Introduction

Globalization and especially the development of global value chains (GVCs) over the past 3 decades have been linked with improvements in efficiency and productivity and to developing and emerging economies increasing their participation in global production. However, concerns have been raised about the costs and risks of integration into global production networks, particularly of disruption in GVCs. The interconnected nature of GVCs makes their interruption particularly damaging, with the coronavirus disease (COVID-19) pandemic an example of how disruptions can percolate across economies.

Besides the direct impact on production, the pandemic highlighted the challenges caused by interruptions to GVC linkages through border closures and lockdowns as well as breakdowns in the international transport network connecting different nodes in GVCs (Brenton, Ferrantino, and Maliszewska 2022), while the negative demand shock associated with the pandemic had further spillover effects within GVCs (Pahl et al. 2021). Disruptions have been more challenging for sectors strongly integrated into GVCs (e.g., electronics and automobiles) and those further downstream (Malacrino, Mohommad, and Presbitero 2022).

Supply disruptions that followed the COVID-19 pandemic affected various sectors and products, with the widespread shortages of critical medical equipment (e.g., respirators) and critical inputs into several manufacturing subsectors (e.g., semiconductors) representing two specific examples. Such disruptions are not new, however, with earlier disruptions associated with the 2008 global financial crisis as well as more localized disasters, such as those in Japan and Thailand, percolating across economies. Disruptions since the pandemic include the Russian invasion of Ukraine and lingering global inflation, which have been felt hard in the food and agriculture sectors.

GVCs have been shown to be resilient to disruptions that occurred both during and after the COVID-19 pandemic, especially for economies more deeply integrated into GVCs. Brenton, Ferrantino, and Maliszewska (2022) show that economies well integrated into GVCs were able to recover more quickly. GVCs were also crucial in dealing with some of the disruptions that occurred during the pandemic (e.g., the provision of personal protective equipment). Despite this resilience, concerns around the risk of GVC disruptions have only increased with the COVID-19 pandemic, with debate raging over the extent to which global integration can expose domestic production to shocks from abroad. Concerns also abound over the risk of being dependent on a small number of suppliers and of relying on global production networks for products that are considered essential.

Such concerns build upon earlier discussions on the need to engage in reshoring and nearshoring for diverse reasons, including those related to job creation, the rise of new technologies, and the increasing concentration of GVC activity, with the most recent discussions emphasizing the need for strategic autonomy by the European Union (EU), the United States (US), and others (see, for example, European Parliament 2021).10

10 Recent evidence from the International Monetary Fund (IMF) suggests that severe geopolitical fragmentation could reduce global gross domestic product by up to 7% through its impact on trade, technology, and capital flows (IMF 2023).
In respect to strategic autonomy, the supply chain security of key industries has become of concern to various economies, reflected in the trade conflict between the People’s Republic of China (PRC) and the US and recent policy announcements by the US and the EU, among others, involving efforts to move away from reliance on production in the PRC—the so-called de-risking of value chains. Beyond the PRC, concerns have been expressed about the diverse set of causes of supply chain disruptions (Grossman, Helpman, and Lhuillier 2021) and over both the frequency of supply chain disruptions and the link between disruptions and the geographic footprint of a sector (McKinsey Global Institute 2020). A typical response to supply chain disruption risk is to suggest bringing the different production stages of a value chain closer to home, either through reshoring or nearshoring, and that supply chains should become shorter.

In certain cases, notably in the food sector, policies such as export bans have been suggested and implemented, with the intention of developing autonomy in critical sectors. Modeling from Brenton, Ferrantino, and Maliszewska (2022) and IMF (2022), among others, provides a contrast to the increased calls for reshoring and nearshoring; however, these modeling exercises tend to support the view that increased, rather than diminished, GVC integration is needed to make economies more resilient to external shocks. This conclusion further suggests that diversification—specifically regarding suppliers in GVCs—is a more viable strategy to create resilience than reshoring and nearshoring, given that latter approaches reduce vulnerability to global shocks but leave economies at risk of economy-specific shocks.

Besides presenting the latest trends in trade and GVC outcomes and trade policy developments, this chapter turns the focus on the properties of an economy’s GVC integration, and it delves into food sector resilience, which is a trade issue of great importance for Asia and the Pacific.11 Considering recent discussions on risk and resilience in GVCs, the chapter examines the extent to which economies are diversified within GVCs, how this has changed in recent years, and the dynamics of regionalism within GVCs. The analysis indicates that strategies associated with generating resilience in GVCs—including reshoring, nearshoring, and the diversification of partners in GVCs—do not seem to have played much of a role in the recent dynamics of Asia’s GVC integration. Diversification trends vary significantly, while the evidence of increased regionalism in supplier networks (that is, backward linkages) in Asian GVCs is limited. The issue of food resilience remains a concern for many Asian economies, however, with diversification efforts, the creation and expansion of free trade agreements (FTAs), and the digitization of trade procedures means of achieving resilience.

### Recent Growth Trends in Asia’s Trade

Amid global shocks and rising prices, and despite services trade continuing to recover, Asia’s growth slowed in 2022 as its merchandise trade contracted.

The gross domestic product (GDP) growth in the world and Asia slowed in 2022 amid geopolitical tensions and escalating inflation. In the aftermath of the COVID-19 pandemic in 2021, global inflation surged as the world simultaneously experienced energy and food crises brought about by global supply chain disruptions from the COVID-19 pandemic, the Russian invasion of Ukraine, and effects of climate change on the energy and agriculture sectors. In comparison to the robust growth of more than 6% in 2021, even as growth was driven by unprecedented fiscal and monetary stimulus enacted to bolster economic recovery from the pandemic, growth rates in Asian economies and the world shrank by 3 percentage points in 2022 (Figure 2.1).

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11 Asia and the Pacific, or Asia, consists of the 49 regional member economies of the Asian Development Bank (ADB). The composition of economies for Central Asia, East Asia, the Pacific and Oceania, South Asia, and Southeast Asia are outlined in ADB. Asia Regional Integration Center. Economy Groupings. https://aric.adb.org/integrationindicators/groupings.
Driven by a substantial downturn in merchandise trade in the PRC, Asia’s merchandise trade contracted in 2022. World and Asian trade recovered strongly in 2021 with the jump in demand supported by various monetary and fiscal stimuli and the easing of pandemic-related restrictions. However, 2022 saw a marked downturn in the growth of global merchandise trade amid escalating inflationary pressures, geopolitical tensions, and renewed lockdown measures in response to emerging variants of the coronavirus disease. While world merchandise trade grew by 3.4% in 2022 (down from 11.2% in 2021), merchandise trade in Asia contracted by 0.3%, a sharp drop from a 13.6% growth rate in the previous year.

The overall growth rate of –0.3% for Asia masks divergent economy-level developments, with merchandise trade dropping (by 5.6% overall) in 10 Asian economies in 2022 but increasing (by 5.4%) in the remaining 43 economies. Of those economies witnessing a decline in merchandise trade, 96% of the total reduction in merchandise trade emanated from just two economies, the PRC (53%) and Hong Kong, China (43%). Of the increases observed in the 43 remaining economies, the Association of Southeast Asian Nations (ASEAN) member economies collectively contributed 34% to the increase, while Japan was the largest single-economy contributor at 22%, with the Republic of Korea accounting for 12% and India 11% of the total increase.

