

2 Trade and Global Value Chains

Introduction

Rising Uncertainty and Economy Dynamics Define Trade Frictions

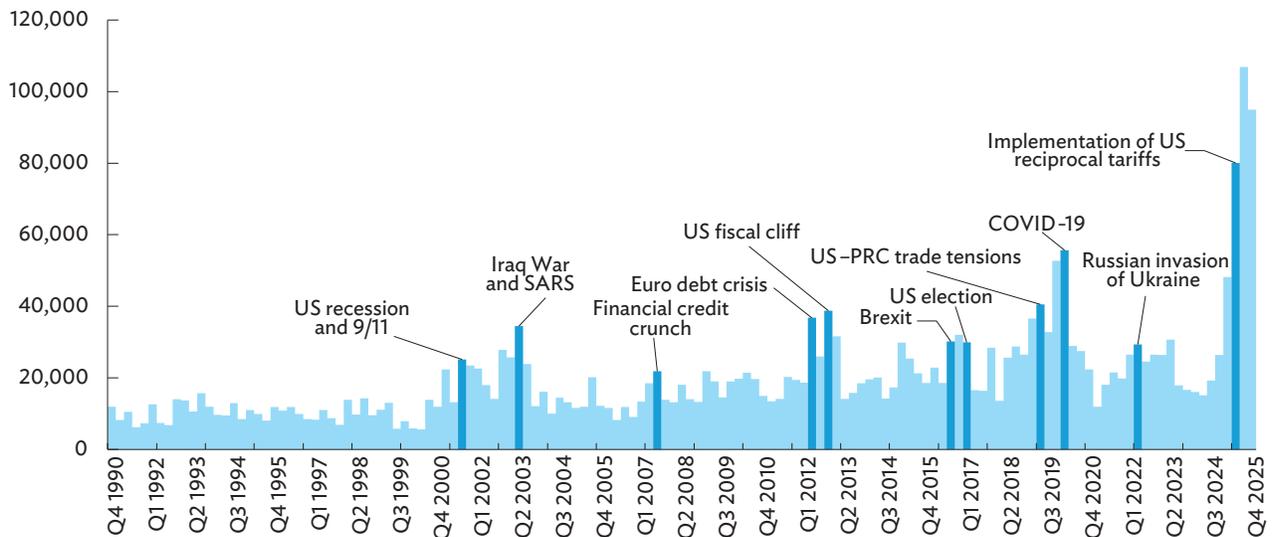
Rising uncertainty—whether triggered by geopolitical tensions, shifting economic policies, pandemics, or climate shocks—has intensified the risks faced by firms, investors, and policymakers. Economies in Asia and the

Pacific, deeply integrated into global value chains (GVCs) and dependent on stable trade flows, are especially sensitive to these fluctuations.¹ Understanding the evolution of economic uncertainty is therefore critical for assessing trade performance and resilience in the region.

This chapter examines how rising economic uncertainty affects trade and GVC participation in the region.

Figure 2.1 uses the World Uncertainty Index (WUI)—

Figure 2.1: Average of the World Uncertainty Index



PRC = People's Republic of China,, COVID-19 = coronavirus disease, Q = quarter, SARS = severe acute respiratory syndrome, US = United States.

Notes: The index is constructed for 143 economies and reflects the frequency of the word “uncertainty” (and its variants) in Economist Intelligence Unit reports for each economy multiplied by 100,000.

Source: Ahir, Bloom, and Furceri (2022).

¹ Asia and the Pacific (or Asia) refers to the 50 regional members of the Asian Development Bank (ADB), comprising 47 developing economies as well as three advanced economies—Australia, Japan, and New Zealand. The composition of economies for Central and West Asia, East Asia (including Japan), the Pacific (developing economies plus the advanced economies of Australia and New Zealand), South Asia, and Southeast Asia are outlined in ADB. Asia Regional Integration Center. Economy Groupings. <https://aric.adb.org/integrationindicators/groupings>. Beginning with this year's edition of the *Asian Economic Integration Report*, Türkiye is included among the developing member economies. For further details, refer to the note in Chapter 6: Statistical Appendix.

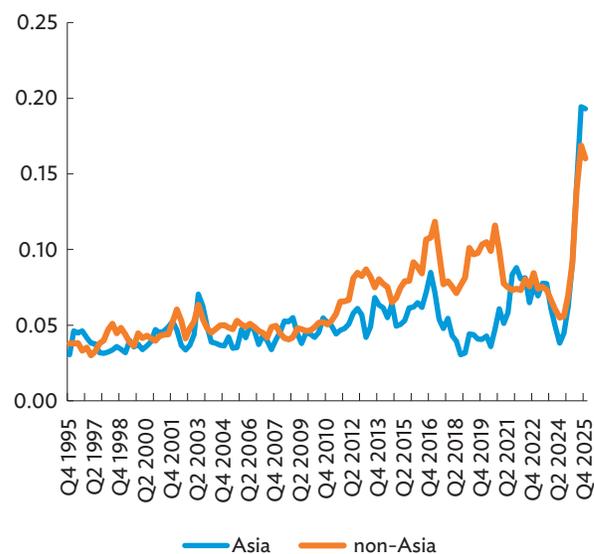
a globally comparable measure of economy-level economic uncertainty based on textual analysis of economy reports—to provide an initial indication of the evolving global dynamics of uncertainty. The WUI has documented clear surges in uncertainty during major global events, including trade tensions between the People’s Republic of China (PRC) and the United States (US), the coronavirus disease (COVID-19) pandemic, and more recent geopolitical conflicts. These episodes not only heighten the risk of market volatility but also the likelihood of changes in the behavior of firms, investors, and consumers across borders.

Global Shocks Are Increasingly Synchronized, While Exposures Differ

Asia has historically experienced lower uncertainty than other regions. Comparing Asia to the rest of the world, Figure 2.2 shows that, for most of the period considered, Asia recorded lower average uncertainty than the rest of the world, especially during the 2010s. Nonetheless, spikes in uncertainty in Asia tend to coincide with spikes in the rest of the world, indicating that many uncertainty shocks are global rather than specific to Asia. Since COVID-19 pandemic, the uncertainty index for Asia, based on WUI, has tracked the global pattern more closely, suggesting that recent increases in uncertainty are affecting Asia in line with worldwide trends.

Subregional dynamics within Asia reveal heterogeneous exposure to uncertainty. Figure 2.3 illustrates the trends in uncertainty index across ADB subregions, with values normalized to 100 in 1995 and gross domestic product (GDP)-weighted across economies. The figure reveals heterogeneous dynamics across Asian subregions. Central and West Asia, as well as East Asia, have experienced relatively stable uncertainty, aside from temporary spikes such as COVID-19 pandemic in East Asia. Southeast Asia has maintained moderate stability until recent years, whereas South Asia and developed economies in Asia exhibited higher and more volatile uncertainty over the period. South Asia experienced rising uncertainty from the late 1990s, with persistent high levels since the early 2010s. Developed Asia faced elevated uncertainty from 2000 to 2015, associated with events such as the dotcom bust, the global financial crisis, and the 2011 Tōhoku earthquake.

Figure 2.2: Developments in Uncertainty Index for Asia and Pacific and the Rest of the World

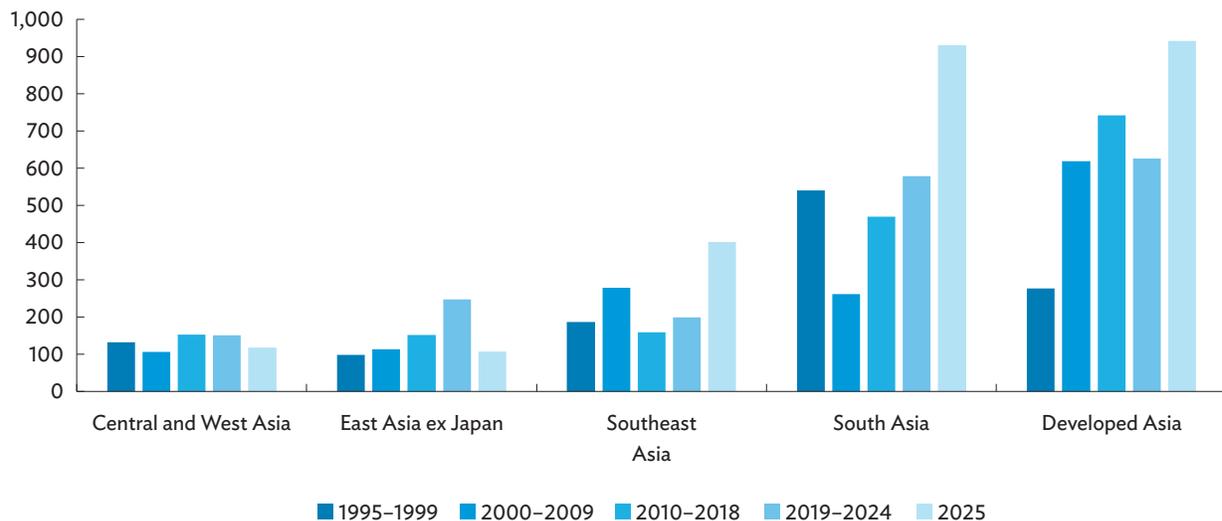


Q= quarter.

Notes: Asia refers to Asia and the Pacific. Based on the World Uncertainty Index, which computes on the relative frequency of the word “uncertain” (and its variants) in the text of Economist Intelligence Unit economy reports, expressed per 1,000,000 words in each report. The index thus captures the intensity of uncertainty-related language within an economy’s report, not the volume of coverage. For smaller or less frequently reported economies, the measure may be noisier due to limited textual data. The indicator here is the three-quarter weighted moving average of the World Uncertainty Index calculated as follows: $1996Q4 = (1996Q4 \times 0.6) + (1996Q3 \times 0.3) + (1996Q2 \times 0.1)$. Data for the two subsamples are based on an unweighted average. In the Asia and Pacific sample, data are unavailable for Brunei Darussalam, Bhutan, the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, Maldives, the Marshall Islands, Nauru, Niue, Palau, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Vanuatu, and Samoa.

Source: Ahir, Bloom, and Furceri (2022).

Institutional quality, integration, and exposure to external shocks can help explain these regional differences. The observed differences and similarities in uncertainty are likely to be driven by divergent forces. In East Asia, that uncertainty can persist without destabilizing trade is likely a reflection of strong institutions, policy continuity, and deep GVC integration, which collectively provide economic predictability. In Central and West Asia relative stability may arise from limited financial market integration or lower exposure to global economic fluctuations. Export commodities such as gold, copper, and hydrocarbons serve as buffers against the global economic fluctuations in key economies of Central and West Asia. In contrast, higher and more volatile uncertainty in South Asia likely stems from domestic

Figure 2.3: Developments in Uncertainty Index by ADB Subregion

GDP = gross domestic product, Q = quarter.

Notes: Based on the World Uncertainty Index, which computes the relative frequency of the word “uncertain” (and its variants) in the text of Economist Intelligence Unit economy reports, expressed per 1,000,000 words in each report. The index thus captures the intensity of uncertainty-related language within an economy’s report, not the volume of coverage. For smaller or less frequently reported economies, the measure may be noisier due to limited textual data. The indicator here is the three-quarter weighted moving average of the World Uncertainty Index calculated as follows: $1996Q4 = (1996Q4 \times 0.6) + (1996Q3 \times 0.3) + (1996Q2 \times 0.1)$. Data for ADB subregions are then weighted by GDP and set equal to 100 in 1995Q1. Developed Asia includes Australia, Japan, and New Zealand. Pacific developing economies are excluded due to lack of data.

Source: Ahir, Bloom, and Furceri (2022).

political instability, policy unpredictability, and external vulnerabilities such as commodity price fluctuations or climate events. In Asia’s developed economies, elevated uncertainty during 2000–2015 reflected both global crises and region-specific shocks.

The implications of uncertainty for trade are significant and regionally differentiated. Lower and more stable uncertainty in subregions like East Asia and Southeast Asia may help support sustained trade flows by encouraging investment, facilitating participation in regional value chains, and reducing the cost of cross-border transactions. In contrast, higher uncertainty in South Asia and some developed Asian economies can deter investment, increase risk premiums, and disrupt supply chains, potentially limiting trade integration and responsiveness to global demand shifts. To the extent that these mechanisms are at work, they underscore the potential value of regional policy coordination—through trade facilitation, macroeconomic stability, and institutional reforms—in reducing uncertainty and strengthening trade-driven growth.

Recent Developments in Trade and Global Value Chains in Asia

Understanding Trends Is Essential for Assessing the Impact of Uncertainty

Before turning to the analysis of policy uncertainty, this section reviews key developments in trade volumes, regional integration, and GVC linkages across Asia. It highlights how the region’s trade patterns have evolved in response to shifting demand, technological change, and structural transformation in the global economy. By outlining these broad dynamics, the section sets the stage for examining how rising uncertainty interacts with ongoing changes in the structure and resilience of trade.

Recent data show that trade in Asia has been shaped by a series of sharp fluctuations—first the COVID-19 shock, then a post-pandemic recovery, and more recently a moderation in trade growth. Figure 2.4 reports information on the growth rates of quarterly

merchandise trade in value and volume terms over 2016–2025 for both Asia and the rest of the world. The figure highlights the effect of the COVID-19 pandemic on the region, with negative trade growth throughout much of 2019 and 2020, followed by a recovery beginning in late 2020. The often large differences in growth rates in value and volume terms during that period reflect the impact of high inflation in the immediate post-pandemic recovery. Following the rebound, trade growth in the region turned negative again in late 2023 but has remained positive since early 2024. In the most recent period (since May 2025), however, both value and volume growth have slowed, with the deceleration in the PRC being more pronounced than the region as a whole.

