Chapter 2.

A More Regionally Anchored ASEAN+3: The Transformation of Economic Linkages

Johor-Singapore Causeway, Malaysia and Singapore

Highlights

- The global environment surrounding ASEAN+3 has shifted markedly. Tariff measures, broader geoeconomic reconfiguration, and heightened policy uncertainty have raised pressing questions about the region's near-term resilience, the nature of its deepening intraregional trade, and its longer-term positioning. This chapter provides the structural perspective essential for assessing these questions – mapping how the region's economic linkages have transformed over the past two decades, examining what this means for business cycle dynamics and macroeconomic management, and considering how economies can position themselves for long-term resilience and growth.

- ASEAN+3's economic linkages have undergone a fundamental transformation compared to two decades ago, challenging the common characterization of the region as primarily a manufacturing location serving external demand. From the supply side, regional production networks have evolved from a Japan-centered hub into a denser, more interconnected architecture anchored by China, with trade concentrated in the intermediate and capital goods that underpin an integrated production network. From the demand side, the reorientation has been equally profound. ASEAN+3 has emerged as a major source of global final demand – collectively larger than the United States – with intraregional demand now substantially more important than two decades ago. The interdependence is comprehensive: China for the region, the region for China, and increasingly among ASEAN, Plus-3, and China collectively.

- This structural transformation means the region is better positioned to weather current trade disruptions than earlier configurations would have allowed. The region's demand base is now more regionally anchored and less dependent on extraregional markets. Its supply-side integration reflects substantive production linkages embedded in a complex, cohesive regional value chain network, rather than re-routing arrangements with limited domestic value addition. This does not imply immunity to external headwinds, but it does suggest a degree of resilience that the conventional characterization would not predict.

- Deeper linkages have brought ASEAN+3 business cycles closer together, with regional factors now explaining as much cyclical variation as global factors. This greater regional anchoring has provided some buffering against external demand shocks. At the same time, regional spillovers would be larger today should shocks occur – making sound domestic macroeconomic management a matter of regional, not just domestic, concern. Regional dialogue and surveillance become increasingly valuable for anticipating shared vulnerabilities. Preparedness for global shocks remains essential: global factors continue to be an important influence on the region's cyclical dynamics.

- Beyond cyclical considerations, how can economies sustain long-term resilience and growth within these transformed linkages? For many economies, gains from moving up value chains have been accompanied by rising concentration risks – framing the central policy challenge of capturing integration's benefits while managing its vulnerabilities. Three priorities emerge: upgrading domestic capabilities toward higher value-added activities; diversification to reduce concentration vulnerabilities; and inclusive participation so that integration gains are broadly shared. For ASEAN specifically, structural constraints mean that further deepening integration requires strategies beyond trade liberalization – including promoting denser intraregional investment linkages.

- The landscape shaping ASEAN+3's integration will continue to evolve. Geoeconomic tensions may reinforce regional orientation; demographic shifts and economic rebalancing are tilting demand toward regional sources; digital technologies and the green transition are creating new integration frontiers. Navigating this environment requires building adaptive capacity. Regional cooperation will be particularly valuable: as economies become more sensitive to developments in their neighbors, the case for policy dialogue and collective action strengthens. ASEAN+3 has demonstrated this capacity before – most notably through the financial cooperation architecture built after the Asian financial crisis. The region's growth over the past two decades was built on openness, integration, and cooperation; sustaining that trajectory in a more uncertain world will require deepening all three.

Introduction

The global environment surrounding ASEAN+3 has shifted markedly, with implications for a region whose growth has been built on openness and integration. The tariff measures introduced by the United States in 2025 represent a significant disruption to the trade architecture that had supported the region's expansion. But the challenges extend beyond tariffs. Broader and intensifying geoeconomic reconfiguration has prompted reassessments of supply chain configurations and cross-border investment strategies, while heightened policy uncertainty has raised questions about the durability of trade relationships that had developed over the preceding two decades. Accompanying these developments are concerns about the nature of the region's economic linkages – whether the deepening of intraregional trade reflects genuine structural integration or more transitory adjustments to external pressures, including trade re-routing or supply chain shifts in response to existing trade measures, and what this means for the region's vulnerability to further disruptions. These questions have become pressing for policymakers seeking to assess both near-term resilience and longer-term positioning.

The region's response to these geoeconomic shifts and challenges cannot be fully understood without recognizing that ASEAN+3's economic linkages have transformed fundamentally over the past two decades. The common framing positions ASEAN+3 primarily as a manufacturing hub serving external demand, with continued prosperity dependent on advanced economy markets outside the region. Yet this characterization captures only part of today's reality – and an increasingly outdated part. The region's trade, production, and investment relationships have evolved in ways that create a more regionally anchored economy than two decades ago, with implications for how external pressures transmit through the region, how economies move together, and how they should position for resilience and growth. Understanding these structural shifts is essential: without this longer-term perspective, assessments of the current situation risk being incomplete, and policy responses risk being misaligned with the region's actual circumstances. This chapter provides that structural foundation, examining how linkages have transformed and what this means for both conjunctural macroeconomic management and longer-term development.

The chapter proceeds in three parts, each addressing a distinct but interrelated question. The analysis moves from mapping the structural transformation to examining its implications for business cycle dynamics and macroeconomic management, to considering how economies can position themselves for long-term resilience and growth within these transformed linkages.

- Part I maps how ASEAN+3's economic linkages have transformed over the past two decades – tracing the reconfiguration of regional supply chains, the growing importance of intraregional final demand, and the investment flows that have reinforced these patterns. This provides the structural context for understanding the region's current interdependence.

- Part II assesses whether these deeper linkages have brought business cycles closer together, and what this means for macroeconomic management. The analysis examines the factors driving regional synchronisation and the magnitudes of cross-economy spillovers. Understanding these dynamics is directly relevant to assessing the region's resilience to current external pressures and informing policy frameworks for an increasingly interconnected region.

- Part III turns to longer-term positioning: how can economies sustain growth and resilience amid an uncertain and potentially more fragmented global environment? The discussion examines how regional economies can continue capturing integration's benefits while managing the vulnerabilities – including concentration risks – that have accompanied deeper embedding in regional production networks. Three policy priorities emerge: upgrading domestic capabilities, promoting supply chain diversification, and ensuring inclusive participation.

A concluding discussion draws these threads together, situating the findings within the evolving landscape that will shape ASEAN+3's integration in the years ahead.

The authors of this chapter are Kriti Andhare, Yohnsen Ang, Naoaki Inayoshi (lead), and Yuhong Wu, under the supervision of Allen Ng, with contributions from Yuventus Effendi, Laura Britt Fermo, Chenxu Fu, Xianguo (Jerry) Huang, and Wee Chian Koh.

Part I. Changing Patterns of ASEAN+3 Economic Linkages

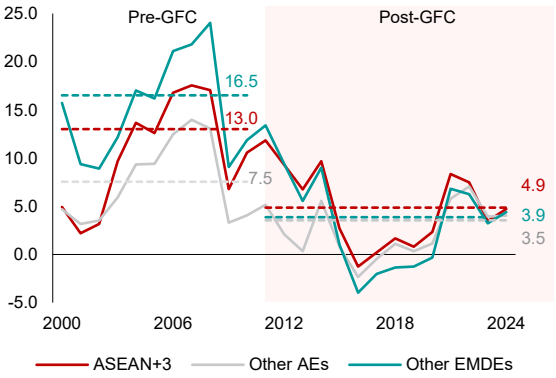
Understanding how ASEAN+3's economic linkages have evolved is essential for assessing the region's current position and vulnerabilities. This part provides an overview of the region's position within the global trade landscape and traces three interrelated shifts over the past two decades: the reconfiguration of supply chains within the region, the growing importance of intraregional final demand, and the investment flows that have reinforced these patterns. The evidence reveals a region that has become more tightly integrated through deepening regional production networks – with trade concentrated in intermediate and capital goods that support regional manufacturing – while also developing a more substantial intraregional demand base. These structural shifts distinguish ASEAN+3's current economic architecture from both two decades ago and from characterizations that emphasize the region primarily as an export platform serving external markets.

ASEAN+3 in the Global Trade Landscape

ASEAN+3 has been among the fastest-growing trade regions over the past two decades, demonstrating notable resilience across successive global cycles. During the rapid expansion of the 2000s, the region's trade grew at an average annual rate of 13.0 percent between 2000 and 2008, outpacing advanced economies' 7.5 percent, though trailing other emerging markets and developing economies' 16.5 percent (Figure 2.1). The global financial crisis in 2009 marked an inflection point, as trade growth decelerated worldwide amid weakened demand and slower cross-border supply chain expansion.[1] Regional trade growth moderated accordingly – to 4.9 percent annually between 2010 and 2024 – but ASEAN+3 continued to outpace most other regions.

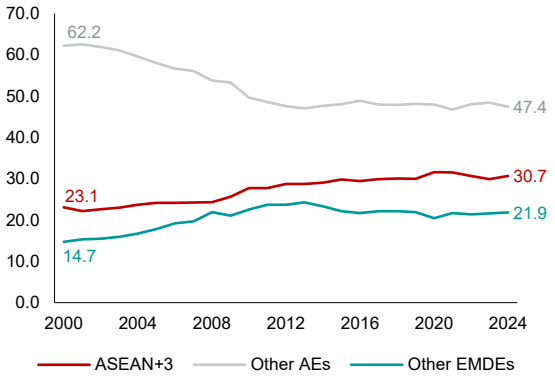
This sustained expansion enabled ASEAN+3 to raise its share of world trade, measured as exports plus imports, from 23.1 percent in 2000 to 30.7 percent in 2024 (Figure 2.2). The region's share of world exports rose from 23.2 percent to 34.4 percent, and its share of world imports also increased from 23.0 percent to 26.0 percent (Figure 2.3). Within the region, China accounted for the largest contribution, with its global share of exports and imports increasing from 3.9 percent and 5.2 percent to 16.4 percent and 8.5 percent between 2000 and 2024. The BCLMV economies – particularly Vietnam – also recorded substantial gains, reflecting deeper integration into global value chains (GVC). By contrast, the share of other major economies in world trade contracted, while the rest of the world increased its share of global imports, reflecting slower growth and the geographic rebalancing of global production. The combined global share of the United States and European Union (EU) exports declined by 9.6 percentage points, while the decline for imports was 12.7 percentage points.

Figure 2.1. Annual Trade Growth by Selected Economies
(Percent, year-on-year, five-year moving average)



Source: United Nations Comtrade; AMRO staff calculations.
Note: GFC = global financial crisis. "Other advanced economies (AEs)" and "Other emerging and developing economies (EMDEs)" follow the International Monetary Fund's classification. The colored data labels represent each region's annual trade growth rate during the respective time periods.

Figure 2.2. Share of Global Trade by Selected Economies
(Percent of gross global trade)

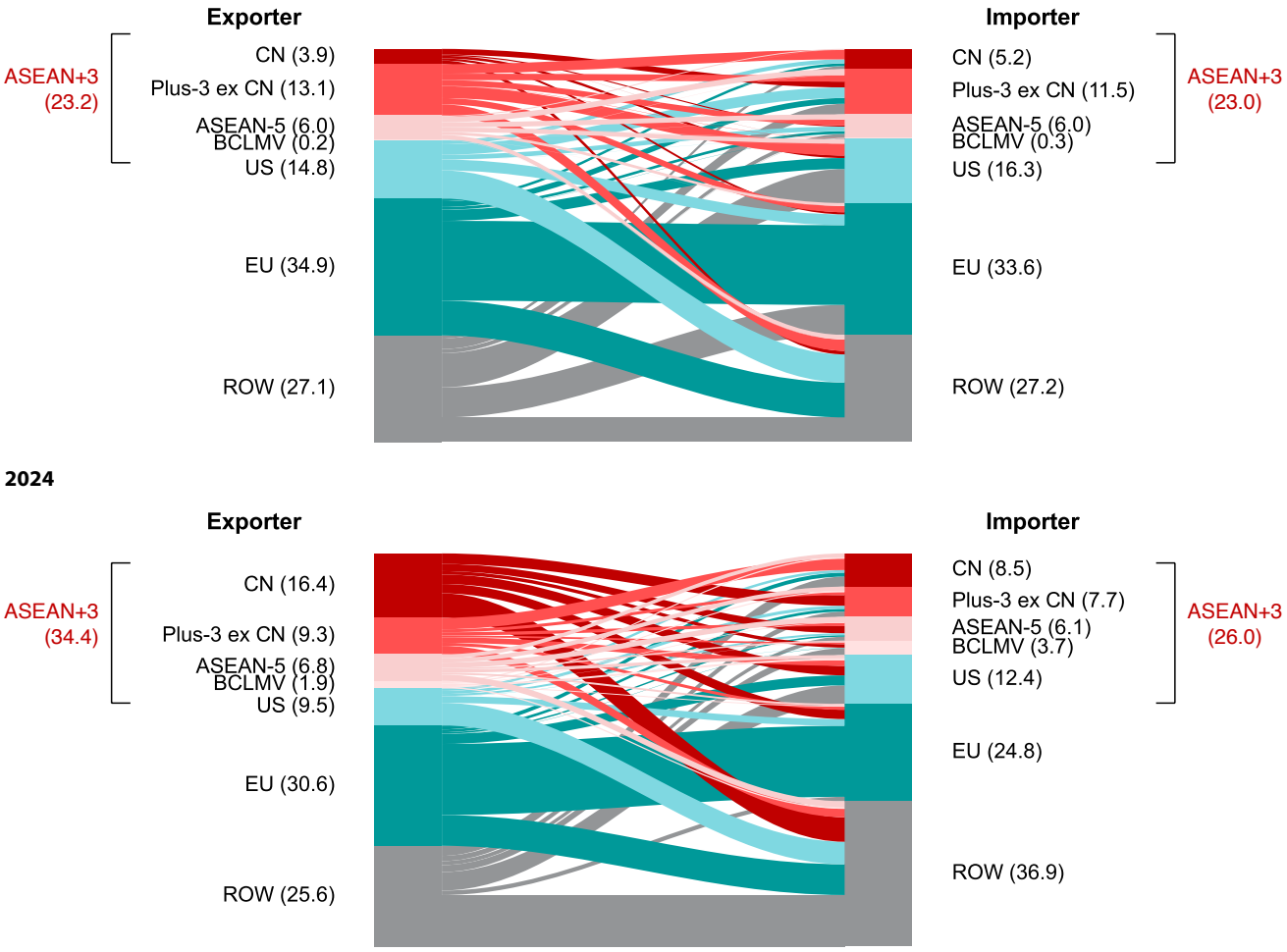


Source: United Nations Comtrade; AMRO staff calculations.
Note: "Other advanced economies (AEs)" and "Other emerging and developing economies (EMDEs)" follow the International Monetary Fund's classification. The colored data labels represent the region's share of global trade, measured as exports plus imports.

[1] This slowdown in global trade after the global financial crisis has been variously discussed in the literature. For instance, Baldwin (2009) explained that a sudden, severe, and globally synchronized drop in demand – especially for durable and non-durable goods – whose effects were amplified by supply-chain linkages, compositional differences between trade and GDP, and synchronicity across economies led to the "Great Trade Collapse". A slower expansion of international vertical specialization during this period was also raised by Constantinescu and others (2015) as another reason.

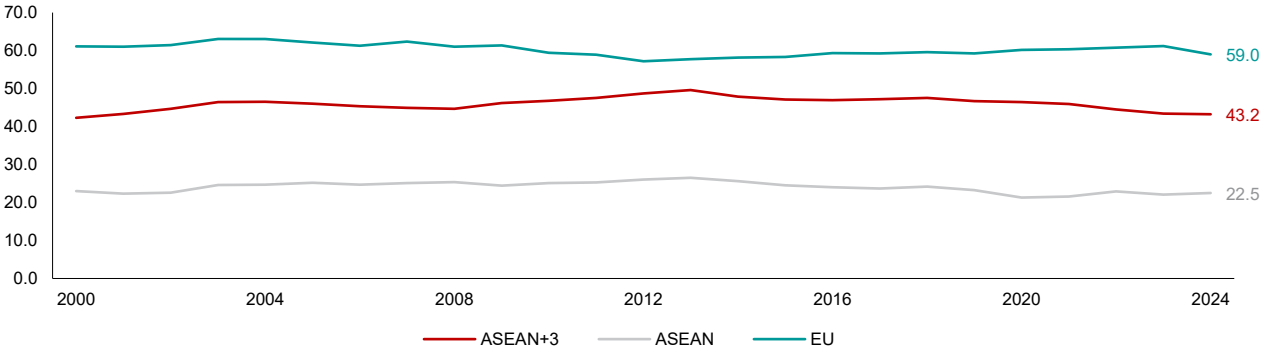
ASEAN+3's expansion in global market share occurred alongside a broadly stable intraregional trade share. Intra-ASEAN+3 trade remained around 40 percent of total goods exports throughout the period (Figure 2.4). This share is slightly below the EU's intraregional trade intensity. Within the region, ASEAN's intraregional trade accounted for 22.5 percent of its total goods exports, with the Plus-3 economies – particularly China – as ASEAN's primary trading partners. Yet this aggregate stability masks significant shifts in the region's underlying economic interlinkages – both in the configuration of supply chain networks and in the sources of final demand for regional exports. The following subsections trace these shifts, revealing a region whose integration patterns have evolved substantially from earlier configurations.

Figure 2.3. Global Trade Flows in 2000 and 2024
(Percent of gross global exports; Percent of gross global imports)



Source: United Nations Comtrade; AMRO staff calculations.
Note: CN = China; EU = EU-27 member economies; ROW = Rest of the world; US = United States; ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; Plus-3 ex CN = Hong Kong, Japan, and Korea. The values represent each region's or economy's share of global exports or imports, and the width of each flow reflects the corresponding trade share size. Percent share totals may not sum to 100 due to rounding.

Figure 2.4. Intraregional Goods Export Share in Selected Economies
(Percent of gross goods export)



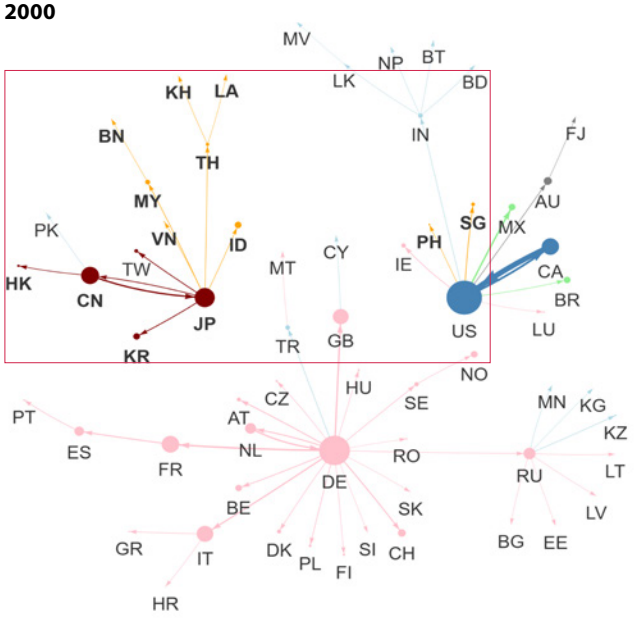
Source: United Nations Comtrade; AMRO staff calculations.
Note: EU = EU-27 member economies. Intraregional goods share is defined as the share of a region's goods exports that flows to economies within the same region, out of its total goods exports to the world. The colored data labels represent the region's intraregional gross goods export, as a share of total gross goods exports.

Supply Chain Linkages: Reconfiguration Around China

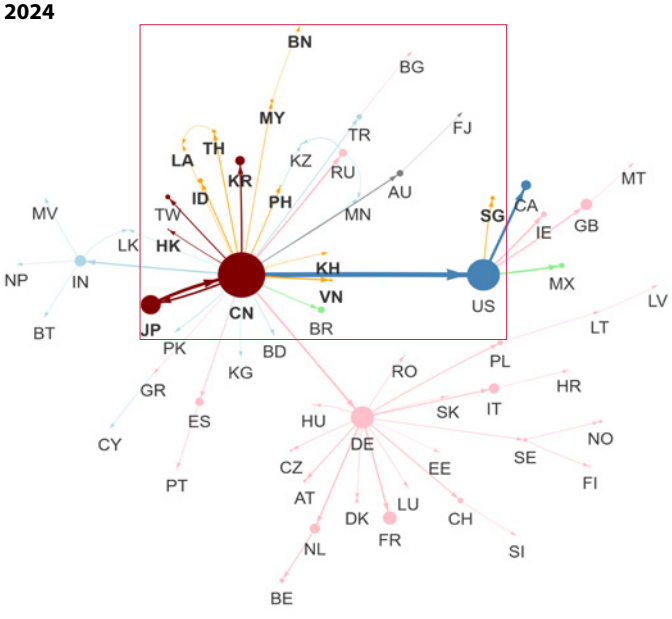
The configuration of supply chains within ASEAN+3 has transformed substantially since 2000, with China's emergence as the region's primary hub. The global supply network is structured around three major regional clusters – Asia, the Americas, and the EU – each anchored by a dominant hub economy that is the primary gateway for intraregional trade and connections to other clusters (Figure 2.5). While the configurations in the Americas and the EU clusters remained relatively stable since 2000, centered on the United States and Germany as regional hubs, the Asian cluster underwent a significant transformation. Japan served as the primary regional supply hub in 2000 for Asia; by 2024, China had taken on this role, supported by its expanding manufacturing capacity, logistics infrastructure, and central position in intermediate goods trade.[2] Importantly, this transformation extended beyond Asia, with economies such as Brazil redirecting linkages toward Chinese supply networks. The three clusters are now more interconnected, with China serving as a connecting node between the Americas and the EU.

Figure 2.5. Global Supply Hubs of Value Added in Goods and Services

2000



2024



Source: Asian Development Bank Multiregional Input-Output Table; AMRO staff calculations.
Note: Only linkages that represent the largest value-added imports or more than 25 percent of the total value-added imports of the recipients are shown. The size of the bubble represents the share of an economy's value-added imports in the world's total value-added imports. The thickness of the linkage represents the share of value-added flow between each trading partner in the world's total value-added flow. Economies are labeled based on International Organization for Standardization 2 (ISO-2) codes. See Online annex 1 for a detailed explanation of the definition and methodology used in this network analysis.

2/ Box 2.1 examines the factors that positioned Japan as the region's hub before the 2000s.

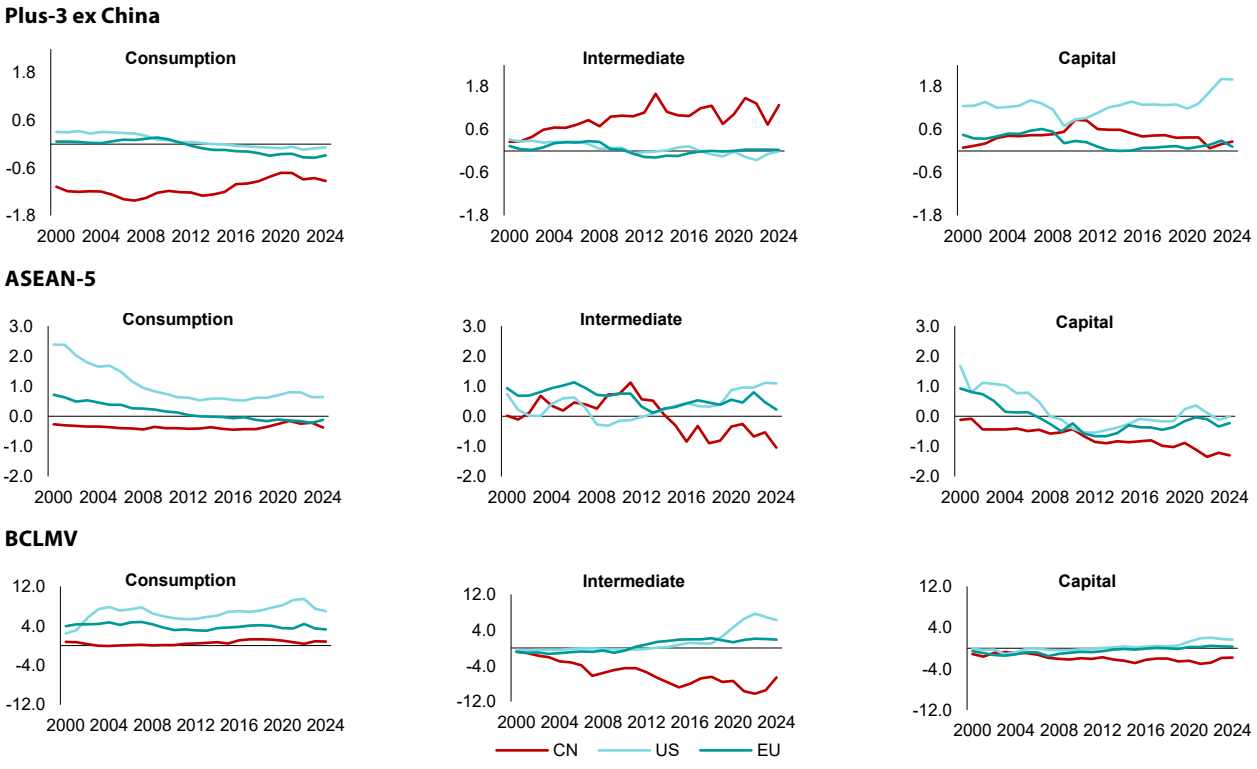
China's role as a supply hub is evident in its position as a major goods supplier to regional economies, particularly in intermediate and capital goods to ASEAN. Plus-3 economies excluding China continue to be a net exporter of intermediate and capital goods, while importing consumption goods from China (Figure 2.6, top panel). ASEAN economies exhibit distinct patterns across the subregion. ASEAN-5 economies primarily imported intermediate and capital goods from China, with this trend accelerating after 2010 as their manufacturing sectors expanded and integrated more deeply into regional supply chains (Figure 2.6, middle panel). BCLMV economies display a different pattern, with Vietnam dominating intermediate and capital goods imports as it emerged as a major assembly hub, while BCLM economies mainly imported intermediate goods from China (Figure 2.6, bottom panel). This composition – concentrated in inputs that support regional manufacturing rather than finished goods for re-export – reflects deepening production integration across the region.

Evolution of supply chains in specific sectors, particularly in electronics, including electrical goods, and textiles, demonstrates clearly the emergence of China as a global and regional supply hub. The electronics sector illustrates this transformation most clearly (Figure 2.7, top panel).