This divergent performance in merchandise trade between the PRC and other Asian economies highlights the dominant role of the PRC in driving overall regional trends, but further suggests that trade performance in most Asian economies was positive in 2022 (Figure 2.1b). This further underscores the potential for these economies to develop parallel global supply chains even as major economies explore strategies for de-risking from the PRC through dual or multiple sourcing strategies.

In contrast to merchandise trade and despite being more severely impacted during the COVID-19 pandemic, services trade maintained its robust recovery in 2022. Global services trade increased by 11.6%, up by 2.0 percentage points from the previous year. Meanwhile, Asia’s services trade expanded by 8.6%, although at a rate that was slightly lower than in 2021.

These divergent trends between merchandise and services trade may be explained by the fact that global shocks in 2022 primarily impacted goods production and global supply chains. In contrast, the growing digitalization of services trade has provided significant resilience against global supply chain-related issues, while the relaxation of border restrictions has spurred recovery in the travel and tourism sectors.

**Figure 2.1: Merchandise and Services Trade Volume and Real Output Growth—Asia and the Pacific, and the World**

- **(a) Asia and the Pacific**
- **(b) Asia and the Pacific ex-PRC**
- **(c) World**


Slow Growth in Asia’s Trade for 2023 Amid Lingering Pressures

Asian trade in 2023 remains below 2022 levels, with growth through 2023 likely to be slow amid ongoing challenges. After robust growth from mid-2020 to mid-2021, followed by a prolonged downturn through 2022 due to surging inflation, renewed lockdowns and geopolitical disruptions, Asian trade has been stagnant in 2023. Total trade volume in the region bottomed out in February 2023, before something of an uneven recovery in the following months, in part supported by easing inflation, the reopening of the PRC, and the World Health Organization’s downgrade of COVID-19 from a global health emergency in May 2023 (Figure 2.2). Nevertheless, global trade growth is expected to remain slow amid monetary tightening and ongoing geopolitical tensions (United Nations 2023a).

While inflation has eased in 2023, monetary tightening is likely to constrain trade expansion in the near term (Figure 2.1). Global inflation is projected to decline from 8.7% in 2022 to 6.8% in 2023 as a result of lower food and energy prices and reduced global demand (IMF 2023). Despite evidence of falling global food prices, domestic food inflation remains high in many economies because of continuing high import costs, food export bans, local supply disruptions, and market imperfections (United Nations 2023b). While Asia’s trade prospects remain subdued, its growth is expected to benefit from improved demand in the US and the EU, economic recovery in the PRC, and strong growth in India, which is set to be the fastest growing major economy in 2023 (IMF 2023; United Nations 2023b).

Trade Structure Changes

Associated with the pandemic-induced global supply chain crisis, there has been something of a shift of merchandise trade in Asia toward intraregional partners.

In the past 3 decades, the focus of Asian merchandise trade shifted from traditional Western economic partners toward the PRC and other global regions.

Figure 2.2: Monthly Trade by Value and Volume—Asia and Pacific

PRC = People’s Republic of China, y-o-y = year-on-year.

Notes: Trade volume growth rates were computed as the 3-month moving average year-on-year growth using volume indexes. 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 (Hong Kong, China; the Republic of Korea; Singapore; and Taipei, China); and (ii) emerging economies excluding the PRC (India, Indonesia, Malaysia, Pakistan, the Philippines, Thailand, and Viet Nam). The aggregate index for Asia and the Pacific was computed using trade values as weights.

By 2010, Asia’s merchandise trade with the PRC surpassed that with the EU and North America, with the PRC establishing itself as Asia’s most important single-economy trade partner for goods (Figure 2.3).

Accompanying the 2021–2023 global supply chain crisis, Asia’s trade patterns have also restructured. Something of a reorientation of Asian trade has taken place between 2020 and 2023, with increased shares for intraregional trade and trade with other global regions at the expense of trade shares with the PRC, North America, and Europe (Figure 2.3), the latter continuing something of a longer-term trend. The share of Asian merchandise trade with the PRC dropped from 17% in 2020 to 15% in 2022, while that of the EU plus the United Kingdom (EU+UK) dropped from 12.6% to 11.9% and North America from 13.6% to 13.2%. In contrast, the share of intraregional trade within Asia, excluding the PRC, rose from 41.5% to 42.0%, while the share of Asia’s trade with the rest of the world increased from 15.3% to 17.8%.

Trade in services is less regionally integrated within Asia, though enhancing services trade may be a means of strengthening supply chain resilience. Figure 2.3 shows that Asia has a higher degree of regional integration in merchandise trade than in services trade. In 2022, 57.1% of its trade in goods occurred within the region, whereas less than half (46.2%) of its services trade was intraregional. Over the past 2 decades, Asia’s trade pattern in services has remained relatively stable. The EU+UK has traditionally been its most significant partner, accounting for a 22.5% share in 2021, followed by North America at 16.7%, and other global regions at 14.5%. In contrast, intraregional services trade with the PRC stood at 10.7%. The stability of Asia’s services trade structure amid global supply chain disruptions, combined with the relatively strong growth of services trade in the most recent period (Figure 2.1), suggests the sector is relatively resilient to post-pandemic shocks. Improving trade in services can therefore strengthen economies’ resilience to global supply chain disruptions by diversifying into a sector with supply chain dynamics distinct from merchandise trade. Furthermore, physical supply chains can benefit from increased flexibility, reduced transportation dependency, and optimization facilitated by digital service-based tools and strategies.

Figure 2.3: Merchandise and Services Trade of Asia and the Pacific, by Partner (%)

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

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

Asia’s Global Value Chain Growth Reinforces Downstream Role

The decline in overall GVC activity during the COVID-19 pandemic in 2020 was larger in Asia (–5.8%) than the rest of the world (–4.8%), although not as large (–5.1%) when excluding PRC data (Figure 2.4).

Trends differ notably for forward and backward linkages in GVCs. Whereas the –8.3% drop in backward GVC linkages in Asia was much larger than the –3.5% drop in the rest of the world, the reverse was the case for forward GVC linkages (–2.6% in Asia and –5.9% in the rest of the world). Recovery in overall GVC rates in 2021 was similar for Asia and the rest of the world, with growth of 10.7%, though the rate for Asia was larger when excluding the PRC (13.4%). Robust growth of overall GVC activity continued in 2022, with the rate being larger in Asia (10.7%) than the rest of the world (7.7%). The growth rate of backward linkages in Asia since 2020 has been larger than that for forward linkages, especially when excluding PRC data.

The relatively rapid growth of backward GVC linkages in Asia in the aftermath of the COVID-19 pandemic has further increased the gap between Asia’s backward and forward GVC integration, a gap that had diminished at the onset of the pandemic. Such dynamics highlight the traditional role of Asia as a downstream assembler in GVCs, with the response of GVCs in Asia following the pandemic reinforcing that role. This is seen in Figure 2.5, which reports an indicator of GVC positioning and highlights the stronger backward GVC participation in Asia compared with other regions. The figure further highlights the increase in Asia’s relative backward linkages since the pandemic. It is also notable that Asia’s relative backward linkages in GVCs are lower when excluding the PRC (Figure 2.5a), highlighting the significant role of the PRC in downstream production in GVCs within Asia, though the values including and excluding the PRC have converged since the pandemic. The increase in Asia’s relative backward linkages since the pandemic has been driven by relatively higher backward linkages in medium to high tech sectors (Figure 2.5b).