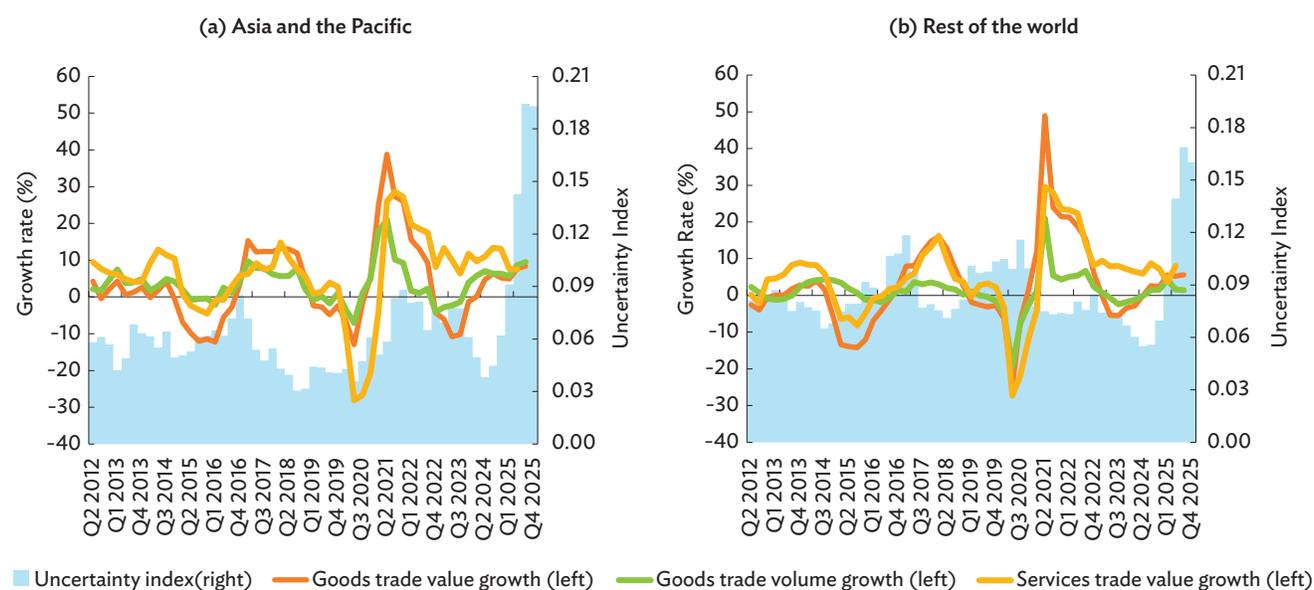
The evolution of services trade shows similar patterns (Figure 2.4). Services trade has been more resilient than merchandise trade since the COVID-19 pandemic, albeit with declining growth rates in the most recent period. The pandemic had a large negative impact on services trade throughout the world, with the effect on services

trade growth in Asia being more pronounced than for merchandise trade. Recovery from the pandemic was also rapid, however, with services trade maintaining higher growth rates than merchandise trade since early 2021. While growth rates of services trade have remained positive since 2021, the most recent period has seen reductions in growth rates both in Asia and the rest of the world.

Policy Volatility May Be Associated with Short-Term Swings in Trade Performance

With both the uncertainty index and trade growth showing high volatility, it is difficult to draw strong conclusions (Figure 2.4). Nonetheless, preliminary patterns from the data do seem to suggest a correlation between policy uncertainty and trade growth, with periods of lower uncertainty generally corresponding to stronger trade performance, and episodes of heightened uncertainty aligning with slower or negative trade growth.

Figure 2.4: Recent Developments in Merchandise and Services Trade



PRC = People's Republic of China, Q = quarter.

Notes: Left axis shows trade growth rate while the right axis shows the uncertainty index, based on the World Uncertainty Index estimates. For each period and trade flow type (i.e., imports and exports), available data include indexes for the PRC and Japan, and aggregate indexes for selected economies in Asia and the Pacific: (i) advanced economies, excluding Japan; and (ii) emerging market economies, excluding the PRC. The frequency of the goods trade data was originally monthly then it was aggregated to fit with World Uncertainty Index and services trade data.

Sources: ADB calculations using data from Ahir, Bloom, and Furceri (2022); CPB Netherlands Bureau for Economic Policy Analysis. World Trade Monitor. <https://www.cpb.nl/en>; and International Monetary Fund (all accessed January 2026).

Despite heightened uncertainty in the first half of 2025, Asian economies continued to show notable trade resilience, even as shifting US tariff measures in 2025 added another layer of policy-driven volatility (Box 2.1). Most major Asian economies faced uneven reciprocal tariffs ranging from 10% to 34%, with Japan and the Republic of Korea securing lower 15% rates through investment commitments and the PRC a delayed 34% rate. These measures targeted key industrial inputs—especially metals—which raised production

costs while extending risks to pharmaceuticals and semiconductors. Asian economies nonetheless showed strong export resilience, largely by increasing shipments within Asia and to other regions. This redirection helped many economies, led by Taipei,China, maintain solid export growth despite softer US demand. Although some East Asian economies saw exports to the US decline, front-loading ahead of the August tariff hikes temporarily boosted early-year shipments, supporting overall momentum through market diversification and flexible supply-chain adjustments.

Box 2.1: Evolution of Asia’s Trade Performances Post-United States Reciprocal Tariffs

Most major Asian economies faced United States (US) reciprocal tariffs implemented in August 2025. Box figure 1 highlights the wide variation in US tariffs applied to Asian economies in 2025, spanning from 10% to 34%. Both Japan and the Republic of Korea secured relatively lower tariffs of 15% on selected products, but this came at the cost of committing billions of dollars in US investments. Meanwhile, the People’s Republic of China (PRC) faces the steepest proposed tariff of 34%, which remains under review.

Sector-based US tariffs sharply targeted critical industrial inputs, with aluminum, steel, and copper among the hardest hit at 50% ad valorem rates. These measures, aimed at protecting domestic manufacturing, may have already raised costs for inputs in key sectors such as automotive and heavy machinery. At the same time, the possibility of tariffs on pharmaceuticals and semiconductor products still lingers. The box table highlights the breadth of tariff coverage—from metals and vehicles to wood products.

1: United States Tariffs on Selected Asian Economies as of February 2026, Ad Valorem Rates (%)



PRC = People’s Republic of China; IND = India; INO = Indonesia; JPN = Japan; ROK = Republic of Korea; MAL = Malaysia; PHI = Philippines; SIN = Singapore; TAP = Taipei,China; THA = Thailand; US = United States; VIE = Viet Nam.

Notes: Implementation of the 34% tariff on the PRC was suspended, only 10% is currently implemented. US tariffs on Japan and ROK include 15% for all products with a Column 1 Duty Rate < 15%, while 0% for all products with a Column 1 Duty Rate ≥ 15%. The US recently threatened to increase the tariff on ROK from 15% to 25%.

Source: Lowell et al. 2025. Trump 2.0 Tariff Tracker. <https://www.tradecomplianceresourcehub.com/2025/11/20/trump-2-0-tariff-tracker/> (accessed February 2026).

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Box 2.1: continued

United States Reciprocal Tariffs Ad Valorem Rates on Selected Products Globally

Date	Products	Ad Valorem (%)	Status
18 Feb	Pharmaceuticals, pharmaceutical ingredients, and derivative products	100	Announced
12 Mar	Aluminum articles and derivative products	50	Implemented
12 Mar	Steel articles and derivative products	50	Implemented
3 Apr	Automobiles	25	Implemented
3 May	Automobile parts	25	Implemented
1 Aug	Copper	50	Implemented
6 Aug	Semiconductors and chips	100	Announced
14 Oct	Selected wood furniture products	25	Implemented
14 Oct	Softwood timber and lumber	10	Implemented
1 Nov	Medium- and heavy-duty vehicles and parts	25	Implemented
1 Nov	Buses	10	Implemented

Source: Lowell et al. 2025. Trump 2.0 Tariff Tracker. <https://www.tradecompliancesourcehub.com/2025/11/20/trump-2-0-tariff-tracker/> (accessed December 2025).

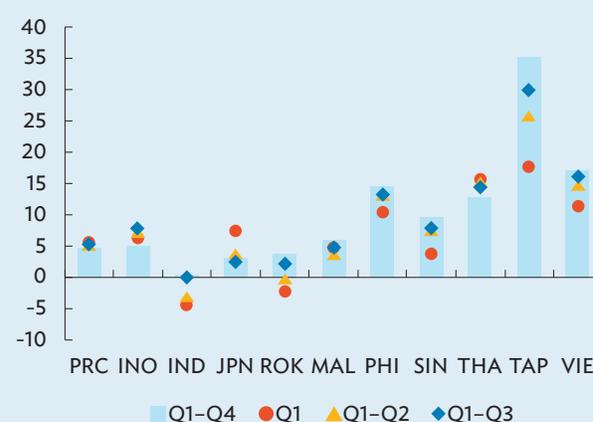
Asian economies exhibited strong export resilience amid US tariff hikes, largely by increasing shipments within Asia and to other regions. US tariff hikes in 2025 compelled exporters to reassess their market strategies, weighing options between absorbing higher costs, diversifying markets, or leveraging tariff-exempt routes. In response, economies considered three main strategies: (i) continuing exports to the US despite tariffs, (ii) redirecting trade toward other economies or regions, and (iii) using tariff-exempt economies such as Canada and Mexico as intermediary destinations through the United States–Mexico–Canada Agreement.

Despite the tariffs, most major Asian economies still recorded positive overall export growth rates in 2025 (box figure 2). Taipei, China recorded the strongest performance with total exports rising 35% year-on-year, followed by Viet Nam (17%), the Philippines (15%), and Thailand (13%). The Republic of Korea started with negative export growth rates in the first quarter but cumulative growth rates gradually increased, particularly in the latter half of 2025. Similar upward quarterly momentum was observed in Taipei, China and across most Southeast Asian economies.

Exports to the US declined for a few Asian economies in 2025, but remained positive for most others (box figure 3). The decline was concentrated in East Asia, with the PRC posting a 20% contraction, Japan declining by 3%, and the Republic of Korea falling by 4%. For the PRC, falling exports to the US was driven mainly by reduced shipments of computers, phones, and other electronics, while declines for Japan and the Republic of Korea resulted mostly from weaker automobile exports. In contrast, Taipei, China was the only East Asian economy to record positive—and indeed the

highest—export growth to the US, expanding by 78% in 2025 on strong demand for computers and semiconductors. Most Southeast Asian economies also sustained robust export momentum to the US, largely supported by similar products.

2: Selected Asian Economies' Export Growth to the World (% year-on-year)



PRC = People's Republic of China; IND = India; INO = Indonesia; JPN = Japan; ROK = Republic of Korea; MAL = Malaysia; PHI = Philippines; Q = quarter; SIN = Singapore; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

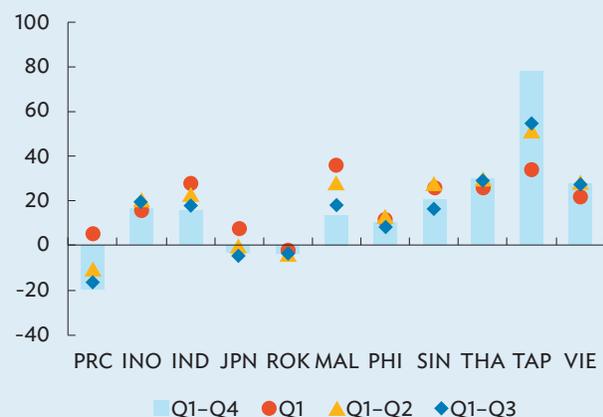
Source: ADB calculations using data from CEIC Data Company (accessed January 2026).

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Box 2.1: continued

These patterns were further shaped by the timing of shipments. Ahead of the August 2025 tariff increases, US buyers appear to have front-loaded imports, as reflected in sharper export growth for several Asian economies in the first half of the year. As this front-loading subsided, export growth to the US generally eased in the second half, although it remained positive overall for many economies.

3: Selected Asian Economies' Export Growth to the United States (% , year-on-year)



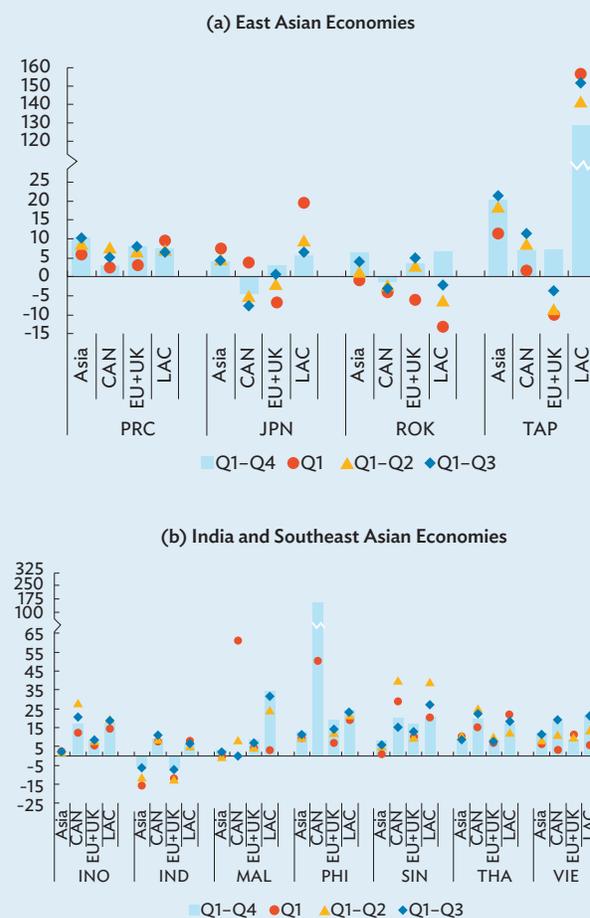
PRC = People's Republic of China; IND = India; INO = Indonesia; JPN = Japan; ROK = Republic of Korea; MAL = Malaysia; PHI = Philippines; Q = quarter; SIN = Singapore; TAP = Taipei,China; THA = Thailand; VIE = Viet Nam.

Source: ADB calculations using data from CEIC Data Company (accessed January 2026).

