
Economic Implications of Deeper South Asian–Southeast Asian Integration: A CGE Approach*

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Abstract

Using a computable general equilibrium model, this paper estimates the potential gains from deepening integration across South Asia and Southeast Asia. If the two regions succeed in dropping inter-regional tariffs, reducing non-tariff barriers by 50 percent, and decreasing inter-regional trade costs by 15 percent—which the paper suggests are ambitious but nevertheless attainable—welfare in South Asia and Southeast Asia would rise by 8.9 percent and 6.4 percent of GDP, respectively, by 2030. Hence, we conclude that deepening South Asian regional cooperation together with building links to Southeast Asia would pay off rich dividends.

I. Introduction

In the 21st century, the external dimension to sustainable growth has become more important than ever before. Asia is at the forefront of globalization: In all successful Asian

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economies trade has become a key source of growth on both the demand and supply sides, the former because of the benefits of integrating into the international marketplace and the latter because of technology and other spillovers associated with exports and imports. The role of global capital in growth and development varies across economies, but trends in globalization in Asia have been fueled by international supply chains and production networks, which in turn are propelled by foreign direct investment (FDI) (Athukorala 2011; Chia 2013). In other words, modern growth is being driven by an inter-dependent, simultaneous process in which rapid growth in trade, FDI, and other financial flows drive the process of globalization, and globalization itself is making trade and FDI increasingly important in the growth process.

South Asian and Southeast Asian policymakers have demonstrated a keen understanding of these issues. The results have been extremely positive; these regions have been among the most dynamic in the world and have produced highly impressive socioeconomic improvements, with most of the “Millennium Development Goals” having already been achieved in many economies. Although challenges remain, these regions are generally on the right path.

But have these two outward-oriented regions integrated well with each other? Have they been able to exploit dynamic synergies that might be tapped via closer economic integration? Inter-regional exports and imports have risen significantly since the early 1990s, with bilateral trade flows growing even faster than the overall trade of these two dynamic regions, and FDI more than doubling over the past decade. Nevertheless, these changes have proceeded from a small base, and inter-regional economic integration is still relatively low and far below what one would expect given regional characteristics (Francois, Rana, and Wignaraja 2009; Dasgupta, Pitigala, and Gourdon 2012). And although overall trade and investment liberalization in both regions has been remarkable over the past generation (for example, intra-regional trade in ASEAN is now essentially tariff-free and the region has been embracing deep integration in favor of a stylized unified market, the ASEAN Economic Community [AEC]), difficulties related to trade and investment facilitation are ubiquitous, infrastructural links remain problematic, and inter-regional economic cooperation initiatives cover only parts of South Asia. In short, although economic integration is rising, it has a long way to go before it can reach its potential.

The goal of this study is to estimate the potential gains from South Asian–Southeast Asian economic integration using an advanced computable general equilibrium (CGE) model. To provide context, the paper begins with a review of inter-regional trade links in Section 2, from which it becomes clear that inter-regional trade has been growing rapidly but is still well below its potential. Section 3 considers the few studies that have been used to evaluate the effects of South–Southeast Asian economic integration and introduces the CGE model used in this study. Section 4 presents and evaluates the results of several

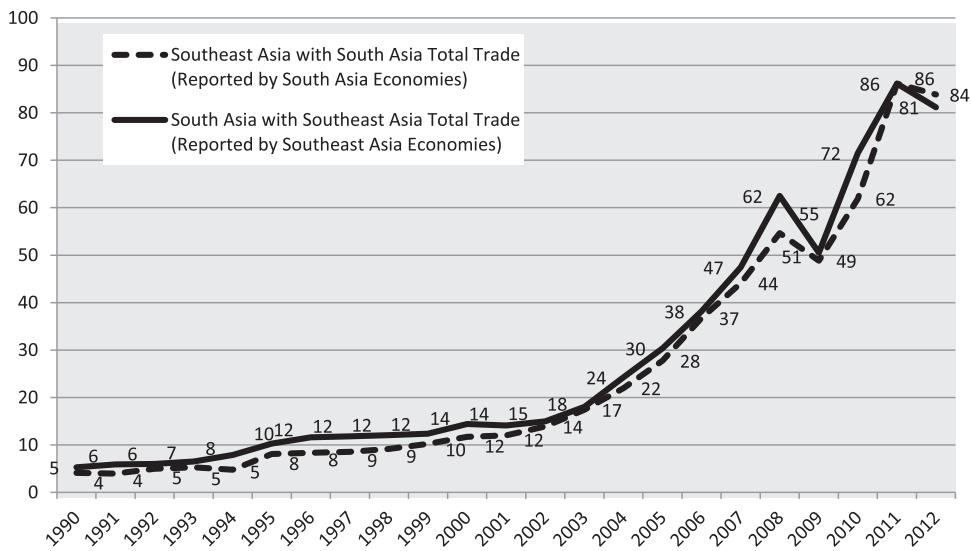
potential scenarios of economic integration for South Asian and Southeast Asia in terms of their effects on national income, exports, factor prices (to gauge distributional effects), and structural change.

In short, the paper estimates the potential gains to be large, assuming that “soft” (e.g., trade facilitation) and “hard” infrastructure are put in place to reduce inter-regional trade costs, which at present are high. Because Myanmar is a key inter-regional bridge and it has recently launched ambitious, outward-oriented policy reforms, the prospects for making progress in these areas are strong. For example, if the two regions succeed in dropping inter-regional tariffs, reducing non-tariff barriers (NTBs) by 50 percent, and decreasing other trade costs by 15 percent—which our paper suggests are ambitious but nevertheless attainable—welfare in South Asia and Southeast Asia would rise by US\$ 375 billion (8.9 percent of GDP) and US\$ 193 billion (6.4 percent of GDP), respectively, by 2030, relative to the baseline. These gains will be driven by rising exports and competitiveness, particularly for South Asia, whose exports rise by almost two-thirds. Hence, the paper concludes that investments in connectivity would yield high returns.

2. South Asian–Southeast Asian trade links

The growth of South and Southeast Asian inter-regional trade over time has been remarkable, from just US\$ 4 billion in 1990 to US\$ 86 billion in 2012, an increase of almost 22-fold (Figure 1). Both regions embraced outward-oriented reforms to deepen links with the global economy over this period. Between 2000 and 2012, effective applied manufacturing tariffs fell from 22 percent to 12 percent in South Asia and 9 percent to 7 percent in Southeast Asia, making the latter region arguably the most open in the developing world (ADB/ADBI 2015). During this period, the exports-to-GDP ratio of ASEAN rose to 57 percent and that of India increased to 18 percent (ADB/ADBI 2015). Cross-regional trade growth was even faster: Southeast Asia’s share of South Asian trade rose slightly from 11 percent to 12 percent in 2011, with a slight dip in 2012 at 10 percent, and South Asia’s share of Southeast Asian trade doubled from about 2 percent to 4 percent (Figure 2). This suggests that although cross-regional trade is relatively low compared with trade with the rest of the world for both regions, it has risen from being fairly insignificant to being important to both regions, particularly South Asia.

