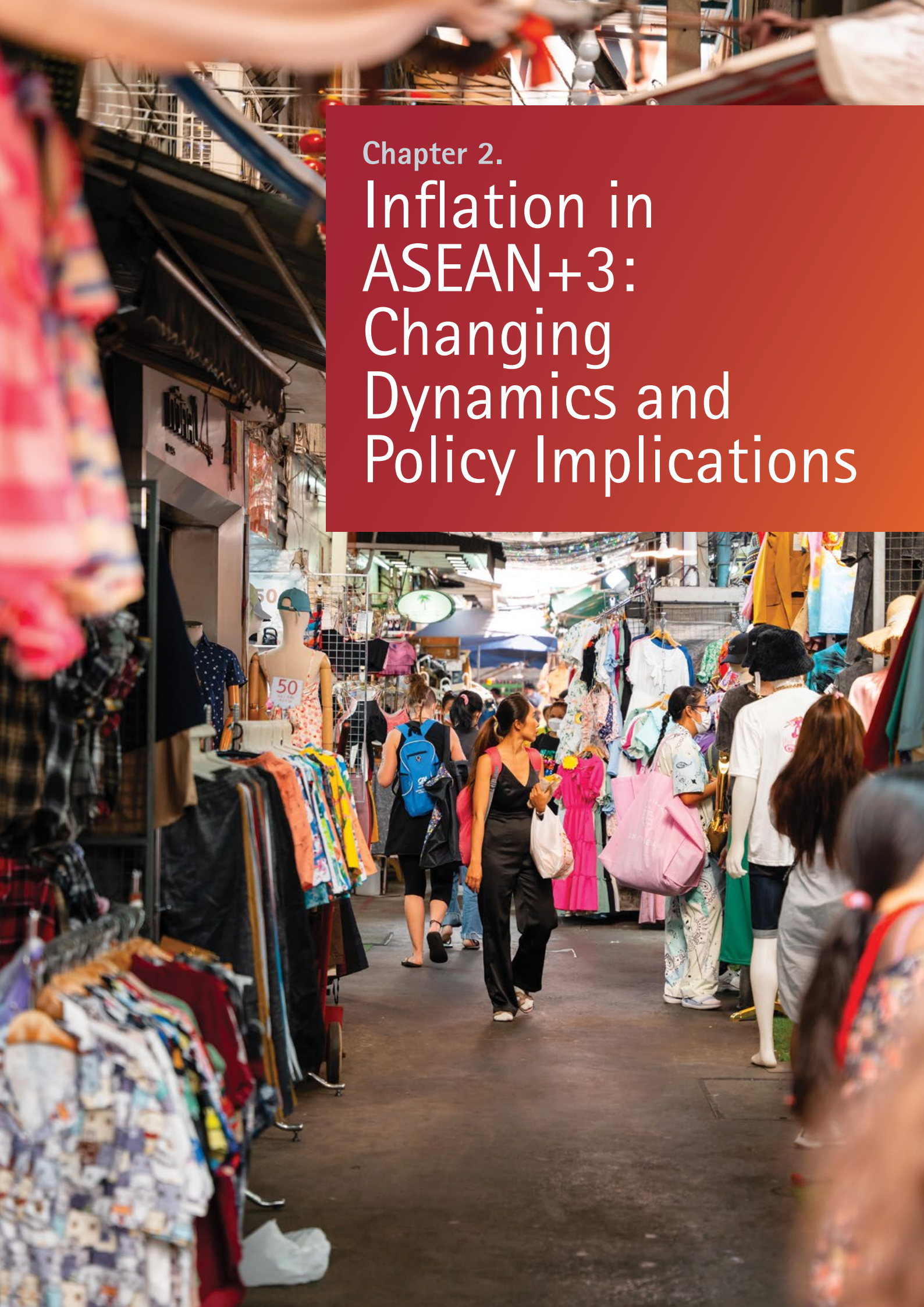


Chapter 2.

Inflation in ASEAN+3: Changing Dynamics and Policy Implications

Highlights

- After more than two decades of low and stable inflation in ASEAN+3, inflation surged in 2021 due to a confluence of the COVID-19 pandemic and multiple global supply shocks. However, the surge was moderate and short-lived compared to other regions, which helped limit welfare losses. While global commodity price pressures led to broad-based price increases initially, inflation began moderating toward the end of 2022 as commodity prices eased and global supply chains normalized. Notably, the composition of the drivers of inflation has shifted post-pandemic, with goods inflation initially dominating, while services inflation became the more persistent source of price pressures during the disinflationary period. Despite these dynamics, inflation expectations in ASEAN+3 remained well-anchored, underscoring confidence in price stability over both the short- and medium-term.

- Analysis reveals the evolving interplay of supply and demand forces in the region. Supply factors became more important during 2021–2022, contributing significantly more to both headline and core inflation compared to pre-pandemic period. The impact was particularly pronounced through global commodity prices and supply chain disruptions. As external supply pressures moderated by late-2022, demand factors emerged as the main driver amid economic reopening. Plus-3 (China, Hong Kong, Japan, and Korea) and ASEAN economies experienced different inflation trajectories. Whereas Plus-3 economies saw inflation moderating steadily from end-2022 to average below 1 percent by mid-2023, ASEAN economies maintained higher inflation rates due to stronger recovery in domestic demand.

- ASEAN+3 economies employed a mix of monetary and non-monetary measures to manage inflationary pressures effectively. Monetary policy tightening across most regional economies since 2022 was crucial in anchoring inflation expectations and containing demand pressures. Concurrently, fiscal measures such as energy and food subsidies, cash transfers, and tax adjustments helped to contain the price increase and provided critical support to households. Other supply adjustment interventions such as price regulation, stockpile management, and trade measures helped ensure essential goods and services remain available and affordable.

- The ASEAN+3 experience offers important lessons for managing inflation in an environment of complex supply-demand dynamics. The effectiveness of policy responses depends critically on accurately diagnosing inflation drivers and calibrating the appropriate policy mix. While monetary policy remains the primary tool for managing demand pressures and anchoring expectations, targeted non-monetary measures have proven valuable in addressing supply bottlenecks, capping temporary price increases of essential items, and protecting vulnerable groups.

- Looking ahead, managing inflation may become more challenging as structural shifts like geopolitical tensions, demographic changes, and climate transition increase the likelihood of supply disruptions. Monetary authorities may need to consider more forceful responses even to supply shocks if inflation expectations risk becoming de-anchored, particularly given more frequent and persistent supply disruptions. Enhanced monitoring is crucial to better distinguish between supply and demand factors in real time, helping minimize risk of delayed policy responses. However, such responses would need to carefully weigh trade-offs, as monetary policy tightening to contain supply-driven inflation can exacerbate economic downturns. Building adequate policy buffers and maintaining strong surveillance capabilities will be crucial for effectively navigating these challenges.

I. Introduction

Prior to the COVID-19 pandemic, ASEAN+3 economies had experienced more than two decades of low and stable inflation, marking a significant departure from the high inflation environment of the 1970s and 1980s (Figure 2.1). This period of low inflation has coincided with key structural changes and institutional reforms after the Asian financial crisis, including the adoption of inflation-targeting frameworks[1] and enhanced central bank independence, which has helped anchor inflation expectations in the region. The region's growing integration into global value chains, particularly following China's accession to the World Trade Organization in 2001, further contributed to this trend by improving supply chain efficiency and lowering production costs. Core inflation globally and in ASEAN+3 has followed a similar downward trend, with ASEAN+3's core inflation[2] remaining consistently lower than both the global and advanced economy averages, largely influenced by Japan's persistently low inflation due to weak domestic demand and demographic factors (Uchida 2024). Notably, inflation rates across regional economies showed steady convergence over time, with the dispersion of inflation—as measured by the interquartile range—narrowing from 15 percentage points in the 1980s to below 3 percentage points between 2020 and 2023, more closely aligning with patterns observed in advanced economies (Figure 2.2).

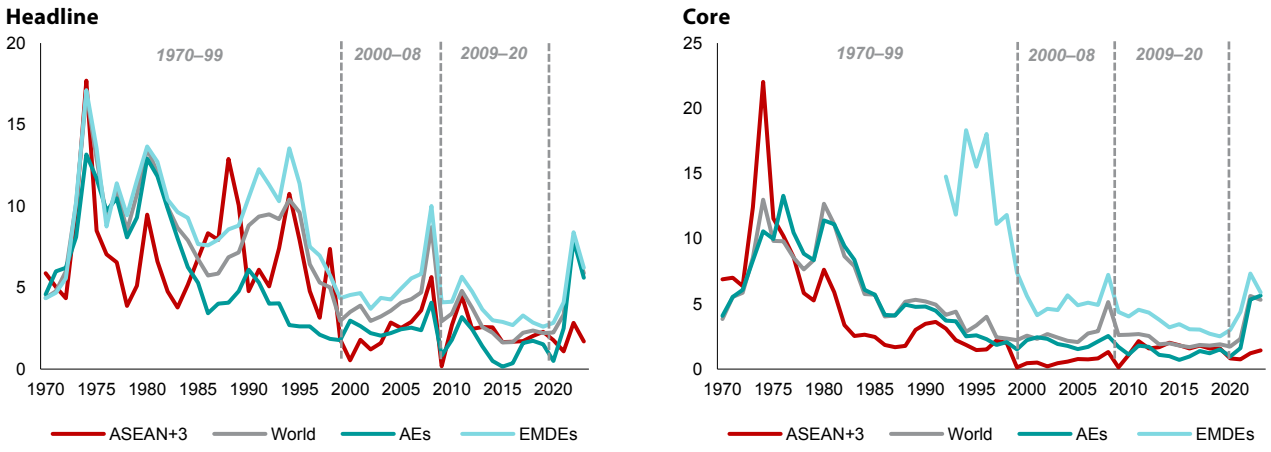
The period since 2020 has witnessed an unprecedented shift in the region's inflation dynamics. Following initial deflationary pressures during the pandemic lockdowns, ASEAN+3 experienced a sharp spike in inflation beginning in mid-2021, driven by supply chain disruptions, commodity price shocks, and post-pandemic demand recovery. While the region's headline inflation peaked in 2022 at less than half that of other major economies—and has since moderated to below pre-pandemic levels, the breadth and speed of price increases represented significant departures from historical patterns. This chapter examines the region's inflation dynamics during this exceptional period:

- ***Section II*** summarizes the key differences in the region's recent inflation dynamics compared to other regions and its own historical experience, providing context within the broader global landscape and against the region's past trends.

- ***Section III*** examines the key drivers of inflation during the recent period—distinguishing between supply and demand factors. To enhance understanding, the supply and demand factors are further explored through the lens of economic conditions and structural changes, assessing their role in driving inflation and its persistence.

- ***Section IV*** looks at policies the region has employed in managing inflation, distilling key lessons learned. Building on these and findings from the previous section, it proposes some policy considerations, including for addressing ongoing structural shifts.

Figure 2.1. Selected Economies: Consumer Price Inflation
(Percent, year-on-year)



Source: World Bank; AMRO staff calculations.
Note: AEs = advanced economies; EMDEs = emerging market and developing economies. Data refers to median inflation within each country group; ASEAN+3 refers to the GDP-weighted mean inflation across economies. Core inflation excludes Brunei, Cambodia, Lao PDR, and Myanmar due to data unavailability. Country groups are defined based on IMF's classification.

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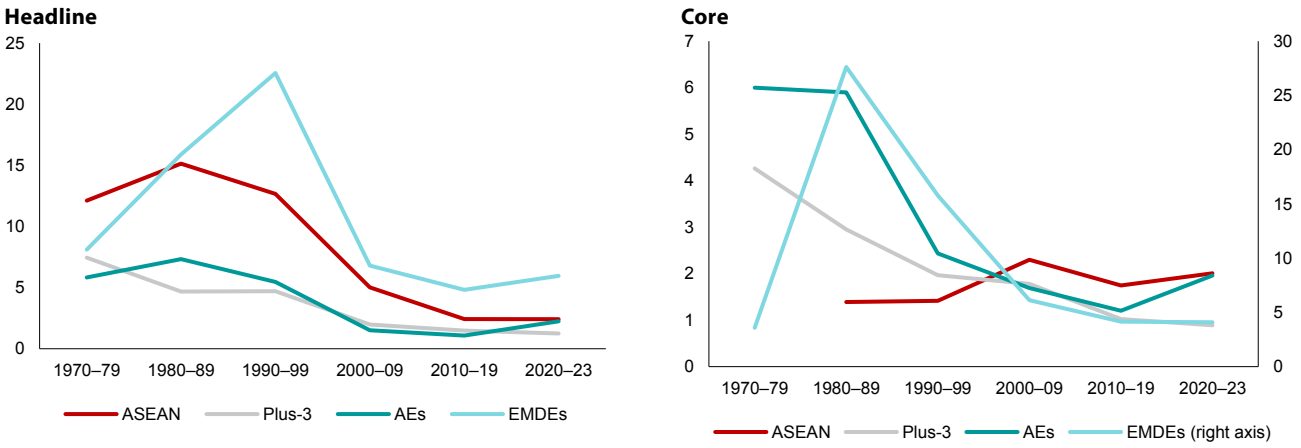
1/ Within ASEAN+3, five economies—Indonesia, Japan, Korea, the Philippines, and Thailand—have an inflation targeting framework for monetary policy.

2/ Core inflation in this chapter refers to the official core inflation statistics from each regional economy, which have varying definitions but commonly aim to filter out volatile and transient price changes. The compilation of official definitions of core inflation for ASEAN+3 can be found in Kho, Chong, and Tsang (2024).

