger for some countries and areas.

Hertel, Walmsley and Itakura (2001) analysed the potential gains from the Japan–Singapore free trade area, which was a “new age”, deep-integration initiative that had many of the measures outlined now in the AEC Blueprint. Because Japan's average tariff is less than 2 per cent in manufacturing and Singapore has a zero average tariff, all the effects come from other dimensions of liberalization, making the exercise comparable to moving from AFTA to the AEC.¹⁸ Hertel, Walmsley and Itakura developed a dynamic CGE model using an *ex ante* simulation but with some *ex post* features to estimate dynamic policy changes associated with a deep-integration accord. These include the harmonization of e-commerce standards, the liberalization of services, automating customs services in Japan (to be consistent with Singapore) and an improved climate for investment flows. Interestingly, this “new age” agreement led to gains in *all* regions of the world, not only Japan and Singapore.

Our own estimates in previous work suggest that the AEC could generate substantial gains for all ASEAN countries, particularly the smaller ones. In Petri, Plummer and Zhai (2012), we used a state-of-the-art CGE model to estimate the potential economic effects of the AEC as well as several other potential cooperative scenarios (the model is similar to the one used in this study):

1. AFTA: Full completion of AFTA by reducing all remaining tariffs on intra-ASEAN trade.

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given the difficulties associated with measuring efficiency in this context), even the most conservative results are large: a 2 per cent increase in per capita income is greater than estimates of the effects of AFTA, for example.

¹⁶ The European Community did have a common external tariff, but non-tariff barriers and other controls varied widely across member countries. For example, while Italy and Germany applied the same tariff on Japanese auto imports, Italy only allowed in 3,000 Japanese cars per year, and Germany had no quantitative restrictions at all. This kind of diversity leads to significant market segmentation.

¹⁷ For example, prior to the single market programme, the European Community was already a customs union (unlike ASEAN, which at present does not have any plans to unite external commercial policies). As well, the European Community already had integrated several key sectors, including agriculture, whereas some agricultural products are still excluded from AFTA.

¹⁸ Of course, this does not make them completely comparable, because external tariffs are greater than zero in the post-AFTA commercial policy regimes of the ASEAN Member States. The point here is that tariff changes are insignificant for the simulation results.

2. AFTA+: AFTA plus the intensification of AFTA by removing NTBs, including such regulatory barriers as diverging standards and testing requirements (not having detailed information on these complicated measures, we assumed a horizontal reduction of trade costs equal to 5 per cent of trade values).
3. AEC: AFTA+ and reforms that improve the investment climate, modelled via increasing FDI inflows to levels expected in “model” ASEAN countries (see Petri, Plummer and Zhai, 2012 for details).
4. AEC+: AEC plus bilateral FTAs with other RCEP economies.
5. AEC++: AEC+ and including bilateral FTAs with the United States and the European Union.

The results regarding changes in welfare under these scenarios suggest three things. (i) The full implementation of the AEC would raise ASEAN real incomes by \$69 billion, or 5.3 per cent over 2004 baseline income. These are large magnitudes compared with those usually estimated in free trade area studies in general and CGE studies in particular; (ii) Much of the increase in real incomes is attributable to features of the AEC that go beyond AFTA. The overall income effects of the AEC are seven times as large as those attributable to the remaining liberalization under AFTA. Roughly half of this difference comes from trade facilitation (the difference between AFTA and AFTA+) and half from investment facilitation (the difference between AFTA+ and the AEC); and (iii) All ASEAN Member States gain from the AEC, with the largest economy experiencing the greatest absolute gains. The benefits do not appear to be related to per capita income levels; for example, Cambodia and Singapore – countries at opposite ends of the ASEAN income spectrum – both have unusually large gains.

We want to emphasize the importance of structural adjustment as a driving force in these efficiency gains. Structural adjustment is costly, at least in the short term, and the winners and losers from integration are different agents, with potential negative effects on the most vulnerable. Hence, priority needs to be placed on a compensation mechanism at the country and, ideally, at the regional level, the latter falling under the purview of the “equitable economic region” component of the AEC.

4. Modelling methodology, specifications and data

The CGE model we use in this study is based on a global general equilibrium model developed by van der Mensbrugghe (2005) and Zhai (2008). The model has its intellectual roots in a long tradition of multi-country, applied general equilibrium models (see Shoven and Whalley, 1992; Hertel, 1997). A novel feature of the model is its incorporation of recent innovations in heterogeneous-firms trade theory into an empirical global CGE framework. The model features intra-industry firm heterogeneity in productivity and fixed cost of exporting, which enables us to investigate the intra-industry reallocation of resources and the exporting decision by firms and thereby capture both the intensive and extensive margin of trade. The following section describes the model.

4.1 Basics of the CGE model for this study

i. Production and trade

Agriculture, mining and government services sectors are assumed to exhibit perfect competition. In each of these sectors, a representative firm operates under constant returns to scale technology. Trade is modelled using the Armington assumption for import demand. Manufacturing and private services are characterized by monopolistic competition, and their structure of production and trade follows the seminal Melitz (2003) approach. Each sector with monopolistic competition consists of a continuum of firms that are differentiated by the varieties they produce and their productivity. Firms face fixed production costs, resulting in increasing returns to scale. There are also fixed costs and variable costs associated with exporting activities. On the demand side, agents have Dixit–Stiglitz preference over the continuum of varieties. Because each firm is a monopolist for the variety it produces, it sets the price of its product at a constant mark-up over marginal costs. A firm enters domestic or export markets if, and only if, the net profit generated from such sales is sufficient to cover fixed costs. This zero cut-off profit condition defines the productivity thresholds for a firm’s decision to enter domestic and export markets and, in turn, determines the equilibrium distribution of non-exporting firms and exporting firms as well as their average productivities. Usually, the combination of a fixed export cost and a variable (“iceberg”) export cost ensures that the exporting productivity threshold is higher than that for production for the domestic market, so that only a fraction of firms with high productivity export. These firms thus supply for both domestic and export markets. The number of firms in the monopolistic sectors is assumed to be fixed.

Production technology in each sector is modelled using nested constant elasticity of substitution (CES) functions. At the top level, the output is produced as a combination of aggregate non-energy intermediate demand and a value-added energy bundle. At the second level, non-energy aggregate intermediate demand is split into each commodity according to a Leontief technology. The value-added energy bundle is produced by a capital-land energy bundle and aggregate labour. The capital-land energy bundle is further decomposed into a capital-land bundle and aggregate energy. Finally, at the bottom level, aggregate labour is decomposed into unskilled and skilled labour, and the capital-land bundle is decomposed into capital and land (for the agriculture sector) or natural resources (for the forestry, fishing and mining sectors). The energy composite good is subsequently decomposed into various fuel components (such as coal, oil and gas) where relevant. At each level of production, there is a unit cost function that is dual to the CES aggregator function and demand functions for corresponding inputs. The top-level unit cost function defines the marginal cost of sector output.

As discussed further in the next section, we use Labour Force Survey data that allows us to decompose the impact of regional cooperation at the occupational and gender levels. However, we only have data for six ASEAN countries (Cambodia, Indonesia, the Lao People’s Democratic Republic, the Philippines, Thailand and Viet Nam). For these economies, we could incorporate a more realistic labour market structure in which the labour force possesses different skill levels. At the second level of the production structure in these countries, the value added *cum* energy bundle is decomposed into less skilled aggregate labour, on the one hand, and a capital-land energy bundle on the other hand. The capital bundle is split into its human (skilled labour) and physical capital components, and the less skilled aggregate labour is decomposed into semi-skilled and unskilled labour. Skilled and semi-skilled labour are further divided into three occupations: managers, professionals and para-professionals for skilled labour and clerks, machinery workers and craft workers for

semi-skilled labour. At the bottom level, the six occupational groups as well as unskilled labour are further decomposed into male and female labour (see Annex B for diagrams illustrating the nested structure of CES production functions).

ii. Income distribution, demand and factor markets

Incomes generated from production accrue to a single representative household in each region. A household maximizes utility using an extended linear expenditure system, which is derived from maximizing the Stone–Geary utility function. The consumption/savings decision is completely static. Savings enter the utility function as a “good”, and its price is set as equal to the average price of consumer goods. Investment demand and government consumption are specified as a Leontief function. In each sector, a composite good defined by the Dixit–Stiglitz aggregator over domestic and imported varieties is used for final and intermediate demand.

There are five primary factors of production. Capital, agricultural land and labour are fully mobile across sectors within a region. In the natural resource sectors of forestry, fishing and mining, a sector-specific factor is introduced into the production function to reflect the resource constraints. In each period, the aggregate capital stock is predetermined by the investment and savings decision of the previous periods. The supply of land and sector-specific factors is assumed to be elastic, with response to the changes in their respective prices.

The model differs from most other CGE approaches (including our earlier work cited previously) in the treatment of labour markets. Usually, the supply of labour is assumed to be fixed, and its market is cleared through wage adjustment. However, for the six ASEAN countries, we assume persistent unemployment for some categories of workers. We then differentiate the ASEAN economies from other regions by distinguishing three labour supply mechanisms according to different skill levels. Especially in these six ASEAN countries, the supply of skilled labour is fixed in each period, given the tight markets for skilled labour in the region. For unskilled labour, we assume infinite supply and a fixed real wage rate to reflect the persistent large-scale underemployment in this category of labour in most ASEAN countries. Semi-skilled labour falls between these extremes; hence, we assume a constant-elasticity supply function with a unitary elasticity of labour supply, with respect to its real wage.

In this specification, shocks that make ASEAN firms more competitive internationally – including the policy changes examined in this paper – enable firms to expand with less binding labour constraints than are typically imposed by CGE models. The employment of unskilled workers can expand without limit at constant wage rates, and the employment of semi-skilled workers can grow with only moderate wage increases. Unskilled and semi-skilled workers, in turn, can be substituted to some extent for skilled workers and other inputs whose supply is subject to conventional limits. In our simulations of integration alternatives, this modelling approach typically yields solid increases in output, trade and employment as well as overall benefits in excess of the usual gains from trade.

iii. Macro closure

There are three macro closures in the model: (i) the net government balance, (ii) the trade balance and (iii) the investment and savings balance. We assume that government consumption and savings are exogenous in real

terms: Any changes in the government budget are automatically compensated by changes in income tax rates on households.

The second closure concerns the current account balance. In each region, the foreign savings are set exogenously. With the United States' GDP deflator chosen as the numéraire of the model, equilibrium in the foreign account is achieved by changing the relative price across regions; for example, it is the real exchange rate.

Domestic investment is the endogenous sum of household savings, government savings and foreign savings. Because government and foreign savings are exogenous, changes in investment are determined by changes in the levels of household savings. This closure rule corresponds to the neoclassical macroeconomic closure in the CGE literature.

iv. Recursive dynamics

The model is recursive dynamic, beginning with the base year of 2007 and solved annually through 2025. The dynamics of the model are driven by exogenous population and labour growth as well as capital accumulation and exogenous technological progress. Population and labour force projections are based on the United Nation's medium variant forecast. Technological progress is assumed to be labour-augmented, so the model can reach a steady state in the long run.

4.2 Economic integration scenarios

Using this model just described, we estimate the effects of four ASEAN policy scenarios:

i. ASEAN-based initiatives

1. AFTA. This scenario envisions the removal over time of the remaining intraregional tariffs across the ASEAN economies. Note that we are calibrating our model to 2007 data; hence, we use the status quo of applied intra-ASEAN tariffs as of that year.
2. AFTA+. In addition to the liberalization of intraregional tariffs under AFTA, the ASEAN Plus scenario envisions the liberalization of non-tariff barriers, assuming that 50 per cent of intraregional NTBs for both goods and services are phased out over time. The NTBs are estimated via the disaggregated trade restrictiveness indices constructed by the World Bank (goods) and the Peterson Institute for International Economics (services) and modelled using both rent-generated tariff equivalent and "iceberg" cost approaches.

3. AEC. The AEC scenario builds on AFTA+ to include trade facilitation via lower (by 20 per cent) fixed-trade costs and, as in the other scenarios, is implemented over time.

ii. ASEAN-centric initiative

4. RCEP. RCEP includes the liberalization under the AEC scenario and assumes a regional FTA with the six existing partners of ASEAN. The RCEP scenario includes liberalization of the remaining NTBs, accumulation of rules of origin and the partial liberalization of services. It is modelled through full liberalization of tariff barriers among the ASEAN+6 economies, a 40 per cent reduction in regional goods NTBs, a 30 per cent reduction of regional services NTBs, as well as a 20 per cent cut in fixed trade costs among FTA members from 2017 to 2022. We based these assumptions on “best guesses” from our own modelling and literature surveys (Petri, Plummer and Zhai, 2012).

Under these four policy scenarios, all tariff and NTB reductions are linearly implemented within the eight years between 2008 and 2015 (for AFTA Plus and AEC) or the six years between 2017 and 2022 (for RCEP).

4.3 Brief comments on the underlying data

It is useful to underscore some salient characteristics in the underlying data. In terms of protection levels, the Global Trade Analysis Project database reveals that, although there had been significant progress in reducing protection levels overall in the context of AFTA as of 2007, much remained to be done (Table 2). For example, ASEAN exporters still faced average tariffs of 2.7 per cent in ASEAN markets, only slightly lower than average tariffs they faced in global markets generally (3.6 per cent). In particular, tariffs placed on ASEAN exports of vehicles in the region were higher than they were globally (7 per cent versus 6 per cent). At the country level, exporters from the Lao People’s Democratic Republic, the Philippines and Viet Nam faced higher average tariffs in ASEAN than in the world as a whole. Thus, although these tariffs had come down considerably with AFTA, by 2007 the region still had much work ahead of it in establishing a true FTA, thereby suggesting continued potential efficiency gains via the completion of AFTA.

