

2. Reshaping Value Chains: The Case for Deeper Asia-Pacific Trade Integration¹

The Asia-Pacific region has experienced rapid trade growth for decades, propelled by cheap labor and falling trade costs that transformed it into a global manufacturing hub. However, the global landscape is changing with the sweeping United States tariffs in 2025 after earlier trade tensions and pandemic disruptions. Evidence in this chapter indicates that Asia-Pacific supply chains are responsive to tariff differentials, as seen during the US-China trade tensions of 2018-19, which prompted production to relocate from China to some economies with favorable preconditions. While recent trade policy developments heighten risks and pose significant challenges, they also underscore the untapped potential of deeper intra-Asia integration. Simulation exercises point to sizable economic gains from lowering trade barriers, both within the region and globally, while complementary policies would be needed to assist workers through the transition to ensure inclusive outcomes. Policies to promote openness in trade and foreign direct investment, supported by reforms to enhance competitiveness, are key to maintaining trade as an engine of growth.

2.1. Trade as an Engine of Growth

For many Asia-Pacific economies, trade has long been at the core of their growth model. By leveraging exports as an engine of growth, these economies achieved rapid structural transformation toward manufacturing and rising productivity (World Bank 1993; Song, Storesletten, and Zilibotti 2011; and November 2024 *Regional Economic Outlook: Asia and Pacific*). Beyond growth, trade has also spurred broader development gains, including infrastructure investment, job creation, and poverty reduction. These achievements, however, now face new tests as trade tensions and global fragmentation may slow trade and reshape cross-border production networks (“supply chains”).

Within the Asia-Pacific region, trade openness is typically high but varies considerably, as does the exposure to trade shocks. ASEAN economies stand out for their openness, with trade far exceeding GDP as a share of the global economy, even after controlling for size (Figure 2.1). In contrast, South Asia remains relatively less open. At the regional level, although Asia-Pacific accounts for a sizable share of global trade, this broadly reflects its economic weight rather than uniformly high openness (Figure 2.2).

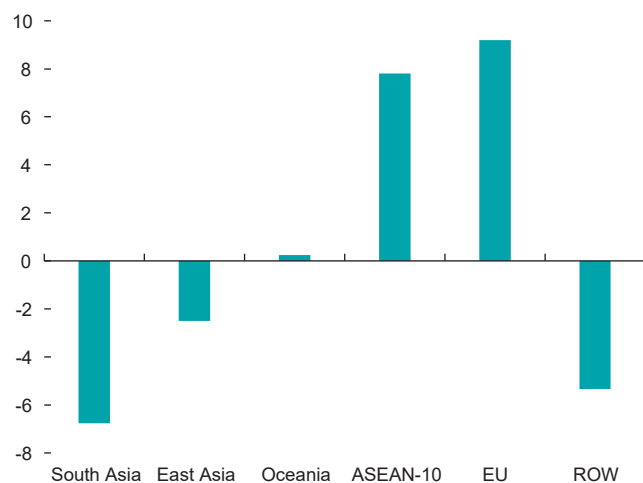
An important feature of trade in the Asia-Pacific region is the significance of China and the US. In 2023, China was the largest export destination for eight economies in the region and the largest import source for 16 economies (representing 99 percent of the region’s GDP excluding China). The US was the largest export destination for ten Asia-Pacific economies. Combined with the fact that more than 60 percent of exports from China to the region are intermediate goods (see the online Annex), these patterns underscore China’s centrality in the region’s supply chains to serve overseas markets, in particular the US. As a result, the US-China trade tensions since 2018 have been particularly relevant for the region and already led to supply chain changes.

What lessons can past tariff shocks offer for today’s trade policy environment? This question is particularly relevant as the region confronts a shifting trade policy landscape. Evidence shows that heterogeneous tariff differentials across countries can divert trade flows and reshape supply chains. Consistent with the recent trade-fragmentation literature (Aiyar and others 2023), higher tariffs are therefore likely to generate efficiency losses.

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In this context, this chapter first examines how trade policy shocks can reshape regional supply chains—using past US-China trade tensions as a natural experiment—and how countries can better leverage further shifts. It further explores to what extent deeper integration, by lowering trade barriers, could offer resilience and opportunities.