In short, South Asian and Southeast Asian trade has been rising significantly over time, but it is still relatively low compared with these regions’ overall trade. Does this necessarily suggest a problem? Even if trade between South Asia and Southeast Asia were seamless, we wouldn’t expect inter-regional trade to be dominant for several key reasons. First, there is the issue of size. Although the economies of South Asia and Southeast Asia have generally been growing rapidly, their markets continue to constitute a relatively small share of global trade; the biggest global markets lie outside of the region and

Figure 1. Total trade between South and Southeast Asia, 1990–2012 (US\$ billion)

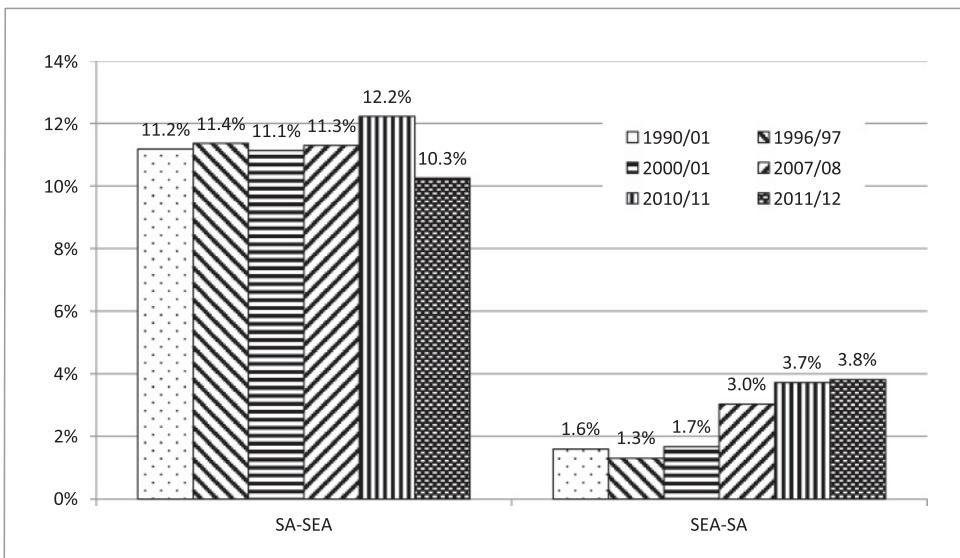
Source: UN Comtrade (<http://comtrade.un.org/db/> [accessed November 2013]).

Note: Figures reported by importers.

will naturally continue to be the most important for the two regions. Second, as noted throughout the empirical trade literature, geography matters: Countries that have common borders and/or commercial centers that are close together should, *ceteris paribus*, have a tendency to trade more with each other. In terms of South Asian and Southeast Asian connectivity, only Myanmar has common borders with South Asia, and Myanmar's outward-oriented development strategy is only in its infancy. Third, although there exists a diversity of factor endowments across these economies, there are many similarities. This might suggest that there is less room for trade: One wouldn't expect net rice exporters to trade a lot of rice with each other, or producers of textiles to trade a great deal in textiles.

This final point needs some qualification, however. True, the low income countries that export unskilled labor- and natural-resource-intensive products would not be expected to trade much with each other, as they specialize in the same types of *homogeneous* products. Still, the lion's share of global trade takes place between developed countries with similar factor endowments; the difference is that they engage in intra-industry trade of products with *heterogeneous* characteristics (e.g., automobiles and electronics). These products tend to be capital- and skill-intensive goods; hence, as South and Southeast Asian economies move up the value chain and produce more sophisticated products, the potential for greater intra-regional trade will rise.

Figure 2. Share of South and Southeast Asia cross-sub-regional trade to their total trade, 1990–2012



Source: UN Comtrade (<http://comtrade.un.org/db> [accessed November 2013]).

Note: SA = South Asia; SEA = Southeast Asia Figures reported by importers. Years ranges refer to financial year beginning in April of the earlier year.

One way to gauge whether inter-regional trade is underperforming would be to utilize an econometric model of trade determination that allows separation of regional and non-regional effects. The most popular model in the international trade literature used for this purpose is the “gravity” model, which posits bilateral trade flows to be a function of distance-related variables, economic characteristics of the trading economies, and additional explanatory variables, including binary fixed-effect (or “dummy”) variables like regions. By isolating influences beyond potential regional effects, such an approach can determine whether trading with a region leads to a positive or negative bias. One such study of South Asian trade (Akhter and Ghani 2010) estimates a statistically significant, positive Southeast Asian effect: Over the period 2003–08, the authors estimate that South Asian trade with ASEAN was 2.4 times higher than one would expect, controlling for all other variables.¹ This would suggest that, indeed, the impressive rise in inter-regional trade has some ASEAN-specific underpinnings. This effect is less impressive, however, when compared to other studies using gravity models to capture regional effects. For example, in a comprehensive study of trading blocs throughout the world, Frankel (1997)

¹ Akhter and Ghani (2010; Table 4); note that the estimated coefficient on the ASEAN binary variable is 0.889; to infer the actual trade “bias,” one must take the exponent of 0.889, which is 2.43.

estimates that ASEAN had almost three times as large an effect.² Therefore, there appears to be substantial scope for increasing trade between the two regions.

3. Modeling closer South Asia–Southeast Asia connectivity

In this section, we first review the (scarce) previous work that considers this issue, followed by a description of the novel CGE model used in this study to estimate the economic implications of deeper South–Southeast Asian economic integration.

3.1 Earlier studies of benefits and costs of cross-regional integration

Studies of benefits and costs of greater connectivity between South and Southeast Asia are few in number, and so far have mainly focused on connectivity between India and ASEAN under the auspices of the East Asian Summit.³

Bandara and Yu (2003) used a global CGE model to evaluate the effects of tariff elimination under a South Asia–ASEAN free-trade area (FTA). They pessimistically report that all South Asian countries including India incur welfare losses from such an FTA whereas ASEAN as a whole sees modest gains from it, although more recent and comprehensive simulation studies report different results.