As noted, for our simulations we use Labour Force Survey (LFS) data to break down employment into seven categories: three types of skilled labour (managers; professionals; and para-professionals), three types of semi-skilled labour (clerks, machinery workers; and craft workers) and unskilled labour. This relatively disaggregated breakdown allows us to better identify the distributive effects of regional initiatives. However, complete surveys exist for only a small majority of the ASEAN countries (Cambodia, Indonesia, the Lao People’s Democratic Republic, the Philippines, Thailand and Viet Nam); hence, we are not able to consider the entire region. Labour force surveys do not exist in Brunei Darussalam and Myanmar, and the necessary microdata files are not available for public use in Singapore and Malaysia. Still, the included countries account for a large majority of the ASEAN population (86 per cent), and they offer a good sampling of middle-income and low-income Member States and, in this sense, should give us a good idea of distributive effects.

Table 2. Tariff protection rates in 2007 (%)

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam	Cambodia	Lao PDR	Rest of ASEAN	ASEAN	World
Indonesia		1.1	2.9	0.0	6.6	3.8	7.0	1.2	2.7	2.4	5.5
Malaysia	2.3		2.0	0.0	4.6	5.0	6.7	4.6	4.9	2.1	2.6
Philippines	1.7	0.3		0.0	12.1	3.1	9.8	3.0	1.7	2.9	1.7
Singapore	1.0	0.6	1.2		4.9	10.4	11.6	24.3	2.7	2.2	2.3
Thailand	4.4	1.6	5.5	0.0		5.9	11.1	6.4	3.5	3.8	4.6
Viet Nam	4.0	3.6	28.0	0.0	5.4		7.6	2.2	2.9	6.2	5.8
Cambodia	1.6	1.8	4.0	0.0	15.4	2.6		0.0	0.0	4.2	6.9
Lao PDR	0.0	0.0	0.0	0.0	2.9	0.8	0.0		0.0	2.1	1.8
Rest of ASEAN	0.0	0.4	2.4	0.0	0.5	0.5	0.0	0.0	0.0	0.3	2.8
ASEAN	1.9	1.0	4.8	0.0	5.1	6.6	10.1	6.2	3.5	2.7	3.6
World	3.4	3.4	3.6	0.0	5.2	10.4	10.8	7.8	3.9	3.8	2.7

Source: Global Trade Analysis Project (GTAP) database V8.1.

A particular characteristic that emerges is that the factor composition of production differs significantly across ASEAN not only at the country level – as one would expect in the case of a highly diverse region like ASEAN – but also at the sector level (Table 3). For example, in textiles, which is often considered a typical unskilled labour-intensive sector in developing economies, unskilled labour constitutes 14 per cent or less of total labour in all economies except the Lao People’s Democratic Republic, where it is 84 per cent. For Cambodia, Indonesia, the Philippines, Thailand and Viet Nam, textiles is a semi-skilled intensive sector. However, for electronics, which is dominated by production networks in ASEAN, there is far more consistency across all economies, with semi-skilled labour constituting two-thirds to three-fourths of the total.

Diversity also shows up in the gender breakdown across countries and occupations (Table 4). Skilled labour is dominated by men in Indonesia and the Lao People’s Democratic Republic, but in the other four economies the distribution is fairly even, in the range of 44–53 per cent for female labour. Semi-skilled labour is dominated by men in all economies (68–78 per cent of the total) except Cambodia, where female labour makes up 74 per cent of the workforce. Unskilled labour is mainly made up of men in Indonesia and the Philippines (62 per cent and 65 per cent, respectively) but is fairly even across genders in the other countries (49–53 per cent female).

5. Results

5.1 Aggregate effects

The overall welfare effects of the simulations are presented in Table 5, with details in Annex B, Tables B1 and B2, in millions of dollars (based on the equivalent variation technique and 2007 prices) and as a percentage of GDP, respectively. For simplicity, we report the results relative to the baseline in 2025, but details on an annual basis (2010–25) can be found in the Annex B tables.

In general, the potential gains to ASEAN under the various scenarios are impressive, with the region gaining a great deal due to the deepening of integration and the expansion of country coverage to include its RCEP partners. The increase in ASEAN aggregate welfare as a percentage of GDP relative to the baseline under the two AFTA scenarios comes to 1.2 per cent and 6.3 per cent of GDP in 2025. Larger welfare gains flow from the AEC and RCEP scenarios, at 8 per cent and 18.4 per cent, respectively. These numbers are large when compared with the survey of empirical estimates of the effects of the AEC discussed in the previous section.¹⁹

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¹⁹ In particular, the gains are larger than the results reported from our earlier study summarized in section 3 (Peter, Plummer and Zhai, 2012). The reasons for these differences are as follows; (i) the labour-market closure assumptions of the present model permit increases in the supply of unskilled and semi-skilled workers, while the earlier study assumed fixed employment levels for labour; (ii) this model is dynamic and captures the effects of greater capital accumulation due to static income gains; (iii) the base years are different (2008 in this study; 2004 in the earlier study), which is significant due to rising trade links across these economies; (iv) the assumptions regarding changes in trade costs differ; and (v) the RCEP scenario of this study differs from a similar scenario in the previous study, which simulated “hub and spoke” agreements between ASEAN and other RCEP partners rather than an FTA across all RCEP members. An off-setting difference, however, is that the earlier study included FDI, whereas the present simulations do not.

Under the AFTA scenario, the completion of regional free trade leads to the greatest gains for Cambodia (3.3 per cent of GDP) and the Philippines (3 per cent of GDP), suggesting that the completion of AFTA holds considerable potential gains for these economies. However, other ASEAN Member States (Brunei Darussalam and Myanmar) suffer a small loss of about \$300 million. Some non-members also suffer losses; but in all cases they are very minor, coming to about \$8 billion overall.

Relative to gains under AFTA, including the liberalization of NTBs the ASEAN Plus scenario generates large additional gains; it actually raises expected gains to the region by fivefold, underscoring how important NTBs are to the completion of regional free trade. All ASEAN Member States gain under this scenario, with Cambodia (at 14.5 per cent of GDP), Viet Nam (at 12.5 per cent) and the Lao People's Democratic Republic (at 9.2 per cent of GDP) gaining the most. The negative effect on non-partner economies is low, at \$45 billion (compared with \$210 billion in overall gains to ASEAN). China bears the bulk of trade diversion (at \$25 billion), but it is a very small percentage of Chinese GDP, at about two-tenths of 1 per cent.

Table 3. Skill composition of labour forces, by sector in six ASEAN countries (latest LFS data, %)

	Indonesia			Philippines			Thailand		
	Skilled	Semi-skilled	Unskilled	Skilled	Semi-skilled	Unskilled	Skilled	Semi-skilled	Unskilled
Paddy rice	0.2	1.8	98.0	1.8	0.9	97.3	0.7	0.3	99.1
Other grain	0.1	0.0	99.9	1.5	0.0	98.5	0.7	0.3	99.1
Other crops	0.4	0.8	98.8	1.1	0.8	98.1	0.7	0.3	99.1
Livestock	0.1	0.3	99.5	5.5	4.8	89.7	2.6	15.5	81.9
Natural resources	1.5	2.7	95.8	1.9	0.5	97.6	3.3	1.8	94.9
Mining	6.0	54.7	39.3	5.7	32.8	61.4	10.1	77.2	12.7
Food	3.1	70.3	26.6	16.2	40.3	43.5	9.6	73.2	17.3
Textiles	2.9	87.7	9.5	10.0	76.2	13.9	3.7	87.2	9.1
Apparel	3.9	85.6	10.5	8.7	82.3	9.0	6.0	90.9	3.0
Wood products	5.8	83.1	11.1	12.7	59.7	27.5	17.8	72.7	9.5
Chemicals	11.1	56.9	32.0	21.0	47.7	31.3	19.8	59.2	20.9
Metals	4.8	79.1	16.1	12.9	66.9	20.2	13.5	78.8	7.7
Vehicles	12.0	72.1	15.9	20.4	70.6	9.1	16.3	75.9	7.8
Electrical equipment	14.5	75.9	9.6	17.6	75.5	6.9	22.5	69.4	8.1
Machinery	14.7	68.3	17.0	19.0	58.4	22.6	19.0	69.6	11.3
Other manufacturing	3.5	85.2	11.3	16.5	59.7	23.7	7.2	86.1	6.7
Utilities	18.2	59.5	22.3	23.7	54.0	22.3	33.4	58.6	8.0
Construction	6.0	50.1	44.0	6.8	54.1	39.1	10.5	64.2	25.3
Trade & transport	3.5	17.9	78.6	37.1	20.4	42.5	6.6	20.2	73.2
Private services	11.9	38.0	50.1	16.0	18.8	65.2	27.8	23.8	48.4
Government services	68.9	22.4	8.7	61.0	17.4	21.6	58.3	19.0	22.7

Source: National Labour Force Survey (LFS) data: Indonesia, 2008; the Philippines, 2011; Thailand, 2010.

Table 3. Skill composition of labour forces, by sector in six ASEAN countries (latest LFS, %) (cont'd)

	Viet Nam			Cambodia			Lao PDR		
	Skilled	Semi-skilled	Unskilled	Skilled	Semi-skilled	Unskilled	Skilled	Semi-skilled	Unskilled
Paddy rice	0.3	0.4	99.3	0.0	6.0	94.0	0.1	0.2	99.7
Other grain	0.3	0.4	99.3	0.1	0.0	99.9	0.2	0.0	99.8
Other crops	0.3	0.4	99.3	0.2	1.3	98.6	0.2	0.3	99.5
Livestock	0.2	0.1	99.7	0.8	0.0	99.2	1.2	0.2	98.6
Natural resources	0.9	1.3	97.8	0.5	0.4	99.1	0.7	1.0	98.3
Mining	10.5	48.7	40.8	6.2	57.8	36.1	14.4	46.0	39.6
Food	6.1	65.9	28.0	3.1	92.7	4.2	6.6	12.5	80.9
Textiles	6.8	83.7	9.5	0.1	98.4	1.5	0.4	16.0	83.6
Apparel	3.3	92.3	4.4	4.4	91.8	3.8	6.0	83.1	11.0
Wood products	4.4	83.5	12.2	3.1	94.4	2.5	5.9	34.3	59.8
Chemicals	20.4	56.1	23.4	1.0	98.3	0.7	43.9	6.5	49.6
Metals	8.0	72.3	19.6	0.8	93.2	6.1	5.8	59.5	34.7
Vehicles	16.8	73.8	9.3	0.0	71.4	28.6	49.5	21.2	29.3
Electrical equipment	17.3	75.7	7.0	19.6	71.7	8.7	5.0	74.2	20.8
Machinery	17.6	71.8	10.6	0.0	82.8	17.2	0.0	63.7	36.3
Other manufacturing	3.7	83.1	13.3	3.9	80.9	15.2	10.2	46.7	43.1
Utilities	45.9	40.0	14.1	20.7	23.4	56.0	48.5	37.6	13.9
Construction	7.5	66.2	26.3	4.9	14.2	80.9	10.6	77.3	12.1
Trade & transport	5.8	17.8	76.3	12.2	26.9	60.8	7.2	15.3	77.6
Private services	32.8	22.0	45.2	57.4	23.3	19.2	24.3	21.9	53.8
Government services	76.3	9.4	14.3	70.9	13.5	15.7	85.9	5.3	8.8

Source: National Labour Force Survey data: Viet Nam, 2010; Cambodia, 2012; the Lao People's Democratic Republic, 2010.

Table 4. Skill and gender composition of employment in six ASEAN countries (latest LFS, %)

		Male	Female		Male	Female
	Indonesia			Viet Nam		
Total employment	100.0	63.1	36.9	100.0	52.8	47.2
Skilled	9.5	57.7	42.3	12.1	52.8	47.2
Managers	2.2	84.4	15.6	1.3	78.6	21.4
Professionals	5.2	43.3	56.7	6.2	51.2	48.8
Para-professionals	2.1	65.8	34.2	4.5	47.3	52.7
Semi-skilled	21.4	70.8	29.2	20.2	68.4	31.6
Clerks	4.3	59.1	40.9	1.7	53.9	46.1
Machinery workers	6.5	86.4	13.6	6.7	64.8	35.2
Craft workers	10.6	66.0	34.0	11.8	72.4	27.6
Unskilled	69.0	61.5	38.5	67.8	48.2	51.8
	Philippines			Cambodia		
Total employment	100.0	60.9	39.1	100.0	46.0	54.0
Skilled	22.2	44.3	55.7	12.0	45.3	54.7
Managers	14.4	48.1	51.9	3.9	45.9	54.1
Professionals	5.1	31.4	68.6	5.2	53.5	46.5
Para-professionals	2.7	48.8	51.2	2.9	29.7	70.3
Semi-skilled	19.3	68.2	31.8	17.9	26.0	74.0
Clerks	5.3	37.1	62.9	2.3	46.1	53.9
Machinery workers	7.0	79.7	20.3	9.3	21.3	78.7
Craft workers	7.0	80.3	19.7	6.3	25.6	74.4
Unskilled	58.5	64.8	35.2	70.1	51.2	48.8
	Thailand			Lao PDR		
Total employment	100.0	54.3	45.7	100.0	50.9	49.1
Skilled	11.6	51.9	48.1	8.6	64.2	35.8
Managers	3.1	73.8	26.2	2.5	76.6	23.4
Professionals	4.4	40.7	59.3	4.9	57.0	43.0
Para-professionals	4.1	47.2	52.8	1.3	67.3	32.7
Semi-skilled	23.4	63.0	37.0	6.4	78.4	21.6
Clerks	3.8	30.4	69.6	0.7	52.0	48.0
Machinery workers	8.7	67.6	32.4	2.7	67.8	32.2
Craft workers	10.9	71.0	29.0	3.0	93.9	6.1
Unskilled	65.0	51.6	48.4	85.0	47.5	52.5

Source: National Labour Force Survey data: Indonesia, 2008; Viet Nam, 2010; the Philippines, 2011; Cambodia, 2012; Thailand, 2010; and the Lao People's Democratic Republic, 2010.

