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

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**Abstract**

South and Southeast Asian economic integration via increased trade flows has been increasing significantly over the past 2 decades, but the level of trade continues to be relatively low. This underperformance has been due to both policy-related variables— relatively high tariff and non-tariff barriers—and high trade costs due to inefficient "hard" and "soft" infrastructure (costly transport links and problems related to trade facilitation). 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. The paper estimates the potential gains to be large, particularly for South Asia, assuming that the policy- and infrastructure-related variables that increase trade costs are reduced via economic cooperation and investment in connectivity. As Myanmar is a key inter-regional bridge and has recently launched ambitious, outward-oriented policy reforms, the prospects for making progress in these areas are strong. If the two regions succeed in dropping inter-regional tariffs, reducing non-tariff barriers by 50%, and decreasing South Asian–Southeast Asian trade costs by 15%—which this paper suggests is ambitious but attainable—welfare in South Asia and Southeast Asia would rise by 8.9% and 6.4% of gross domestic product, respectively, by 2030 relative to the baseline. These gains would be driven by rising exports and competitiveness, particularly for South Asia, whose exports would rise by two thirds (64% relative to the baseline). Hence, the paper concludes that improvements in connectivity would justify a high level of investment. Moreover, it supports a two-track approach to integration in South Asia, i.e., deepening intra-regional cooperation together with building links to Southeast Asia.

# **Contents**

# 1.  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 economies trade has become a key source of growth on both the demand and supply sides, the former due to the benefits of integrating into the international marketplace and the latter due to 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). In other words, modern growth is being driven by an interdependent, simultaneous process in which rapid growth in trade, FDI, and other financial flows has been leading the process of globalization, and globalization itself is making trade and FDI increasingly important in the growth process.

South and Southeast Asian policymakers have demonstrated a keen understanding of these issues, which is why Asia has been at the forefront of trade and investment liberalization over the past 2 decades. 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 been achieved already in many economies. While challenges remain, these regions are on the right path.

Thus, economic integration has been an important determinant of past economic success and a key ingredient in the recipe for future growth in South Asia and Southeast Asia. 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?

Prior to 1990, South and Southeast Asian economies were relatively isolated from one another and there was little talk of inter-regional economic integration. The only trade agreement that covered the two regions was the Bangkok Agreement signed in 1975 that included Bangladesh, India, Sri Lanka, and the Lao People's Democratic Republic (Lao PDR), as well as the Republic of Korea and the People's Republic of China (PRC). There was very little bilateral trade and investment among these countries. The adoption of the Look East policy by India and greater focus on outward orientation in 1991 marked the start of a new era in South and Southeast Asian economic relations. Since then, there has been heightened policy interest in the process of inter-regional integration. Six trade agreements have come into effect between South and Southeast Asian economies including the landmark Association of Southeast Asian Nations (ASEAN)–India Comprehensive Economic Cooperation Agreement in 2010.

This new awareness of the great potential of inter-regional trade and investment has already led to impressive responses in terms of rising economic interchange. 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. However, these changes have proceeded from a very small base; 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). While overall trade and investment liberalization in both regions has been remarkable over the past generation, inter-regional barriers have only fallen proportionately, even though, 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, while 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. In order 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 Asia and Southeast Asia in terms of their effects on national income, exports, factor prices (in order 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. As Myanmar is a key inter-regional bridge and 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%, and decreasing other trade costs by 15%—which the paper suggests is ambitious but nevertheless attainable—welfare in South Asia and Southeast Asia would rise by $375 billion (8.9% of gross domestic product [GDP]) and $193 billion (6.4% 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 would rise by almost two thirds. Hence, the paper concludes that investments in connectivity would justify a high level of investment.

# 2.  SOUTH ASIAN–SOUTHEAST ASIAN TRADE LINKS

The growth of South and Southeast Asian inter-regional trade over time has been remarkable, from very little ($4 billion) in 1990 to a considerable amount ($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. From 2000 to 2012, effective applied manufacturing tariffs fell from 22% to 12% in South Asia and from 9% to 7% in Southeast Asia, making the latter region arguably the most open in the developing world (ADB and ADBI 2013). This liberalization has been an important driver behind the internationalization of these economies; for example, the exports-to-GDP ratio of ASEAN rose to 57% and that of India increased to 18% (ADB and ADBI 2013). Cross-regional trade growth was even faster: Southeast Asia's share of South Asian trade rose slightly from 11% to 12% in 2011, with a slight dip in 2012 at 10%, whereas South Asia's share of Southeast Asian trade doubled from about 2% to 4% (Figure 2). This suggests that while cross-regional trade is relatively low compared to 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 fact, South and Southeast Asian trade is 2.5 times larger than intra-South Asian trade (Table 1). Intra-Southeast Asian trade is much higher, at about 25% of its total trade, but this share has been relatively steady over the past 2 decades.

**Figure 1: Total Trade between South and Southeast Asia, 1990–2012**

($ billion)
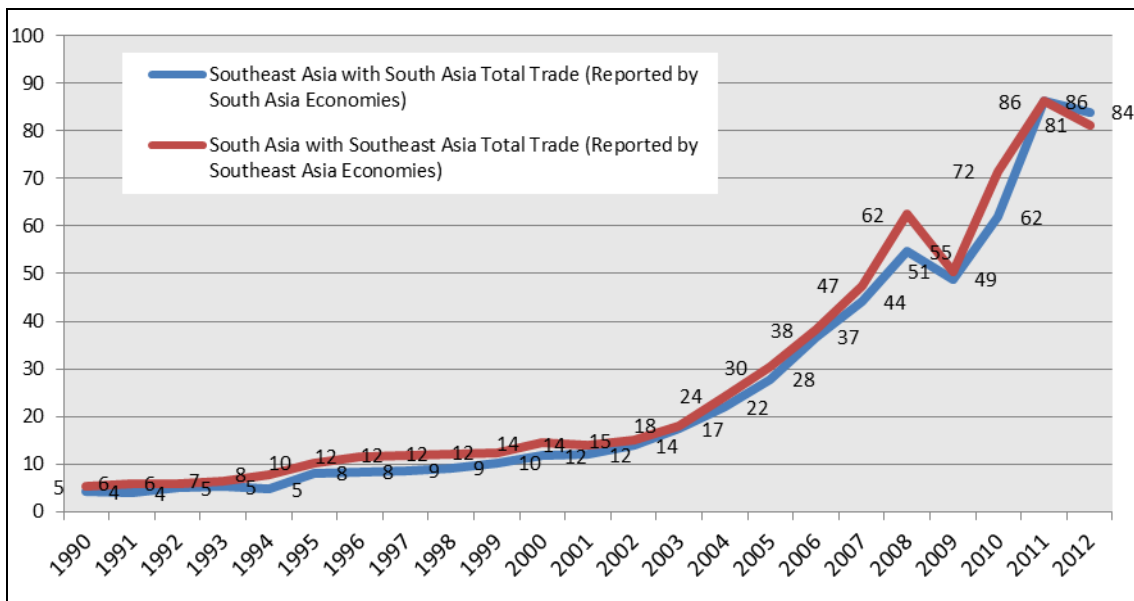


Note: Figures reported by importers.

Source: UN Comtrade, accessed November 2013. http://comtrade.un.org/db/

**Figure 2: Share of South and Southeast Asia Cross-Subregional Trade to Total Trade, 1990–2012**
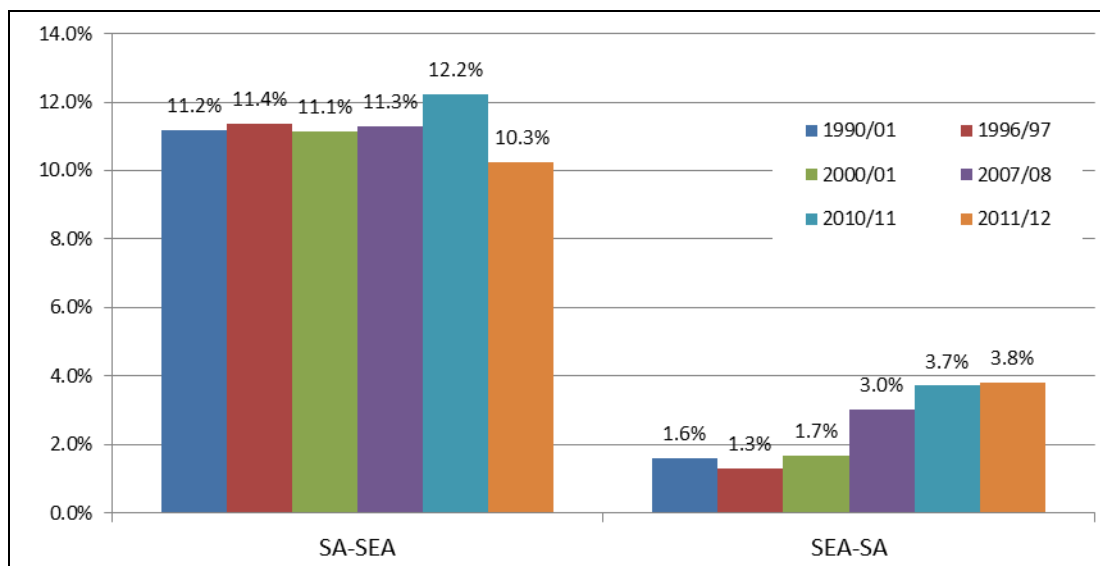


SA = South Asia; SEA = Southeast Asia.

Note: Figures reported by importers. Year ranges refer to financial year beginning in April of the earlier year.