In 2000, the global electronics supply chain operated through multiple regional hubs, with ASEAN+3 economies maintaining diverse supplier relationships, primarily with Japan and the United States. By 2024, China had consolidated its position as the dominant global electronics supplier, creating a hub-and-spoke model linking virtually all economies to Chinese production networks. The textiles sector underwent a parallel evolution, transitioning from a fragmented structure in 2000 to one anchored in China by 2024 (Figure 2.7, bottom panel).

These supply linkages reflect interdependence rather than unidirectional dependence on China. Regional economies strengthened their imports from China from 2000 to 2024 (Figure 2.8, left panel). Yet, they are also critical suppliers to China, particularly in electronics intermediate goods. The share of electronics intermediate goods in regional exports to China rose from 11.4 percent in 2000 to 33.7 percent in 2024, representing 43.7 percent of China's total electronics intermediate goods imports (Figure 2.8, right panel).[3] Japan and Korea provide high-precision components and capital equipment, while ASEAN economies contribute through assembly activities (International Monetary Fund [IMF] 2016; Asian Development Bank [ADB] 2025). Regional economies thus play an integral role in China's manufacturing within the broader supply chain network.

Figure 2.6. Trade Balance of ASEAN+3 with Selected Economies by Types of Goods
(Percent of GDP)



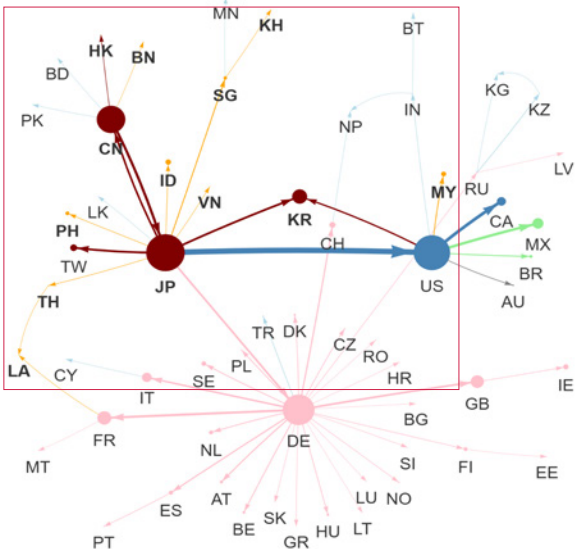
Source: United Nations Comtrade; AMRO staff calculations.
Note: CN = China; EU = EU-27 member economies; US = United States; ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; Plus-3 ex China = Hong Kong, Japan, and Korea. The trade balance is defined as gross exports minus gross imports.

3/ The share of electronics intermediate goods in regional exports to China has declined slightly since 2023, partly due to China's delayed post-COVID economic recovery (Mark 2024).

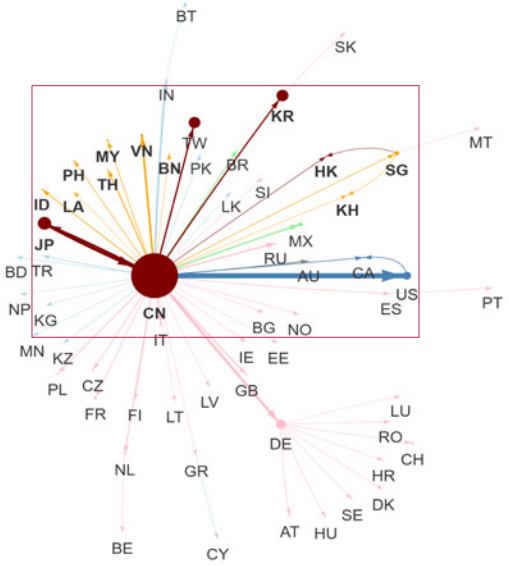
Figure 2.7. Global Supply Hubs of Value-Added by Key Industries

Electronics Sector

2000

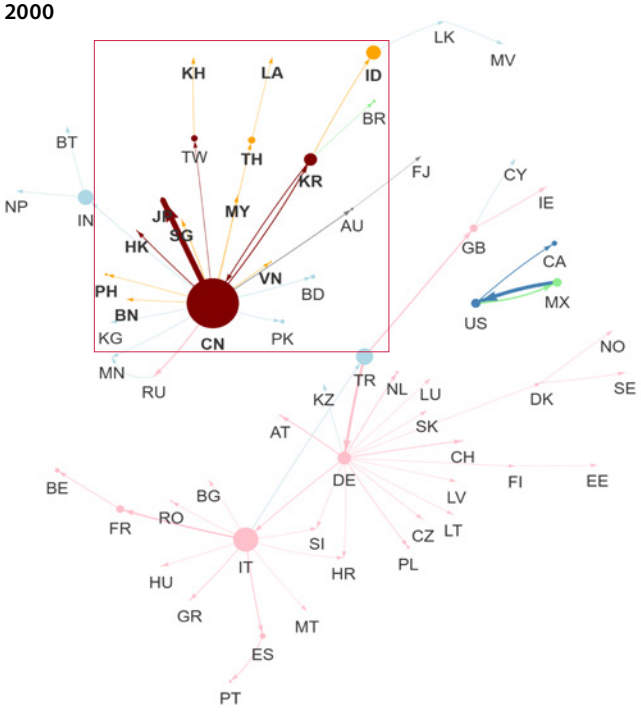


2024

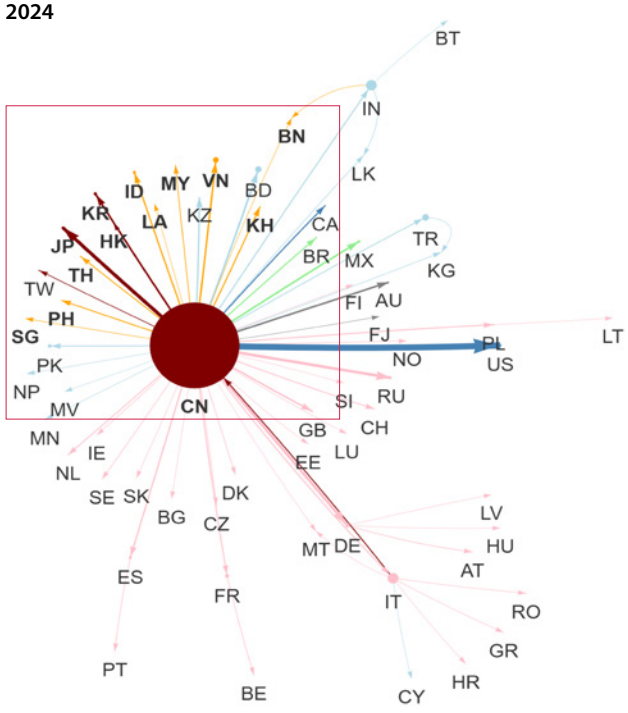


Textile Sector

2000



2024

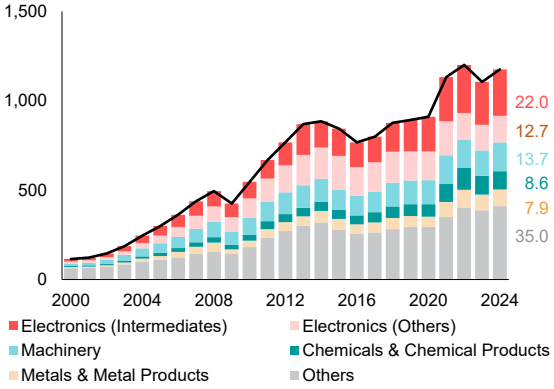


Source: Asian Development Bank Multiregional Input-Output Table; AMRO staff calculations.
Note: Only linkages that represent the largest value-added import or more than 25 percent of the total value-added import of the recipients are shown. The size of the bubble represents the share of an economy's value-added imports in the world's total value-added imports. The thickness of the linkage represents the share of value-added flow between each trading partner in the world's total value-added flow. Economies are labeled based on International Organization for Standardization 2 (ISO-2) codes. See Online annex 1 for a detailed explanation of the definition and methodology used in this network analysis.

The evolving supply relationships are reflected in rising GVC participation across most ASEAN+3 economies, particularly through backward linkages. While lower than the EU's 53.2 percent, aggregate ASEAN+3 GVC participation increased from 38.4 percent to 41.4 percent of gross exports between 2000 and 2024, driven primarily by ASEAN-5 and the BCLV economies (Brunei, Cambodia, Lao PDR, and Vietnam), which increased from 46.8 percent to 51.4 percent and 36.9 percent to 62.8 percent (Figure 2.9, left panel). Backward linkages – representing foreign inputs in exports – increased during this period. Even economies experiencing reduced relative GVC participation as a share of gross exports saw increases in absolute terms. Importantly, regional economies' GVC participation has become increasingly intraregional. Nearly half of the region's value chain activities occur within ASEAN+3, with the intraregional GVC participation share rising from 38.4 percent in 2000 to 45.4 percent in 2024 (Figure 2.9, right panel). Nevertheless, ASEAN+3 remained open and connected to the rest of the world, with substantial linkages to US and EU markets – differentiating the region's structure from the EU, where value chain activities are predominantly intraregional.

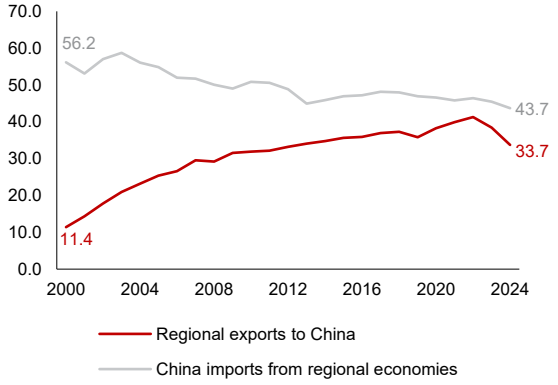
Figure 2.8. Sectoral Trade Relations between China and Other ASEAN+3 Economies

Gross Imports of Other ASEAN+3 Economies from China by Sector
(USD billions; Percent share)



Source: United Nations Comtrade; AMRO staff calculations.
Note: The colored data labels represent, on a sectoral basis, other ASEAN+3 economies' gross imports from China, as a share of total gross imports from China. Sectors are defined at the Harmonized System (HS) 2 level, mapped into the Asian Development Bank's Multiregional Input-Output Table sector classifications, and renamed for simplification. Electronics = CEOE; Machinery = OMQ; Chemicals & Chemical Products = CHPH; Metals & Metal Products = BMMP. Electronics intermediate goods are identified via the Broad Economic Categories classification, mapped at the HS6 level. See Online annex 6 for a definition of each sector. Percent share totals may not sum to 100 due to rounding.

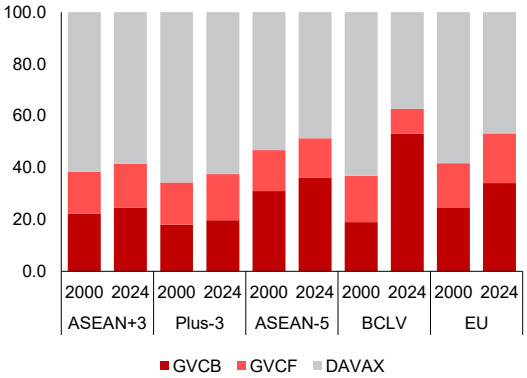
Share of Electronics Intermediate Goods Exports and Imports
(Percent of gross exports; Percent of gross imports)



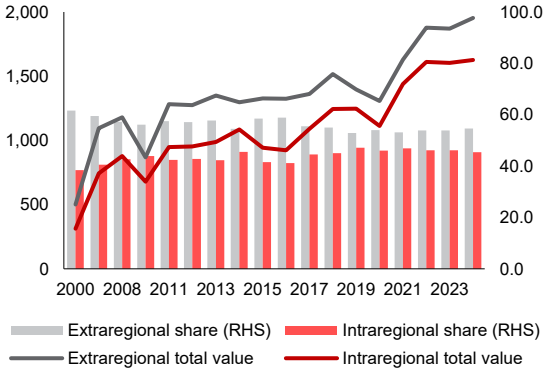
Source: United Nations Comtrade; AMRO staff calculations.
Note: Electronics intermediate goods are identified via the Broad Economic Categories classification, mapped at the Harmonized System (HS) 6 level. The maroon line shows the share of ASEAN+3 economies excluding China's electronics intermediate exports destined for China, while the gray line shows the share of China's electronics intermediate imports sourced from other ASEAN+3 economies.

Figure 2.9. GVC Activities of ASEAN+3 and Selected Economies

GVC Participation
(Percent of gross exports)



Intraregional and Extraregional GVC Activities
(USD billions in 2010 prices; Percent of GVC activities)

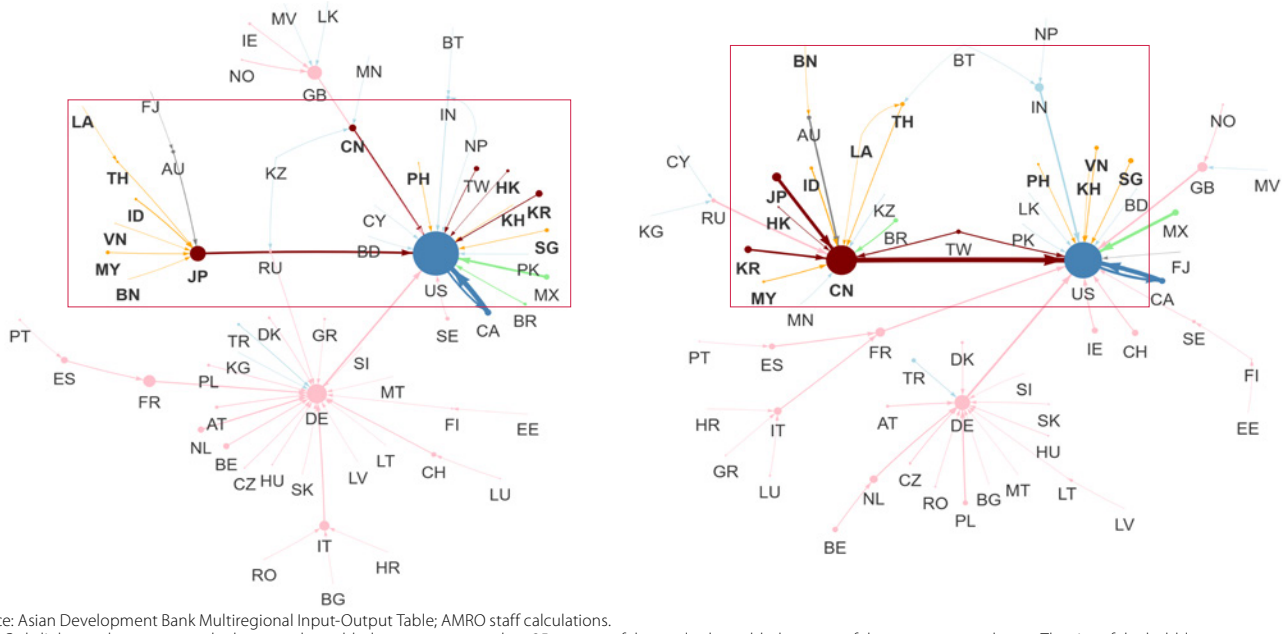


Source: Asian Development Bank Multiregional Input-Output Table; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLV = Brunei, Cambodia, Lao PDR, and Vietnam; EU = EU-27 member economies; Plus-3 = China, Hong Kong, Japan, and Korea. Regional aggregates exclude Myanmar due to data unavailability. DAVAX = direct value-added exports that only cross borders once; GVC = global value chain; GVCB = backward GVC participation; GVCF = forward GVC participation. See Online annex 2 for a detailed conceptual framework, measurement methodology, and ASEAN+3 economy-level trends.

Final Demand Linkages: Reorientation Toward the Region

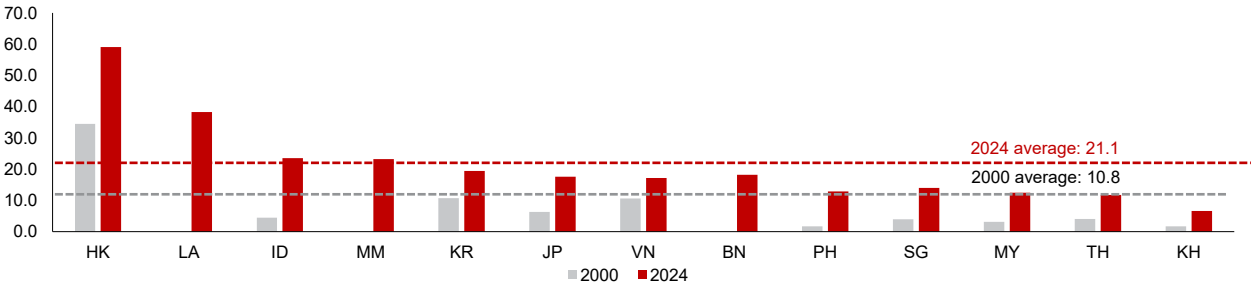
The deepening supply-side integration has been accompanied by an equally significant shift on the demand side, with ASEAN+3 emerging as a major source of global demand. The region is often characterized primarily as a supplier of manufactured goods to global markets. While this remains true, it captures only part of the picture. Over the past two decades, ASEAN+3 has also become one of the world's most important demand sources alongside the United States (Figure 2.10). This transformation is driven largely by China's emergence as a major consumer within the region and globally. Within ASEAN+3, China has become the dominant demand hub: its share in other regional economies' gross exports rose from 10.8 percent in 2000 to 21.1 percent in 2024, making it the largest export partner for several ASEAN+3 economies (Figure 2.11). China's expanding role as a consumer has, in turn, elevated the region's collective importance in global demand, thereby deepening trade linkages across the region and reducing dependence on any single economy.

Figure 2.10. Global Demand Hubs of Value Added in Goods and Services



Source: Asian Development Bank Multiregional Input-Output Table; AMRO staff calculations.
Note: Only linkages that represent the largest value-added exports or more than 25 percent of the total value-added exports of the exporters are shown. The size of the bubble represents the share of an economy's value-added exports in the world's total value-added exports. The thickness of the linkage represents the share of value-added flow between each trading partner in the world's total value-added flow. Economies are labeled based on International Organization for Standardization 2 (ISO-2) codes. See Online annex 1 for a detailed explanation of the definition and methodology used in this network analysis.

Figure 2.11. Share of Gross Exports to China for Other ASEAN+3 Economies in 2000 and 2024
(Percent of gross exports)



Source: United Nations Comtrade; AMRO staff calculations.
Note: BN = Brunei; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Regional economies are ordered from left to right by each economy's 2024 gross export share to China, in descending order. 2000 shares for LA, MM, and BN were not plotted due to data unavailability. The 2024 data points for LA and VN reflect 2023 values, which are the most recent available.

Analysis of final demand destinations – which traces where exports ultimately serve consumption rather than intermediate use – illustrates this dual transformation. At the global level, ASEAN+3 accounted for 27.9 percent of total global final demand in 2022, surpassing the United States at 26.1 percent. This reflects both China's rise as a major end-market globally and in the region.[4] Within ASEAN+3 excluding China, demand patterns shifted substantially. In 2000, the United States was the largest source of final demand, accounting for 31.4 percent of the region's domestic value-added exports, while intraregional demand accounted for 28.1 percent (Figure 2.12, left panel). The US share declined steadily through the early 2010s before stabilizing at 19.2 percent in 2022, while the intra-ASEAN+3 share increased to 39.2 percent. The composition of intraregional final demand shifted markedly: China's share rose from 25.6 percent in 2000 to 49.4 percent in 2022, while Japan's share declined over time (Figure 2.12, right panel). All regional economies increased domestic value-added exports to meet China's final demand, with Singapore and Vietnam recording the largest gains of 5.0 and 5.6 percentage points, respectively.[5]

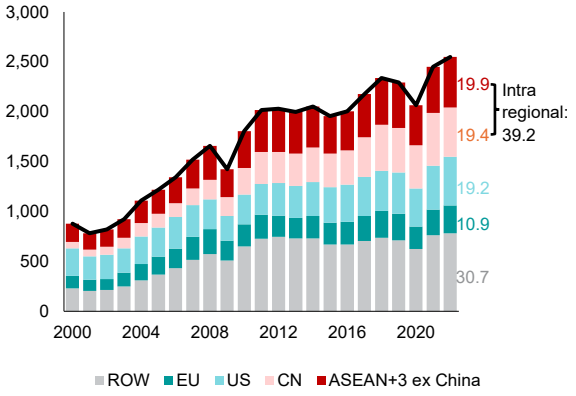
[4] Box 2.2 examines China's growing role as an end-market and explains why conventional trade statistics tend to understate this dimension.

[5] See Online annex 3 for the economy-level trend of the exports for foreign final demand for each ASEAN+3 economies.

The composition of regional exports serving Chinese final demand has evolved alongside China's changing consumption and industrial patterns. In 2000, other regional economies primarily exported agricultural products and wholesale and retail trade. By 2022, while wholesale and retail trade remained a key sector, the composition shifted from agricultural to electronics goods, which together accounted for 35.6 percent of domestic value-added exports serving Chinese final demand.[6] This shift reflects both rising Chinese household incomes and the growing sophistication of Chinese domestic consumption. The pattern varies across subregions: electronics exports to China are consistent across all subregions, while wholesale and retail trade came primarily from Plus-3 and ASEAN-5, with ASEAN-5 economies also concentrated on mining and quarrying exports, and BCLMV on agricultural, hunting, forestry, and fishing goods (Figure 2.13).[7]

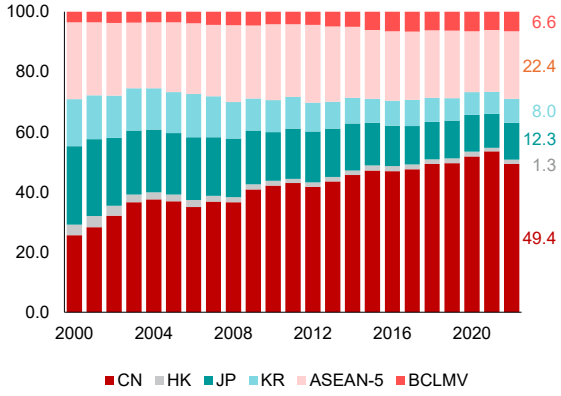
Figure 2.12. Exports of ASEAN+3 (excl. China) for Foreign Final Demand

By Selected Economies
(USD billions; Percent share)



Source: Organisation for Economic Co-operation and Development Trade in Value-Added Database; AMRO staff calculations.
Note: CN = China; EU = EU-27 member economies; US = United States; ROW = Rest of the world. The colored data labels represent ASEAN+3 excluding China's aggregated domestic value-added embodied in each partner economy's final demand as a share of ASEAN+3 excluding China's total domestic value-added in foreign final demand. Percent share totals may not sum to 100 due to rounding.

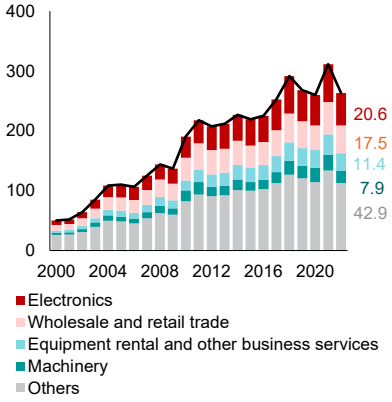
Intraregional Destination Breakdown
(Percent share)



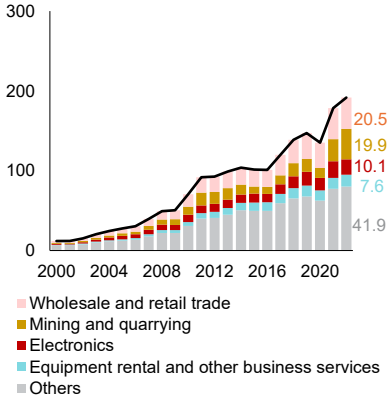
Source: Organisation for Economic Co-operation and Development Trade in Value-Added Database; AMRO staff calculations.
Note: CN = China; HK = Hong Kong; JP = Japan; KR = Korea; ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam. The colored data labels represent each intraregional partner's share of the total intraregional final demand for value-added from ASEAN+3 economies excluding China. Percent share totals may not sum to 100 due to rounding.

Figure 2.13. Sectoral Exports of ASEAN+3 (excl. China) for Final Demand in China
(USD billions; Percent share)

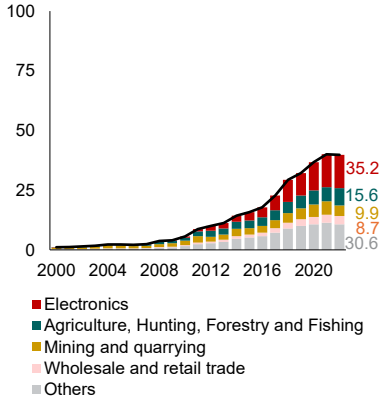
Plus-3 ex China



ASEAN-5



BCLMV



Source: Organisation for Economic Co-operation and Development (OECD) Trade in Value-Added Database; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; Plus-3 ex China = Hong Kong, Japan, and Korea. The colored data labels represent, on a sectoral basis, China's domestic value-added embodied in each partner region's final demand, as a share of China's total domestic value-added embodied in partner region economies' foreign final demand. Sectors are defined by OECD sectoral classification, mapped into the Asian Development Bank's (ADB) Multiregional Input-Output Table sector classifications, with some renamed for simplification. For example, the mapping into ADB's sectors is as follows: Agriculture, hunting, forestry, and fishing = AGF; Electronics = CEOE; Mining and quarrying = MIN; Machinery = OMQ; Wholesale and retail trade = WXV and RXV. See Online annex 6 for a definition of each sector. Percent share totals may not sum to 100 due to rounding.

6/ The electronics goods include semiconductors and components (e.g., integrated circuits), computers and peripherals, telecommunications equipment, and consumer electronics (e.g., smartphones). Wholesale and retail trade covers distribution services and trade margins from wholesaling/retailing goods. One such example is economy A's wholesalers distributing smartphones to economy B, earning the trade and logistical margins (e.g., wholesale mark-ups, warehousing, and inventory handling) on the cross-border sale. See Online annex 6 for a further description of the sectors referenced in this chapter.