Asian exporters compensated for weaker US demand by redirecting shipments within Asia and to other global markets, maintaining the region's overall positive export performance. The PRC, for example, increased exports toward Asia, Canada, and the European Union plus the United Kingdom, posting mostly positive growth in these markets (box figure 4). Taipei,China not only achieved the strongest gains in exports to the US but its exports to Latin America and other Asian economies also expanded, driven by computers and semiconductors shipments. Several other Asian economies—including Japan, the Republic of Korea, Indonesia, Malaysia, Singapore, and Viet Nam—also recorded higher export growth to Latin America and other Asian economies compared to other regions. Meanwhile, the Philippines benefited mostly from stronger demand from Canada, particularly for integrated circuits.

Source: Asian Development Bank.

4: Selected Asian Economies' Export Growth to Other Regions (% , year-on-year)



CAN = Canada; PRC = People's Republic of China; EU = European Union; IND = India; INO = Indonesia; JPN = Japan; ROK = Republic of Korea; LAC = Latin America and the Caribbean; MAL = Malaysia; PHI = Philippines; Q = quarter; SIN = Singapore; TAP = Taipei,China; THA = Thailand; UK = United Kingdom; VIE = Viet Nam.

Notes: Asia includes the People's Republic of China; India; Indonesia; Japan; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. These economies represent around 80% of Asia and the Pacific's total trade.

Source: ADB calculations using data from CEIC Data Company (accessed January 2026).

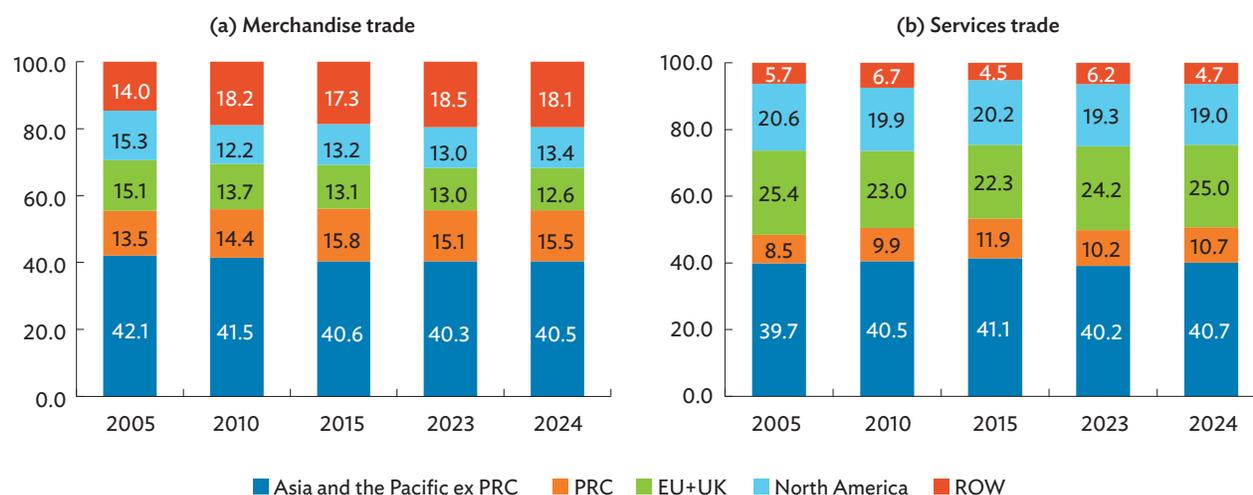
Trade Within Asia Continues to Dominate Moves Toward Economic Integration

Asia's trade has a strong regional component (Figure 2.5), and its evolution underscores the importance of intraregional linkages and the PRC's growing centrality in regional trade flows. In 2005, 55.6% of Asia's merchandise trade took place within Asia, with the PRC accounting for 13.5% of total merchandise trade. The intra-Asia share has remained relatively stable over time, with the share in 2024 at 55.9%. The major change, therefore, has been the increase in the share of total Asia merchandise trade accounted for by the PRC, which rose from 13.5% in 2005 to 15.5% in 2024, with the share of Japan falling from 9.3% to 4.7% over the same period. The other notable change in the structure of Asia's merchandise trade has been the reduction in the shares accounted for by the European Union plus the United Kingdom (EU+UK) (falling from 15.1% in 2005 to 12.6% in 2024) and North America (falling from 15.3% in 2005 to 13.4% in 2024), with an increased share of the rest of the world (notably Brazil, the Russian Federation, and

the United Arab Emirates). While this may reflect policy changes and increasing geopolitical fragmentation, it may also reflect shifts in relative demand, with other regions growing relatively rapidly and accounting for a higher share of global demand. Moreover, in the first 4 months of 2025, trade shares within the region decreased as its shares with the EU+UK and North America increased.

A similar pattern of regional concentration is observed in services trade (Figure 2.5), with intra-Asian flows expanding modestly and the PRC playing an increasingly significant role. In 2005, intra-Asia services trade accounted for 48.3% of the total, with the PRC accounting for 8.5% of the total. In 2024, the share of intra-Asia services trade had risen to 51.3%, with the PRC accounting for 10.7% of the total. While shares of the EU+UK (falling from 25.4% to 25.0% between 2005 and 2024) and North America (falling from 20.6% to 19.0% between 2005 and 2024) did decline, these reductions were relatively small. Moreover, there was little change in the contribution of the rest of the world to Asia's services trade.

Figure 2.5: Geographic Structure of Trade in Asia and the Pacific (%)



PRC = People's Republic of China, EU = European Union (27 members), ROW = rest of the world, UK = United Kingdom.

Notes: Values expressed as percentage of the region's total trade value (sum of exports and imports). North America covers Canada, Mexico, and the United States.

Sources: ADB calculations using data from International Monetary Fund. Direction of Trade Statistics. <https://data.imf.org/dot>; and Organisation for Economic Co-operation and Development (OECD). OECD–World Trade Organization Balanced Trade in Services—BPM6. https://www.wto.org/english/res_e/statis_e/trade_datasets_e.htm (both accessed January 2026).

While Asia Remains Deeply Integrated in International Production, Linkages Are Shifting

Considering patterns of GVC participation across regions and time, Figure 2.6 reports recent developments for backward, forward, and overall GVC participation rates. As reported in ADB (2024), backward GVC participation rates in Asia are above the rates for forward participation, emphasizing the region's role in downstream production activities. Backward participation rates in Asia expanded relatively rapidly immediately after the COVID-19 pandemic but have since stabilized. In contrast, forward participation rates have shown steady increases since the pandemic, with the gap between backward and forward participation rates thus falling in the most recent period.

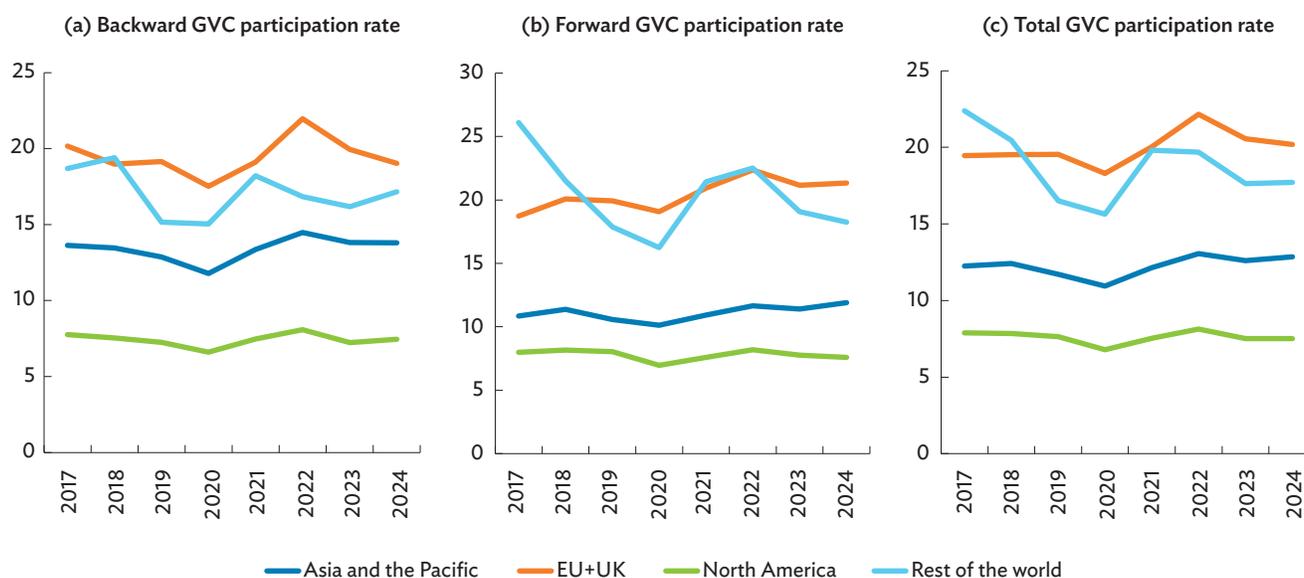
In comparison to other regions, Asia's GVC participation rates have been quite robust. Its overall participation rate has increased from 12.1% in 2021 to 12.8% in 2024 (0.7 percentage points). This increase has been driven largely through the increase in forward participation, with backward participation increasing only marginally.

In contrast, overall GVC participation rates have declined in the rest of the world (by 2.1 percentage points) and have been stagnant in both North America and the EU+UK.

Asia Is Moving from Downstream Production to Higher-Value, Upstream Activities

Traditionally, Asia has been considered to be involved in GVCs primarily through backward linkages, with downstream assembly activities an important component of its GVC integration. This can be seen in Figure 2.7, which reports the relative position of different regions in GVCs. Higher values of the positioning index are associated with relatively stronger backward linkages, with Asia reporting the largest value of this index over the entire period covered. While the positioning index is lower when the PRC is excluded, it remains larger than all other regions throughout the period. Over that time, however, evidence suggests that Asia's GVC positioning is moving more upstream, with relatively stronger forward relative to backward linkages, especially since

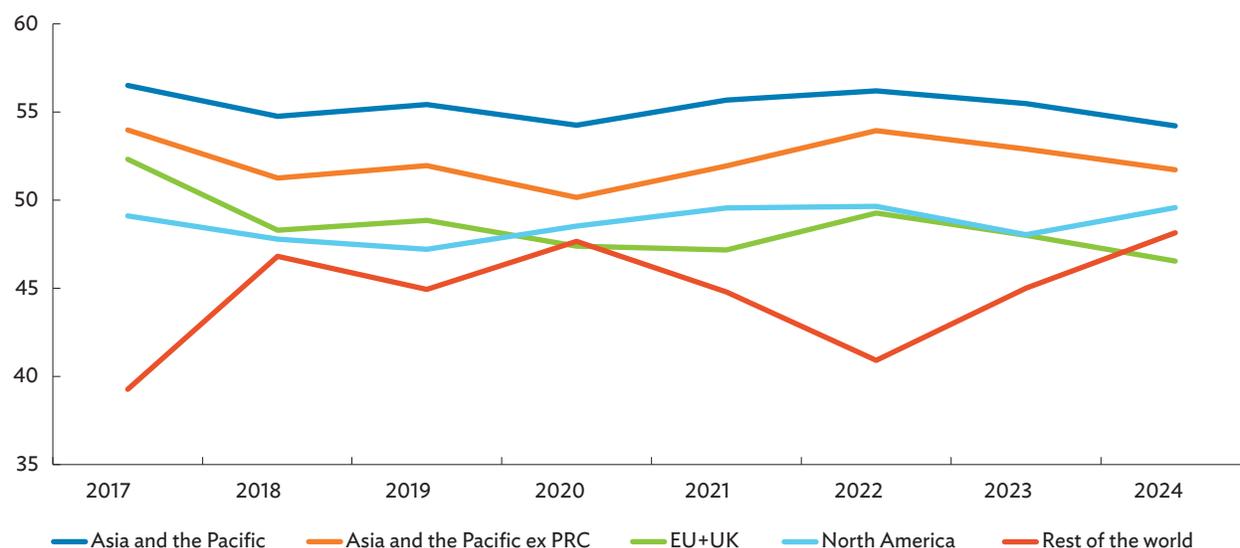
Figure 2.6: Overall, Backward, and Forward Global Value Chain Participation Rates (%)



EU = European Union (27 members), GVC = global value chain, UK = United Kingdom.

Notes: Participation rates are calculated as the share of forward global value chain activity in total value-added in the case of forward linkages and as the share of backward global value chain activity in final production in the case of backward linkages. The total participation rate is calculated as the average of the forward and backward indicator.

Sources: ADB calculations using data from ADB Multiregional Input–Output Database; and methodology by Wang et al. (2017).

Figure 2.7: Global Value Chain Position Index

PRC = People's Republic of China, EU = European Union (27 members), GVC = global value chain, UK = United Kingdom.

Note: GVC position index is calculated as backward GVC activity divided by the sum of forward and backward GVC activities, then multiplied by 100.

Sources: ADB calculations using data from ADB Multiregional Input–Output Database; and methodology by Wang et al. (2017).

the end of the pandemic. In contrast, both the rest of the world and the EU+UK have shifted toward more downstream GVC integration in the most recent period.