Source: UN Comtrade, accessed November 2013. http://comtrade.un.org/db/

**Table 1: Value of Merchandise Trade between South and Southeast Asia, 1990–2012**
($ billion)

| Economy | Imports | | | | | | | | Total Trade | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | South Asia | | | | Southeast Asia | | | | South Asia | | | | Southeast Asia | | | |
| | 1990/91 | 2000/01 | 2010/11 | 2011/12 | 1990/91 | 2000/01 | 2010/11 | 2011/12 | 1990/91 | 2000/01 | 2010/11 | 2011/12 | 1990/91 | 2000/01 | 2010/11 | 2011/12 |
| **South Asia** | **777** | **1,346** | **13,065** | **11,985** | **2,081** | **4,132** | **25,463** | **28,221** | **1,727** | **5,477** | **30,353** | **30,480** | **5,592** | **14,257** | **81,268** | **86,096** |
| Afghanistan | 9 | 23 | 301 | 317 | 0 | 3 | 1 | 1 | 59 | 216 | 2,915 | 3,187 | 77 | 19 | 258 | 245 |
| Bangladesh | 55 | 46 | 587 | 683 | 59 | 153 | 255 | 303 | 477 | 1,173 | 4,697 | 5,753 | 596 | 1,608 | 6,440 | 6,613 |
| India | 420 | 887 | 9,478 | 8,035 | 1,614 | 3,479 | 23,866 | 26,540 | 490 | 2,185 | 11,248 | 9,440 | 3,191 | 9,710 | 63,976 | 68,322 |
| Maldives | 8 | 18 | 41 | 31 | 22 | 10 | 41 | 41 | 24 | 105 | 202 | 211 | 125 | 181 | 514 | 531 |
| Nepal | 22 | 179 | 517 | 411 | 5 | 10 | 6 | 8 | 91 | 478 | 2,752 | 2,988 | 83 | 145 | 216 | 218 |
| Pakistan | 194 | 120 | 1,392 | 1,657 | 308 | 352 | 824 | 858 | 291 | 474 | 3,584 | 3,584 | 1,006 | 1,491 | 6,686 | 6,631 |
| Sri Lanka | 68 | 74 | 749 | 850 | 74 | 125 | 470 | 470 | 295 | 845 | 4,955 | 5,318 | 514 | 1,103 | 3,178 | 3,536 |
| **Southeast Asia** | **2591** | **4,075** | **43,904** | **50,603** | **25,616** | **77,025** | **240,668** | **252,199** | **4,002** | **11,839** | **74,083** | **85,599** | **54,295** | **167,993** | **522,802** | **554,770** |
| Brunei Darussalam | 0 | 1 | 457 | 822 | 391 | 693 | 1,277 | 1,350 | 2 | 6 | 904 | 1,275 | 1,069 | 1,472 | 3,259 | 3,786 |
| Cambodia | 1 | 1 | 9 | 11 | 26 | 125 | 781 | 913 | 1 | 15 | 111 | 146 | 37 | 1,204 | 7,478 | 7,007 |
| Indonesia | 255 | 821 | 13,084 | 15,638 | 709 | 4,836 | 39,761 | 42,328 | 435 | 2,218 | 18,799 | 22,163 | 1,333 | 8,256 | 95,057 | 106,034 |
| Lao PDR | 0 | 0 | 45 | 107 | 46 | 170 | 1,321 | 1,423 | 0 | 5 | 57 | 128 | 117 | 667 | 4,079 | 4,830 |
| Malaysia | 952 | 1,030 | 10,716 | 13,029 | 10,853 | 27,783 | 65,408 | 69,010 | 1,175 | 2,863 | 14,669 | 17,142 | 19,696 | 57,129 | 136,842 | 145,266 |
| Myanmar | 79 | 214 | 1,261 | 1,368 | 256 | 746 | 3,519 | 3,897 | 85 | 397 | 1,636 | 1,871 | 615 | 1,899 | 8,030 | 9,230 |
| Philippines | 26 | 51 | 485 | 536 | 634 | 6,161 | 14,325 | 11,635 | 104 | 340 | 1,532 | 1,702 | 1,973 | 13,261 | 34,479 | 30,926 |
| Singapore | 911 | 1,418 | 10,402 | 10,439 | 9,503 | 22,641 | 62,804 | 67,585 | 1,503 | 3,975 | 23,106 | 25,340 | 21,114 | 54,481 | 125,308 | 132,703 |
| Thailand | 296 | 520 | 5,974 | 6,674 | 2,951 | 11,730 | 41,338 | 40,935 | 603 | 1,734 | 8,622 | 9,996 | 7,953 | 23,663 | 76,253 | 77,488 |
| Viet Nam | 71 | 19 | 1,471 | 1,978 | 248 | 2,137 | 10,134 | 13,122 | 94 | 286 | 4,647 | 5,835 | 388 | 5,960 | 32,019 | 37,500 |
| **Total** | **3,368** | **5,421** | **56,969** | **62,588** | **27,697** | **81,157** | **266,131** | **280,419** | **5,729** | **17,316** | **104,436** | **116,079** | **59,886** | **182,250** | **604,070** | **640,866** |

Lao PDR = Lao People's Democratic Republic.
Note: Figures reported by importers. Year ranges refer to financial year beginning in April of the earlier year.
Source: World Integrated Trade Solutions (WITS), accessed 11 December 2013. http://wits.worldbank.org/

In short, trade between South Asia and Southeast Asia has been rising significantly over time, but it is still relatively low compared to these regions' overall trade. Does this necessarily suggest a problem? In fact, even if trade between South 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.  While the economies of South 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 will naturally continue to be the most important markets 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 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, while a diversity of factor endowments exists 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.

However, this final point needs some qualification. True, the low income countries (LICs) 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.

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 2003–2008, 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. However, this effect is less impressive when compared with other studies employing gravity models to capture regional effects. For example, in a comprehensive study of trading blocs throughout the world, Frankel (1997) estimates that ASEAN had almost 3 times as large an effect.[2] Therefore, there appears to be substantial scope for increasing trade between the two regions.

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[1] Akhtar 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.

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

# 3. MODELING CLOSER SOUTH ASIA–SOUTHEAST ASIA CONNECTIVITY

The above analysis suggests that economic integration across South Asia and Southeast Asia is proceeding but that cross-regional trade growth is, perhaps, falling below its potential. ADB and ADBI (2013) underscore that major bottlenecks exist that significantly impede the realization of this potential; most likely, these constraints will become increasingly binding over time. These include, for example, shortcomings in transport links (particularly rail and road); relatively high tariffs, NTBs, and other policy-induced barriers to trade; and issues related to customs clearance and additional aspects of "trade facilitation."

Improvements in some of these areas will be less costly than others: policy reforms in the area of trade facilitation tend to be far less expensive than building new ports and rail links. The goal of this study will be to gauge whether or not investments in "hard" and "soft" infrastructure will be worth the investment. That is, it focuses on what potential economic benefits and costs can be expected via various degrees of deep integration. In this section, we first consider 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]

An early study by Bandara and Yu (2003) used a global computable general equilibrium (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, would incur welfare losses from such an FTA, while ASEAN as a whole would see modest gains. However, more recent and comprehensive simulation studies report different results.

As part of the work related to the Comprehensive Asia Development Plan (CADP) 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 the impacts on the cumulative increase of GDP of countries in the two regions from 2010 to 2030 relative to the base case for a number of connectivity projects, including the Mekong–India Economic Corridor (MIEC), the Dawei and Kyaukphyu deep-sea ports in Myanmar, and the India–Myanmar–Thailand Trilateral Highway. For the MIEC alone, they found cumulative impacts of over 5% for Cambodia, Myanmar, Thailand and Viet Nam, and over 2.5% for India.

Regarding trade integration, a CGE study by Mohanty and Roy (2008) shows welfare gains for members of the ASEAN+3–India FTA ranging from $52 billion for a simple FTA (involving only liberalization of tariffs) to $114 billion for a more comprehensive FTA (involving liberalization of tariffs as well as reduction in barriers to investment and

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[3] Members include the ASEAN members, Australia, the PRC, India, Japan, New Zealand, and the Republic of Korea.

services).

Using a slightly different regional unit of analysis (ASEAN+3 and South Asia), another study estimates large gains of about $260 billion, or 2% 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%) include the Republic of Korea, Indonesia, Malaysia, the Philippines, Singapore, Thailand, Viet Nam, India, and Sri Lanka.

## 3.2  CGE Model Used in This Study

Computable general equilibrium (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.

CGE analysis uses data from a benchmark year, and its mathematical modeling is based on neoclassical assumptions about the motivation of economic agents, market structure, consumer preferences, and production technology. These assumptions are coded as mathematical relationships and contain parameters that capture behavioral relationships, including elasticities (which measure the responsiveness of one variable to changes in another) and production and demand parameters—for example, the share of food consumption in total consumption demand. The parameters of the mathematical model are calibrated to make the baseline solution match real-world data in a benchmark year.

The predictions of economic theory about trade policy often depend on such empirical parameters. CGE models enable policymakers to assess such quantitative impacts. For example, in the case of FTAs, "trade creation" (generated by a more efficient division of labor within the trade area) and "trade diversion" (generated by inefficiencies that result from discrimination against outsiders) have opposing effects, and the net effect may be positive or negative. CGE models can quantify the magnitudes of these effects and estimate net welfare results.

The CGE model used in this paper is based on a new type of global trade model developed by Zhai (2008). A new feature of the model is that it incorporates recent innovations in heterogeneous firms 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).

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[4] A complete description of the model used in this study can be found in Petri et. al. (2012) or at the associated website: www.asiapacifictrade.org.