As part of the work related to the Comprehensive Asia Development Plan (ERIA 2010) prepared by the Economic Research Institute for ASEAN and East Asia (ERIA) for the East Asian Summit, Kumagai et al. (2013) used the IDE/ERIA geographical simulation model, a detailed regional model, to estimate impacts on the cumulative increase of GDP of countries in the two regions from 2010–30 relative to the base case for a number of connectivity projects, including the Mekong-India Economic Corridor (MIEC), the Dawei and Kyaukphyu deep seaports in Myanmar, and the India-Myanmar-Thailand Trilateral Highway. For the MIEC alone, they found cumulative impacts of over 5 percent of GDP for Cambodia, Myanmar, Thailand, and Vietnam and over 2.5 percent for India.

Regarding trade integration, a CGE study by Mohanty and Pohit (2007) shows welfare gains for members of an ASEAN+3-India FTA ranging from US\$ 52 billion for a simple FTA (involving only liberalization of tariffs) to US\$ 114 billion for a more comprehensive FTA (involving liberalization of tariffs as well as reduction in barriers to investment and services).

² The estimated coefficient was 1.965 [$\exp(1.965) = 7.13$].

³ Members include the 10 ASEAN countries, Australia, PRC, India, Japan, New Zealand, and the Republic of Korea. See, for example, Chia (2007).

Using a slightly different regional unit of analysis (ASEAN+3 and South Asia), another study estimates larger gains (about US\$ 260 billion, or 2 percent of GDP) from an East and South Asian FTA, under conservative assumptions (François and Wignaraja 2008). Countries obtaining relatively large positive income impacts (over 2 percent) include Korea, Indonesia, Malaysia, the Philippines, Singapore, Thailand, Vietnam, India, and Sri Lanka.

3.2 CGE model used in this study

CGE analysis takes account of interactions among a wide range of markets and provides quantitative answers to policy questions about integration.⁴ The crux of the analysis is to calculate prices, production, and demand levels that make expenditures equal incomes, and supply equal demand in many markets and countries. To calculate the equilibrium, prices are assumed to adjust until consumers have chosen a desired basket of goods given their incomes, firms have set production at levels that maximize profits, and the demand for factors of production equals available endowments. CGE models simulate the effects of policy innovations such as FTAs by introducing the effects of policy changes (such as tariff reductions) into a pre-agreement equilibrium and adjusting prices until a new equilibrium is reached.

The CGE model used in this paper is based on a new type of global trade model developed by Fan Zhai (2008). A new feature of the model is that it incorporates recent innovations in heterogeneous firm trade theory into the CGE framework. The firms of most sectors in the model are heterogeneous in productivity, enabling the model to reflect intra-industry changes that occur when, for example, trade liberalization enables the most productive firms to export more and expand, and the least productive to contract in the face of stiffer import competition. Given the fixed cost of entry into exporting activity, the model is also able to capture both the intensive margins (more trade of already traded products) and extensive margins (trade in products not traded previously).

This model is especially appropriate for assessing the implications of deep integration efforts. Its demand structure enables it to track the effects of additional varieties of goods on consumer welfare; its scale-sensitive production function allows it to track productivity gains associated with the growth of firms; and its treatment of productivity variations makes it possible to track the shift in production from relatively unproductive firms to relatively productive ones.

4. Estimates of effects of South Asia–Southeast Asian economic integration

In the simulations herein, we use several scenarios to capture the effects of South Asia–Southeast Asian economic integration on economic welfare, trade, factor returns, and

⁴ A complete description of the model used in this study can be found in Petri, Plummer, and Zhai (2012) or at the associated website: asiapacifictrade.org.

structural change for the regional economies, each corresponding to differing levels of integration ambition. The policy innovations include full liberalization of tariff barriers, 50 percent reduction of NTBs (under the assumption that not all NTBs can be addressed by policy), and improvements in (soft and hard) “connectivity” manifested in decreases in trade costs—modeled as “iceberg” trade costs—which are allowed to “melt” to various degrees depending on the scenario. In terms of the reduction in trade costs, we assume two possibilities to provide a range of efficiency gains due to better connectivity, that is, 5 percent and 15 percent. Given relatively high inter-regional trade costs and ample room to reduce them via trade facilitation and investment in hard infrastructure (ADB 2013), this range was deemed to be plausible. Hence, the scenarios included here are:

1. SAFTA 1: Removal of all tariffs across South Asian economies over the period 2016–25.
2. SAFTA 2: SAFTA 1, plus 50 percent reduction in NTBs.
3. SAFTA 3: SAFTA 2, plus 5 percent reduction in trade costs.
4. SAFTA 4: SAFTA 2, plus 15 percent reduction in trade costs.
5. SA/SEA1: Removal of all tariffs across South Asian and Southeast Asian economies over the period 2016–25.
6. SA/SEA2: SA/SEA1, plus 50 percent removal of NTBs between South Asia and Southeast Asia.
7. SA/SEA3: SA/SEA2, plus 5 percent reduction in trade costs associated with South Asian and Southeast Asian trade.
8. SA/SEA4: SA/SEA2, plus 15 percent reduction in trade costs associated with South Asian and Southeast Asian trade.⁵

Liberalization of these barriers to trade is assumed to be undertaken over the period 2016–25 and is compared relative to the baseline forecasts, with projections ending in 2030. The simulations allow for the following country breakdowns at the two regional levels: (1) South Asia: Bangladesh, India, Nepal, Pakistan, and Other South Asia; and (2) Southeast Asia: Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, Vietnam, and “Other ASEAN,” which is mainly composed of Myanmar but also includes Brunei Darussalam and Timor Leste.⁶ The model also includes 21 sectors (7 in primary products/agriculture, 9 manufacturing sectors, and 5 service sectors).

5 Note that we do not include the same reduction in trade costs for intra-ASEAN trade. Although the AEC will likely lead to substantial reductions in trade costs (Plummer and Chia 2009; Petri, Plummer, and Zhai 2012), our goal here is to focus on the potential effects of South and Southeast Asian connectivity, so we exclude it here. However, we also ran simulations that included reductions in intra-ASEAN trade costs, and results increased intra-ASEAN gains in the aggregated almost fourfold.