Table 5. Welfare gains relative to the baseline, 2025

	\$billion, 2007 prices, Equivalent variation				Equivalent variation as % of baseline GDP			
	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
ASEAN	41.7	209.5	266.6	615.3	1.2	6.3	8.0	18.4
Indonesia	4.9	42.5	55.9	216.4	0.4	3.3	4.3	16.7
Malaysia	7.5	39.4	51.5	90.0	1.6	8.4	11.0	19.2
Philippines	11.0	29.8	34.9	56.0	3.0	8.1	9.4	15.1
Singapore	5.2	24.9	34.3	58.3	1.4	7.0	9.6	16.3
Thailand	9.0	39.3	49.9	91.6	1.7	7.6	9.7	17.7
Viet Nam	3.3	26.2	30.8	88.1	1.6	12.5	14.7	42.1
Cambodia	1.0	4.3	5.3	6.2	3.3	14.5	18.0	21.2
Lao PDR	0.2	1.5	1.9	2.0	1.2	9.2	11.4	12.4
Rest of ASEAN	-0.3	1.6	2.1	6.6	-0.4	2.0	2.7	8.3
Other economies								
China	-3.7	-25.3	-32.6	306.8	0.0	-0.2	-0.2	2.2
Japan	-1.6	-4.8	-6.0	112.5	0.0	-0.1	-0.1	2.2
Rep. of Korea	-0.4	-3.9	-5.2	118.8	0.0	-0.2	-0.3	5.7
China, Hong Kong	0.0	-0.1	-0.2	57.0	0.0	0.0	0.0	14.1
China, Taiwan	-0.5	-3.8	-4.9	-28.1	-0.1	-0.5	-0.6	-3.4
India	-1.2	-6.9	-8.8	261.3	0.0	-0.2	-0.2	6.4
Australia	0.0	0.0	0.1	35.2	0.0	0.0	0.0	2.4
New Zealand	0.0	0.0	0.0	5.8	0.0	0.0	0.0	2.9
Canada	0.0	0.1	0.2	-0.4	0.0	0.0	0.0	0.0
USA	-0.2	0.3	0.3	-0.1	0.0	0.0	0.0	0.0
Europe	0.2	1.3	1.4	17.2	0.0	0.0	0.0	0.1
Rest of world	-0.9	-1.8	-1.2	-23.8	0.0	0.0	0.0	-0.1

Source: CGE model simulations.

The inclusion of liberalization of trade in services and reducing fixed trade costs by 20 per cent via trade facilitation in the AEC scenario produces further gains, with aggregate welfare increasing by \$57.1 billion over the AFTA+ scenario (from gains of nearly \$210 billion over the baseline under AFTA+ to \$267 billion under the AEC). Thus, in terms of the AEC, ASEAN gains more from liberalization of existing non-tariff barriers than from the inclusion of liberalization of trade in services and the assumed improvements in trade facilitation. However, the gains are not distributed symmetrically; Cambodia continues to be the big winner (at 18 per cent of GDP), but Viet Nam (at 14.7 per cent of GDP), the Lao People's Democratic Republic (at 11.4 per cent of GDP) and Malaysia (at 11 per cent of GDP) also experience large gains under the AEC scenario. The Rest of ASEAN increases its gains over the AFTA+ scenario by about 50 per cent, but they are still relatively small, at 2.7 per cent of GDP, which is the smallest relative increase in the region (but close to Indonesia, which gains 4.3 per cent of GDP). Trade diversion continues to be borne mostly by China, but the negative impact only rises by about \$7 billion, from \$25 billion to \$33 billion, which is particularly small when compared with an aggregate ASEAN gain of \$267 billion.

Expanding the AEC to include RCEP countries more than doubles the gains to ASEAN as a whole. Indonesia and the Rest of ASEAN experience the largest relative gains, compared with the AEC scenario, with increases relative to GDP at more than threefold. But in absolute terms, it is Viet Nam that clearly enjoys the greatest gains, as GDP increases by more than two-fifths over the baseline. Cambodia (at 21.2 per cent of GDP), Malaysia (at 19.2 per cent of GDP) and Thailand (at 17.7 per cent of GDP) also experience large gains. Outside of ASEAN, the trade diversion of previous scenarios turns into large positive gains for China and India, whose joint welfare increases by \$568 billion, compared with \$615 billion for ASEAN as a whole. Trade diversion under the RCEP scenario is extremely small (at \$52 billion), compared with the aggregate gains globally (at about \$1.5 trillion).

Not surprising, trade is an important source of the strong welfare improvements generated by these commercial policy initiatives (Table 6). In general, increases in exports tend to be in the range of two to three times faster than increases in welfare; thus, all ASEAN economies experience a greater internationalization of their respective economies.²⁰ In comparative terms, the trade figures mirror the income gains, with the best-performing Member States in terms of welfare also registering a superior trade performance. Exceptions include Indonesia and the Lao People's Democratic Republic, which tend to do relatively better with trade, mainly due to their low trade dependency in the baseline. The extraordinary welfare improvements in the case of Viet Nam under the RCEP scenario are also underpinned by strong export growth. In the case of the Rest of ASEAN, which experiences a negative welfare effect in the AFTA scenario, exports rise under AFTA by 2.8 per cent and imports by 3.7 per cent over the baseline. Even though import growth always exceeds export growth for the Rest of ASEAN, it experiences a very large increase in both as cooperation is deepened and expanded; in the RCEP scenario, exports are fully 41 per cent above the baseline, while imports are 52 per cent above the baseline.

Contrary to external demand, increases in consumption in ASEAN are always somewhat less than gains in welfare in all scenarios, which is mainly driven by the low consumption-to-welfare growth relationship in Indonesia (Table 7). With respect to other macro effects, the ASEAN real exchange rates slightly depreciate, on average, in the range of 0.3–0.9 per cent in the ASEAN-based scenarios. But the RCEP scenario suggests a slight appreciation of 0.8 per cent in 2025. However, real exchange rate changes are asymmetric, with the Philippines and Singapore having a real appreciation in all four scenarios while Cambodia, the Lao People's Democratic Republic, Thailand and Viet Nam experience a real depreciation in these scenarios.

Table 6. Effects on international trade, 2025

	Changes in exports, % from baseline				Changes in imports, % from baseline			
	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
ASEAN	4.3	16.4	20.2	48.4	4.5	17.0	21.0	50.3
Indonesia	3.5	12.7	15.8	62.3	3.7	13.6	16.9	65.2
Malaysia	3.0	15.2	19.5	42.2	3.3	17.3	22.2	47.7
Philippines	5.0	17.1	20.4	45.4	5.1	18.1	21.5	47.6
Singapore	3.0	17.2	23.0	30.2	3.0	16.0	21.5	31.4
Thailand	6.7	19.0	23.0	47.8	6.9	19.1	23.1	48.0

²⁰ Given our closure rules, imports rise with exports to keep the exogenous trade balance.

Viet Nam	2.9	16.7	19.0	59.6	2.7	17.4	19.7	59.5
Cambodia	16.9	37.1	42.3	54.5	16.3	37.1	42.1	54.3
Lao PDR	13.5	40.5	45.7	47.0	12.2	36.9	41.6	42.6
Rest of ASEAN	2.8	10.9	13.3	40.8	3.7	13.9	16.9	52.2
Other economies								
China	-0.1	-0.4	-0.6	23.4	-0.1	-0.4	-0.6	24.1
Japan	-0.2	-0.4	-0.5	30.1	-0.1	-0.3	-0.4	30.9
Korea, Rep. of	-0.1	-0.8	-1.1	38.2	-0.1	-0.6	-0.8	35.9
China, Hong Kong	0.0	-0.2	-0.2	29.7	0.0	-0.1	-0.1	29.6
China, Taiwan	-0.1	-1.0	-1.3	-10.0	-0.1	-1.1	-1.4	-10.5
India	-0.1	-0.4	-0.5	44.0	-0.1	-0.4	-0.4	43.3
Australia	0.0	0.0	0.1	22.8	0.0	0.0	0.0	21.6
New Zealand	-0.1	-0.3	-0.3	24.5	-0.1	-0.2	-0.2	21.4
Canada	0.0	0.0	-0.1	-0.6	0.0	0.0	0.0	-0.3
USA	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	-0.2
Europe	0.0	-0.1	-0.1	-1.2	0.0	0.0	0.0	-0.1
Rest of world	0.0	-0.1	-0.1	-0.8	0.0	0.0	0.0	-0.6

Source: CGE model simulations.

Table 7. Effects on consumption and real exchange rate, 2025

	<i>Changes in consumption, % from baseline</i>				<i>Changes in real exchange rate, % from baseline</i>			
	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
ASEAN	1.2	5.8	7.4	17.0	-0.3	-0.9	-0.9	0.8
Indonesia	0.3	2.5	3.4	13.1	-0.2	-0.2	0.0	5.0
Malaysia	1.8	9.5	12.4	21.8	0.3	-0.1	0.0	-0.7
Philippines	2.9	7.8	9.2	14.7	1.5	1.4	1.6	1.9
Singapore	1.8	8.6	11.8	20.1	0.2	1.4	2.4	8.0
Thailand	1.7	7.5	9.5	17.5	-1.6	-2.1	-2.2	-4.7
Viet Nam	1.5	11.5	13.6	39.4	-0.3	-5.0	-5.3	-11.0
Cambodia	3.4	15.2	18.9	22.4	-3.1	-5.4	-6.6	-7.6
Lao PDR	1.5	10.2	12.5	13.6	-4.3	-9.0	-9.9	-9.3
Rest of ASEAN	-0.4	2.0	2.7	8.5	-0.4	-0.3	-0.6	3.5
Other economies								
China	0.0	-0.2	-0.2	2.2	0.0	-0.1	-0.1	-2.0
Japan	0.0	-0.1	-0.1	2.2	0.0	-0.1	-0.2	5.6
Rep. of Korea	0.0	-0.3	-0.4	8.6	0.0	-0.1	-0.1	1.0
China, Hong Kong	0.0	0.0	0.0	15.6	0.0	0.0	0.0	8.8
China, Taiwan	-0.1	-0.5	-0.7	-3.8	0.0	-0.2	-0.2	-1.4
India	0.0	-0.2	-0.2	7.2	0.0	0.0	0.0	-10.2
Australia	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.8

New Zealand	0.0	0.0	0.0	3.5	0.0	0.0	0.0	2.1
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2
Rest of world	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	-0.1

Source: CGE model simulations.

5.2 Effects on wages and employment

We estimate fairly detailed effects on factor returns for the six ASEAN economies for which we have Labour Force Survey data.

To begin, Table 8 summarizes factor returns at the aggregate level – in terms of returns to labour in the form of wages, the capital rental rate and the land rental rate relative to the model's numéraire price, which is the US GDP deflator. Overall, labour and capital both gain in all countries under all scenarios, and land usually gains, except in the case of the Lao People's Democratic Republic in the ASEAN-based scenarios and Cambodia and Indonesia only in the AFTA scenario.

In terms of comparative factor price increases, in the AFTA scenario, labour ultimately gains relative to capital and land in Indonesia, the Lao People's Democratic Republic; it gains relative to capital but not land in the case of the Philippines and Thailand; and loses relative to capital and land in the case of Viet Nam. The wage gains are highest the Lao People's Democratic Republic (at 3.1 per cent) and Cambodia (at 3 per cent) and are relatively small (less than 0.5 per cent) in Indonesia, Thailand and Viet Nam. In the AFTA+ and AEC scenarios, the returns to labour are substantially higher in all countries. Compared with the other factors, labour only gains relative to land but not capital in the Lao People's Democratic Republic. For all other countries, labour gains relative to capital but not to land.

The relative effects on wages in the case of RCEP tend to be substantially different in the ASEAN-based scenarios. Wages are considerably higher in the case of RCEP, with gains relative to the baseline rising in the range of 6 per cent (Thailand) to 22 per cent (Viet Nam), except for Indonesia, whose wages only rise by slightly more than 2 per cent, only slightly above the AEC rate of 1.4 per cent. However, the distributional effects tend to be worse: Labour loses relative to capital and land in Cambodia, Indonesia and Thailand and is less than capital in the Lao People's Democratic Republic. In the Philippines and Viet Nam, labour gains relative to capital but still loses relative to land, which experiences an increase in its rental rate of 23 per cent and 36 per cent, respectively. Indeed, gains to land are particularly high in the RCEP scenario, except in the Lao People's Democratic Republic; in addition to the large increase in Viet Nam, returns to land increase by 46 per cent in Thailand and 42 per cent in Indonesia.