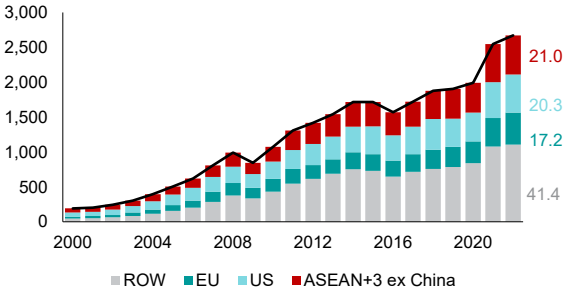
7/ Mining and quarrying products include crude oil and natural gas, coal, metallic ores, and quarry products like stone. Products in the agricultural, hunting, forestry, and fishing sector include crop and livestock production, forestry and logging, and aquaculture products. See Online annex 6 for a further description of the sectors referenced in this chapter.

The interdependence runs in both directions: other ASEAN+3 economies constitute the most important source of final demand for Chinese exports too. This mutual reliance distinguishes the current regional linkages from earlier configurations where demand flowed primarily outward, especially to the United States. By 2022, ASEAN+3 economies excluding China, accounted for 21.0 percent of China's domestic value-added exports serving foreign final demand – the largest regional share globally, exceeding even the United States and EU, underscoring the region's substantial role as a market for Chinese goods and services (Figure 2.14, left panel). Subregional demand patterns also evolved: while Plus-3 economies remained important consumers of Chinese exports, ASEAN-5 and BCLMV gained increasing importance as their incomes rose, and consumer markets expanded (Figure 2.14, right panel). Collectively, ASEAN accounts for 9.3 percent of China's domestic value-added exports serving foreign final demand – larger than any individual economy except the United States.[8] The types of goods and services the region primarily consumed from China were wholesale and retail trade and chemicals and chemical products, which include pharmaceuticals, as well as electronics (Figure 2.15).

The reorientation toward intraregional demand represents a key structural shift in the region's economic linkages. Two decades ago, ASEAN+3 economies relied heavily on extraregional markets – particularly the United States – as the primary destination for exports serving final consumption. Today, intraregional demand has become more important, with China's rise as a consumption center driving much of this shift. This does not imply that extraregional demand has become unimportant. The United States and EU together still accounted for a substantial share of the region's final demand market in 2022, and for China specifically, the United States and EU comprised 19.5 percent and 17.7 percent of its domestic value-added exports serving final demand (Figures 2.12 and 2.14, left panel). However, the balance has shifted: ASEAN+3's demand base is now more regionally anchored than at any point in the past two decades.

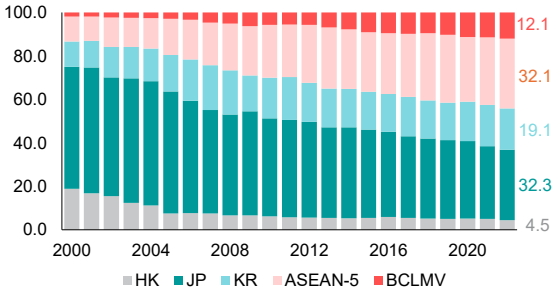
Figure 2.14. Exports of China for Foreign Final Demand

By Selected Economies
(USD billions; Percent share)



Source: Organisation for Economic Co-operation and Development Trade in Value-Added Database; AMRO staff calculations.
Note: CN = China; EU = EU-27 member economies; US = United States; ROW = Rest of the world. The colored data labels represent China's domestic value-added embodied in each partner economy's final demand as a share of China's total domestic value-added in foreign final demand. Percent share totals may not sum to 100 due to rounding.

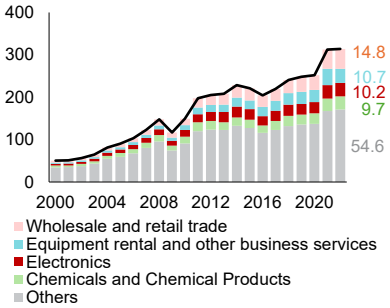
Intraregional Destination Breakdown
(Percent share)



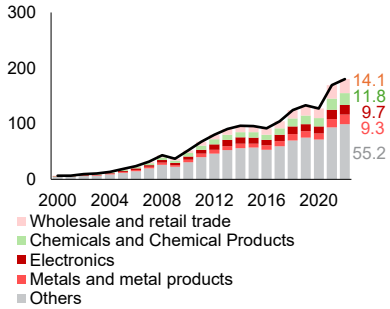
Source: Organisation for Economic Co-operation and Development Trade in Value-Added Database; AMRO staff calculations.
Note: HK = Hong Kong; JP = Japan; KR = Korea; ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam. The colored data labels represent each intraregional partner's share of the total intraregional final demand for value-added from ASEAN+3 economies excluding China. Percent share totals may not sum to 100 due to rounding.

Figure 2.15. Sectoral Exports of China for Final Demand in Other ASEAN+3 Economies
(USD billions; Percent share)

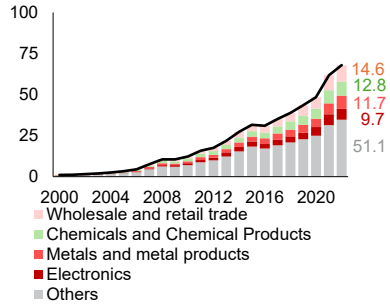
Plus-3 ex China



ASEAN-5



BCLMV



Source: Organisation for Economic Co-operation and Development (OECD) Trade in Value-Added Database; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; Plus-3 ex China = Hong Kong, Japan, and Korea. The colored data labels represent, on a sectoral basis, China's domestic value-added embodied in each partner region's final demand, as a share of China's total domestic value-added embodied in partner region economies' foreign final demand. Sectors are defined by OECD sectoral classification, mapped into the Asian Development Bank's (ADB) Multiregional Input-Output Table sector classifications, with some renamed for simplification. For example, the mapping into ADB's sectors is as follows: Chemicals and Chemical Products = CHPH; Electronics = CEOE; Metals and Metal Products = BMMP; Wholesale and retail trade = WXV and RXV. See Online annex 6 for a definition of each sector. Percent share totals may not sum to 100 due to rounding.

8/ Within ASEAN+3 excluding China, Japan accounts for 6.8 percent of China's domestic value-added exports serving foreign final demand, and Korea 4.0 percent. Outside the region and the United States, the largest individual economies are Germany (5.0 percent), the United Kingdom (3.6 percent), and India (3.4 percent).

Investment Linkage: Reinforcing Trade and Production Networks

ASEAN+3 has emerged as a major destination for foreign direct investment (FDI), reflecting and reinforcing the region's growing integration into global trade and production networks. In 2024, ASEAN+3 accounted for 22.5 percent of global FDI inflow stocks by destination, underscoring its attractiveness to international investors (Figure 2.16, left panel). Alongside extraregional FDI, the share of intraregional FDI stock has also risen gradually over the past two decades, from 48.7 percent in 2009 to 49.2 percent in 2024 – mirroring the deepening of regional trade and supply chain linkages (Figure 2.16, right panel).

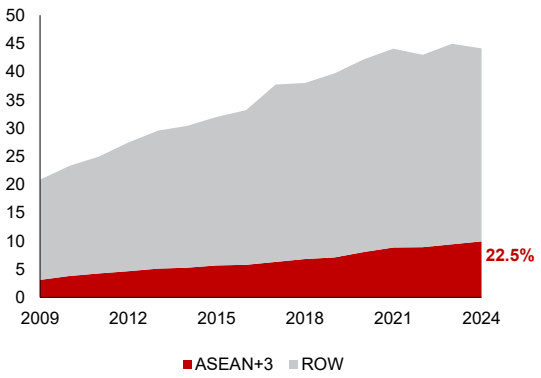
The gradual increase in intraregional FDI share has been accompanied by notable compositional shifts – particularly within ASEAN. While the intraregional FDI stock in ASEAN-5 remained stable at around 30 percent, Japan was the dominant source of intraregional FDI for ASEAN-5 in the early 2000s and Singapore was a conduit for third-country investors (Figure 2.17, top panel).[9] This configuration has since evolved. China's share of ASEAN-5 inward FDI increased from 9.0 percent in 2009 to 12.7 percent by 2024, with investment concentrated in manufacturing, wholesale and retail trade, and real estate (Figure 2.17, bottom panel).[10] Within ASEAN-5, Singapore remains the largest recipient of Chinese FDI, though its share declined from 70.1 percent in 2016 to 63.6 percent in 2024. Meanwhile, Indonesia and Thailand have gained the most, with their respective shares rising from 12.5 percent to 15.8 percent and 11.6 percent to 14.4 percent over the same period. For BCLMV, the shift has been more pronounced: intraregional FDI stock rose from 66.0 percent to 81.8 percent of the total between 2009 and 2024, with China's share increasing from 8.0 percent to 26.0 percent (Figure 2.17, middle panel). In particular, Vietnam emerged as the primary destination, consistent with its expanding role in regional supply chains.

Within ASEAN, the ASEAN-5 economies have also received increased FDI from the US, particularly in financial services. The US share in ASEAN-5 inward FDI stock increased by 9.9 percentage points between 2009 and 2024, from 11.1 percent to 21.0 percent (Figure 2.17, top panel). Singapore received the most US FDI, accounting for 88.7 percent of the total US FDI inflow stock in ASEAN-5, increasing from 66.0 percent in 2009. Most of this US FDI was in financial services (Figure 2.17, bottom panel). The coexistence of rising Chinese and US investment underscores ASEAN's position as a destination for capital from multiple sources – a pattern that parallels the region's diversified trade relationships with both intraregional and extraregional partners.

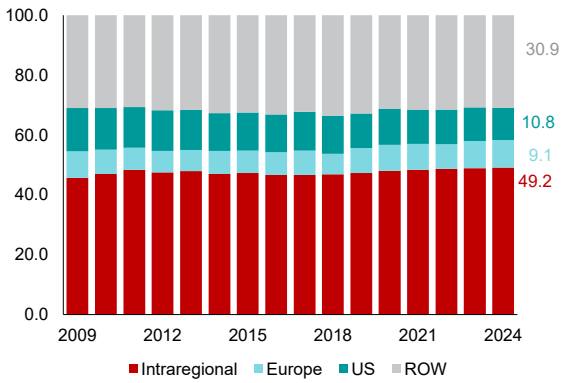
Overall, ASEAN+3's economic linkages have transformed substantially over the past two decades, creating a more regionally anchored economy than earlier configurations. Two features characterize this transformation. First, supply-side integration deepened through production networks concentrated in intermediate and capital goods – reflecting genuine regional value-chain integration rather than the mere re-routing of goods without substantive value addition. Second, demand-side integration strengthened as intraregional final demand grew in importance, creating mutual interdependence: the region has become a critical market for its largest economies, just as those economies have become critical suppliers to regional production. FDI flows reinforced these linkages, with rising intraregional FDI complementing trade and production relationships. Extraregional connections remained substantial – the United States and EU continued to account for significant shares of regional final demand, and US investment in ASEAN rose alongside regional investment. But the balance has shifted: ASEAN+3's economic center of gravity is now more regionally oriented than at any point in the past two decades.

Figure 2.16. Global and ASEAN+3 FDI Inflow Patterns

Global FDI Inflow Stock
(USD trillions)



ASEAN+3 FDI Inflow Stock by Sources
(Percent share)



Source: International Monetary Fund Coordinated Direct Investment Survey; AMRO staff calculations.
Note: ROW = Rest of the world; US = United States; FDI = Foreign direct investment. The colored data labels represent the percent share of total FDI inflow stock to ASEAN+3 from selected partner economies. Percent share totals may not sum to 100 due to rounding.

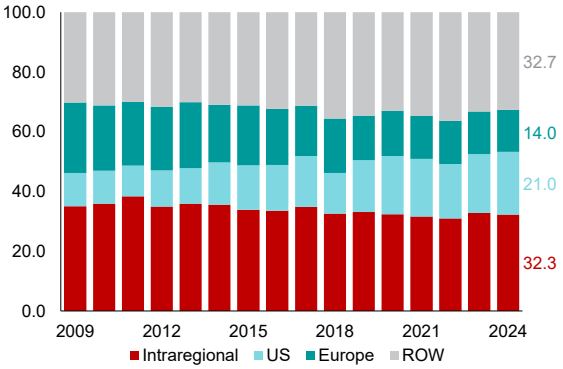
[9] See Online annex 3 for the economy-level trend of the FDI inflow stock by sources for each ASEAN+3 economies.

[10] Box 2.3 examines China's growing role as a source of investment capital for the ASEAN+3.

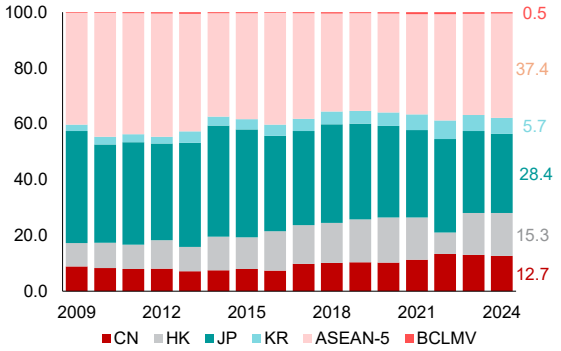
Figure 2.17. ASEAN FDI Inflow Pattern by Sources and Sectors

ASEAN-5

FDI Inflow Stock by Sources
(Percent share)

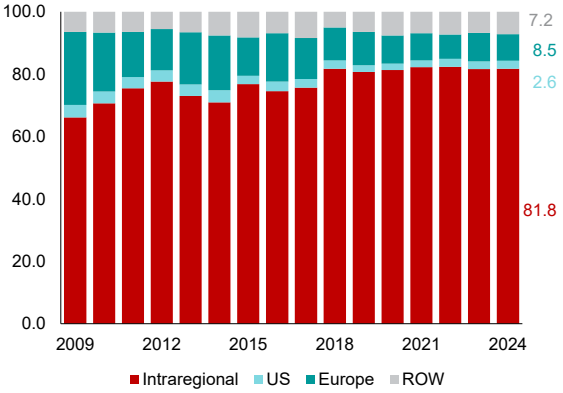


FDI Inflow Stock from ASEAN+3
(Percent share)

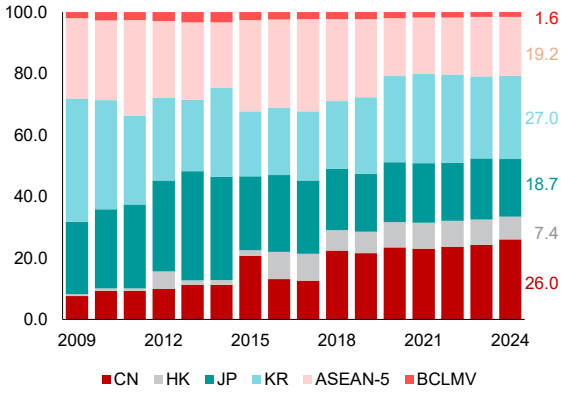


BCLMV

FDI Inflow Stock by Sources
(Percent share)

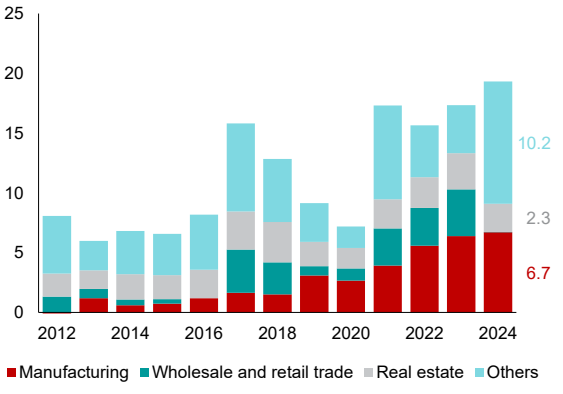


FDI Inflow Stock from ASEAN+3
(Percent share)

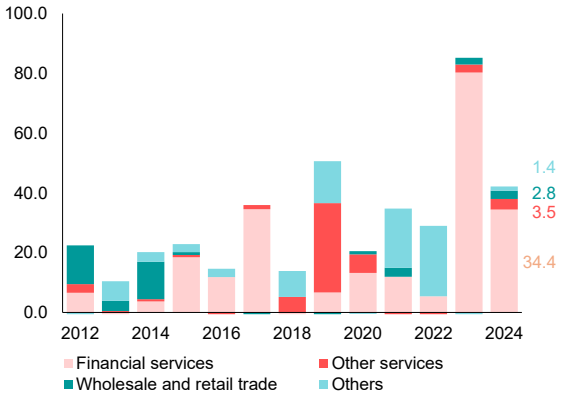


Sectoral Composition of FDI Inflow to ASEAN

Flows from China
(USD billions)



Flows from the United States
(USD billions)



Source: ASEAN Secretariat; International Monetary Fund Coordinated Direct Investment Survey (IMF CDIS); AMRO staff calculations.
Note: CN = China; HK = Hong Kong; JP = Japan; KR = Korea; US = United States; ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; FDI = Foreign direct investment; ROW = Rest of the world. The two charts on the bottom row reflect the top three sectors for FDI inflows by China and the US into ASEAN. For China, "others" refers to agriculture, mining, utilities, construction, financial services, other services, and unspecified activity. For the US, "others" refers to agriculture, mining, utilities, real estate, construction, manufacturing, and unspecified activity. The colored data labels represent the percent share of total FDI inflow stock. FDI inflow stock by source is derived from the IMF CDIS, while the sectoral composition is referenced from the ASEAN Secretariat. Percent share totals may not sum to 100 due to rounding.

Part II. Regional Business Cycle Synchronization and Policy Implications

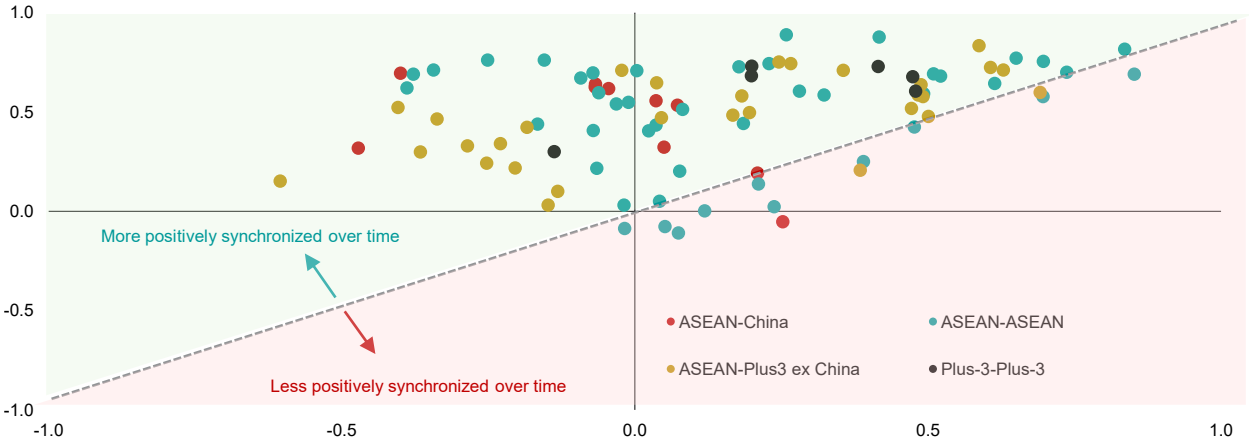
The transformation in ASEAN+3's economic linkages documented in the previous part raises a critical question: have these deeper connections brought business cycles closer together? If regional economies now move more in tandem, understanding why – and through what channels – becomes essential for macroeconomic management. This part examines these dynamics through two complementary lenses. First, it assesses whether business cycle synchronization has increased, and whether this reflects deeper regional integration. Second, it quantifies how shocks transmit across the region's integrated production networks, revealing how the tightening of supply chain linkages has altered the region's sensitivity to both intraregional and extraregional demand conditions. The findings have direct implications for how the region navigates the current environment of heightened trade policy uncertainty and geoeconomic reconfiguration.

Business Cycle Synchronization in ASEAN+3: Increasing Regional Synchronization[11]

Business cycles across ASEAN+3 have become more synchronized since 2000, coinciding with the deepening of regional economic linkages. Pairwise correlations of real GDP growth increased for most economy pairs when comparing 2001–2024 with 1980–2000, with ASEAN-ASEAN and intraregional pairs showing particularly notable increases (Figure 2.18). This pattern raises several questions. To what extent is greater synchronization driven by deeper regional linkages, as opposed to common global shocks? Can the increase be traced to supply chain integration specifically? And what are the magnitudes of cross-border spillovers when shocks occur? Three analytical steps address these questions: decomposing business cycle variance into global versus regional factors; examining if deeper regional value chain integration explains the tighter synchronization; and quantifying spillover magnitudes through input-output simulations that trace how shocks propagate through integrated production networks, including from the sectoral exposure perspective.

Regional factors have become increasingly important in explaining business cycle variation across ASEAN+3, particularly since the mid-2010s. A dynamic factor model decomposition indicates that both global and

Figure 2.18. Pairwise Real GDP Co-movement of ASEAN+3



Source: World Bank World Development Indicators; AMRO staff calculations.
Note: Plus-3 = China, Hong Kong, Japan, and Korea. Bilateral economy pairs in the green area show an increase in real GDP growth co-movement from 1980 to 2000 and 2001 to 2024, while those in the red area show a decline instead.

[11/] Box 2.4 examines the development of the regional inflation synchronization.

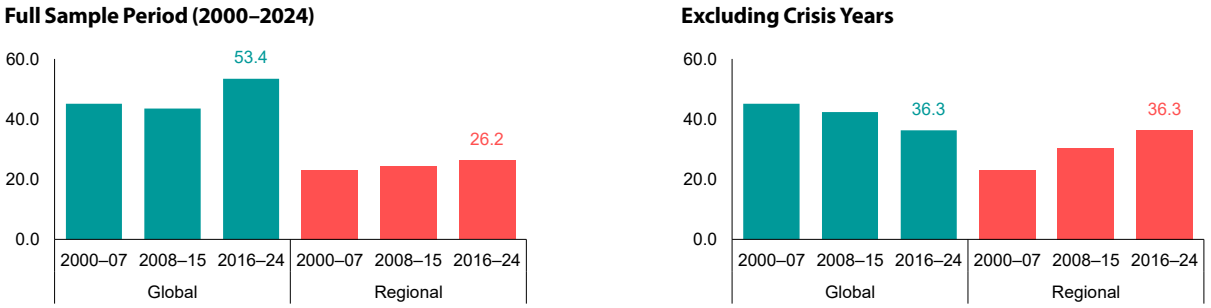
[12/] See Online annex 4 for a detailed description of the dynamic factor model employed in this chapter to assess the regional business cycle synchronization.

regional factors have grown more important over time in explaining business cycle fluctuations (Figure 2.19, left panel).[12] The importance of regional factors rose steadily, and by 2016–2024, excluding crisis years, regional factors explained a share of growth variance comparable to that of global factors (Figure 2.19, right panel). This shift became particularly pronounced after 2016, coinciding with escalating trade tensions between major economies and associated supply chain reconfigurations. The pattern contrasts with other regions globally, where the importance of regional factors has declined in recent years (Kose and others 2012; IMF 2013). Nevertheless, global factors remain a significant driver of the region's business cycle, especially during periods of global crises such as COVID-19 and the subsequent supply chain disruptions.

Supply chain integration, via deeper GVC and FDI linkages, is significantly associated with the increased business cycle synchronization in the region. Regression analysis examining the determinants of pairwise business cycle correlations finds that both GVC trade linkages and FDI integration are positively and significantly associated with co-movement among ASEAN+3 economies.[13] When examining correlations with China specifically, the estimated coefficients are roughly two to three times the magnitude of the full-sample estimates, indicating that China-anchored production and investment networks are an important channel through which regional synchronization has increased. This is consistent with literature linking trade intensity and vertical specialization to greater cyclical synchronization (Frankel and Rose 1998; Calderón and others 2007; Kose and others 2012). Overall, this finding establishes that supply chain integration is a key driver of regional synchronization. The next question is what this integration implies for how shocks actually transmit across the region – and whether the region's sensitivity to intraregional versus extraregional demand conditions has shifted as production networks deepened.

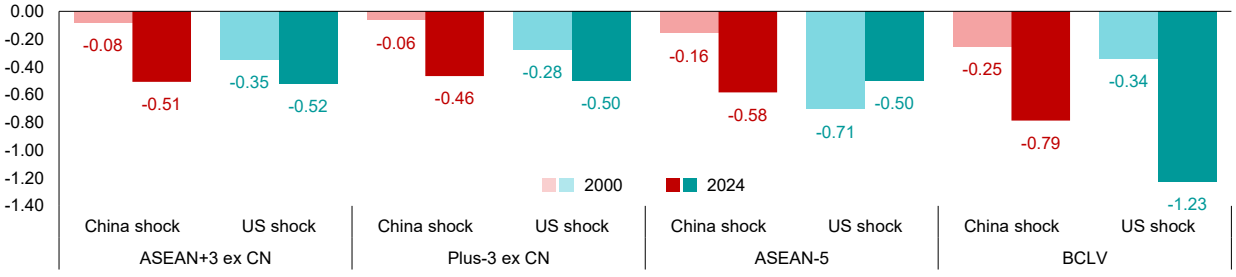
In tandem with increased regional synchronization, input-output simulations reveal that intraregional economic shocks have gained importance relative to extraregional ones since 2000. Input-output simulations indicate that a 10 percent decline in China's final demand would reduce GDP across the rest of ASEAN+3 by approximately 0.5 percent, based on 2024 trade structures (Figure 2.20). This is more than five

Figure 2.19. Variance in Real Growth of ASEAN+3 Explained by Factors
(Percent share of total variance)



Source: World Bank; AMRO staff calculations.
Note: Crisis years refer to the global financial crisis (2008–2009) and COVID-19 (2020–2021). The variance in real growth is decomposed into shares explained by global factor, regional factor, and idiosyncratic economy-specific fluctuations, based on an estimated dynamic factor model (DFM). Online annex 4 presents a detailed description of the DFM employed to assess the business cycle synchronization.

Figure 2.20. Impact on Value Added of ASEAN+3 (excl. China) due to a 10-percent China or US Final Demand Shock in 2000 and 2024
(Percent of GDP)



Source: Asian Development Bank (ADB) Multiregional Input-Output (MRIO) Table; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLV = Brunei, Cambodia, Lao PDR, and Vietnam; Plus-3 ex CN = Hong Kong, Japan, and Korea. Excludes Myanmar due to data unavailability. Values represent the simulated impacts on the regional value added due to a hypothetical 10-percent final demand shock from China or the United States, based on the ADB MRIO Table in 2024. Lighter color bars represent simulated impacts in 2000, darker color bars represent simulated impacts in 2024. See Online annex 6 for the methodology.