6 The GTAP database did not allow for specific country effects of Myanmar, which is unfortunate given the “bridge” role that Myanmar will increasingly play in South Asian–Southeast Asian economic integration. However, as Myanmar accounts for 98 percent of the population and 60 percent

Table 1. Effects of SA/SEA trade initiatives in 2030: Income, exports, exports/GDP, on South Asia, relative to baseline

Country	SAFTA1	SAFTA2	SAFTA3	SAFTA4	SA/SEA1	SA/SEA2	SA/SEA3	SA/SEA4
<i>A. Real income gains in 2030 (EV as percent of GDP)</i>								
Bangladesh	0.3	0.8	1.8	5.0	0.4	1.2	2.5	6.9
India	0.2	0.3	0.5	1.0	2.3	3.3	4.6	8.7
Nepal	11.9	17.0	24.0	44.7	5.4	9.0	14.4	30.0
Pakistan	0.5	0.9	1.5	3.3	0.8	1.8	3.0	7.0
Sri Lanka	1.1	2.1	4.1	10.5	1.3	2.9	5.6	14.1
Other South Asia	11.4	15.5	22.2	42.4	5.2	8.3	14.1	31.7
Total South Asia	0.4	0.6	1.0	2.1	2.2	3.2	4.6	8.9
<i>B. Export gains in 2030 (percent change from baseline)</i>								
Bangladesh	15.1	25.8	36.1	67.0	20.0	35.0	48.4	86.7
India	2.6	4.9	6.9	12.7	19.6	29.4	36.7	59.5
Nepal	78.8	136.0	186.0	335.3	44.3	88.7	124.2	231.8
Pakistan	4.1	9.7	13.7	26.1	11.3	22.8	30.6	52.2
Sri Lanka	10.0	21.6	32.7	65.7	13.1	27.7	40.3	78.2
Other South Asia	52.7	88.2	120.6	212.5	29.9	58.7	83.7	158.8
Total South Asia	5.2	9.7	13.6	25.2	19.0	30.0	38.6	64.3
<i>C. Change in exports/GDP in 2030 (percentage points)</i>								
Bangladesh	3.9	6.7	9.0	15.4	5.3	9.2	12.2	19.8
India	0.4	0.8	1.0	1.9	3.8	5.3	6.2	9.0
Nepal	10.4	18.0	23.4	36.8	7.5	14.6	19.3	31.6
Pakistan	0.6	1.6	2.2	4.1	2.4	4.5	5.9	9.1
Sri Lanka	2.3	5.0	7.1	12.8	3.5	6.9	9.4	15.7
Other South Asia	8.5	14.7	19.3	30.3	6.2	12.3	16.5	27.6

Source: Authors' calculations.

Note: SAFTA1 = removal of all SA tariffs over 2016–25; SAFTA2 = SAFTA1 + 50 percent cut in NTBs; SAFTA3 = SAFTA2 + 5 percent reduction in trade costs; SAFTA4 = SAFTA2 + 15 percent reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–25; SA/SEAFTA2 = SA/SEA1 + 50 percent cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5 percent reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15 percent reduction in trade costs relevant to South Asian–Southeast Asian trade.

4.1 Result I: Effects on South Asia

The South Asian FTA scenarios suggest impressive gains for all countries except for the two largest ones, India and Pakistan, who nonetheless experience non-trivial increases in income (1 percent and 3.3 percent of GDP, respectively, in scenario SAFTA4) (Table 1). Bangladesh, the third largest country, experiences a 5 percent increase in SAFTA4. The smaller South Asian economies of Nepal and Other South Asia are by far the biggest winners in the context of a South Asian FTA, with large gains of over 40 percent in SAFTA4. South Asia in total experiences a rise in its real income by 2.1 percent of GDP by 2030 (relative to the baseline) under that scenario, led by a 25 percent increase in exports.

of the GDP of "Other ASEAN," one can assume that much of the effect on "Other ASEAN" relates to Myanmar.

Note that simply reducing trade costs from 5 percent to 15 percent increases income gains by 60 percent or more in all cases and is the key reason why the smaller countries experience such large gains. This strongly suggests that focusing on reducing trade costs is key to welfare improvement in the context of South Asian economic integration. Given that the gains are mainly driven by increases in exports, the internationalization of the region (as proxied by exports as a percentage of GDP) rises impressively, particularly for the smaller economies—for example, the internationalization of land-locked Nepal rises by 37 percentage points. ASEAN, by the way, is little affected by trade diversion due to a South Asian FTA; losses come to US\$ 1 billion under SAFTA1 and US\$ 4.6 billion under SAFTA4, or about one-tenth of one percent of GDP.

In terms of South Asian–Southeast ASEAN economic integration, the overall gains are about 30 percent more for South Asia than Southeast Asia, with real income gains relative to GDP in the former region coming to 8.9 percent under SA/SEA4 in 2030. The larger countries do much better in the context of a South Asia–Southeast Asia FTA, particularly in the case of India, whose gains rise by almost nine-fold to 8.7 percent of GDP relative to the baseline in SAFTA4, a large effect for a big country. Gains also more than double for Pakistan (to 7.0 percent), and significant but smaller increases result for Bangladesh (9 percent) and Sri Lanka (14.1 percent from 10.5 percent). Once again, growth in exports drives income growth. Nepal and Other South Asia actually have lower gains in the South Asia–Southeast Asia FTA case, because of preference erosion (that is, the elimination of preferences they had over Southeast Asia in South Asian markets before the South Asia–Southeast Asia FTA), but they still grow the most in the group, by 30 percent and 31.7 percent of GDP, respectively.

Table 2 shows the changes in factor prices associated with these policy innovations at the country-level, as a means of gauging the distributional effects. Nominal and real wages rise in all scenarios for all countries, sometimes significantly, for all South Asian economies, assisted in most cases by a drop in prices (measured either as the GDP deflator or the consumer price index), with the exception of India, whose real wage nevertheless always increases. Real-wage increases in the South Asia–Southeast Asia FTA scenarios are larger than in the South Asia FTA scenarios for all countries except Nepal and Other South Asia, where, once again, the increases are still by far the largest in the region. Nevertheless, the gains to labor relative to other factors (capital, land) are mixed. For example, in India, labor always gains relative to landowners but not always relative to capital-owners, and in Bangladesh, labor often gains relative to capital-owners but not to land-owners. In Nepal, labor does worse than capital and land in the South Asian FTA scenarios but always does better than land-owners in the South Asian–Southeast Asian FTA scenarios. Thus, from a policy point of view, even in cases where labor does well, greater connectivity should still be accompanied by well-designed distributional policies to ensure that the gains are widespread.