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 ASIAN– SOUTHEAST ASIAN ECONOMIC INTEGRATION

In the simulations below, the paper uses several scenarios to capture the effects of South Asia–Southeast Asian economic integration on economic welfare, trade, factor returns, and structural change for the regional economies, each corresponding to differing levels of integration ambition. The policy innovations include full liberalization of tariff barriers, a 50% reduction of non-tariff barriers (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 reduction in trade costs the paper assumes two possibilities of trade-cost reduction to provide a range of efficiency gains due to better connectivity, i.e., 5% and 15%. Given relatively high inter-regional trade costs and ample room to reduce them via trade facilitation and investment in hard infrastructure (ADB and ADBI 2013), this range was deemed to be plausible. Hence, the scenarios included here are:

i.    South Asia Free Trade Agreement (SAFTA) 1: Removal of all tariffs across South Asian economies over the period 2016–2025.

ii.   SAFTA 2: SAFTA 1, plus 50% reduction in NTBs.

iii.  SAFTA 3: SAFTA 2, plus 5% reduction in trade costs.

iv.   SAFTA 4: SAFTA 2, plus 15% reduction in trade costs.

v.    SA/SEA1: Removal of all tariffs across South Asian and Southeast Asian economies.

vi.   SA/SEA2: SA/SEA1, plus 50% removal of NTBs between South Asia and Southeast Asia.

vii.  SA/SEA3: SA/SEA2, plus 5% reduction in trade costs associated with South Asian and Southeast Asian trade.

viii. SA/SEA4: SA/SEA2, plus 15% reduction in trade costs associated with South Asian and Southeast Asian trade.[5]

Liberalization of these barriers to trade is undertaken over the period 2016–2025 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, Lao PDR, Malaysia, the Philippines, Singapore,

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

Thailand, Viet Nam, 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).

## 4.1  Results 1: 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% and 3.3% of GDP, respectively, in scenario SAFTA4) (Table 2). Bangladesh, the third largest country, experiences a 5% 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% in SAFTA4. South Asia in toto experiences a rise in its real income by 2.1% of GDP by 2030 under that scenario, led by a 25% increase in exports.

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[6] The GTAP database did not allow for specific country effects of Myanmar, which is unfortunate given the "bridge" role that Myanmar will increasing play in South Asian–Southeast Asian economic integration. However, as Myanmar accounts for 98% of the population and 60% of the GDP of "other ASEAN," one can assume that much of the effect on "other ASEAN" relates to Myanmar.

**Table 2: Effects of South Asia/Southeast Asia Trade Initiatives in 2030, Income (equivalent variation as % of GDP), Exports, Exports/GDP, on South Asia, relative to baseline**

| Country | SAFTA1 | SAFTA2 | SAFTA3 | SAFTA4 | SA/SEA1 | SA/SEA2 | SA/SEA3 | SA/SEA4 |
|---|---|---|---|---|---|---|---|---|
| **A. Real Income Gains in 2030 (EV as % of GDP)** | | | | | | | | |
| 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 |
| **B. Export Gains in 2030 (% change from baseline)** | | | | | | | | |
| 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 |
| **C. Change in Exports/GDP in 2030 (percentage points)** | | | | | | | | |
| 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 |

EV = equivalent variation, GDP = gross domestic product, NTB = non-tariff barrier, SA = South Asia, SAFTA = South Asia Free Trade Agreement, SEA = Southeast Asia.

Note: SAFTA1 = removal of all SA tariffs over 2016–2025; SAFTA2 = SAFTA1 + 50% cut in NTBs; SAFTA3 = SAFTA2 + 5% reduction in trade costs; SAFTA4 = SAFTA2 + 15% reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–2025; SA/SEAFTA2 = SA/SEA1 + 50% cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5% reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15% reduction in trade costs relevant to South Asian–Southeast Asian trade.

Source: Authors' estimates.

Note that simply reducing trade costs from 5% to 15% increases income gains by 60% 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, e.g., the internationalization of land-locked Nepal rises by 37 percentage points. ASEAN is little affected by trade diversion due to a South Asian

FTA; losses come to $1 billion under SAFTA1 and $4.6 billion under SAFTA4, or about 0.1% of GDP.

In terms of South Asian–Southeast Asian economic integration, the overall gains are about 30% more for South Asia than Southeast Asia, with real income gains relative to GDP in the former region coming to 8.9% 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% 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%), and significant but smaller increases result for Bangladesh (9%) and Sri Lanka (to 14.1% from 10.5%). 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, due to preference erosion, but they still grow the most in the group by 30% and 31.7% of GDP, respectively.

Table 3 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 [CPI]), 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 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 land owners 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.

With respect to structural change, the South Asian region often experiences large changes as countries specialize in their comparative advantage goods (Appendix, Table A1). 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% of the manufacturing sector and only 0.67% of labor compensation in manufacturing). The Food and Other Grains sectors in India experience a strong negative shock, whereas metals and chemicals experience significant gains. Indeed, structural change 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, since 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.

**Table 3: Changes in Factor Prices in South Asia, 2030**

(% change relative to baseline)

| Country | SAFTA1 | SAFTA2 | SAFTA3 | SAFTA4 | SA/SEA1 | SA/SEA2 | SA/SEA3 | SA/SEA4 |
|---|---|---|---|---|---|---|---|---|
| *A. Bangladesh* | | | | | | | | |
| 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 |
| *B. India* | | | | | | | | |
| 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 |
| *C. Nepal* | | | | | | | | |
| 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 |
| *D. Pakistan* | | | | | | | | |
| 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 |
| *E. Sri Lanka* | | | | | | | | |
| 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 |
| *F. Other South Asia* | | | | | | | | |
| 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 |

NTB = non-tariff barrier, SA = South Asia, SAFTA = South Asia Free Trade Agreement, SEA = Southeast Asia.

Note: SAFTA1 = removal of all SA tariffs over 2016–2025; SAFTA2 = SAFTA1 + 50% cut in NTBs; SAFTA3 = SAFTA2 + 5% reduction in trade costs; SAFTA4 = SAFTA2 + 15% reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–2025; SA/SEAFTA2 = SA/SEA1 + 50% cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5% reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15% reduction in trade costs relevant to South Asian–Southeast Asian trade.

Source: Authors' estimates.

## 4.2 Results 2: Effects on Southeast Asia

Real income in ASEAN rises by $193 billion (6.4% of GDP in 2030) under the SA/SEA4 scenario. Table 4 shows the effects on income (relative to GDP), exports, and exports relative to GDP for Southeast Asian economies. As noted above, trade diversion under the South Asian scenarios is minor, with Viet Nam experiencing the largest negative effect in terms of welfare, but it comes to only 0.3% of GDP. At the country level, the biggest gains from South Asian–Southeast Asian economic integration vary considerably, from (scenario SA/SEA4) –0.1% for Lao PDR and 0.6% for Cambodia to 14.4% for Singapore and 9.7% for Malaysia. Again, exports drive income gains, with exports rising by 18.1% for all of ASEAN led by Indonesia (38.5%), Singapore (19.7%), and Malaysia (17.4%), though Viet Nam registers impressive export gains as well (13.0%) (Table 4).

Given that the Lao PDR experiences a minor contraction, it is worthwhile to consider why this might be the case. There is little trade between the Lao PDR and South Asia; hence, at base year levels, the Lao PDR gains very little from increased market access

to South Asia with an FTA. However, the Lao PDR does export a great deal to its ASEAN partners, and the South Asia–Southeast Asian FTA erodes the preferences that the Lao PDR has in ASEAN markets via AFTA. The same mechanism affects results for Cambodia and the Philippines, whose gains end up being relatively modest.[7]

In addition, given that Myanmar is at the center of South Asian–Southeast Asian 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 4 shows that Myanmar/other ASEAN would be marginally affected by trade diversion in the case of the South Asian FTA scenarios (peaking at 0.1% of GDP), but it would experience real income gains of 2.3% in SA/SEA4, led by increases in exports of 7.3% relative to the baseline and an increase in exports relative to GDP of 4.9%. 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, at present Myanmar trades very little with South Asia; indeed, approximately 70% of its trade is with ASEAN and the PRC. As Myanmar's reform program proceeds 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 above)—its real income grows by over 31% of GDP in this scenario.

With respect to factor returns, similar to the South Asian case, Table 5 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) Viet Nam, labor gains relative to the other two factors in all SA/SEA FTA scenarios; for Indonesia, Malaysia, Thailand, the Lao PDR, 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, while 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 (Appendix, Table A2), 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% in its "Other Grains" sector. 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

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[7] However, it is important to note 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, the study 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 the Lao PDR, Cambodia, and the Philippines do extremely well; scenario SA/SEA4 leads to real income growth relative to GDP of 32.5%, 24.1%, and 16.9%, i.e., among the largest gains in South and Southeast Asia. Hence, since 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.

exception of Indonesia (whose manufacturing sectors contract) and mixed results in the Lao PDR and Myanmar/other ASEAN. The effects on service sectors are even more mixed, with Singapore and Malaysia mostly winning but with varied results in other economies.

**Table 4: Real Income Gains in 2030 (equivalent variation as % of GDP), Export Gains in 2030 (% change from baseline), Change in Exports/GDP in Southeast Asia, 2030 (percentage points)**

| Country | SAFTA 1 | SAFTA 2 | SAFTA 3 | SAFTA 4 | SA/SEA 1 | SA/SEA 2 | SA/SEA 3 | SA/SEA 4 |
|---|---|---|---|---|---|---|---|---|
| **A. Real Income Gains in 2030 (EV as % of GDP)** | | | | | | | | |
| 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 |
| Viet Nam | -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 |
| Lao PDR | 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 |
| **B. Export Gains in 2030 (% change from baseline)** | | | | | | | | |
| 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 |
| Viet Nam | -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 |
| Lao PDR | 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 |
| **C. Change in Exports/GDP in 2030 (percentage points)** | | | | | | | | |
| 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 |
| Viet Nam | 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 |
| Lao PDR | 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 |

ASEAN = Association of Southeast Asian Nations, EV = equivalent variation, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, NTB = non-tariff barrier, SA = South Asia, SAFTA = South Asia Free Trade Agreement, SEA = Southeast Asia.

Note: SAFTA1 = removal of all SA tariffs over 2016–2025; SAFTA2 = SAFTA1 + 50% cut in NTBs; SAFTA3 = SAFTA2 + 5% reduction in trade costs; SAFTA4 = SAFTA2 + 15% reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–2025; SA/SEAFTA2 = SA/SEA1 + 50% cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5% reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15% reduction in trade costs relevant to South Asian–Southeast Asian trade.

Source: Authors' estimates.