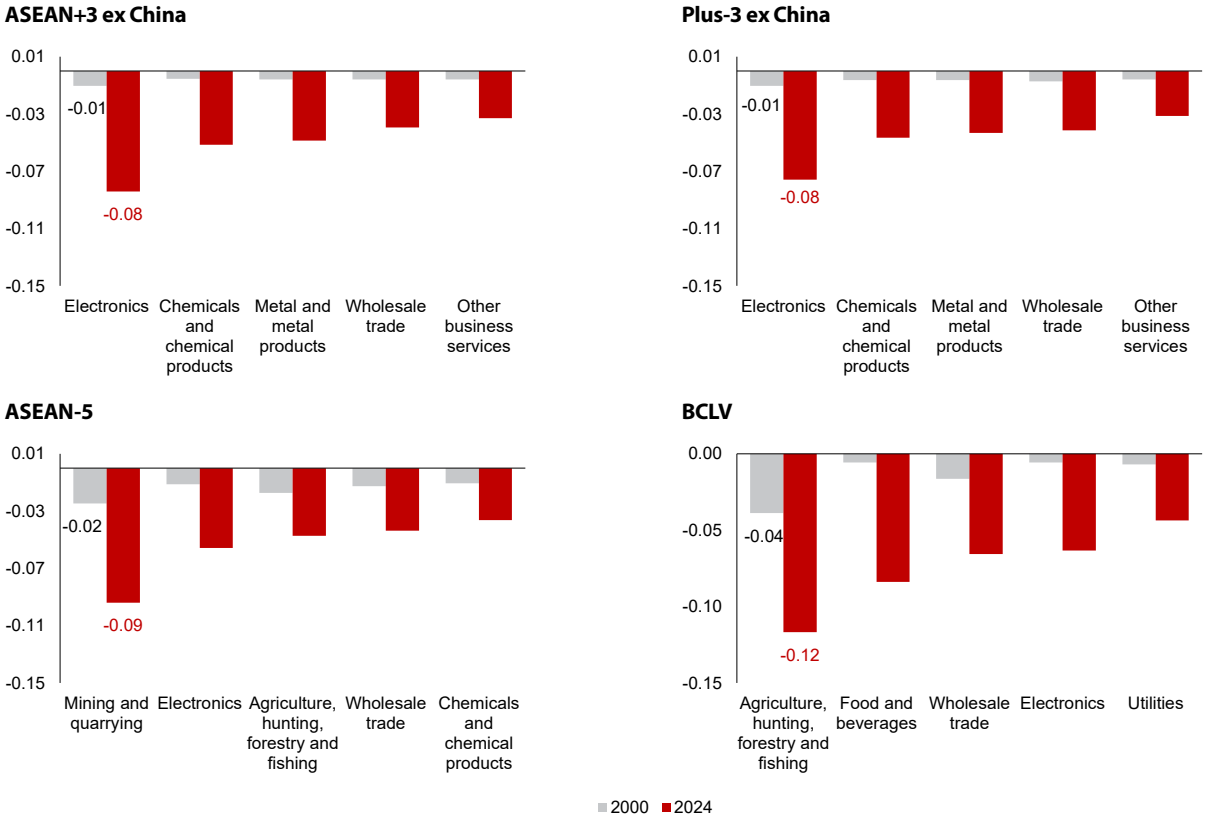
[13/] See Online annex 5 for a detailed description of the regression analysis to assess the trade and business cycle synchronization relationship.

times higher than in 2000.[14] This trend is true across all subregions within ASEAN+3 since 2000, consistent with the deepening supply chain and demand linkages documented in the previous part. By comparison, the impact of US final demand shocks, while remaining important, has seen relatively smaller increases compared to China for most regional economies, and has declined for ASEAN-5. Vietnam is a notable exception, experiencing rising sensitivity to both Chinese and US demand shocks, reflecting its rapid integration into supply chains serving both markets.

The sectoral concentration of these spillovers varies across subregions, reflecting differences in trade composition. For ASEAN+3 excluding China, the largest impacts from China demand shocks fall on electronics and chemicals sectors – consistent with the composition of regional exports serving Chinese final demand documented earlier (Figure 2.21). Subregional patterns differ: Plus-3 economies experience the greatest impact in electronics and chemical products; ASEAN-5 in mining and electronics; and BCLV in agriculture and food and beverages. US demand shocks similarly concentrate in electronics and wholesale sectors. However, while the US impact remains substantial – and has increased for Plus-3 and BCLV – China's sectoral spillovers have grown more sharply across the region, and the US impact on ASEAN-5 has declined. This sectoral pattern echoes the aggregate finding: extraregional factors remain significant, but intraregional linkages have become comparably important.

The interdependence runs in both directions: ASEAN's impact on China's economy has also strengthened over time. While the aggregate impact of ASEAN+3 excluding China on Chinese GDP has declined between 2000 and 2024, this masks a compositional shift (Figure 2.22). The impact from other Plus-3 economies has diminished, while the impact from ASEAN economies has increased – reflecting China's expanded trade relations with ASEAN over the past two decades. This two-way sensitivity

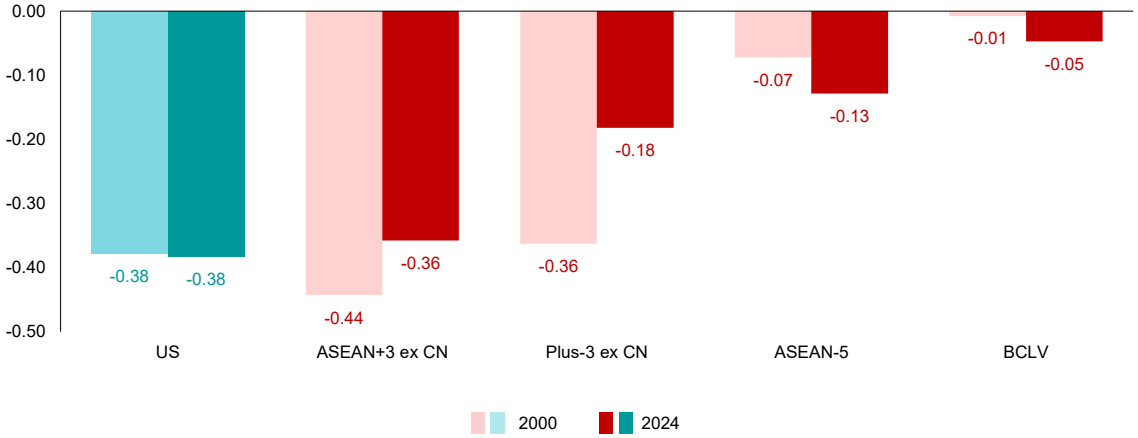
Figure 2.21. Impact on Sectoral Value Added of ASEAN+3 (excl. China) due to a 10-percent China Final Demand Shock in 2000 and 2024
(Percent of GDP)



Source: Asian Development Bank (ADB) Multiregional Input-Output (MRIO) Table; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLV = Brunei, Cambodia, Lao PDR, and Vietnam; Plus-3 ex China = Hong Kong, Japan, and Korea. Excludes Myanmar due to data unavailability. Values represent the simulated impacts on the sectoral value added due to a hypothetical 10-percent final demand shock from China, based on the ADB MRIO Table in 2024. The mapping to ADB's short sector labels is as follows: Agriculture, hunting, forestry, and fishing = AGF; Chemicals and chemical products = CHPH; Electronics = CEOE; Food and beverages = FOB; Metal and metal products = BMMP; Mining and quarrying = MIN; Other business services = OBZS; Utilities = EGWT; Wholesale trade = WXV. See Online annex 6 for the methodology and full definition of the sectors.

[14] The simulation discussed here should be interpreted as first-round, partial-equilibrium spillovers transmitting through existing production networks, it does not consider macroeconomic feedback, price adjustments, and policy responses. Additionally, results reflect the production structure recorded in periodically compiled input-output tables, which may abstract from the most recent structural shifts. See Online annex 6 for further discussion of the methodology, and simulation for all ASEAN+3 economies individually.

Figure 2.22. Impact on Value Added of China due to a 10-percent Final Demand Shock from Selected Economic Partners in 2000 and 2024
(Percent of GDP)



Source: Asian Development Bank (ADB) Multiregional Input-Output (MRIO) Table; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLV = Brunei, Cambodia, Lao PDR, and Vietnam; Plus-3 ex CN = Hong Kong, Japan, and Korea. Excludes Myanmar due to data unavailability. Values represent the simulated impacts on China's value added due to a hypothetical 10-percent final demand shock from the region or the United States, based on the ADB MRIO Table in 2024. The lighter color bars represent simulated impacts in 2000, while the darker color bars represent simulated impacts in 2024. See Online annex 6 for the methodology.

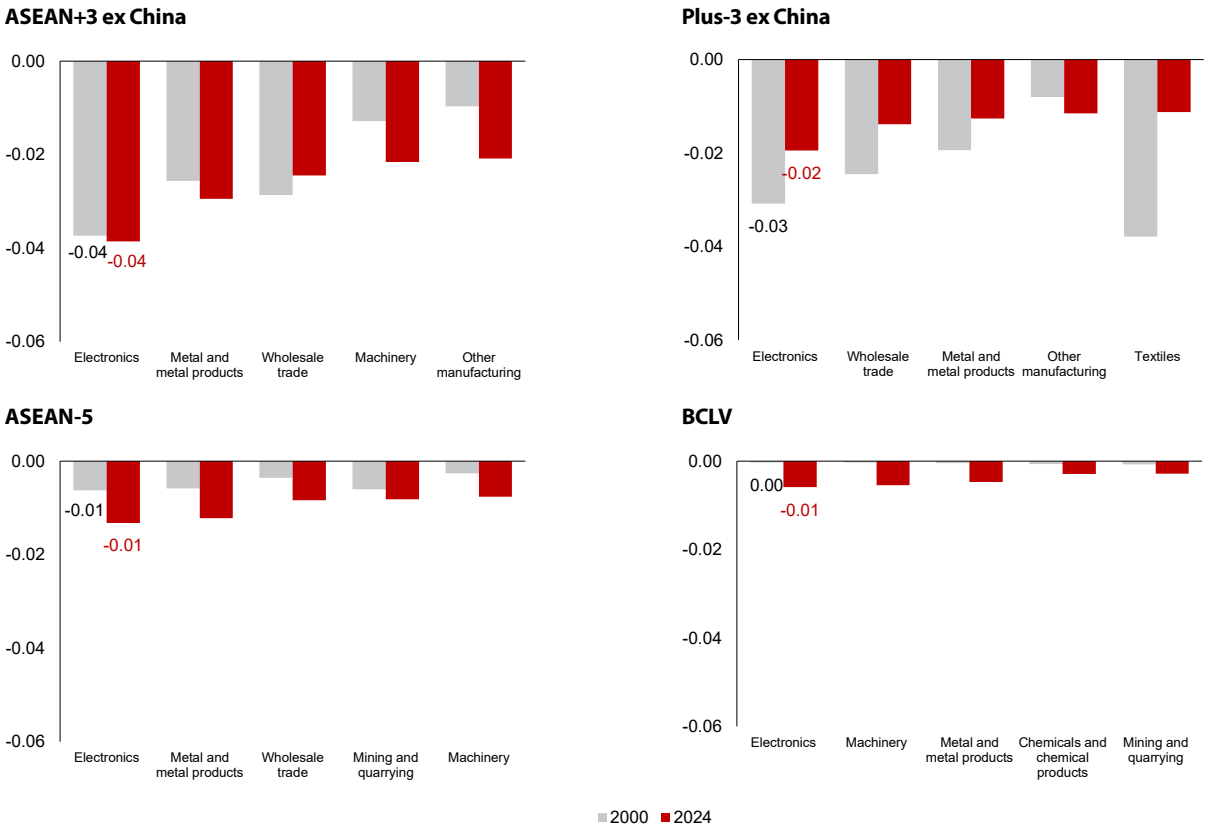
reinforces the mutual interdependence characterizing current regional linkages, though ASEAN's impact on China remains smaller in magnitude compared to the other Plus-3 economies and the United States.

China's electronics sector is most exposed to demand conditions in the rest of the region. A demand shock originating in ASEAN+3 excluding China would affect China's electronics sector most significantly, reflecting the interdependence in electronics trade documented in the previous part (Figure 2.23). The impact from Plus-3 demand shocks on China's electronics sector remains larger than from ASEAN, given China's reliance on Japan and Korea as a source of final demand for high-precision components and capital equipment – though this impact has declined over time. Demand shocks from ASEAN increasingly affect China's electronics and metals industries, consistent with China's export composition to ASEAN. Overall, the sensitivity to ASEAN demand conditions has increased in most sectors in China.

These findings – alongside those from the previous part – have direct relevance for assessing the region's vulnerability to potential further escalation in protectionist trade measures. Tariff measures represent, in economic terms, a negative demand shock from the imposing economy – higher tariffs reduce demand for trading partners' exports, transmitting contractionary pressure through the trade channel. The analysis in this section suggests that the region's sensitivity to such shocks has shifted. Two decades ago, when the United States accounted for a substantially larger share of ASEAN+3's final demand, a US demand shock would have had more pronounced regional effects. Today, the region's demand base is more regionally anchored: intraregional final demand has grown in importance while the US share has declined. The input-output simulations examine this shift: sensitivity to US demand shocks relative to intraregional demand shocks has declined.

The character of the region's supply-side integration also carries implications for exposure to trade measures aimed at transshipment. As discussed previously, intraregional trade is concentrated on intermediate and capital goods, reflecting genuine regional value chain integration rather than primarily the re-routing of finished goods. This distinction matters in an environment where concerns about trade circumvention and transshipment have prompted threats of secondary tariffs: economies embedded in regional supply chains through substantive value-added activities are positioned differently than those that are primarily transit points. None of this implies immunity to extraregional trade policy; tariff escalation would still carry real costs, and global factors remain significant drivers of regional cycles. But should external pressures intensify, the structural transformation in the region's linkages – both the shift toward regional demand sources and the deepening of genuine production integration – would provide a degree of buffering that would not have existed under earlier configurations.

Figure 2.23. Impact on Sectoral Value Added of China due to a 10-percent Final Demand Shock from Other ASEAN+3 Economies in 2000 and 2024
(Percent of GDP)



Source: Asian Development Bank (ADB) Multiregional Input-Output (MRIO) Table; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLV = Brunei, Cambodia, Lao PDR, and Vietnam; Plus-3 ex China = Hong Kong, Japan, and Korea. Excludes Myanmar due to data unavailability. Values represent the simulated impacts on the sector value added due to a hypothetical 10-percent final demand shock from the region, based on the ADB MRIO Table in 2024. The mapping to ADB's short sector labels is as follows: Chemicals and chemical products = CHPH; Electronics = CEOE; Machinery = OMQ; Metal and metal products = BMMP; Mining and quarrying = MIN; Other manufacturing = OMF; Textiles = TX1; Wholesale trade = WXV. See Online annex 6 for the methodology and full definition of the sectors.

Policy Discussion: Managing Increasing Synchronization

That ASEAN+3 economies have become more regionally anchored over the past two decades has important implications for macroeconomic management beyond the current conjuncture. The analysis in this part reveals a region fundamentally different from two decades ago, one where intraregional linkages now rival extraregional factors in shaping macroeconomic outcomes. Regional factors have become as important as global factors in explaining business cycle variation, with this shift particularly pronounced since 2016. Spillovers from intraregional demand shocks have increased across all subregions, while the region's largest economies have become more consequential for each other's cyclical dynamics. These aggregate patterns mask sectoral and subregional heterogeneity, but the overall direction is consistent: the region's economic center of gravity has shifted inward. This changed landscape carries implications for how policymakers should approach macroeconomic management – implications that extend beyond the current episode of trade tensions to the broader question of navigating an increasingly interconnected regional economy.

The trend toward greater regional integration and synchronization is likely to persist, if not intensify, going forward. A number of structural trends underpin this. Globally, continued geoeconomic reconfiguration and policy uncertainty in the trading environment are likely to reinforce regional integration momentum, as economies seek to reduce exposure to extraregional policy volatility. Technological advancement opens new frontiers for regional integration, including enabling deeper linkages in services trade that complement the goods-based production networks of the past two decades. Within the region, demographic shifts and trends toward economic rebalancing also point toward continued growth in domestic demand, further tilting the demand base toward regional sources. Taken together, these structural trends suggest that regional integration is likely to continue, and regional factors may become even more important in explaining business cycle dynamics, making the management of synchronization an increasingly central consideration for regional policymakers.

Greater synchronization brings both opportunities and vulnerabilities – and the policy challenge lies in navigating this balance. When economies face similar cyclical positions, they can more readily identify common policy priorities and coordinate responses, reducing the transaction costs of regional initiatives and enabling more efficient allocation of capital and labor across borders.[15] Policymakers also benefit from shared experiences in addressing common challenges. At the same time, synchronization creates channels for rapid transmission of shocks: a downturn originating in one economy can spread quickly through trade, supply chain, and investor confidence effects.[16] The diversification benefits that underpin regional support mechanisms are reduced when all economies contract simultaneously, potentially straining regional financial safety nets designed primarily to address economy-specific challenges. Building resilience within an increasingly interconnected regional economy is therefore the appropriate and necessary policy orientation. This points to three important policy implications: maintaining sound domestic macroeconomic management, enhancing regional policy dialogue and surveillance exchange, and preserving preparedness against global shocks.

Sound domestic macroeconomic management takes on heightened significance in a more interconnected region. As spillovers across economies have strengthened, the soundness of macroeconomic management in each economy has become a matter of regional, not just domestic, concern. Instability in one economy can transmit rapidly to others through the trade, investment, and confidence channels that now bind the region more tightly together. This is especially consequential for larger economies whose conditions carry greater weight in regional outcomes. In this sense, regional stability is built from the foundations up – the most effective insurance against regional instability is ensuring that each economy maintains the policy frameworks and buffers needed to preserve its own stability. When each economy strengthens its policy foundations and buffers, the region becomes more resilient.

Enhanced regional dialogue and surveillance exchange have also become increasingly valuable. The growing importance of regional factors in explaining business cycle variation underscores that policymakers need to understand developments in regional partner economies – not as a matter of general interest, but as an input into their own policy assessments. Existing frameworks, including the ASEAN+3 Finance Track process, provide foundations for such exchange. As regional spillovers intensify, the value of timely regional dialogue and exchange of information on macroeconomic conditions, policy intentions, and emerging risks across the region rises correspondingly. Such dialogue and exchange need not imply policy harmonization; the diversity of economic structures and policy circumstances across ASEAN+3 naturally calls for approaches suited to each economy's situation. Rather, it calls for deeper mutual awareness – a shared understanding of how developments in one economy may affect others, and how policy responses in one jurisdiction may interact with conditions elsewhere. Such dialogue and exchange can help identify vulnerabilities early and reduce the risk of policy actions that inadvertently amplify regional stress.

As the region remains exposed to global factors, preparedness against external shocks is essential. Global factors continue to explain a significant portion of business cycle variation across ASEAN+3 economies, and extraregional demand remains important for many regional exporters. In an environment likely to be characterized by continued policy uncertainty and potential further geoeconomic reconfiguration, maintaining the capacity to respond to external shocks becomes critical. This requires preserving policy optionality and agility: adequate fiscal space to deploy countercyclical support, monetary policy flexibility to respond to changing conditions, and sufficient reserve buffers to manage external pressures. It also requires robust surveillance capabilities – both within economies and the region – that can detect shifts in the global environment early and enable rapid policy adjustment. The region's experience navigating past crises demonstrates the value of such preparedness; the current environment suggests it will remain essential.

Taken together, these three priorities – sound domestic frameworks, enhanced regional dialogue, and preparedness for global shocks – form the foundation for managing synchronization in an increasingly interconnected region. They address the near-term policy challenges that arise from deeper regional linkages: reducing the risk of instability transmission, improving collective awareness of regional developments, and maintaining the capacity to respond to external pressures.

---

[15] This relationship is well documented in the literature. For instance, Melitz (2003) and Duval and others (2014) demonstrate that greater business cycle alignment lowers the costs of implementing trade facilitation and financial integration initiatives, supporting more efficient cross-border resource allocation.

[16] These transmission channels have been explored in past studies. For instance, Bems and others (2010) and di Giovanni and others (2018) showed that international production sharing amplified the global trade collapse during the financial crisis, as demand shocks propagated rapidly through vertically integrated supply chains. Dai (2014) also demonstrated that the same integration supporting efficiency also strengthens contagion channels during downturns.

Part III. Harnessing Economic Linkages for Long-term Growth and Resilience

Beyond cyclical considerations, a broader policy question concerns how ASEAN+3 can harness its deepened economic linkages to sustain resilience and growth over the longer term. This question has gained urgency amid the current geoeconomic reconfiguration. The tariff measures and broader trade policy uncertainty facing the region are not isolated shocks but part of a potentially more fragmented global environment that may persist.

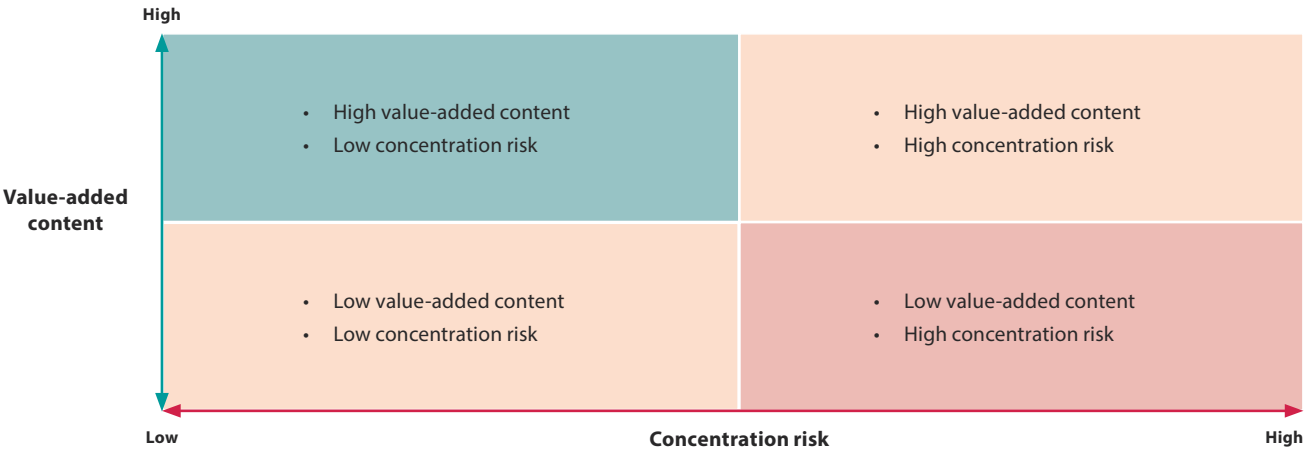
Economies must therefore consider not only how to weather current pressures but how to position themselves strategically within evolving regional and global networks. While deeper integration has contributed to the region's economic expansion and provided some buffer against external uncertainties, it also raises questions about how economies can continue capturing benefits while managing risks and ensuring gains are broadly shared.

Mapping ASEAN+3 GVC Integration: Value Chain Upgrading and Concentration Risk

The question of how to position within evolving economic linkages becomes particularly important as structural and external headwinds intensify. ASEAN+3 economies face the challenge of sustaining growth momentum as factors that previously facilitated strong macroeconomic performance are weakening. The region is aging faster than other developing regions, capital accumulation has slowed from earlier peaks, and productivity growth has remained modest (AMRO 2024, 2025). As a result, the region's potential growth declined from 6.0 percent in the early 2000s to 4.0 percent in 2025, with projections suggesting a further decline to around 3.0 percent by 2050 (AMRO 2025). These structural constraints are now compounded by geoeconomic uncertainty: the prospect of further trade policy shifts, and the potential for more lasting fragmentation add complexity to decisions about investment and supply chain configurations. In this context, how economies position themselves within evolving regional and global linkages – whether they can move up value chains, diversify against concentration risks, and ensure inclusive participation – will significantly shape their long-term resilience and growth trajectories.

A stylized framework illustrates the choices facing ASEAN+3 economies by assessing their positions across two dimensions: value-added content and concentration risk. The first dimension examines whether economies have progressed toward higher value-added activities, reflecting their ability to capture greater benefits from integration. This is measured by the share of value-added exports from higher value-added sectors in total value-added exports. The second dimension captures concentration risk – the extent to which an economy's integration exposes it to disruption from dependence on specific partners or sectors. This is measured by adapting the "pass-through frequency" approach of Inomata and Hanaka (2024), which reveals exposure to supply chain disruptions that volume-based measures may miss.[17] Together, these dimensions create four quadrants, with the world average as the dividing line, allowing comparison of each economy's position relative to global patterns (Figure 2.24).

Figure 2.24. Global Value Chain Position Framework



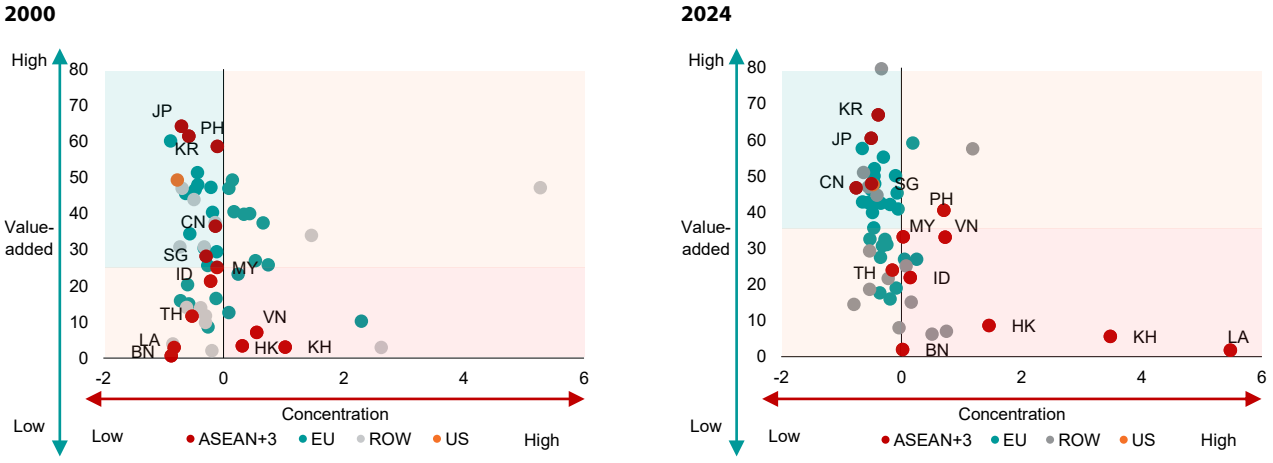
Source: AMRO staff.
Note: Online annex 7 presents a detailed explanation of the global value chain position framework, including the measurement methodology of both x-axis and y-axis dimensions.