Table 2. Changes in factor prices in South Asia, 2030, percent change relative to baseline

Country	SAFTA1	SAFTA2	SAFTA3	SAFTA4	SA/SEA1	SA/SEA2	SA/SEA3	SA/SEA4
<i>A. Bangladesh</i>								
Wage	0.5	1.3	2.3	6.0	0.6	1.6	2.9	7.5
Land rental price	1.1	2.0	3.6	8.7	1.0	3.1	5.5	13.4
Capital rent rate	0.6	1.5	2.4	5.7	0.6	2.0	3.1	28.1
<i>B. India</i>								
Wage	0.0	0.3	0.5	1.3	-3.0	-1.9	-0.7	4.1
Land rental price	-0.6	-0.2	0.0	0.8	-14.7	-12.8	-11.4	-5.8
Capital rent rate	0.1	0.2	0.2	0.4	-0.3	0.1	0.6	1.8
<i>C. Nepal</i>								
Wage	15.0	19.6	24.4	37.0	2.6	5.3	8.3	16.3
Land rental price	32.0	39.9	47.4	66.2	-1.7	0.1	2.5	9.5
Capital rent rate	15.6	24.3	32.1	51.9	14.1	23.0	29.9	47.9
<i>D. Pakistan</i>								
Wage	1.4	2.7	3.9	7.6	1.0	2.9	4.7	10.2
Land rental price	3.7	8.7	11.6	19.8	2.9	9.2	13.2	25.5
Capital rent rate	0.6	0.7	1.1	2.1	-0.7	-0.7	-0.6	0.1
<i>E. Sri Lanka</i>								
Wage	1.1	2.2	4.4	11.2	0.2	1.8	4.4	12.7
Land rental price	-1.9	-3.5	-2.4	0.3	-8.0	-10.5	-10.3	-9.1
Capital rent rate	0.4	2.0	3.3	7.4	-0.9	0.9	1.9	5.8
<i>F. Other South Asia</i>								
Wage	14.1	18.6	23.7	36.8	5.0	8.1	11.7	21.4
Land rental price	34.5	42.2	50.5	73.6	5.5	6.0	8.1	14.7
Capital rent rate	6.1	12.2	16.9	28.0	5.4	12.1	16.5	28.5

Source: Authors' calculations.

Note: SAFTA1 = removal of all SA tariffs over 2016–25; SAFTA2 = SAFTA1 + 50 percent cut in NTBs; SAFTA3 = SAFTA2 + 5 percent reduction in trade costs; SAFTA4 = SAFTA2 + 15 percent reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–25; SA/SEAFTA2 = SA/SEA1 + 50 percent cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5 percent reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15 percent reduction in trade costs relevant to South Asian–Southeast Asian trade.

With respect to structural change, the South Asian region often experiences large changes as countries specialize in goods in which they have comparative advantage. Sometimes these changes are exaggerated, as a small change from an even smaller base will yield a large result. For example, in Nepal, the chemical sector in both SAFTA4 and SA/SEA4 increases by more than 10-fold, but it is a small sector in Nepal (5 percent of the manufacturing sector and only 0.67 percent of labor compensation in manufacturing).⁷ The Food and Other Grains sectors in India experience a strong negative shock, whereas metals and chemicals experience significant gains. Indeed, structural changes in India and Pakistan present essentially mirror results; the Indian manufacturing and services sectors tend to expand and agriculture contracts, whereas the exact opposite happens in the case of Pakistan. An important point to underscore, however, is that, because this is a long-run model, the employment closure in the model assumes full employment, meaning that for a comparative advantage sector to expand, resources have to be moved from another sector. Movement across sectors is what ultimately leads to the large economic gains reaped by South Asian economies.

⁷ These detailed results are not included in the paper because of space issues but are available from the authors upon request.

Table 3. Real income gains in 2030 (EV as percent of GDP), export gains in 2030 (percent change from baseline), change in exports/GDP in Southeast Asia, 2030 (percentage points)

Country	SAFTA1	SAFTA2	SAFTA3	SAFTA4	SA/SEA1	SA/SEA2	SA/SEA3	SA/SEA4
<i>A. Real income gains in 2030 (EV as percent of GDP)</i>								
Indonesia	0.0	0.0	0.0	-0.1	2.3	2.4	3.1	5.0
Malaysia	0.0	0.0	-0.1	-0.1	2.8	3.6	5.2	9.7
Philippines	0.0	0.0	0.0	0.0	0.2	0.6	0.9	1.9
Singapore	-0.1	0.0	-0.1	-0.2	3.1	4.8	7.3	14.4
Thailand	-0.1	-0.1	-0.1	-0.2	1.7	2.3	3.2	6.1
Vietnam	-0.1	-0.1	-0.1	-0.3	0.6	2.0	3.2	7.0
Cambodia	0.0	-0.1	-0.1	-0.2	-0.3	-0.1	0.1	0.6
Laos	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1
Other ASEAN	0.0	0.0	-0.1	-0.1	0.1	0.5	1.5	2.3
Total Southeast Asia	0.0	0.0	-0.1	0.5	1.9	2.5	3.5	6.4
<i>B. Export gains in 2030 (percent change from baseline)</i>								
Indonesia	-0.1	-0.1	-0.2	-0.3	17.5	23.3	27.3	38.5
Malaysia	0.0	-0.1	-0.1	-0.2	4.1	7.2	9.8	17.4
Philippines	0.0	0.0	0.0	-0.1	0.6	2.4	3.3	6.2
Singapore	-0.1	-0.2	-0.2	-0.5	4.6	7.3	10.6	19.7
Thailand	-0.1	-0.1	-0.2	-0.3	2.7	4.7	6.4	11.6
Vietnam	-0.1	-0.2	-0.2	-0.4	1.1	4.8	6.9	13.0
Cambodia	-0.1	-0.2	-0.3	-0.5	-0.5	0.4	0.8	2.3
Laos	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3
Other ASEAN	-0.1	-0.1	-0.1	-0.3	0.0	1.9	3.1	7.3
Total Southeast Asia	-0.1	-0.1	-0.2	-0.3	5.3	8.3	10.9	18.1
<i>C. Change in exports/GDP in 2030 (percentage points)</i>								
Indonesia	0.0	0.0	0.0	0.0	2.4	3.5	4.1	5.9
Malaysia	0.0	0.0	0.0	-0.1	0.8	2.4	3.2	5.7
Philippines	0.0	0.0	0.0	0.0	0.1	0.7	1.0	1.9
Singapore	-0.1	-0.2	-0.2	-0.5	2.2	3.2	4.7	8.3
Thailand	0.0	0.0	-0.1	-0.1	0.7	2.0	2.7	5.0
Vietnam	0.0	0.0	-0.1	-0.1	0.3	2.5	3.3	5.9
Cambodia	0.0	-0.1	-0.1	-0.1	-0.2	0.3	0.5	1.1
Laos	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	-0.2
Other ASEAN	0.0	0.0	0.0	0.0	-0.1	0.2	0.5	7.3

Source: Authors' calculations.

Note: SAFTA1 = removal of all SA tariffs over 2016–25; SAFTA2 = SAFTA1 + 50 percent cut in NTBs; SAFTA3 = SAFTA2 + 5 percent reduction in trade costs; SAFTA4 = SAFTA2 + 15 percent reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–25; SA/SEAFTA2 = SA/SEA1 + 50 percent cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5 percent reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15 percent reduction in trade costs relevant to South Asian–Southeast Asian trade.