Figure 2.4: Overall, Backward, and Forward Global Value Chain Participation Rates

![Figure 2.4: Overall, Backward, and Forward Global Value Chain Participation Rates](image-url)

PRC = People’s Republic of China, ROW = rest of the world.

Note: 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.

Sources: ADB calculations using data from ADB Multiregional Input–Output Database; and methodology by Wang et al. (2017).
Figure 2.5: Global Value Chain Position Index

(a) By region

(b) By Asian sectors

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

Note: Global value chain (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).

Figure 2.6: Global Value Chain of Asia and the Pacific, by Selected Sectors

(a) Forward GVC rate (%)

(b) Backward GVC rate (%)

(c) GVC position index

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. Global value chain 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).

Focusing on a set of traditional GVC sectors, Figure 2.6 illustrates that while forward GVC linkages in Asia have remained stable over time, though with some increases in agriculture and food manufacturing, textile and leather products, and transport equipment in the most recent period, backward linkages are on a more persistent upward trend, especially for electrical and optical equipment. Combined, these dynamics point to an increase in relative backward linkages and to more downstream production within the major GVC sectors in Asia.
Developments in the Structure of Asia’s Global Value Chain Participation

During and after the COVID-19 pandemic, Asia’s GVC integration has shown signs of becoming more regional, though regionalization of backward linkages has not been as great as for forward linkages.

The supply chain disruptions associated with the COVID-19 pandemic heightened calls to bring suppliers in value chains closer to home through nearshoring. Examining the share of forward and backward GVC linkages that are regional suggests that while forward linkages in GVCs have become more regional since the onset of the pandemic, the regionalization of backward linkages has been less substantial (Figure 2.7). The share of value-added in GVCs due to forward linkages within Asia has increased since 2015, from 38.5% in 2015 to 50.5% in 2022, with the shares increasing in East Asia (from 21% to 27.4%) and to a lesser extent in Southeast Asia (6.9% to 10.2%) and other Asia (3.3% to 6.0%). Regional shares of Asia’s backward GVC linkages also increased between 2015 and 2022, but to a much lesser extent (from 37.3% to 41.9%, with the share for East Asia increasing from 16.1% to 18.9%). As such, data indicate some evidence of the geographic shortening of GVCs in Asia, with this trend being stronger when considering forward linkages within GVCs.

Asian economies have a less diversified range of GVC partners compared to other regions, and the diversification has narrowed since the COVID-19 pandemic.

Asia’s diversification of partners through backward linkages in GVCs is low when compared with EU+UK and the rest of the world (Figure 2.8a). While diversification levels increased rapidly from 2015 onward in Asia since the onset of the COVID-19 pandemic diversification levels have diminished again. This drop in diversification is consistent with trends in other regions, though the drop in Asia has been larger than other regions. Relatively high levels of specialization of supplier economies in Asian GVCs present a risk to the resilience of Asia’s GVC production. At the subregional level, diversification of backward GVC linkages has remained low in South Asia (Figure 2.8b). Conversely, diversification has increased over time in Central Asia and East Asia, although with declines since the pandemic.

Figure 2.7: Global Value Chain of Asia and the Pacific, by Partner

![Figure 2.7: Global Value Chain of Asia and the Pacific, by Partner](image)

GVC = global value chain, ROW = rest of the world.
Sources: ADB calculations using data from ADB Multiregional Input–Output Database; and methodology by Wang et al. (2017).
The diversification of partners through forward GVC linkages in Asia is narrower than that of the EU+UK, but wider than in North America (Figure 2.9a), and in contrast to the backward linkages, has continued the upward trend, which began in the mid-2010s. The PRC has played a prominent role: measures of diversification in Asia when excluding the PRC are below those when the PRC is included. At the subregional level, the dynamics of diversification through forward linkages...
have been heterogeneous (Figure 2.9b). While South Asia and East Asia have seen increases in diversification over the period 2007–2022, with a relatively large increase in South Asia, diversification in the other regions has either been static or has declined.

There is little evidence of reshoring activity in Asia when using indicators of the extent to which domestic consumption is met by domestic production.

Discussions around reshoring often focus on increasing the share of inputs from domestic sources, with Krenz and Strulik (2021) using such arguments to develop an indicator of reshoring using multiregional input–output tables to measure the change in the ratio of domestic to foreign inputs. Adopting this approach, Figure 2.10a shows that whereas the change in domestic to foreign inputs in Asia has been positive for much of the period, indicating an increasing share of domestic inputs, since 2019 it has been negative. This trend is quite different for North America and the EU+UK, where the change in the domestic to foreign input ratio has been negative for most of the period. As such, the indicator suggests that in the aggregate reshoring of input purchases is not happening in major Western markets and the rising domestic share in Asia has also turned negative. The decreasing share of domestic to foreign inputs in the most recent period

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**Figure 2.10: Reshoring Indexes by Region and Asian Subregion**

- **(a) Domestic to foreign input ratio by region**
  - Annual % change, 5-year moving-average with 2 leads and lags

- **(b) Domestic to foreign input ratio by Asian subregion**
  - Annual % change, 5-year moving-average with 2 leads and lags

- **(c) Share of domestic VA serving domestic final demand, by region**
  - %

- **(d) Share of domestic VA serving domestic final demand, by Asian subregion**
  - %

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EU = European Union (27 members), PRC = People’s Republic of China, ROW = rest of the world, UK = United Kingdom, VA = value-added.

Source: ADB calculations using data from ADB Multiregional Input–Output Database.
is observed in most subregions (Figure 2.10b), and represents a longer trend in South Asia.

An alternative view on reshoring that has been emphasized in recent policy discussions, including discussions on strategic autonomy, is the need to increase domestic production capacity to serve domestic demand. Multiregional input–output tables make it possible to identify the sources of value-added that serve domestic final demand. This alternative concept of reshoring provides little evidence of a rising share of domestic value-added serving domestic final demand (Figure 2.10c). Except for a brief time toward the end of the 2010s, notably for the rest of the world when the domestic share of value-added serving domestic final demand increased, the trend has been toward an increasing foreign share of value-added serving domestic final demand. This is also true for the subregions besides Central Asia, which began from a low level (Figure 2.10d).

### Trade Policy Developments

The trade landscape in Asia is moving fast and forward. Newer, nontraditional forms of strategic trade partnerships and initiatives continue to develop (Figure 2.11).

Five trade agreements including at least one Asian economy entered into force in 2023 (Table 2.1). The Indonesia–Republic of Korea Comprehensive Economic Partnership Agreement (CEPA) took effect 2 years after it was signed in December 2020. Indonesia also signed an agreement with Iran, its second bilateral agreement in the Middle East after the Indonesia–United Arab Emirates CEPA, which entered into force in July 2022. Uzbekistan enforced separate bilateral agreements with Pakistan and Türkiye, in a move to expand its trade partnerships outside Central Asia.

The UK has signed three agreements since leaving the EU, all with Asian economies. Agreements with Australia (signed in 2021) and New Zealand (signed in 2022) both took effect in May 2023. They featured chapters on nontraditional disciplines such as digital trade, consumer protection, development cooperation, gender in support of women’s economic empowerment, labor, small and medium-sized enterprises, transparency and anti-corruption, and advanced provisions on environment including climate change.