17/ See Online annex 7 for a detailed explanation of the global value chain position framework, including the measurement methodology of the pass-through frequency index.

Mapping ASEAN+3 economies onto this illustrative framework reveals how the region's position evolved between 2000 and 2024. In 2000, China, Japan and Korea were in the top-left quadrant, combining higher value-added activities with lower concentration risk relative to the world average (Figure 2.25). Most ASEAN economies were in the bottom-left quadrant, with lower concentration risk but also lower value-added content. Cambodia, Hong Kong, and Vietnam were in the bottom-right quadrant, facing both lower value-added content and relatively higher concentration risk. By 2024, the picture had shifted notably. Singapore moved into the top-left quadrant, joining China, Japan, and Korea. However, many ASEAN economies shifted toward either the top-right or bottom-right quadrants. While these movements reflect increased value-added activities for some economies, they also indicate potential concentration risks across much of the region – a diagonal movement consistent with ASEAN economies' deeper embedding in the Asian production network cluster. This contrasts with the EU, where economies became relatively less concentrated compared to the global average over the same period.

This diagonal movement – gaining in value-added while accumulating concentration risk – encapsulates the central policy challenge. Integration has delivered benefits: economies have moved up value chains, captured productivity spillovers, and achieved scale beyond what domestic conditions alone would permit. But these gains have come alongside increased exposure to disruption. The current environment of trade policy uncertainty and potential further geoeconomic reconfiguration amplifies both the stakes and the complexity of these positioning choices – decisions made now about supply chain relationships, market diversification, and capability investments will shape how economies navigate not just current pressures but the structural environment likely to unfold over the coming decade. The policy question is not whether to pursue or avoid integration, but how to continue capturing its benefits while managing the risks that accompany deeper embedding in regional value chains.

Figure 2.25. Global Value Chain Position of Selected Economies
(Percent; Index)



Source: Asian Development Bank Multiregional Input-Output Table; Inomata and Hanaka (2024); AMRO staff calculations.
Note: BN = Brunei; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam; EU = EU-27 member economies; ROW = Rest of the world; US = United States. The y-axis represents each economy's value-added exports in high value-added sectors as a share of its total value-added exports. High-value sectors are defined by the Organisation for Economic Co-operation and Development as sectors with high research and development spending as a share of global value-added. The x-axis shows the normalized Herfindahl-Hirschman Index of the pass-through frequency indicator. Online annex 7 presents a detailed explanation of the global value chain position framework, including the measurement methodology of both x-axis and y-axis dimensions.

Three Policy Priorities: Upgrading, Resilience, and Inclusion

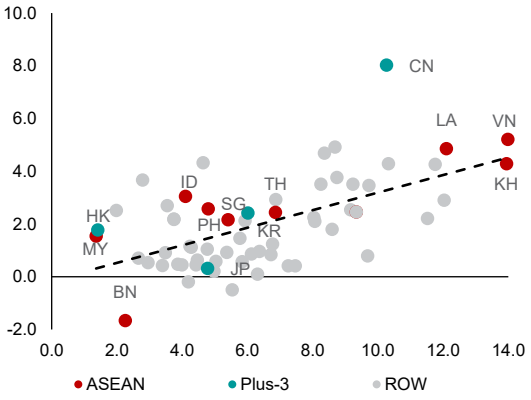
Addressing this challenge requires policy directions across three interconnected dimensions. First, economies must continue upgrading domestic capabilities to move toward higher value-added activities – the vertical dimension of the framework. Second, economies need to promote supply chain resilience by reducing concentration risks through diversification – the horizontal dimension. Third, economies must ensure inclusive participation so that integration gains are broadly shared across firms, regions, and workers – a distributional effect that cuts across both dimensions. These three priorities – upgrading, resilience, and inclusion – are interconnected and mutually reinforcing: progress in capability development supports supply chain resilience efforts, while inclusive policies help build the broad-based human capital needed for upgrading. The relative emphasis across these priorities varies depending on each economy's current position in the framework, as well as its development stage and structural characteristics.

Upgrading Domestic Capabilities

Integration generates productivity gains through multiple channels that are critical for sustaining growth, but capturing these gains requires deliberate capability building. Participation in GVCs exposes domestic firms to international best practices and competitive pressures (Taglioni and Winkler 2016; World Bank 2020). In particular, backward linkages involving imported inputs are positively associated with productivity growth – a factor that has been slowing in ASEAN+3 (Figure 2.26; AMRO 2025). FDI transfers production technologies, managerial practices, and quality standards, while labor mobility facilitates skill development and knowledge transfer (Javorcik 2004; World Trade Organization and others 2023). However, sustaining these productivity gains requires moving beyond lower value-added production stages, where some regional economies remain concentrated in. Without deliberate efforts to build domestic capabilities, economies risk becoming trapped at intermediate production stages – a "middle-technology trap" (Andreoni and Tregenna 2020).

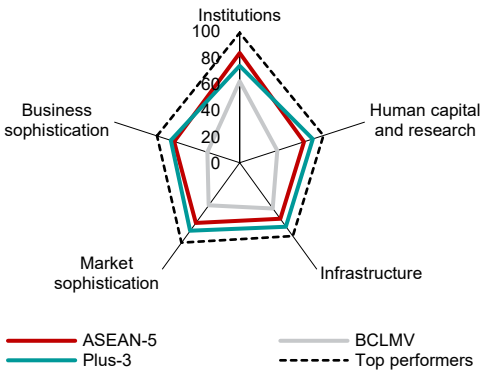
For economies in the lower half of the framework – those with lower value-added content – moving upward requires sustained investment in innovation ecosystems, human capital, infrastructure, and institutional quality. These elements form an interconnected system: innovation capacity requires not only research institutions and private research and development (R&D) but also infrastructure and intellectual property frameworks that facilitate knowledge creation (Organisation for Economic Co-operation and Development [OECD] 2015, World Bank 2020). Human capital development extends beyond foundational education to specialized technical education (OECD 2019). However, these investments alone are insufficient – realizing their potential depends on absorptive capacity, which determines whether economies can effectively identify, adopt, and diffuse relevant technologies (Perkmann and others 2013; Cirera and Maloney 2017; Bloom and others 2019). Progress in these areas varies substantially across the region, with ASEAN economies lagging behind the Plus-3 (Figure 2.27). Policy priorities should therefore reflect the development stage, with advanced economies focusing on frontier innovation and less developed economies on foundational capabilities such as basic infrastructure, technical education, and innovation financing.[18] For ASEAN economies specifically, leveraging deep extraregional linkages – particularly with Plus-3 partners – can accelerate this progression by channeling technology transfer, managerial know-how, and productivity spillovers into domestic capability building (Special Feature: ASEAN at a Crossroads: Pathways for Deeper Economic Integration).

Figure 2.26. GVC participation (x-axis) versus Productivity (y-axis) by Selected Economies
(Compounded annual growth rate, 2000 to 2024)



Source: Asian Development Bank Multiregional Input-Output Table; Harvard Growth Lab; International Monetary Fund; AMRO staff calculations.
Note: Plus-3 = China, Hong Kong, Japan, and Korea; ROW = Rest of the world. Global value chain (GVC) participation (x-axis) and productivity (y-axis) are measured as compounded annual growth rate (CAGR) from 2000 to 2024. For Cambodia, 2001 is used, and for Lao PDR, 2011 is used, due to missing 2000 data.

Figure 2.27. Global Innovation Index Pillar Scores of ASEAN+3
(Index, 0-100)



Source: Global Innovation Index (GII) Database; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; Plus-3 = China, Hong Kong, Japan, and Korea. Regional aggregate scores are weighted by real GDP in 2024. "Top performers" reflect the highest score in each GII dimension across 139 economies: Singapore (Institutions), Korea (Human capital and research), Norway (Infrastructure), and the United States (Market and business sophistication). The scores are as of 2025.

[18] Several ASEAN+3 economies have pursued targeted initiatives to upgrade their domestic capabilities: Singapore's Research, Innovation and Enterprise 2025 plan emphasizes deep-tech capabilities and innovation translation; Korea's Digital New Deal supports digital infrastructure and AI development; China's Made in China 2025 strategy focuses on high-tech manufacturing upgrading; and Thailand's Eastern Economic Corridor develops specialized infrastructure and human capital in targeted industries; Malaysia's Pioneer Status and Investment Tax Allowance schemes providing tax relief for R&D activities; Vietnam's High-Tech Law offering incentives for technology enterprises; Korea's Industry-University Cooperation Foundation facilitating university-industry collaboration; and Indonesia's National Innovation System and the Philippines' Technology Application and Promotion Institute providing technical assistance to SMEs for technology adoption. Box 2.6 examines the two modalities of semiconductor global value chain integration to support long-term industrial development in Korea and Malaysia.

Promoting Supply Chain Resilience

For economies with higher concentration risk, reducing vulnerability requires greater diversification strategies that have become more pressing amid current geoeconomic uncertainty. Heavy reliance on particular value chains or trading partners amplifies vulnerability to supply disruptions, external demand shocks, and the potential reconfiguration of trade relationships that tariff escalation or secondary measures could trigger. Recent disruptions – the COVID-19 pandemic and the 2011 Great East Japan Earthquake – have illustrated how concentration in specific networks can rapidly transmit shocks across ASEAN+3 production systems.[19] The observed increase in concentration risk from the GVC perspective across many ASEAN economies between 2000 and 2024 underscores the importance of addressing this challenge, particularly as trade policy uncertainty may persist.

Supply chain resilience strategies encompass three dimensions, with the appropriate mix varying by economy. First, geographic diversification reduces exposure to single markets by deepening relationships with secondary partners and establishing new trade and investment linkages – an approach that current trade tensions are accelerating across the region. Second, developing domestic supply capacity in key inputs reduces dependence on imported intermediates while creating opportunities for regional value addition. Third, sectoral diversification reduces vulnerability to industry-specific shocks by identifying adjacencies that leverage existing capabilities rather than attempting comprehensive transformation. Smaller economies may focus on geographic diversification and niche sectors, while larger ones can pursue broader sectoral transformation. Developing denser intraregional linkages can support these national diversification strategies by expanding the range of accessible suppliers and markets, reducing dependence on any single external partner, whether within or outside the region. When disruptions affect one supply source, established relationships with other regional partners provide alternatives that would otherwise take time to develop. This is particularly true for ASEAN economies, where economic integration has stalled since the mid-2010s (Special Feature: ASEAN at a Crossroads: Pathways for Deeper Economic Integration).

Ensuring Inclusive Participation

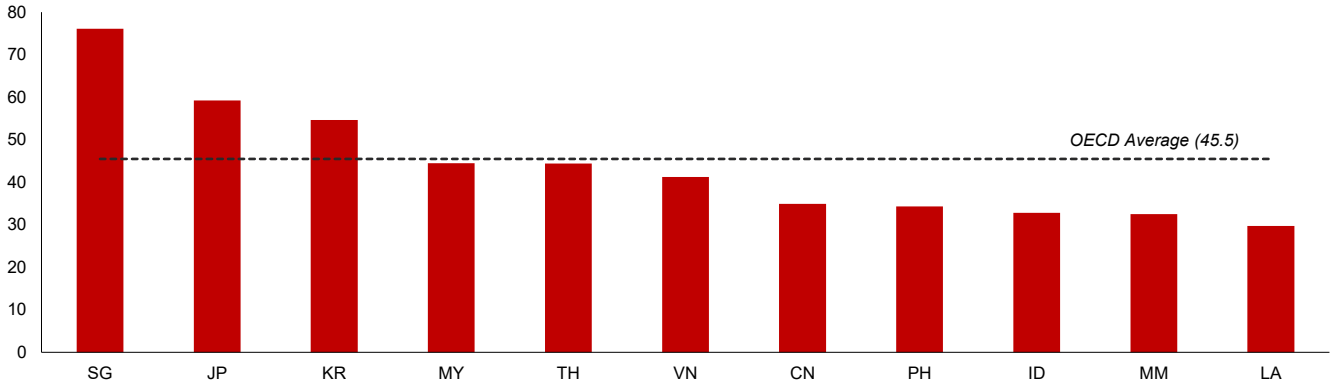
The third priority – ensuring inclusive participation – differs in nature from the first two. While domestic upgrading and supply chain resilience concern an economy's position in the framework, inclusion concerns the distribution of gains and potential incidence of risks within economies. Without complementary policies, integration gains risk concentrating in specific sectors, locations, or demographic groups, potentially widening inequalities. Evidence shows that gains typically accrue first to sectors and locations with advantages in infrastructure, skills, and institutions (World Bank 2009; Kümmritz and others 2017). Within labor markets, workers with higher education and skills complementing imported technologies capture wage gains, while those facing import competition may experience displacement (Autor and others 2013). These distributional patterns depend significantly on domestic policy frameworks, including infrastructure investment, education systems, and social protection mechanisms, which vary by economy, as demonstrated by the diverse outcomes in inclusive growth across ASEAN+3 economies (Figure 2.28).

Ensuring inclusive integration requires broadening participation for small and medium-sized enterprises (SMEs), lagging regions, and vulnerable workers. SMEs, which constitute the majority of firms and employment across the region, face disproportionate barriers, including information gaps, financing constraints, and compliance costs. Trade facilitation measures, export credit programs, and business development services can help address these barriers (OECD 2017). Lagging regions, such as rural and inland areas, need targeted infrastructure investment, industrial park development, or fiscal transfers to improve their integration prospects (World Bank 2009). For workers, the distribution of gains depends on labor market institutions, social insurance systems, and active transition policies, including retraining assistance, job search support, and wage insurance (Autor and others 2013; Card and others 2018). Social protection coverage varies significantly across ASEAN+3, and economies with limited resources may need phased implementation, starting with basic social insurance and gradually expanding coverage as fiscal space allows (International Labor Organization 2024). Regional cooperation initiatives, such as the ASEAN Framework on Social Protection and the ASEAN Social Security Association, can complement national efforts.

---

[19] These transmission effects in recent disruptions have been variously discussed. For instance, Bonadio and others (2021) found that supply chain disruptions accounted for one quarter of the pandemic-related GDP decline. Similarly, Todo and others (2015) showed that firms with more suppliers and clients outside disaster zones resumed production faster after the 2011 Great East Japan Earthquake than those relying primarily on local networks.

Figure 2.28. Inclusive Growth Index Across ASEAN+3 in 2023
(Index, 0-100)



Source: United Nations Conference on Trade and Development Inclusive Growth Index (UNCTAD IGI); AMRO staff calculations.
Note: CN = China; ID = Indonesia; JP = Japan; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. The UNCTAD IGI is a composite measure capturing how far economic growth is broad-based and inclusive, incorporating indicators of income, employment, education, health, and inequality. The Organisation for Economic Co-operation and Development (OECD) average contains the average scores of non-ASEAN+3 OECD members classified as advanced economies by the International Monetary Fund, for the purpose of relative comparison with advanced economies. Brunei, Cambodia, and Hong Kong are not shown due to data unavailability.

Summary and Concluding Discussion

The structural transformation documented in this chapter suggests the region is better positioned to weather the current trade disruptions than earlier configurations would have allowed. The region's demand base is now more regionally anchored, with intraregional final demand substantially more important than two decades ago. Its supply-side integration reflects genuine production networks – concentrated in trade of intermediate and capital goods – rather than the mere re-routing of goods without substantive value addition. This does not imply immunity to external headwinds, but it does suggest a degree of resilience that the conventional characterization of the region would not predict. The structural changes have also led business cycles to become more synchronized, with regional factors now rivalling global factors in explaining cyclical variation. While this greater regional anchoring provides some buffering against external demand shocks, it also creates channels through which regional developments transmit more readily – making the quality of domestic policy frameworks a matter of regional, not just domestic, concern. Over the longer term, the benefits of deeper integration have been accompanied by rising concentration risks for many economies – framing the central policy challenge of capturing integration's gains while managing accompanying vulnerabilities.

The deepening of regional linkages makes regional cooperation even more important than it has been in the past. Sound domestic frameworks remain essential – in macroeconomic management over the near term, and in upgrading capabilities and diversifying external linkages over the longer term. But cooperation at the regional level can amplify these domestic efforts while helping economies manage the shared vulnerabilities that deeper integration creates. For managing synchronization, policy dialogue and surveillance exchange help economies anticipate shared vulnerabilities and understand how developments in one economy may affect others – not through policy harmonization, but through deeper mutual awareness. For supporting long-term resilience and growth, regional initiatives in trade and investment facilitation, infrastructure connectivity, and financial cooperation can complement domestic efforts to upgrade and diversify. For ASEAN specifically, structural constraints mean that further deepening integration requires not only continued trade facilitation but also strengthening intraregional investment and supporting firms' cross-border expansion – pathways examined in the Special Feature (ASEAN at a Crossroads: Pathways for Deeper Economic Integration).

The landscape shaping ASEAN+3's integration will continue to evolve. The current episode of trade disruption may mark an inflection point rather than a temporary disruption. The trend toward deeper regional integration and greater business cycle synchronization is likely to persist: continued geoeconomic tensions may reinforce momentum toward deepening regional ties, while demographic shifts and economic rebalancing are shifting consumption patterns in ways that strengthen intraregional demand linkages. Beyond these, new sources of disruption and opportunity are emerging – from digital technologies creating new forms of cross-border production and service delivery, to the green transition reshaping energy systems and comparative advantage, to artificial intelligence accelerating shifts in ways that are difficult to anticipate. Geopolitical fragmentation adds further uncertainty, with the potential to reorder value chains in ways that affect the region's established patterns of integration. These developments underscore the importance of building adaptive capacity – the ability to assess how circumstances are changing and adjust strategies accordingly. The analysis in this chapter provides a framework for understanding how the region's position is evolving and where policy attention may be needed. The region has demonstrated in the past the ability to adapt collectively when shared challenges arise. ASEAN+3's growth over the past two decades was built on openness, integration, and cooperation; sustaining growth in a more uncertain world will require deepening all three.

Special Feature: ASEAN at a Crossroads: Pathways for Deeper Economic Integration

"What we have decided today is only a small beginning of what we hope will be a long and ongoing series of achievements, of which we ourselves, those who will join us later, and future generations can be proud."

Thanat Khoman, Foreign Minister of Thailand, at the founding of ASEAN (1967)

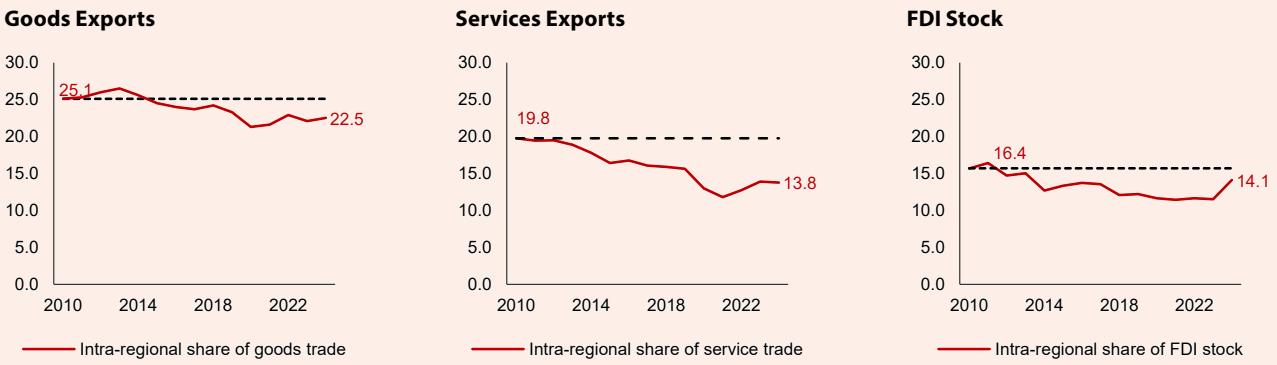
ASEAN is one of the most important economic regions in the global economy. Nearly six decades ago, Thailand's Foreign Minister Thanat Khoman described the founding of ASEAN as "only a small beginning." His words proved prescient. With 700 million people and an economy worth more than USD 4 trillion by 2024, the region is expected to surpass the Japanese economy in size by 2027 and the fifth-largest economy in the world.[20] It is also one of the fastest-growing regions in the world, with growth consistently above the global average since the 1980s. ASEAN has a highly open economy and is deeply integrated into international markets and supply chains, with a trade-to-GDP ratio exceeding 95 percent. It attracted record foreign direct investment (FDI) inflows of USD 226 billion in 2024, equivalent to 15 percent of global FDI flows.[21]

Intra-ASEAN trade and investment shares have declined since the mid-2010s. In 2010, the intra-ASEAN goods trade share stood at 25.1 percent and the services trade share at 19.8 percent; by 2024, both had fallen to 22.5 percent and 13.8 percent, respectively (Figure 2.29, left and middle panels). Intra-ASEAN investment flows present a similar picture: despite total FDI inflows to ASEAN doubling over the past five years, the intraregional investment share declined from 16.4 percent in 2011 to 14.1 percent in 2024 (Figure 2.29, right panel).

Deeper intra-ASEAN integration is important not only for improving ASEAN's resilience against mounting external challenges, but also for strengthening the broader ASEAN+3 regional architecture. The global economic environment has become increasingly fragmented as geopolitical tensions and structural shifts reshape trade networks, heightening uncertainty for smaller open economies. Yet despite decades of policy efforts, intra-ASEAN integration remains shallow relative to its potential. A more densely connected ASEAN would help mitigate external vulnerabilities while complementing – rather than substituting for – the region's deep linkages with the Plus-3 economies, creating a more balanced and resilient production network that benefits ASEAN+3 as a whole.

This special feature provides an assessment of the current state of regional economic integration in ASEAN and outlines broad policy directions to deepen it. It assesses how far ASEAN's trade integration has progressed relative to underlying economic fundamentals and peer regions such as ASEAN+3 and the European Union (EU) and uses this benchmarking to highlight the structural factors that keep intraregional trade and production linkages shallow. Building on this diagnostic, it outlines policy pathways – illustrated with model-based simulations – through which ASEAN can leverage global value chain linkages and stronger intraregional investment to advance regional integration over the medium to long term.

Figure 2.29. Intraregional Trade and Investment Shares in ASEAN
(Percent of gross goods exports; Percent of gross services exports; Percent of gross investment stock)



Source: ASEAN Stats; United Nations Comtrade; AMRO staff calculations.
Note: FDI = Foreign direct investment. The dotted line represents the initial intraregional share in 2010 for each respective panel.

The authors of this special feature are Yohnsen Ang, Allen Ng, Haobin Wang (lead), and Yuhong Wu. This special feature summarizes key findings from the working paper "ASEAN at a Crossroads: Pathways for Deeper Economic Integration" (AMRO 2026).

20/ In 2027, the nominal GDP of ASEAN is estimated at USD 4.7 trillion, larger than Japan's USD 4.6 trillion. This would place ASEAN behind the United States, China, the European Union, and India (International Monetary Fund 2026).

21/ While global FDI flows in 2024 declined by 11 percent and inflows to developing regions remained broadly stagnant, investment in ASEAN increased by 8 percent in 2024 (United Nations Conference on Trade and Development 2025).

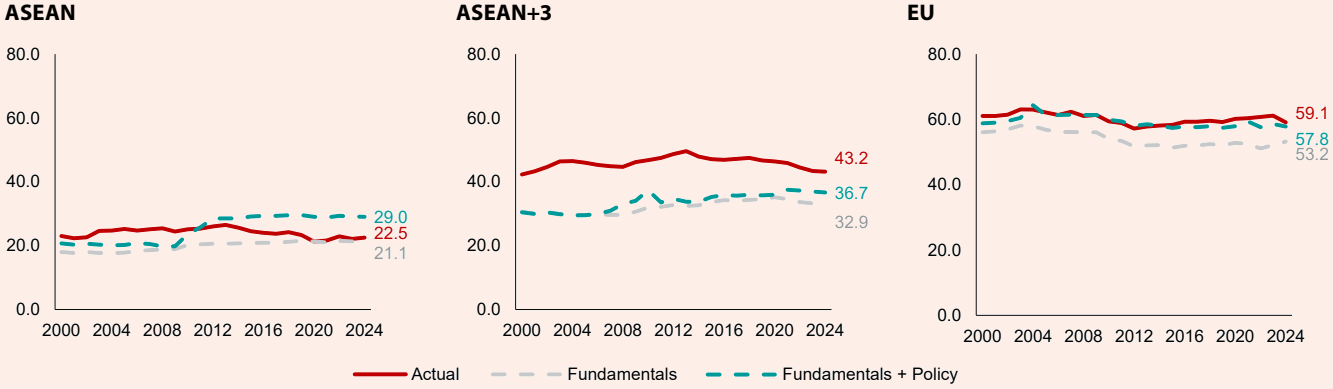
Intra-ASEAN Trade Integration: Structural Limits

Intra-ASEAN trade integration has remained modest, despite the region's overall growth and openness. While intra-ASEAN trade has expanded in absolute terms in line with regional growth, its share of total trade has hovered around 20 percent to 25 percent for the past three decades. Model-based estimates suggest that this outcome is broadly consistent with ASEAN's economic fundamentals, such as market size, geography, and historical linkages.[22] When policy variables – such as the presence of trade agreements – are incorporated, predicted integration rises slightly above 25 percent, indicating that full realization of commitments under existing trade policies and other regional frameworks could yield incremental gains in intraregional trade (Figure 2.30).

Comparisons with ASEAN+3 and the EU highlight the structural limits to deeper trade integration in ASEAN. In both the broader ASEAN+3 and the EU, actual intraregional trade shares consistently exceed levels predicted by fundamentals and trade policies (Figure 2.30). One possible reason is that the complementarities in production structures and demand patterns, which are not captured by the model, are reinforcing integration beyond the model estimates. In the EU, for instance, high income levels and dense industrial specialization have created self-reinforcing trade flows.[23] In ASEAN+3, cross-border value chains are anchored by a few large and advanced economies that provide substantial market demand and technology know-how. By contrast, ASEAN's trade integration has remained limited within the levels implied by its structural characteristics.