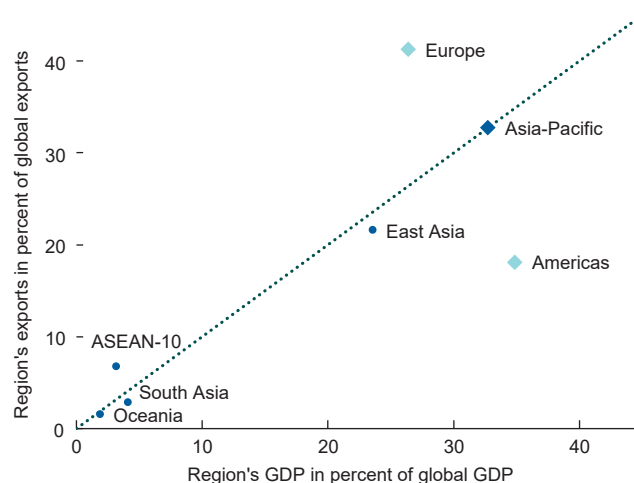
Figure 2.1. Value-Added Exports, Deviations from Global Averages Controlling Economic Size, 2023
(Percentage points of total value added)



Sources: Asian Development Bank (ADB) Multiregional Input-Output Tables (MRIO), World Economic Outlook database, and IMF staff calculations.

Note: Nominal GDP weighted subregional averages are reported. ROW refers to the rest of the world.

Figure 2.2. Export Share versus GDP Share, 2024
(In percent of global exports)



Sources: World Economic Outlook database and IMF staff calculations.

Note: See the online annex for subregional grouping.

2.2. Supply Chain Shifts Following Tariff Shocks

Intra-regional trade in intermediate goods among Asia-Pacific economies surged around 2017, driven by the rise in the region's exposures to China. Exports of intermediate goods within the region increased to nearly 60 percent of total intermediate goods exports by 2019 (Figure 2.3), well above the pre-2017 average of 53 percent. Excluding China, intermediate goods trade among Asia-Pacific economies has remained roughly stable during the same period—indicating that the increase primarily reflects a deepening of linkages between China and its regional partners.

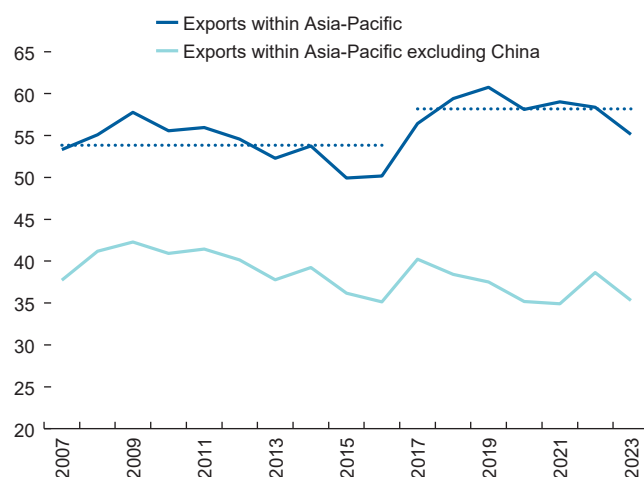
This pattern is consistent with a reconfiguration of trade and supply chains that accelerated with the increase in US-China trade tensions that eventually resulted in a series of tariffs (up to 25 percent) in 2018–19 (see Alfaro and Chor 2023; Freund and others 2023; Fajgelbaum and others 2024; Gopinath and others 2024). In fact, China's increased trade share with the region is concentrated in intermediate goods and does not extend to final goods (Figure 2.4).

In this context, this chapter estimates the country-specific impact of US-China tariff shocks in 2018–19 on three variables related to supply chain reallocation—value-added embedded in exports to the US, intermediate goods imports from China, and inward foreign direct investment (FDI) from China. The econometric specification (see the online Annex) captures the differential growth in outcomes between tariff-targeted sectors—those hit by US tariff hikes—and non-targeted sectors within the same country.²

The results indicate that tariff-targeted sectors in countries in the region have experienced both higher growth in exports to the US and intermediate goods imports from China compared to the same variables in unaffected sectors. The higher relative growth in tariff-targeted sectors is evident in Cambodia, Bangladesh, Vietnam, and

² The sample covers 45 economies and 35 sectors from 2007 through 2023. This exercise complements the analysis on gross exports to the world in Box 2 of 2024 *Regional Economic Outlook: Asia and Pacific* by focusing on value-added exports to the US. The estimates can differ when economies increased their exports, especially those embed lower domestic value added (that is, utilizing intermediate imports in production), to non-US destinations.

Figure 2.3. Intraregional Intermediate Goods Exports
(Percent of total intermediate goods exports)



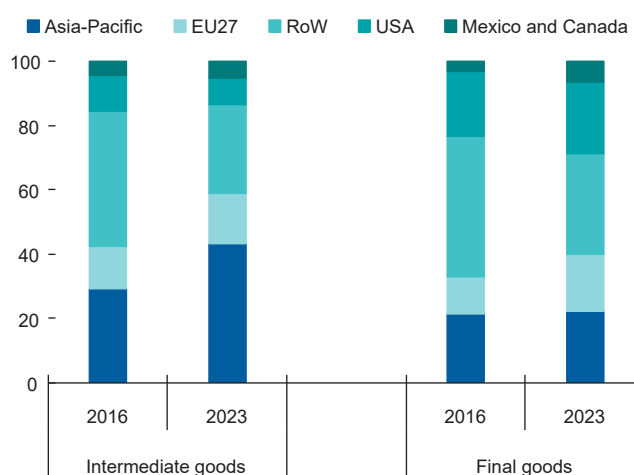
Sources: ADB MRIO and IMF staff calculations.