In July 2023, the UK signed the Protocol of Accession to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership or the CPTPP (Table 2.2). New Zealand also signed a free trade agreement with the EU, which is expected to enter into force in the first half of 2024.

Thailand is stepping up its economic cooperation with the PRC by signing a mini-FTA with the coastal city of Shenzhen in Guangdong province in March and with Yunnan province in August (Government of Thailand, Ministry of Foreign Affairs 2023; Government of the People’s Republic of China, State Council of the PRC 2023). A total of eight mini-FTAs have been inked between Thailand and its trading partners, including the Hainan Island and Gansu province of the PRC, Kofu of Japan, Telangana of India, and Busan and Gyeonggi of the Republic of Korea. The agreements aim to boost information exchange, promote business linkages, appoint trade representatives, and expand investment opportunities.

A year after launch, the Indo-Pacific Economic Framework (IPEF) concluded negotiations for a supply chain agreement (Table 2.3). The US-led initiative includes Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, and Viet Nam, covering 40% of global GDP and 28% of global trade (USTR 2023a). While this is not a free trade agreement since it does not include market access provisions for goods or services, it is regarded as a modern regional arrangement to build cooperation and economic integration.

The IPEF Supply Chain Agreement would, among other achievements: create an IPEF Supply Chain Council to oversee the development of sector-specific action plans designed to build resilience and competitiveness in critical supply chain sectors; create an IPEF Supply Chain Crisis Response Network that can serve as an emergency communications channel; and establish an
Figure 2.11: Newly Effective Free Trade Agreements—Asia and the Pacific

FTA = free trade agreement.

Notes: Trends for 1975–2022 derived using the World Trade Organization’s Regional Trade Agreement Information System. The number of FTAs in 2023 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.


Table 2.1: New Regional Trade Agreements in Asia and the Pacific, January 2023–December 2023

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Status (Date)</th>
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<tbody>
<tr>
<td>Intraregional</td>
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<td></td>
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<tr>
<td>Indonesia–Republic of Korea</td>
<td>CEPA</td>
<td>In force (1 January 2023)</td>
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<tr>
<td>Azerbaijan–Türkiye–Turkmenistan Trade and Economic</td>
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<td>Cooperation Agreement</td>
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<td>New Zealand–United Kingdom</td>
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<td>FTA</td>
<td>Signed (28 December 2023)</td>
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</tbody>
</table>

CEPA = comprehensive economic partnership agreement, FTA = free trade agreement, MERCOSUR = Mercado Común del Sur (Southern Common Market).

Note: All agreements cover both goods and services.

Source: ADB compilation based on information available as of December 2023.
innovative tripartite IPEF Labor Rights Advisory Board to help identify areas where labor rights concerns pose risks to the resilience and competitiveness of partners’ supply chains. Strengthening supply chains is one of four pillars for negotiation under the IPEF. The others are in the areas of trade, clean economy, and fair economy. Since the IPEF is designed to be flexible, partners are not required to join all pillars (Government of the United States, Department of Commerce 2023).

Most recently, the US and Taipei, China concluded negotiations on a 21st century trade initiative in May 2023, covering customs administration and trade facilitation, good regulatory practices, services domestic regulation, anticorruption, and small and medium-sized enterprises (Liang 2023).

Table 2.2: Recently Upgraded/Expanded Trade Agreements—Asia and the Pacific, January–December 2023

<table>
<thead>
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<th>Entry into Force</th>
<th>Recent Update</th>
<th>Remarks</th>
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<tbody>
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<td>12 November 2018</td>
<td>1 April 2023</td>
<td>Announced the substantive completion of the FTA upgrade. This first agreement that the People’s Republic of China has adopted the negative list approach to services and investment. The upgrade further improved existing commitments, added a telecommunications chapter, and incorporated high-level economic and trade rules on transparency and digital economy.</td>
</tr>
<tr>
<td>CPTPP</td>
<td>30 December 2018</td>
<td>16 July 2023</td>
<td>The United Kingdom signs treaty of accession.</td>
</tr>
</tbody>
</table>

CPTPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; FTA = free trade agreement.

Sources: ADB compilation based on information available as of December 2023, including announcements from parties to the agreements.

Table 2.3: Newer Forms of Cooperation and Partnerships—Asia and the Pacific, January–December 2023

<table>
<thead>
<tr>
<th>Trade Agreement</th>
<th>Recent Update</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea–Singapore Digital Partnership Agreement (KSDPA)</td>
<td>14 January 2023</td>
<td>Entry into force of the KSDPA. Both economies also signed three MOUs to implement the Korea–Singapore Digital Economy Dialogue, facilitate the electronic exchange of data and enhance cooperation in artificial intelligence.</td>
</tr>
<tr>
<td>Malaysia–Singapore cooperation agreements</td>
<td>30 January 2023</td>
<td>Malaysia and Singapore signed green economy and digital economy framework agreements, as well as MOU personal data protection, and cybersecurity.</td>
</tr>
<tr>
<td>Indo-Pacific Economic Framework for Prosperity</td>
<td>27 May 2023</td>
<td>Conclusion of negotiations on supply chain agreement.</td>
</tr>
<tr>
<td>Digital Economy Partnership Agreement (DEPA)</td>
<td>8 June 2023</td>
<td>Conclusion of accession discussions with the Republic of Korea. Besides the Republic of Korea, the People’s Republic of China, Canada, Costa Rica, and Peru have submitted formal requests to accede to the DEPA.</td>
</tr>
</tbody>
</table>

MOU = memorandum of understanding.

Source: ADB compilation based on information available as of December 2023, including announcements from parties to the agreements.

Building Resilience in Asia’s Food Sector

As Asia continues to be a significant player in global agriculture and food trade, the region’s reliance on food imports and lack of diversification makes it vulnerable to external shocks and trade restrictions.

While trade agreements in the region are becoming broader, more modern and digital in scope, and contributing more to global sustainability efforts, restrictive measures in response to various economic and geopolitical developments (including the Russian invasion of Ukraine) continue to negatively impact essential sectors such as energy and food. To this end, high reliance on food imports and the lack of diversification can pose supply risks in some economies.
Over the past decade, the region’s share in global food exports has increased from 22% to about 25% while imports rose from 21% to 27%. East Asia and Southeast Asia account for the largest shares of food exports. East Asia also dominated the region’s food imports, increasing by about 5 percentage points (Figure 2.12). The Pacific and Oceania, South Asia, and Southeast Asia are net exporters, while East Asia and Central Asia have been consistent net importers of food products for the past decade (Figure 2.13).

Resilient Food Supply Chains Are Crucial to Ensure a Steady Stock of Food

Economies can leverage on trade and regional integration to help achieve an ample and stable supply of food in their domestic markets and weather external food supply shocks.

The 1996 World Food Summit defines food security as “when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO 2006). Four dimensions crucial to food security were identified: physical availability of food; economic and physical access to food; food utilization; and stability. Trade is closely linked to the first dimension, particularly...
in augmenting the supply side and complementing domestic food production.