ASEAN's relatively modest trade integration is reflected in its limited intraregional trade complementarity. The alignment between what ASEAN economies produce and what they demand from each other remains relatively limited. ASEAN's trade complementarity index is substantially lower than that of ASEAN+3 or the EU, reflecting narrower demand structures and less diversified supply capabilities.[24] On the demand side, lower and uneven income levels across ASEAN restrict the breadth of consumption and investment needs, limiting the role of final demand within the region. On the supply side, average economic complexity in the region is below global peers, implying a more limited range of intermediate and final production capabilities. This combination reduces the likelihood that exports from one ASEAN economy can meet the needs of another. The outcome is both weaker demand–supply alignment and shallower intraregional value-chain participation, with ASEAN economies continuing to rely more on extraregional partners for both inputs and demand (Figure 2.31).

Figure 2.30. Intraregional Goods Export Share in Selected Regions
(Percent of gross goods export)



Source: United Nations Comtrade; AMRO staff calculations.
Note: EU = EU-27 member economies. "Fundamentals" and "Fundamentals + Policy" are the model-based estimates of the intraregional goods export share. Fundamentals reflects structural drivers like economic size, distance, and historical ties, while Policy accounts for trade-policy variables such as regional trade agreements. Refer to AMRO (2026) for the model specification and variable definitions.

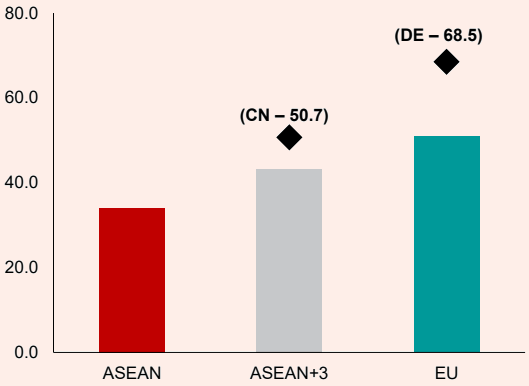
22/ A gravity model was employed to assess ASEAN's intraregional trade dynamics, comparing predicted intra-ASEAN trade shares based on economic fundamentals alone with those incorporating trade-policy variables. The results provide a benchmark for ASEAN's intraregional trade shares relative to levels implied by fundamentals and policy. Refer to AMRO (2026) for methodological details.

23/ Key determinants of intra-EU trade integration have been well studied. For instance, Balassa and Bauwens (1988) and Serlenga and Shin (2007) found that income level and industrial capacity were the important drivers of intra-EU trade integration.

24/ The trade complementarity index evaluates how closely one economy's export structure matches another economy's import structure. At the regional level, the index is calculated as a trade-weighted average of these bilateral values across member economies. Refer to AMRO (2026) for methodological details.

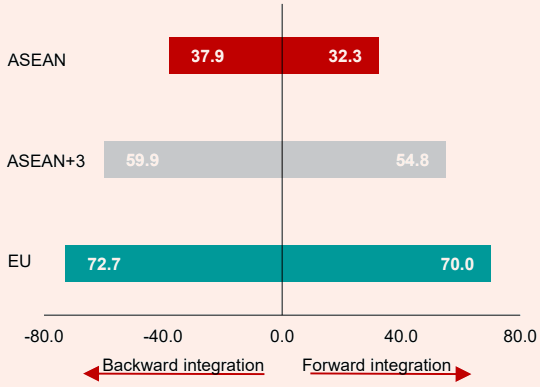
Figure 2.31. Trade Integration Indicators of Selected Regions

Trade Complementarity Index
(Index, 0-100)



Source: United Nations Comtrade; AMRO staff calculations.
Note: CN = China; DE = Germany; EU = EU-27 member economies. Regional average indices are weighted by each member's intraregional value by its share of the region's total trade to derive a region-wide average. Diamonds indicate each region's central trading-hub index value versus the rest of the region.

Regional Value Chain Integration
(Percent of total backward/forward integration)



Source: Asian Development Bank Multiregional Input-Output Table; AMRO staff calculations.
Note: EU = EU-27 member economies. Regional percentages are a simple average of individual economies' backward/ forward participation with respective regional economies as a share of total value chain participation.

Disparities in development levels, together with limited income levels and production sophistication, remain a fundamental constraint on intraregional trade in ASEAN. ASEAN economies span the full spectrum of income and industrial capability, from high-income, innovation-driven economies to lower-middle-income, more resource-based exporters (Figure 2.32). While this diversity enables integration with the global economy by matching ASEAN's supply with external demand, it reduces the degree of overlap within the region. Higher-income members demand sophisticated goods and services that lower-income partners cannot yet supply, while lower-income members lack the purchasing power to absorb higher-value exports. Conceptually, regional integration deepens most readily when economies converge to higher income levels and greater production sophistication, creating overlapping demand structures and opportunities for complementary specialization.[25] ASEAN has not yet reached this stage, and as a result, intraregional demand remains segmented and production linkages are relatively shallow compared with more advanced blocs.

Weak intra-ASEAN investment further constrains deeper trade integration. FDI is a critical enabler of trade – embedding production networks, transferring technology, raising productivity, and creating stakeholders for cross-border exchange. Empirical analysis shows that bilateral FDI has a positive, statistically significant impact on ASEAN trade flows, underscoring its catalytic role for regional trade integration.[26] However, investment flows within the region have declined in relative terms, with intraregional FDI stock standing at only about 10 percent of the total in 2023, less than roughly 50 percent seen in ASEAN+3 or the EU (Figure 2.33). This is also about 25 percent below levels predicted by fundamentals.[27] Intraregional investment weakness therefore limits ASEAN's ability to build supplier networks and deepen value-chain integration. In many respects, FDI is the weakest link in ASEAN's integration – without stronger cross-border investment, efforts to strengthen trade complementarity or reduce policy friction are unlikely to translate into significantly deeper integration.

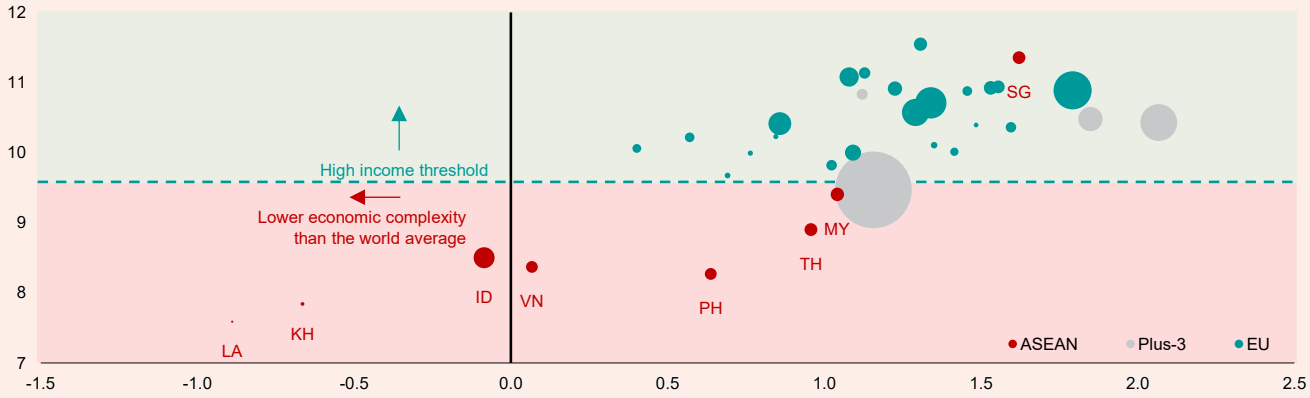
Overall, ASEAN's trade integration is limited by structural constraints that trade policies alone cannot resolve. The persistence of modest intraregional trade shares reflects the region's income gaps with advanced economies, the limited breadth of demand and production capabilities, and the weakness of investment flows within ASEAN. These structural limits explain why ASEAN's intraregional trade has remained broadly unchanged over time and why trade policy measures on their own, though necessary, will not be able to drive deeper integration to levels observed in the broader ASEAN+3 and the EU. By contrast, ASEAN's outward orientation toward Plus-3 partners reflects structural complementarities: larger and advanced economies provide the technological inputs, production sophistication, and market demand that complement ASEAN's development stage. This outward orientation is consistent with the region's fundamentals, even as ASEAN works to strengthen its own foundations for deeper intraregional trade over the longer term.

25/ As per the Linders' hypothesis, when incomes and product sophistication converge, demand structures overlap, boosting intra-industry trade and regional integration. For example, as discussed in Hallak (2010), income similarity and product-quality considerations have empirically led to stronger intra-industry trade.

26/ A two-stage least squares regression was conducted to identify the causal impact of FDI on bilateral trade flows in ASEAN, by instrumenting bilateral FDI with corporate tax differentials. The estimates confirm a positive, statistically significant relationship between FDI and trade after controlling for standard gravity covariates. Refer to AMRO (2026) for further details on the data and methodology.

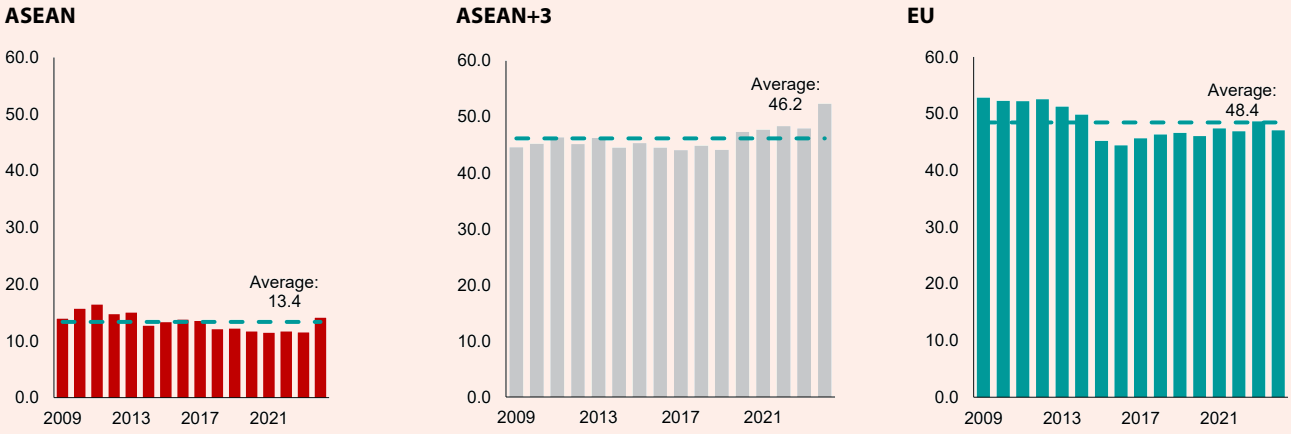
27/ Gravity-based simulations combining growth and FDI projections are used to quantify the potential increase in intra-ASEAN trade under different scenarios. Refer to AMRO (2026) for further details on methodology and model specifications.

Figure 2.32. Diversity in Income and Industrial Capability in Selected Regions, 2023



Source: Harvard Growth Lab; International Monetary Fund; AMRO staff calculations.
Note: BN = Brunei; ID = Indonesia; KH = Cambodia; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam; EU = EU-27 member economies; Plus-3 = China, Hong Kong, Japan, and Korea. The x-axis shows the Economic Complexity Index (ECI), while the y-axis represents the log GDP per capita. High income threshold follows the World Bank's definition in 2023. Negative ECI indicates the economy's export basket is less complex than the world average. The size of each bubble is the economy's nominal GDP for 2023, measured in USD. For ASEAN and ASEAN+3, the ECI for Brunei and Myanmar is unavailable. For the EU, ECI data for Cyprus. Estonia, Latvia, Luxembourg, and Malta are unavailable.

Figure 2.33. Intraregional Investments in Selected Regions
(Percent of gross FDI stock)



Source: International Monetary Fund Coordinated Direct Investment Survey (IMF CDIS); AMRO staff calculations.
Note: EU = EU-27 member economies; FDI = Foreign Direct Investment. The data covers from 2009 to 2024, based on the availability of data in the IMF CDIS database.

Policy Pathways for Deeper ASEAN Integration

Sustained progress toward deeper ASEAN integration will depend on establishing the necessary economic fundamentals that trade and liberalization initiatives alone cannot achieve. The preceding analysis identified several structural factors that constrain deeper regional integration, including relatively lower and less diverse development levels that limit the capacity to trade differentiated products and build complementary specializations. Shallow intraregional investment has further hampered the development of domestic productive capacities and regional production networks. Two reinforcing policy pathways could complement ongoing efforts to realize trade and liberalization initiatives: first, leverage existing linkages in the global value chain to build domestic capabilities and market depth, which are critical foundations for deeper intraregional integration; and second, promote greater intraregional investment and firm internationalization to make production networks denser and to embed commercial linkages across borders. Taking together, these pathways offer a pragmatic route to translate formal openness into deeper regional trade and investment ties over time (Figure 2.34).

The realization of ASEAN's existing and planned integration initiatives remains a critical foundation for deeper regional integration. ASEAN's roadmap for strengthening the Economic Community between 2026 and 2030 provides an opportunity to consolidate progress and sharpen focus on areas that matter most for the private sector – reducing nontariff barriers, advancing services liberalization, and strengthening trade facilitation through consistent standards and interoperable processes. These initiatives hold significant potential to lower costs and uncertainty across markets, provided implementation is predictable and mutually recognized. Continued emphasis on the progressive streamlining of nontariff measures, steady liberalization of modern, digitally delivered services, and more efficient cross-border procedures will be especially important. Such measures can provide the enabling environment within which domestic capability upgrading, intraregional investment, and firm internationalization can take root, positioning trade and liberalization initiatives as essential pillars that reinforce the broader pathways to sustained ASEAN integration.

Figure 2.34. Policy Pathways to Deeper ASEAN Integration

Source: AMRO staff.
Note: While ASEAN's existing integration initiatives provide a strong foundation, these policies alone are unlikely to overcome deeper structural constraints on further regional integration. Refer to AMRO (2026) for a comprehensive analysis of ASEAN's current integration measures.

Leveraging Existing Global Value Chain Linkages for Domestic Upgrading

Existing global value chain linkages offer a practical way for ASEAN to build the economic fundamentals necessary for deeper intraregional integration. ASEAN's deep participation in global value chains and its role as a major destination for foreign investment provide practical existing channels to upgrade domestic industrial capabilities and, over time, develop the foundations for deeper integration – outcomes that liberalization measures alone are unlikely to secure. For instance, ASEAN's position in the global electrical and electronics sector – now tightly integrated into Asia's supply and production networks – and its growing role as a provider of digital services to both China and the United States (US) provide an opportunity to attract FDI in new growth areas, such as those related to artificial intelligence, and develop new capabilities to move up the technological ladder. Yet the extent to which such gains are realized depends on whether high-value FDI is matched by adequate domestic absorptive capacity. Human capital, institutional quality, openness in services, and financial development are all important in determining whether external linkages lead to broad-based productivity improvements or remain confined to enclave activities.

Policy emphasis, therefore, falls on raising the yield from extraregional FDI and guiding domestic upgrading toward a more complementary regional supply base. This involves attracting FDIs with high spillovers and network-embedded activities matched to local capability starting points, strengthening linkages between anchor firms and local suppliers, and fostering industrial ecosystems where capabilities can accumulate and diffuse over time. Particular attention should be given to the role of small and medium-sized enterprises (SMEs), whose integration into regional and global supply chains is essential for broadening the base of firms that benefit from spillovers. Differentiation across member economies, aligned with comparative strengths, would help emerging specializations reinforce one another rather than duplicate efforts. In this way, existing global value chain linkages not only build the fundamentals identified earlier but also prepare the ground for stronger intra-ASEAN investment and firm internationalization.

Promoting Intraregional Investment and Firms' Internationalization

Building a more resilient ASEAN requires complementing existing global value chain linkages with denser ties among ASEAN members themselves. Trade openness and global FDI have firmly embedded individual ASEAN economies in international production networks, but predominantly through outward-facing, hub-and-spoke linkages with larger partners such as China, Japan, and Korea, rather than with each other. This has left intra-ASEAN investment comparatively shallow, constraining the development of dense intraregional supplier networks and the mutual interdependence that underpins thicker regional trade. Building such linkages requires not only maintaining attractive conditions for foreign capital but also supporting ASEAN's own firms to invest in regional peers. Outward investment by regional firms is the channel through which domestic capabilities are translated into regional production links – reinforcing trade flows and gradually strengthening intra-ASEAN investment that has proven critical in other integration experiences.

Internationalization of ASEAN firms also represents the next stage of the region's structural transformation. Many member economies have advanced as recipients of foreign investment; the next phase is to nurture competitive domestic firms that expand across borders and embed their capabilities into regional production networks. This outward orientation not only reinforces integration but also supports the broader economic transformation needed for countries to move from middle- to higher-income status, as seen in past high-growth economies where outward investors drove industrial upgrading and

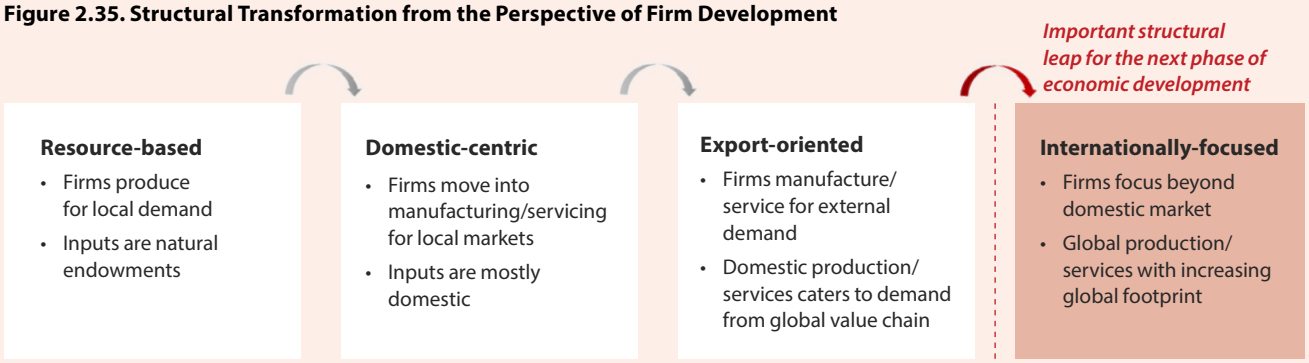
productivity growth (Figure 2.35).[28] SMEs will be central to this process, bringing specialized capabilities into supply chains but requiring broader ecosystems – skills and managerial upgrading, recognition of standards, efficient regulatory frameworks, and access to finance and enabling services – that allow them to scale across markets. In this framing, external integration builds capabilities, while intra-ASEAN investment and firm internationalization embed them regionally, creating a reinforcing cycle between domestic upgrading and deeper regional integration.

Finance-related initiatives can play a pivotal role in supporting the internationalization of ASEAN firms. As firms expand across borders, the availability of predictable and cost-effective financial services becomes an important enabler. Looking ahead, continued efforts to broaden cross-border payment linkages, promote the practical use of local currencies, deepen regional capital markets, and expand the regional reach of banking services can help create a more seamless environment for business expansion. For smaller enterprises in particular, such developments can reduce the frictions of operating in multiple jurisdictions and lower the risks associated with exchange rate volatility and working-capital constraints. In this way, financial cooperation complements the broader integration agenda by providing the foundations on which both large corporations and SMEs can participate more actively in regional production networks and investment flows.

ASEAN's intraregional trade share could rise to nearly 40 percent by 2050 if efforts to build domestic capabilities and strengthen intraregional investment are advanced. Model simulations indicate that, with all identified pathways advancing in tandem, intra-ASEAN trade could approach 40 percent by 2050, compared to only 25 percent to 30 percent under baseline projections, underscoring the scale of the opportunity (Figure 2.36). The potential gains reflect a reinforcing cycle: external investment helps build technological and managerial capacity; internationalizing firms embed these capabilities into regional networks; and stronger intra-ASEAN investment creates the mutual interdependence that attracts higher-quality capital and sustains more intensive trade. In this sense, ASEAN is in effect pursuing a regionwide investment strategy – focused on capability formation and regional investment linkages that complement its long-standing commitment to trade openness.

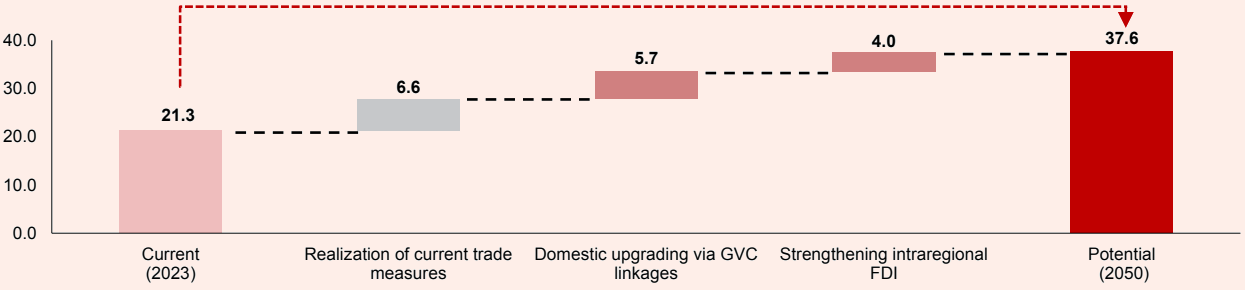
Looking ahead, deeper regional integration pursued alongside continued global openness will be essential to strengthen ASEAN's resilience. By focusing on leveraging its extraregional ties to strengthen economic fundamentals and deepening regional investment links, ASEAN can reinforce the outward orientation that has underpinned its success. A balanced strategy of deeper regional integration alongside continued global openness will enhance resilience, consolidate more competitive supply chains, and chart a path of shared prosperity in an increasingly uncertain world.

Figure 2.35. Structural Transformation from the Perspective of Firm Development



Source: AMRO staff.

Figure 2.36. Potential Policy Impacts on Intra-ASEAN Trade Integration
(Percent of gross goods exports)



Source: AMRO staff estimates.
Note: FDI = Foreign direct investment; GVC = Global value chain. This is based on a simulation in which ASEAN+3 economies converge toward the region's productivity frontier by 2050, while ASEAN fully leverages existing trade policies, and sees intra-regional FDI rise toward the level predicted by an FDI gravity model. Refer to AMRO (2026) for methodological details.

[28] This pattern is documented well in the literature. For instance, Cherif and Hasanov (2019) showed that economies developing internationally competitive firms in advanced industries moved up the value chain and transformed their economic structure, achieving rapid growth and sustaining high-income status.

Box 2.1:

Japan as the Region's Hub Before the 2000s

The regional production networks that underpin ASEAN+3 economic integration today have their origins in Japan's trade and investment expansion in the late 20th century. By the mid-1980s, Japan had emerged as one of the largest trading partners and a leading source of foreign direct investment (FDI) in ASEAN – accounting for about 20 percent of total FDI inflows and surpassing the United States in several economies. Understanding how Japan established this hub position illuminates both the structural foundations of regional integration and the conditions that have since enabled other economies to assume more prominent roles. Japan's emergence as the region's production hub reflected the interaction of proactive government policies, the distinctive *keiretsu* corporate structure, and favorable host-economy conditions.

Strategic Government Support for Outward Trade and Investment

Japan's outward trade and investment into ASEAN was not purely market-driven but was facilitated by government strategy. Following the end of the fixed exchange rates and oil shocks in the 1970s, Japanese policymakers increasingly viewed outward investment as a means to sustain industrial competitiveness while easing domestic structural pressures (Urata 2002). This strategy intensified after the sharp appreciation of the yen following the 1985 Plaza Accord, which significantly raised domestic production costs and accelerated the offshoring of labor-intensive and intermediate manufacturing stages (World Bank 1993).

The Ministry of International Trade and Industry (MITI) promoted a "regional production network" approach, while the Japan External Trade Organization provided firm-level information, feasibility studies, and investment facilitation services to Japanese multinationals entering ASEAN markets (Japan External Trade Organization 2010). Japanese policy banks – most notably the Export-Import Bank of Japan (JEXIM) – supplied long-term financing and political risk mitigation, lowering barriers to large-scale overseas investment.[1]

Japanese official development assistance also aligned closely with private investment by financing transport infrastructure, power generation, industrial estates, and ports across ASEAN, creating complementary conditions for Japanese manufacturing FDI (Kawai and Takagi 2009). This "aid–trade–investment nexus" reinforced Japan's position as a long-term production partner.

The *Keiretsu* System and Network-Based Internationalization

The organizational structure of Japanese firms reinforced Japan's presence in ASEAN investment networks. The *keiretsu* system – characterized by stable cross-shareholdings, long-term main-bank relationships, and tightly coordinated supplier networks – enabled Japanese firms to internationalize as integrated production ecosystems rather than as standalone entities (Gerlach 1992).

Large manufacturing firms acted as anchor investors, with tiers of affiliated suppliers following them into host economies. This pattern was particularly evident in the automotive and electronics sectors, where Japanese assemblers established dense clusters of parts suppliers in Thailand and Malaysia, replicating domestic production hierarchies overseas (Kimura and Ando 2005).

The *keiretsu* structure also supported long investment horizons. Stable financing from Japanese banks insulated overseas affiliates from short-term volatility, allowing sustained investment in worker training, process upgrading, and supplier development.

This box was written by Kriti Andhare and Naoaki Inayoshi.

[1] MITI and JEXIM have since been renamed as the Ministry of Economy, Trade and Industry (METI) and the Japan Bank for International Cooperation (JBIC), respectively.

Favorable Host-Economy and Regional Conditions

ASEAN economies' policy orientation further reinforced Japan's central role. From the late 1970s onward, many ASEAN economies adopted export-oriented industrialization strategies, offered generous investment incentives, and maintained relatively open regimes toward Japanese capital, which was seen as technologically advanced and politically neutral (Athukorala 2011). ASEAN economies' role as Japan's primary offshore production base, positioned Japan at the center of "flying geese" (Akamatsu 1962; Kojima 2000).

Japan's hub position began to evolve from the 2000s as China's accession to the World Trade Organization and its rapid industrialization reshaped regional production geographies. Japanese firms increasingly integrated Chinese operations into their regional networks, even as they maintained substantial production bases in ASEAN. Today, Japan remains deeply embedded in regional value chains – as a source of capital goods, advanced components, and technology – but now operates within a more multipolar network architecture where China has emerged as both a dominant global manufacturing platform and a major source of final demand, reinforcing both its roles as the central component of production and of consumption within regional and global value chains. This transition – from a Japan-centered hub to one anchored by China, with denser and more complex linkages across the region – forms the context for the trade and investment patterns examined in this chapter.