Note: The light blue line excludes both China's exports to and imports from Asia-Pacific economies.

Sri Lanka, consistent with tariff-induced trade diversion involving higher domestic production, relocation of factors of production towards the targeted sectors, and market-share gains (Figure 2.5).³ In these economies, intermediate goods imports from China also rise over time (Figure 2.6), pointing to reconfigured ("China-plus-one") supply chains.⁴

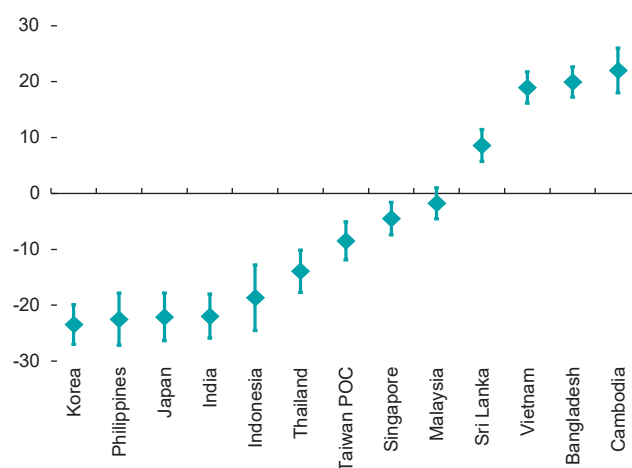
Furthermore, the evidence suggests that the supply chain reconfiguration involved partial relocation of production by firms in China. Figure 2.7 plots countries' relative gains in value-added exports to the US versus their gains in FDI inflows from China (measured by the number of announced or completed greenfield FDI projects from China) in tariff-targeted sectors. Countries that successfully exploited the opportunity to expand value-added exports to the US—for example, Bangladesh and Vietnam—have also experienced more FDI from China.^{5,6}

Figure 2.4. China Exports by Destination
(Percent of total exports)



Sources: ADB MRIO and IMF staff calculations.

Figure 2.5. Relative Growth of Value-Added Export to the US in Tariff-Targeted Sectors, 2018–23
(Percent)



Source: IMF staff estimates.

Note: Countries with small manufacturing exports are excluded. See the online Annex for details on the data and specifications.

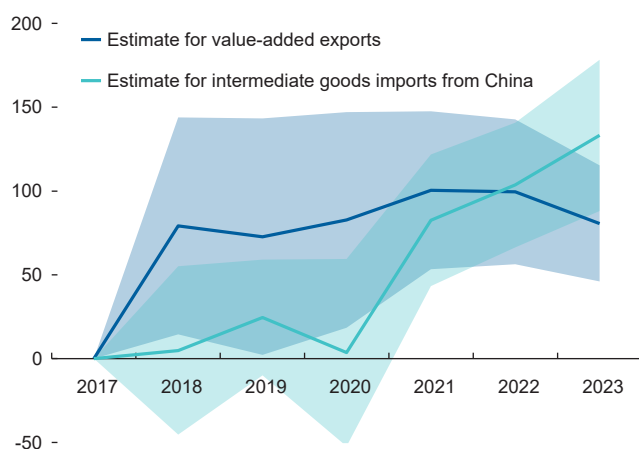
³ In many economies, tariff-targeted sectors were not found to outperform the other sectors. A few mechanisms likely contribute: (1) a sector composition effect—the recent rapid expansion in non-targeted sectors (notably services in India and the Philippines) lowers the estimated coefficient; (2) timing effect—gains from supply chain shifts are yet to materialize as of 2023; (3) long-term trend—there may be long-term trends of production relocation (notably by Japanese and Korean firms) that were accelerated by the tariffs and not fully captured by the autocorrelation term; and (4) a competition effects, whereby countries that benefited most from supply chain relocation may have crowded out other producers in the same sectors.

⁴ The pattern should be distinguished from rerouting of exports for tariff evasion, because the chapter's analysis focuses on value-added embedded in exports.

⁵ Rotunno and others (2024), Schulze and Xin (2025) and Donato and Kitsios (forthcoming) also found evidence of production relocation resulting from the US-China trade tensions. Graziano and others (2024) document shifts of multinational firms' production in response to the US-China trade tensions.