Global food trade has enabled many regions to secure food supply and overcome local limits of growth set by scarce natural resources or less developed farming practices (Porkka et al. 2017). Greater access to international markets and keeping trade-related costs as low as possible allows economies to more freely use imports to augment domestic food production, which helps ensure food is in ample supply. Likewise, greater trade also aids in bringing down food prices for greater accessibility, and offers a bigger menu of food commodities for people to choose (Thow 2009; Thow and Hawkes 2009; Kearney 2010). This ensures the food system is resilient in times of crisis and when local conditions are difficult (Seekell et al. 2017).

Conversely, highly interconnected food systems may pose risks caused by synchronous shocks across regions and sectors (Suweis et al. 2015; Gephart et al. 2017; Cottrell et al. 2019). McKinsey reports that about 40% of global trade is concentrated, meaning that importing economies rely on three or fewer nations for this share of global trade, even when global supply options have become more diversified. Over the past 5 years, the largest economies have not systematically diversified the origins of their imports (McKinsey Global Institute 2020). Import dependence leaves economies vulnerable to issues of food adequacy and accessibility when various shocks affect their partners’ ability to export. Successfully navigating this dual effect requires a nuanced understanding of an economy’s trade situation and a well-balanced, strategic trade policy.

The succeeding analysis in this chapter focuses on trade-related aspects of food security, and how strategic and proactive trade policy can help build resilient and stable food supply in the region. A multistep filtering process was employed to identify food products most at risk from trade-related supply disruptions. A brief outline of the filtering methodology is reported here:

1. **Filter 1—** Domestic production to consumption ratio: Using data from the ADB Multiregional Input–Output Database (MRIOD), economies with lower than regional average shares of domestic food production with respect to domestic food consumption were identified. Economies with lower shares of domestic food production have an increased reliance on trade to supplement their local food supply, resulting in increased vulnerability to external and global food shocks. Adopting a conservative approach, economies without MRIOD data are automatically included.

2. **Filter 2—** Diversification: Focusing on the region’s 20 most consumed food commodities identified from the Food and Agriculture Organization (FAO) database (Table 2.4), two diversification indexes were computed for each economy capturing diversification in terms of trading partners and imported food products. Economies were identified as less diversified when both the trading partners and imported products diversification indexes were below the regional average. In addition, economies that exhibit decreasing diversification indexes and a shrinking share of domestic food production through time are also retained in the list. Having a small range of trading partners and imported products may be a disadvantage in the face of international food trade disruptions.

3. **Product-level analysis and alternative suppliers:** After identifying the shortlist of economies, a product-level analysis was developed to gain a better understanding of the possible vulnerabilities to supply chain disruptions of selected products. For each economy, the top 20 imported HS4 commodities were identified and matched with the region’s top 20 consumed HS4 commodities.

---

12 Shares of domestic food production to domestic food consumption were derived from disaggregated output data from each economy’s agriculture, fishery, food, and beverage sectors using the ADB MRIOD. The share is calculated as the ratio of the total domestic production of domestically consumed food to the total domestic consumption of food (including import-sourced domestic food consumption).

13 The FAO Supply Utilization Accounts Database compiles data on food availability of over 400 food and agriculture product groups as proxy for the average food consumption at the economy level (Gheri et al. 2020). The region’s basket of most consumed food commodities, in terms of quantity, include meat products, milk, eggs, several varieties of fruits and vegetables, rice, flour, sugar, and malt beer. The top 20 commodities listed in Table 2.4 comprise more than 80% of the region’s total food consumption in 2021.
using the FAO database. Food items that are common to both the “most imported” and “most consumed” lists are considered the most vulnerable to food trade shocks. In exploring the potential of trade diversification to build resilience, the analysis also identifies alternative regional suppliers for vulnerable food products.

Table 2.4: List of Top 20 Consumed HS4 Food Commodities in Asia and the Pacific, by Quantity, 2021 (Arranged by HS Code)

<table>
<thead>
<tr>
<th>HS4 Code</th>
<th>FAO Commodity</th>
<th>HS4 code</th>
<th>FAO Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0203</td>
<td>Meat of pig boneless, fresh or chilled</td>
<td></td>
<td>Yams</td>
</tr>
<tr>
<td></td>
<td>Meat of pig with the bone, fresh or chilled</td>
<td></td>
<td>Cassava, dry</td>
</tr>
<tr>
<td>0207</td>
<td>Meat of ducks, fresh or chilled</td>
<td></td>
<td>Sweet potatoes</td>
</tr>
<tr>
<td></td>
<td>Meat of chickens, fresh or chilled</td>
<td></td>
<td>Plantains and cooking bananas</td>
</tr>
<tr>
<td></td>
<td>Edible offals and liver of chickens and guinea fowl, fresh, chilled or frozen</td>
<td></td>
<td>Tangerines, mandarins, clementines</td>
</tr>
<tr>
<td></td>
<td>Meat of turkeys, fresh or chilled</td>
<td>0805</td>
<td>Other citrus fruit, nec</td>
</tr>
<tr>
<td>0401</td>
<td>Skim milk of cows</td>
<td></td>
<td>Oranges</td>
</tr>
<tr>
<td></td>
<td>Raw milk of goats</td>
<td></td>
<td>Pomelos and grapefruits</td>
</tr>
<tr>
<td>0407</td>
<td>Eggs from other birds in shell, fresh, nec</td>
<td>0807</td>
<td>Lemons and limes</td>
</tr>
<tr>
<td>0701</td>
<td>Potatoes</td>
<td>0807</td>
<td>Papayas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cantaloupes and other melons</td>
</tr>
<tr>
<td>0702</td>
<td>Tomatoes</td>
<td></td>
<td>Watermelons</td>
</tr>
<tr>
<td>0703</td>
<td>Leeks and other alliaceous vegetables</td>
<td>0808</td>
<td>Apples</td>
</tr>
<tr>
<td></td>
<td>Onions and shallots, green</td>
<td></td>
<td>Pears</td>
</tr>
<tr>
<td>0704</td>
<td>Cabbages</td>
<td>1006</td>
<td>Rice, broken</td>
</tr>
<tr>
<td></td>
<td>Cauliflowers and broccoli</td>
<td></td>
<td>Husked rice</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rice, milled</td>
</tr>
<tr>
<td>0707</td>
<td>Cucumbers and gherkins</td>
<td></td>
<td>Rice</td>
</tr>
<tr>
<td>0708</td>
<td>Peas, green</td>
<td>1103</td>
<td>Flour of cereals nec</td>
</tr>
<tr>
<td></td>
<td>Other beans, green</td>
<td></td>
<td>Cane sugar, non-centrifugal</td>
</tr>
<tr>
<td></td>
<td>Broad beans and horse beans, green</td>
<td>1701</td>
<td>Refined sugar</td>
</tr>
<tr>
<td>0709</td>
<td>Asparagus</td>
<td>2203</td>
<td>Raw cane or beet sugar (centrifugal only)</td>
</tr>
<tr>
<td></td>
<td>Artichokes</td>
<td></td>
<td>Beer of barley, malted</td>
</tr>
<tr>
<td></td>
<td>Chilies and peppers, green (Capsicum spp. and Pimenta spp.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mushrooms and truffles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eggplants (aubergines)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spinach</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FAO = Food and Agriculture Organization, HS = Harmonized System, nec = not elsewhere classified.

Notes: The data are generated by matching data from the Food and Agriculture Organization database with their corresponding HS4 equivalent. The 20 HS4 products with the highest quantity consumed were selected.

products are also issues to further investigate. These considerations, while relevant, are outside the scope of the analyses.