In short, although wages do increase (and sometimes impressively) in the ASEAN-based and RCEP scenarios, the distributional effects are mixed, with differing effects, depending on the country and scenarios.

Table 8. Effects on factor return rates, 2025 (% change from baseline)

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Indonesia				Viet Nam			
Average wage	0.2	1.1	1.4	2.4	0.4	5.1	6.0	22.1
Land rental	-1.1	1.2	1.5	42.3	3.5	13.5	14.7	36.2
Capital rent	0.1	0.2	0.3	4.7	0.8	1.5	1.9	18.2
	Philippines				Cambodia			
Average wage	1.3	4.1	4.8	9.1	3.0	6.3	7.4	8.9
Land rental	7.5	12.5	14.0	23.0	-4.8	6.6	8.6	14.8
Capital rent	0.9	1.3	1.5	4.8	4.6	6.2	6.7	9.3
	Thailand				Lao PDR			
Average wage	0.4	2.6	3.4	5.5	3.1	6.8	7.8	7.1
Land rental	5.2	13.8	15.6	45.6	-6.0	-5.6	-5.5	1.7
Capital rent	0.3	1.4	1.6	6.6	2.8	10.4	11.9	12.2

Source: CGE model simulations.

Given the richness of the Labour Force Survey data for these six economies, we are able to break down the effects on wages into seven categories and separate them by gender (Table 9). We assume that the wage of unskilled labour is fixed, with any increase in the demand for labour resulting in a rise in employment (discussed further on), whereas we make the opposite assumption in the case of skilled labour and full employment of skilled labour, such that any increase in demand results in a rise in wages. Semi-skilled labour is an intermediate case, in which changes in demand result in both a proportional increase in the supply of labour and a rise in wages. To keep things simple, we summarize the changes relative to the baseline in 2025.

In terms of changes in wages by gender, the effects differ considerably across countries and scenarios. In Indonesia, the Lao People's Democratic Republic and Thailand, the increase in male wages exceeds that of women in every policy scenario. However, women gain more than men in all scenarios in the case of Cambodia and in all scenarios except AFTA for the Philippines. In Viet Nam, even though wages rise more quickly than they do for women in the ASEAN-based scenarios, women gain significantly more than men in the RCEP scenario, with wages of the former rising by 33 per cent and those of the latter by 15 per cent.

Table 9 also reveals that the distribution of wage gains across skill categories differs substantially across countries and scenarios. Still, in all scenarios, skilled labour gains more than semi-skilled labour, and the biggest differences tend to be in the case of the RCEP scenario. The only exceptions are Viet Nam, in which semi-skilled labour actually does better than skilled labour under RCEP, and Cambodia, in which semi-skilled labour does better in the AFTA scenario. In Indonesia, the category gaining the most is para-professionals in all scenarios except RCEP, in which managers do slightly better than para-professionals. In the semi-skilled group, craft workers gain the most in all categories except AFTA for Indonesia, in which machinery workers do best. The results for the Philippines are similar, except that managers receive the biggest gains. In Indonesia, craft workers gain the most in the semi-skilled category, except in the RCEP scenario, in which machinery workers reap the largest increases. In the Lao People's Democratic Republic, the professionals gain the most in all scenarios, and for semi-skilled labour, clerks do the best in all scenarios except the AEC, in which craft workers do the best. In Viet Nam, para-professionals gain the most under the skilled category and machinery workers among semi-skilled workers do better, with the exception of AFTA, in which craft workers register

the greatest increase. The most impressive gain in the Vietnamese scenarios – indeed, for all scenarios and countries – is recorded for machinery workers in the RCEP scenario: Wages rise by 52 per cent relative to the baseline, which is sufficient to allow the semi-skilled group gains to exceed those of skilled labour. Para-professionals and machinery workers do the best in the skilled and semi-skilled categories in Cambodia under all scenarios. In Thailand, managers register the highest wage gains among skilled workers under the AFTA and RCEP scenarios but para-professionals do better under the other two scenarios. Machinery workers do best under every scenario in the semi-skilled group.

Table 9. Effects on wages (% change from baseline, 2025)

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Indonesia				Viet Nam			
Male labourers	0.2	1.1	1.4	2.6	0.5	5.7	6.8	15.3
Skilled	0.2	2.5	3.4	16.1	1.7	13.4	15.7	32.9
Manager	0.1	2.2	3.0	18.2	1.5	12.0	14.0	31.9
Professional	0.2	2.2	2.9	12.3	1.5	12.9	15.2	30.3
Para-prof.	0.5	3.4	4.4	17.0	2.1	15.2	17.8	38.3
Semi-skilled	0.1	1.3	1.8	8.1	1.3	8.9	10.3	26.4
Clerk	0.1	1.0	1.4	6.0	0.7	5.2	6.0	12.8
Mach. worker	0.2	1.2	1.6	5.8	1.4	9.6	11.0	29.3
Craft worker	0.1	1.5	2.0	9.7	1.2	8.6	10.1	25.1
Female labourers	0.2	0.8	1.0	1.8	0.4	4.3	5.1	32.6
Skilled	0.2	1.7	2.4	12.0	1.2	9.8	11.4	29.3
Manager	0.2	1.9	2.7	16.0	1.6	12.5	14.7	39.9
Professional	0.1	1.6	2.1	10.7	1.0	9.2	10.7	25.9
Para-prof.	0.3	2.2	2.9	12.0	1.3	10.3	12.1	33.6
Semi-skilled	0.3	1.5	1.9	6.5	1.5	9.9	11.5	55.2
Clerk	0.1	1.0	1.4	6.0	0.8	6.1	7.2	18.2
Mach. worker	0.8	3.1	4.0	5.7	1.7	10.9	12.7	62.4
Craft worker	-0.9	-0.6	-0.5	19.1	1.3	8.4	9.5	41.1
All labourers	0.2	1.1	1.4	2.4	0.4	5.1	6.0	22.1
Skilled	0.2	2.3	3.1	15.0	1.5	12.1	14.2	31.6
Manager	0.1	2.1	2.9	17.9	1.5	12.1	14.2	33.5
Professional	0.2	1.9	2.5	11.6	1.3	11.5	13.4	28.6
Para-prof.	0.5	3.2	4.2	16.1	1.8	13.3	15.6	36.4
Semi-skilled	0.2	1.5	1.9	7.2	1.4	9.3	10.8	41.1
Clerk	0.1	1.0	1.4	6.0	0.7	5.7	6.7	15.9
Mach. worker	0.3	1.5	1.9	5.8	1.6	10.4	12.1	52.0
Craft worker	0.2	1.7	2.3	8.8	1.3	8.5	9.9	31.5

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Philippines				Cambodia			
Male labourers	1.5	4.1	4.8	8.2	2.1	4.9	5.8	6.3
Skilled	4.4	11.1	13.0	24.3	3.9	16.3	20.0	28.3
Manager	4.8	11.5	13.4	24.2	4.6	17.0	20.8	29.9
Professional	3.8	10.5	12.4	24.2	2.0	12.6	15.9	22.9
Para-prof.	3.8	10.7	12.7	24.7	7.9	25.1	30.1	40.6
Semi-skilled	2.5	5.7	6.6	10.2	2.7	9.7	11.7	11.7
Clerk	2.0	4.7	5.4	8.6	3.2	9.9	11.6	14.2
Mach. worker	1.8	5.0	5.8	10.8	4.1	13.4	15.7	16.1
Craft worker	3.1	6.6	7.6	11.0	1.3	6.0	7.6	6.4
Female labourers	1.2	4.2	5.0	10.5	3.7	7.4	8.6	10.7
Skilled	3.5	9.6	11.4	21.9	4.7	16.6	20.1	27.5
Manager	4.4	12.5	14.7	29.3	2.9	11.8	14.4	20.2
Professional	2.8	7.1	8.3	15.3	3.2	12.7	15.3	21.2
Para-prof.	3.4	9.3	11.1	21.1	7.9	24.9	30.1	40.3
Semi-skilled	1.3	4.8	5.8	13.4	5.3	12.2	14.2	18.3
Clerk	1.8	4.6	5.4	9.4	2.3	7.4	8.9	11.8
Mach. worker	-0.2	5.1	6.5	21.6	5.5	12.4	14.5	19.9
Craft worker	1.4	3.4	3.9	0.4	6.1	13.6	15.6	18.4
All labourers	1.3	4.1	4.8	9.1	3.0	6.3	7.4	8.9
Skilled	3.9	10.3	12.2	23.1	4.3	16.5	20.1	27.9
Manager	4.6	11.9	14.0	26.4	3.6	14.1	17.2	24.5
Professional	3.2	8.3	9.8	18.6	2.5	12.6	15.7	22.1
Para-prof.	3.6	10.1	12.0	23.1	7.9	25.0	30.1	40.4
Semi-skilled	2.1	5.4	6.3	11.3	4.3	11.3	13.2	15.8
Clerk	1.9	4.7	5.4	9.1	2.6	8.3	9.8	12.7
Mach. worker	1.0	5.0	6.1	15.2	5.0	12.8	14.9	18.6
Craft worker	3.1	6.6	7.6	11.0	4.1	10.4	12.3	13.6

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Thailand				Lao PDR			
Male labourers	0.5	3.3	4.2	6.2	3.6	8.5	9.8	8.8
Skilled	2.0	8.2	10.2	20.1	7.7	20.3	22.6	27.2
Manager	2.3	9.0	11.2	24.0	2.3	8.4	9.5	14.1

Professional	1.4	5.9	7.4	15.7	13.3	31.0	33.7	33.0
Para-prof.	2.0	9.4	11.6	17.8	4.3	15.9	18.9	33.7
Semi-skilled	1.2	5.0	6.1	10.6	1.3	8.3	10.4	8.8
Clerk	0.6	2.1	2.6	5.8	1.8	5.3	6.2	11.8
Mach. worker	1.3	5.5	6.8	11.8	0.7	7.5	9.6	7.0
Craft worker	1.2	5.3	6.6	11.0	2.0	10.9	13.2	10.5
Female labourers	0.1	1.6	2.2	4.3	2.3	3.5	3.9	3.7
Skilled	1.2	5.2	6.5	14.9	2.0	7.0	8.3	12.6
Manager	1.4	4.8	5.7	13.8	0.8	4.1	5.2	14.1
Professional	0.7	3.4	4.3	8.3	2.1	7.5	8.8	12.2
Para-prof.	1.6	7.5	9.5	23.0	3.4	9.5	10.7	13.2
Semi-skilled	0.9	4.4	5.7	11.6	7.2	13.9	15.2	15.6
Clerk	0.6	2.4	3.1	6.1	7.1	16.1	17.3	19.7
Mach. worker	1.1	6.7	8.5	16.6	9.1	8.0	8.6	4.7
Craft worker	-0.5	2.6	3.2	3.2	1.2	13.6	17.1	11.2
All labourers	0.4	2.6	3.4	5.5	3.1	6.8	7.8	7.1
Skilled	1.7	7.0	8.7	17.9	5.8	15.9	17.8	22.3
Manager	2.1	7.9	9.8	21.4	2.0	7.4	8.5	14.1
Professional	1.1	4.7	5.9	12.0	8.4	20.6	22.7	23.8
Para-prof.	1.8	8.4	10.5	20.5	4.2	14.9	17.6	30.4
Semi-skilled	1.1	4.8	6.0	11.0	2.2	9.3	11.2	10.1
Clerk	0.6	2.4	2.9	6.0	4.6	11.1	12.1	16.0
Mach. worker	1.3	5.9	7.4	13.5	1.1	7.5	9.6	7.0
Craft worker	1.2	5.3	6.6	11.2	2.0	11.0	13.3	10.5

Source: CGE model simulations.

Finally, we consider the net effect on employment numbers by gender and five skill categories: skilled labour, unskilled labour and three semi-skilled groups (clerks, machinery workers and craft workers). In line with our labour-market assumptions, we note that the employment of skilled labour cannot increase because these workers are assumed to be at full employment initially, but employment can increase in the categories of semi-skilled and unskilled labour. Overall, as shown in Table 10, the integration scenarios generate increases in total employment in most cases. Growth under scenarios that involve only ASEAN economies tends to be significantly less than under RCEP but still substantial. In the AEC scenario, for example, employment grows by nearly 11 per cent in Cambodia and Viet Nam. In the RCEP scenario, employment increases in the range of 6 per cent (the Lao People's Democratic Republic) to 26 per cent (Viet Nam). The difference between the RCEP and AEC-based scenario is particularly notable in Indonesia, where the share of job gains under the former is fully ten times that of the latter. There are even net job losses under the AFTA scenario for Indonesia and the Lao People's Democratic Republic.