⁶ Except Cambodia and Vietnam which have seen a jump in FDI from Korea around 2018, countries with the largest relative gains in value-added exports to the US do not see significant increases in FDI flows from other major economies (US, European Union, Japan, and Korea).

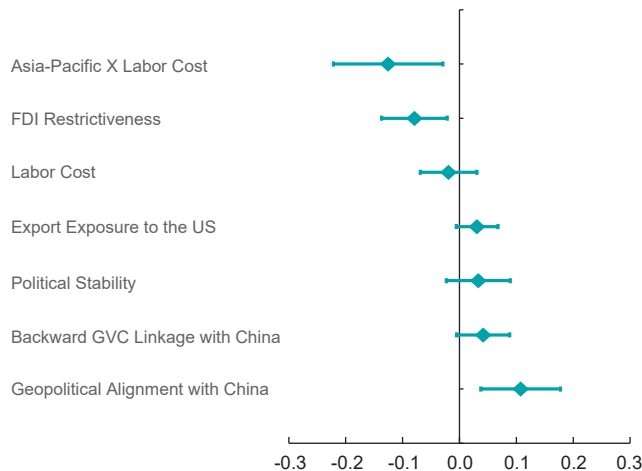
Figure 2.6. Relative Growth in Value-Added Exports to the US and Intermediate Imports from China, in Tariff-Targeted Sectors, 2018–23
(Percent)



Source: IMF staff estimates.

Notes: The relative cumulative growth from 2017 in value-added exports to the US (the blue line) and in intermediate imports from China (the green line) for the countries with the estimated relative gains in the largest quartile of the distribution.

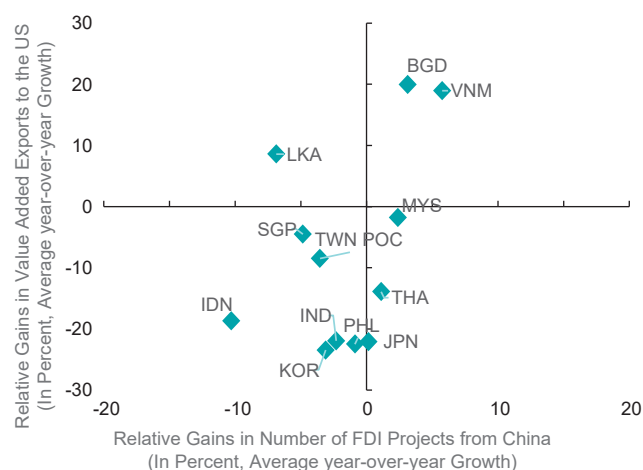
Figure 2.8. Factors Correlated with Relative Gains in Value-Added Exports to the US



Source: IMF staff estimates.

Note: Estimated by a regression where the dependent variable is the estimated relative growth in value-added exports to the US in tariff-targeted sectors, with an additional control for Asia-Pacific economies. The sample consists of 45 economies. Country characteristics are as of 2017. Labor cost is proxied by nominal GDP per working-age population.

Figure 2.7. Relative Gains in Value-Added Exports to the US and Relative Gains in the Number of FDI Projects from China



Source: IMF staff estimates.

Note: The x-axis shows the relative growth in the number of announced or completed FDI projects from China in tariff-targeted sectors and the y-axis shows the relative growth in value-added exports to the US in tariff-targeted sectors. Cambodia is not included because of FDI data availability constraint. Data labels in the figure use International Organization for Standardization (ISO) country codes.

Countries experiencing relative gains in tariff-targeted sectors share several key characteristics. Regression analysis (Figure 2.8) finds that economies with lower labor cost—measured by lower nominal GDP per working-age population—have seen greater positive impacts, particularly among Asia-Pacific economies. Furthermore, countries with greater openness to FDI are more likely to capture the benefits of supply chain shifts, in line with the finding that FDI has been a key channel for production relocation. In addition, countries with stronger pre-existing trade linkages with both China and the US are better positioned to harness shifting trade flows. Other typical pull factors of FDI relocation such as political stability and geopolitical alignment of source and destination countries have expected signs. These findings highlight that cheaper labor, openness to FDI, and established trade relationships are pivotal for attracting relocated production and increasing value-added exports in response to global tariff shocks (see IMF (2024) for complementary analysis).

Overall, a lesson from the US-China 2018-19 tariff episode is that tariff shocks lead to supply chain shifts according to tariff differentials and country characteristics. Under the current trade policy environment, supply chain reconfiguration will be more challenging due to heterogeneous tariff differentials among Asia-Pacific economies, high uncertainty around tariff levels, and stricter application of rules of origin. At the same time, the region has become more reliant on external demand from outside the region (Figure 2.9). As such, countries that substantially use foreign inputs for downstream production will need to expand domestic production,

leverage more foreign investments, and diversify their import sources to a broader set of countries. A natural question to ask is: Is there scope for deeper regional integration to further strengthen the region's ability to navigate these evolving challenges?