4.2 Results 2: Effects on Southeast Asia

Real income in ASEAN rises by US\$ 193 billion (6.4 percent of GDP in 2030) under the SA/SEA4 scenario. Table 3 shows the effects on income (relative to GDP), exports, and exports relative to GDP for Southeast Asian economies. As noted earlier, trade diversion under the South Asian integration scenarios is minor, with Vietnam experiencing the largest negative effect in terms of welfare, but it comes to only three-tenths of 1 percent of GDP relative to the baseline. At the country level, the biggest gains from South Asian–Southeast Asian economic integration vary considerably, from (scenario SA/SEA4)

–0.1 percent for Laos and 0.6 percent for Cambodia to 14.4 percent for Singapore and 9.7 percent for Malaysia. Again, exports drive income gains, with exports rising by 18.1 percent for all of ASEAN led by Indonesia (38.5 percent), Singapore (19.7 percent), and Malaysia (17.4 percent), though Vietnam registers impressive export gains as well (13.0 percent) (Table 3).

Given that Laos experiences a minor contraction, it is worthwhile to consider why this might be the case. There is little trade between Laos and South Asia; hence, at base-year levels, Laos gains very little from increased market access to South Asia with an FTA. Nevertheless, Laos does export a great deal to its ASEAN partners, and the South Asia–Southeast Asian FTA erodes the preferences that Laos has in ASEAN markets via the ASEAN Free-Trade Area (AFTA). The same mechanism affects the results for Cambodia and the Philippines, where gains end up being relatively modest.⁸

In addition, given that Myanmar is at the center of South Asian–Southeast Asian land-based connectivity, it is relevant to consider the effects on this country, even as part of the Other ASEAN group together with Brunei Darussalam and Timor Leste. Table 3 shows that Myanmar/Other ASEAN would be marginally affected by trade diversion in the case of the South Asian FTA scenarios (peaking at one-tenth of 1 percent of GDP), but it would experience real income gains of 2.3 percent in SA/SEA4, led by increases in exports of 7.3 percent relative to the baseline, and an increase in exports relative to GDP of 4.9 percent. These gains are moderate and are, of course, affected by the fact that Myanmar has only recently begun its outward-oriented economic reform program and, hence, is a relatively closed economy in the base year (2010). Moreover, Myanmar trades at present very little with South Asia; indeed, approximately 70 percent of its trade is with ASEAN and the PRC. As Myanmar's reform program proceeds apace and connectivity with South Asia improves, it will likely be one of the greatest beneficiaries of South Asian–Southeast Asian economic integration, even if this doesn't show up in the numbers. Finally, it is worth noting that Myanmar/Other South Asia would be one of the biggest winners if deeper intra-ASEAN integration is included as well (as discussed earlier): Its real income grows by over 31 percent of GDP in this scenario relative to the baseline.

⁸ It is important to note, however, that these economies will gain substantially from deeper intra-ASEAN integration within the context of the AEC. The simulations in Table 4 do not include decreases in intra-ASEAN trade costs, as the paper is focused on the potential associated with greater South Asian and Southeast Asian connectivity. But using the same CGE model, we also considered the effects of decreases in intra-ASEAN trade costs as part of the process of greater South Asia–Southeast Asian connectivity (available from the authors upon request), and Laos, Cambodia, and the Philippines do extremely well; scenario SA/SEA4 leads to real income growth relative to GDP of 32.5 percent, 24.1 percent, and 16.9 percent, respectively (i.e., among the largest gains in South and Southeast Asia). Hence, because implementation of the AEC is proceeding apace, gains from deeper intra-ASEAN integration will more than compensate for the preference erosion effects of integration with South Asia.

Table 4. Changes in factor prices in Southeast Asia, 2030, percent change relative to baseline

Country	SAFTA1	SAFTA2	SAFTA3	SAFTA4	SA/SEA1	SA/SEA2	SA/SEA3	SA/SEA4
<i>A. Indonesia</i>								
Wage	0.0	-0.1	-0.1	-0.1	7.0	7.6	8.3	10.1
Land rental price	-0.1	-0.2	-0.2	-0.2	24.0	26.6	27.9	30.5
Capital rent rate	0.0	0.0	0.0	0.0	1.8	2.1	2.3	3.0
<i>B. Malaysia</i>								
Wage	0.0	0.0	0.0	-0.1	2.8	3.7	5.1	9.0
Land rental price	0.0	-0.1	-0.1	-0.1	19.9	22.8	25.1	29.9
Capital rent rate	0.0	0.0	0.0	0.0	0.3	0.9	1.2	2.1
<i>C. Philippines</i>								
Wage	0.0	0.0	0.0	0.0	0.4	0.4	0.5	0.9
Land rental price	0.0	0.0	0.0	0.1	0.8	-0.5	-0.9	-1.8
Capital rent rate	0.0	0.0	0.0	0.0	0.1	0.0	0.0	-0.2
<i>D. Singapore</i>								
Wage	0.0	0.0	0.0	0.0	2.1	4.0	5.9	11.8
Land rental price	0.0	-0.1	-0.1	-0.1	3.9	3.1	2.7	2.0
Capital rent rate	0.0	0.0	0.0	0.0	0.8	1.7	2.3	3.9
<i>E. Thailand</i>								
Wage	0.0	0.0	-0.1	-0.1	1.5	1.8	2.4	4.3
Land rental price	0.0	0.0	0.0	0.1	5.6	5.8	5.9	6.3
Capital rent rate	0.0	0.0	0.0	-0.1	0.6	0.9	0.9	2.2
<i>F. Vietnam</i>								
Wage	0.0	-0.1	-0.1	-0.2	0.7	2.0	2.0	6.0
Land rental price	0.0	0.0	0.0	0.0	1.2	0.7	0.7	1.0
Capital rent rate	0.0	0.0	0.0	-0.1	0.4	1.2	1.2	3.1
<i>G. Cambodia</i>								
Wage	-0.1	-0.1	-0.2	-0.3	-0.1	0.2	0.4	1.1
Land rental price	0.0	0.0	0.0	0.0	0.5	-0.2	-0.4	-1.1
Capital rent rate	-0.1	-0.1	-0.1	-0.2	-0.1	0.3	0.5	1.2
<i>H. Laos</i>								
Wage	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2
Land rental price	0.0	0.0	0.0	0.0	0.7	-0.2	0.8	1.1
Capital rent rate	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	-0.6
GDP deflator	0.0	0.0	0.0	0.0	0.4	0.3	0.2	-0.1
CPI	0.0	0.0	0.0	0.0	0.6	0.5	0.5	0.6
<i>I. Other ASEAN</i>								
Wage	0.0	0.0	-0.1	-0.1	0.5	1.2	1.6	3.3
Land rental price	0.0	-0.1	-0.1	-0.2	1.7	3.0	3.6	5.8
Capital rent rate	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Source: Authors' calculations.