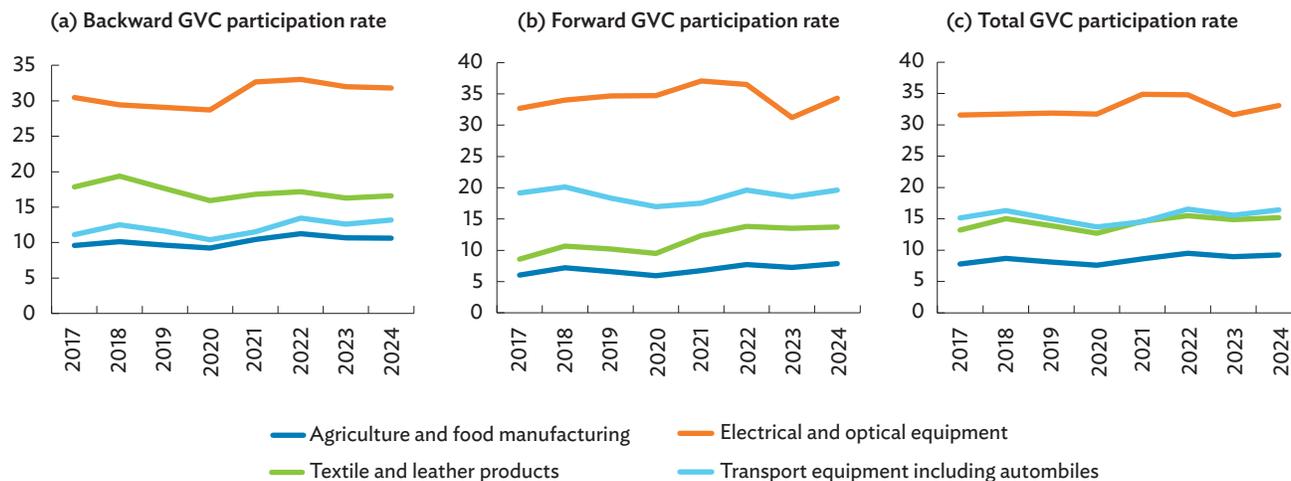
Sector GVC Trends Highlight Differences in Technological Sophistication

Sector trends in GVC participation reveal how Asia's production structure is evolving across industries with different levels of technological sophistication. Focusing on a set of traditional GVC sectors, Figure 2.8 provides additional insights into the dynamics of Asia's integration into GVCs. While backward GVC participation rates in the medium- and high-tech sectors—transport equipment and electrical and optical equipment—remain high relative to other traditional GVC sectors, they have stagnated in the most recent period. In contrast, backward participation in lower-tech sectors such as agriculture and food manufacturing and textiles and leather products has increased in recent years (though from a lower base). Forward participation

rates in electrical and optical equipment and transport equipment are also high relative to other sectors. However, in most sectors except electrical and optical equipment, forward participation has risen, indicating a broader shift toward more upstream production across traditional GVC sectors.

Assessing Diversity in GVC Trade Helps Gauge Asia's Capacity for Resilient Integration

Figures 2.9 and 2.10 compare the diversification of Asia's GVC linkages with that of other regions over 2017–2024, distinguishing between forward and backward GVC participation. Figure 2.9 focuses on sector diversification, capturing how dispersed Asia's forward and backward GVC linkages are across industries. Figure 2.10 focuses on economy-level diversification, showing how widely economies source intermediate inputs from, or supply value-added to, different trading partners. Together, these figures indicate how concentrated or diversified Asia's GVC relationships have become—offering insights

Figure 2.8: Global Value Chain Participation Rates of Asia and the Pacific, by Selected Sectors (%)

GVC = global value chain.

Notes: Participation rates are calculated as the share of forward GVC activity in total value-added in the case of forward linkages and as the share of backward GVC activity in final production in the case of backward linkages. The total participation rate is calculated as the average of the forward and backward indicator.

Sources: ADB calculations using data from ADB, Multiregional Input–Output Database; and methodology by Wang et al. (2017).

into the region’s vulnerability to partner or sector-specific shocks and its ability to adapt to structural changes in global production.

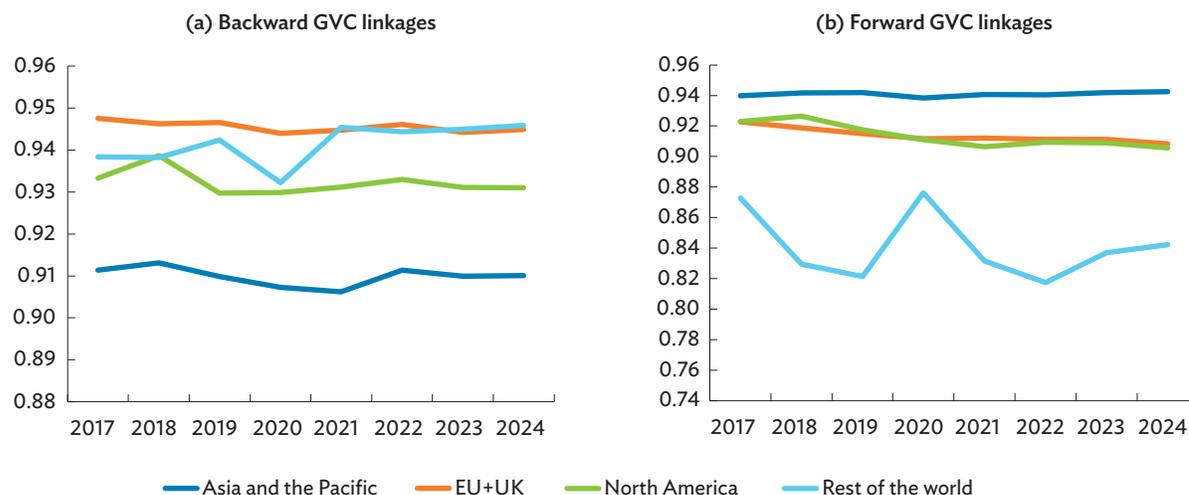
Sector diversification within Asia’s global value chain participation reveals an important asymmetry between how the region sources inputs and how it contributes value-added to global production. In the case of sector diversification, there is a striking contrast between Asia’s forward and backward GVC linkages (Figure 2.9). While Asia’s backward GVC diversification—reflecting how widely economies source intermediate inputs across sectors—is the lowest among all regions throughout the period, its forward diversification—reflecting how broadly economies supply value-added to the exports of other economies—is the highest.

This asymmetry underscores Asia’s distinctive position in global production networks: the region remains highly specialized in certain input-intensive manufacturing activities while playing an increasingly diverse role as a supplier of value-added to downstream industries globally. In practice, this means that while Asian firms rely heavily on a relatively narrow set of sectors for imported intermediates, their output feeds into a

wide range of global industries, enhancing the region’s systemic importance within GVCs. However, the relatively limited diversification on the input side also signals potential vulnerability—suggesting that supply disruptions concentrated in a few key sectors could reverberate widely through Asia’s production networks. Strengthening diversification of the domestic supply base and promoting cross-sector innovation could therefore help bolster the region’s resilience to such shocks.

Diversification Across Trade Partners Reveals Both GVC Progress and Structural Gaps

In the case of diversification across trade partners, Asia has experienced notable shifts since 2017. For backward GVC linkages, which capture how widely economies source intermediate inputs from abroad, diversification has increased steadily over 2017–2024, suggesting a gradual broadening of Asia’s supplier base. Nevertheless, the region’s diversification is not as pronounced as in the EU+UK and the rest of the world, indicating continued dependence on a relatively concentrated set of trading

Figure 2.9: Diversification Index of Global Value Chain Activity Across Sectors, by Region

EU = European Union (27 members), GVC = global value chain, UK = United Kingdom.

Note: The Diversification Index is constructed as the inverse Herfindahl–Hirschman Index using shares of sectors in regional backward and forward linkages.

Sources: ADB calculations using data from ADB. Multiregional Input–Output Database; and methodology by Wang et al. (2017).

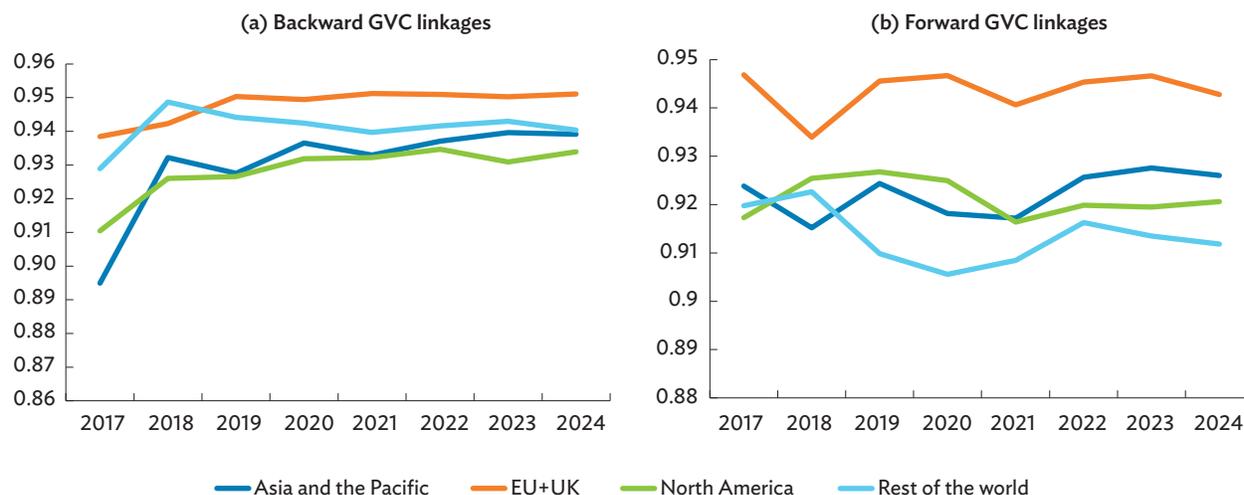
partners for inputs. For forward GVC linkages, which measure the dispersion of value-added supplied to other economies' exports, diversification has fluctuated over time but remains broadly unchanged from 2017. Despite this stability, Asia's forward diversification exceeds that of North America and the rest of the world, though it still trails behind the more diversified structures of the EU+UK. These patterns suggest that Asia's production networks have become somewhat more outward-looking and resilient, yet further progress in broadening trade relationships—particularly in upstream sectors—could strengthen the region's ability to absorb shocks and maintain its pivotal role in global production.

Regional Value Chain Analysis Reveals Asian Economies' Position in Production Networks

Regional value chains (RVCs) encompass production activities that occur primarily within a specific geographic region, rather than globally. By concentrating

production within the region, economies can leverage regional linkages to enhance competitiveness, move into higher value-added activities, and capture greater benefits from economic upgrading. Rising prosperity within Asia amplifies the potential of RVCs to contribute to industrial and trade competitiveness. In addition, RVCs can help create more resilient supply chains by shortening production networks and reducing complexity, thereby mitigating exposure to global shocks and uncertainty.

To assess the relative role of regional versus global value chain integration, Figure 2.11 reports the initial (2017) share of overall GVC activity taking place entirely within Asia for each economy. Following ADB (2025), the analysis adopts a hypothetical extraction approach to capture the value-added trade that occurs purely within Asia, defining an RVC as production that is solely within the region. This method provides a clear perspective on the prominence of regional production networks and their contribution to trade and value chain dynamics.

Figure 2.10: Diversification Index of Global Value Chain Activity Across Economies, by Region

EU = European Union (27 members), GVC = global value chain, UK = United Kingdom.

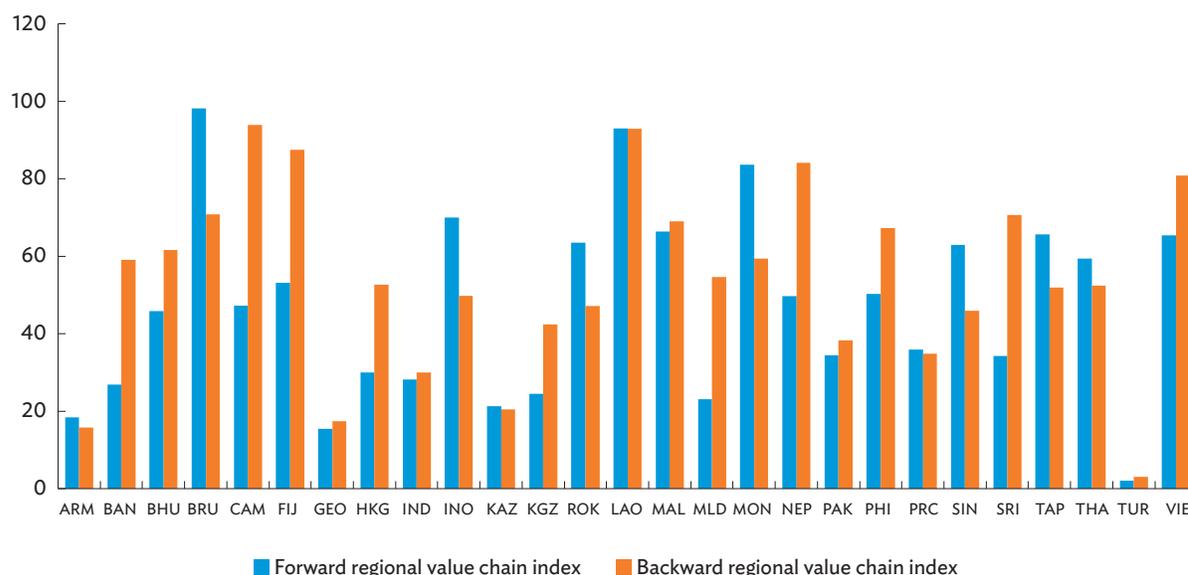
Note: The Diversification Index is constructed as the inverse Herfindahl–Hirschman Index using shares of different economies in regional backward and forward linkages.

Sources: ADB calculations using data from ADB, Multiregional Input–Output Database; and methodology by Wang et al. (2017).

Integration Patterns Since 2017 Highlight Complexity Sparked by Global Trade Tensions

Figure 2.11 shows that economies such as Brunei Darussalam, the Lao People’s Democratic Republic (Lao PDR), and Viet Nam exhibit relatively high shares of RVC activity in both forward and backward linkages. Several economies display asymmetries across dimensions: Cambodia, Fiji, and Nepal report higher RVC shares in backward GVC linkages, while Indonesia, Mongolia, and Singapore have relatively high forward RVC shares. A geographic pattern also emerges, with economies on the periphery of Asia and closer to the European Union—Armenia, Georgia, Kazakhstan, and Türkiye—tending to have lower RVC shares. These patterns suggest that geographic proximity, domestic industrial structure, and integration into global networks shape the extent of regional trade activity.