In terms of the gender breakdown, job gains for male workers tend to be higher than in the case of female workers for both semi-skilled and unskilled categories, but there are exceptions (Table 11). Female job losses under the AFTA scenario for Indonesia and the Lao People's Democratic Republic are greater than for their male counterparts, but the opposite is true for Cambodia, where female employment gains (at 97,000 jobs) are enough to overwhelm male job losses (at 14,000 jobs) to create a net gain for the country. Additionally, under the AFTA scenario, female Vietnamese workers marginally gain more than male workers (at 497,000 jobs, compared with 488,000 jobs), with the difference being mainly attributable to gains in unskilled jobs. In all scenarios, Cambodian women gain relative to men in both unskilled and semi-skilled categories. The large employment gains in Viet Nam (at 15 million jobs) under RCEP are also characterized by greater gains for women overall but only due to a much larger increase in unskilled labour. As with Cambodia, female employment gains are largest in Viet Nam for all scenarios, but this is attributable to robust increases in unskilled employment.

Table 10. Effects on total employment (% from baseline, 2025)

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Indonesia				Viet Nam			
Male labourers	-0.1	1.1	1.5	12.3	1.6	8.7	9.9	24.0
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	0.2	1.3	1.7	7.6	1.3	8.7	10.1	25.6
Clerk	0.1	1.0	1.4	6.0	0.7	5.2	6.0	12.8
Machinery worker	0.2	1.2	1.6	5.8	1.4	9.6	11.0	29.3
Craft worker	0.1	1.5	2.0	9.7	1.2	8.6	10.1	25.1
Unskilled	-0.2	1.2	1.7	17.5	2.1	10.4	11.8	28.0
Female labourers	-0.2	0.7	1.0	14.2	1.8	9.8	11.1	29.1
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	-0.4	0.4	0.6	13.5	1.4	9.0	10.4	46.1
Clerk	0.1	1.0	1.4	6.0	0.8	6.1	7.2	18.2
Machinery worker	0.8	3.1	4.0	5.7	1.7	10.9	12.7	62.4
Craft worker	-0.9	-0.6	-0.5	19.1	1.3	8.4	9.5	41.1
Unskilled	-0.2	0.8	1.2	16.5	2.2	11.6	13.1	30.8
All labourers	-0.1	1.0	1.3	13.8	1.7	9.2	10.5	26.4
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	0.0	1.1	1.4	9.3	1.3	8.8	10.2	32.1
Clerk	0.1	1.0	1.4	6.0	0.7	5.6	6.5	15.3
Machinery worker	0.3	1.5	1.9	5.8	1.5	10.0	11.6	40.9
Craft worker	-0.3	0.8	1.1	12.9	1.3	8.6	9.9	29.5
Unskilled	-0.2	1.1	1.5	17.1	2.1	11.0	12.4	29.5

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Philippines				Cambodia			
Male labourers	2.7	5.8	6.7	11.5	-0.3	7.9	9.8	13.6
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	2.4	5.6	6.5	10.5	2.9	10.0	12.0	12.3
Clerk	2.0	4.7	5.4	8.6	3.2	9.9	11.6	14.2
Machinery worker	1.8	5.0	5.8	10.8	4.1	13.4	15.7	16.1
Craft worker	3.1	6.6	7.6	11.0	1.3	6.0	7.6	6.4
Unskilled	3.6	7.3	8.4	14.8	-0.8	8.9	11.0	15.8
Female labourers	2.2	4.9	5.6	9.7	1.8	9.8	11.7	16.4
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	1.3	4.5	5.3	10.2	5.5	12.4	14.4	18.6
Clerk	1.8	4.6	5.4	9.4	2.3	7.4	8.9	11.8
Machinery worker	-0.2	5.1	6.5	21.6	5.5	12.4	14.5	19.9
Craft worker	1.4	3.4	3.9	0.4	6.1	13.6	15.6	18.4
Unskilled	3.8	7.9	9.0	15.3	0.7	10.7	13.0	18.7
All labourers	2.5	5.4	6.2	10.8	0.8	9.0	10.8	15.1
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	2.0	5.3	6.1	10.4	4.8	11.8	13.7	17.0
Clerk	1.9	4.7	5.4	9.1	2.7	8.6	10.2	12.9
Machinery worker	1.4	5.0	5.9	13.0	5.2	12.6	14.7	19.1
Craft worker	2.7	6.0	6.9	8.9	4.9	11.7	13.6	15.4
Unskilled	3.6	7.5	8.6	15.0	-0.1	9.8	12.0	17.2

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Thailand				Lao PDR			
Male labourers	1.6	5.1	6.1	13.4	-1.4	3.0	3.5	6.9
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	1.2	5.1	6.3	10.9	1.5	9.2	11.4	9.3
Clerk	0.6	2.1	2.6	5.8	1.8	5.3	6.2	11.8
Machinery worker	1.3	5.5	6.8	11.8	0.7	7.5	9.6	7.0
Craft worker	1.2	5.3	6.6	11.0	2.0	10.9	13.2	10.5
Unskilled	2.0	6.0	7.0	16.9	-1.9	2.7	3.0	7.5
Female labourers	1.2	4.3	5.1	11.4	-1.7	1.6	2.1	5.6
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Semi-skilled	0.3	3.9	4.9	8.5	7.6	10.6	11.8	9.1
Clerk	0.6	2.4	3.1	6.1	7.1	16.1	17.3	19.7
Machinery worker	1.1	6.7	8.5	16.6	9.1	8.0	8.6	4.7
Craft worker	-0.5	2.6	3.2	3.2	1.2	13.6	17.1	11.2
Unskilled	1.7	5.2	6.1	14.3	-2.1	1.4	1.9	5.9
All labourers	1.4	4.7	5.6	12.5	-1.5	2.3	2.8	6.2
Skilled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-skilled	0.9	4.7	5.8	10.0	2.8	9.5	11.5	9.3
Clerk	0.6	2.4	2.9	6.0	4.4	10.5	11.5	15.6
Machinery worker	1.3	5.9	7.3	13.3	3.4	7.6	9.3	6.3
Craft worker	0.7	4.5	5.6	8.7	2.0	11.1	13.4	10.6
Unskilled	1.8	5.6	6.6	15.6	-2.0	2.0	2.5	6.6

Source: CGE model simulations.

Table 11. Effects on total employment (change from baseline, '000 persons, 2025)

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Indonesia				Viet Nam			
Male labourers	-78	1 050	1 412	12 453	488	2 656	3 019	7 305
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	29	293	384	1 679	100	691	802	2 032
Clerk	4	39	51	224	4	28	32	69
Machinery worker	18	101	130	472	36	238	273	727
Craft worker	7	154	203	983	60	425	496	1 236
Unskilled	-107	757	1 028	10 774	388	1 965	2 217	5 273
Female labourers	-121	352	516	7 600	497	2 673	3 028	7 934
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	-33	38	59	1 228	52	332	383	1 696
Clerk	3	27	36	155	4	28	33	84
Machinery worker	10	40	51	73	23	148	171	842
Craft worker	-46	-29	-28	999	25	157	179	771
Unskilled	-88	314	457	6 372	445	2 341	2 645	6 238
All labourers	-199	1 402	1 928	20 054	985	5 329	6 047	15 239
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	-4	331	443	2 907	151	1 023	1 184	3 728
Clerk	8	66	87	380	7	56	65	152
Machinery worker	28	141	181	545	59	385	445	1 569

Craft worker	-40	125	175	1 983	85	582	675	2 006
Unskilled	-195	1071	1485	17 146	833	4 306	4 862	11 511

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Philippines				Cambodia			
Male labourers	839	1 765	2 040	3 528	-14	370	456	633
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	158	374	434	700	14	47	56	58
Clerk	20	46	53	85	3	10	12	15
Machinery worker	51	140	164	304	8	27	32	32
Craft worker	87	188	217	311	2	10	12	11
Unskilled	681	1391	1607	2 828	-28	323	400	575
Female labourers	431	957	1 104	1 904	97	537	641	896
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	39	138	164	316	73	166	192	249
Clerk	31	78	91	158	3	9	11	15
Machinery worker	-2	37	47	156	41	92	107	147
Craft worker	10	24	27	3	29	65	74	88
Unskilled	392	819	939	1 588	24	371	449	647
All labourers	1 270	2 722	3 144	5 432	83	907	1 098	1 529
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	197	513	598	1017	87	213	249	307
Clerk	51	124	144	243	6	20	23	30
Machinery worker	50	177	210	460	49	119	138	179
Craft worker	97	212	244	314	31	75	87	98
Unskilled	1 073	2 210	2 546	4 415	-4	694	849	1 222

	AFTA	AFTA+	AEC	RCEP	AFTA	AFTA+	AEC	RCEP
	Thailand				Lao PDR			
Male labourers	332	1 085	1 293	2 857	-33	71	83	161
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	70	297	368	631	3	21	26	21
Clerk	3	10	12	27	0	1	1	2
Machinery worker	31	128	157	272	1	6	8	6
Craft worker	36	160	199	332	3	14	17	14

Unskilled	262	788	925	2 226	-36	50	57	140
Female labourers	218	772	922	2 050	-38	37	47	127
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	12	132	166	288	5	7	7	6
Clerk	6	26	32	64	1	2	3	3
Machinery worker	12	74	94	184	4	3	3	2
Craft worker	-6	32	39	40	0	1	1	1
Unskilled	207	640	756	1 761	-43	30	40	121
All labourers	550	1 857	2 215	4 907	-70	108	130	288
Skilled	0	0	0	0	0	0	0	0
Semi-skilled	81	429	534	919	8	28	34	27
Clerk	9	35	44	91	1	3	4	5
Machinery worker	43	202	251	457	4	9	12	8
Craft worker	30	192	238	371	3	15	18	15
Unskilled	469	1 428	1 681	3 988	-79	80	97	261

Source: CGE model simulations.

5.3 Sector effects

Table 12 shows changes in employment by sector for the six ASEAN economies for which we have detailed labour data for the AFTA+, AEC and RCEP scenarios. To have a better sense of the impact of regional trade liberalization on employment vulnerability, we also estimate the changes in the informal composition of employment, based on the assumption of constant shares of informal workers in total employment in each specific subgroup by sector, occupation and gender. The estimated impacts on informal employment are reported in the last columns of Table 12.

Regarding changes in total employment, the results for the agriculture and natural resource-based sectors in the ASEAN countries vary widely. In Indonesia, employment in all of these sectors rises with the exception of other grains and food in the AFTA+ and AEC scenarios, with job losses being particularly large in the case of food (at 412,000 jobs under the AEC scenario). However, these losses turn into big gains in the case of RCEP; employment in mining marginally contracts by 17,000 jobs, but the sum of gains in the other agriculture- and natural resource-based sectors comes to 15 million jobs, or three-fourths the total change in Indonesian employment. The sector effects are less pronounced in the case of the Philippines, with fairly large gains in these sectors and rice the only agriculture sector to contract in the ASEAN-based scenarios (rice actually experiences in 2025 a small gain in the RCEP scenario). Employment in other crops, livestock and food contracts in the Lao People's Democratic Republic under all scenarios, but rice experiences a substantial increase in employment in each, rising to 94,000 jobs under the AEC and 151,000 jobs under RCEP. Viet Nam experiences very large increases in rice employment in every scenario, culminating in a rise of 2.3 million jobs under RCEP, but other grains contract somewhat in all scenarios. In Cambodia, food and livestock contract in the ASEAN-based scenarios, but these reductions are small when compared with the robust increase in employment in other crops. In the RCEP scenario, only food contracts (at 43,000 jobs, or less than 10 per cent

of the gains in the other agriculture sectors). Thailand experiences big gains in agricultural employment, particularly other crops, and small increases in employment in natural resources as well as a very slight decrease in mining employment in all scenarios.

There are also asymmetric effects on manufacturing employment. In Indonesia, the effects tend to be small and positive for all ASEAN-based scenarios (with the slight exception of vehicles under AFTA+ and the AEC) but the story changes immensely with RCEP, in which manufacturing employment drops heavily. The negative effects are largest in textiles and apparel, with a combined decrease of 687,000 jobs, but there is also a large negative effect in vehicles (at 199,000 jobs) and somewhat in other manufacturing (at 34,000 jobs). Changes in manufacturing employment in the Philippines are also relatively small, except in the case of electrical equipment, the latter of which experiences a rise in employment of 50,000 jobs under AFTA+, 70,000 jobs under AEC and 344,000 jobs under RCEP. The only other significant change is a drop in chemicals employment in the RCEP scenario. The effects on manufacturing employment in the Lao People's Democratic Republic are also small. The only substantial effects occur in metals and vehicles in the ASEAN-based scenarios and vehicles in the RCEP scenario. Interestingly, the gains in other manufacturing employment under AFTA+ and the AEC are greater than under RCEP, *albeit* small gains. Manufacturing employment in Viet Nam increases under all ASEAN-based scenarios and in all sectors, with the exception of a small contraction in wood products. Apparel chalks up the biggest gains, with employment increasing by 381,000 jobs in the AEC scenario. However, very large changes take place under RCEP: Apparel employment rises by 2.7 million jobs, and employment falls by 112,000 jobs in metals and 63,000 jobs in wood products. Still, the net rise in manufacturing employment comes to 2.7 million jobs. The effect on manufacturing employment in Cambodia is positive in virtually all sectors and in all scenarios. The biggest gains are always in textiles and apparel, which begin with a combined increase of 93,000 jobs under AFTA+ and rise to 142,000 jobs under RCEP. Thailand experiences reductions in employment in apparel in all scenarios but fairly large increases in vehicles and machinery under AFTA+ and AEC. With RCEP, textiles and apparel together face a large drop (at 246,000 jobs), but this is more than compensated by large increases in electrical equipment (at 231,000 jobs), chemicals (at 166,000 jobs), machinery (at 164,000 jobs) and vehicles (at 109,000 jobs).