Figure 2.2. Selected Economies: Interquartile Range of Consumer Price Inflation
(Percent)



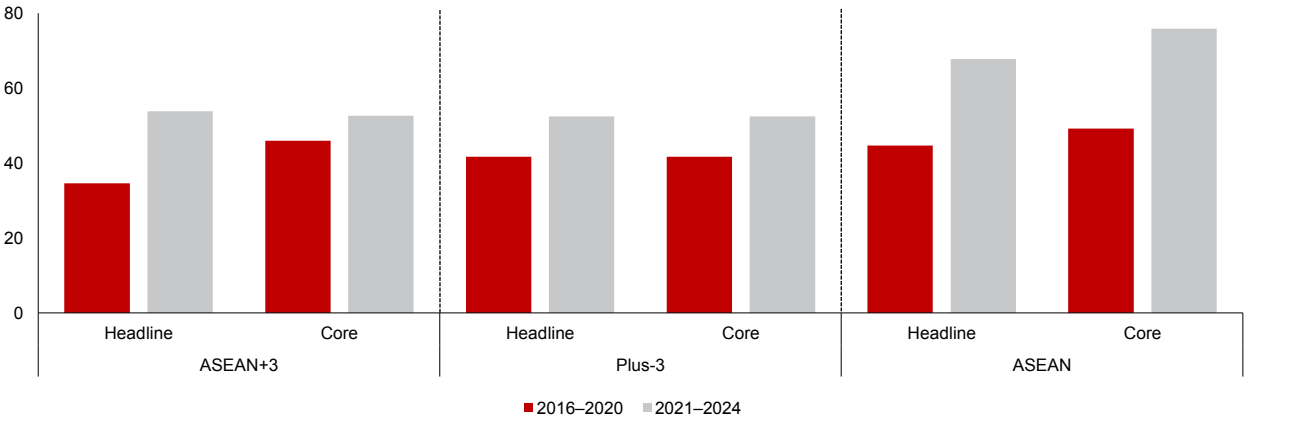
Source: World Bank; National authorities via Haver Analytics; AMRO staff calculations.
Note: AEs = advanced economies; EMDEs = emerging market and developing economies; Plus-3 = China, Hong Kong, Japan, and Korea. Country groups are defined based on the International Monetary Fund's classification.

II. Contextualizing the Recent ASEAN+3 Inflation Experience

This section examines the distinctive features of ASEAN+3's recent inflation experience compared to other major economies and the region's own historical patterns. Since the pandemic, global factors have become increasingly important in driving regional inflation, with the global common factor now explaining between one-half (Korea and Japan) and two-third (ASEAN) of inflation variation in the region (Figure 2.3).

This increased synchronization reflects the growing influence of external factors in shaping regional price dynamics. However, despite stronger global connections, the magnitude, duration, and impact of price increases in ASEAN+3 have differed notably from other regions. Understanding these differences provides crucial insights into the region's inflation dynamics and their implications for policy responses.

Figure 2.3. ASEAN+3: Percent of Variance Explained by First Principal Component
(Percent)



Source: World Bank; National authorities via Haver Analytics; AMRO staff calculations.
Note: Principal component analysis was performed on price indices of regional economies to derive the first principal component. Headline inflation excludes Lao PDR and Myanmar; core inflation excludes Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam.

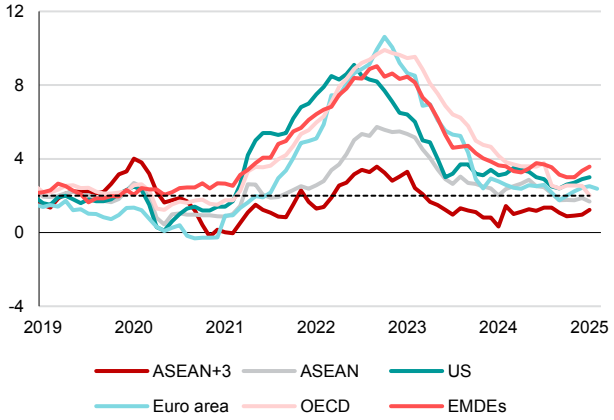
Lower and More Short-Lived Inflation

ASEAN+3's inflation experience since 2020 has been distinctly milder and shorter-lived than that of other major economies. While headline inflation in the region began rising in mid-2020 along with global trends, it peaked at 3.6 percent in September 2022—less than half the maximum rates seen in the US (9.1 percent), the Organisation for Economic Co-operation and Development (OECD, 9.9 percent), and euro area (10.6 percent) (Figure 2.4). Moreover, the region's inflation moderated more quickly, stabilizing at an average of 1.2 percent since June 2023, below its pre-pandemic average of 2 percent (2014–2019). This contrasts sharply

with the US and OECD, where inflation has remained elevated, and above pre-pandemic levels (Figure 2.5). Core inflation in ASEAN+3 peaked four months later than headline inflation and has also moderated to below its pre-pandemic average.

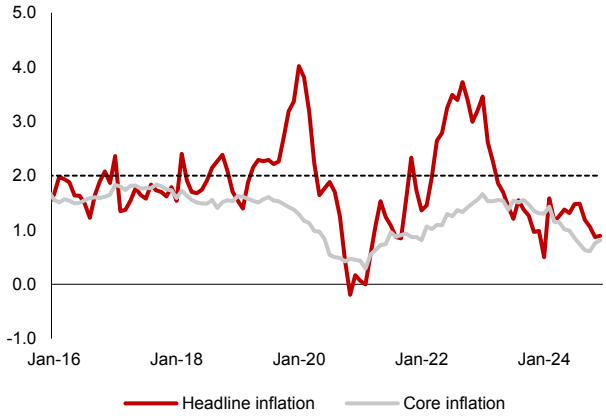
The moderate increase in regional inflation has helped limit welfare losses across ASEAN+3 economies. While high inflation from 2021 to 2023 has raised prices by 20 percent to 23 percent in the US and OECD, the increase in ASEAN+3 was a more modest 5.8 percent (Figure 2.6), with all regional economies, except Lao PDR and Myanmar, experiencing increases of less than 20 percent (Figure 2.7). This difference in cumulative price increases has likely been crucial in limiting welfare losses[3] in ASEAN+3 compared to other economies (Pallotti and others 2024). The region's slower price growth has therefore helped contain cost-of-living pressures for most households, though vulnerabilities remain—particularly for poorer households who spend a larger share of their income on food and energy (Bobasu, di Nino, and Osbat 2023).

Figure 2.4. Selected Economies: Headline Inflation
(Percent)



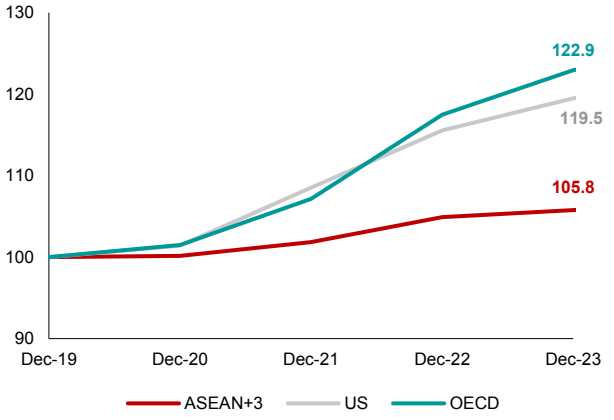
Source: National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: EMDEs = Emerging market and developing economies. The Organisation for Economic Co-operation and Development (OECD) excludes Türkiye and euro area economies. ASEAN+3 and ASEAN exclude Myanmar, and refer to the GDP-weighted mean inflation across economies. EMDEs refers to median inflation across 78 economies.

Figure 2.5. ASEAN+3: Headline and Core Inflation
(Percent, year-on-year)



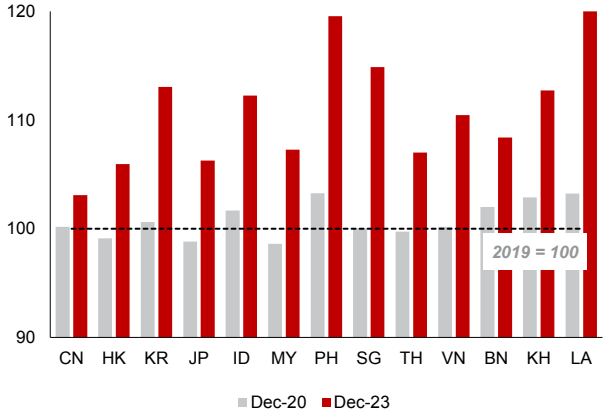
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Regional aggregates are GDP-weighted. Data up to December 2024, except Myanmar (September 2024). Core inflation data excludes Brunei and Myanmar due to data unavailability.

Figure 2.6. Selected Economies: Price Levels
(Index, 2019 = 100)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: ASEAN+3 price levels are calculated using the GDP-weighted mean inflation for the ASEAN+3 economies. Excludes Myanmar.

Figure 2.7. Selected ASEAN+3: Price Levels
(Index, 2019 = 100)



Source: National authorities via Haver Analytics; AMRO staff calculations.

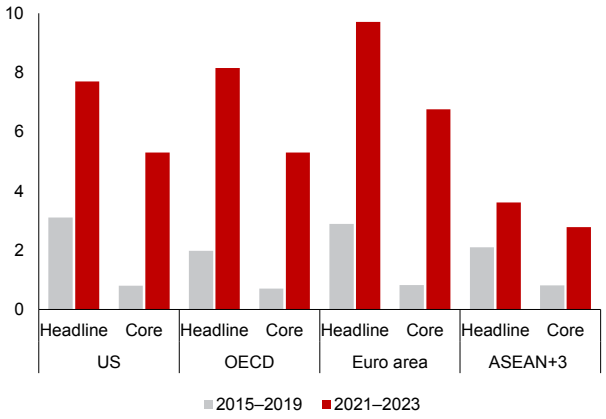
3/ Higher inflation typically reduces real income and erodes household wealth, with no immediate compensating rise in income, housing prices, or financial assets.

Relatively Moderate Volatility Despite Wider Sectoral Variability

Despite increasing, inflation volatility in ASEAN+3 has remained notably contained compared to other regions. From 2021 to 2023, the range of headline inflation nearly tripled, while core inflation rose more than sixfold compared to the pre-pandemic period (Figure 2.8). However, the region's inflation swings have been more moderate—monthly headline inflation fluctuated within 4.2 percentage points, less than half of the 9-percentage point range seen in the US and OECD (Figure 2.9). Within the region, ASEAN economies experienced greater volatility, with fluctuations of 7 percentage points, compared to 4 percentage points for the Plus-3 economies (Figure 2.10). Core inflation followed similar patterns, with Plus-3 economies (China, Hong Kong, Japan, and Korea) in particular showing narrow fluctuations within a 1.5 percentage point range (Box 2.1). This relative stability in consumer prices, however, stands in marked contrast to producer price inflation, which has shown significantly higher volatility throughout this period (Box 2.2).

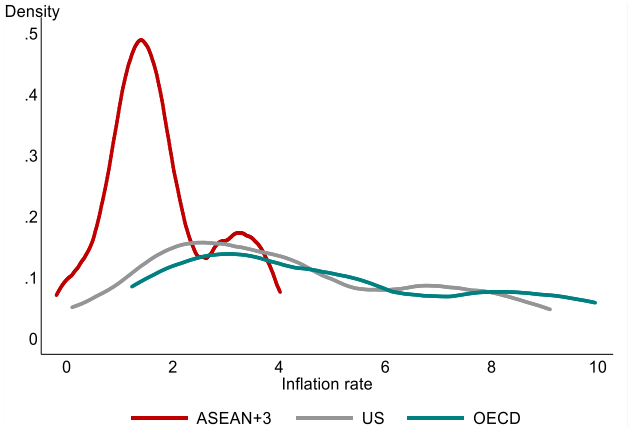
Beyond these aggregate patterns, the post-pandemic period has revealed significant variability in sectoral inflation rates across the region. The dispersion of inflation across components of the consumer price index (CPI)—measured by their standard deviations—initially spiked in April 2020 as COVID-19 containment created opposing pressures: suppressing services demand while driving up goods prices through supply chain disruptions (Figure 2.11). This sectoral divergence reached its peak in June 2022, driven by global supply shocks that disproportionately affected energy, food, and transportation prices, with spillover effects across other sectors. Price increases became increasingly pervasive, with a larger share of the CPI basket experiencing above-average monthly increases compared to pre-pandemic norms (Figure 2.12). Whereas some sectors like education and healthcare remained relatively insulated from global price pressures, others such as rental and property markets responded to economy-specific factors. The sectoral divergence began narrowing from the end of 2022 as commodity prices moderated and demand conditions normalized.

Figure 2.8. Selected Economies: Range of Headline and Core Inflation
(Percentage points)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: OECD = Organisation for Economic Co-operation and Development. Range of inflation refers to the difference between the maximum and minimum value of the regional aggregate within the time period.