## Table 5: Changes in Factor Prices in Southeast Asia, 2030
(%)

| Country | SAFTA1 | SAFTA2 | SAFTA3 | SAFTA4 | SA/SEA1 | SA/SEA2 | SA/SEA3 | SA/SEA4 |
|---|---|---|---|---|---|---|---|---|
| ***Changes in Factor Prices in 2030 (%)*** | | | | | | | | |
| ***A. Indonesia*** | | | | | | | | |
| 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 |
| ***B. Malaysia*** | | | | | | | | |
| 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 |
| ***C. Philippines*** | | | | | | | | |
| 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 |
| ***D. Singapore*** | | | | | | | | |
| 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 |
| ***E. Thailand*** | | | | | | | | |
| 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 |
| ***F. Viet Nam*** | | | | | | | | |
| 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 |
| ***G. Cambodia*** | | | | | | | | |
| 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 |
| ***H. Lao PDR*** | | | | | | | | |
| 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. Other ASEAN*** | | | | | | | | |
| 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 |

ASEAN = Association of Southeast Asian Nations, CPI = consumer price index, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, NTB = non-tariff barrier, SA = South Asia, SAFTA = South Asia Free Trade Agreement, SEA = Southeast Asia.

Note: SAFTA1 = removal of all SA tariffs over 2016–2025; SAFTA2 = SAFTA1 + 50% cut in NTBs; SAFTA3 = SAFTA2 + 5% reduction in trade costs; SAFTA4 = SAFTA2 + 15% reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–2025; SA/SEAFTA2 = SA/SEA1 + 50% cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5% reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15% reduction in trade costs relevant to South Asian–Southeast Asian trade.

Source: Authors' estimates.

## 4.3 Discussion

The results reported in Tables 2–5 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% in South Asia and 6.4% in Southeast Asia are also relatively large compared to 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 would relate 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% of their NTBs? It would arguably seem so in the case of ASEAN; the ASEAN Free Trade Area (AFTA) is already essentially in place, and while 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 believe 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 (RCEP) and, in the past, there has been member country support for multilateralizing 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. Hopefully, identification of potential gains—from this and other studies—will buttress political support.

The largest gains from integration regard the reduction in trade costs, which the paper assumes derive from a combination of trade facilitation improvements and investments in hard infrastructure. The 5% reduction in trade costs would seem to be quite reasonable by any measure; the Asia-Pacific Economic Cooperation (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% reduction is obviously more ambitious, but given the existing high costs of trade in South Asia, this scenario would also be credible (ADB and ADBI [2013] suggest 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% 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%, 35.5%–116.6%, and 10.4–22.4% of GDP, respectively. De Dios (2006) estimates that a 10% saving in transport costs alone increases trade by approximately 6%. 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%. Estimates of the effects of improvements in infrastructure development noted in the AEC Blueprint

on the ASEAN-4 could increase per capita GDP in these countries by 2%–12% (Plummer and Chia 2009, Chapter 5).

Thus, the underlying assumptions with respect to trade costs on the order of 5%–15% 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 would regard 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 employed in this study uses 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, which has been shown to increase significantly the potential effects of regional integration (Petri, et. al. 2012) and, in fact, is an important attraction for Asian countries entering into regional cooperation agreements. Hence, while 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 downward biases.

# 5. CONCLUSIONS

In sum, the gains from inter-regional economic integration are, indeed, large for essentially all countries. 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 (a 6.4% rise in real income relative to GDP) than even in the case of the AEC, where Petri et al. (2012), for example, estimates a regional gain of about 5%. Exports tend to be an important driver of gains in all scenarios, but particularly in the context of a South Asia–Southeast Asia 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/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 connectively through improved hard and soft infrastructure. ADB and ADBI (2013) suggest 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 institutions 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.

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# APPENDIX

## Table A1: Changes in Sectoral Employment for South Asia Countries under South Asia–Southeast Asian Free Trade Area Scenarios, 2030

(%)