Figure 2.12 shows that most economies experienced increases in both forward and backward RVC shares over this period, including the PRC, which contrasts with long-term trends from 2000 to 2023 reported in ADB (2025). These patterns may reflect a combination of regional industrial upgrading and a response to geopolitical fragmentation and heightened trade tensions. Some economies increased their RVC share along only one dimension: Georgia, Malaysia, and Mongolia saw rises in forward linkages while backward shares declined, whereas the Kyrgyz Republic, Pakistan, the Philippines, Singapore, and Thailand increased backward RVC shares while forward shares fell. In contrast, Brunei Darussalam, Cambodia, Fiji, the Lao PDR, and Sri Lanka experienced reductions in both forward and backward RVC shares, potentially reflecting increased global integration or a shift of production toward the rest of the world. These diverse trajectories underscore that RVC development is shaped not only by domestic policies and capacities but also by external shocks, supply chain adjustments, and evolving global trade patterns.

Figure 2.11: Regional Value Chain Index by Economy, 2017 (%)

ARM = Armenia; BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; PRC = People's Republic of China; FIJ = Fiji; GEO = Georgia; GVC = global value chain; HKG = Hong Kong, China; IND = India; INO = Indonesia; KAZ = Kazakhstan; KGZ = Kyrgyz Republic; ROK = Republic of Korea; LAO = Lao People's Democratic Republic; MAL = Malaysia; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PHI = Philippines; RVC = regional value chain; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; TUR = Türkiye; and VIE = Viet Nam.

Notes: The RVC indicators are calculated using hypothetical extraction, wherein trade in value-added with no trade in intermediates between Asian economies is compared with the scenario allowing trade in intermediates between Asian economies. Participation rates are calculated as the share of forward GVC activity in total value-added in the case of forward linkages and as the share of backward GVC activity in final production in the case of backward linkages.

Sources: ADB calculations using data from ADB, Multiregional Input-Output Tables; and methodology by Los and Timmer (2018).

Uncertainty, Trade, and Global Value Chains

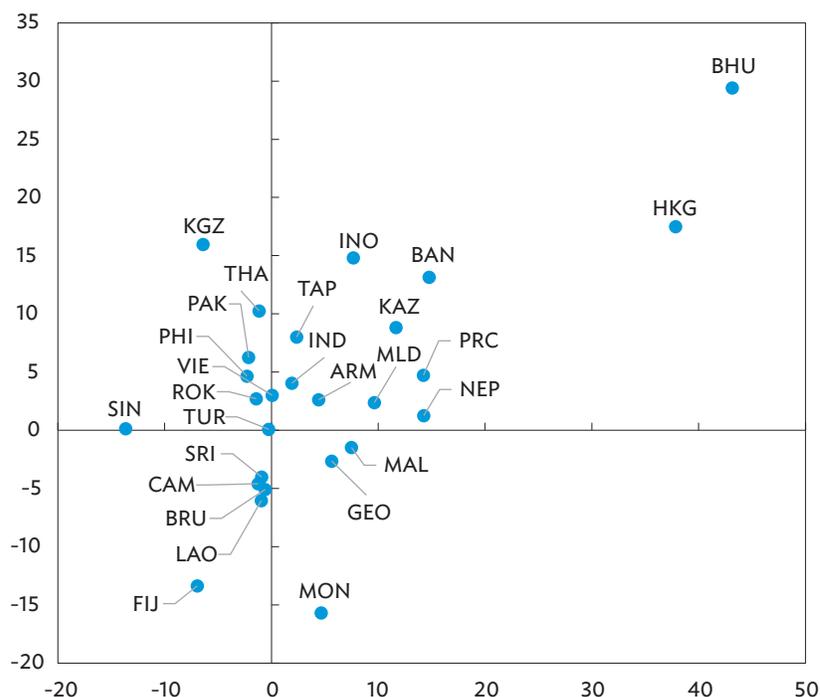
Broad and Tangible Effects Are Aparent Across Regions and Sectors

Rising economic and policy uncertainty can reduce trade volumes, delay investment decisions, and complicate supply chain planning. These effects are likely to be particularly pronounced in sectors closely linked to capital goods and intermediate inputs, where timing and predictability are critical, and in perishable goods industries, where even short disruptions can lead to losses. Firms embedded in GVCs often respond to heightened uncertainty by diversifying suppliers, reshoring production, or investing in digital and operational resilience—all of which can reshape established trade patterns and affect overall trade dynamics.

Using detailed trade data and GVC indicators, this section documents the relationship between economic uncertainty and trade performance globally and within Asia. The analysis identifies how trade flows vary in their responsiveness to uncertainty across sectors and economies, further examining whether regional integration has helped buffer some of these effects. It also points to a range of policy strategies that can enhance resilience, including improvements in trade facilitation, logistics infrastructure, and regional coordination mechanisms.

Multilateral Resistance Terms Measure the Sensitivity of Trade Costs

While much discussion around policy uncertainty focuses on its correlation with trade flows, a critical question is how uncertainty translates into actual trade frictions.

Figure 2.12: Change in Forward and Backward Regional Value Chain Integration by Economy, 2017–2024 (%)

ARM = Armenia; BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; PRC = People's Republic of China; FIJ = Fiji; GEO = Georgia; HKG = Hong Kong, China; IND = India; INO = Indonesia; KAZ = Kazakhstan; KGZ = Kyrgyz Republic; ROK = Republic of Korea; LAO = Lao People's Democratic Republic; MAL = Malaysia; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; TUR = Türkiye; and VIE = Viet Nam.

Notes: The regional value chain indicators are calculated using hypothetical extraction, wherein trade in value-added with no trade in intermediates between Asian economies is compared with the scenario allowing trade in intermediates between Asian economies. Participation rates are calculated as the share of forward global value chain (GVC) activity in total value-added in the case of forward linkages and as the share of backward GVC activity in final production in the case of backward linkages.

Sources: ADB calculations using data from ADB, Multiregional Input–Output Tables; and methodology by Los and Timmer (2018).

In theory, uncertainty can raise the costs of exporting and importing, delay investments in trade-related infrastructure, and discourage firms from entering foreign markets. These effects are, however, difficult to measure directly without a structural framework.

To address this, this section estimates outward and inward multilateral resistance terms derived from the gravity model of trade (Box 2.2). Outward resistance captures the average difficulty an economy faces in accessing foreign markets, while inward resistance reflects the challenges of sourcing goods from abroad. By examining how these estimated terms co-move with indicators of trade policy uncertainty, we can assess whether higher uncertainty systematically raises trade costs and generates broader frictions in the global economy.

Examining multilateral resistance reveals deeper structural effects beyond bilateral trade slowdowns. This approach is especially valuable amid rising geopolitical and policy volatility. Traditional gravity models of trade often include multilateral resistance terms as fixed controls, but in reality, these terms evolve over time, reflecting shifts in risk perceptions, global trade policy, and macroeconomic shocks. If uncertainty increases multilateral resistance, it implies that its effects are not limited to short-term trade slowdowns but operate through deeper structural channels that influence economy-wide trade costs.

Focusing on multilateral resistance also allows for capturing the broader impact of uncertainty on firms integrated into complex GVCs, where changes in one

market's risk profile can ripple through global supply chains. This framework further enables comparisons across groups of economies—such as Asia versus

the rest of the world—highlighting how institutional frameworks, regional integration, and exposure to global uncertainty shocks shape trade resilience.

Box 2.2: The Gravity Model and the Impact of Trade Policy Uncertainty

The gravity model of international trade is grounded in the analogy to Newton's law of gravity, which posits that the gravitational force between two objects is directly proportional to their masses and inversely proportional to the square of the distance between them. In the trade context, the model suggests that the volume of trade between two economies is positively related to their size—often proxied by gross domestic product (GDP)—and negatively related to the geographic distance between them. The larger the economies, the greater their capacity to produce and consume goods; the farther apart they are, the higher the costs of trade, including transportation and information costs.

The theoretical foundations of the gravity model have evolved over time. Initially, the model was empirical and atheoretical, used simply because it fit the data well. However, later developments in trade theory laid the microeconomic foundations for the gravity structure. In particular, models based on monopolistic competition (e.g., Krugman 1980) and models incorporating firm heterogeneity (e.g., Melitz 2003) derived the gravity equation from first principles. These models show that when economies trade differentiated products and face trade costs, the gravity equation naturally emerges as an equilibrium outcome of firms' and consumers' optimizing behavior.

Further theoretical support comes from the Armington assumption, which treats products as differentiated by economy of origin. In models with constant elasticity of substitution preferences and iceberg trade costs, the gravity equation describes bilateral trade flows as a function of exporter and importer GDP, trade costs (often proxied by distance or tariffs), and multilateral resistance terms. These multilateral resistance terms, introduced formally by Anderson and van Wincoop (2003), reflect how trade between two economies is affected not just by their bilateral trade barriers but by their trade relationships with all other economies.

While there are several channels through which uncertainty might affect trade flows, the approach in this chapter follows the recent approach of Matzner, Meyer, and Oberhofer (2023) who follow Anderson and van Wincoop (2003) in expressing bilateral trade flows (X) between exporter i and importer j as:

$$X_{ij} = \frac{Y_i E_j}{Y} \left(\frac{t_{ij}}{\Pi_i P_j} \right)^{1-\sigma}$$

The first term on the right-hand side of this equation relates to the size of the two economies, with Y_i representing the production of exporter i and E_j representing the production of the importer j (and with the product of these two being normalized by global production). The second term on the right-hand side accounts for trade costs and includes bilateral trade costs (t_{ij}) and both the outward (i.e., exporter) and inward (i.e., importer) multilateral resistance terms, Π_i and P_j . The term σ represents the elasticity of substitution between goods from different economies. The multilateral resistance terms capture trade costs with all trade partners and are the solution to the system of trade equations for all potential trade partners:

$$\begin{aligned} \Pi_i^{1-\sigma} &= \sum_j \left(\frac{t_{ij}}{P_j} \right)^{1-\sigma} \frac{E_j}{Y} \\ P_j^{1-\sigma} &= \sum_i \left(\frac{t_{ij}}{\Pi_i} \right)^{1-\sigma} \frac{Y_i}{Y} \end{aligned}$$

The outward and inward multilateral resistance terms are interpreted as average trade barriers, since they measure trade costs relative to the origin and destination price indices.

Following Matzner, Meyer, and Oberhofer (2023), and as suggested by Head and Mayer (2014) and Kinzius, Sandkamp, and Yalcin (2019), the approach adopted in this report involves focusing on the impact of uncertainty on the outward and inward multilateral resistance terms—i.e., the average trade barriers of the exporter and importer. This is justified since uncertainty is economy (and time) specific. The approach proceeds in two steps. First, using trade data (including internal trade) from the Asian Development Bank's multiregion input-output tables, the following gravity model is estimated using the pseudo-Poisson maximum likelihood estimation:

$$X_{ijt} = \exp(\lambda_{it} + \psi_{jt} + \mu_{ij} + w_{ijt}\alpha) + v_{ijt}$$

Where λ_{it} are exporter-time fixed effects, ψ_{jt} are importer-time fixed effects, μ_{ij} are economy-pair fixed effects, w_{ijt} are bilateral time-varying variables (and include a dummy variable for the presence of a preferential trade agreement and time-varying border indicators), α refer to parameters associated with the bilateral time-varying variables, and v_{ijt} is an error term.

continued on next page

Box 2.2: continued

The second step involves regressing the log of the estimated multilateral resistance terms on the log of the indicator of policy uncertainty, economy-specific control variables (log of GDP and log of population) (C), and both economy (γ_i) and time (ω_t) fixed effects.

$$\begin{aligned}\ln \hat{\lambda}_{it} &= \alpha_1 + \delta_1 \ln TPU_{it} + C_{it}\beta_1 + \gamma_i + \omega_t + \varphi_{it} \\ \ln \hat{\psi}_{jt} &= \alpha_2 + \delta_2 \ln TPU_{jt} + C_{jt}\beta_2 + \gamma_j + \omega_t + \eta_{jt}\end{aligned}$$

With φ_{it} and η_{jt} being error terms (including any error introduced from the estimation of the importer-time and exporter-time fixed effects). The multilateral resistance terms are constructed by normalizing the inward multilateral resistance term for the United States to be one.

Source: ADB.

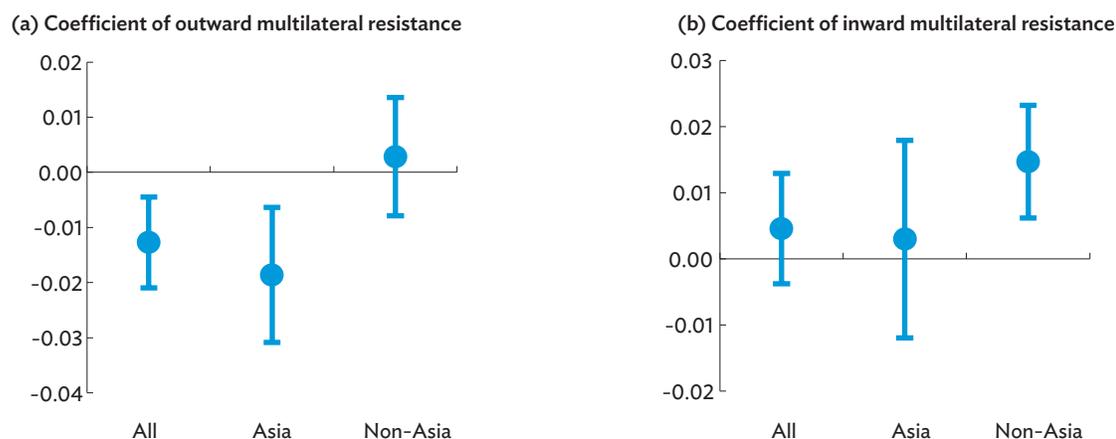
In additional analysis, the share of an economy's exports or imports that take place within a preferential trade agreement is further introduced into the model, with the interaction between this variable and the trade policy uncertainty index capturing the possibility that the effects of trade policy uncertainty on trade costs may be mitigated if more of an economy's trade occurs under the certainty of trade agreements.