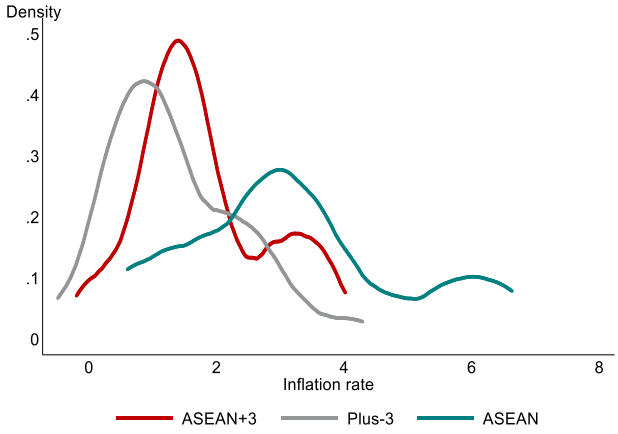
Figure 2.9. Selected Economies: Distribution of Monthly Headline Inflation
(Density, 2020–2024)



Source: National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: Organisation for Economic Co-operation and Development (OECD) excludes Türkiye and euro area economies. ASEAN+3 refer to the GDP-weighted inflation rates.

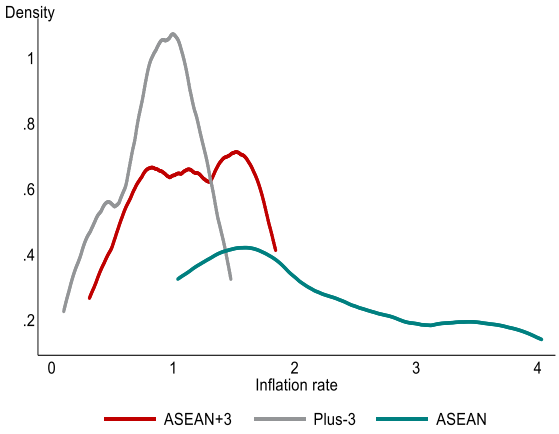
Figure 2.10. ASEAN+3: Distribution of Monthly Consumer Price Inflation
(Density, 2020–2024)

Headline



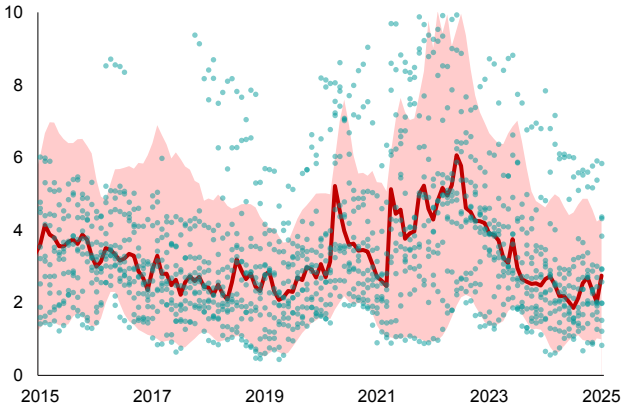
Source: National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: Regional inflation is GDP-weighted.

Core



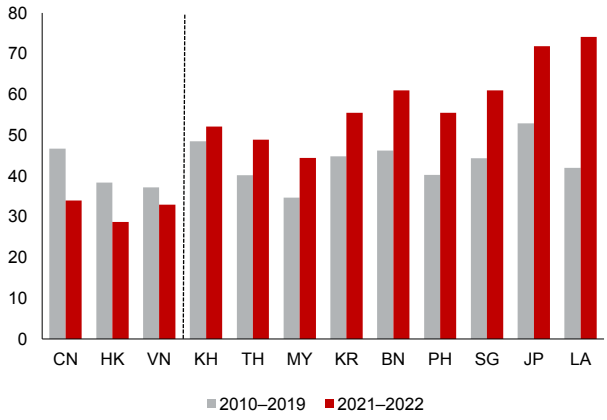
Source: National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: Regional inflation is GDP-weighted. Brunei and Myanmar are omitted due to data unavailability.

Figure 2.11. ASEAN+3: Inflation Dispersion
(Percent, year-on-year)



Source: National authorities; AMRO staff calculations.
Note: Dispersion refers to the standard deviation of inflation categories within each economy. Each dot corresponds to an economy within ASEAN+3. Line refers to the median for the region.

Figure 2.12. ASEAN+3: Share of CPI Basket Recording Month-on-Month Price Increases
(Percent share of CPI basket)



Source: National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: Inflation pervasiveness is measured as the share of CPI basket with month-on-month price increase that is above its long-term average (2010–2019).

Box 2.1:

The Prevalence of Low-Inflation Products in Thailand's Core Inflation Basket

Thailand's core inflation has experienced much lower volatility since the pandemic compared to regional peers. This stability has been crucial in keeping overall inflation contained, as headline inflation quickly retreated below the Bank of Thailand's 1 percent to 3 percent target range in May 2023 after peaking at 7.9 percent in August 2022. Despite fluctuations in headline inflation, Thailand's core inflation has remained exceptionally low relative to ASEAN peers (Figure 2.1.1), showing marked stability even during the global inflation surge. This analysis examines the structure of product-level inflation to shed some light on Thailand's uniquely low and stable core inflation.

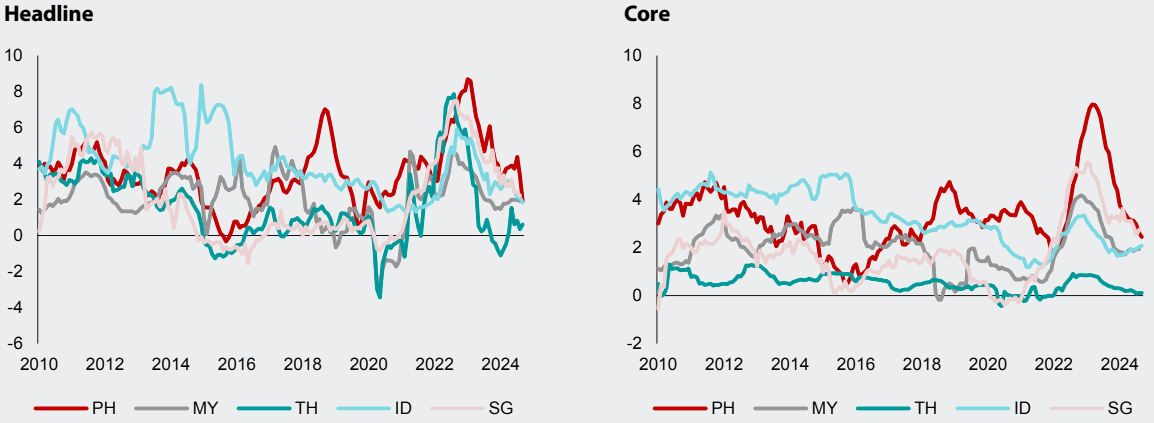
The prevalence of low-inflation items in the core basket appears to drive Thailand's consistently low and stable core inflation. Historically, Thailand has had an exceptionally high proportion of products with inflation below 1 percent, well under the central bank's target range. Between 2010 and 2019, prices of around 80 percent of items in Thailand's core inflation basket rose at below 1 percent (Figure 2.1.2), with most categories, except prepared food items, consistently registering inflation below the target range (Figure 2.1.3). The proportion of products with inflation below the central bank's target decreased from 87.4 percent in late 2019 to a still-high 61.3 percent during peak inflation in August 2022, and has since recovered to 75.7 percent as of September 2024, though remaining below pre-pandemic levels.

Products with historically lower inflation saw relatively milder inflation increases during the pandemic. This is shown by the positive correlation between historical inflation and pandemic-period inflation increases at the product level (Figure 2.1.4). This pattern may reflect well-anchored inflation expectations among low-inflation product categories, which helped prevent expectation-driven price spikes (Goel and Tsatsaronis 2022; IMF 2023a).

Products with historically low inflation also demonstrated faster inflation moderation after the August 2022 peak, reinforcing Thailand's low-inflation dynamics (Figure 2.1.5). These products' low inflation characteristic may reflect Thailand's diversified manufacturing base and established global trade networks (Manopimoke and Direkudomsak 2015; IMF 2024a), which enabled faster recovery from supply disruptions and helped maintain price stability.

Further research could explore the structural factors behind Thailand's distinctively large share of low-inflation products. While this may reflect Thailand's diversified domestic and external supply networks and well-anchored inflation expectation, the key question remains: Why do so many products in Thailand's core basket show persistently low inflation compared to regional peers? Understanding what drives Thailand's high proportion of low-inflation products could provide valuable insights into inflation dynamics across the region.

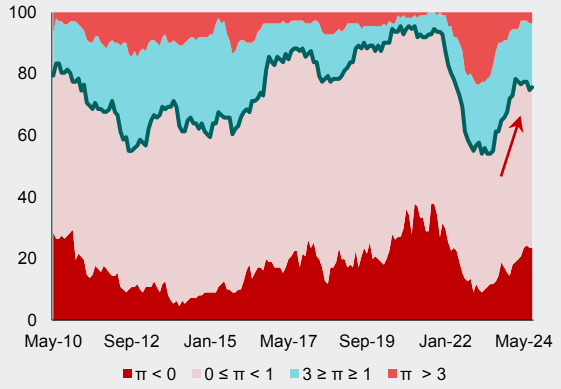
Figure 2.1.1. ASEAN-5: Consumer Price Inflation
(Percent, year-on-year)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: ID = Indonesia; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand. The core inflation has been recalculated using consistent weights and product basket to improve comparability across economies.

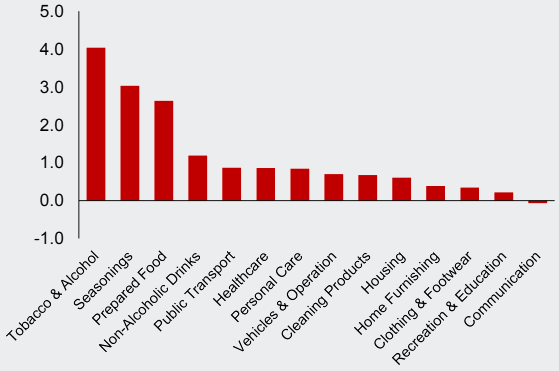
This box was written by Haobin Wang.

Figure 2.1.2. Thailand: Share of Products within Various Inflation Ranges
(Percent)



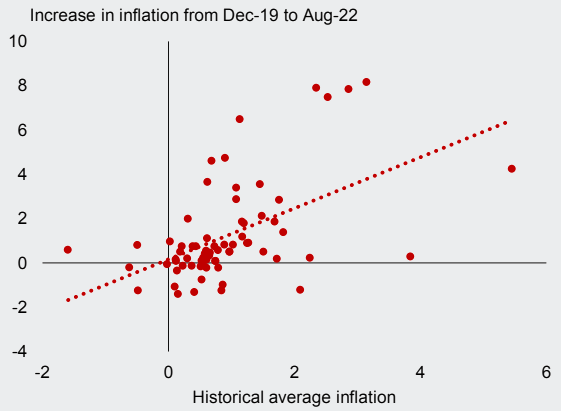
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: The chart shows the share of products in the core inflation basket corresponding to different inflation ranges. This estimate covers approximately 100 products, classified at the 3-digit level of the Classification of Individual Consumption by Purpose.

Figure 2.1.3. Thailand: Average Inflation by Products, 2010–2019
(Percent, year-on-year)



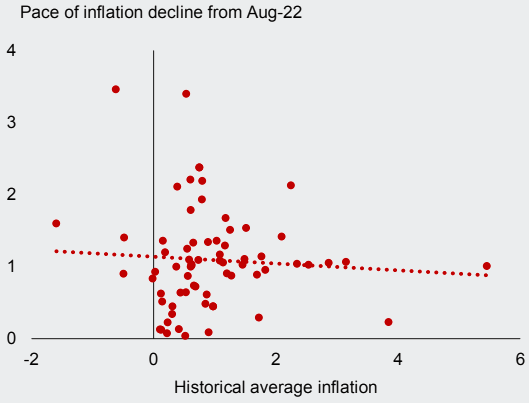
Source: National authorities via Haver Analytics; AMRO staff calculations.

Figure 2.1.4. Thailand: Historical Inflation versus Inflation Increase During the Pandemic
(Percentage points; percent, year-on-year)



Source: National authorities via Haver Analytics; AMRO staff calculations.

Figure 2.1.5. Thailand: Historical Inflation versus Pace of Inflation Decline After the Pandemic
(Percentage points; percent, year-on-year)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Pace of inflation decline from peak is computed as the ratio between the absolute value of inflation change from August 2022 to September 2024 and that from December 2019 to August 2022.

Box 2.2:

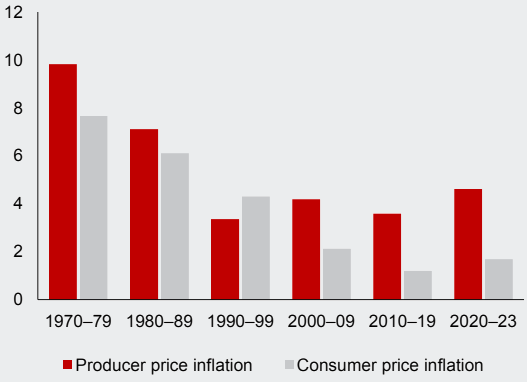
Differences between Producer Prices and Consumer Prices

Producer price inflation in ASEAN+3 exhibits different trends from headline and core consumer price inflation. Producer price inflation (PPI) in ASEAN+3 has generally been more volatile, with a larger standard deviation than consumer price inflation (CPI) over most periods (Figure 2.2.1). This volatility reflects the region's role in global value chains, where regional economies are mainly price takers in global goods markets. The reliance on imported inputs as part of this intermediary role makes exchange rate fluctuations another key driver of the PPI.