Box 2.2:

China's Emergence as a Source of Global and Regional Final Demand

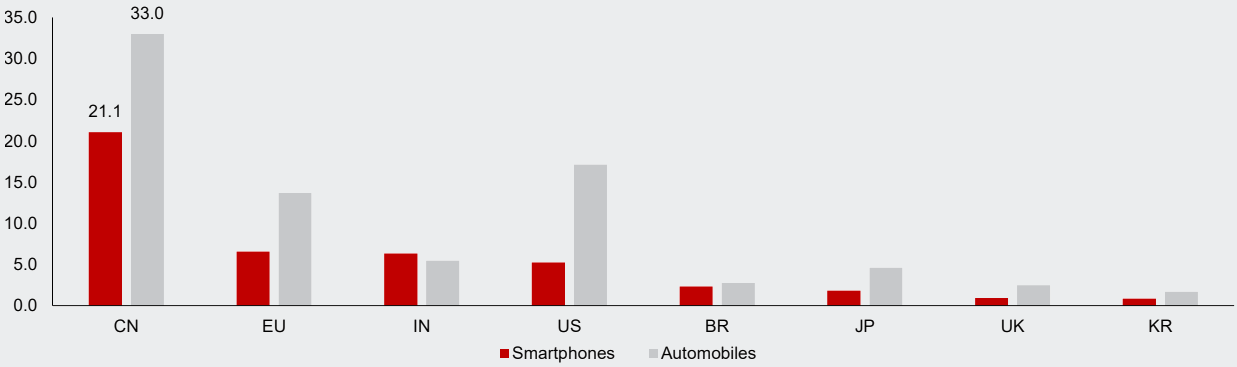
A prevailing characterization of China's position in the global economy centers on its role as a supplier of manufactured goods to global markets. This captures only part of the picture. Over the past two decades, China has also emerged as one of the most important sources of final demand globally – a shift with significant implications for ASEAN+3 economies. This box examines China's growing role as an end-market and explains why conventional trade statistics tend to understate this dimension.

China as a Major Global End-Market

China's role as a final demand market has expanded dramatically since 2000, growing to become the second-largest globally. This shift has been underpinned by a near sixteen-fold increase in nominal GDP – from USD 1.2 trillion in 2000 to USD 19 trillion in 2024 – while per capita income rose from around USD 1,000 to approximately USD 13,000 over the same period, lifting household purchasing power and spending. Even as consumption remains a relatively low share of GDP, China's sheer market size has pushed annual private consumption above USD 7 trillion in 2024.

This expansion is particularly evident in consumer durables such as electronics and automobiles – products where demand is sensitive to rising incomes.[1] The scale of China's end-market for many of these products is now unmatched globally (Figure 2.2.1). In 2024, China accounted for almost a third of global automobile sales – nearly double the share of the United States and larger than the United States and European Union (EU) combined. In smartphones, China represents more than 20 percent of global users, about four times the US share. These product categories align precisely with ASEAN+3 economies' production strengths, from semiconductor components and electronic parts to automotive assemblies and finished vehicles. China's emergence as the world's largest end-market for these goods has therefore created a significant and growing final demand for regional production. This extends to upstream supply chains, where China is now the largest market for regional inputs feeding its domestic production. For instance, nearly half of Vietnam's smartphone component exports go to China. China thus serves as an increasingly critical demand anchor for the region.

Figure 2.2.1. Share of Global Smartphone Users and Automobile Sales by Selected Economies in 2024
(Percent of global users; Percent of global sales)



Source: International Organization of Motor Vehicle Manufacturers; World Bank Global Findex Database; AMRO staff calculations.
Note: BR = Brazil; CN = China; EU = EU-27 member economies; IN = India; JP = Japan; KR = Korea; UK = United Kingdom; US = United States. Economies are ordered from left to right by their 2024 share of global smartphone users in descending order. The number of smartphone users is estimated as the product of the mobile penetration rate, the share of individuals whose main mobile phone is a smartphone, and the total population.

This box was written by Yohnsen Ang and Allen Ng.

1/ Market data on end-consumption corroborates this observation. For example, in consumer electronics–which includes smartphones–China has been the world's largest market since overtaking the United States in 2013, with revenues roughly 30 percent to 40 percent higher. In automobiles, China has held the position of largest global market since 2009–its share of global vehicle sales is now approximately double that of the United States. See industry data from the China Association of Automobile Manufacturers, the European Automobile Manufacturers' Association, and major market research firms.

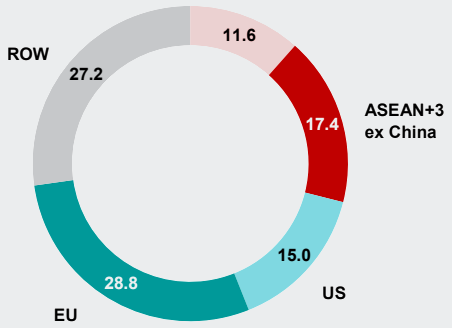
Why Conventional Trade Data Understates China's Role

Despite its scale, China's importance as an end-market is often masked in gross trade statistics. With close to 30 percent of global manufacturing output and a high domestic value-added share in what it consumes, many goods purchased by Chinese households are produced and assembled domestically rather than imported as finished products. As a result, China can appear less important as an end-market in conventional gross import data, even when domestic consumption is large in absolute terms.

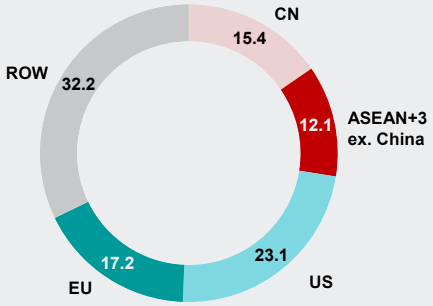
This understatement is reinforced by the structure of regional production networks. Much of ASEAN+3 trade with China is in intermediate inputs rather than finished products – components, parts, and semi-processed goods shipped to China for processing and assembly. A meaningful share of the resulting output is ultimately absorbed by China's domestic market rather than re-exported. In this sense, regional economies are already serving Chinese final demand, but through supply chain linkages that gross export and import statistics do not cleanly attribute to China's consumption (Figure 2.2.2). Value-added trade statistics, which trace production across stages and identify where regional value added is ultimately consumed, make China's position as a final-demand hub for the region more visible.[2]

Figure 2.2.2. China's Share of Global Imports versus Global Value-added in Final Demand in 2024
(Percent of global imports; Percent of global value-added in final demand)

Gross Imports



Final Demand



Source: Asian Development Bank Multiregional Input-Output Table; United Nations Comtrade; AMRO staff calculations.
Note: CN = China; EU = EU-27 member economies; ROW = Rest of the world; US = United States. Chart data reflects 2024 data. Import data for Vietnam and Lao PDR use 2023 due to data availability.

Implications for the Region

China's emergence as a major source of final demand represents a structural shift in the region's external demand landscape. For ASEAN+3 economies, exports to China increasingly serve not only as global supply chains but also as Chinese final consumption – a source of demand that has grown relatively more important. Looking ahead, China's gradual economic rebalancing toward more consumption growth could further strengthen this dimension, expanding the role of Chinese domestic demand regionally. The extent to which this shift materializes will depend on factors that include household income growth and the continued change of consumption patterns in China. These dynamics will shape the region's export opportunities and the nature of its economic linkages with China.

[2/] As discussed in Part 1's analysis of final-demand destinations for ASEAN+3 economies, China's final demand has increasingly served as a major end-market for other ASEAN+3 economies.

Box 2.3:

China's External Balance Sheet: From Reserve Accumulation to Outward Investment

China's growing role as a source of investment capital for ASEAN+3 reflects a broader transformation in its external balance sheet. Over the past decade, China's external position has shifted from one centered on reserve accumulation toward an increasingly outward-oriented International Investment Position (IIP) – driven by expanding outward foreign direct investment (FDI), overseas lending, and the internationalization of Chinese firms. This box traces these structural changes and the policy frameworks that have shaped them.

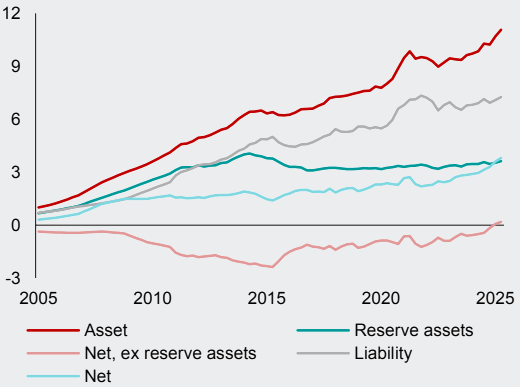
Recent Developments in China's IIP

China's net IIP exceeded USD 3 trillion in 2024 (Figure 2.3.1). By the first quarter of 2025, the net IIP excluding official reserves turned positive for the first time, underscoring the growing role of companies and financial institutions in shaping the economy's external balance sheet. In absolute terms, China's net IIP overtook that of Japan and was close to Germany's by the third quarter of 2025 (Figure 2.3.2). Relative to GDP, however, China's net IIP remains more modest – around 19.3 percent, compared with 85.1 percent for Japan and 77.8 percent for Germany.

China's IIP has been reshaped most visibly through the rise of Outward Direct Investment (ODI). Over the past decade, ODI has consistently exceeded inward flows, narrowing the net liability position as Chinese firms expand globally in infrastructure, energy, and high-tech sectors. Although ODI held back during the COVID-19 pandemic, it has since regained momentum as firms diversify markets and reconfigure supply chains. The post-COVID rebound has been driven primarily by new project investment and greater destination diversification – particularly toward emerging markets, while acquisitions and expansions of existing assets have softened.

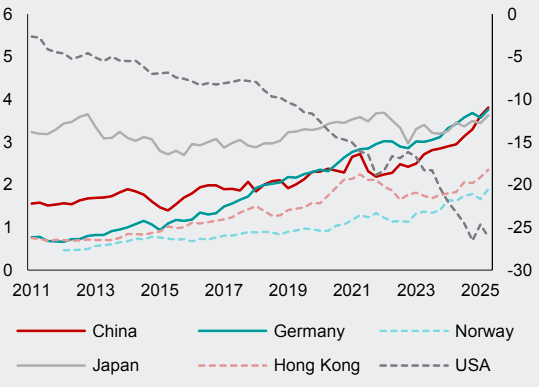
In contrast, inward FDI has decelerated amid China's shift toward services, geoeconomic tensions, and a maturing industrial base. Investment has increasingly shifted toward advanced manufacturing, clean energy, and automation – sectors closely aligned with China's technology-upgrading goals. This reflects a gradual reorientation of foreign investment toward sectors viewed as more resilient and policy-supported.

Figure 2.3.1. Asset, Liability, and Net Term of IIP
(USD trillion)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: IIP = International investment position.

Figure 2.3.2. Net IIP across Economies
(USD trillion)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: IIP = International investment position.

This box was written by Xianguo (Jerry) Huang.

A second major driver has been the evolution of portfolio and "other investment" flows. Portfolio outflows accelerated after the COVID-19 shock as domestic investors sought global diversification amid low interest rates and heightened uncertainty. Inward portfolio liabilities expanded rapidly through 2021 – supported by favorable yield differentials, index inclusion, and expectations of renminbi appreciation – but have moderated since 2022. Meanwhile, "other investment" has undergone a marked transformation, shifting from near balance in the early 2010s to a net asset position approaching USD 1 trillion by the first quarter of 2025. This reflects the expansion of overseas lending, trade credit, and deposit placements by banks, policy institutions, and companies engaged in cross-border trade and project financing.

Official reserves have remained broadly stable in value but increasingly diversified, highlighting China's gradual shift away from passive reserve accumulation. While total reserve levels have been broadly steady, their composition has changed, with a rising share of monetary gold – whose value has more than tripled over the past decade due to both price effects and active accumulation. Together with the growth of ODI, portfolio assets, and other investments, this points to a transition toward a more decentralized and market-driven external balance sheet, with official reserves playing a less dominant role.

Capital Flow Management: A Decade of Policy Calibration

Over the past decade, China's capital-flow management has been characterized not by a linear liberalization path but by adaptive calibration, encouraging flows that align with evolving macroeconomic conditions and strategic priorities. On the inflow side, policies have supported productive and stability-enhancing investment, including FDI into advanced manufacturing, green technologies, and financial services, alongside portfolio inflows facilitated through mechanisms such as Stock Connect, Bond Connect, and global bond-index inclusion. These measures reflect a measured approach to opening that prioritizes quality, resilience, and long-term economic benefits. On the outward side, China has promoted longer-term and strategic investment abroad, including supply-chain diversification, Belt and Road Initiative-related lending, and the international expansion of competitive firms. Rather than unrestricted capital outflows, outward liberalization has been oriented toward projects and investments that support industrial upgrading, market diversification, and external risk management.

At the same time, China has systematically discouraged capital movements deemed excessive, volatile, or misaligned with macrofinancial stability objectives – underscoring that the framework is far from a simple "open or closed" regime. Controls were tightened during periods of stress, including restrictions on speculative overseas direct investment during 2015 to 2017, enhanced monitoring of rapid corporate outward remittances in 2023 to 2024, and macroprudential management of cross-border financing, including closer oversight of short-term external debt exposures. In parallel, regulatory measures covering platform companies, data security, and foreign investment reviews have moderated certain inward flows associated with national-security or systemic-risk concerns.

Outlook: An Evolving External Balance Sheet

Looking ahead, China's IIP is set to become more outward-oriented, diversified, and market-driven. The continued expansion of ODI, overseas portfolio holdings, and trade- and lending-related assets has already shifted China from a reserve-accumulating economy toward a more pronounced net capital exporter – a trend that should deepen as firms internationalize supply chains and build foreign-asset buffers. At the same time, China is expected to maintain selective two-way openness, encouraging high-quality investment and stable portfolio inflows while managing more volatile exposures.

Box 2.4:

Inflation Co-movement and Supply Chain Linkages in ASEAN+3

Business cycles across ASEAN+3 have become more synchronized as trade and production linkages have deepened. A related question is whether price dynamics exhibit similar patterns of regional co-movement. As economies become more tightly linked through supply chains, upstream cost shocks – particularly from major suppliers of intermediate inputs – can propagate through production stages and affect domestic inflation dynamics. This box examines inflation co-movement across ASEAN+3, with a focus on producer prices, and assesses how global value chain integration shapes the transmission of China-origin price shocks to the region.

Regional inflation exhibits close co-movement, particularly at the producer price level. Principal component analysis of regional price indices shows that the first principal component – representing the common regional factor – closely tracks GDP-weighted averages of both consumer-price inflation (CPI) and producer-price inflation (PPI) across ASEAN+3 (Figure 2.4.1). The alignment is especially pronounced for producer prices during major global shocks, including the post-pandemic surge in 2021 and 2022 and the subsequent disinflation.

The strength of co-movement varies across economies and price measures. For producer prices, the regional common factor explains a large share of variation – often exceeding 80 percent – in Korea, Malaysia, Singapore, and Thailand. Consumer price synchronization is weaker and more heterogeneous: Korea, Singapore, and Thailand exhibit relatively strong CPI co-movement, while China, Hong Kong, and Indonesia display lower alignment with regional trends (Table 2.4.1).

To assess China's role in transmitting price pressures to the region, panel regressions estimate the pass-through from Chinese prices to domestic inflation across ASEAN+3 economies. A 1 percent increase in China's export prices or PPI has a statistically significant impact on ASEAN-5 inflation – especially producer prices – reflecting close production linkages and reliance on Chinese intermediate inputs (Figure 2.4.2, top panel). In contrast, pass-through to Plus-3 economies is generally weaker and statistically insignificant. This divergence suggests that direct transmission of price shocks from China is concentrated in the more tightly integrated China-ASEAN production networks, with Plus-3 economies exhibiting greater insulation.

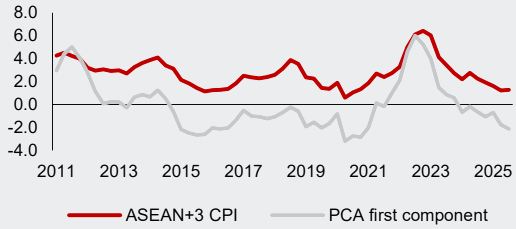
A second set of regressions examines whether deeper integration into supply chains with China amplifies this transmission, using an interaction term capturing bilateral vertical integration. The results confirm that greater vertical integration strengthens pass-through, but the pattern differs across subregions and price measures (Figure 2.4.2, bottom panel). For ASEAN-5 economies, the amplification is statistically significant for both PPI and CPI, though considerably stronger for producer prices. For Plus-3 economies, the amplification effect is evident but relatively weaker for PPI, but essentially absent for CPI.

Taken together, the results point to increasing inflation synchronization in ASEAN+3, shaped by regional production networks but differentiated across subregions and price measures. Producer-price cycles have become increasingly aligned, particularly among economies with deeper vertical integration with China. Consumer-price synchronization, by contrast, remains weaker – present in ASEAN-5 but largely absent in Plus-3, reflecting the continued importance of domestic and other factors in anchoring consumer inflation dynamics beyond production chain integration.

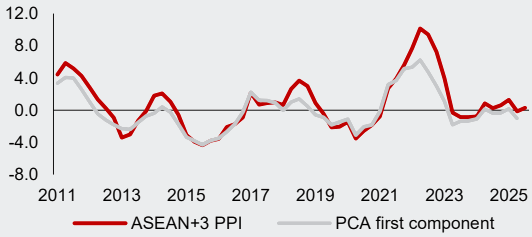
This box was written by Kriti Andhare, Naoaki Inayoshi, and Yuhong Wu.

Figure 2.4.1. ASEAN+3 Inflation Co-movement

PCA First Component versus Weighted Average CPI
(Percent, year-on-year)



PCA First Component versus Weighted Average PPI
(Percent, year-on-year)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: CPI = Consumer Price Index; PPI = Producer Price Index; PCA = Principal Component Analysis. ASEAN+3 quarterly CPI and PPI inflation are measured as year-on-year percentage changes at the economy level. Regional ASEAN+3 CPI and PPI series are constructed as GDP-weighted averages of member economies. The sample period covers Q1 2011 to Q3 2025.

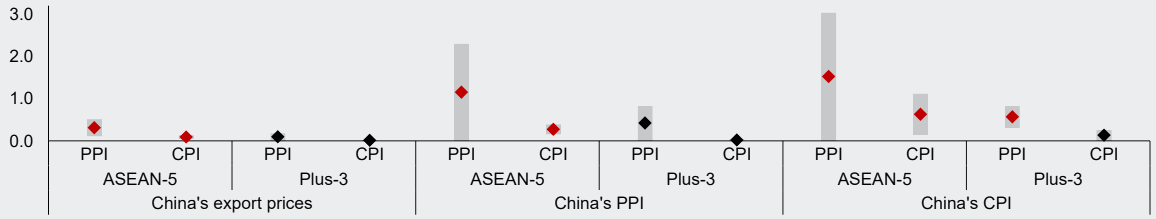
Table 2.4.1. Share of Local Inflation Explained by the Regional Inflation Common Factor Between the First Quarter of 2011 to the Third Quarter of 2025

Economy	CPI First Component	PPI First Component
Brunei	0.06	0.01
China	0.17	0.73
Hong Kong	0.16	0.21
Indonesia	0.09	0.66
Japan	0.06	0.56
Korea	0.79	0.95
Malaysia	0.33	0.81
Philippines	0.54	0.54
Singapore	0.82	0.88
Thailand	0.82	0.82

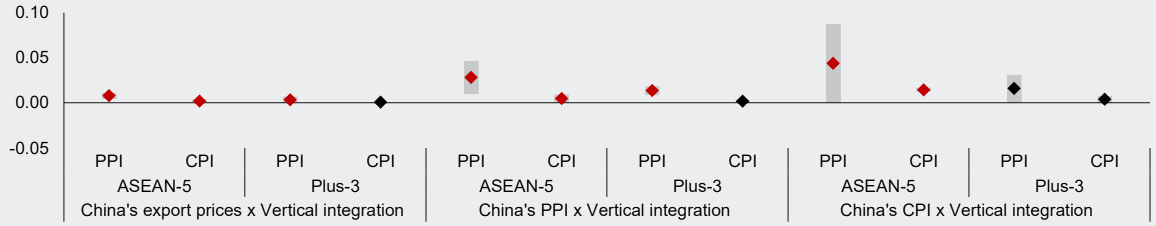
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: CPI = Consumer Price Index; PPI = Producer Price Index. The table reports the R2 of the regressions of each economy's CPI and PPI inflation on the regional inflation common factor, defined as the first principal component derived from a principal component analysis of CPI and PPI price indices for Brunei, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, and Thailand. Cambodia, Lao PDR, Myanmar, and Vietnam are excluded due to data unavailability.

Figure 2.4.2. Change in ASEAN+3's Inflation due to a 1 Percent Change in Chinese Prices
(Percentage points)

Baseline impact



Vertical integration-adjusted impact



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: CPI = Consumer Price Index; PPI = Producer Price Index; ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, Thailand; Plus-3 = Hong Kong, Japan, Korea. Panel regressions are estimated using quarterly data for ASEAN+3 economies, with year-on-year growth in CPI or PPI inflation from Q1 2011 to Q3 2025 as the dependent variable. Explanatory variables include China's export prices, CPI, or PPI, together with macroeconomic controls (bilateral exchange rates against the US dollar, policy rates, unemployment rates, output gaps, and global oil prices). Selected specifications include an interaction with a bilateral vertical-integration index with China, defined as the ratio of total foreign value added to total domestic value added in bilateral trade flows. To mitigate multicollinearity, control variables are orthogonalized with respect to China price variables. The diamonds denote coefficient estimates, with those in black representing statistically insignificant coefficients and bars indicating 95 percent confidence intervals.

Box 2.5:

Semiconductor GVCs: Contrasting Upgrading Paths in Korea and Malaysia

Korea and Malaysia illustrate contrasting strategies for leveraging global value chain (GVC) integration to support long-term industrial development. Their experiences offer insights into the opportunities and constraints that shape upgrading trajectories – and how factors such as domestic firm capabilities, the role of foreign investment, and exposure to geopolitical realignments condition an economy's capacity to move into higher-value segments.

Distinct but Complementary Roles in the Semiconductor GVC

Korea and Malaysia occupy distinct but complementary positions in the semiconductor GVC.[1] Korea sits at the upper segments of the chain: it is a global leader in the design and manufacturing of memory semiconductors – particularly DRAM, HBM, and NAND.[2] Korea also has manufacturing capabilities in advanced logic and is strong in certain materials.[3]

Meanwhile, Malaysia anchors the mid- to downstream segments. It is among the world's largest hubs for outsourced semiconductor assembly and testing (OSAT), especially for automotive semiconductors, power electronics, and sensors. Malaysia has also built a globally competitive niche in test, inspection, automation, and backend-related equipment.

Evolving Export Patterns and GVC Reconfiguration

Changes in global production geography and geopolitical dynamics have led to significant shifts in semiconductor export patterns over the past few decades. For Korea, exports were traditionally concentrated in China, which became the world's largest electronics manufacturing base (Figure 2.5.1). This reliance has moderated as assembly relocates to ASEAN – particularly Vietnam – and Taiwan, Province of China as United States (US) export controls reshape the ecosystem for advanced chips amid rising Chinese self-sufficiency. Korea's growing supply of HBM chips for AI, data centers, and high-performance computing, as well as major Korean fab investments in the US have increased the importance of the US as an export destination.

Malaysia's exports have diversified from traditional markets such as the United States, Europe, and Japan toward China, Singapore, and other ASEAN economies, reflecting China's rise as the hub of Asian manufacturing and growing investments into the region, alongside deepening regional production networks in Southeast Asia (Figure 2.5.2). However, more recently, Malaysia has seen stronger demand from the US as firms relocate backend operations into trusted hubs and as OSAT and EMS networks adjust to China-related supply chain risks. Malaysia's neutral geopolitical positioning, lower costs, and established electronics ecosystem make it a key beneficiary of supply chain realignment.

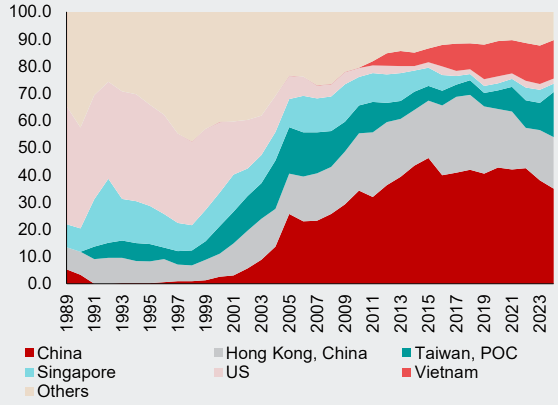
This box was written by Wee Chian Koh.

1/ Semiconductor production comprises three stages: design, fabrication, and assembly, test, and packaging (ATP). Design uses EDA software, reusable IP, and foundational research; fabrication converts designs into chips through advanced manufacturing steps; and ATP packages and tests chips, often alongside EMS that support high-volume production and system assembly.

2/ Dynamic Random Access Memory (DRAM) is a type of volatile memory that provides fast, short-term data access. High Bandwidth Memory (HBM) refers to premium high-performance stacked DRAM that delivers very high bandwidth for AI accelerators, GPUs, and advanced computing. Not AND (NAND) is a form of non-volatile flash memory used for long-term storage.

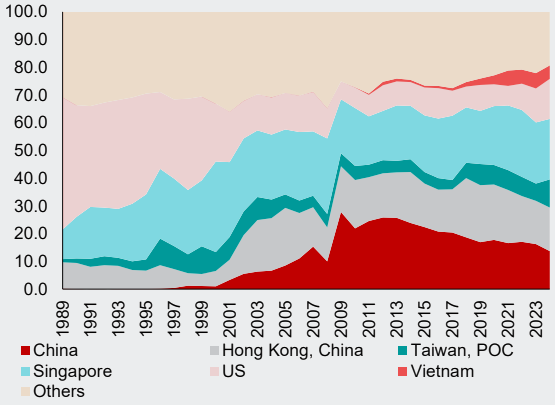
3/ Advanced logic refers to leading-edge logic semiconductor manufacturing (wafer fabrication) using the most advanced process nodes (5 nanometers and below). Samsung Foundry (Korea) and TSMC (Taiwan Province of China) are the only companies capable of volume manufacturing of advanced logic chips.