| Country | SAFTA1 | SAFTA2 | SAFTA3 | SAFTA4 | SA/SEA1 | SA/SEA2 | SA/SEA3 | SA/SEA4 |
|---|---|---|---|---|---|---|---|---|
| **A. Bangladesh** | | | | | | | | |
| Rice | 0.20 | -0.19 | 0.36 | 2.37 | -0.04 | 0.05 | 1.02 | 4.49 |
| Other grains | 2.00 | -0.03 | -0.92 | -4.48 | -2.99 | -7.87 | -11.93 | -23.39 |
| Other crops | -0.20 | -0.19 | -0.79 | -3.27 | -0.58 | 0.31 | -0.13 | -1.80 |
| Livestock | 2.07 | 3.46 | 5.35 | 11.29 | 2.68 | 5.00 | 7.76 | 16.49 |
| Natural resources | -0.24 | -0.07 | 0.30 | 1.64 | -0.94 | -1.02 | -0.77 | 0.58 |
| Mining | -2.22 | -3.06 | -4.13 | -6.34 | -4.85 | -7.14 | -10.03 | -17.07 |
| Food | 2.01 | 4.76 | 5.79 | 8.20 | -3.59 | -4.13 | -7.26 | -16.72 |
| Textiles | -0.63 | -0.54 | -2.06 | -7.66 | 0.82 | 3.50 | 3.11 | 0.50 |
| Apparel | 20.66 | 32.76 | 45.79 | 85.28 | 29.54 | 46.52 | 64.56 | 118.41 |
| Wood products | -0.40 | -0.40 | -0.33 | -0.26 | -1.52 | -1.79 | -2.11 | -2.77 |
| Chemicals | -1.41 | -0.43 | 0.78 | 6.33 | -5.66 | -7.62 | -10.15 | -16.06 |
| Metals | -6.83 | -13.05 | -19.51 | -35.30 | -9.70 | -17.47 | -25.23 | -41.81 |
| Electrical equipment | -2.11 | -2.66 | -3.53 | -6.44 | -5.04 | -7.76 | -11.93 | -20.73 |
| Vehicles | -27.55 | -37.83 | -46.99 | -64.48 | -31.22 | -40.85 | -49.25 | -64.01 |
| Machinery | -3.69 | -7.51 | -11.80 | -22.21 | -7.67 | -12.86 | -18.43 | -28.97 |
| Other manufactures | -1.48 | -2.53 | -3.87 | -9.09 | -3.12 | -4.87 | -7.40 | -15.36 |
| Utilities | -1.34 | -1.89 | -2.25 | -2.25 | -2.42 | -3.44 | -4.39 | -5.74 |
| Construction | 1.02 | 2.22 | 3.68 | 8.44 | 1.40 | 3.55 | 5.79 | 13.07 |
| Trade and transportation | -0.48 | -0.87 | -1.15 | -1.96 | -0.67 | -1.63 | -2.19 | -3.93 |
| Private services | -0.27 | -0.41 | -0.30 | 0.11 | -0.50 | -0.58 | -0.37 | 0.43 |
| Government services | -0.10 | -0.20 | -0.30 | -0.61 | -0.16 | -0.19 | -0.31 | -0.63 |
| | | | | | | | | |
| **B. India** | | | | | | | | |
| Rice | -0.07 | 0.21 | 0.29 | 0.55 | -3.36 | -2.85 | -2.50 | -1.17 |
| Other grains | -2.41 | -3.52 | -4.17 | -5.59 | -31.45 | -31.27 | -31.54 | -30.40 |
| Other crops | -0.45 | -0.20 | -0.19 | -0.11 | -9.92 | -8.96 | -8.87 | -8.21 |
| Livestock | -0.20 | -0.19 | -0.19 | -0.17 | -3.83 | -3.75 | -3.68 | -3.23 |
| Natural resources | -0.04 | -0.08 | -0.07 | -0.03 | -1.39 | -2.28 | -2.50 | -2.89 |
| Mining | 0.43 | 0.25 | 0.10 | -0.24 | 12.74 | 10.65 | 7.83 | -1.02 |
| Food | -3.29 | -4.46 | -5.52 | -7.95 | -61.88 | -63.67 | -65.18 | -64.86 |
| Textiles | 1.31 | 1.95 | 2.44 | 3.35 | 13.15 | 15.01 | 15.70 | 15.37 |
| Apparel | 0.05 | -0.52 | -1.15 | -3.21 | 15.26 | 14.98 | 13.75 | 8.06 |
| Wood products | 0.58 | 0.96 | 1.33 | 2.37 | 0.35 | 0.47 | 0.27 | -0.53 |
| Chemicals | 1.33 | 2.28 | 3.19 | 5.40 | -0.22 | -2.07 | -3.52 | -2.20 |
| Metals | 0.08 | -0.13 | -0.51 | -1.52 | 8.48 | 10.45 | 11.40 | 13.51 |
| Electrical equipment | 0.59 | 0.84 | 1.18 | 2.22 | 10.13 | 7.93 | 5.05 | -2.46 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicles | 1.44 | 2.02 | 2.43 | 3.04 | 10.11 | 13.99 | 16.22 | 21.26 |
| Machinery | 0.60 | 0.94 | 1.29 | 2.03 | 6.73 | 7.79 | 8.04 | 8.22 |
| Other manufactures | 0.15 | -0.03 | -0.18 | -0.69 | 7.39 | 7.38 | 7.48 | 6.72 |
| Utilities | 0.07 | -0.03 | -0.09 | -0.25 | 1.44 | 1.57 | 1.55 | 1.62 |
| Construction | 0.09 | 0.15 | 0.30 | 0.70 | 0.15 | 0.54 | 1.24 | 3.51 |
| Trade and transportation | 0.06 | 0.04 | 0.06 | 0.11 | 1.26 | 1.26 | 1.40 | 1.73 |
| Private services | 0.02 | -0.03 | -0.11 | -0.37 | 3.19 | 2.57 | 2.15 | 0.41 |
| Government services | 0.00 | -0.02 | -0.04 | -0.09 | 0.37 | 0.22 | 0.08 | -0.35 |
| | | | | | | | | |
| *C. Nepal* | | | | | | | | |
| Rice | 7.94 | 8.47 | 9.88 | 13.03 | -2.33 | -4.05 | -4.12 | -3.88 |
| Other grains | 10.83 | 11.81 | 12.86 | 13.87 | -3.17 | -4.84 | -5.43 | -6.90 |
| Other crops | 6.49 | 6.99 | 6.74 | 5.12 | -0.73 | 0.48 | 0.33 | 0.31 |
| Livestock | 12.11 | 16.49 | 20.15 | 29.22 | -0.29 | 0.79 | 2.27 | 6.60 |
| Natural resources | -4.21 | -3.68 | -2.31 | 2.94 | 1.38 | 1.78 | 2.99 | 7.26 |
| Mining | -13.88 | -23.15 | -28.14 | -35.61 | 7.83 | -2.51 | -6.46 | -16.43 |
| Food | 45.46 | 64.13 | 71.89 | 86.81 | -11.20 | -10.94 | -15.91 | -31.24 |
| Textiles | -19.20 | -11.62 | -2.73 | 29.99 | 7.74 | 23.10 | 42.99 | 116.80 |
| Apparel | -5.83 | -2.01 | 2.60 | 17.89 | 8.56 | 14.45 | 22.38 | 48.72 |
| Wood products | -5.20 | -5.92 | -6.18 | -6.25 | -0.40 | -0.49 | -0.21 | 1.11 |
| Chemicals | 177.99 | 449.64 | 652.43 | 1548.86 | 185.69 | 467.51 | 659.13 | 1400.22 |
| Metals | 27.87 | 46.67 | 64.51 | 89.41 | 47.52 | 72.07 | 88.63 | 125.15 |
| Electrical equipment | -9.18 | -10.15 | -9.58 | -7.15 | -3.48 | -2.03 | -0.88 | 4.95 |
| Vehicles | -45.04 | -47.39 | -46.91 | -36.87 | -40.10 | -38.90 | -33.08 | -1.22 |
| Machinery | -8.20 | -6.04 | 1.53 | 47.21 | 2.59 | 9.37 | 21.88 | 89.12 |
| Other manufactures | -33.71 | -42.98 | -49.59 | -61.74 | -17.84 | -27.62 | -33.50 | -44.79 |
| Utilities | 15.53 | 33.58 | 50.58 | 110.24 | 22.50 | 42.47 | 59.02 | 113.43 |
| Construction | 1.95 | 3.92 | 7.04 | 16.45 | 2.88 | 4.77 | 7.56 | 15.76 |
| Trade and transportation | -19.49 | -27.60 | -35.55 | -54.99 | -4.94 | -10.67 | -16.46 | -33.56 |
| Private services | -2.62 | -3.33 | -3.35 | -3.79 | -0.39 | -0.65 | -0.19 | 0.67 |
| Government services | -0.06 | 0.79 | 1.81 | 5.09 | 1.75 | 2.83 | 3.91 | 7.11 |
| | | | | | | | | |
| *D. Pakistan* | | | | | | | | |
| Rice | -0.12 | 0.33 | 0.13 | -0.43 | -0.01 | 0.84 | 0.61 | -0.23 |
| Other grains | 8.87 | 26.00 | 31.06 | 43.55 | 0.61 | 14.69 | 17.26 | 24.29 |
| Other crops | 0.91 | 2.34 | 2.87 | 4.22 | 1.33 | 3.34 | 4.23 | 6.44 |
| Livestock | 0.33 | 0.76 | 1.02 | 1.74 | -0.09 | 0.44 | 0.87 | 2.16 |
| Natural resources | -0.50 | -1.61 | -1.99 | -2.96 | -2.08 | -4.00 | -4.93 | -6.97 |
| Mining | -4.09 | -6.29 | -9.07 | -16.38 | -1.43 | -5.54 | -10.33 | -24.14 |
| Food | 1.47 | 1.55 | 1.80 | 1.40 | -13.69 | -20.25 | -26.44 | -40.37 |
| Textiles | 0.20 | 0.99 | 1.70 | 3.98 | 7.71 | 13.36 | 17.02 | 25.46 |
| Apparel | -3.61 | -5.13 | -6.53 | -9.67 | 3.67 | 5.81 | 7.02 | 9.52 |
| Wood products | -0.46 | -0.82 | -1.02 | -1.64 | -2.36 | -4.08 | -6.10 | -11.74 |
| Chemicals | -1.12 | -1.79 | -2.59 | -3.50 | -2.53 | -5.92 | -9.30 | -17.56 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Metals | -8.58 | -11.39 | -14.76 | -20.98 | -10.41 | -14.97 | -19.91 | -28.66 |
| Electrical equipment | -1.13 | -1.70 | -1.86 | -1.75 | 0.71 | -3.02 | -6.70 | -19.29 |
| Vehicles | 0.70 | 1.23 | 2.27 | 5.45 | -36.36 | -42.56 | -47.23 | -54.34 |
| Machinery | 0.43 | 3.40 | 6.04 | 13.27 | 4.52 | 9.26 | 14.06 | 27.33 |
| Other manufactures | 0.04 | -0.06 | -0.21 | -1.26 | 3.52 | 3.21 | 3.18 | 1.06 |
| Utilities | -0.01 | 0.10 | 0.17 | 0.54 | -0.53 | -0.65 | -0.76 | -0.79 |
| Construction | 0.36 | 0.41 | 0.74 | 1.80 | 1.33 | 1.79 | 2.72 | 5.46 |
| Trade and transportation | -0.10 | -0.36 | -0.43 | -0.65 | -0.25 | -0.82 | -1.09 | -1.88 |
| Private services | -0.61 | -2.70 | -3.71 | -6.76 | 0.49 | -1.93 | -2.63 | -4.89 |
| Government services | -0.19 | -0.34 | -0.45 | -0.77 | -0.13 | -0.20 | -0.27 | -0.48 |
| | | | | | | | | |
| **E. Sri Lanka** | | | | | | | | |
| Rice | -1.30 | -2.36 | -2.59 | -3.26 | -2.78 | -4.15 | -4.68 | -5.99 |
| Other grains | -2.23 | -5.12 | -8.33 | -18.48 | -4.15 | -8.97 | -13.73 | -26.85 |
| Other crops | -2.43 | -4.48 | -5.56 | -8.97 | -6.60 | -9.80 | -11.86 | -17.17 |
| Livestock | -1.13 | -0.90 | -0.65 | -0.69 | -2.46 | -2.68 | -2.80 | -3.89 |
| Natural resources | -0.33 | -0.26 | -0.17 | -0.02 | -1.11 | -1.34 | -1.49 | -1.88 |
| Mining | -4.61 | -11.70 | -19.90 | -39.42 | 0.49 | -8.70 | -18.40 | -42.00 |
| Food | -3.53 | 0.86 | 1.79 | 1.75 | -12.98 | -10.84 | -13.19 | -21.00 |
| Textiles | 3.76 | 0.28 | -3.39 | -11.23 | 14.25 | 14.66 | 13.94 | 12.70 |
| Apparel | -1.36 | -0.12 | 0.89 | 1.46 | 6.69 | 8.50 | 11.07 | 13.29 |
| Wood products | -0.18 | -0.67 | -1.95 | -5.45 | -0.89 | -1.71 | -3.48 | -7.45 |
| Chemicals | -2.96 | -4.97 | -8.06 | -13.49 | -3.80 | -7.06 | -11.79 | -21.83 |
| Metals | 7.52 | 10.05 | 12.60 | 24.82 | 7.54 | 9.56 | 13.13 | 31.16 |
| Electrical equipment | 4.66 | 7.92 | 11.39 | 21.87 | 4.86 | 6.56 | 7.87 | 12.36 |
| Vehicles | 14.10 | 23.64 | 35.23 | 75.72 | 9.71 | 14.89 | 22.96 | 55.79 |
| Machinery | 17.74 | 27.85 | 37.60 | 68.21 | 19.40 | 31.03 | 43.17 | 83.52 |
| Other manufactures | 6.75 | 11.62 | 16.61 | 31.05 | 16.72 | 28.23 | 41.88 | 83.20 |
| Utilities | 1.96 | 3.44 | 4.67 | 9.67 | 1.87 | 3.37 | 4.74 | 10.80 |
| Construction | 0.33 | 1.10 | 2.06 | 4.96 | 0.10 | 1.05 | 2.13 | 5.30 |
| Trade and transportation | 0.37 | 0.84 | 1.16 | 2.31 | 1.13 | 2.42 | 3.18 | 5.39 |
| Private services | -0.57 | -1.83 | -3.19 | -7.98 | 0.12 | -1.55 | -3.13 | -8.89 |
| Government services | 0.04 | 0.07 | 0.22 | 0.64 | 0.05 | 0.12 | 0.31 | 0.84 |
| | | | | | | | | |
| **F. Other South Asia** | | | | | | | | |
| Rice | 4.45 | 4.77 | 5.83 | 9.06 | 0.55 | -0.22 | -0.02 | 0.86 |
| Other grains | 5.30 | 4.24 | 2.80 | -1.79 | -0.40 | -2.68 | -4.73 | -10.01 |
| Other crops | -0.56 | -1.85 | -2.90 | -5.69 | -0.87 | -1.80 | -2.60 | -4.50 |
| Livestock | 9.41 | 12.60 | 15.12 | 22.21 | 1.13 | 1.67 | 2.28 | 4.28 |
| Natural resources | 6.10 | 13.09 | 15.82 | 23.85 | 2.55 | 6.67 | 8.35 | 13.40 |
| Mining | -12.15 | -16.71 | -19.71 | -23.12 | -4.31 | -8.07 | -9.18 | -11.31 |
| Food | 41.65 | 53.87 | 60.07 | 77.46 | 5.70 | 7.28 | 5.13 | -0.95 |
| Textiles | -17.12 | -19.75 | -18.95 | -4.64 | -4.88 | -4.32 | 1.85 | 32.47 |
| Apparel | -5.19 | -7.82 | -9.35 | -13.59 | -2.24 | -4.30 | -4.35 | -5.22 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wood products | -0.03 | -2.76 | -3.50 | -3.50 | -6.12 | -11.43 | -14.16 | -19.68 |
| Chemicals | 1.89 | 4.40 | 12.15 | 49.09 | 10.89 | 16.80 | 28.67 | 71.78 |
| Metals | 12.73 | 26.42 | 40.43 | 77.50 | 18.74 | 34.50 | 49.62 | 91.05 |
| Electrical equipment | -1.33 | -1.64 | 1.42 | 13.53 | 1.64 | -0.04 | 2.40 | 11.90 |
| Vehicles | 6.67 | 8.21 | 13.25 | 36.38 | 6.28 | 7.43 | 14.17 | 43.16 |
| Machinery | -11.64 | -14.54 | -13.83 | -3.89 | -5.94 | -7.60 | -4.08 | 13.52 |
| Other manufactures | -9.53 | -13.67 | -14.44 | -4.68 | -7.03 | -9.96 | -7.19 | 13.60 |
| Utilities | 9.66 | 29.73 | 41.44 | 73.52 | 11.09 | 32.63 | 44.74 | 79.99 |
| Construction | 3.55 | 4.34 | 6.35 | 13.42 | 1.06 | 1.77 | 3.77 | 9.95 |
| Trade and transportation | -8.54 | -12.80 | -16.44 | -24.61 | -4.55 | -6.56 | -8.95 | -15.64 |
| Private services | -8.77 | -13.56 | -17.06 | -23.87 | -6.13 | -9.61 | -12.13 | -18.30 |
| Government services | -0.38 | -0.61 | -0.63 | -0.33 | -0.30 | -0.56 | -0.54 | -0.22 |