PPI is more sensitive to global price fluctuations as it consists mostly of goods. Given the region's significant integration in the global value chain, the PPI basket for most ASEAN+3 economies is dominated by goods, particularly intermediate goods used in manufacturing (Figure 2.2.2). In contrast, services account for 30–55 percent of the CPI basket. A study across 10 Asian economies found that global oil and food prices, along with exchange rates, have a greater effect on producer prices than consumer prices (Jongwanich, Wongcharoen, and Park 2016). The study also found that external cost-push factors, such as global oil and food prices, explain about 32 percent of PPI variation but only 20 percent of CPI variation.

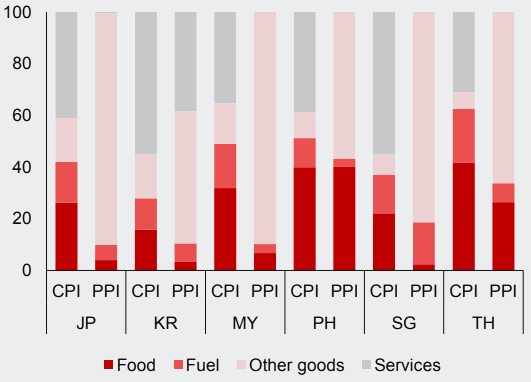
Exchange-rate passthrough also has a greater effect on PPI than CPI across all economies. However, exchange-rate passthrough is likely to be incomplete across all economies owing to firm pricing behavior—exporting firms may lower prices during currency appreciation to maintain market share and increase profit margins during depreciation, while importing firms adjust prices inversely. Similarly, an IMF (2010) study on China found that nominal exchange rate appreciation has a moderate passthrough effect on producer prices but minimal impact on consumer prices, likely because imports are predominantly composed of intermediate goods. Imported consumer goods also constitute a small share of the consumption basket (weighted average of 5 percent of regional consumer goods).

Figure 2.2.1. ASEAN+3: Standard Deviation of Producer and Consumer Price Inflation
(Percent, year-on-year)



Source: National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: Values refer to median standard deviation of economies within the country group for the time period.

Figure 2.2.2. Selected ASEAN+3: Composition of Producer Price Index versus Consumer Price Index
(Percent share of basket)



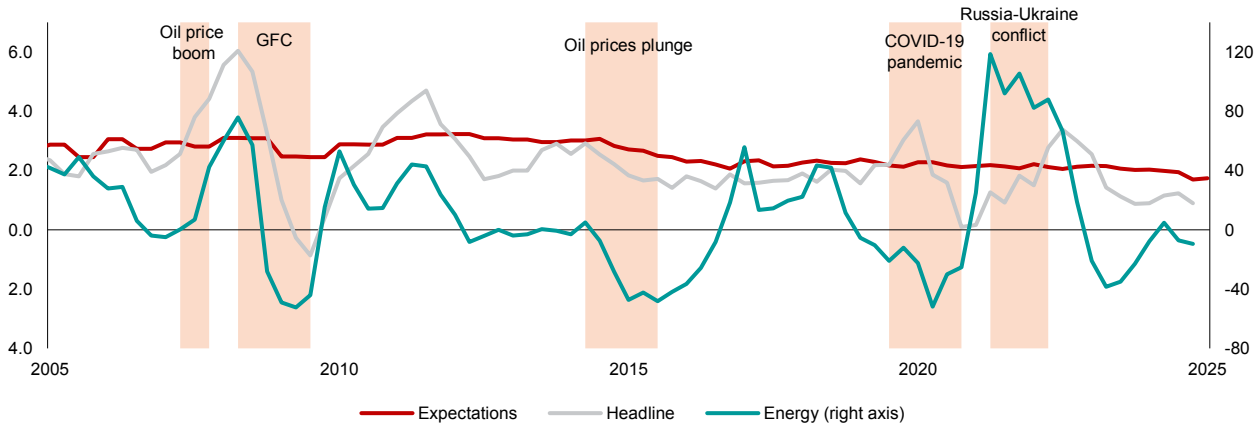
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; CPI = consumer price index, PPI = producer price index.

This box was written by Megan Chong.

Well-Anchored Inflation Expectations

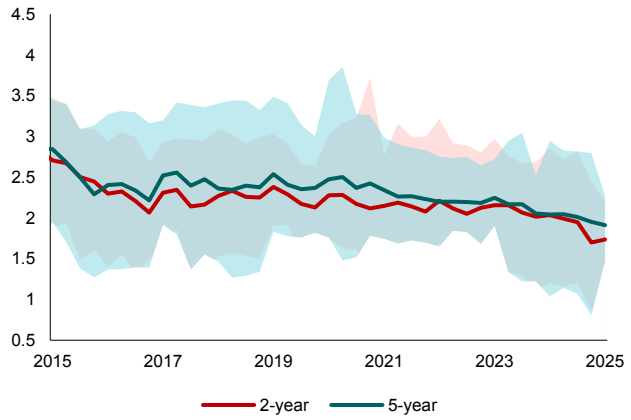
Despite elevated and prolonged inflationary pressures, ASEAN+3 has maintained well-anchored inflation expectations throughout the post-pandemic period. As with previous episodes of significant global prices fluctuations, inflation expectations[4] in the region have remained stable (Figure 2.13). Similar to the experience of the US and OECD economies, despite inflation reaching multiyear highs in 2021–2022, changes to inflation expectations over the next two years and five years were minimal—reflecting confidence in price stability over both the short and medium terms (Figure 2.14). This finding mirrors the experience of both advanced economies and emerging market and developing economies (IMF 2024b). Notably, inflation expectations have broadly remained close to regional economies' inflation targets or long-term averages (Figure 2.15), a feature that has supported the region's moderate inflation experience by helping prevent the emergence of persistent price pressures that could arise when expectations become unanchored. The stability in expectations has been remarkable given the multiple supply shocks that hit the region in this period, including pandemic-related disruptions and commodity price surges.

Figure 2.13. Selected ASEAN+3: Headline Inflation and Two-Year Ahead Inflation Expectations
(Percent, year-on-year)



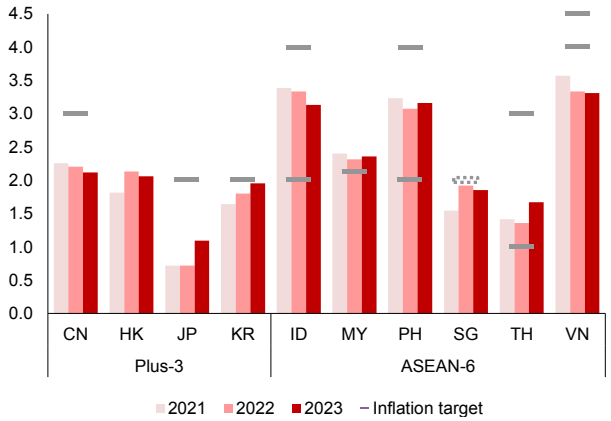
Source: Consensus Economics; National authorities via Haver Analytics; World Bank; AMRO staff calculations.
Note: GFC = global financial crisis. Headline inflation is the GDP-weighted headline inflation for selected ASEAN+3 economies. Energy price inflation refers to the World Bank's commodity price index for energy. Selected ASEAN+3 includes China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Thailand, and Vietnam.

Figure 2.14. Selected ASEAN+3: Two- and Five-Year Ahead Inflation Expectations
(Percent, year-on-year)



Source: Consensus Economics; International Monetary Fund via Haver Analytics; AMRO staff calculations.
Note: Lines refer to GDP-weighted average of median inflation forecast, bands refer to GDP-weighted average of highest and lowest inflation forecasts from Consensus Economics.

Figure 2.15. Selected ASEAN+3: Two-Year Ahead Inflation Expectations
(Percent, year-on-year)



Source: Consensus Economics; National authorities via Haver Analytics; AMRO staff calculations.
Note: BN = Brunei; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN= Vietnam. Inflation expectations refer to the median two-year ahead inflation expectations in that year. Markers refer to the economy's inflation target or target range, or 2014–2019 average headline inflation. Hong Kong does not have an inflation target, but follows the Linked Exchange Rate System (LERS), which keeps the HKD trading within HKD 7.75–7.85 to one USD and restricts the HKMA's discretion on matters of monetary policy. Singapore's inflation target refers to MAS' implicit target of just under 2 percent for core inflation.

[4/] Measured by Consensus Economics Survey of Professional Forecasters, a monthly survey that collects forecasts of a wide range of macroeconomic indicators, including inflation, from economists around the world.

Evolving Dynamics Between Goods and Services Inflation

The composition of inflation in ASEAN+3 has shifted markedly throughout the post-pandemic period, with goods and services prices following distinct trajectories. During the COVID-19 lockdown, goods demand surged while services demand collapsed (Figure 2.16). Supply chain disruptions and spikes in global energy and food prices exacerbated goods inflation, with significant spillover effects as these key inputs affected prices across sectors. This led to a broad-based increase in goods inflation that exceeded services inflation. However, as global commodity prices declined, the moderation in headline inflation was tempered by rising services prices, particularly in more price-inflexible sectors. By early 2023, services inflation had overtaken goods inflation.

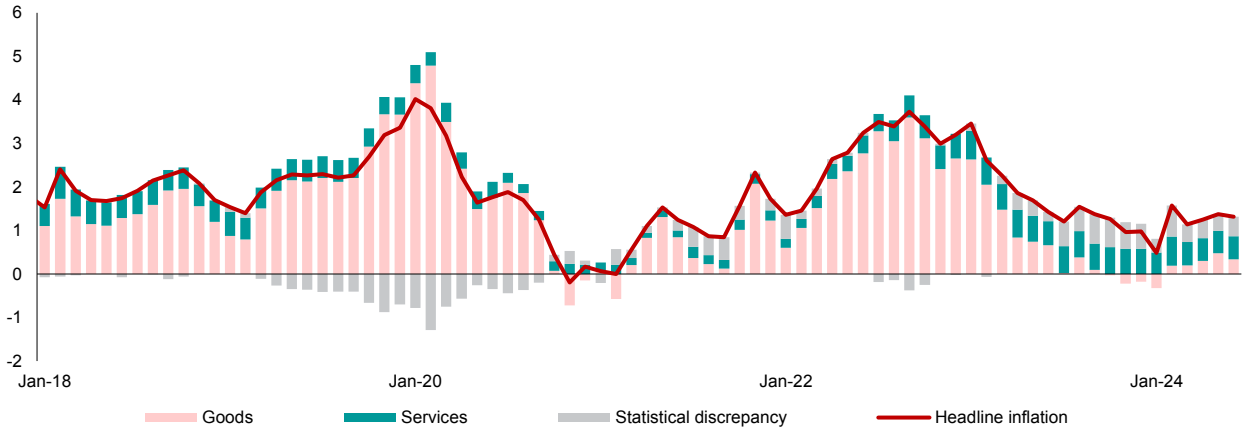
The goods sector initially dominated the region's inflation dynamics. Following an initial decline in early 2020 because of mobility restrictions, goods prices began rising by mid-2020 amid global supply chain disruptions (Figure 2.17, AMRO 2022). Multiple factors amplified this trend: increased demand for durables and health-related products (Tauber and Van Zandweghe 2021), energy price spikes from reopening and supply constraints (Alvarez and Molnar 2021), and food price increases driven by pandemic-related demand shifts and weather conditions (Bogmans, Pescatori, and Prifti 2021). The Russia-Ukraine conflict which escalated into a crisis further intensified these pressures before goods inflation peaked in September 2022 and began moderating as supply conditions improved.

Services inflation has since emerged as a more persistent source of price pressures during the disinflationary period. The services sector, after experiencing suppressed demand during the pandemic, saw prices rise steadily as economies reopened and border restrictions eased. Several factors have contributed to this persistence: labor market tightness from workforce disruptions (AMRO 2024a), elevated transportation costs due to disruptions in global shipping routes, and higher housing costs and rents reflecting continued supply-demand imbalance since the pandemic. Services inflation tends to moderate more slowly because of its lower sensitivity to energy prices and higher labor intensity, with wage adjustments occurring less frequently (Amatyakul, Igan, and Lombardi 2024).

These broad patterns mask important differences between Plus-3 and ASEAN economies. Both subregions experienced similar goods inflation trends until September 2022, though Plus-3's trajectory was influenced by preexisting factors such as China's pork-price dynamics. Subsequently, Plus-3's goods inflation turned negative by July 2023, while ASEAN saw a more gradual decline to 1.9 percent by January 2024. Services inflation has followed even more divergent paths, with ASEAN maintaining higher rates of about 3 percent due to strong tourism recovery and elevated accommodation costs, while Plus-3 saw more moderate increases peaking at 2.5 percent in February 2024 (Figure 2.18; Figure 2.19). These differences persisted into the second half of 2024, with services inflation moderating in Plus-3 while remaining stable in ASEAN economies.

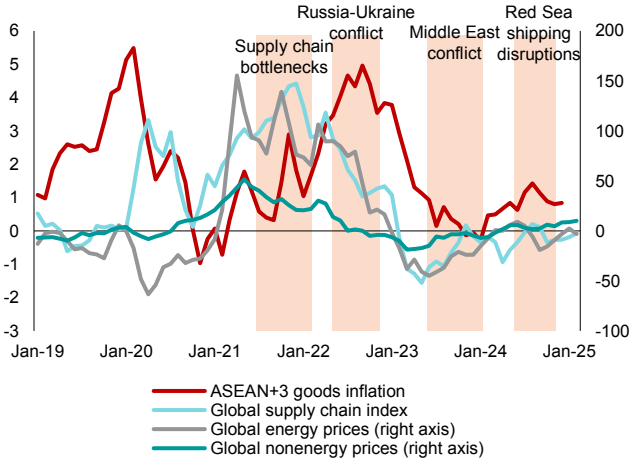
Overall, ASEAN+3 region's inflation experience since 2020 reveals several distinctive characteristics that set it apart from both global trends and historical patterns. While global factors have been increasingly important in driving regional inflation—as evidenced by greater synchronization across economies—the region has maintained notably lower and more short-lived price pressures compared to other major economies. This more moderate inflation experience, coupled with well-anchored expectations, has helped limit welfare losses across the region. However, beneath these aggregate trends lies considerable complexity in how inflation has evolved, particularly in the shifting dynamics between goods and services prices and the varying experiences of Plus-3 and ASEAN economies. Understanding the forces behind these patterns—particularly the interplay between supply and demand factors—is crucial for assessing their persistence and implications for policy responses.