Exporter Uncertainty Raises Trade Costs and Reduces Exports

Using ADB's multiregion input-output tables and the approach described in Box 2.2, Figure 2.13 presents the estimated effect of policy uncertainty on both outward and inward multilateral resistances. The outward multilateral resistance term captures the average trade costs faced by exporters. The results on the outward multilateral resistance term shows that a 10% increase in policy uncertainty in the exporting economy lowers exports by 0.13%. In other words, higher domestic uncertainty is associated with increased exporter trade costs, effectively making the exporting economy appear more "remote" in global trade. When the sample is split into Asia and the rest of the world, the effect is larger for Asia: A 10% increase in exporter uncertainty reduces exports by 0.19%. For the rest of the world, the estimated effect is not statistically significant, with a 10% increase in uncertainty associated with a negligible 0.02% increase in exports. These results suggest that exporters respond primarily to uncertainty originating in their own domestic policy environment, and that developing economies in Asia are particularly sensitive.

Importer Uncertainty Has Limited or Mixed Effects on Imports

Figure 2.13 also reports the effects of increased importer uncertainty on inward multilateral resistance, reflecting average trade costs faced by importers. Across the full sample, the relationship between importer uncertainty and imports is not statistically significant, with a 10% increase in uncertainty associated with a small positive effect of 0.04% on imports. This pattern aligns with the findings of Matzner, Meyer, and Oberhofer (2023), who suggest two possible explanations. First, inward multilateral resistance can be interpreted as a price index; higher uncertainty may raise domestic prices relative to trading partners, increasing demand for imported goods. Second, heightened uncertainty may disrupt domestic production, prompting substitution toward foreign products. When examining Asia and the rest of the world separately, the effects remain positive in both cases, though only statistically significant for the rest of the world.

Figure 2.13: Estimated Impact of Policy Uncertainty on Multilateral Resistance

Asia = Asia and the Pacific.

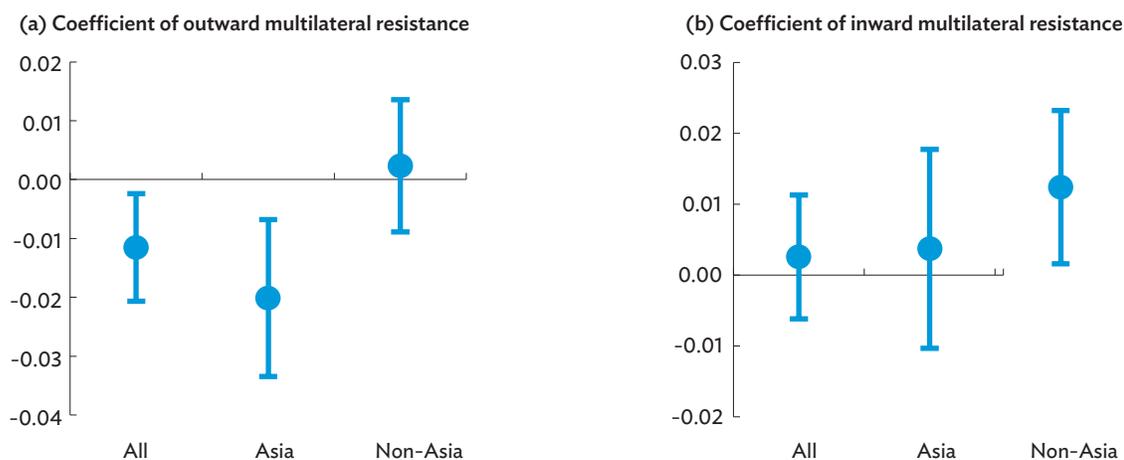
Note: The figure reports the estimated responsiveness of either exports or imports to a 1 percentage increase in policy uncertainty (the dot), along with the 95% confidence interval of that estimate (the whiskers).

Source: ADB calculations.

How GVCs Transmit Shocks to Production Networks Varies by the Type of Trade

Extending the analysis to value-added trade reveals that the adverse effects of policy uncertainty are concentrated in Asia's forward GVC linkages. Moving beyond gross trade flows, Figure 2.14 reports similar results when estimating the gravity model on value-added trade flows, with forward GVC linkages being analogous to exports and backward GVC linkages being analogous to backward GVC linkages. Results are largely similar to results using gross trade flows, with no significant impact of policy uncertainty on backward GVC linkages but a negative impact of uncertainty on forward GVC linkages, with these effects being limited to Asia.

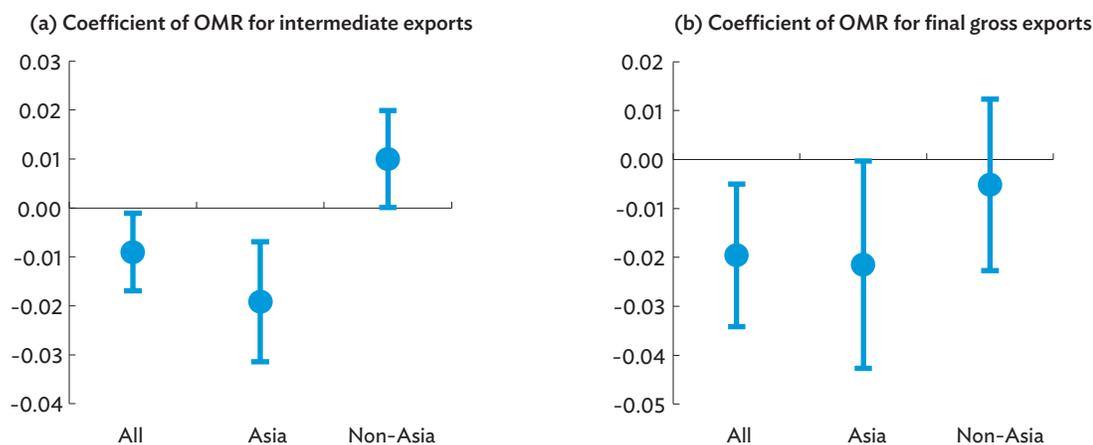
Disentangling the effects of uncertainty on different types of trade provides important insights into how global value chains transmit shocks through production networks. Figure 2.15 distinguishes between exports of intermediate and final goods to assess whether policy uncertainty affects different stages of production in similar ways. This distinction is especially relevant in the context of GVCs, where intermediate goods trade reflects the dense web of cross-border production linkages that underpin modern manufacturing. The results show that policy uncertainty exerts a negative influence on both intermediate and final goods exports, though the effect is somewhat smaller for intermediate goods—suggesting that established supply relationships may offer a partial buffer against uncertainty. Once again, these effects are statistically significant for Asia, while the rest of the world shows either insignificant or slightly positive effects, underscoring Asia's particular sensitivity to shifts in the global policy environment.

Figure 2.14: Estimated Impact of Uncertainty on Value-Added Trade (coefficient)

Asia = Asia and the Pacific.

Note: The figure reports the estimated responsiveness of either forward or backward global value chain linkages to a 1 percentage increase in policy uncertainty (the dot), along with the 95% confidence interval of that estimate (the whiskers).

Source: ADB calculations.

Figure 2.15: Estimated Impact of Exporter Trade Policy Uncertainty on Outward Multilateral Resistance for Intermediate and Final Gross Exports (coefficient)

Asia = Asia and the Pacific, OMR = outward multilateral resistance.

Note: The figure reports the estimated responsiveness of either intermediate or final goods exports to a 1 percentage increase in policy uncertainty (the dot), along with the 95% confidence interval of that estimate (the whiskers).

Source: ADB calculations.

Mitigating the Effects of Policy Uncertainty on Trade

Mechanisms Are Needed to Strengthen Resilience and Reduce Exposure

The analysis reported in this chapter suggests that periods of heightened policy uncertainty can dampen trade activity by raising risks and reducing the predictability of cross-border transactions. When firms face uncertainty about future market access, tariffs, or regulatory regimes, they may delay investment and scale back export commitments—effects that can accumulate to slow trade growth. These risks are particularly acute when economies' exports are concentrated in a limited set of products or destinations, or when trade relies heavily on partners with volatile policy environments. Two policy avenues can help mitigate these effects. First, greater diversification—across products, sectors, or trading partners—can reduce exposure to economy or sector-specific shocks and make export performance more resilient to swings in domestic policy uncertainty. Second, deepening engagement in trade agreements can provide institutional stability and predictable market access, which partially insulates firms from policy-driven uncertainty. Strengthening both diversification strategies and rule-based trade integration may thus represent a pragmatic policy response to growing uncertainty in the global trading environment.

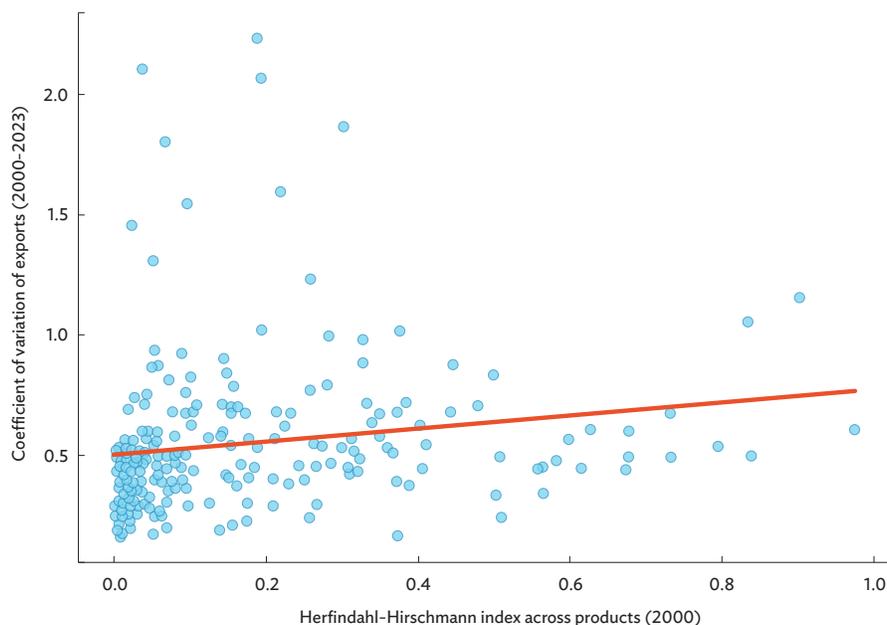
Rising domestic policy uncertainty can dampen export performance by increasing the risks and costs faced by firms when entering and maintaining foreign markets. The results presented above are largely consistent with recent findings (e.g., Matzner, Meyer, and Oberhofer 2023) and indicate that higher domestic policy uncertainty is associated with lower exports. This suggests that exporters respond primarily to uncertainty stemming from their own institutional and policy environment. Elevated domestic uncertainty raises perceived risks and the fixed costs of entering and maintaining foreign markets, discouraging firms from

committing resources to export activity (Constantinescu, Ruta, and Mattoo 2019; Handley and Limão 2015). In an environment of rising and more volatile policy uncertainty, economies that rely heavily on a narrow set of export products or markets are particularly exposed.

Trade Diversification Is an Important Buffer

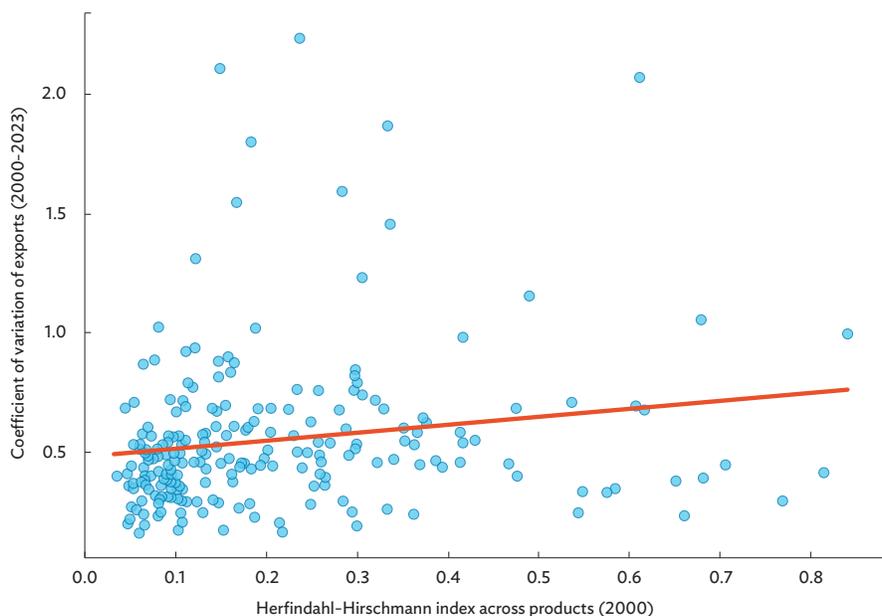
Diversification—across products, markets, and regions—can offer protection against the trade-suppressing effects of policy uncertainty. Diversifying export destinations and product lines can therefore serve as a form of insurance—helping to stabilize export revenues and reduce exposure to domestic shocks that inhibit exports. Indeed, descriptive evidence suggests that economies that are more specialized across both products and partners have more volatile export flows. This can be seen in Figures 2.16 and 2.17. Figure 2.16 reports a scatterplot of the 2000 level of export product concentration, calculated using the Herfindahl-Hirschmann Index, against an indicator of the volatility of export values over 2000 to 2023. The figure reveals a positive association between these two variables, indicating that economies with an initially more concentrated export structure tend to have higher levels of export volatility. Figure 2.17 reports a similar set of results but rather than focusing on the concentration of exports by products, it considers concentration by trade partner. Despite this difference, the pattern of results remains, with those economies that are more specialized in terms of trade partners in 2000 tending to report subsequently higher levels of export volatility.

Taken together, the observed rise in the level and volatility of policy uncertainty, coupled with its negative effect on trade, underscores the importance of diversification as a policy response. Efforts to broaden export bases—across products, markets, and regions—can mitigate the trade-suppressing effects of uncertainty and strengthen resilience in an increasingly unstable global environment.

Figure 2.16: Relationship Between Initial Concentration of Exported Products and Subsequent Export Volatility

Notes: The figure includes all economies reported in the BACI database for which data are available. Concentration across products in 2000 is measured using the Herfindahl-Hirschmann index while the coefficient of variation ($CV = \frac{sd}{mean}$) is used to measure the volatility of export values over the period 2000–2023, with *mean* being the average value of exports over the period 2000–2023 for each economy and *sd* being the standard deviation of export values around that mean.