ASEAN = Association of Southeast Asian Nations, NTB = non-tariff barrier, SA = South Asia, SAFTA = South Asia Free Trade Agreement, SEA = Southeast Asia.

Note: SAFTA1 = removal of all SA tariffs over 2016–2025; SAFTA2 = SAFTA1 + 50% cut in NTBs; SAFTA3 = SAFTA2 + 5% reduction in trade costs; SAFTA4 = SAFTA2 + 15% reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–2025; SA/SEAFTA2 = SA/SEA1 + 50% cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5% reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15% reduction in trade costs relevant to South Asian–Southeast Asian trade.

Source: Authors' estimates.

**Table A2: Changes in Sectoral Employment for Southeast Asian Countries under South Asia–Southeast Asian Free Trade Area Scenarios, 2030**

(%)

| Country | SAFTA1 | SAFTA2 | SAFTA3 | SAFTA4 | SA/SEA1 | SA/SEA2 | SA/SEA3 | SA/SEA4 |
|---|---|---|---|---|---|---|---|---|
| **A. Indonesia** | | | | | | | | |
| Rice | 0.00 | -0.01 | 0.00 | 0.00 | 1.61 | 1.66 | 1.78 | 2.08 |
| Other grains | -0.12 | -0.16 | -0.16 | -0.15 | 30.80 | 32.89 | 32.87 | 31.49 |
| Other crops | -0.05 | -0.09 | -0.09 | -0.10 | 12.18 | 13.67 | 14.00 | 14.38 |
| Livestock | -0.06 | -0.08 | -0.08 | -0.10 | 14.98 | 16.58 | 17.28 | 18.57 |
| Natural resources | -0.01 | -0.02 | -0.02 | -0.03 | 1.69 | 2.02 | 2.20 | 2.63 |
| Mining | 0.07 | 0.10 | 0.11 | 0.13 | -12.44 | -12.24 | -11.27 | -6.94 |
| Food | -0.24 | -0.29 | -0.31 | -0.36 | 59.05 | 65.48 | 67.49 | 70.27 |
| Textiles | 0.01 | -0.04 | -0.09 | -0.18 | -20.08 | -22.27 | -23.81 | -26.62 |
| Apparel | -0.17 | -0.30 | -0.45 | -0.88 | -24.74 | -27.37 | -29.52 | -34.50 |
| Wood products | 0.03 | 0.04 | 0.04 | 0.05 | -7.61 | -7.78 | -7.85 | -7.66 |
| Chemicals | 0.03 | 0.03 | 0.01 | -0.05 | -9.22 | -8.31 | -7.91 | -7.97 |
| Metals | 0.01 | 0.01 | -0.01 | -0.05 | -11.96 | -14.48 | -16.67 | -22.64 |
| Electrical equipment | 0.12 | 0.16 | 0.20 | 0.31 | -20.19 | -20.15 | -20.30 | -19.34 |
| Vehicles | 0.05 | 0.08 | 0.10 | 0.17 | -20.18 | -24.50 | -28.07 | -37.29 |
| Machinery | 0.07 | 0.10 | 0.11 | 0.16 | -19.03 | -19.85 | -20.65 | -21.85 |
| Other manufactures | 0.05 | 0.07 | 0.09 | 0.13 | -13.12 | -13.29 | -13.43 | -12.56 |
| Utilities | 0.01 | 0.02 | 0.02 | 0.01 | -3.83 | -4.06 | -4.19 | -4.54 |
| Construction | 0.00 | 0.00 | 0.00 | -0.02 | 0.16 | 0.14 | 0.57 | 1.97 |
| Trade and transportation | 0.02 | 0.03 | 0.03 | 0.05 | -2.67 | -3.35 | -3.65 | -4.35 |
| Private services | 0.02 | 0.04 | 0.05 | 0.08 | -2.28 | -2.68 | -2.70 | -2.53 |
| Government services | 0.01 | 0.01 | 0.01 | 0.02 | -1.01 | -1.15 | -1.18 | -1.19 |
| | | | | | | | | |
| **B. Malaysia** | | | | | | | | |
| Rice | 0.02 | 0.03 | 0.04 | 0.07 | 6.66 | 7.43 | 7.64 | 7.52 |
| Other grains | 0.07 | 0.05 | 0.10 | 0.22 | -3.63 | -7.94 | -10.94 | -18.80 |
| Other crops | 0.00 | -0.01 | 0.00 | 0.02 | 12.43 | 13.28 | 13.39 | 12.52 |
| Livestock | -0.02 | -0.05 | -0.07 | -0.13 | 11.43 | 13.95 | 15.23 | 17.73 |
| Natural resources | -0.01 | -0.11 | -0.12 | -0.14 | -1.01 | 1.56 | 1.62 | 1.51 |
| Mining | -0.02 | -0.02 | -0.03 | -0.10 | 0.66 | 1.71 | 4.19 | 11.43 |
| Food | 0.02 | 0.02 | 0.03 | 0.03 | 12.16 | 16.17 | 17.24 | 18.59 |
| Textiles | -0.24 | -0.42 | -0.60 | -1.00 | -3.37 | -2.65 | -0.82 | 9.22 |
| Apparel | -0.32 | -0.50 | -0.71 | -1.30 | -2.85 | -0.19 | 1.53 | 7.31 |
| Wood products | 0.04 | 0.03 | 0.01 | -0.05 | -0.64 | -0.62 | -0.63 | -0.71 |
| Chemicals | -0.06 | -0.09 | -0.14 | -0.32 | 0.25 | 1.86 | 2.59 | 2.76 |
| Metals | -0.09 | -0.17 | -0.27 | -0.53 | -0.28 | -0.12 | 0.66 | 4.84 |
| Electrical equipment | 0.00 | 0.00 | 0.00 | 0.01 | -4.09 | -4.32 | -4.38 | -4.43 |
| Vehicles | -0.07 | -0.11 | -0.15 | -0.23 | 0.97 | 2.13 | 3.70 | 9.01 |
| Machinery | -0.06 | -0.10 | -0.14 | -0.23 | -1.76 | -0.76 | 0.35 | 4.36 |
| Other manufactures | -0.04 | -0.04 | -0.03 | -0.01 | -5.12 | -8.16 | -11.32 | -19.36 |
| Utilities | -0.02 | -0.03 | -0.05 | -0.11 | -0.31 | -0.07 | 0.02 | 0.30 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Construction | -0.01 | -0.02 | -0.02 | -0.05 | 0.27 | 0.67 | 1.36 | 3.66 |
| Trade and transportation | 0.02 | 0.03 | 0.04 | 0.06 | -0.21 | 0.20 | 0.52 | 1.52 |
| Private services | 0.02 | 0.04 | 0.06 | 0.13 | -1.89 | -3.56 | -4.86 | -8.51 |
| Government services | 0.00 | -0.01 | -0.01 | -0.02 | -0.06 | -0.03 | -0.02 | -0.08 |
| **C. Philippines** | | | | | | | | |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.08 | 0.08 | 0.10 |
| Other grains | 0.04 | 0.00 | 0.00 | 0.01 | 0.42 | -0.09 | -0.51 | -2.05 |
| Other crops | 0.02 | 0.03 | 0.05 | 0.09 | -0.06 | -2.35 | -3.01 | -4.54 |
| Livestock | 0.05 | 0.05 | 0.05 | 0.07 | 0.60 | 0.21 | -0.07 | -1.02 |
| Natural resources | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.20 | 0.23 | 0.25 |
| Mining | -0.03 | -0.03 | -0.04 | -0.08 | 0.11 | 0.49 | 0.48 | -0.48 |
| Food | 0.06 | 0.06 | 0.06 | 0.07 | 0.59 | 0.37 | -0.04 | -1.59 |
| Textiles | -0.04 | -0.07 | -0.09 | -0.15 | -2.12 | -6.30 | -8.62 | -14.58 |
| Apparel | -0.17 | -0.26 | -0.36 | -0.65 | -0.81 | -0.28 | -0.17 | 0.23 |
| Wood products | -0.01 | -0.01 | -0.01 | -0.01 | 0.56 | 1.13 | 1.51 | 2.55 |
| Chemicals | -0.02 | -0.03 | -0.03 | -0.06 | 0.34 | 0.26 | -0.09 | -2.57 |
| Metals | -0.05 | -0.07 | -0.10 | -0.17 | -0.42 | -1.60 | -2.48 | -5.45 |
| Electrical equipment | -0.03 | -0.03 | -0.04 | -0.05 | -0.33 | 1.24 | 2.05 | 4.56 |
| Vehicles | -0.05 | -0.06 | -0.08 | -0.12 | -0.12 | -2.05 | -3.19 | -6.24 |
| Machinery | -0.04 | -0.04 | -0.06 | -0.09 | -0.44 | 0.06 | 0.17 | 0.25 |
| Other manufactures | -0.02 | -0.03 | -0.04 | -0.08 | -0.49 | 0.38 | 0.78 | 2.12 |
| Utilities | 0.00 | -0.01 | -0.01 | -0.02 | -0.05 | -0.14 | -0.26 | -0.73 |
| Construction | 0.00 | 0.00 | -0.01 | -0.01 | 0.11 | 0.53 | 0.82 | 1.77 |
| Trade and transportation | 0.00 | 0.01 | 0.02 | 0.03 | -0.05 | 0.34 | 0.55 | 1.25 |
| Private services | 0.00 | 0.01 | 0.02 | 0.03 | -0.07 | -0.27 | -0.30 | -0.28 |
| Government services | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 | -0.01 | -0.01 | -0.03 |
| **D. Singapore** | | | | | | | | |
| Rice | 0.03 | 0.02 | 0.02 | 0.03 | 3.24 | 1.19 | -0.27 | -4.44 |
| Other grains | -0.01 | -0.11 | -0.14 | -0.22 | -1.44 | -4.42 | -6.62 | -13.18 |
| Other crops | 0.02 | -0.09 | -0.08 | -0.06 | -0.57 | -2.79 | -4.76 | -9.71 |
| Livestock | -0.01 | -0.07 | -0.09 | -0.17 | 6.95 | 5.53 | 4.93 | 2.57 |
| Natural resources | -0.06 | -0.26 | -0.29 | -0.34 | 1.12 | 1.38 | 0.76 | -1.30 |
| Mining | -0.10 | -0.18 | -0.27 | -0.58 | 3.32 | 2.84 | 3.40 | 2.80 |
| Food | 0.03 | -0.04 | -0.08 | -0.24 | 7.38 | 3.62 | 1.79 | -4.43 |
| Textiles | -0.12 | -0.35 | -0.56 | -1.06 | 6.56 | 6.35 | 10.85 | 29.02 |
| Apparel | -0.12 | -0.22 | -0.33 | -0.67 | -2.76 | -7.40 | -9.36 | -15.18 |
| Wood products | -0.04 | -0.08 | -0.12 | -0.23 | 2.50 | 1.88 | 2.01 | 1.82 |
| Chemicals | -0.11 | -0.20 | -0.30 | -0.63 | 9.79 | 13.77 | 18.19 | 27.79 |
| Metals | -0.16 | -0.29 | -0.46 | -0.93 | 4.00 | 2.10 | 2.89 | 5.91 |
| Electrical equipment | -0.06 | -0.12 | -0.17 | -0.33 | -3.33 | -6.43 | -6.77 | -7.81 |
| Vehicles | -0.17 | -0.27 | -0.36 | -0.56 | 0.26 | -3.21 | -4.93 | -9.75 |
| Machinery | -0.15 | -0.26 | -0.37 | -0.66 | 1.86 | 1.10 | 2.76 | 8.32 |
| Other manufactures | -0.08 | -0.12 | -0.15 | -0.25 | 4.07 | 4.29 | 6.13 | 14.67 |
| Utilities | -0.04 | -0.07 | -0.11 | -0.23 | 2.38 | 2.70 | 3.54 | 5.29 |