Figure 2.16. ASEAN+3: Goods and Services Inflation
(Percentage point contribution; percent, year-on-year)



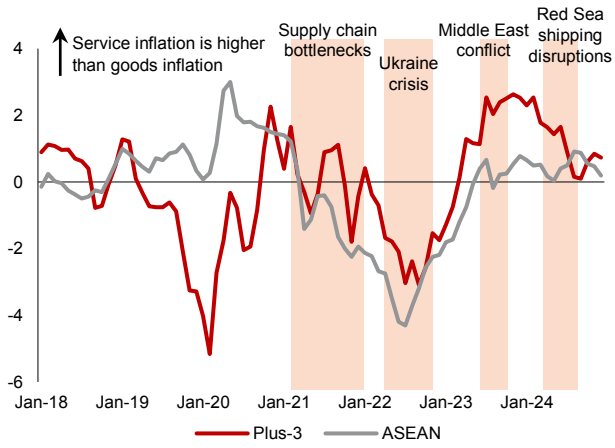
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Regional aggregation is done using 2023 GDP purchasing power parity weights. Breakdown for Myanmar is unavailable from August 2022 onward. Statistical discrepancy refers to the difference between headline inflation and the sum of goods and services contribution, which is attributable to the difference in product classification across economies.

Figure 2.17. Selected Economies: Global Commodity Prices and ASEAN+3 Goods Inflation
(Percent, year-on-year; standard deviation points)



Source: National authorities via Haver Analytics; World Bank, Federal Reserve of New York, AMRO staff calculations.
Note: Global energy and nonenergy prices refer to the World Bank Commodity Price Index. Data are up to December 2024, except Myanmar's latest data which are up to September 2024.

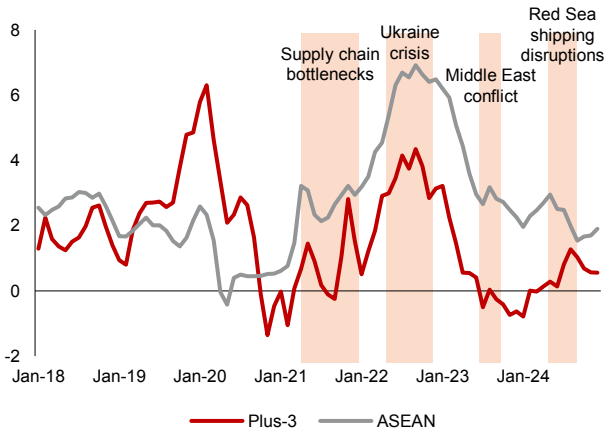
Figure 2.18. ASEAN+3: Services-Goods Inflation Gap
(Percentage points)



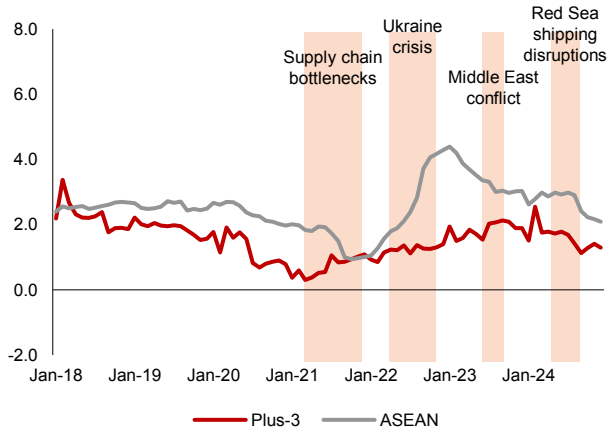
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Plus-3 = China, Hong Kong, Japan, and Korea. Difference between services and goods inflation. Positive values refer to services inflation outpacing goods inflation, while negative values refer to periods where goods inflation outpace services. Data are up to December 2024, except Myanmar's latest data which are up to September 2024.

Figure 2.19. ASEAN+3: Goods and Services Inflation
(Percent, year-on-year)

Goods



Services



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Plus-3 = China, Hong Kong, Japan, and Korea. Headline inflation excludes Myanmar due to data unavailability. Data are up to December 2024, except Myanmar's latest data which are up to September 2024.

III. Disentangling the Underlying Shifts in Inflation Dynamics

The evolving inflation dynamics in ASEAN+3 reflect complex interactions between supply and demand forces, shaped increasingly by global factors. Since the pandemic, the region has experienced more frequent global shocks alongside stronger international linkages, making the distinction between supply and demand drivers crucial for policy formulation. Understanding these dynamics—particularly how global and domestic forces interact—is now essential for designing appropriate policy responses, especially as the channels through which these forces affect inflation have become more intricate and interrelated. This section examines how supply and demand forces have evolved, while also exploring the interplay between global and domestic factors in shaping regional inflation.

Rising Role of Supply Factors in Driving Inflation

Overall, the post-pandemic period has seen supply factors playing a larger role as a driver of regional inflation. Following the approach in Shapiro (2022), analysis shows supply-side factors became significantly more pronounced in 2021 and 2022 than in the pre-pandemic period across most ASEAN+3 economies (Figure 2.20; while Annex 1 describes the methodology). Several major supply shocks amplified inflationary pressures: supply chain bottlenecks and labor shortages in 2021 led to broad cost-push inflation, while the Ukraine crisis disrupted supplies of key commodities, especially fuel and grains, causing substantial price increases worldwide. However, demand factors also contributed—particularly as economies reopened in early 2022 with pent-up demand and stimulus spending, which led to surge in consumer spending that also put upward pressure on prices.

The larger role of supply factors has been remarkably consistent across the region, with only two notable exceptions. Cambodia and Singapore experienced lower contributions from supply factors in 2021–2022. In Cambodia, the decline mainly reflects a high base effect. Before the pandemic, inflation was almost entirely supply-driven, with limited influence from demand as fiscal policy was very conservative. However, as the economy began to recover post-pandemic, demand factors grew in importance, reflecting expansionary fiscal policy to support economic activity. In Singapore, the sharp increase in demand-driven inflation since 2021 was primarily fueled by highly expansionary fiscal policy aimed at supporting the economy, while higher accommodation rents were mainly due to increased demand for rental and private housing—which was exacerbated by a supply shortage caused by the pandemic-induced shutdown of the construction industry.

The dissipation of supply shocks since the end of 2022 contributed to the disinflation trend across the region. Supply shocks eased toward the end of 2022 as global supply chains normalized, containment measures were lifted and economies were reopened, and global energy supply-demand dynamics stabilized. As a result, demand factors became more prominent in driving inflation, coinciding with stronger economic growth across the region (Figure 2.21).[5]

Despite the dissipation of supply shocks, supply factors remain a more significant contributor to core inflation than in the period prior to the pandemic (Figure 2.22). The rise in supply factors, which were significant in driving core inflation across most economies in 2021 and 2022, was largely the result of broad-based increases in input costs from supply shocks and services inflation, which fed into non-volatile price items (Kho, Chong, and Tsang 2024). While core inflation has moderated to below pre-pandemic levels in 2023, supply factors continue to be more prominent than before. The persistence in supply factors partly reflect the scarring effects of the pandemic, the spillovers from supply shocks that are embedded in non-volatile price items, and subdued demand in the Plus-3 economies. In fact, supply-driven factors have contributed to core inflation in Japan rising to its highest levels in the past two decades (Box 2.3).

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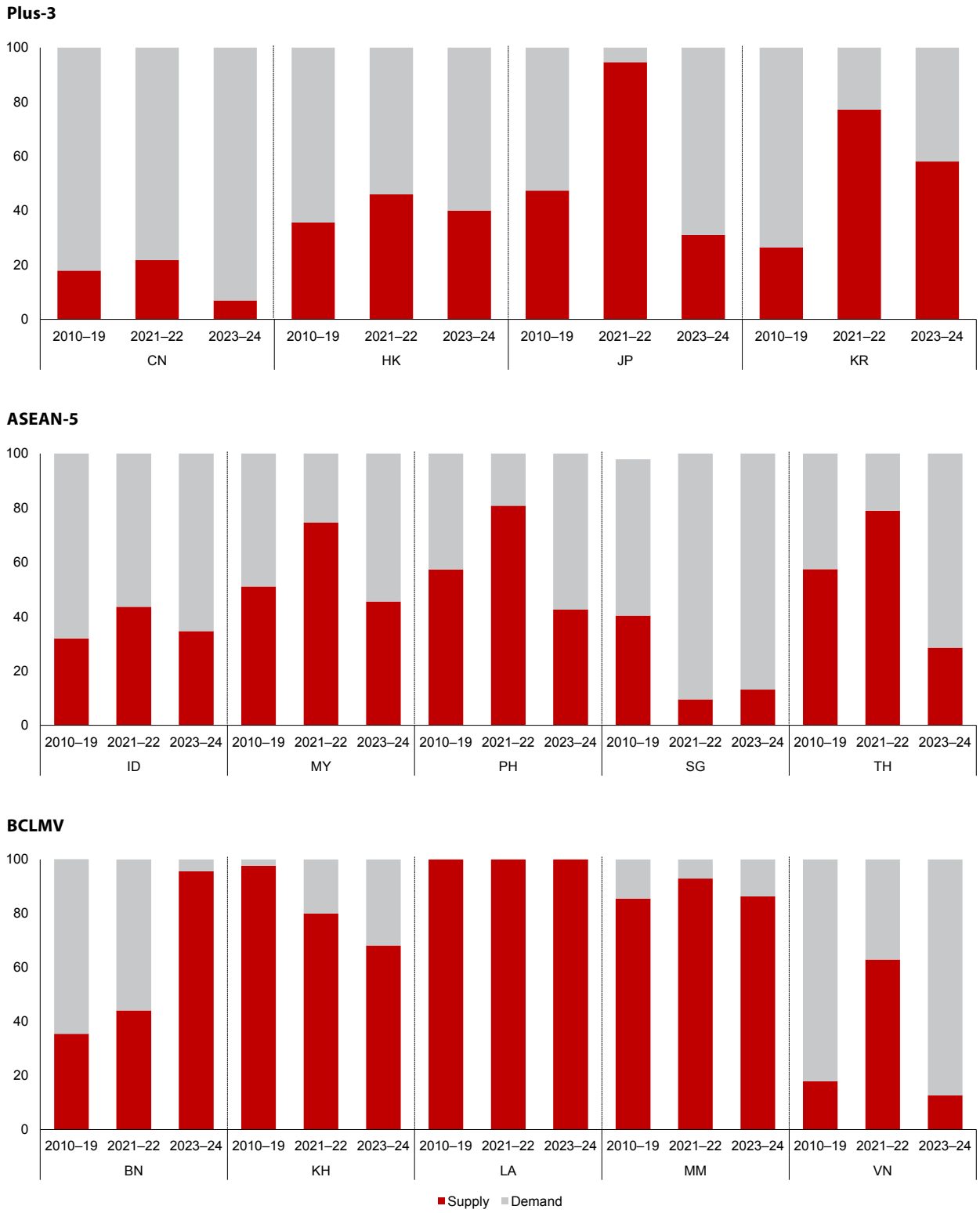
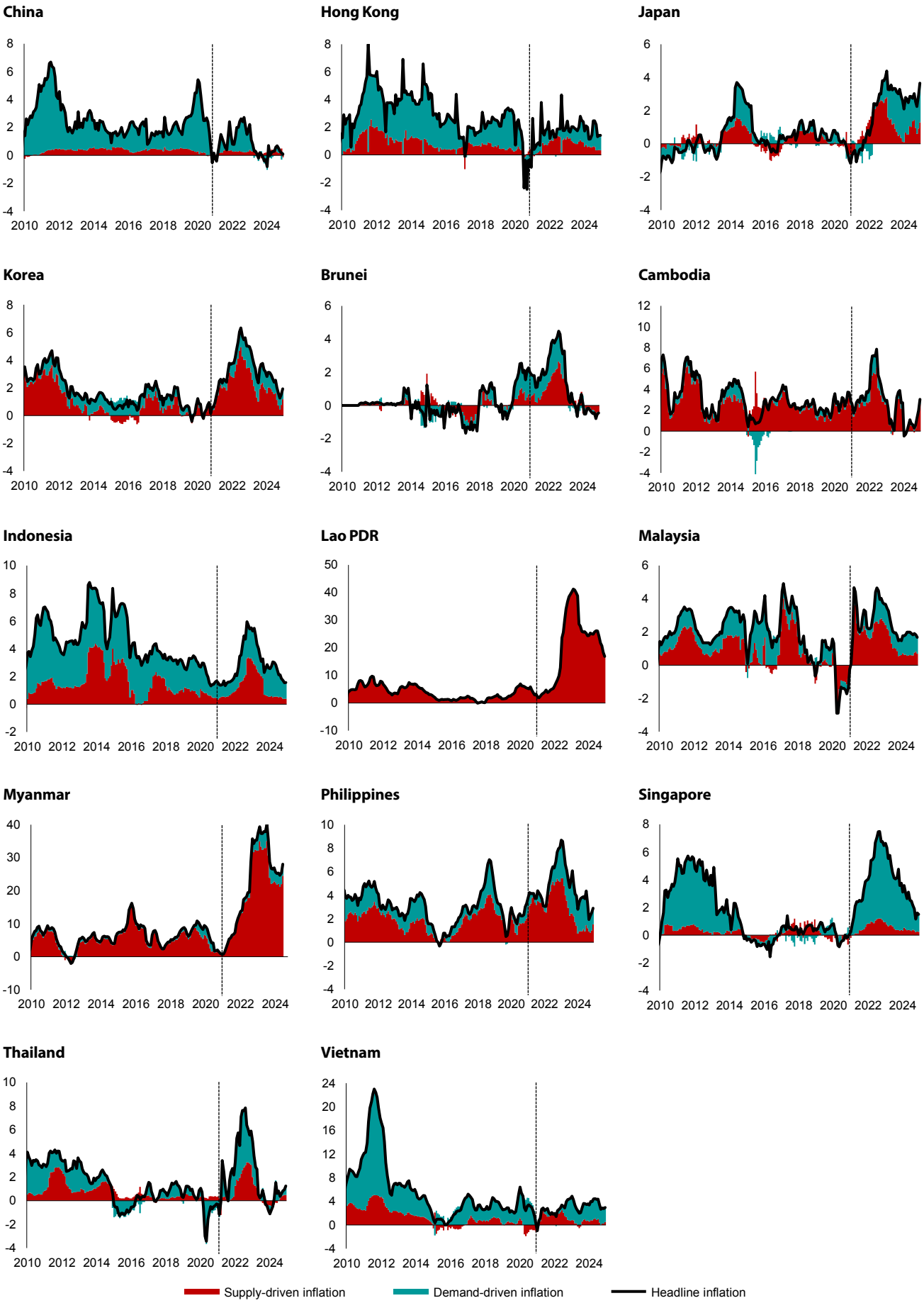
[5] Lao PDR is an exception, in which supply factors continue to dominate inflation dynamics due mainly to the prolonged weakness of the kip. This is explored further in Box 2.4.