Figure 2.5.1. Korea's Semiconductor Exports
(Percent of total)



Source: S&P Global Atlas; UN Comtrade; AMRO staff calculations.

Figure 2.5.2. Malaysia's Semiconductor Exports
(Percent of total)



Source: S&P Global Atlas; UN Comtrade; AMRO staff calculations.

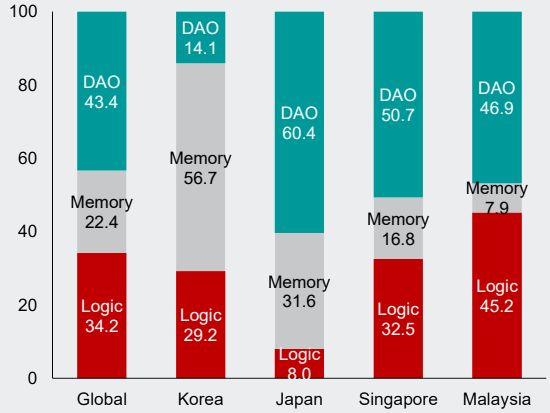
Moving Up the Value Chain

Both Korea and Malaysia are seeking to move into higher-value segments of the semiconductor GVC, driven by industry shifts toward more complex chip architectures, advanced packaging, and tighter integration between hardware and system design. These shifts toward smaller, faster, and more integrated chips raise the value of advanced manufacturing and design capabilities.

For Korea, the main opportunity lies in broadening beyond its traditional strength in memory to capture a larger role in advanced logic, AI accelerators, chip design, and next-generation packaging. This is particularly important as Korea's heavy reliance on memory – an industry prone to sharp price swings and commoditized cycles – creates structural volatility in exports, earnings, and investment (Figures 2.5.3 and 2.5.4). However, the push up the GVC faces challenges: a fabless ecosystem that lacks scale and variety, shortages of design and EDA talent, and intensifying global competition in logic foundry services. In addition, Korea is still highly dependent on global partners for some critical inputs, especially on Japanese materials and US equipment.

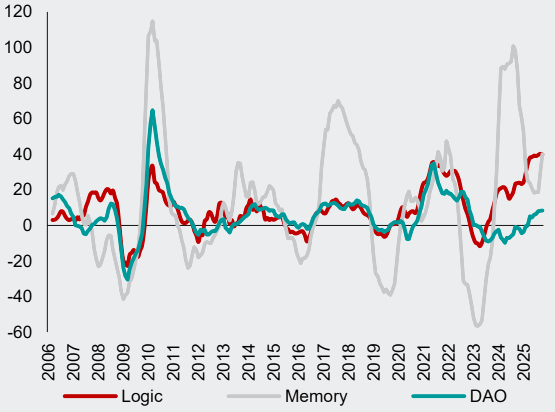
Malaysia's upgrading opportunities stem from its strong base in ATP and the supplier ecosystem. The deep operational know-how of ATP is directly relevant to advanced packaging, hence creating space for Malaysia to capture more value. Malaysia's OSAT, EMS, and equipment firms also provide a platform to expand into engineering services and applied R&D. Yet Malaysia faces several constraints, including a limited domestic design ecosystem, competition from lower-cost regional hubs, and persistent shortages in specialized engineering talent.

Figure 2.5.3. Composition of Semiconductor Exports in Selected ASEAN+3 Economies
(Percent of total)



Source: S&P Global Atlas; UN Comtrade; AMRO staff calculations.
Note: Shares are 2019 to 2024 average. DAO refers to discrete, analog, and others (including optoelectronics and sensors).

Figure 2.5.4. Semiconductor Sales by Product
(Percent, year-on-year, 3-month moving average)



Source: World Semiconductor Trade Statistics; AMRO staff calculations.
Note: DAO refers to discrete, analog, and others (including optoelectronics and sensors).

Semiconductor Industrial Policy

To address these challenges, both economies have launched ambitious semiconductor industrial policies focused on deepening their ecosystems, boosting R&D, and ensuring a robust talent pipeline. Korea's strategy prioritizes full-stack capability – from materials and equipment to advanced logic, memory, and packaging – supported by tax incentives and major infrastructure investments under the "K-Semiconductor Belt." These aim to target key bottlenecks, including scholarships and fast-track engineering programs to ease talent shortages, as well as initiatives to grow the fabless sector and localize key materials and components. Korea is also actively forging global partnerships in R&D, foundry services, and equipment to strengthen competitiveness in logic and AI chips.

Malaysia's industrial policies similarly aim to upgrade beyond existing ATP strengths. The New Industrial Master Plan and National Semiconductor Strategy set clear priorities: attract high-value investments in foundry and advanced packaging, provide targeted incentives for R&D and chip design, and build semiconductor talent pipelines through specialized TVET and university programs. Successful implementation, however, will hinge on improved execution capacity, higher retention of skilled engineers through competitive incentives, stronger R&D linkages between industry and academia, and deeper integration with global technology partners.

Distinct Development Strategies

Korea and Malaysia have taken fundamentally different developmental paths in semiconductors. Korea's growth has been anchored by indigenous champions – Samsung and SK Hynix – which have given the government greater scope to shape outcomes through industrial policy, coordination, and sustained investment in R&D, infrastructure, and skills. These firms have driven technological upgrading, built global-scale manufacturing capabilities, and helped Korea capture high value-added segments such as advanced memory and leading-edge fabrication.

By contrast, Malaysia's semiconductor development has been largely FDI-led, with multinational corporations (MNCs) shaping the pace and direction of upgrading. Malaysia benefited through job creation, export growth, and deep integration into GVCs, particularly in ATP and EMS. However, it also means that Malaysia's ability to move into higher-value activities depends heavily on MNC decisions and limits the scope for the government to mandate knowledge transfer or technology upgrading. The two experiences suggest that different development pathways – shaped by history, firm structure, and policy choices – can deliver meaningful progress, even if they lead to different positions in the semiconductor value chain.

Box 2.6:

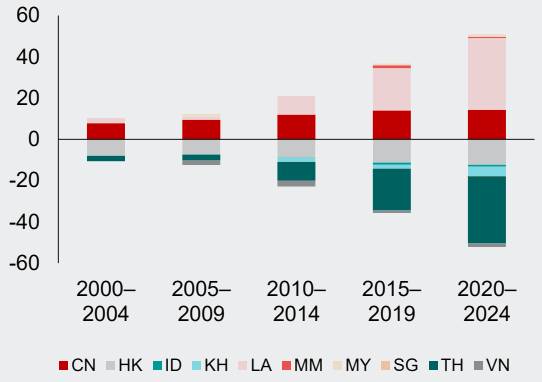
Macroeconomic Impacts of ASEAN+3 Green Energy Integration on CLM Economies

Regional integration extends beyond trade in goods and is increasingly visible in the region's energy markets. For ASEAN+3, deeper clean-energy integration offers a pathway to more affordable and sustainable power systems. It would also reinforce the region's expanding clean-technology value chains, ranging from solar manufacturing in Vietnam, Thailand, and Malaysia to EV-battery production in Indonesia, supported by capital and technology from China, Japan, and Korea. Beyond the larger economies, this box highlights how greater participation in regional electricity markets can unlock new economic opportunities for Cambodia, Lao PDR, and Myanmar (CLM) and contribute to the region's aspiration for a low-carbon, integrated, and resilient energy future.

Regional Electricity Trade Potential and ASEAN Power Grid (APG)

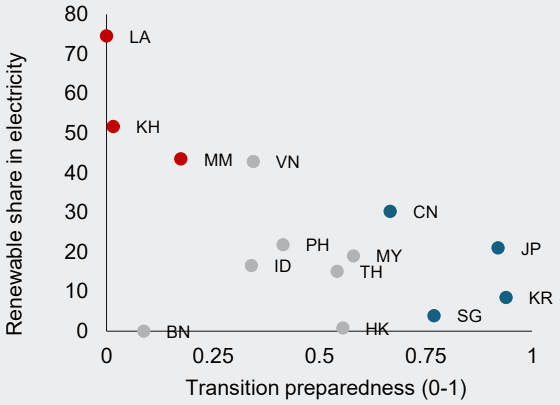
Over the past two decades, ASEAN+3's potentially tradable electricity surplus, measured by the gap between production and domestic demand, has averaged around 50 terawatt hours (TWh) per year, roughly five times higher than in the early 2000s (Figure 2.6.1). Yet, actual cross-border electricity trade remained limited, held back by limited transmission capacity and institutional barriers. As of 2024, the ASEAN Power Grid (APG) provides only 2.8 gigawatts (GW) of grid-to-grid transfer operational capacity and 7.5 GW of generation-to-grid connection capacity.[1] Nonetheless, the APG will be a key regional energy integration mechanism to unlock ASEAN's substantial renewable-energy potential, estimated at 8.1 TW of solar and 0.34TW of wind capacity (ASEAN Center for Energy [ACE] 2025). Strengthening grid integration will be essential to support the region's decarbonization pathway to net zero.

Figure 2.6.1. Electricity Net Importer
(Annual average TWh)



Source: Our World in Data; AMRO staff calculations.
Note: CN = China; HK = Hong Kong, China; ID = Indonesia; KH = Cambodia; LA = Lao PDR; MM = Myanmar; MY = Malaysia; SG = Singapore; TH = Thailand; VN = Vietnam. There are no data available for Brunei, Japan, Korea, and the Philippines. Economies with positive values are net importers of electricity; negative values are net exporters.

Figure 2.6.2. Renewable Share versus Transition Preparedness
(Index)



Source: International Labour Organization; International Monetary Fund; Our World in Data; United Nations Statistics Division; AMRO staff calculations.
Note: BN = Brunei; CN = China; HK = Hong Kong, China; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Economies in red would benefit from leveraging the comparative advantages of those in blue.

This box was written by Yuventus Effendi, Laura Britt Fermo, and Chenxu Fu.

1/ APG, proposed in 2014 as the region's first multilateral power-trade initiative, began with flows from Lao PDR to Malaysia and later to Singapore. Phase 1 concluded in 2024, with 266 GWh traded. Capacity measures the maximum instantaneous output a system can deliver, whereas GWh reflects the total electricity generated or traded over a specific period.

Although CLM economies remain less economically developed than the rest of ASEAN+3, they hold strong potential to supply electricity, including green power from hydro and solar, to neighbors through interconnected grids. Opportunities for deepening energy integration are anchored in the region's diverse resource endowments. CLM already records the highest share of renewable electricity sources in the region (Figure 2.6.2). Endowments in CLM range from abundant Mekong hydropower to relatively high-irradiance solar zones. However, this potential remains underutilized due to constraints in regulatory fragmentation, infrastructure, finance, and technology. On this front, Plus-3 economies and regional financial centers are well positioned to provide the capital, technology, and skilled workforce needed to unlock CLM's renewable-energy potential for the region.

Gain for CLM from Deeper Energy Integration

Theoretically, deeper energy integration of CLM into ASEAN+3 will enable the region to capitalize on CLM's abundant renewable resources, delivering economic gains both region-wide and, more important, for the CLM economies themselves. The direct and indirect impacts of regional electricity integration on GDP, factor incomes, and emissions are measured[2] under two scenarios: CLM expands renewable electricity output, that is measured in million USD, by 10 percent, substituting fossil fuel electricity (i) without integration versus (ii) with full integration. Full integration means CLM can export renewable electricity to all ASEAN+3 economies, proportional to GDP and sector output, through expanded grid connectivity.

The results demonstrate that a shift toward renewable electricity without integration cannot fully offset the positive effects of rising GDP, sectoral output, and factor incomes that fossil fuel electricity currently provides to the economy (Table 2.6.1). First, GDP gains from generating renewable electricity without any integration are modest. Second, there are slight reductions in outputs of the primary sectors that cover the coal mining activities in Lao PDR and Myanmar. These reductions indicate that the expansion of renewable energy alone would not entirely compensate for the negative effects of reducing fossil-fuel electricity. Labor incomes also fall in Lao PDR and Myanmar. Nonetheless, this substitution does produce a clear environmental benefit: CLM economies experience lower carbon dioxide emissions, highlighting the climate advantages of renewables even in the absence of deeper energy integration.

In contrast, renewable substitution under a fully integrated scenario leads to stronger economic gains than without integration. The CLM economies experience increases in GDP, with Lao PDR benefiting the most due to its comparative advantage in renewable electricity exports. As sectoral outputs expand, returns to capital and skilled labor also rise markedly under full integration. On the downside, this scenario results in a slight increase in total sectoral carbon emissions in Cambodia and Myanmar, suggesting that economic benefits may come with environmental risks if efficiency measures are not prioritized. This underscores the need for Cambodia and Myanmar to adopt low-carbon technologies in producing goods and services to fully realize the benefits of integrated renewable electricity.

Going Forward

Empirical evidence and the steady expansion of regional electricity trade highlight the importance of scaling up the APG as a cornerstone of energy cooperation. Achieving full energy integration, however, will require cross-border regulatory harmonization, pricing mechanisms, political commitment – factors the model does not capture – as well as substantial investment, with an estimated financing gap of over USD100 billion (ACE 2025). For regional green energy cooperation to be sustainable, benefits must be shared across members, particularly the CLM economies whose

---

[2/] An Inter-regional Social Accounting Matrix (IRSAM), based on the GTAP Power database, is constructed to simulate regional electricity integration. The model provides a static and comparative analysis of the direct and indirect impacts of the regional electricity integration on GDP, factor incomes, and emissions through interlinked supply chains.

untapped renewable potential forms a key pillar of future energy integration. Looking ahead, the APG should remain a strategic priority, complemented by efforts to mobilize new green technologies and redirect public and private capital toward cross-border energy infrastructure, securing long-term gains for both CLM and the broader ASEAN+3 region.

Table 2.6.1. Macroeconomic Impacts of 10-percent Renewable Electricity Substitution
(Percentage changes)

		Without Integration			With Full Integration		
		KH	LA	MM	KH	LA	MM
GDP		0.03	0.00	0.01	0.12	0.44	0.14
Sectoral Output	Primary	0.00	–0.04	–0.04	0.01	0.00	0.01
	Secondary	0.00	0.00	0.00	0.02	0.02	0.09
	Tertiary	0.00	0.00	–0.05	0.32	0.54	0.25
Factor Income	Capital	0.05	0.02	0.03	0.17	0.62	0.19
	Unskilled	0.00	–0.02	–0.02	0.03	0.16	0.07
	Skilled	0.01	–0.03	–0.01	0.07	0.34	0.10
Total carbon dioxide emissions		–3.06	–1.04	–3.09	0.27	–0.02	0.03

Source: Global Trade Analysis Project (GTAP) Power; AMRO staff calculations.
Note: KH = Cambodia, LA = Lao PDR, MM = Myanmar. In the GTAP Power database, Myanmar and Timor-Leste are treated as a single data entry due to data limitations. The impact on the results is expected to be minimal as Timor-Leste's economy is much smaller relative to Myanmar's. Capital consists of land, natural resources, and capital. Unskilled labor consists of agricultural, clerical, service, and shopworkers. Skilled labor consists of technicians, professionals, officials, and managers.

References

Akamatsu, Kaname. 1962. "A Historical Pattern of Economic Growth in Developing Countries". Developing Economies 1 (s1): 3–25.

Andreoni, Antonio, and Fiona Tregenna. 2020. "Escaping the Middle-Income Technology Trap: A Comparative Analysis of Industrial Policies in China, Brazil and South Africa." Structural Change and Economic Dynamics 54: 324–340.

Amiti, Mary, and Jozef Konings. 2007. "Trade Liberalization, Intermediate Inputs, and Productivity: Evidence from Indonesia." American Economic Review 97 (5): 1611–1638.

Asian Development Bank (ADB). 2025. "Asian Development Outlook April 2025." Manila.

ASEAN Centre for Energy (ACE). 2025. "ASEAN Energy in 2025: Key Insights about ASEAN Energy Landscape and Predictions in 2025." Jakarta.

ASEAN+3 Macroeconomic Research Office (AMRO). 2024. "ASEAN+3 Regional Economic Outlook 2024." ASEAN+3 Macroeconomic Research Office, Singapore. *https://amro-asia.org/asean3-regional-economic-outlook-2024/.*

ASEAN+3 Macroeconomic Research Office (AMRO). 2025. "ASEAN+3 Regional Economic Outlook 2025." ASEAN+3 Macroeconomic Research Office, Singapore. *https://amro-asia.org/asean3-regional-economic-outlook-2025.*

ASEAN+3 Macroeconomic Research Office (AMRO). forthcoming. "ASEAN at a Crossroads: Pathways for Deeper Economic Integration." AMRO Working Paper, ASEAN+3 Macroeconomic Research Office, Singapore.

Athukorala, Prema-chandra. 2011. "Production Networks and Trade Patterns in East Asia: Regionalization or Globalization?" Asian Economic Papers 10 (1): 65–95.

Autor, David, and others. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." American Economic Review 103 (6): 2121–2168.

Balassa, Béla, and Luc Bauwens. 1988. "The Determinants of Intra-European Trade in Manufactured Goods." European Economic Review 32 (7): 1421–1437.

Baldwin, Richard. 2009. "The Great Trade Collapse: What Caused It and What Does It Mean?" VoxEU Column, November 27. *https://cepr.org/voxeu/columns/great-trade-collapse-what-caused-it-and-what-does-it-mean.*

Baldwin, Richard. 2011. "Trade and Industrialisation after Globalisation's 2nd Unbundling: How Building and Joining a Supply Chain Are Different and Why It Matters." NBER Working Paper No. 17716. National Bureau of Economic Research, Cambridge, MA.

Bems, Rudolfs, and others. 2010. "Demand Spillovers and the Collapse of Trade in the Global Recession." IMF Working Paper No. 10/142. International Monetary Fund, Washington, DC.

Blalock, Garrick, and Paul J. Gertler. 2008. "Welfare Gains from Foreign Direct Investment through Technology Transfer to Local Suppliers." Journal of International Economics 74 (2): 402–421.

Bloom, Nicholas, and others. 2019. "A Toolkit of Policies to Promote Innovation." Journal of Economic Perspectives 33 (3): 163–184.

Bonadio, Barthélémy, and others. 2021. "Global Supply Chains in the Pandemic." NBER Working Paper No. 27224. National Bureau of Economic Research, Cambridge, MA.

Calderón, César, and others. 2007. "Trade Intensity and Business Cycle Synchronization: Are Developing Countries Any Different?" Journal of International Economics 71 (1): 2–21.

Card, David, and others. 2018. "What Works? A Meta-Analysis of Recent Active Labor Market Program Evaluations." Journal of the European Economic Association 16 (3): 894–931.

Cirera, Xavier, and William. F. Maloney. 2017. The Innovation Paradox: Developing-Country Capabilities and the Unrealized Promise of Technological Catch-Up. World Bank, Washington, DC.

Cherif, Reda, and Fuad Hasanov. 2019. "The Return of the Policy That Shall Not Be Named: Principles of Industrial Policy." IMF Working Paper 19/074. International Monetary Fund, Washington, DC.

Constantinescu, Cristina, and others. 2015. "The Global Trade Slowdown: Cyclical or Structural?" IMF Working Paper WP/15/06. International Monetary Fund, Washington, DC.

Dai, Li. 2014. "Business Cycle Synchronization in Asia: The Role of Trade and Financial Integration." ADB Economics Working Paper No. 139. Asian Development Bank, Manila.

Desbordes, Rodolphe, and Loe Franssen. 2019. "Foreign Direct Investment and Productivity: A Cross-Country, Multisector Analysis." Asian Development Review 36 (1): 1–29.

di Giovanni, Julian, and others. 2018. "The Micro Origins of International Business-Cycle Comovement." American Economic Review 108 (1): 82–108.

Duval, Romain, and others. 2014. "Trade Integration and Business Cycle Synchronization: A Reappraisal with Focus on Asia." IMF Working Paper No. 14/52. International Monetary Fund, Washington, DC.

Frankel, Jeffrey A., and Andrew K. Rose. 1998. "The Endogeneity of the Optimum Currency Area Criteria." Economic Journal 108 (449): 1009–1025.

Gerlach, Michael L., 1992. *Alliance Capitalism: The Social Organization of Japanese Business*. Berkeley: University of California Press.

Goldberg, Pinelopi, and others. 2010. "Imported Intermediate Inputs and Domestic Product Growth: Evidence from India." Quarterly Journal of Economics 125 (4): 1727–1767.

Grossman, Gene M., and Elhanan Helpman. 1991. "Trade, Knowledge Spillovers, and Growth." European Economic Review 35 (2–3): 517–526

Hallak, Juan Carlos. 2010. "A Product-Quality View of the Linder Hypothesis." Review of Economics and Statistics 92 (3): 453–466.

Inomata, Satoshi, and Tesshu Hanaka. 2024. "Measuring Exposure to Network Concentration Risk in Global Supply Chains: Volume versus Frequency." Structural Change and Economic Dynamics 68: 177–193.

International Labour Organization (ILO). 2024. *ILO Annual Report 2024*. Geneva: International Labour Organization.

International Monetary Fund (IMF). 2013. *Annual Report 2013: Promoting a More Secure and Stable Global Economy*. Washington, DC: International Monetary Fund.

International Monetary Fund (IMF). 2016. *Annual Report 2016*. Washington, DC.

International Monetary Fund (IMF). 2026. *World Economic Outlook: Global Economy: Steady amid Divergent Forces*. Washington, DC. January.

Japan External Trade Organization (JETRO). 2010. JETRO Global Trade and Investment Report 2010. Tokyo.

Javorcik, Beata Smarzynska. 2004. "Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages." American Economic Review 94 (3): 605–627.

Kawai, Masahiro, and Shinji Takagi. 2009. "Why Was Japan Hit So Hard by the Global Financial Crisis?" ADBI Working Paper Series No. 153. Asian Development Bank Institute (ADBI), Tokyo.

Kimura, Fukunari, and Mitsuyo Ando. 2005. "Two-dimensional Fragmentation in East Asia: Conceptual Framework and Empirics." International Review of Economics & Finance 14 (3): 317–348.

Kojima, Kiyoshi. 2000. "The "Flying Geese" Model of Asian Economic Development: Origin, Theoretical Extensions, and Regional Policy Implications." Journal of Asian Economics 11 (4): 375–401.

Kose, M. Ayhan, and others. 2012. "Global Business Cycles: Convergence or Decoupling?" International Economic Review 53 (2): 511–538

Kowalski, Przemyslaw, and others. 2015. "Participation of Developing Countries in Global Value Chains: Implications for Trade and Trade-Related Policies." OECD Trade Policy Papers No. 179. OECD Publishing, Paris.

Kümmritz, Victor, and others. 2017. "Economic Upgrading through Global Value Chain Participation: Which Policies Increase the Value Added Gains?" World Bank Policy Research Working Paper No. 8007. World Bank, Washington, DC.

Mark, Jeremy. 2024. "China's Sputtering Engine of Growth Leads Its Imports to Downshift." *Atlantic Council,* September 18.

Melitz, Marc. J. 2003. "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." Econometrica 71 (6): 1695–1725.

Miroudot, Sébastien, and Alexandros Ragoussis. 2009. "Vertical Trade, Trade Costs and Foreign Direct Investment." OECD Trade Policy Papers No. 89. OECD Publishing, Paris.

Obashi, Ayako. 2022. "Overview of Foreign Direct Investment, Trade, and Global Value Chains in East Asia." ERIA Discussion Paper Series No. 417. Economic Research Institute for ASEAN and East Asia (ERIA), Jakarta, January.

Organisation for Economic Co-operation and Development (OECD). 2013. *OECD Economic Outlook, Volume 2013. Issue 1*. Paris: OECD Publishing.

Organisation for Economic Co-operation and Development (OECD). 2015. *OECD Economic Outlook, Volume 2015. Issue 1*. Paris: OECD Publishing.

Organisation for Economic Co-operation and Development (OECD). 2017. *OECD Economic Outlook, Volume 2017. Issue 2*. Paris: OECD Publishing.

Organisation for Economic Co-operation and Development (OECD). 2019. *OECD Economic Outlook, Volume 2019, Issue 1*. Paris: OECD Publishing.

Perkmann, Markus, and others. 2013. "Academic Engagement and Commercialisation: A Review of the Literature on University–Industry Relations." Research Policy 42 (2): 423–442.

Serlenga, Laura, and Yongcheol Shin. 2007. "Gravity Models of Intra-EU Trade: Application of the CCEP-HT Estimation in Heterogeneous Panels with Unobserved Common Time-specific Factors." Journal of Applied Econometrics 22 (2): 361–381.

Taglioni, Daria, and Deborah Winkler. 2016. "Making Global Value Chains Work for Development." T*rade and Development Series*. Washington, DC: World Bank.

Todo, Yasuyuki, and others. 2015. "How Do Supply Chain Networks Affect the Resilience of Firms to Natural Disasters? Evidence from the Great East Japan Earthquake." Journal of Regional Science 55 (2): 209–229.

United Nations Conference on Trade and Development (UNCTAD). 2024. *UNCTAD Annual Report 2023: Trade–Unlocking Sustainable Strategies for People, Planet and Prosperity*. Geneva.

United Nations Conference on Trade and Development (UNCTAD). 2025. *ASEAN Investment Report 2025: Foreign Direct Investment and Supply Chain Development*. Geneva: United Nations Conference on Trade and Development and ASEAN Secretariat.

Urata, Shujiro, and Youngmin Baek. 2019. "Does Participation in Global Value Chains Increase Productivity? An Analysis of Trade in Value Added Data." ERIA Discussion Paper Series No. 301. Economic Research Institute for ASEAN and East Asia (ERIA), Jakarta.

Urata, Shujiro. 2002. "Japanese Foreign Direct Investment in East Asia with Particular Focus on ASEAN 4." Conference on Foreign Direct Investment: Opportunities and Challenges for Cambodia, Laos, and Vietnam, Seminar Paper, International Monetary Fund, Hanoi, August 16.

World Bank. 1993. *The World Bank Annual Report 1993*. Washington, DC.

World Bank. 2009. *World Development Report 2009: Reshaping Economic Geography*. Washington, DC.

World Bank. 2020. *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. Washington, DC.

World Trade Organization (WTO) and others. 2023. *Global Value Chain Development Report 2023: Resilient and Sustainable GVCs in Turbulent Times*. Manila, Tokyo, Beijing, and Geneva: ADB, IDE-JETRO, UIBE Global Value Chain Research Institute, and WTO.