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|---|---|---|---|---|---|---|---|---|
| Construction | -0.02 | -0.04 | -0.07 | -0.14 | 2.68 | 4.00 | 5.96 | 11.36 |
| Trade and transportation | 0.12 | 0.22 | 0.30 | 0.55 | 0.08 | -0.06 | -0.45 | -1.62 |
| Private services | 0.02 | 0.05 | 0.08 | 0.18 | -2.52 | -1.13 | -2.42 | -5.59 |
| Government services | -0.01 | -0.01 | -0.02 | -0.04 | 0.28 | 0.21 | 0.30 | 0.39 |
| | | | | | | | | |
| **E. Thailand** | | | | | | | | |
| Rice | 0.07 | 0.12 | 0.18 | 0.33 | 0.31 | 0.17 | -0.12 | -1.00 |
| Other grains | 0.07 | 0.04 | 0.09 | 0.18 | 3.96 | 1.65 | -0.01 | -4.85 |
| Other crops | 0.06 | 0.01 | 0.03 | 0.08 | 2.55 | 2.25 | 1.74 | 0.16 |
| Livestock | 0.03 | 0.02 | 0.05 | 0.09 | 5.75 | 5.88 | 5.49 | 3.82 |
| Natural resources | 0.01 | 0.01 | 0.02 | 0.04 | 2.52 | 2.62 | 2.43 | 1.57 |
| Mining | -0.01 | -0.01 | -0.02 | -0.11 | -0.93 | 0.32 | 0.60 | 0.21 |
| Food | 0.04 | 0.06 | 0.08 | 0.13 | 6.17 | 6.44 | 5.93 | 3.72 |
| Textiles | -0.22 | -0.44 | -0.64 | -1.10 | -3.46 | -2.94 | -2.15 | 3.66 |
| Apparel | -0.12 | -0.20 | -0.29 | -0.53 | -3.75 | -4.87 | -5.95 | -8.60 |
| Wood products | 0.00 | 0.01 | 0.01 | 0.01 | -0.06 | 0.09 | 0.18 | 0.40 |
| Chemicals | -0.05 | -0.09 | -0.14 | -0.31 | 2.31 | 4.55 | 6.07 | 8.82 |
| Metals | -0.16 | -0.28 | -0.43 | -0.79 | 0.89 | 2.64 | 4.02 | 8.74 |
| Electrical equipment | 0.04 | 0.06 | 0.09 | 0.15 | -2.32 | -1.41 | -0.85 | 0.96 |
| Vehicles | -0.13 | -0.22 | -0.31 | -0.51 | 3.08 | 3.46 | 4.03 | 6.07 |
| Machinery | -0.04 | -0.07 | -0.10 | -0.18 | -0.30 | 1.08 | 2.47 | 7.26 |
| Other manufactures | -0.04 | -0.02 | -0.01 | 0.02 | -1.51 | -1.76 | -2.46 | -0.48 |
| Utilities | -0.01 | -0.01 | -0.02 | -0.05 | 0.22 | 0.60 | 0.83 | 1.42 |
| Construction | -0.03 | -0.04 | -0.06 | -0.10 | 0.92 | 1.26 | 1.88 | 3.84 |
| Trade and transportation | 0.02 | 0.03 | 0.05 | 0.10 | -0.46 | -0.55 | -0.59 | -0.68 |
| Private services | 0.07 | 0.12 | 0.17 | 0.32 | -2.27 | -5.45 | -7.36 | -12.92 |
| Government services | 0.01 | 0.01 | 0.02 | 0.03 | -0.34 | -0.41 | -0.54 | -0.94 |
| | | | | | | | | |
| **F. Viet Nam** | | | | | | | | |
| Rice | 0.06 | 0.08 | 0.12 | 0.21 | 0.95 | -0.20 | -0.82 | -2.81 |
| Other grains | 0.18 | 0.26 | 0.38 | 0.71 | -3.45 | -12.48 | -16.49 | -27.17 |
| Other crops | 0.04 | 0.03 | 0.07 | 0.17 | -0.29 | -2.47 | -3.65 | -6.86 |
| Livestock | 0.02 | 0.02 | 0.03 | 0.06 | 0.06 | -0.29 | -0.46 | -1.07 |
| Natural resources | 0.08 | 0.12 | 0.16 | 0.28 | -0.42 | -1.95 | -2.96 | -6.19 |
| Mining | 0.07 | 0.12 | 0.16 | 0.26 | -0.02 | -1.14 | -1.70 | -4.53 |
| Food | 0.13 | 0.19 | 0.27 | 0.46 | -0.50 | -2.21 | -3.64 | -8.38 |
| Textiles | -0.27 | -0.44 | -0.62 | -1.07 | 0.30 | 6.49 | 9.93 | 21.69 |
| Apparel | -0.64 | -1.01 | -1.42 | -2.56 | 1.26 | 11.25 | 16.48 | 33.57 |
| Wood products | 0.05 | 0.08 | 0.12 | 0.22 | -0.26 | -1.20 | -1.76 | -3.60 |
| Chemicals | -0.01 | 0.00 | -0.02 | -0.07 | 2.09 | 2.77 | 3.64 | 4.66 |
| Metals | 0.00 | 0.01 | 0.00 | 0.01 | 0.47 | -1.82 | -2.78 | -5.87 |
| Electrical equipment | 0.06 | 0.11 | 0.15 | 0.27 | 0.02 | 0.32 | 0.71 | 1.74 |
| Vehicles | 0.05 | 0.09 | 0.12 | 0.23 | -0.23 | -1.42 | -1.98 | -3.78 |
| Machinery | 0.06 | 0.09 | 0.12 | 0.21 | -0.50 | -0.85 | -0.79 | -0.52 |
| Other manufactures | -0.02 | -0.02 | -0.03 | -0.05 | -0.83 | -0.76 | -0.87 | -1.02 |
| Utilities | 0.01 | 0.02 | 0.02 | 0.04 | 0.16 | -0.26 | -0.38 | -0.98 |