Source: ADB calculations using data from Centre d'Études Prospectives et d'Informations Internationales (CEPII). Base pour l'Analyse du Commerce International (BACI) Database. https://www.cepii.fr/CEPII/en/bdd_modelle/bdd_modelle_item.asp?id=37 (accessed August 2025).

Figure 2.17: Relationship Between Initial Concentration of Exports by Partner and Subsequent Export Volatility

Note: The figure includes all economies reported in the BACI database for which data are available. Concentration across partners in 2000 is measured using the Herfindahl-Hirschmann index while the coefficient of variation ($CV = \frac{sd}{mean}$) is used to measure the volatility of export values over the period 2000–2023, with *mean* being the average value of exports over the period 2000–2023 for each economy and *sd* being the standard deviation of export values around that mean.

Source: ADB calculations using data from Centre d'Études Prospectives et d'Informations Internationales (CEPII). Base pour l'Analyse du Commerce International (BACI) Database. https://www.cepii.fr/CEPII/en/bdd_modelle/bdd_modelle_item.asp?id=37 (accessed August 2025).

Trade Agreements

Preferential Deals May Shield Economies from Uncertainty

Periods of heightened policy uncertainty can increase the perceived risks and costs of exporting, discouraging firms from entering or maintaining foreign markets. These effects raise an important policy question: can institutional frameworks such as trade agreements help

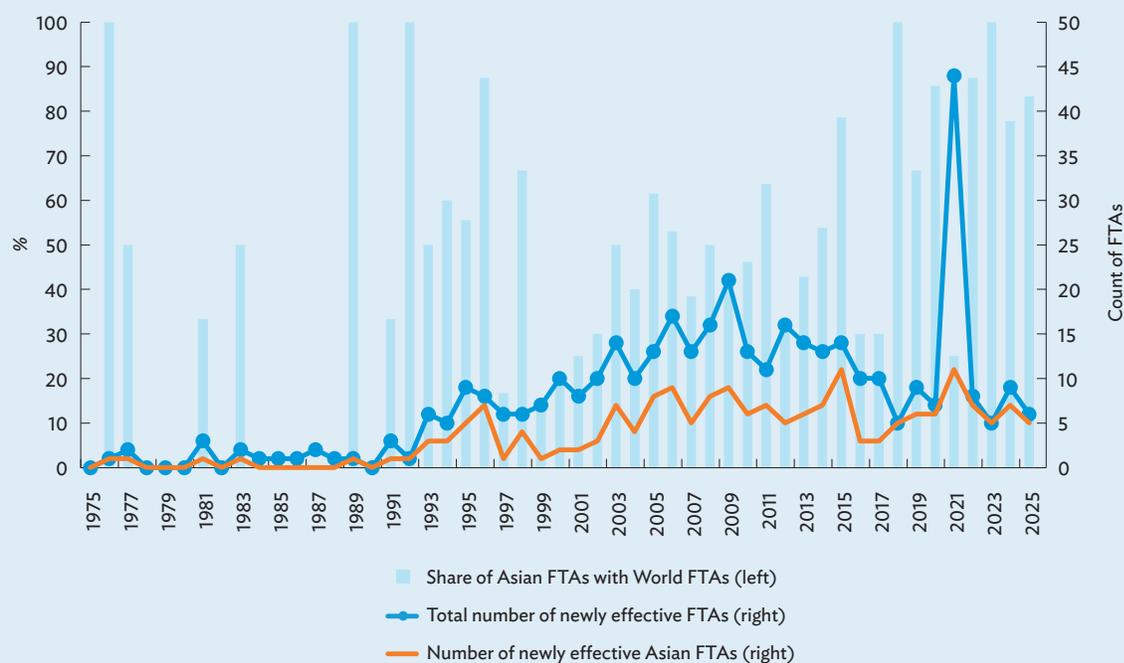
offset the negative impact of uncertainty on trade? Preferential trade agreements (PTAs) are designed to do just that—by embedding trade relationships within predictable, rules-based systems. Through tariff commitments, dispute settlement procedures, and clearer regulatory coordination, PTAs reduce the scope for sudden or arbitrary policy changes, giving firms greater confidence to trade and invest across borders. Despite rising geopolitical tensions, PTAs also remain an important avenue for Asian economies to integrate both regionally and globally (Box 2.3).

Box 2.3: Trade Policy Developments

Despite—or perhaps because of—growing geopolitical and trade tensions, Asian economies continue to deepen and diversify their network of trade agreements, both within and beyond the region, seeking not only to secure market access, but more importantly to anchor predictability in an

increasingly uncertain global environment. Since late 2024, a further 13 agreements involving Asian economies have either been signed or entered into force. The majority of these have been signed with partners outside the region.

Newly Effective Free Trade Agreements—Asia and the Pacific



FTA = free trade agreement.

Notes: Trends for 1975–2023 derived using the World Trade Organization’s Regional Trade Agreement Information System. The number of FTAs in 2024 is derived using the Asia Regional Integration Center FTA Database and various sources. The share of Asian FTAs is the ratio between the number of newly effective FTAs including at least one Asian economy and the total number of newly effective FTAs.

Sources: ADB calculations using data from ADB, Asia Regional Integration Center FTA Database, <https://aric.adb.org/database/fta>; and World Trade Organization, Regional Trade Agreement Information System, <http://rtais.wto.org> (both accessed January 2026).

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Box 2.3: continued

Within Asia, the trade agreement between Uzbekistan and Turkmenistan entered into force in early 2025, while Thailand concluded a new deal with Bhutan. Extraregionally, the United Kingdom joined the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP); Thailand signed a free trade agreement with the European Free Trade Association; India concluded a comprehensive economic partnership agreement (CEPA) with the United Kingdom; and Indonesia advanced CEPA negotiations with the European Union.

As highlighted in the *Asian Economic Integration Report 2025*, trade agreements can serve as a vital instrument to preserve open trade, sustain confidence, reduce policy uncertainty, and enhance resilience amid fragmentation. They do so by locking in market access commitments, anchoring investor

expectations, and providing a transparent and rules-based environment that mitigates the costs of sudden policy shifts.

However, the stabilizing effects of trade agreements ultimately depend on credible implementation and complementary reforms that make commitments enforceable, accessible to firms, and coherent with trade facilitation and regulatory frameworks. These qualities are shaped from the outset—during the negotiation and drafting process, when clear, well-defined, and realistic commitments are critical to ensure that agreements can be implemented effectively. Looking ahead, the challenge will be to ensure that new agreements are negotiated and drafted in a transparent and predictable manner, remain inclusive of smaller firms and economies, and continue to deliver the predictability and resilience essential for sustaining Asia's trade-led growth in an uncertain global environment.

Name	Type	Status (Date)
Intraregional		
Uzbekistan–Turkmenistan FTA	FTA	In force (25 Feb 2025)
Thailand–Bhutan FTA	FTA	Signed (3 Apr 2025)
Extraregional		
Viet Nam–Israel FTA	FTA	In force (17 Nov 2024)
United Kingdom–CPTPP Accession	FTA	In force (15 Dec 2024; applies vis-à-vis Australia from 24 Dec 2024)
Thailand–European Free Trade Association (EFTA)	FTA	Signed (23 Jan 2025)
Singapore–Pacific Alliance FTA	FTA	In force (3 May 2025)
Eurasian Economic Union–[Islamic Rep. of] Iran FTA	FTA	In force (15 May 2025)
India–United Kingdom CEPA	CEPA	Signed (24 Jul 2025)
Indonesia–Peru CEPA	CEPA	Signed (11 Aug 2025)
New Zealand–United Arab Emirates	FTA	In force (28 Aug 2025)
Indonesia–European Union CEPA	CEPA	Signed (23 Sep 2025, planned)
Australia–United Arab Emirates	FTA	In force (1 Oct 2025)
India–EFTA, FTA	FTA	In force (1 Oct 2025)
India–Oman CEPA	CEPA	Signed (18 Dec 2025)

CEPA = comprehensive economic partnership agreement, FTA = free trade agreement.

Source: ADB compilation based on information available as of January 2026.

If trade agreements create a more stable and predictable trading environment, then economies that conduct a larger share of their trade within PTAs should be less exposed to the negative effects of policy uncertainty.

In contrast, economies that depend heavily on nonpreferential trade or on partners outside formal institutional arrangements may remain vulnerable to shifts in domestic or global policy uncertainty. To assess

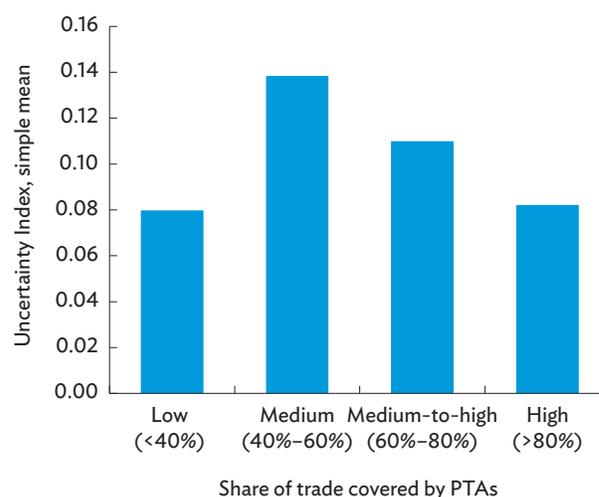
this possibility, the analysis proceeds to explore how the relationship between uncertainty and exports changes depending on the share of an economy's trade that takes place within trade agreements. Put simply, it asks whether trade conducted under the umbrella of PTAs is more resilient to uncertainty than trade conducted outside them.

Asian Economies with High PTA Coverage Are More Resilient

The average uncertainty index among Asian economies with high trade shares within PTAs in 2024 were relatively lower during the first 2 quarters of 2025 than in economies with lower shares of trade covered by PTAs (Figure 2.18). This contrast can be seen by the examples of Singapore and Australia with Türkiye and Sri Lanka. Singapore and Australia have trade shares covered by PTAs of 97% and 79%, and corresponding uncertainty scores of 0.06 and 0.02. In contrast, the share of trade covered by PTAs in Türkiye and Sri Lanka is lower at 53% and 44%, with corresponding uncertainty scores of 0.14 and 0.12. There are exceptions to this pattern, with low shares of trade within PTA for Turkmenistan (10%) and Kazakhstan (3%) being matched with low values of the uncertainty score—0.04 for Turkmenistan and 0.05 for Kazakhstan. Such outcomes may reflect the generally lower reliance on trade in these economies.

The impact of uncertainty on trade depends on the institutional environment in which firms operate. The adopted empirical approach can help capture how institutional structures can shape the response of trade to uncertainty. The impact of rising policy uncertainty is unlikely to be uniform across economies or over time. Instead, it depends on how much stability and predictability firms can rely on from the trading system itself. By conditioning the effects of uncertainty on PTA coverage, the analysis allows for a more nuanced understanding of how institutional depth and network ties can cushion economies from policy-driven disruptions. This is particularly relevant in today's environment, where global uncertainty remains high, but PTA membership and coverage continue to expand across regions.

Figure 2.18: Preferential Trade Agreement Coverage and Uncertainty—Asia and the Pacific



PTA = preferential trade agreement.

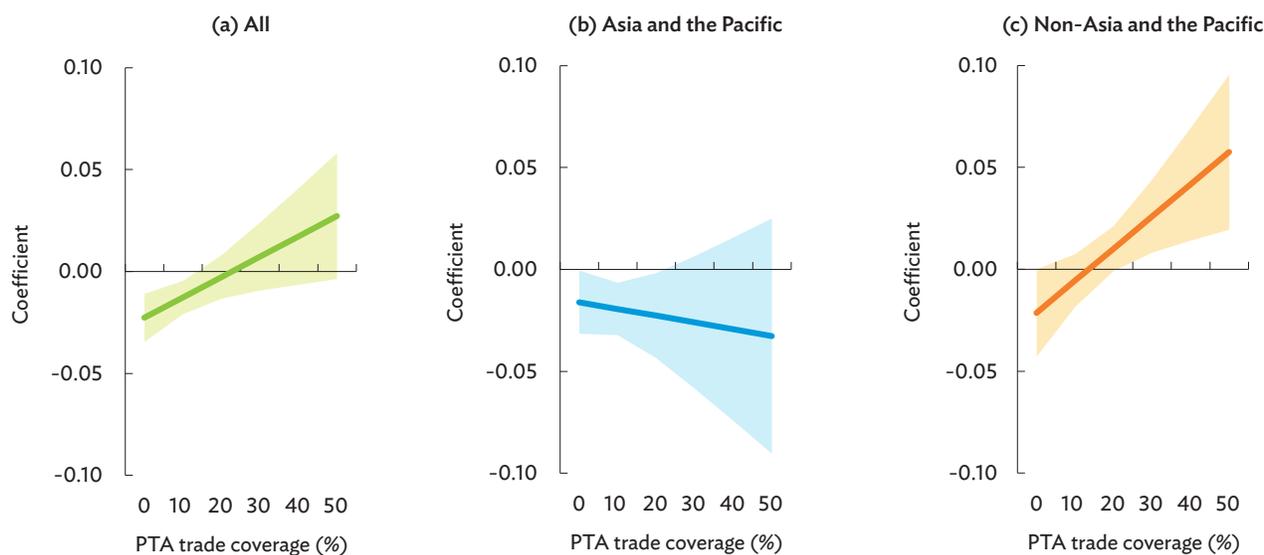
Notes: Based on World Uncertainty Index, which is dated first half of 2025 while PTA coverage are dated 2024; 32 Asian economies were included in the chart.

Sources: ADB calculations using data from Ahir, Bloom, and Furceri (2022); International Monetary Fund. Direction of Trade Statistics. <https://data.imf.org/>; and World Bank. Deep Trade Agreements Database. <https://datatopics.worldbank.org/dta/table.html> (all accessed September 2025).