Figure 2.20. ASEAN+3: Average Contribution to Headline Inflation, 2010–2024
(Percent share)



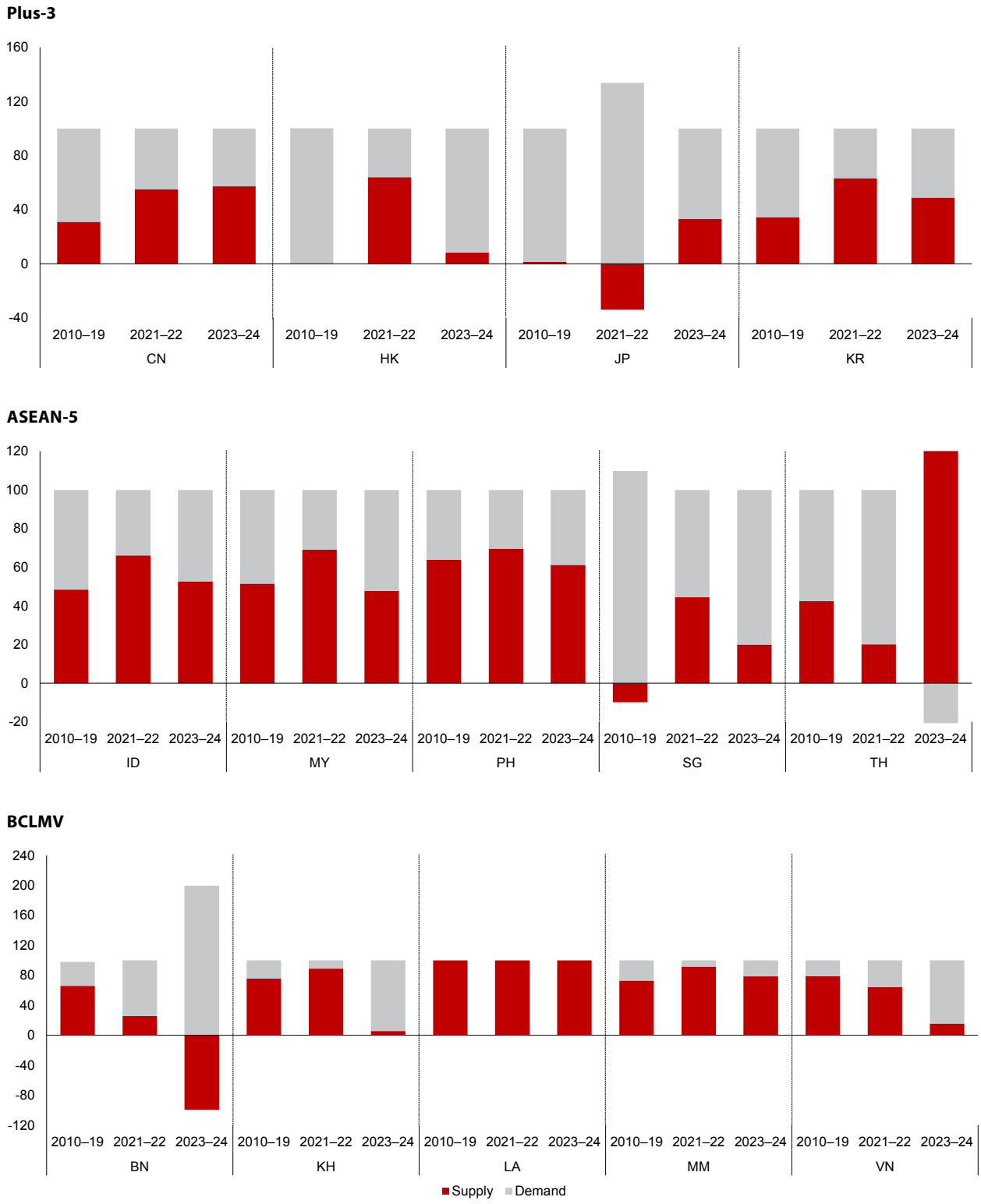
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; BCLMV = Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam; Plus-3 = China, Hong Kong, Japan, and Korea. Data are up to December 2024, except Myanmar's latest data which are up to September 2024: BN = Brunei; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN= Vietnam

Figure 2.21. ASEAN+3: Supply and Demand Drivers of Headline Inflation
(Percentage points; percent, year-on-year)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Vertical line denotes January 2021. Data are up to December 2024, except Myanmar's latest data which are up to September 2024. These estimates are based on AMRO's calculations as outlined in Annex 1 and may differ from estimations by others.

Figure 2.22. ASEAN+3: Average Contribution to Core Inflation, 2010–2024
(Percent share)



Source: National authorities via Haver Analytics; 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. Data are up to December 2024, except Myanmar's latest data which are up to June 2024. These estimates are based on AMRO's calculations as outlined in Appendix I and may differ from estimations by others.

Box 2.3:

Changing Inflation Dynamics in Japan

Japan's consumer price inflation (CPI) has experienced a notable shift in its underlying dynamics since 2020, reflecting both external shocks and domestic factors. The CPI trend has been characterized by distinct phases, beginning with subdued inflation during the early pandemic and evolving into a period of heightened price pressures from 2021 onward (Figure 2.3.1). This shift coincided with global supply chain disruptions, surging commodity prices, and yen depreciation.

A conventional breakdown of core CPI (excluding fresh food) inflation by key commodities reveals that food, energy, and durable goods contributed significantly to the rise in prices, particularly during 2021–2023 (Figure 2.3.2). Meanwhile, services inflation remained relatively stable until 2022, when a recovery in consumer demand led to stronger price pressures. These trends underscore the critical interplay between supply and demand factors in shaping Japan's inflationary landscape.

Decomposition of Core CPI Inflation: Supply and Demand Dynamics

A decomposition of Japan's core CPI inflation using the Shapiro (2022) methodology[1] reveals the evolving dynamics of pressures driven by supply and demand (Figure 2.3.3).

Four key patterns emerge from this analysis:

- ***Supply-driven inflation dominates during crises:*** The COVID-19 pandemic (2020–2021) and subsequent global economic disruptions saw supply-driven factors, such as rising import costs, logistical bottlenecks, and yen depreciation, become the primary drivers of inflation.
- ***Temporary supply shocks from policy changes:*** Japan's consumption tax hikes (e.g., October 2019) introduced temporary, policy-induced supply shocks that sharply increased inflation in the short term, although these effects dissipated relatively quickly.
- ***Demand-driven inflation leads during recoveries:*** As the economy reopened in 2022, pent-up demand, supported by accumulated household savings and large fiscal stimulus, drove demand-driven inflation, particularly in the services sector.
- ***Crisis-induced inflation marked by volatility:*** Periods of crisis-induced inflation, such as 2008–2009 and 2020–2022, were characterized by heightened volatility, with alternating surges in supply- and demand-driven factors, reflecting the impact of external shocks and domestic adjustments.

These findings highlight the dual role of supply and demand in shaping Japan's inflation, with supply-driven factors dominating in periods of crisis and demand-side pressures emerging during recoveries.

Evolving Dynamics of Goods and Services CPI Inflation

The decomposition of goods and services CPI inflation highlights distinct dynamics, with goods inflation driven by temporary external supply shocks and services inflation increasingly led by domestic demand and sticky second-round effects of supply shocks.

Goods CPI inflation, accounting for 48 percent of core CPI, has exhibited significant volatility, largely driven by supply-side factors (Figure 2.3.4). In 2021–2022, global commodity price surges and yen depreciation led to sharp increases in food and fuel prices, exacerbating

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This box was written by Jinho Choi, and is largely based on Choi and Kim (forthcoming).

1/ The methodology suggests identifying sectoral inflation as either supply-driven or demand-driven based on the signs of residuals from estimating a vector autoregression (VAR) model. Specifically, if the residuals in both price and quantity equations share the same sign, inflation in an expenditure item is categorized as "demand-driven". Conversely, if the residuals exhibit opposite signs, sectoral inflation is classified as "supply-driven". See Shapiro (2022) for the details.

supply-driven inflation. In contrast, demand-driven inflation in goods was more episodic, peaking briefly during the post-pandemic recovery as households resumed spending on durable items such as furniture and appliances. However, this effect waned by 2023 as demand softened.

A deeper analysis of 10 categories within the goods CPI basket (Figure 2.3.5) highlights notable shifts in the composition of supply- and demand-driven shocks prior to and after the pandemic:

- Food (excluding fresh food) inflation, accounting for 40 percent of the goods CPI, has been dominated by supply shocks, particularly during 2021–2023, as rising global commodity prices and transportation costs pushed up food prices. Negative supply shocks intensified post-pandemic owing to heightened import costs and yen depreciation.

- Fuel and energy product inflation, with a weight of 16 percent, has also been supply-driven, with sharp increases during 2021–2022 reflecting global energy price surges. However, government subsidies in 2023 led to a temporary reduction in prices, easing inflationary pressures in this category.

- Furniture and household goods inflation, representing 8 percent of the goods basket, shifted from demand-driven before the pandemic to supply-driven after, reflecting rising raw material costs and logistical disruptions. Brief spikes in inflation during 2022 reflected pent-up demand for home improvement, but this effect had diminished by 2023.

Meanwhile, ***services CPI inflation***, contributing 52 percent to core CPI, has been relatively stable, with demand factors playing a more central role (Figure 2.3.6). Post-2022, as mobility restrictions eased, demand-driven inflation strengthened across key sectors such as transportation, communication, and recreation. The easing of Japan's travel restrictions in October 2022 and April 2023[2] boosted demand-driven inflation in services, as rising tourist arrivals amplified spending on transportation, recreation, and lodging. However, second-round effects from external supply shocks, such as rising operational costs from earlier fuel and energy price increases, have persisted longer in services inflation owing to its inherent stickiness. Administrative measures, such as mobile phone charge reductions in 2021, temporarily eased supply-driven inflation, while rapidly rising wages in a tight labor market and other operational costs in 2023 contributed to increased price pressures in the sector.

Similarly, a closer look at key categories within the services CPI basket (Figure 2.3.7) reveals:

- Housing rent inflation, accounting for 39 percent of the services basket, became increasingly demand-driven post-pandemic, supported by urban migration and seasonal relocations. Supply shocks in housing rent, though less frequent, boosted inflation through operational cost increases.

- Transportation and communication inflation, with a weight of 24 percent, saw a resurgence in demand pressures post-pandemic, with stronger contributions in 2023 as mobility and consumer spending recovered. Negative supply shocks also increased, reflecting rising fuel and operational costs.

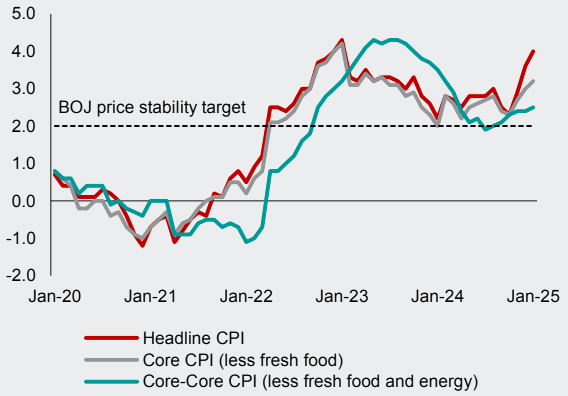
- Cultural and recreation inflation, representing 10 percent of the services CPI, was driven by strong pent-up demand post-COVID, with spending shifting from goods to leisure activities. Demand-driven inflation dominated, with supply shocks playing a lesser role, arising mainly from rising operational expenses.