Note: SAFTA1 = removal of all SA tariffs over 2016–25; SAFTA2 = SAFTA1 + 50 percent cut in NTBs; SAFTA3 = SAFTA2 + 5 percent reduction in trade costs; SAFTA4 = SAFTA2 + 15 percent reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–25; SA/SEAFTA2 = SA/SEA1 + 50 percent cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5 percent reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15 percent reduction in trade costs relevant to South Asian–Southeast Asian trade.

With respect to factor returns, similar to the South Asian case, Table 4 shows that labor gains in ASEAN in virtually all South Asia/Southeast Asia FTA scenarios in terms of nominal and real wages, with the minor exception of Cambodia under SA/SEAFTA1 (in which there is a very minor deterioration of the nominal and real wage). But again, the gains of labor relative to other factors are somewhat mixed. In the cases of the Philippines, Singapore and (almost always) Vietnam, labor gains relative to the other two factors in all SA/SEA FTA scenarios; for Indonesia, Malaysia, Thailand, Laos and Myanmar/Other ASEAN, wages rise faster than the returns to capital but not land; and in Cambodia, labor usually gains relative to land but not capital. Thus, as in the South Asia case, although integration will be pro-labor, there could be distributional issues that policymakers should tackle with integration.

Finally, there will be significant structural adjustment in the ASEAN economies with South Asia–Southeast Asian integration, but again one must be careful in drawing conclusions regarding the significance of the magnitudes of the effects. For example, Singapore experiences a contraction of 34 percent in its “Other Grains” sector.⁹ However, this sector is extremely small; the percentage change may be large, but the significance for labor adjustment in Singapore is trivial. Still, some general observations are in order. First, more agricultural sectors will contract than expand in most ASEAN economies, with the notable exceptions of Indonesia and Thailand. Manufacturing sectors tend to expand in the majority of countries, again with the exception of Indonesia (whose manufacturing sectors contract) and mixed results in Laos and Myanmar/Other ASEAN. The effects on service sectors are even more mixed, with Singapore and Malaysia mostly winning but varied results in other economies.

4.3 Discussion

The results reported in Tables 1–4 strongly suggest that the potential gains from South Asia–Southeast Asian economic integration are great, and in some cases quite remarkable. The aggregate income increases relative to GDP of 8.9 percent in South Asia and 6.4 percent in Southeast Asia are also relatively large compared with the results of many other CGE models used to capture the effects of economic integration in general. It is, therefore, natural to question some of the underlying assumptions to make sure they are reasonable.

The first question relates to the policy-innovation scenarios. Is it reasonable, for example, to assume that South Asia and Southeast Asia could remove all tariff barriers and 50 percent of their NTBs? It would arguably seem so in the case of ASEAN; AFTA is already essentially in place, and although it is difficult to gauge exactly to what degree NTBs have fallen on intra-ASEAN trade, they are slated to be removed altogether by the end of 2015 (with more time for the transitional ASEAN economies) according to the AEC Blueprint. It is not unreasonable to hypothesize that half will have been removed by then. Extending these initiatives to South Asia would take some doing, but ASEAN and India are already in negotiations under the Regional Economic Comprehensive Partnership and, in the past, there has been member-country support for multilateral intra-ASEAN trade liberalization.

A bigger question regards whether such trade liberalization is reasonable in the case of South Asia. The South Asian FTA falls well short of intra-regional free trade, and NTBs abound in South Asia (see Weerakoon 2010). The political support for liberalization is rising in most countries in South Asia but is not on the level of that of Southeast Asia, which arguably has the most liberal trade policies in the developing world. Perhaps identification of potential gains—from this and other studies—will buttress political support.

⁹ As noted previously, the detailed sectoral results are not reported here to save space but are available from the authors upon request.

The largest gains from integration are from the reduction in trade costs, which we assume derives from a combination of trade-facilitation improvements and investments in hard infrastructure. The 5 percent reduction in trade costs would seem to be quite reasonable by any measure; APEC has been able to do that on a voluntary basis, and this in the context of many member-countries who already have cutting-edge hard and soft infrastructure and “first best” trade practices. The 15 percent reduction is obviously more ambitious, but, given the existing high costs of trade in South Asia, this scenario would also be credible (ADB/ADBI 2015 suggests that the gains via trade facilitation and hard infrastructure could be considerably more than that).

The empirical literature is supportive of the assumption that economic integration could lead to considerable gains via reducing trade costs. For example, Brooks, Roland-Holst, and Zhai (2005) run simulations to compare the aggregate impact on real income, exports, and terms of trade in the context of deep Asian integration. They assume that non-policy-related trade costs are around 120 percent and are cut by half over a 20-year period for East Asia, Southeast Asia, and South Asia; they find such an approach increases gains over a standard tariff-based scenario by many times, coming to 8.1–53.8 percent, 35.5–116.6 percent, and 10.4–22.4 percent of GDP, respectively. De Dios (2006) estimates that a 10 percent savings in transport costs alone increases trade by approximately 6 percent. Wilson and Shepherd (2008) show that the gains from improvements in trade facilitation in ASEAN yield far greater gains than comparable tariff reforms. For example, improving port facilities alone in ASEAN expands trade by 7.5 percent.

Thus, the underlying assumptions with respect to trade costs on the order of 5 percent to 15 percent are not necessarily large with respect to the existing literature, and in many ways the results would be consistent with what the (relatively sparse) literature derives. In any event, it is clear that these reductions in trade costs matter a great deal and, hence, need to be a primary focus of policymakers.

A second set of questions regards the model itself. Obviously, any tractable empirical trade model has its shortcomings, but CGE models have established themselves as a standard technique. The CGE model used in this study incorporates cutting-edge trade theory assumptions, such as heterogeneous firm productivity, which lead to larger results compared to the standard assumption of homogeneous firms. The literature suggests (e.g., Zhai 2008) that the latter assumption is less consistent with observed firm behavior and, in fact, explains to some degree why ex post analyses show that earlier CGE models seem to significantly underestimate the effects of regional integration. Moreover, it is important to note that the model does not include FDI, whereas FDI has been shown to increase significantly the potential effects of regional integration (Petri, Plummer, and Zhai 2012) and, in fact, is an important attraction for Asian countries entering into regional cooperation agreements. Hence, although the results of all trade models are subject to the underlying

assumptions used to build them, any potential upward biases (e.g., in terms of its use of new trade theory and its use of standard CGE macro closures) are compensated at least in part by other downward biases.