Empirical Results Show How the Trade-Deal Cushion for Exports Varies by Region

For all economies included in ADB multiregion input-output tables, a 10% increase in policy uncertainty is associated with a 0.23% decline in exports for economies that have no exports taking place within trade agreements (Figure 2.19). As the share of exports conducted within trade agreements rises, however, this negative effect weakens. With 10% of exports under trade agreements, the impact of uncertainty declines to -0.13% , and with 20% of exports covered, it falls further to -0.03% . Beyond a share of about 23%, the effect becomes statistically insignificant.

In the rest of the world, the pattern is even stronger, with the negative effect of uncertainty disappearing at an export share of around 14% within trade agreements. In contrast, in Asia, the negative effect of uncertainty on exports persists, even as the share of trade conducted within agreements rises, although this effect becomes statistically insignificant at higher levels of PTA participation.

Figure 2.19: Marginal Effect of Policy Uncertainty on Exports at Varying Levels of PTA Trade Coverage

PTA = preferential trade agreement.

Note: The figure reports the estimated response of gross exports to a 1% increase in uncertainty for different values of the share of exports taking place within trade agreements.

Source: ADB calculations.

Trade agreements appear to play a crucial role in cushioning the impact of policy uncertainty on forward GVC linkages. In the case of value-added exports, a 10% increase in policy uncertainty is associated with a 0.16% reduction in forward GVC linkages for economies with no forward GVC trade taking place within trade agreements (Figure 2.20). However, this negative effect diminishes markedly as the share of GVC trade covered by trade agreements rises—falling to 0.07% when 10% of forward linkages occur within such agreements and turning positive once the share reaches 20%.

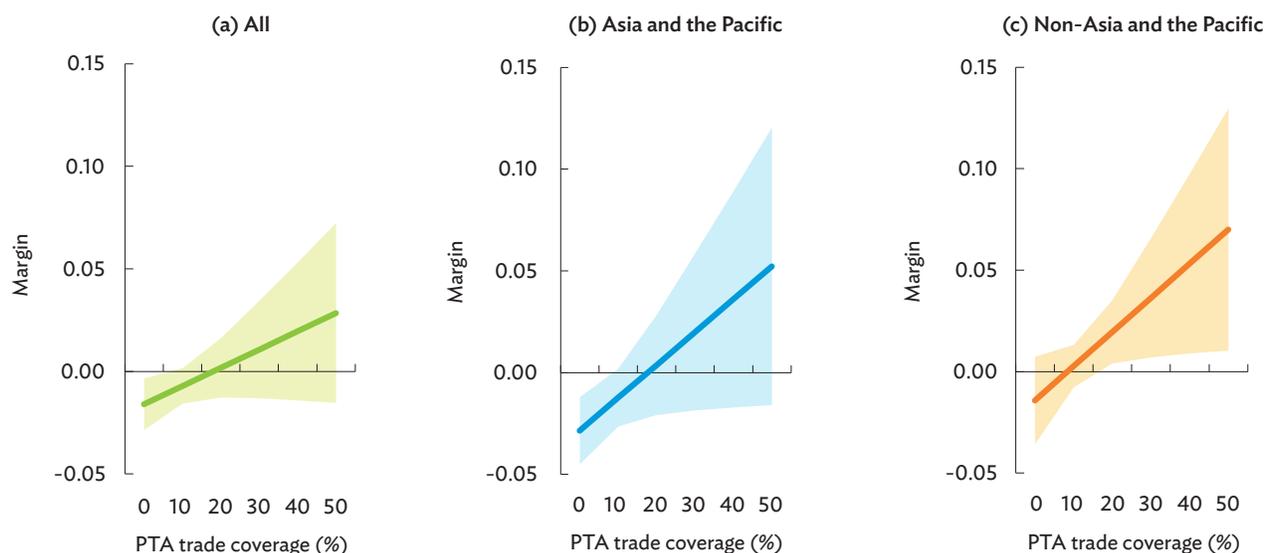
The stabilizing influence of trade agreements is even more pronounced for Asia: for those with no forward GVC trade under agreements, the estimated effect of uncertainty is -0.29% , declining to -0.12% when 10% of forward linkages are covered. These results highlight how deeper regional and bilateral trade integration can mitigate the adverse effects of global policy uncertainty on value-added trade flows.

These results highlight the potential of trade agreements to buffer economies from policy uncertainty—but also reveal regional differences in their effectiveness. Taken together, the findings suggest that trade agreements

can help insulate economies from the dampening effects of policy uncertainty on exports, but that this benefit depends on the depth and effectiveness of the agreements themselves. For many Asian economies, where trade agreements tend to be shallower or less comprehensive (ADB 2025), the stabilizing role of PTAs may still be limited. Strengthening the institutional quality and implementation of trade agreements could, therefore, represent an important policy lever for enhancing resilience in an era of heightened uncertainty.

Policy Responses to Evolving GVC Dynamics and Rising Uncertainty

Heightened policy uncertainty can suppress trade activity, particularly in economies with concentrated export structures. The analysis highlights several critical insights into how uncertainty affects trade performance and the mitigating role of PTAs. Higher policy uncertainty raises exporters' trade costs and suppresses export volumes, deterring firms from entering export markets, delaying investment, and increasing the perceived risks of

Figure 2.20: Marginal Effect of Policy Uncertainty on Value-Added Exports at Varying Levels of PTA Trade Coverage

PTA = preferential trade agreement.

Note: The figure reports the estimated response of value-added exports to a 1% increase in uncertainty for different values of the share of exports taking place within trade agreements.

Source: ADB calculations.

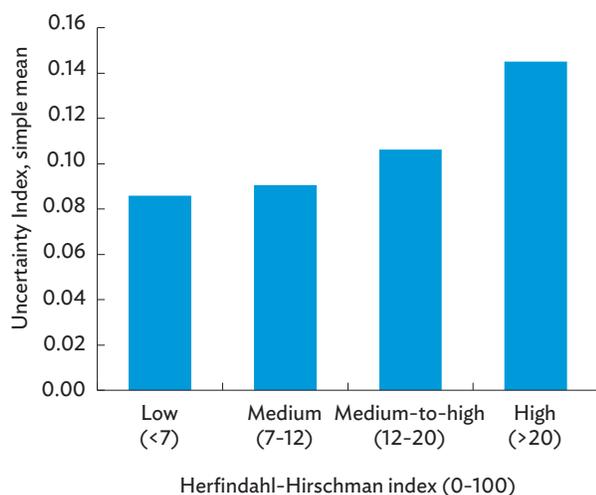
participation in global trade. These effects are particularly damaging for developing economies, where firms tend to be smaller, face financing constraints, and operate in less-diversified export markets. As shown in earlier results, economies that depend heavily on a narrow range of products or trading partners experience more volatile export flows—suggesting that diversification across both products and destinations provides insurance against domestic or global uncertainty.

Export Diversification

Diversification spreads risk and reduces exposure to domestic or partner-economy shocks. Broadening their range of exports allows economies to mitigate the effects of policy uncertainty through two main channels: by reducing the dependence of export revenues on a few sectors or destinations, and by broadening firms' adaptive capacity when uncertainty arises. Economies with more diversified export structures are better able to offset downturns in specific sectors or markets, stabilizing overall export performance and reducing the volatility of foreign

exchange and fiscal revenues. This risk-spreading function becomes particularly important in times of heightened policy or geopolitical uncertainty, when demand conditions or regulatory environments can change abruptly. The empirical evidence presented earlier confirms that economies with higher export concentration tend to experience more volatile export growth, reinforcing the case for diversification as a key policy objective.

Indeed, Asian economies that showed greater diversification in their trade partners in 2024 reported lower values of uncertainty in the first 2 quarters of 2025. Figure 2.21 shows a positive association between the uncertainty index and an index of the concentration of trade across trade partners, the Herfindahl–Hirschmann Index. Economies with low concentration, such as the PRC (4 points in the index), tend to report relatively low uncertainty scores, with the PRC recording a WUI uncertainty score of 0.08 in early 2025. Meanwhile, those with higher concentration levels, such as Mongolia (39 points) and the Lao People's Democratic Republic (Lao PDR) (24 points), tend to have higher scores, with Mongolia and the Lao PDR both reporting WUI uncertainty scores of 0.13.

Figure 2.21: Trade Concentration and Uncertainty—Asia and the Pacific

Notes: The Herfindahl–Hirschman index (HHI) measures trade partner concentration. The World Uncertainty Index is used, with data from the first half of 2025, while for the HHI it is for 2024; 32 Asia and Pacific economies were included in the chart.

Sources: ADB calculations using data from Ahir, Bloom, and Furceri (2022); International Monetary Fund. Direction of Trade Statistics. <https://data.imf.org/>; and World Bank. Deep Trade Agreements Database. <https://datatopics.worldbank.org/dta/table.html> (all accessed September 2025).

Encourage diversification

Policies that promote diversification can make trade more resilient to uncertainty and sustain long-term competitiveness. Achieving diversification is not automatic—it requires deliberate, coordinated policy interventions. Industrial and trade policies can help firms expand into new markets and products by lowering barriers to entry, improving competitiveness, and facilitating access to information and finance. Export promotion agencies can play a key role by supporting market intelligence, certification, and marketing in underexplored destinations. Investment in logistics and trade facilitation—such as efficient customs procedures, transport connectivity, and digital trade infrastructure—can make it easier for firms to reach new markets, especially for small and medium-sized enterprises.

Support innovation

At the same time, industrial policies that encourage innovation and upgrading can help shift production toward higher value-added activities, thereby broadening the product base. Supporting participation in GVCs, through regional production networks or supply chain integration, can also foster diversification indirectly by connecting firms to new buyers and technologies. These policies are mutually reinforcing: economies that are more diversified are less exposed to uncertainty, while stable and predictable trade conditions encourage further diversification.

Trade Agreements

Trade agreements can create an institutional buffer that stabilizes trade amid rising uncertainty. Globally, economies with a larger share of trade conducted within trade agreements are found to experience weaker—or even absent—negative effects of uncertainty on exports. This pattern suggests that institutionalized trade relationships, through tariff commitments, dispute settlement mechanisms, and regulatory coordination, help reduce ambiguity about future trade conditions. By making trade rules more predictable, PTAs encourage firms to sustain and expand their international operations even in periods of heightened global risk. Figure 2.19 illustrated this relationship, showing that as the share of exports covered by PTAs increases, the adverse effect of uncertainty on exports declines and eventually disappears.

Structural impediments

Even with these potential advantages, the evidence suggests that the stabilizing role of trade agreements is weaker in Asia. Several structural and institutional characteristics of the region’s PTA landscape may explain why. First, the depth of many Asian PTAs remains limited relative to those in Europe or the Americas, often focusing on tariff reductions while leaving services, investment protections, and regulatory cooperation underdeveloped. Second, the region’s “noodle bowl”

of overlapping bilateral and subregional agreements increases complexity and compliance costs, diluting the stabilizing benefits that come from clear and coherent frameworks. Third, weak institutional enforcement and limited use of dispute resolution mechanisms can undermine the credibility of commitments, particularly during periods of economic or policy turbulence. Finally, if the benefits of PTAs are captured primarily by larger firms, small and medium-sized enterprises—which form the backbone of many Asian economies—may remain exposed to uncertainty even in PTA-covered markets.

Regional Cooperation and Integration

Regional cooperation and integration is central to policy responses that emerge from this analysis, including for increasing the effectiveness of trade agreements in mitigating the effects of uncertainty and the following recommended actions.

Strengthen trade agreements, support business resilience

Deepening and broadening PTA commitments—especially in services, investment, and digital trade—would enhance their credibility and reduce uncertainty about future market access. Consolidating and streamlining existing regional agreements or deepening engagement through frameworks such as the Regional Comprehensive Economic Partnership (RCEP) could reduce fragmentation and promote more predictable trade rules. Improving dispute resolution and enforcement mechanisms would also strengthen confidence in the stability of trade relationships, encouraging firms to make long-term investments. Strengthening negotiation capacity and legal drafting quality—to avoid ambiguous or conflicting provisions—can materially improve implementation ability and the certainty firms derive from agreements.

Promote complementary measures

Enhancing trade facilitation and customs transparency—through digitization, risk-based inspections, and greater predictability at the border—can shield exporters from policy volatility even when uncertainty is high. At the firm level, governments can help small and medium-sized enterprises manage risk through export finance, trade credit insurance, and information tools that reduce the costs of operating in uncertain environments. Coordinating trade policy with macroeconomic stability policies—such as exchange rate and fiscal management—can further reduce the volatility that amplifies trade uncertainty. Finally, improving transparency and communication around trade policy decisions, including stakeholder consultations, can prevent policy surprises and strengthen market confidence.

Deepen institutional engagement and coordination

Reducing the trade-suppressing effects of uncertainty will require progress in both respects. Trade uncertainty is not evenly distributed across regions or sectors, and Asia has experienced particularly high and volatile uncertainty in recent years. While PTAs have the potential to buffer against these effects, their effectiveness depends on their scope, credibility, and integration with broader institutional reforms. Policymakers should therefore focus not only on expanding the number of agreements, but also on improving their quality, simplifying their architecture, and strengthening enforcement. Enhanced regional coordination—especially in managing shared risks related to global shocks, supply chain disruptions, or climate events—would further reinforce trade stability. Taken together, these measures would help ensure that trade remains a reliable and resilient driver of growth in an increasingly uncertain global environment.

Asia's evolving position in global and regional value chains presents both new opportunities for growth and important policy challenges. The gradual shift toward more upstream and diversified production, combined with the expansion of RVCs, points to growing

opportunities to capture higher value-added activities within the region. At the same time, the heterogeneity in RVC integration—where some economies have increased their forward linkages while others have strengthened backward linkages, and a few have seen reductions in both—highlights new sources of exposure to external shocks and potential vulnerabilities in regional trade networks.

Policies that facilitate technological upgrading, strengthen regional supply networks, and promote open and predictable trade environments can help economies sustain integration while managing these risks. Enhancing logistics and digital infrastructure, improving trade facilitation, and deepening regional cooperation—particularly through frameworks such as the RCEP—can further bolster resilience. As both global and regional GVC structures become increasingly complex, ensuring transparency, coordination, and adaptability will be critical for maintaining Asia’s competitiveness and supporting stable, high-value trade in an uncertain global environment.

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