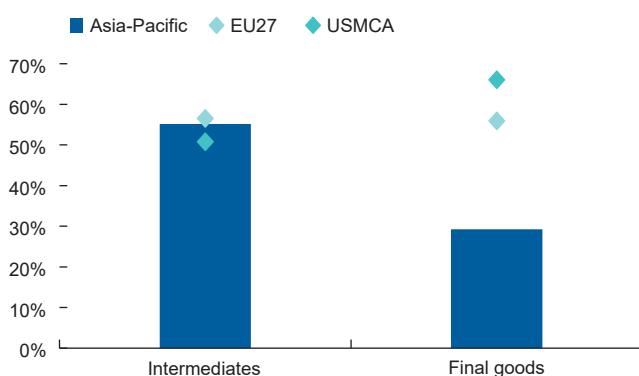
2.3. The Case for Deeper Regional Integration

The Asia-Pacific region is already highly integrated in intermediate goods trade, but intra-regional trade in final goods has scope to deepen. Figure 2.10 shows that the share of intra-regional goods trade in Asia-Pacific is comparable to the level observed among European or North American countries for intermediate goods, although the share is much lower for final goods. This divergence in part reflects the prevalence of regional supply chain trade to serve final goods exports to overseas markets, and reducing it will require stronger final demand from the region through structural reforms (see Chapter 1). Yet, it also points to the untapped potential of deeper intra-Asia-Pacific integration in trade.

An examination of the legal and institutional architecture of trade agreements—motivated by the literature underscoring the importance of trade agreements in promoting trade growth—reveals areas where improvements are possible for Asia-Pacific economies.

- First, trade agreements among economies in Asia-Pacific tend to be bilateral between two countries or with a regional trade bloc (that is, ASEAN) (Figure 2.11). The reliance on bilateral agreements contrasts with the practice in the other trade areas such as the EU or the United States–Mexico–Canada Agreement (USMCA) zone, where integration is supported by broad-based, legally binding agreements involving large economies in the region. This patchwork of agreements may contribute to overlapping rules, inconsistent standards, and a lack of institutional coherence—particularly within intra-Asia trade (see Asian Development Bank 2025).

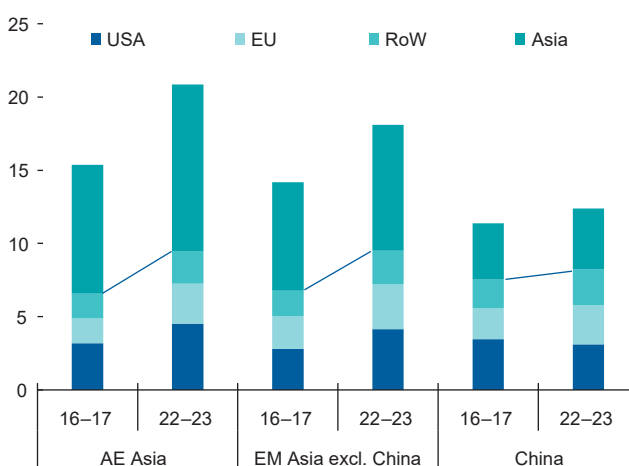
Figure 2.10. Intra-regional Goods Exports
(Percent of goods exports, 2023)



Sources: ADB multi-regional input-output tables and IMF staff calculations.

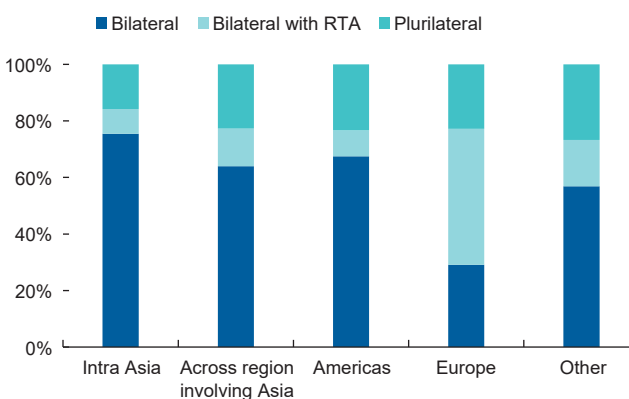
Figure 2.9. Asia's Value-Added Exports by Destination

(Percent of total value added)



Sources: ADB multi-region input-output tables and IMF staff estimates.