5. Conclusion

In sum, the gains from inter-regional economic integration are, indeed, large for essentially all countries in the two regions. In general, the deeper the integration scenarios, the greater the gains. Reducing trade costs in the region generates the most important gains, but so does removing NTBs and tariffs (in the context of South Asia in particular). On the whole, South Asia does much better in the context of a cross-regional FTA than with merely an intra-regional FTA; still, the results support a two-track approach to economic cooperation on the part of South Asian countries—that is, strengthening intra-regional integration with South Asian partners concomitant with links to Southeast Asia. Moreover, by deepening links with South Asia, Southeast Asia is able to benefit from greater market access and cost reductions in a relatively protected South Asian region, leading to greater gains (6.4 percent rise in real income relative to GDP relative to what would have been the case without an FTA) than even in the case of the AEC, where Petri et al. (2012), for example, estimate a regional gain of 5.3 percent. Exports tend to be an important driver of gains in all scenarios but particularly in the context of a South Asia–Southeast Asian FTA for the larger South Asian economies. Moreover, a South Asia–Southeast Asia FTA would increase significantly the internationalization of especially the South Asian economies, adding 9 percentage points to the exports-to-GDP ratio for India and Pakistan and 16–32 percentage points in the case of the other South Asian economies. Indeed, the internationalization of the Nepalese economy rises by almost one-third, and of the Other South Asian economies by more than one-fourth.

In short, the estimates generated by the CGE model used in this paper make a strong case for deeper intra- and cross-regional economic cooperation as well as initiatives that lower the cost of doing business and trade, especially in South Asia, via investments in greater connectivity through improved hard and soft infrastructure. ADB/ADBI (2015) suggests how this might be done in terms of improving trade-facilitation-related variables, investments in transport infrastructure and other areas such as energy, and improved financial institution that facilitate investment and provide trade finance.

As a final note, dramatic increases in efficiency always derive from structural change. Moreover, it can change the distribution of income in ways that could exacerbate existing problems, such as the trend toward rising income inequality in many Asian economies since the global financial crisis. This does not suggest that the initiatives should not be embraced; it only underscores the importance of active government policies to facilitate

economic integration and ensure that the big “winners” of integration will compensate the most vulnerable that lose from it.

References

- ADB/ADBI. 2015. Connecting South Asia and Southeast Asia. Manila: ADB/ADBI.
- Akhter, Naseem, and Ejaz Ghani. 2010. Regional Integration in South Asia: An Analysis of Trade Flows Using the Gravity Model. *The Pakistan Development Review* 49(2):105–118.
- Athukorala, Prema-chandra. 2011. Production Networks and Trade Patterns in East Asia: Regionalization or Globalization? *Asian Economic Papers* 10(1):65–95.
- Bandara, Jayatileke, and Wusheng Yu. 2003. How Desirable is the South Asian Free Trade Area? A Quantitative Economic Assessment. *The World Economy* 26(9):1293–1323.
- Brooks, Douglas, David Roland-Holst, and Fan Zhai. 2005. Asia’s Long-Term Growth and Integration: Reaching Beyond Trade Policy Barriers. ADB ERD Policy Brief No. 38. Manila: Asian Development Bank.
- Chia, Siew Yue. 2007. Whither East Asian Regionalism? An ASEAN Perspective. *Asian Economic Papers* 6(3):1–36.
- Chia, Siew Yue. 2013. The Emerging Regional Economic Integration Architecture in East Asia. *Asian Economic Papers* 12(1):1–37.
- Dasgupta, Dipak, Nihal Pitigala, and Julien Gourdon. 2012. South Asia’s Economic Prospects from Global Rebalancing and Integration. In: *Economic Reform Processes in South Asia: Toward Policy Efficiency*, edited by Philippa Dee, pp. 23–42. Abingdon: Routledge.
- De Dios, Lorelei. 2006. *An Investigation into the Measures Affecting the Integration of ASEAN’s Priority Sectors (Phase 2): Overview: Non-Tariff Barriers to Trade in the ASEAN Priority Goods Sectors*. REPSF Project No. 06/001a, Final Report, October. Available at http://www.asean.org/archive/aadcp/repsf/docs/06-001a_Final%20Report_Overview-NTM.pdf. Accessed June 2015.
- Economic Research Institute for ASEAN and East Asia (ERIA). 2010. The Comprehensive Asian Development Plan, ERIA Research Project Report 2009–7–1, October. Available at www.eria.org/publications/research_project_reports/the-comprehensive-asia-development-plan.html. Accessed June 2015.
- Francois, Joseph, and Ganeshan Wignaraja. 2008. Economic Implications of Asian Integration. *Global Economy Journal* 8(3):1–46.
- Francois, Joseph, Pradumna Rana, and Ganeshan Wignaraja. 2009. Introduction and Overview. In: *Pan-Asian Integration: Linking East and South Asia*, edited by J. Francois, P. Rana, and G. Wignaraja, pp. 1–62. London: Palgrave Macmillan.
- Frankel, Jeffrey. 1997. *Regional Trading Blocs in the World Trading System*. Washington, DC: Peterson Institute for International Economics. Chapter 5.
- Kumagai, Satoru, Kazunobu Hayakawa, Ikumo Isono, Souknilanh Keola, and Kenmei Tsubota. 2013. Geographical Simulation Analysis for Logistics Enhancement in Asia. *Economic Modelling* 34(C):145–153.
- Mohanty, S. K., and Sanib Pohit. 2007. Welfare Gains from Regional Economic Integration in Asia: ASEAN+3 or EAS. *RIS Discussion Paper* No. 26. New Delhi: RIS.

- Petri, Peter A., Michael G. Plummer, and Fan Zhai. 2012. The Economic Impact of the ASEAN Economic Community: An Applied General Equilibrium Approach. *Asian Economic Journal* 26(2):93–118.
- Plummer, Michael G., and Siew Yue Chia, eds. 2009. *Realizing the ASEAN Economic Community: A Comprehensive Assessment*. Singapore: ISEAS.
- Weerakoon, Dushni. 2010. The Political Economy of Trade Integration in South Asia: The Role of India. *The World Economy* 33(7):916–927.
- Wilson, John, and Ben Shepherd. 2008. Trade Facilitation in ASEAN: Measuring Progress and Assessing Priorities. World Bank Policy Research Working Paper No. 4615. Available at www.worldbank.org.
- Zhai, Fan. 2008. Armington Meets Melitz: Introducing Firm Heterogeneity in a Global CGE Model of Trade. *Journal of Economic Integration* 23(3):575–604.