In terms of the five services sectors, trade and transportation gains the most for Indonesia, the Philippines and Viet Nam, relative to other sectors, under the ASEAN-based scenarios, with construction also picking up fairly significant gains in the AFTA+ and AEC scenarios. But for both countries, the big changes occur with RCEP: Trade and transportation and construction employment in Indonesia rise by 3.3 million jobs and 1.8 million jobs, respectively; in the Philippines, trade and transportation employment rises by 1.9 million jobs. In Cambodia and the Lao People's Democratic Republic, changes in services employment are small in all scenarios, with trade and transportation picking up the largest increases; employment in government services in the Lao People's Democratic Republic contracts slightly. For Viet Nam, trade and transportation rises by more than 2 million jobs in the AFTA+ and AEC scenarios and by a remarkable 7.5 million jobs in the RCEP scenario. Construction also experiences large increases under RCEP (at 2.1 million jobs). Employment in private services, however, falls throughout all scenarios, with a very large drop under RCEP (at 1.2 million jobs), and government services also fall. Finally, Thailand experiences progressively large increases in trade and transportation employment, beginning with AFTA+ and culminating in a gain of 594,000 jobs under RCEP. The gain in construction employment picks up considerably as regional integration deepens and expands, ending in an increase in employment under RCEP that is almost as large as trade and transportation (at 522,000 jobs). Employment in private services contracts throughout, and job losses are fairly substantial, beginning with AFTA+ (at 154,000 jobs) and more than doubling with RCEP (at 334,000 jobs).

Based on the results in the final columns of Table 12, the share of unskilled labour in changes in total employment also varies extensively across the ASEAN economies. Under the AEC scenario, for example, informality's share in total employment gains varies, from 38 per cent in the Philippines to 65 per cent in Viet Nam, with the economies in the middle all exceeding 50 per cent. Under the RCEP scenario, shares range from 37 per cent in the Philippines to 80 per cent in the Lao People's Democratic Republic, with the others varying, from 58 per cent (Cambodia) to 79 per cent (Indonesia). At the sector level, in agriculture and natural resources, changes in informal employment dominate in all economies and sectors, with the exception of food and mining in some economies. Changes in manufacturing, however, tend to be mostly in formal employment, with the exception of the Lao People's Democratic Republic. Results for the service sectors are again mixed; for example, changes in employment in service sectors are mostly in the formal sectors in the Philippines, and this is also true for Thailand and Viet Nam and the Lao People's Democratic Republic with the (sometimes big) exception of trade and transportation. Changes in services employment is mostly in the informal sectors in Indonesia, except for government and private services.

Table 13 reports changes in sector output relative to the baseline. Under the AEC scenario, in manufacturing machinery and electrical equipment experience the largest increases in Indonesia and Viet Nam; the largest gain in Cambodia is in vehicles; and the greatest gains in the Lao People's Democratic Republic, the Philippines and Thailand are in electrical equipment. Double-digit decreases in value added result in Thailand's private services (at -26 per cent), Cambodia in food (at -32 per cent) and in several sectors in the Lao People's Democratic Republic (other crops, livestock, food and other manufacturing).

The RCEP scenario leads to sometimes significantly different results than is the case with the AEC. For example, although textiles and apparel gain in Indonesia under the AEC, they experience big losses under RCEP (at -16 per cent and -21 per cent, respectively) due to enhanced competition from RCEP members with a strong comparative advantage in this area. Food becomes the top performer in Indonesia while electrical equipment is the top performer in the Philippines. Gains in apparel and textiles rise substantially in Viet Nam (at 158 per cent and 75 per cent, respectively). Grains take a big hit in Viet Nam (at 19 per cent, more than double that of the AEC scenario), and the contraction in private services in Thailand worsens by over half, to 45 per cent under RCEP. And electrical equipment and construction in Viet Nam rise heavily, by around 70 per cent) as does other manufacturing in Cambodia (at 63 per cent).

12. Table Effects on sector employment, 2025 (change from baseline, '000 persons)

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
Indonesia	Changes in total employment			Changes in informal employment		
Rice	58	112	1 544	55	107	1 458
Other grains	-165	-188	1 744	-161	-183	1 703
Other crops	351	386	5 599	307	338	4 898
Livestock	35	55	1 987	33	53	1 887
Natural resources	55	77	789	43	59	608
Mining	20	21	-17	9	10	-10
Food	-360	-412	3 431	-193	-222	1 798
Textiles	100	116	-320	43	50	-142
Apparel	24	22	-367	8	7	-120

Wood products	10	13	35	5	6	15
Chemicals	124	142	121	24	28	20
Metals	123	150	-196	56	68	-94
Electrical equipment	37	52	107	5	7	14
Vehicles	-9	-17	-199	9	12	10
Machinery	46	59	50	-2	-3	-37
Other manufacturing	85	111	-34	32	42	-15
Utilities	4	5	11	1	1	1
Construction	297	397	1 832	183	244	1 131
Trade & transportation	466	689	3 387	357	526	2 563
Private services	77	104	366	34	46	160
Government services	24	33	184	4	5	26
Total	1 402	1 928	20 054	851	1 200	15 875

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
Philippines	<u>Changes in total employment</u>			<u>Changes in informal employment</u>		
Rice	-167	-127	101	-102	-76	68
Other grains	134	143	125	114	122	107
Other crops	502	531	870	311	329	539
Livestock	326	360	483	229	254	341
Natural resources	175	200	313	121	138	217
Mining	-12	-15	-28	-4	-5	-9
Food	115	121	126	18	18	18
Textiles	-9	-11	-49	-4	-4	-18
Apparel	23	28	7	8	9	3
Wood products	-2	-2	-5	-1	-1	-2
Chemicals	-12	-19	-91	-1	-1	-2
Metals	6	6	-25	1	1	-4
Electrical equipment	50	70	344	0	0	0
Vehicles	81	90	34	-1	-1	-3
Machinery	-11	-13	-34	5	6	2
Other manufacturing	0	-1	-54	-1	-1	-20
Utilities	8	8	7	0	0	0
Construction	325	383	746	10	11	22
Trade & transportation	848	993	1906	333	391	761
Private services	258	302	488	10	12	17
Government services	85	97	167	-1	-1	-2
Total	2 722	3 144	5 432	1 046	1 201	2 036

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
<u>Thailand</u>	<u>Changes in total employment</u>			<u>Changes in informal employment</u>		
Rice	246	273	564	212	235	485
Other grains	150	152	194	128	131	166
Other crops	442	510	1 623	380	439	1 393
Livestock	201	234	724	151	175	540
Natural resources	41	52	161	29	37	115
Mining	0	-1	0	0	0	0
Food	142	161	562	27	31	108
Textiles	3	3	-75	1	1	-22
Apparel	-47	-52	-171	-12	-13	-44
Wood products	0	-1	-7	0	0	-2
Chemicals	61	67	166	5	5	13
Metals	36	41	-32	5	5	-4
Electrical equipment	36	58	231	0	0	1
Vehicles	125	156	109	3	4	6
Machinery	84	104	164	2	2	1
Other manufacturing	-16	-18	-84	-3	-3	-15
Utilities	4	5	11	0	0	0
Construction	197	251	522	13	17	36
Trade & transportation	312	413	594	217	287	419
Private services	-154	-192	-334	-43	-53	-92
Government services	-5	-2	-13	-1	-1	-2
Total	1 857	2 215	4 907	1 114	1 298	3 101

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
<u>Viet Nam</u>	<u>Changes in total employment</u>			<u>Changes in informal employment</u>		
Rice	1 196	1 280	2 320	1 106	1 184	2 146
Other grains	-19	-19	-45	-18	-18	-41
Other crops	200	203	803	186	189	744
Livestock	323	369	884	318	363	870
Natural resources	121	146	349	91	110	262
Mining	11	8	-20	5	4	-2
Food	88	86	-18	24	23	-25
Textiles	45	54	134	13	15	37
Apparel	332	381	2 657	66	76	524
Wood products	-6	-8	-63	-3	-4	-34
Chemicals	33	40	30	3	3	3

Metals	56	67	-112	8	10	-17
Electrical equipment	37	47	48	0	0	0
Vehicles	25	32	2	1	1	1
Machinery	42	51	44	1	1	0
Other manufacturing	57	65	-46	17	19	-13
Utilities	27	33	13	1	1	1
Construction	514	605	2 085	35	41	142
Trade & transportation	2 498	2 897	7 524	1 712	1 987	5 176
Private services	-177	-204	-1202	-55	-64	-439
Government services	-74	-84	-148	7	8	19
Total	5 329	6 047	15 239	3 517	3 950	9 354

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
<u>Cambodia</u>	<u>Changes in total employment</u>			<u>Changes in informal employment</u>		
Rice	18	34	70	17	32	65
Other grains	28	25	52	27	23	49
Other crops	253	293	363	128	148	184
Livestock	-33	-23	24	-30	-21	24
Natural resources	16	32	66	14	27	56
Mining	5	6	4	1	1	1
Food	-45	-49	-43	-32	-35	-30
Textiles	46	52	58	25	28	32
Apparel	35	41	84	3	3	7
Wood products	13	13	12	8	9	8
Chemicals	28	31	24	14	16	12
Metals	8	11	2	3	4	1
Electrical equipment	3	3	-3	0	0	0
Vehicles	23	26	26	0	0	0
Machinery	4	4	-1	13	14	14
Other manufacturing	18	19	13	10	11	7
Utilities	6	7	8	1	1	1
Construction	149	182	239	98	119	157
Trade & transportation	310	365	495	189	223	301
Private services	15	19	24	3	4	5
Government services	5	6	11	0	-1	0
Total	907	1 098	1 529	491	606	893

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP

Lao PDR	Changes in total employment			Changes in informal employment		
Rice	73	94	151	72	94	150
Other grains	15	14	55	15	14	55
Other crops	-62	-68	-42	-59	-64	-39
Livestock	-32	-36	-28	-32	-36	-28
Natural resources	48	46	65	43	42	59
Mining	1	2	3	0	0	1
Food	-48	-55	-52	-35	-40	-38
Textiles	-3	-3	-4	-3	-3	-4
Apparel	5	6	3	2	2	1
Wood products	15	15	17	8	8	9
Chemicals	0	0	2	0	0	1
Metals	19	26	6	9	13	3
Electrical equipment	0	0	0	0	0	0
Vehicles	30	31	22	0	0	0
Machinery	7	7	5	6	6	4
Other manufacturing	-2	-2	-4	-1	-1	-2
Utilities	2	2	8	0	0	1
Construction	7	8	10	2	2	3
Trade & transportation	24	30	38	21	27	33
Private services	17	20	40	9	11	20
Government services	-7	-8	-8	0	0	0
Total	108	130	288	58	75	229

Source: CGE model simulations.

Table 13. Effects on sector value added (% change from baseline, 2025)

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
	Indonesia			Viet Nam		
Rice	0.5	1.0	19.5	20.8	22.5	46.2
Other grains	-4.1	-4.6	48.4	-8.3	-7.9	-18.8
Other crops	2.0	2.2	39.3	5.2	5.6	20.0
Livestock	0.6	1.0	44.0	14.4	16.5	43.3
Natural resources	1.2	1.7	22.7	6.4	7.7	20.5
Mining	3.5	4.0	3.3	11.5	11.5	17.7
Food	-6.5	-7.3	80.3	8.9	9.6	20.6
Textiles	7.1	8.4	-15.7	19.1	22.5	74.8
Apparel	2.7	2.9	-20.5	18.6	21.5	157.5
Wood products	2.3	2.9	11.6	6.2	7.0	4.6
Chemicals	4.6	5.4	7.9	14.5	17.6	31.9

Metals	6.9	8.7	-4.9	17.2	20.4	-6.6
Electrical equipment	9.2	12.7	39.6	33.2	41.7	71.7
Vehicles	-1.1	-2.7	-42.3	19.5	24.7	21.2
Machinery	9.1	11.9	13.8	24.4	29.7	49.2
Other manufacturing	7.1	9.3	2.0	16.5	18.8	6.7
Utilities	3.6	4.6	13.6	14.2	16.8	31.5
Construction	3.0	4.1	19.4	16.4	19.3	68.6
Trade & transportation	1.0	1.5	9.6	18.6	21.7	62.1
Private services	2.2	2.9	12.5	1.2	1.4	-21.2
Government services	1.7	2.2	10.8	7.2	8.4	22.7

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
	Philippines			Cambodia		
Rice	-3.8	-2.6	4.4	3.5	5.5	10.3
Other grains	8.3	9.0	9.3	17.6	15.7	32.6
Other crops	12.7	13.6	23.6	14.0	16.1	20.5
Livestock	16.0	17.9	26.0	-2.7	-1.5	4.7
Natural resources	7.0	8.2	14.1	2.9	4.4	7.9
Mining	-3.4	-4.2	-8.0	23.6	30.5	24.2
Food	13.0	14.3	18.2	-29.8	-32.4	-26.3
Textiles	-2.7	-3.6	-27.2	37.7	43.4	49.1
Apparel	7.5	8.9	4.4	14.3	17.0	29.2
Wood products	3.7	4.2	7.0	50.3	55.6	54.6
Chemicals	-0.3	-1.3	-14.5	41.3	47.1	40.4
Metals	6.6	7.1	-4.4	19.7	26.9	9.5
Electrical equipment	8.2	10.7	45.3	25.1	26.9	-13.7
Vehicles	38.1	43.3	23.1	81.8	93.9	91.2
Machinery	0.6	0.5	-2.7	31.3	37.5	-2.9
Other manufacturing	4.2	4.6	-21.3	82.1	90.1	62.7
Utilities	7.8	9.0	13.8	34.2	40.3	43.9
Construction	13.2	15.7	31.1	20.2	24.6	32.6
Trade & transportation	9.0	10.6	21.1	20.6	24.4	34.0
Private services	7.3	8.7	15.5	11.0	13.5	18.2
Government services	7.5	8.8	16.7	10.4	12.4	17.4