Figure 2.11. Share of Bilateral Trade Agreements
(Percent of total number of trade agreements)



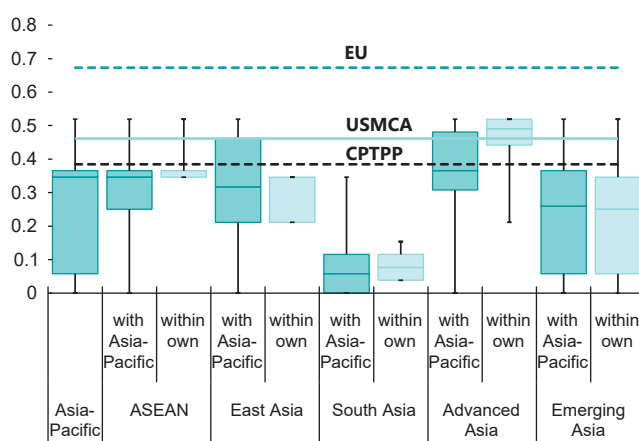
Sources: World Bank Deep Trade Agreement database and IMF staff calculation.

Note: Information covers 1953–2023. Europe includes EU27, United Kingdom, and European Free Trade Association members. Americas includes countries located in North, Central, and South America. Plurilateral agreements refer to those involve more than two countries.

- Second, turning to the contents, the depth and legal enforceability of trade arrangements in Asia-Pacific have scope for improvement. Figure 2.12 presents the distributions of trade agreement depth, measuring the share of provisions that are legally enforceable between regional country pairs. Compared to Europe and North America, the depth of integration in Asia-Pacific tends to be lower especially in areas beyond World Trade Organization's mandate (such as rules on competition policy, environmental protection, e-commerce). Sub-regional disparities are stark: ASEAN is relatively integrated, while South Asia has particularly shallow coverage. Alongside, even while some sub-groups in the region have some depth internally (for example, ASEAN, members of Comprehensive and Progressive Agreement for Trans-Pacific Partnership [CPTPP]), these same economies have limited coverage with other major regional economies.

Non-tariff barriers (NTBs) appear to be one factor underlying the region's relatively shallow trade agreements, with their prevalence especially notable in South Asia and parts of ASEAN (Figure 2.13). NTBs are maintained for a variety of reasons, including efforts to manage the distributional impacts of trade and political economy considerations, particularly in a context where tariff policies are constrained by the WTO (Evenett and Fritz 2015; Cadot and Gourdon 2016). NTBs affect both intermediate and final goods trade, whereas some instruments (for example, standards and technical regulations) and some rationales (e.g., firms' desire to prop up their output prices) may particularly affect final goods trade (Shapiro 2020; Fiankor and others 2025). As such, NTBs may be a factor holding back final goods trade in the region. Recently enacted regional agreements could reduce such NTBs (for example, through harmonizing standards) and boost trade integration—if they broaden membership (see Box 2.1). The following exercise hence focuses on the impact of deeper trade agreements, which are shown to play a role in reducing barriers and promoting trade, independent of tariffs.⁷

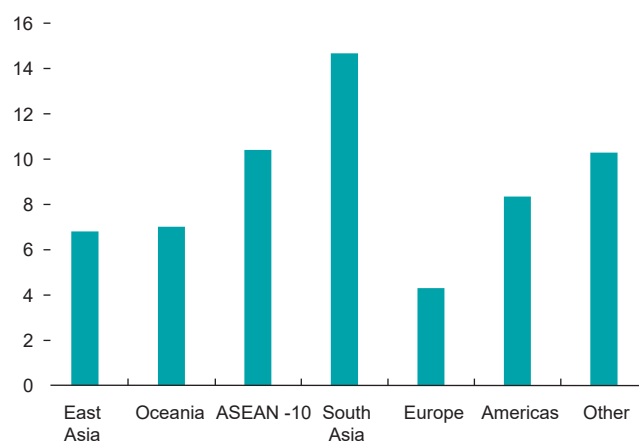
Figure 2.12. Depth Scores across Trading Partners
(Index, Number of legally enforceable provisions out of 52)



Sources: World Bank Deep Trade Agreements Database; and IMF staff calculations.

Note: The box plot presents the distribution of country-pair depth scores within various groups, vis-à-vis selected countries in Asia-Pacific (dark green) or vis-à-vis other countries in the same group. See the online Annex for country selection.

Figure 2.13. Non-Tariff Trade Restrictions, 2022
(Index, 0–20)



Sources: Estefania-Flores and others (2022) and IMF staff calculations. Note: Simple average across countries. See the online Annex for subregional grouping.