As an initial step, economies with below regional average shares of domestic production with respect to domestic consumption were identified (Figure 2.14). Economies with lower relative capacity for domestic food production face potential supply risk issues by relying more on imports to meet food consumption needs. However, it must be pointed out that economies with higher relative domestic production shares may still face structural food supply risks, though not necessarily trade related.

Figure 2.14: Shares of Domestic Food Production to Domestic Food Consumption—Asia and the Pacific, 2010–2022 Average

Diversity in Trading Partners Is Key to Food Trade Resilience

Reliance on imports is not inherently a vulnerability; however, complications may arise when economies lack a diverse set of trading partners and import a limited range of food commodities.

The extent of dependence on imports in an economy’s food supply becomes more palpable when disruptions impede the production and export capabilities of an economy’s trading partners. Thus, as a next step, the analysis computes the Diversification Index (DI) to determine the level of import diversification in terms of trading partners and of imported food products.

Notes: The domestic share of consumption is derived as the share of domestically consumed food that is domestically produced. Figures are divided into groups based on the economy’s share of domestic production to domestic consumption, in descending order. These groups are determined based on the average domestic share of 0.75. The figure covers 29 Asian economies, for which data are available in ADB Multiregional Input–Output Database.

A higher trading partner DI value suggests that an economy sources its food products from a greater number of trading partners, thus making the economy more resilient to supply chain disruptions when some of its partners experience shocks. Likewise, a high DI for imported commodities indicates a more diverse selection of imported food products. A wider basket of imported food products affords greater flexibility and substitutability. A more diverse set of food imports also increases the variety of food available in an economy’s domestic food market. To avoid the inclusion of products that do not constitute a particular threat to food availability, or highly specific goods produced only in one economy (i.e., no partner diversification), the analysis focuses on the top 20 consumed products in the region that are considered most relevant for identifying food trade vulnerabilities (Table 2.4).

**Subregional trends show that Central Asia has the lowest diversification by partner but has the most diversified food import basket.**

Central Asia’s partner DI has taken a downward trend, from 0.9 in 2010 to 0.8 in 2021. The subregion imported more than 50% of its food commodities from three economies—the Russian Federation, Kazakhstan, and the Kyrgyz Republic—in 2021. This import concentration is intense compared to other subregions that have an average share of just 30% of their food commodities sourced from their top three trading partners over the same period. Central Asia’s reliance on a small number of sourcing economies can affect its resilience to food supply disruptions. This has been exacerbated in recent years by the various economic sanctions on the Russian Federation, which supplies 43% of Central Asia’s food product imports.

East Asia and South Asia have relatively low product diversification, suggesting that the regions’ imports are concentrated on a limited group of food products. About 63% of South Asia’s imports come from fruits, vegetables, and coffee, while about 56% of East Asia’s food imports are meat, fish, and fruits. Although this can reflect preferences or domestic demand, such a pattern poses risks especially if the commodities of interest experience a shock to production or exports.

The filtering method not only looks at average levels of domestic production and diversification indexes, but also how these indicators change over time. This is to account for the possibility that economies move toward greater import dependence and decreased diversification across the years, even though the indicators do not suggest imminent risk. The averages for each indicator were computed for 2010 to 2015 and for 2016 to 2021, and the differences between the two 6-year periods were reported. Economies that exhibit decreasing diversification indexes and a decreasing share of domestic food production through time are retained in the list. Table 2.5 summarizes the results of the filtering methods. Economies highlighted in yellow (from Table 2.5) indicate cases with relatively lower shares of domestic production and decreasing diversification indexes by partner and by product.

Focusing on the shortlisted economies, a product-level analysis was employed to identify which food items are most vulnerable to trade shocks. The top 20 food imports were identified for each economy and matched with the region’s top 20 consumed commodities using the FAO database (Table 2.6). Food items that are common to both the “most imported” and “most consumed” lists are considered the most vulnerable to trade shocks.

The product-level analysis shows numerous basic food commodities are at most risk. Sugar (Harmonized System [HS] 1701) has been identified as vulnerable among all shortlisted economies. Rice (HS 1006), a chief agriculture commodity in the region, is vulnerable for most listed economies. Milk (HS 0401), onion and garlic (HS 0703), and pig meat (HS 0203) are vulnerable for at least half of the economies in the shortlist. Other such food items include eggs, citrus fruits, apples and pears, bananas, tomatoes, other vegetable varieties (in Bhutan), and fowl meat (in the Federated States of Micronesia).

**Food availability risks and supply chain vulnerability can be mitigated by engaging with alternative suppliers within the region.**
### Table 2.5: Share of Domestic Production to Consumption and the Diversification Index, by Asian Economy

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DP/DC Ratio</td>
<td>Partner DI</td>
<td>Product DI</td>
<td>DP/DC Ratio</td>
<td>Partner DI</td>
<td>Product DI</td>
<td></td>
</tr>
<tr>
<td>Regional average</td>
<td>0.75</td>
<td>0.68</td>
<td>0.72</td>
<td>0.01</td>
<td>0.00</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>0.99</td>
<td>0.65</td>
<td>0.52</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.96</td>
<td>0.79</td>
<td>0.67</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>0.95</td>
<td>0.69</td>
<td>0.71</td>
<td>0.00</td>
<td>0.02</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>China, People’s Republic of</td>
<td>0.95</td>
<td>0.89</td>
<td>0.81</td>
<td>-0.02</td>
<td>0.07</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>0.91</td>
<td>0.78</td>
<td>0.70</td>
<td>-0.02</td>
<td>0.01</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0.90</td>
<td>0.39</td>
<td>0.66</td>
<td>-0.06</td>
<td>-0.08</td>
<td>-0.13</td>
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</tr>
<tr>
<td>Nepal</td>
<td>0.89</td>
<td>0.27</td>
<td>0.56</td>
<td>-0.03</td>
<td>-0.05</td>
<td>-0.03</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>0.89</td>
<td>0.62</td>
<td>0.66</td>
<td>-0.09</td>
<td>0.07</td>
<td>0.10</td>
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</tr>
<tr>
<td>Sri Lanka</td>
<td>0.88</td>
<td>0.68</td>
<td>0.57</td>
<td>0.02</td>
<td>0.03</td>
<td>0.05</td>
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<tr>
<td>Armenia</td>
<td>0.86</td>
<td>0.81</td>
<td>0.79</td>
<td>-0.02</td>
<td>0.07</td>
<td>-0.02</td>
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<tr>
<td>Bangladesh</td>
<td>0.86</td>
<td>0.66</td>
<td>0.60</td>
<td>0.09</td>
<td>0.03</td>
<td>0.05</td>
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<td>Mongolia</td>
<td>0.84</td>
<td>0.81</td>
<td>0.84</td>
<td>0.04</td>
<td>0.09</td>
<td>0.08</td>
<td></td>
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<td>Kazakhstan</td>
<td>0.83</td>
<td>0.85</td>
<td>0.82</td>
<td>0.02</td>
<td>-0.04</td>
<td>-0.01</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>0.81</td>
<td>0.89</td>
<td>0.84</td>
<td>0.02</td>
<td>0.07</td>
<td>0.01</td>
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<tr>
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<td>0.81</td>
<td>0.91</td>
<td>0.76</td>
<td>0.05</td>
<td>0.02</td>
<td>0.01</td>
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<td>Viet Nam</td>
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<td>Korea, Republic of</td>
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<td>0.89</td>
<td>0.78</td>
<td>-0.08</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
<td></td>
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<tr>
<td>Bhutan</td>
<td>0.63</td>
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<td>0.58</td>
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<td>Georgia</td>
<td>0.58</td>
<td>0.84</td>
<td>0.80</td>
<td>-0.07</td>
<td>0.06</td>
<td>0.04</td>
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<td>Brunei Darussalam</td>
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<td>0.76</td>
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<tr>
<td>Hong Kong, China</td>
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<td>Singapore</td>
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<tr>
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<td>0.26</td>
<td>0.25</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>Micronesia, Federated States of</td>
<td>0.45</td>
<td>0.70</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>Nauru</td>
<td>0.51</td>
<td>0.87</td>
<td>-0.10</td>
<td>0.10</td>
<td>0.09</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Niue</td>
<td>0.15</td>
<td>0.73</td>
<td>-0.12</td>
<td>-0.10</td>
<td>-0.12</td>
<td>-0.12</td>
<td></td>
</tr>
<tr>
<td>Palau</td>
<td>0.47</td>
<td>0.77</td>
<td>-0.21</td>
<td>0.21</td>
<td>0.24</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>0.70</td>
<td>0.51</td>
<td>-0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Samoa</td>
<td>0.78</td>
<td>0.76</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>0.55</td>
<td>0.50</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td></td>
</tr>
</tbody>
</table>