This comparison between goods and services inflation, with subcategory breakdowns, underscores the distinct post-pandemic roles of supply and demand shocks, reflecting structural differences between the two.

The changing inflation dynamics in Japan highlight the importance of analyzing price changes using disaggregated sectoral data. Goods inflation remains vulnerable to external supply shocks, necessitating measures to stabilize import costs. Conversely, the growing role of demand-driven inflation in services requires careful monitoring, as it could lead to more persistent inflationary pressures.

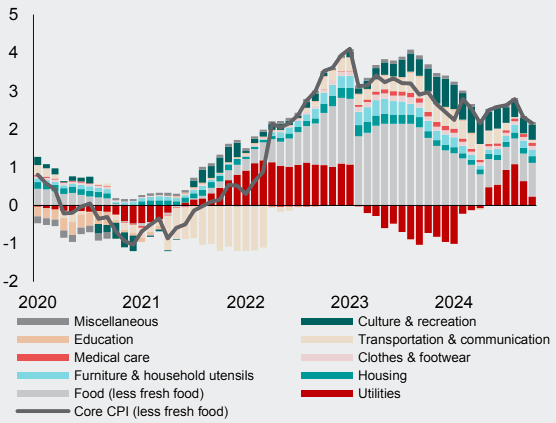
[2/] Japan eased inbound travel restrictions in stages, resuming visa exemptions and individual tourism on 11 October 2022, and lifting COVID-19 entry requirements on 29 April 2023.

Figure 2.3.1. Japan: CPI Inflation
(Percent, year-on-year)



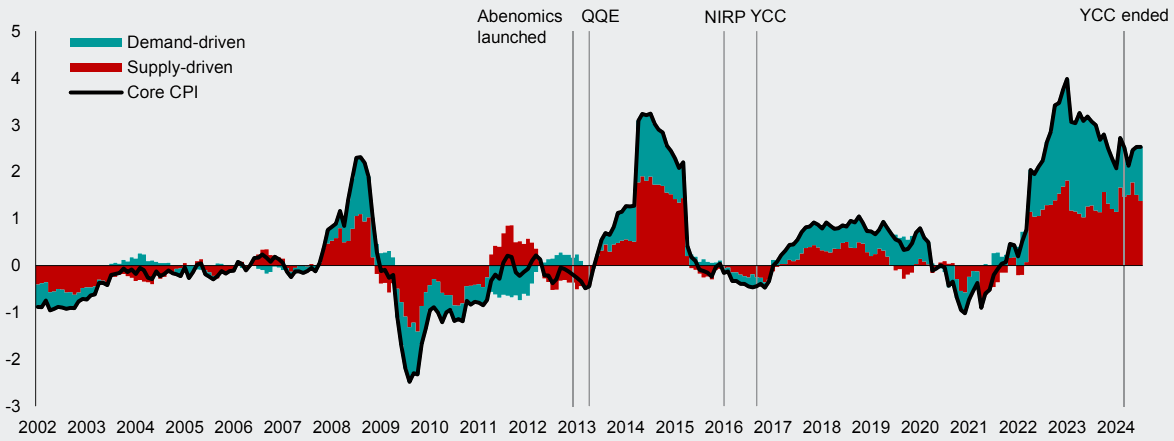
Source: Ministry of International Affairs and Communications via Haver Analytics.
Note: CPI = consumer price index.

Figure 2.3.2. Japan: Contribution to Core CPI Inflation by Key Commodities
(Percent, year-on-year)



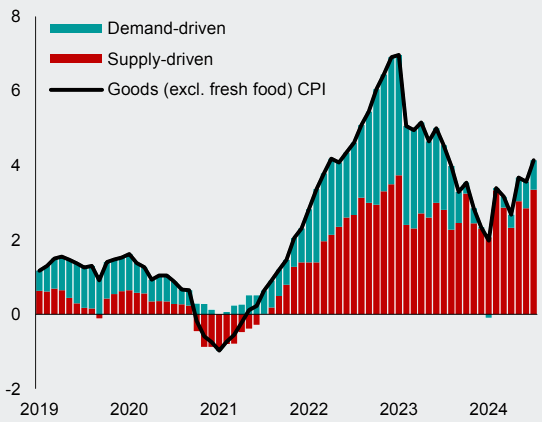
Source: Ministry of International Affairs and Communications via Haver Analytics.
Note: CPI = consumer price index.

Figure 2.3.3. Japan: Decomposition of Core CPI Inflation by Supply and Demand Drivers
(Percent, year-on-year)



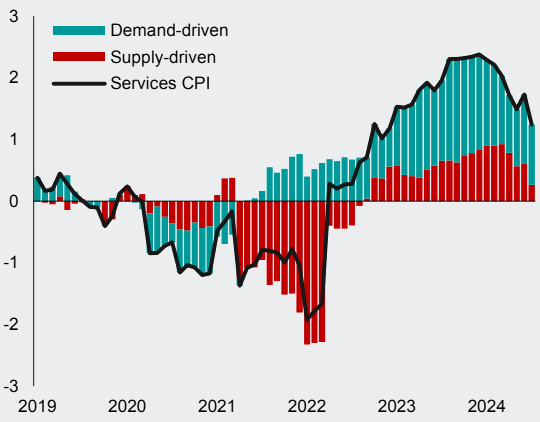
Source: Ministry of Internal Affairs and Communications via Haver Analytics; AMRO staff estimation.
Note: CPI = consumer price index, QQE = quantitative and qualitative monetary easing, NIRP = negative interest rate policy, YCC = yield curve control. Contributions of supply- and demand-driven inflation to core CPI were estimated using bivariate VAR models based on the Shapiro (2022) methodology, covering the period from January 2002 to July 2024.

Figure 2.3.4. Japan: Decomposition of Core Goods CPI Inflation by Supply and Demand Drivers
(Percent, year-on-year)



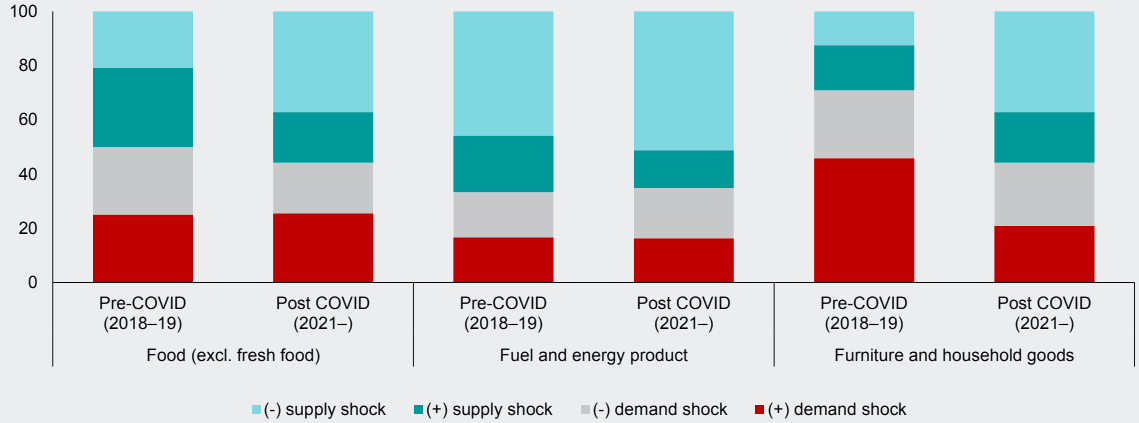
Source: Ministry of Internal Affairs and Communications via Haver Analytics; AMRO staff estimation.
Note: CPI = consumer price index.

Figure 2.3.6. Japan: Decomposition of Services CPI Inflation by Supply and Demand Drivers
(Percent, year-on-year)



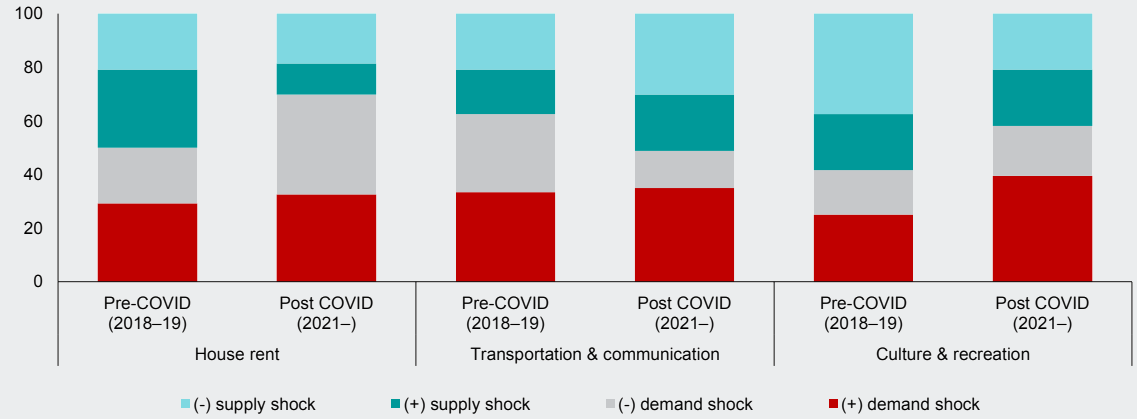
Source: Ministry of Internal Affairs and Communications via Haver Analytics; AMRO staff estimation.
Note: CPI = consumer price index.

Figure 2.3.5. Japan: Relative Frequency of Demand- and Supply-driven Shocks by Key Goods CPI Commodities
(Percent)



Source: Ministry of Internal Affairs and Communications via Haver Analytics; AMRO staff estimation.
Note: CPI = consumer price index.

Figure 2.3.7. Japan: Relative Frequency of Demand- and Supply-driven Shocks by Key Services CPI Commodities
(Percent)



Source: Ministry of Internal Affairs and Communications via Haver Analytics; AMRO staff estimation.

Interplay of Global and Domestic Forces in Shaping Inflation

The evolution of inflation in ASEAN+3 in this period reflects an intricate interaction between external pressures and domestic conditions. As discussed, global commodity prices surged as a result of geopolitical developments and supply chain disruptions, while the COVID-19 pandemic triggered both an initial economic shock and subsequent demand surge as economies reopened. The policy environment added further complexity—monetary policy rates were reduced to exceptionally low levels during the pandemic to ease financing conditions, while a highly expansionary fiscal stimulus program was adopted in the US and many other countries to provide income support for the households and firms. However, the highly expansionary monetary and fiscal policies, coupled with the synchronized economic reopening and the surge in oil and grain prices due to the outbreak of the Ukraine crisis in early 2022, led to a surge in global inflation, which caused the Fed, ECB and other central banks to go into a rapid tightening cycle. This tightening cycle, particularly the aggressive moves by the US Federal Reserve, led to capital outflows and currency depreciation across the region, prompting regional central banks to tighten their monetary policy to support their exchange rates and contain the rapidly rising inflationary pressure (ADB 2023). Building on the earlier analysis of supply and demand drivers, a detailed examination of these factors' relative importance was conducted for each economy (Figure 2.23; Annex 2 describes details on the methodology). This is to isolate the role of external supply-side effects through global commodity prices and exchange rates, while capturing domestic demand conditions through the output gap and policy rates, thereby providing a more granular understanding of how these channels have shaped regional inflation dynamics.

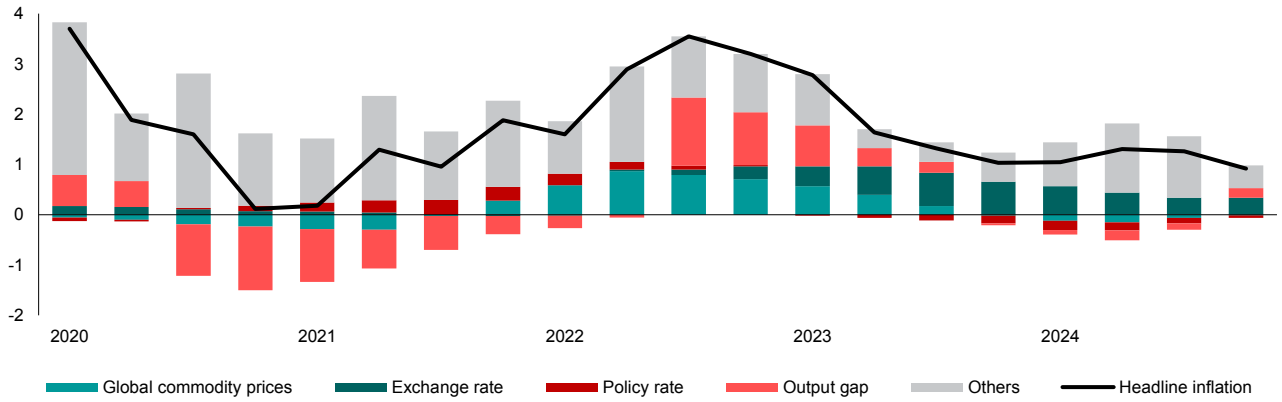
The empirical analysis reinforces the key role of global factors in driving the regional inflation surge while domestic policy responses helped moderate price pressures subsequently. The dominance of supply-side shocks is evident in the strong contribution from global commodity prices, which peaked in the second quarter of 2022 before gradually moderating and dissipating by the end of 2023. Exchange rate depreciation emerged as another significant external factor from the second quarter of 2022, as US monetary tightening widened interest rate differentials with regional economies. On the domestic front, the analysis shows that exceptionally low policy rates in 2020–2021 initially supported economic recovery, evidenced by the diminishing negative contribution from the output gap. As economic momentum gained strength with the reopening of the economies, output gaps turned positive in 2022, adding to inflationary pressures. However, the gradual monetary tightening in the ASEAN+3 region that began in August 2021, albeit at different timing and pace, started to show its dampening effects on inflation by early 2023.