How large are the potential gains from strengthening trade integration? To address this question, the chapter uses a multi-country, multi-sector quantitative trade model, building on Cuñat and Zymek (2024), to quantify the long-term gains in real GDP from greater integration. The model allows capital to respond endogenously to trade liberalization, shedding light on how investment amplifies output gains by reallocating capital across countries, in line with the supply chain reconfiguration found in the econometric analysis. Following the literature (for example, Dhingra, Freeman, and Huang 2023), the extent of NTBs between country-pairs is proxied by the extent of legally enforceable provisions between them (that is, the depth score). In the model, these depth scores are translated

⁷ For example, provisions streamlining technical barriers to trade or investment policy may boost trade by reducing regulatory hurdles and attracting more FDI.

into trade costs (“iceberg costs”), which capture the impact of NTBs.⁸ The analysis complements other IMF work on the gains from trade integration, including from the reduction of tariffs (for example, Rotunno and Ruta 2025).

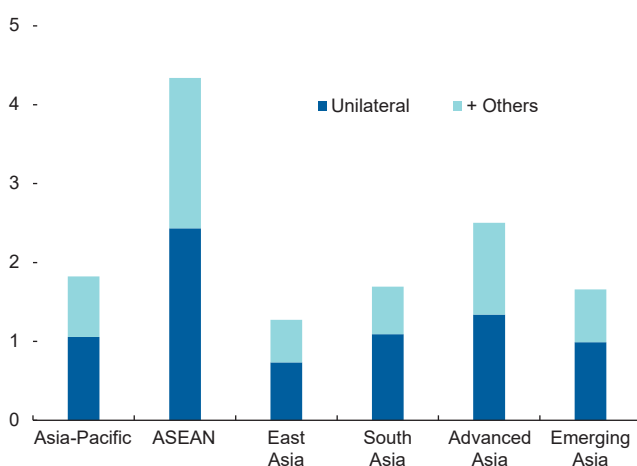
The first set of scenarios quantify the gains if Asia-Pacific economies were to move from their current, relatively shallow, frameworks for integration to the maximum depth (corresponding to 1 in Figure 2.12)—that is, complete the coverage of legally enforceable provisions both within the WTO’s mandate and beyond. As Figure 2.14 illustrates, long-term gains are sizable, averaging about 1.8 percent of GDP for the whole region. A decomposition indicates that most of these gains come from unilateral action—economies reducing their own NTBs to imports from regional partners. Such opening up allows producers to use cheaper imported intermediate inputs, favors the reallocation of domestic factors of production toward sectors where the country has a comparative advantage, and, thus, raises the country’s aggregate productivity. Higher productivity, in turn, increases the returns to investment, leading to a higher capital stock, further boosting output. Unilateral gains, assessed in isolation, are amplified further when all Asia-Pacific economies, in the same scenario, lower their trade barriers, creating an additional “external demand channel,” as stronger regional demand reinforces each country’s expansion.

The intensity and channels to achieve gains vary across countries. First, smaller economies, even those with relatively low tariffs (for example, some members of ASEAN), gain more than larger economies from shifts in relative prices, including from cheaper access to final and intermediate inputs. Second, the benefit is higher for countries exporting output using higher share of intermediates (for example, Korea), in line with the evidence of cascading benefits of trade liberalization from earlier steps of supply chains (see Franco-Bedoya and Frohm 2022). Third, countries’ and sub-regions’ gains rise with the size of the gap between their starting points and the target depth of integration. This is an important driver for regions such as South Asia but also contributes to the gains of a broader set of economies (for example, AEs and ASEAN) which are highly integrated with some regional partners but have scope for deeper integration with others.

Gains can be even larger if Asia-Pacific economies reduce NTBs vis-à-vis the rest of the world, which may arise from additional policy action or could spillover from the non-excludable nature of various provisions (Mattoo, Mulabdic, and Ruta 2022). The rationale for unilateral opening up by individual countries discussed earlier carries over to the region as a whole; Figure 2.15 illustrates the considerable gains even if the rest of the world does

Figure 2.14. Real GDP Gains by Opening Regionally

(Percent; scenario targets maximum depth)

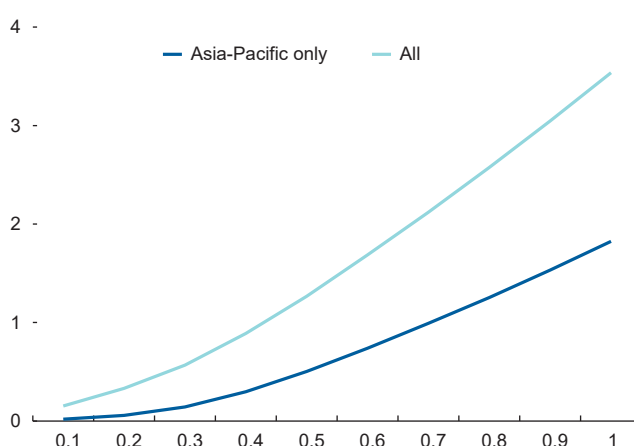


Source: IMF staff calculations.