	AFTA+	AEC	RCEP	AFTA+	AEC	RCEP
	Thailand			Lao PDR		
Rice	8.9	9.9	23.8	4.2	5.7	9.0
Other grains	36.0	37.0	54.5	32.5	32.4	123.4
Other crops	9.7	11.1	35.8	-10.8	-11.4	-6.3
Livestock	17.9	20.9	65.7	-18.1	-19.9	-14.8
Natural resources	9.6	11.8	37.2	18.1	18.0	24.5
Mining	5.1	5.3	12.7	76.9	96.1	152.1
Food	14.8	17.1	57.9	-37.4	-43.2	-40.0
Textiles	5.1	6.0	-26.9	-8.0	-8.2	-12.6
Apparel	-3.4	-3.3	-18.1	39.0	44.9	26.6
Wood products	5.2	6.2	10.2	37.6	38.6	42.9
Chemicals	12.6	14.4	35.3	-7.5	-6.9	100.8
Metals	12.8	15.2	1.2	35.9	49.1	16.4
Electrical equipment	7.9	11.6	40.8	27.1	31.9	12.8
Vehicles	21.9	27.5	23.7	963.0	990.5	655.0
Machinery	17.9	22.4	38.5	104.7	112.8	83.6
Other manufacturing	-2.4	-2.2	-25.6	-28.1	-32.6	-62.4
Utilities	8.6	10.8	23.1	26.1	29.9	65.8
Construction	10.9	13.8	29.5	15.4	18.3	19.3
Trade & transportation	5.5	6.9	13.4	7.5	9.4	11.2
Private services	-21.0	-26.3	-44.6	14.5	17.2	29.2
Government services	4.7	5.8	11.8	13.7	15.3	16.6

Source: CGE model simulations.

Overall, the strong efficiency effects generated by internal and external ASEAN-centric integration result from substantial structural change in sector output and employment. These changes, in turn, highlight a number of policy issues begging redress by ASEAN policy-makers, as the next section points out.

6. Summary and policy implications

ASEAN economic integration has come a long way, from superficial initiatives in its early years to a “stylized” common market in the form of the ASEAN Economic Community. In this study, we look at the effects of deeper integration on ASEAN economies via three scenarios – completing AFTA, AFTA+ and AEC – as well as an RCEP scenario, which envisions a regional FTA with its existing FTA partners. In addition to estimating the traditional effects of economic integration by focusing on changes in welfare, we also consider the distribution effects on the labour force in ASEAN economies for which we have Labour Force Survey data (Cambodia, Indonesia, the Lao People’s Democratic Republic, the Philippines, Thailand and Viet Nam).

In general, we estimate impressive welfare and export gains from deepening and expanding economic cooperation. These gains are larger than those estimated in other studies because our approach – under the assumption of persistent unemployment for some categories of labour – also models how overall employment would increase as liberalization improves the competitiveness of ASEAN economies. All ASEAN economies benefit in the AEC and RCEP scenarios; overall income growth is estimated to rise by 8 per cent and 18.4 per cent, respectively, at the aggregate ASEAN level, and export growth mirrors these gains. We also estimate significant increases in wages and employment, depending on the scenario, with the AEC and RCEP scenarios generating the largest effects.

Results on wages and other factor returns vary across broad factors (labour, capital and land) and for labour across skill levels and by gender. In particular, in terms of this latter point, in Indonesia, the Lao People's Democratic Republic and Thailand, the increase in men's wages exceeds those of women in every policy scenario. Although labour always gains, so do the returns to capital and, in most scenarios and countries, to land. In addition, skilled labour usually benefits more than semi-skilled labour, which in turn gains relative to unskilled labour. Taken together, these results suggest that the “pie” will become much bigger with these initiatives, but lower-wage workers will feel the benefits through better access to employment rather than higher wages.

The structural changes driving these results could also have an important effect on informality. In the AEC and RCEP scenarios, the rise in sector employment tends to be dominated by increasing jobs in the informal sectors, with the exception of the Philippines. At the country level, informal jobs account for almost two-thirds of the impressive growth in total employment in Viet Nam under the AEC scenario and more than three-fourths of employment growth in Indonesia under the RCEP scenario. These results reflect the fact that semi-skilled and unskilled workers, whose employment expands, are often employed in the informal sectors. Thus, the rise in employment, although a key positive aspect of ASEAN internal and external integration, could result in the growth of the more precarious segments of ASEAN labour markets.

Even though we expect these initiatives to generate large returns to ASEAN countries and to labour overall, it is important for governments to take into account the mixed effects on the distribution of these gains and act accordingly to ensure that the benefits are fairly spread and that the “winners” will compensate the “losers”. An extensive analysis of the options that might be pursued to create adequate compensation mechanisms is beyond the scope of this study (see, for example, proposals in ILO and WTO, 2007; OECD, 2012), our results underscore a strong case for active government policies that smooth structural change and minimize unemployment of resources (efficiency grounds), compensate losers (equity grounds) and reassure the people of ASEAN that economic integration is not only pro-growth but pro-poor (political-economy grounds). Thus, establishing effective social safety nets, including social protection floors, which in most ASEAN countries tend to be underdeveloped, need to be imperative priorities as ASEAN deepens its integration internally and externally.

The leaders of ASEAN countries understand this point, as evidenced by their placing such a strong priority on closing development gaps and creating an equitable economic region. The fact that the ASEAN Community is composed of the Economic Community, the Political-Security Community and the Socio-Cultural Community pillars also testifies to their recognition of interdependence and the priority that needs to be placed on inclusive growth. Our results demonstrate that deepening economic integration and cooperation will boost growth and development and are certainly worthwhile initiatives, but they need to be accompanied by effective,

complementary measures to ensure a widespread sharing of the attendant gains as well as political sustainability of these initiatives.

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Annex A. The structure of nested constant elasticity of substitution production functions in the CGE model

Figure A1. Production nesting for ASEAN-6

Figure A2. Production nesting for other regions

Annex B. Welfare effects on an annual basis, 2010–25, by country and scenario

Table B1. Welfare effects relative to the baseline, estimated value 2010–25 (\$ billion, 2007 prices)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
AFTA																
Australia	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	0.0	-0.2	-0.3	-0.5	-0.8	-1.2	-1.4	-1.6	-1.8	-2.1	-2.3	-2.6	-2.9	-3.1	-3.4	-3.7
China, Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	-0.1	-0.1	-0.3	-0.4	-0.6	-0.9	-0.9	-1.0	-1.1	-1.2	-1.2	-1.3	-1.4	-1.4	-1.5	-1.6
Korea, Rep. of	0.0	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
China, Taiwan	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5
Indonesia	0.2	0.4	0.7	1.0	1.5	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
Malaysia	0.1	0.4	0.7	1.1	1.7	2.6	3.0	3.4	3.9	4.3	4.8	5.3	5.9	6.4	6.9	7.5
Philippines	0.1	0.3	0.6	1.0	1.9	3.3	3.9	4.5	5.2	5.9	6.6	7.4	8.2	9.1	10.0	11.0
Singapore	0.2	0.4	0.8	1.1	1.8	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	4.9	5.2
Thailand	0.2	0.6	1.1	1.7	2.4	3.0	3.4	4.0	4.6	5.2	5.8	6.4	6.9	7.6	8.3	9.0
Viet Nam	0.1	0.2	0.4	0.7	1.0	1.4	1.6	1.7	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3
Cambodia	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.9	1.0
Lao PDR	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Rest of ASEAN	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3
India				0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.5				-0.6
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
USA	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Europe	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2

Rest of the world	0.0	-0.1	-0.1	-0.2	-0.3	-0.4	-0.5	-0.6	-0.6	-0.7	-0.7	-0.8	-0.8	-0.8	-0.9	-0.9
ASEAN	0.9	2.4	4.2	6.6	10.4	15.1	17.2	19.5	22.0	24.5	27.2	29.9	32.6	35.6	38.6	41.7

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
AFTA+																
Australia	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0
China	-2.3	-3.6	-5.2	-6.8	-8.9	-11.2	-12.6	-14.1	-15.5	-16.9	-18.4	-19.8	-21.3	-22.6	-24.0	-25.3
China, Hong Kong	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
Japan	-0.8	-1.2	-1.7	-2.1	-2.7	-3.4	-3.6	-3.8	-3.9	-4.0	-4.2	-4.3	-4.5	-4.6	-4.7	-4.8
Korea, Rep. of	-0.7	-1.1	-1.5	-1.9	-2.4	-3.0	-3.1	-3.2	-3.3	-3.4	-3.5	-3.6	-3.7	-3.8	-3.8	-3.9
China, Taiwan	-0.5	-0.8	-1.0	-1.3	-1.7	-2.1	-2.3	-2.5	-2.7	-2.9	-3.0	-3.2	-3.4	-3.5	-3.7	-3.8
Indonesia	2.8	4.6	6.8	9.2	12.2	15.6	17.8	20.2	22.7	25.2	27.9	30.7	33.5	36.4	39.5	42.5
Malaysia	3.4	5.2	7.4	9.8	12.8	16.5	18.6	20.8	23.1	25.3	27.7	30.0	32.4	34.7	37.1	39.4
Philippines	1.3	2.1	3.2	4.6	6.6	9.6	11.2	12.9	14.7	16.6	18.5	20.6	22.8	25.0	27.4	29.8
Singapore	2.9	4.4	6.1	7.9	10.1	12.6	13.9	15.2	16.5	17.7	19.0	20.3	21.5	22.7	23.8	24.9
Thailand	3.6	5.6	8.2	10.7	13.9	17.0	18.9	21.0	23.3	25.6	27.9	30.0	32.3	34.6	37.0	39.3
Viet Nam	3.0	4.7	6.5	8.3	10.4	12.9	14.2	15.4	16.7	18.0	19.3	20.6	22.0	23.3	24.7	26.2
Cambodia	0.3	0.4	0.5	0.7	0.9	1.3	1.5	1.7	1.9	2.2	2.5	2.8	3.1	3.5	3.9	4.3
Lao PDR	0.1	0.2	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
Rest of ASEAN	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.5	1.6
India				-0.7	-1.0	-1.4	-1.7	-2.2	-2.7	-3.0	-3.4	-3.8				-4.2
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
USA	-0.2	-0.3	-0.3	-0.3	-0.4	-0.5	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	0.0	0.1	0.2	0.3

Europe	-0.6	-0.8	-0.9	-0.9	-0.9	-0.8	-0.7	-0.5	-0.3	-0.2	0.0	0.3	0.5	0.8	1.0	1.3
Rest of the world	-0.5	-0.7	-1.0	-1.3	-1.7	-2.1	-2.2	-2.3	-2.3	-2.3	-2.3	-2.2	-2.1	-2.0	-1.9	-1.8
ASEAN	17.5	27.3	39.1	51.8	67.7	86.5	97.2	108.6	120.4	132.5	144.7	157.1	169.9	182.9	196.1	209.5

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
AEC																
Australia	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.1
New Zealand	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0
China	-2.5	-4.1	-6.0	-8.2	-10.9	-14.1	-15.9	-17.8	-19.7	-21.5	-23.4	-25.3	-27.2	-29.1	-30.9	-32.6
China, Hong Kong	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2
Japan	-0.9	-1.4	-1.9	-2.5	-3.3	-4.2	-4.4	-4.6	-4.8	-5.0	-5.2	-5.4	-5.5	-5.7	-5.9	-6.0
Korea, Rep. of	-0.8	-1.3	-1.8	-2.4	-3.0	-3.8	-4.0	-4.1	-4.3	-4.4	-4.6	-4.7	-4.9	-5.0	-5.1	-5.2
China, Taiwan	-0.5	-0.8	-1.2	-1.6	-2.1	-2.6	-2.9	-3.1	-3.3	-3.6	-3.8	-4.0	-4.3	-4.5	-4.7	-4.9
Indonesia	3.1	5.2	8.0	11.1	15.1	19.7	22.7	25.9	29.2	32.6	36.2	39.9	43.7	47.6	51.7	55.9
Malaysia	3.7	6.0	8.8	12.1	16.3	21.3	24.1	27.0	30.0	33.0	36.1	39.2	42.3	45.4	48.5	51.5
Philippines	1.3	2.3	3.5	5.1	7.5	11.0	12.9	14.9	17.0	19.2	21.5	24.0	26.5	29.2	32.0	34.9
Singapore	3.2	5.2	7.6	10.0	13.2	16.8	18.6	20.4	22.3	24.1	25.9	27.6	29.4	31.0	32.7	34.3
Thailand	3.9	6.4	9.5	12.8	16.9	21.3	23.8	26.4	29.4	32.3	35.1	37.9	40.8	43.8	46.9	49.9
Viet Nam	3.2	5.0	7.1	9.2	11.8	14.8	16.3	17.9	19.4	20.9	22.4	24.0	25.7	27.3	29.0	30.8
Cambodia	0.3	0.4	0.6	0.8	1.1	1.6	1.8	2.1	2.4	2.7	3.1	3.4	3.9	4.3	4.8	5.3
Lao PDR	0.1	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.9
Rest of ASEAN	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.3	1.4	1.6	1.8	1.9	2.1
India	-0.7	-1.1	-1.6	-2.1	-2.7	-3.4	-3.8	-4.3	-4.7	-5.3	-5.8	-6.3	-6.9	-7.5	-8.1	-8.8
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2