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|---|---|---|---|---|---|---|---|
| Construction | -0.02 | -0.04 | -0.06 | -0.11 | 0.17 | 0.91 | 1.52 | 3.65 |
| Trade and transportation | 0.04 | 0.06 | 0.09 | 0.16 | 0.00 | 0.55 | 0.93 | 2.44 |
| Private services | 0.08 | 0.14 | 0.20 | 0.39 | -0.92 | -2.35 | -3.27 | -5.85 |
| Government services | 0.01 | 0.02 | 0.03 | 0.05 | -0.22 | -0.63 | -0.88 | -1.67 |
| **G. Cambodia** | | | | | | | | |
| Rice | 0.03 | 0.05 | 0.07 | 0.13 | 0.41 | 0.22 | 0.16 | -0.05 |
| Other grains | 0.17 | 0.21 | 0.29 | 0.52 | 3.66 | 3.34 | 3.12 | 2.25 |
| Other crops | 0.11 | 0.18 | 0.26 | 0.47 | 0.23 | -1.14 | -1.68 | -3.49 |
| Livestock | 0.02 | 0.03 | 0.04 | 0.07 | 0.69 | 0.44 | 0.36 | 0.06 |
| Natural resources | 0.07 | 0.11 | 0.14 | 0.25 | 0.79 | 0.68 | 0.61 | 0.35 |
| Mining | 0.08 | 0.12 | 0.17 | 0.29 | 0.76 | 0.57 | 0.44 | -0.20 |
| Food | 0.15 | 0.20 | 0.27 | 0.46 | 3.00 | 2.96 | 2.92 | 2.64 |
| Textiles | 0.03 | 0.06 | 0.11 | 0.31 | -2.93 | -3.20 | -3.22 | -2.64 |
| Apparel | -0.57 | -0.89 | -1.26 | -2.28 | -1.50 | -1.14 | -0.83 | 0.32 |
| Wood products | 0.10 | 0.16 | 0.22 | 0.39 | 1.05 | 0.85 | 0.82 | 0.67 |
| Chemicals | 0.23 | 0.35 | 0.47 | 0.75 | 1.73 | 3.46 | 3.56 | 1.54 |
| Metals | 0.12 | 0.19 | 0.27 | 0.47 | 0.42 | -0.25 | -0.83 | -2.86 |
| Electrical equipment | 0.09 | 0.15 | 0.21 | 0.37 | 0.44 | 0.34 | 0.23 | -0.22 |
| Vehicles | 0.08 | 0.14 | 0.19 | 0.35 | -0.12 | -0.66 | -0.97 | -1.95 |
| Machinery | 0.10 | 0.17 | 0.23 | 0.41 | -0.35 | -1.57 | -2.39 | -5.22 |
| Other manufactures | -0.03 | -0.04 | -0.05 | -0.08 | -0.41 | -1.31 | -2.29 | -4.79 |
| Utilities | 0.03 | 0.05 | 0.06 | 0.11 | -0.02 | 0.35 | 0.43 | 0.56 |
| Construction | -0.03 | -0.04 | -0.06 | -0.10 | -0.30 | -0.15 | -0.03 | 0.45 |
| Trade and transportation | 0.09 | 0.15 | 0.21 | 0.37 | 0.02 | 0.51 | 0.73 | 1.60 |
| Private services | 0.06 | 0.09 | 0.13 | 0.25 | -0.07 | -0.01 | 0.00 | 0.11 |
| Government services | 0.03 | 0.04 | 0.06 | 0.10 | 0.01 | 0.00 | -0.03 | -0.12 |
| **H. Lao People's** **Democratic Republic** | | | | | | | | |
| Rice | 0.00 | -0.01 | -0.01 | -0.01 | 0.01 | -0.01 | -0.01 | -0.01 |
| Other grains | 0.02 | 0.00 | 0.00 | 0.01 | 1.15 | 1.04 | 1.08 | 1.16 |
| Other crops | 0.02 | 0.01 | 0.02 | 0.02 | 0.59 | 0.63 | 0.73 | 1.05 |
| Livestock | 0.04 | 0.04 | 0.04 | 0.06 | 0.67 | 0.74 | 0.92 | 1.49 |
| Natural resources | 0.00 | 0.00 | 0.00 | 0.01 | 0.66 | 1.15 | 1.62 | 3.06 |
| Mining | 0.00 | 0.03 | 0.04 | 0.01 | -2.88 | -1.06 | 2.90 | 21.12 |
| Food | 0.10 | 0.10 | 0.12 | 0.16 | 1.46 | 1.58 | 1.90 | 2.80 |
| Textiles | -0.13 | -0.17 | -0.14 | 0.02 | -4.30 | -3.52 | -3.04 | -0.86 |
| Apparel | -0.23 | -0.35 | -0.47 | -0.83 | -1.89 | -1.88 | -2.52 | -4.61 |
| Wood products | -0.02 | -0.02 | -0.02 | -0.03 | 0.83 | 1.50 | 2.11 | 3.93 |
| Chemicals | -0.02 | -0.04 | -0.07 | -0.19 | -1.26 | -0.08 | 0.89 | 3.53 |
| Metals | -0.03 | -0.04 | -0.05 | -0.08 | -0.41 | -1.53 | -2.67 | -6.60 |
| Electrical equipment | 0.01 | 0.03 | 0.05 | 0.09 | 0.08 | 1.13 | 1.79 | 3.82 |
| Vehicles | -0.02 | -0.04 | -0.05 | -0.08 | 0.13 | 0.15 | 0.21 | 0.43 |
| Machinery | -0.02 | -0.02 | -0.03 | -0.05 | 0.10 | 0.22 | 0.32 | 0.50 |
| Other manufactures | 0.02 | 0.04 | 0.06 | 0.11 | -0.72 | -0.52 | -0.46 | -0.15 |
| Utilities | -0.02 | -0.02 | -0.03 | -0.07 | -0.23 | 0.05 | 0.32 | 1.12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Construction | -0.01 | -0.01 | -0.01 | -0.01 | -0.27 | -0.29 | -0.32 | -0.39 |
| Trade and transportation | 0.01 | 0.03 | 0.04 | 0.08 | -0.48 | -0.61 | -0.67 | -0.74 |
| Private services | 0.01 | 0.01 | 0.02 | 0.04 | -0.15 | 0.31 | 0.57 | 1.58 |
| Government services | 0.00 | 0.00 | 0.00 | 0.01 | -0.06 | -0.05 | -0.05 | -0.06 |
| | | | | | | | | |
| **I. Other ASEAN** | | | | | | | | |
| Rice | 0.00 | 0.00 | -0.01 | -0.01 | 0.39 | 0.17 | 0.14 | -0.01 |
| Other grains | 0.29 | 0.59 | 0.76 | 1.20 | 0.80 | -6.89 | -9.60 | -16.67 |
| Other crops | -0.02 | -0.09 | -0.09 | -0.10 | 1.47 | 3.68 | 4.34 | 6.22 |
| Livestock | -0.02 | -0.03 | -0.04 | -0.08 | 0.49 | 0.07 | -0.04 | -0.49 |
| Natural resources | -0.02 | -0.10 | -0.11 | -0.10 | 0.10 | 2.30 | 2.67 | 3.37 |
| Mining | 0.02 | 0.07 | 0.08 | 0.09 | 0.59 | -0.11 | 0.20 | 0.91 |
| Food | 0.02 | 0.07 | 0.07 | 0.08 | 0.53 | -0.76 | -1.30 | -3.27 |
| Textiles | -0.08 | -0.09 | -0.12 | -0.22 | -2.96 | -5.02 | -6.31 | -9.48 |
| Apparel | -0.29 | -0.42 | -0.61 | -1.14 | -2.62 | -4.03 | -4.60 | -5.97 |
| Wood products | 0.01 | 0.05 | 0.05 | 0.06 | 0.72 | 0.66 | 1.20 | 2.86 |
| Chemicals | 0.01 | 0.05 | 0.06 | 0.05 | -0.21 | -1.57 | -2.71 | -7.79 |
| Metals | 0.00 | 0.02 | 0.01 | 0.00 | -0.80 | -3.10 | -4.99 | -10.99 |
| Electrical equipment | 0.01 | 0.03 | 0.04 | 0.06 | -0.18 | -0.39 | -0.27 | 0.24 |
| Vehicles | 0.00 | 0.01 | 0.01 | 0.01 | -0.02 | -0.31 | -0.29 | -0.14 |
| Machinery | 0.01 | 0.03 | 0.03 | 0.02 | -0.34 | -1.02 | -1.22 | -1.83 |
| Other manufactures | -0.02 | 0.00 | 0.00 | -0.03 | -0.24 | -0.21 | 0.26 | 2.23 |
| Utilities | 0.01 | 0.02 | 0.03 | 0.03 | -0.38 | -1.16 | -1.67 | -3.35 |
| Construction | 0.00 | -0.01 | -0.01 | -0.01 | 0.02 | 0.27 | 0.57 | 1.70 |
| Trade and transportation | 0.02 | 0.05 | 0.06 | 0.11 | -0.19 | -0.17 | -0.06 | 0.47 |
| Private services | 0.01 | 0.03 | 0.04 | 0.07 | -0.26 | -0.53 | -0.63 | -0.86 |
| Government services | 0.01 | 0.02 | 0.02 | 0.04 | -0.16 | -0.41 | -0.52 | -0.90 |

ASEAN = Association of Southeast Asian Nations, NTB = non-tariff barrier, SA = South Asia, SAFTA = South Asia Free Trade Agreement, SEA = Southeast Asia.

Note: SAFTA1 = removal of all SA tariffs over 2016–2025; SAFTA2 = SAFTA1 + 50% cut in NTBs; SAFTA3 = SAFTA2 + 5% reduction in trade costs; SAFTA4 = SAFTA2 + 15% reduction in trade costs; SA/SEAFTA1 = removal of all tariffs across SA and SEA over 2016–2025; SA/SEAFTA2 = SA/SEA1 + 50% cut in NTBs; SA/SEAFTA3 = SA/SEAFTA2 + 5% reduction in trade costs relevant to South Asian–Southeast Asian trade; SA/SEAFTA4 = SA/SEAFTA2 + 15% reduction in trade costs relevant to South Asian–Southeast Asian trade.

Source: Authors' estimates.