Note: Under the “Unilateral” scenario, economies reduce their own NTBs, whereas, under the “+ Others” scenario, all Asia-Pacific economies reduce NTBs.

Figure 2.15. GDP Gains under Different Scenarios

(Percent; PPP GDP weighted regional average)



Source: IMF staff calculations.

Note: Scenario reflects Asia-Pacific economies targeting integration to various depth scores and thereby reducing non-tariff barriers, both within region and asymmetrically towards extra-regional economies.

⁸ See the online Annex for model and scenario calibration details.

not reciprocate. In addition, given various constraints discussed earlier which may hinder a full-scale removal of NTBs, the gains from smaller steps to integration could also be significant. As illustrated in Figure 2.15, the gains will vary by the degree of ambition that may be feasible in the region.

Although regional economies are navigating a more fragmented global environment and calibrating policies to balance multiple objectives, the analysis here points to substantial benefits, potentially for final goods, from pursuing trade openness—whether such efforts are taken unilaterally or plurilaterally. It is, however, important to note that some groups, such as less skilled workers, may be adversely affected by trade liberalization (Goldberg and Pavcnik 2007), requiring policies to address these distributional impacts. Finally, greater regional integration will also help external rebalancing through greater diversification of export destinations, complementing domestic rebalancing and stronger growth achieved through better investment efficiency as discussed in Chapter 3.

2.4. Conclusion and Policy Recommendations

Trade has been central to Asia-Pacific's growth, with China at the hub of supply chains and overseas markets providing final demand. Using the US-China trade tensions of 2018-19 as a case study, empirical analysis suggests that tariff hikes by final destination markets can trigger relocation of supply chains along pre-existing networks, with the largest gains accruing to economies that are more cost-competitive, open, and geopolitically aligned. These findings highlight supply chains' adaptability to trade policy shocks. Furthermore, although some Asia-Pacific economies are highly integrated into supply chains, others remain relatively closed, and final goods trade in the region continues to fall short of its potential—underscoring the importance of deeper trade agreements. Model simulations suggest that lowering NTBs could deliver sizable long-term gains, particularly if undertaken jointly across the region.

Together, these findings highlight the importance of continued openness to trade and investment, complemented by policies to mitigate distributional impacts. Deepening regional trade agreements will be central. The economic literature has shown that agreements covering more comprehensive policy areas—such as competition policy, public procurement, or investment policy—tend to reduce non-tariff barriers and promote trade among members. Expanding participation in newer and deeper agreements, such as CPTPP, and improving coherence across overlapping arrangements, can harmonize rules and lower compliance costs. At the same time, appropriate policy measures—such as enhanced social protection and active labor market policies to support reskilling and job transition, alongside well-designed efforts to build support among stakeholders—will be essential to mitigate adverse distributional impacts through the transition.

In addition to lowering trade barriers, policies should aim at enhancing competitiveness and improving macroeconomic stability. The chapter's empirical analysis shows that favorable preconditions including cost competitiveness facilitate relocation of production from countries targeted by trade policy actions. It is also important to liberalize restrictions on foreign firm entry and facilitate their operations, given that Asia-Pacific economies are relatively more restrictive in FDIs. Such reforms would enhance the region's attractiveness amid shifting global supply chains, support resilience in a more fragmented global environment, and unlock long-term growth opportunities.

Box 2.1. Asia's Evolving Regional Trade Architecture

The World Trade Organization has served as a cornerstone of the global trade system over the past three decades. However, its limitations have also been recognized with the rising importance of new policy areas such as digital trade, investment, and sustainability. Facing also recent challenges in multilateral rulemaking and enforcement, some countries opt for regional trade agreements as more flexible and responsive platforms for advancing integration and modernizing trade disciplines.

Two major regional trade agreements were enacted in the Asia-Pacific region recently:

Regional Comprehensive Economic Partnership (RCEP): Signed in 2020, RCEP brings together ASEAN and five major economies—China, Japan, Korea, Australia, and New Zealand—and primarily focuses on trade in goods, tariff liberalization, and strengthening regional production networks. Its legal framework emphasizes inclusiveness and accommodates diverse levels of development (Petri and Plummer 2020).

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP): The CPTPP, comprising 12 countries, adopts a more comprehensive and legally binding framework than the RCEP, covering areas such as labor standards, environmental protection, digital trade, and investment, underpinned by an enforceable dispute settlement mechanism. Because of this ambitious nature, accession to CPTPP can entail more politically sensitive and costly reforms—particularly in areas such as agriculture, labor, environment, and state-owned enterprise regulation (Ferrantino, Maliszewska, and Taran 2019).

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