USA	-0.2	-0.3	-0.4	-0.5	-0.7	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.1	0.0	0.1	0.3
Europe	-0.6	-0.9	-1.1	-1.2	-1.3	-1.3	-1.1	-0.9	-0.7	-0.5	-0.2	0.1	0.4	0.7	1.0	1.4
Rest of the world	-0.5	-0.8	-1.1	-1.5	-1.9	-2.4	-2.5	-2.5	-2.4	-2.4	-2.2	-2.1	-1.9	-1.7	-1.5	-1.2
<u>ASEAN</u>	18.9	30.9	45.7	62.1	83.0	108.0	121.8	136.3	151.5	166.9	182.7	198.7	215.2	232.1	249.2	266.6

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
RCEP																
Australia	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	-0.3	3.5	6.7	10.8	15.7	22.0	26.3	29.1	32.1	35.2
New Zealand	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.6	1.1	1.8	2.7	3.8	4.5	4.9	5.3	5.8
China	-2.5	-4.1	-6.0	-8.2	-10.9	-14.1	-15.9	12.8	43.8	85.0	129.1	182.4	227.7	253.8	280.1	306.8
China, Hong Kong	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	5.1	10.8	18.5	26.6	37.0	44.8	48.8	52.9	57.0
Japan	-0.9	-1.4	-1.9	-2.5	-3.3	-4.2	-4.4	14.6	27.3	42.7	60.0	79.6	91.1	98.1	105.2	112.5
Korea, Rep. of	-0.8	-1.3	-1.8	-2.4	-3.0	-3.8	-4.0	13.1	26.6	43.5	62.8	85.5	99.3	105.8	112.3	118.8
China, Taiwan	-0.5	-0.8	-1.2	-1.6	-2.1	-2.6	-2.9	-5.9	-8.6	-11.9	-15.5	-19.6	-22.7	-24.5	-26.3	-28.1
Indonesia	3.1	5.3	8.0	11.2	15.1	19.8	22.7	37.3	51.8	71.1	95.2	125.0	147.4	169.0	192.0	216.4
Malaysia	3.7	6.0	8.9	12.1	16.3	21.3	24.1	30.1	36.2	43.4	51.3	60.2	68.8	75.7	82.8	90.0
Philippines	1.3	2.3	3.5	5.1	7.5	11.0	12.9	15.8	19.3	23.3	27.9	33.2	39.0	44.4	50.0	56.0
Singapore	3.3	5.3	7.6	10.1	13.2	16.8	18.6	22.3	26.0	30.4	35.4	41.4	46.5	50.5	54.4	58.3
Thailand	3.9	6.4	9.5	12.8	17.0	21.4	23.8	30.4	36.6	43.9	52.0	61.3	70.0	77.1	84.3	91.6
Viet Nam	3.2	5.0	7.1	9.2	11.8	14.8	16.3	22.3	28.7	36.7	45.8	56.7	66.1	73.1	80.5	88.1
Cambodia	0.3	0.4	0.6	0.8	1.1	1.6	1.8	2.1	2.5	2.9	3.3	3.8	4.4	5.0	5.6	6.2
Lao PDR	0.1	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.6	1.7	1.9	2.0
Rest of ASEAN	0.2	0.2	0.3	0.4	0.5	0.6	0.7	1.0	1.3	1.7	2.2	3.2	4.0	4.8	5.7	6.6
Lao PDR	-0.7	-1.1	-1.6	-2.1	-2.7	-3.4	-3.8	27.4	52.2	84.4	121.5	166.3	194.9	215.7	237.8	261.3

Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
USA	-0.2	-0.3	-0.4	-0.5	-0.7	-0.9	-0.8	-1.7	-2.0	-2.1	-2.1	-2.0	-1.8	-1.3	-0.7	-0.1
Europe	-0.6	-0.9	-1.1	-1.2	-1.3	-1.3	-1.1	-0.5	0.5	2.3	4.9	8.4	10.5	12.6	14.8	17.2
Rest of the world	-0.5	-0.8	-1.1	-1.5	-1.9	-2.4	-2.5	-6.6	-9.7	-13.0	-16.4	-20.0	-22.3	-23.0	-23.5	-23.8
ASEAN	19.1	31.2	45.7	62.2	83.1	108.0	121.9	162.4	203.3	254.5	314.5	386.1	447.7	501.3	557.2	615.3

Source: CGE model simulations.

Table B2. Welfare effects relative to the baseline, 2010–25 (estimated value as % of baseline GDP)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
AFTA																
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China, Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rep. of Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China, Taiwan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Indonesia	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Malaysia	0.1	0.2	0.3	0.4	0.6	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.5	1.6
Philippines	0.1	0.2	0.3	0.5	0.9	1.5	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.7	2.8	3.0
Singapore	0.1	0.2	0.3	0.5	0.7	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.4
Thailand	0.1	0.2	0.4	0.5	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.7
Viet Nam	0.1	0.3	0.4	0.6	0.9	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6
Cambodia	0.1	0.2	0.4	0.5	0.9	1.5	1.7	1.9	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3
Lao PDR	0.0	0.0	0.0	0.1	0.2	0.5	0.6	0.7	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.2
Rest of ASEAN	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4
India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of the world	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASEAN	0.1	0.1	0.3	0.4	0.6	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.2

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
AFTA+																
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
China, Hong Kong	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0
Japan	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Rep. of Korea	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
China, Taiwan	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Indonesia	0.6	0.8	1.2	1.5	1.8	2.2	2.4	2.5	2.7	2.8	2.9	3.0	3.1	3.2	3.2	3.3
Malaysia	1.5	2.2	2.9	3.7	4.6	5.7	6.1	6.5	6.8	7.1	7.4	7.7	7.9	8.1	8.2	8.4
Philippines	0.8	1.2	1.7	2.3	3.2	4.4	4.9	5.3	5.8	6.2	6.5	6.9	7.2	7.5	7.8	8.1
Singapore	1.4	2.0	2.8	3.5	4.2	5.1	5.4	5.7	5.9	6.1	6.3	6.5	6.7	6.8	6.9	7.0
Thailand	1.3	2.1	2.8	3.5	4.3	5.1	5.4	5.8	6.1	6.4	6.7	6.9	7.1	7.3	7.5	7.6
Viet Nam	3.3	4.8	6.3	7.6	9.1	10.7	11.2	11.5	11.8	12.1	12.2	12.4	12.5	12.5	12.5	12.5
Cambodia	2.5	3.5	4.5	5.6	7.0	8.9	9.6	10.2	10.9	11.5	12.1	12.6	13.1	13.6	14.1	14.5
Lao PDR	2.0	2.8	3.7	4.6	5.7	7.2	7.5	7.9	8.2	8.5	8.7	8.9	9.0	9.1	9.2	9.2
Rest of ASEAN	0.4	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.9	2.0
India	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of the world	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASEAN	1.1	1.7	2.3	2.9	3.6	4.4	4.7	4.9	5.2	5.4	5.6	5.8	5.9	6.0	6.2	6.3

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
AEC																
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
China, Hong Kong	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0
Japan	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Rep. of Korea	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
China, Taiwan	-0.1	-0.2	-0.3	-0.3	-0.4	-0.5	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Indonesia	0.6	1.0	1.4	1.8	2.3	2.8	3.0	3.2	3.4	3.6	3.8	3.9	4.0	4.1	4.2	4.3
Malaysia	1.6	2.5	3.5	4.6	5.9	7.3	7.9	8.4	8.9	9.3	9.7	10.0	10.3	10.6	10.8	11.0
Philippines	0.8	1.3	1.9	2.6	3.7	5.1	5.6	6.2	6.7	7.1	7.6	8.0	8.4	8.8	9.1	9.4
Singapore	1.6	2.4	3.4	4.5	5.6	6.8	7.2	7.6	8.0	8.3	8.6	8.9	9.1	9.3	9.4	9.6
Thailand	1.4	2.3	3.3	4.2	5.3	6.4	6.8	7.2	7.7	8.1	8.4	8.7	9.0	9.2	9.5	9.7
Viet Nam	3.4	5.1	6.8	8.5	10.4	12.3	12.9	13.3	13.7	14.0	14.3	14.4	14.6	14.7	14.7	14.7
Cambodia	2.7	3.9	5.2	6.7	8.5	11.0	11.8	12.6	13.4	14.2	14.9	15.6	16.3	16.9	17.5	18.0
Lao PDR	2.2	3.2	4.3	5.4	7.0	8.9	9.3	9.7	10.1	10.4	10.7	10.9	11.1	11.3	11.3	11.4
Rest of ASEAN	0.5	0.6	0.8	1.0	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.4	2.5	2.6	2.7
India	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of the world	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASEAN	1.2	1.9	2.7	3.5	4.4	5.5	5.8	6.2	6.5	6.8	7.1	7.3	7.5	7.7	7.8	8.0

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025
RCEP																
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.9	1.3	1.7	2.0	2.1	2.3	2.4
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	1.1	1.5	2.1	2.4	2.6	2.8	2.9
China	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	0.2	0.5	0.9	1.3	1.7	1.9	2.0	2.1	2.2
China, Hong Kong	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1.8	3.6	5.9	8.1	10.8	12.5	13.1	13.7	14.1
Japan	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.3	0.6	0.9	1.2	1.6	1.8	1.9	2.1	2.2
Rep. of Korea	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	0.9	1.7	2.6	3.7	4.8	5.4	5.5	5.6	5.7
China, Taiwan	-0.1	-0.2	-0.3	-0.3	-0.4	-0.5	-0.5	-1.0	-1.4	-1.9	-2.4	-2.8	-3.1	-3.3	-3.4	-3.4
Indonesia	0.6	1.0	1.4	1.8	2.3	2.8	3.0	4.7	6.1	7.9	9.9	12.2	13.6	14.7	15.7	16.7
Malaysia	1.7	2.6	3.5	4.6	5.9	7.3	7.9	9.4	10.7	12.2	13.8	15.4	16.8	17.6	18.4	19.2
Philippines	0.8	1.3	1.9	2.6	3.7	5.1	5.6	6.6	7.6	8.7	9.9	11.1	12.4	13.3	14.3	15.1
Singapore	1.6	2.4	3.4	4.5	5.6	6.8	7.2	8.3	9.4	10.5	11.8	13.3	14.4	15.1	15.7	16.3
Thailand	1.4	2.4	3.3	4.2	5.3	6.4	6.8	8.3	9.6	11.0	12.4	14.0	15.4	16.2	17.0	17.7
Viet Nam	3.4	5.1	6.8	8.5	10.4	12.3	12.9	16.7	20.3	24.6	29.1	34.0	37.5	39.2	40.7	42.1
Cambodia	2.7	3.9	5.2	6.7	8.5	11.0	11.8	13.0	14.1	15.2	16.2	17.3	18.5	19.5	20.4	21.2
Lao PDR	2.2	3.2	4.3	5.4	7.0	8.9	9.3	9.8	10.2	10.6	10.9	11.3	11.6	11.9	12.2	12.4
Rest of ASEAN	0.5	0.6	0.8	1.0	1.3	1.5	1.6	1.9	2.4	3.0	3.7	5.0	6.0	6.7	7.5	8.3
India	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	1.1	2.0	3.0	4.1	5.2	5.8	6.0	6.2	6.4
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Rest of the world	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
ASEAN	1.2	1.9	2.7	3.5	4.4	5.5	5.8	7.4	8.7	10.4	12.2	14.2	15.6	16.6	17.5	18.4

Source: CGE model simulations.

Assessing the impact of ASEAN economic integration on labour markets

Enhancing regional economic integration has become an important priority for the Association of Southeast Asian Nations (ASEAN). Building on the ASEAN Free Trade Area, ASEAN has been implementing the ASEAN Economic Community (AEC) since 2007, scheduled for completion in 2015. The AEC is in many ways the most ambitious economic cooperation programme in the developing world, with its goal being the creation of an economic space in which there will be a free flow of goods, services, foreign direct investment and skilled labour. In addition, ASEAN has cemented free trade areas with six regional partners (Japan, Republic of Korea, People's Republic of China, Australia, New Zealand and India) and, together with these economies, launched the Regional Economic Comprehensive Partnership (RCEP) in November 2012, also with the goal of completion in 2015.

This study estimates the implications of the regional integration initiatives on ASEAN Member States using a cutting-edge computable general equilibrium model. In addition to gauging the effects on welfare, trade and economic structure, it considers the ramifications for labour markets. Using detailed data from the labour force surveys available for six ASEAN markets, the paper captures the effects of these initiatives on seven categories of labour at the occupational level. It also includes estimates of the distributional effects of these initiatives for labour relative to other factors (capital and land) and on gender.

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