continued on next page
### Table 2.5 continued

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DP/DC Ratio</td>
<td>Partner DI</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>0.80</td>
<td>0.62</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>0.66</td>
<td>0.56</td>
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<td>Tonga</td>
<td>0.67</td>
<td>0.81</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>0.76</td>
<td>0.69</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>0.70</td>
<td>0.77</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>0.74</td>
<td>0.46</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>0.76</td>
<td>0.73</td>
</tr>
</tbody>
</table>

DC = domestic consumption, DI = Diversification Index, DP = domestic production, Lao PDR = Lao People’s Democratic Republic.

**Notes:**

(i) The domestic share of consumption is derived as the share of domestically consumed food that is domestically produced. Values marked in orange denote shares that are below the regional average of the data (a DI score of 0.75), while values marked in green are above the average. Negative differences between the periods 2016–2021 and 2010–2015 are marked in orange, positive differences in green.

(ii) The figure covers 29 Asian economies for which data are available in the ADB Multiregional Input–Output Database. Economies not available in the database were automatically forwarded to filtering by DI scores.

(iii) Partner/Product DI scores are calculated as 1 minus the sum of the squared shares of imports from a partner/product to total imports from all partners/products. The index value ranges from 0 to 1, with higher values illustrating higher diversification of partners/products. Values in green denote DIs above the regional average and values in orange denote values below average.

(iv) Economies in the table are arranged in descending order based on their share of domestic production to domestic consumption. Cells in yellow indicate economies fulfilling the conditions set in the methodology.


### Table 2.6: Import Shares (% > Regional Average) of Highly Consumed HS4 Commodities in Selected Asian Economies, 2021

<table>
<thead>
<tr>
<th>Product (HS4)</th>
<th>Azerbaijan</th>
<th>Bhutan</th>
<th>Lao PDR</th>
<th>Federated States of Micronesia</th>
<th>Nepal</th>
<th>Papua New Guinea</th>
<th>Solomon Islands</th>
<th>Timor-Leste</th>
<th>Tonga</th>
<th>Vanuatu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar (1701)</td>
<td>12.3%</td>
<td>4.6%</td>
<td>10.4%</td>
<td>5.0%</td>
<td>4.1%</td>
<td>5.8%</td>
<td>13.5%</td>
<td>6.0%</td>
<td>4.9%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Rice (1006)</td>
<td>2.7%</td>
<td>21.8%</td>
<td>4.6%</td>
<td>16.0%</td>
<td>27.5%</td>
<td>27.9%</td>
<td>22.2%</td>
<td>36.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk and cream (0401)</td>
<td>4.5%</td>
<td>2.5%</td>
<td>2.6%</td>
<td>1.9%</td>
<td>1.1%</td>
<td>3.0%</td>
<td>9.6%</td>
<td>22.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onion, garlic, leeks, etc. (0703)</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.6%</td>
<td>1.7%</td>
<td>1.4%</td>
<td>1.3%</td>
<td>1.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meat of swine (0203)</td>
<td>1.7%</td>
<td>3.0%</td>
<td>2.4%</td>
<td>1.4%</td>
<td>0.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird’s eggs (0407)</td>
<td>3.4%</td>
<td>3.4%</td>
<td>1.0%</td>
<td>2.4%</td>
<td>1.7%</td>
<td>1.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citrus fruit (0805)</td>
<td>2.8%</td>
<td>1.0%</td>
<td>1.2%</td>
<td>1.2%</td>
<td>2.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple, pears, and quinces (0808)</td>
<td>4.1%</td>
<td>4.1%</td>
<td>4.1%</td>
<td>11%</td>
<td>2.7%</td>
<td>1.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bananas and plantains (0803)</td>
<td>3.1%</td>
<td>1.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes (0702)</td>
<td>1.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other vegetables (0709)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.8%</td>
<td></td>
</tr>
</tbody>
</table>

DC = domestic consumption, DI = Diversification Index, DP = domestic production, HS = Harmonized System, Lao PDR = Lao People’s Democratic Republic.

**Notes:**

(i) List of products consists of the common food products found by matching the top 20 most consumed food products in Asia and the Pacific and the top 20 most imported food products, excluding malt beer, per listed economy. Cells in orange indicate that an economy is vulnerable to disruption in the supply of a particular product based on its low share of domestic production out of domestic consumption, and its limited diversification of suppliers and imported products.

(ii) Import shares inside the orange cells pertain to shares of an economy’s HS4 product import to its total food imports.

Table 2.7 charts the top exporters of vulnerable food items depicted in Table 2.6. Establishing or enhancing trade partnerships with these exporters allows economies to more freely leverage on imports to augment their domestic food production and better ensure food supply.

Interestingly, the list of economies showing at least one food product potentially vulnerable to trade disruptions comprises 5 of the 11 economies in Asia categorized as least developed economies. In the 2023 triennial review by the Committee for Development Policy, four of these economies—Bangladesh, Bhutan, the Lao People’s Democratic Republic (Lao PDR), and Nepal—exhibited a relatively low Economic Vulnerability Index (EVI), below the 2021 least developed economy inclusion and graduation thresholds (United Nations Economic and Social Council 2023). Our analysis, however, identifies food resilience risks for these economies. This can be explained by the export focus of EVI; out of the eight EVI indicators, two relate to trade: merchandise exports concentration and instability of goods and services. The analysis therefore suggests that import-side vulnerabilities should not be overlooked in contributing to food trade resilience.

Analysis of existing trade partnerships reveals missed opportunities. In the case of sugar, for example, only the Lao PDR has a trade agreement with the multiple key exporters in the region (Table 2.8). Meat importers have trade agreements with only one exporter, while a significant number of rice importers have none. Current FTAs are notably formed between economies in geographic proximity, with partnerships across subregions less common. By diversifying its partners and expanding trade linkages to other subregions, an economy can enhance its resilience to localized shocks and intraregional disruptions.

Furthermore, trade restricting measures were observed to be imposed on sugar, rice, onions, and garlic. Restrictive policy interventions in the form of tariffs, quotas, and bans, among others, are additional significant obstacles to enhancing food availability among import-reliant domestic markets. Thus, arduous negotiations to ease or lift such restrictive interventions should be prioritized toward the mutual economic benefit of potential trading partners.

Table 2.7: List of Alternative Regional Suppliers for Selected Products, 2021

<table>
<thead>
<tr>
<th>HS4 Code</th>
<th>Description</th>
<th>Alternative Supplier in Asia and the Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>1701</td>
<td>Cane or beet sugar and chemically pure sucrose, in solid form</td>
<td>India</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thailand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indonesia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malaysia</td>
</tr>
<tr>
<td>1006</td>
<td>Rice</td>
<td>India</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thailand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Viet Nam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pakistan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PRC</td>
</tr>
<tr>
<td>0401</td>
<td>Milk and cream; not concentrated nor containing added sugar or other sweetening matter</td>
<td>New Zealand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thailand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hong Kong, China</td>
</tr>
<tr>
<td>0703</td>
<td>Onions, shallots, garlic, leeks and other alliaceous vegetables;</td>
<td>PRC</td>
</tr>
<tr>
<td></td>
<td>fresh or chilled</td>
<td>India</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pakistan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New Zealand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uzbekistan</td>
</tr>
<tr>
<td>0203</td>
<td>Meat of swine; fresh, chilled or frozen</td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hong Kong, China</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Singapore</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Japan</td>
</tr>
</tbody>
</table>


Notes: HS4 products were selected from the top five most commonly occurring highly consumed, highly traded commodities from the filtered economies. Alternative regional suppliers are the top five exporters of each HS4 product in Asia and the Pacific, as calculated by the economy’s share in exports / total world exports of their respective HS4 commodity, as filtered through the Food and Agriculture Organization (FAO) database.


14 Bhutan is included in the list but graduated on 13 December 2023.
Table 2.8: Trade Partnerships and Trade Policy Restrictions between Top Importers and Top Regional Exporters of Selected Food Products in 2021

<table>
<thead>
<tr>
<th>HS 1701: Cane or beet sugar and chemically pure sucrose, in solid form</th>
<th>India</th>
<th>Thailand</th>
<th>Australia</th>
<th>Indonesia</th>
<th>Malaysia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bhutan</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FSM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nepal</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tonga</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HS 1006: Rice</th>
<th>India</th>
<th>Thailand</th>
<th>Viet Nam</th>
<th>Pakistan</th>
<th>PRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bhutan</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FSM</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>Nepal</td>
<td>8</td>
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<td>0</td>
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<tr>
<td>Papua New Guinea</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HS 0401: Milk and cream</th>
<th>New Zealand</th>
<th>Australia</th>
<th>Thailand</th>
<th>PRC</th>
<th>Hong Kong, China</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FSM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Papua New Guinea</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tonga</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HS 0703: Onions, shallots, garlic, leeks and other alliaceous vegetables; fresh or chilled</th>
<th>PRC</th>
<th>India</th>
<th>Pakistan</th>
<th>New Zealand</th>
<th>Uzbekistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nepal</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tonga</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*continued on next page*
Restrictive Trade Policies Are Roadblocks to Resilience

Efforts in deepening trade and enhancing regional integration should go hand in hand with efforts to eliminate restrictive food trade policies.

Restrictive trade interventions impede the potential to build resilient and stable regional food supply (Figure 2.15). This disproportionately impacts economies with lower diversification of trade partners or trade products as they face greater supply risks and lack the diversity to compensate imports. Using recently available data from the Global Trade Alert database, the following discusses restrictive food trade policies in the region, and their implications on import-dependent economies.

Restrictive food trade measures have impacted Asia more significantly compared to other regions.

The share of Asia’s food trade covered by restrictive interventions has increased from about 1% in 2019 to approximately 2.7% from 2021 to 2023 (Figure 2.16). Up until 2022, the largest share of restrictive interventions in Asia was implemented by economies within the region. Conversely, the share of Asia’s food trade covered by liberalizing interventions also increased, reaching up to 6% of the region’s total food trade in 2022.

Food trade interventions have not had the same effect across Asian subregions.

Among subregions in Asia, Central Asia, East Asia, and Southeast Asia have the greatest share of total food trade subject to restrictive interventions in 2023 (Figure 2.16). On average, South Asia and the Pacific and Oceania are largely covered by restrictive measures imposed by Asian economies. Conversely, Central Asia is dominated by restrictive measures imposed by the rest of the world. The Pacific and Oceania has the highest share of food trade covered by liberalizing measures in 2023, followed by South Asia and Southeast Asia. A significant amount of liberalizing interventions in the Pacific and Oceania, Southeast Asia, and South Asia were implemented from within the region.

As discussed earlier, restrictive import and export policies present significant roadblocks to trade between economies. Economies with a lower diversification of trade partners or trade products also face greater risks, as they lack the diversity to compensate imports when a major partner implements a trade restrictive intervention. Notably, a significant number of economies that were highlighted by this section’s three-stage filtering belong to Central Asia, which heavily relies on...
Figure 2.15: Shares of Food Trade Affected by Trade Interventions, by Region

(a) Share of food trade affected by restrictive interventions

(b) Share of food trade affected by liberalizing interventions

EU = European Union (27 members), ROW = rest of the world, UK = United Kingdom.


Figure 2.16: Shares of Trade Affected by Trade Interventions, by Asian Subregion

(a) Share of food trade affected by restrictive interventions

(b) Share of food trade affected by liberalizing interventions

EU = European Union (27 members), ROW = rest of the world, UK = United Kingdom.

trade from the Russian Federation. Therefore, these economies are more vulnerable to supply availability issues, especially amid economic sanctions in response to the Russian invasion of Ukraine.

**Presented with both opportunities and risks, trade and regional cooperation plays a crucial role in achieving resilient food systems in a manner that is inclusive and sustainable.**

Diversifying trading partners and traded food commodities are key to building domestic absorptive capacity to supply shocks. Economies are, therefore, encouraged to eliminate or reduce trade restricting measures that prevent or constrain trade in food, and should refrain from introducing them in times of crisis. Policy responses and actions that jeopardize the food supply chain resilience in other economies should also be avoided. The effectiveness of well-connected, regional and global food chains crucially rests on continued collaboration and commitment between economies and the international community to keep markets open. With food security as one of the most complex global challenges of the 21st century, concerted efforts and strong cooperation at the multilateral, regional, and bilateral level is strongly needed to build resilient food supply chains.

Reducing trade barriers through means such as digitalization of trade procedures (e.g., accepting electronic phytosanitary and veterinary certificates), improved transparency in trade policies, and strengthened international governance and coordination mechanisms prevent trade policies from being used for restrictive purposes. Instead, policymakers should implement complementary policies catering to potentially disadvantaged sectors. For example, implementing social protection measures to complement trade liberalization and to compensate those harmed by import competition, and investing in rural infrastructure and in agriculture knowledge and innovation, with a view to building and improving domestic productivity and competitiveness.
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