Global and domestic forces continued to shape inflation dynamics through disinflationary period of 2023–2024, although their relative importance shifted. The analysis shows two main factors driving disinflation: lower international commodity prices and the lagged effects of monetary tightening (Figure 2.24). The impact of these forces, however, differed across subregions. Among ASEAN-5 economies, monetary policy played the primary disinflationary role in Indonesia, Malaysia, and Singapore, while falling commodity prices largely contributed to the moderation in inflation in the Philippines[6] and Thailand. In other regional economies, easing commodity prices and monetary tightening contributed to lower inflation. Lao PDR and Myanmar continued to experience high inflation because of persistent currency depreciation (Box 2.4). China's experience has been distinct, as inflation remained very low, reflecting weak domestic demand that had been exacerbated by strict containment measures in earlier years, a downturn in the real estate cycle, and an excess supply of consumer goods (Box 2.5). Given China's significant role in regional trade networks and global value chains, these developments have had broader implications for regional price dynamics through trade price channels (Box 2.6). Despite these disinflationary trends, some inflationary pressures persist across the region, particularly from currency movements and recovering domestic demand.

Overall, the analysis of inflation dynamics in ASEAN+3 since 2020 reveals several important patterns with significant policy insights. The increased importance of supply factors in driving inflation highlights the importance of supply-side measures to compliment conventional demand management tools. Meanwhile, the increased role of global factors—from commodity prices to monetary policy spillovers—has complicated the domestic policy landscape. These developments, combined with varying domestic circumstances across the region, underscore the need for carefully calibrated policy responses that can address both external pressures and internal stability objectives. The next section examines how regional policymakers have navigated these challenges and the lessons learned for future policy response.

6/ Despite the overall moderation in global commodity prices, the surge in rice prices, particularly in the second half of 2023 to 2024 exerted upward pressure on inflation in the Philippines.

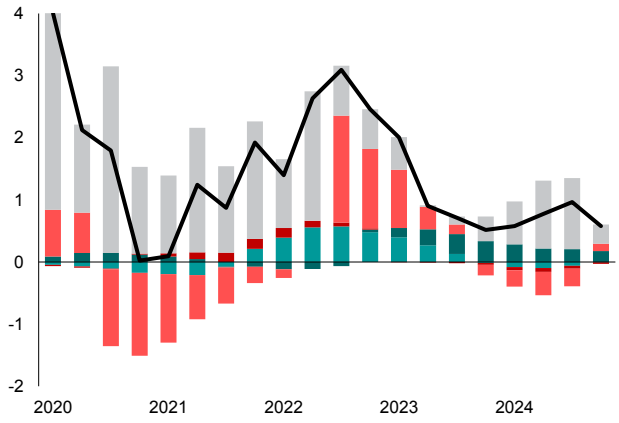
Figure 2.23. ASEAN+3: Contribution of Global and Domestic Factors to Headline Inflation
(Percentage point contribution, percent year-on-year)



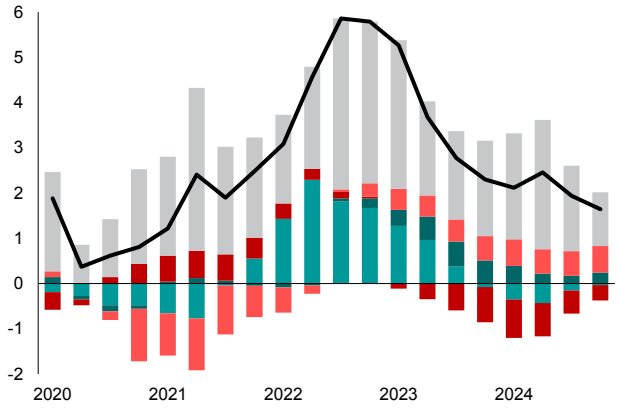
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: Data are up to December 2024, except Myanmar's latest data which are up to June 2024.

Figure 2.24. ASEAN+3: Contribution by Determinants to Headline Inflation by Country Groups, 2020–2024
(Percentage points, year-on-year)

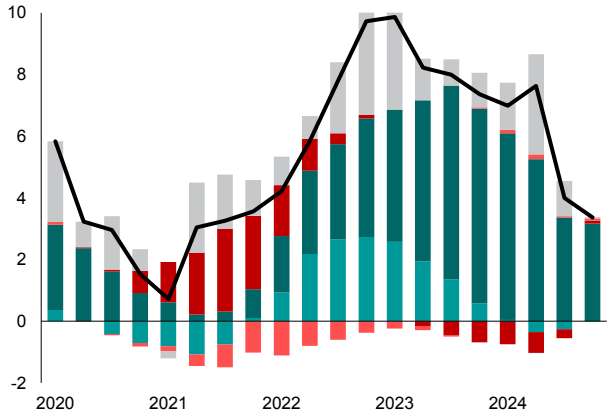
Plus-3

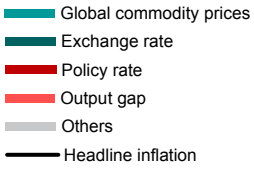


ASEAN-5



BCLMV





Source: National authorities via Haver Analytics; 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. "Others" refer to the impact of factors other than the four listed factors (for example, domestic and global supply disruptions, non-monetary measures to contain inflation, stickiness of local price expectations). Data are up to December 2024, except Myanmar's latest data which are up to June 2024. These estimates are based on AMRO's calculations as outlined in Annex 2 and may differ from those of other agencies.

Box 2.4:

Factors Behind Lao PDR's Persistently High Inflation Since 2022

Inflation in Lao PDR surged sharply beginning 2022 in a way that the economy had never experienced in the past two decades. Similar to other ASEAN+3 economies, the consumer price index (CPI) inflation in Lao PDR accelerated in early 2022 primarily because global commodity prices, especially oil, spiked. Sharp depreciation of the kip exacerbated the situation since Lao PDR is heavily reliant on imported goods for consumption. Although inflation moderated from a 41.3 percent peak in February 2023, it remained elevated, staying above 15 percent consistently for over a year (Table 2.4.1). This differs from other ASEAN+3 economies' inflation trends which decelerated to less than 5 percent from their peaks in 2022.

The price increases in Lao PDR have been broad-based, negatively affecting people's real income and purchasing power. Food and transport prices, which account for more than half of the CPI basket weight, have been the main contributors to headline inflation. In 2023, these prices rose by an average of 38.0 percent for food and 25.6 percent for transport, while inflation remains elevated in 2024 (Table 2.4.2). Almost all the CPI basket items continue to experience double-digit inflation. The services sector and imported goods, such as medical-related items and clothing, continue to exhibit strong inflationary momentum.

Conventional factors cannot fully explain the recent inflation in Lao PDR. Historically, prices in Lao PDR were strongly influenced by external factors such as the kip exchange rate, inflation in Thailand, and global oil prices (AMRO 2017 and 2020; IMF 2023b). As an import-dependent economy, these are very important inflation drivers of Lao PDR. In fact, the persistent kip depreciation would likely continue to exert stress on domestic prices. However, global oil prices have moderated since the second half of 2022. Moreover, overall inflation in Thailand and food prices in northern Thailand, from where Lao PDR imports most of its food, decelerated in 2023. The protracted inflation despite the easing of external pressures suggests the existence of other drivers.

One potential factor is household and business expectations of inflation and kip depreciation. The unprecedented and prolonged sharp increases in domestic prices and the depreciation of the kip may have triggered and amplified expectations of further high inflation and kip depreciation. As a result, businesses continue to set prices based on the price increases experienced, making the high inflation sticky. Inflation and the gap between the commercial bank and parallel market exchange rates in previous months have been shown to correlate positively with current inflation (Figure 2.4.1, Figure 2.4.2).[1] In fact, a 1 percent month-on-month increase (m-o-m) in the CPI could explain about a 0.34 percent increase in the next month's inflation, likely because of persistence in inflation expectations (AMRO 2024c). In addition, a 1 percent increase (m-o-m) in the gap between the parallel and commercial bank LAK/USD exchange rate could lead to a 0.14 percent increase in next month's CPI. Notably, the contribution of expectations has likely increased in recent years (Figure 2.4.3). AMRO (2024c) also assessed exchange rate depreciation and changes in broad money as key inflation drivers. On the other hand, inflation in Thailand and global oil prices were statistically insignificant, suggesting recent inflation in Lao PDR is driven more by its unique domestic factors than global factors.

It would therefore be critical for the authorities to demonstrate a strong commitment to containing inflation and anchor expectations as much as possible. The central bank should continue maintaining tight monetary policy measures and avoiding injecting liquidity into the system. Market-friendly foreign exchange rate policies including timely adjustment of the reference and commercial bank rates are also essential to stabilize the foreign exchange market.

This box was written by Naoaki Inayoshi, based on AMRO (2024c).

1/ There are multiple exchange rates in Lao PDR: reference rate, commercial bank rate, and parallel market rate. The reference rate is set by the central bank. The commercial bank rate is set by commercial banks and could fluctuate within a certain band from the reference rate. The parallel market rate applies to foreign exchange transactions outside of the banking system based on demand and supply conditions.

Table 2.4.1. ASEAN+3: Headline Inflation
(Percent, year-on-year)

Economies	2021	2022	2023	2024	2025 Jan
Brunei	1.7	3.7	0.4	–0.4	–0.4
Cambodia	2.9	5.3	2.1	0.8	6.0
China	0.9	2.0	0.2	0.2	0.5
Hong Kong	1.6	1.9	2.1	1.7	2.0
Indonesia	1.6	4.2	3.7	2.3	0.8
Japan	–0.2	2.5	3.3	2.7	4.0
Lao PDR	3.8	23.0	31.2	23.1	15.5
Malaysia	2.5	3.3	2.5	1.8	1.7
Myanmar	14.6	24.3	27.5	25.0	18.0
Philippines	3.9	5.8	6.0	3.2	2.9
Singapore	2.3	6.1	4.8	2.4	1.2
South Korea	2.5	5.1	3.6	2.3	2.2
Thailand	1.2	6.1	1.2	0.4	1.3
Vietnam	1.8	3.2	3.3	3.6	3.6

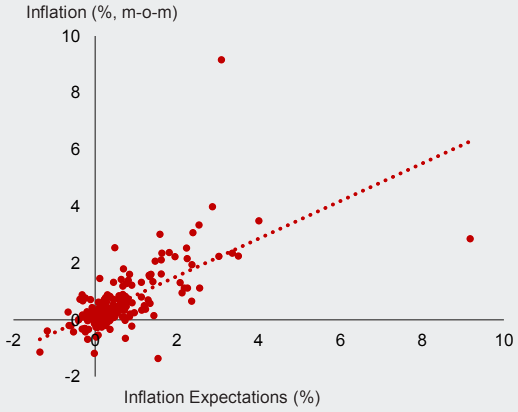
Source: National authorities via CEIC; AMRO staff calculations.
Note: Inflation rates are period averages. Myanmar's inflation numbers are based on its fiscal year, and its 2023 to 2025 numbers are AMRO staff estimates. The inflation rates are color-coded for easy reference; the deeper the red (green), the higher (lower) the inflation rate within the table.

Table 2.4.2. Lao PDR: Inflation by CPI Basket Category
(Percent, year-on-year)

Categories	2021	2022	2023	2024	2025 Jan
Foods, Beverages	3.0	22.0	38.0	22.3	14.4
Alcohol, Tobacco	4.5	14.2	24.8	26.1	19.4
Clothing, Footwear	3.9	16.3	27.6	27.2	15.8
Housing, Water	3.0	16.4	21.1	27.6	24.7
Furnishings, HH Equipment	3.8	18.7	28.5	27.0	22.2
Medical Care	4.2	27.6	30.4	33.8	23.3
Transport	6.4	41.3	25.6	19.0	11.4
Telecom	4.2	7.7	10.6	4.0	2.1
Entertainment, Recreation	1.2	10.7	18.3	22.6	17.9
Education	0.5	6.4	10.9	23.4	22.4
Restaurants, Hotels	3.1	18.8	34.7	31.9	20.3
Miscellaneous	8.1	21.3	19.5	24.9	18.7

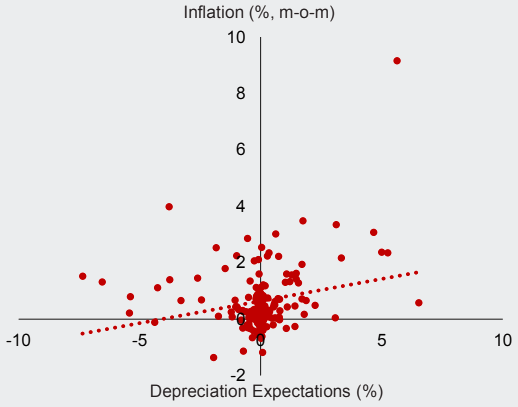
Source: Lao Statistics Bureau; AMRO staff calculations.
Note: Inflation numbers are period averages, and color-coded for easy reference; the deeper the red (green), the higher (lower) the inflation rate within the table.

Figure 2.4.1. Lao PDR: Inflation Expectations versus Inflation



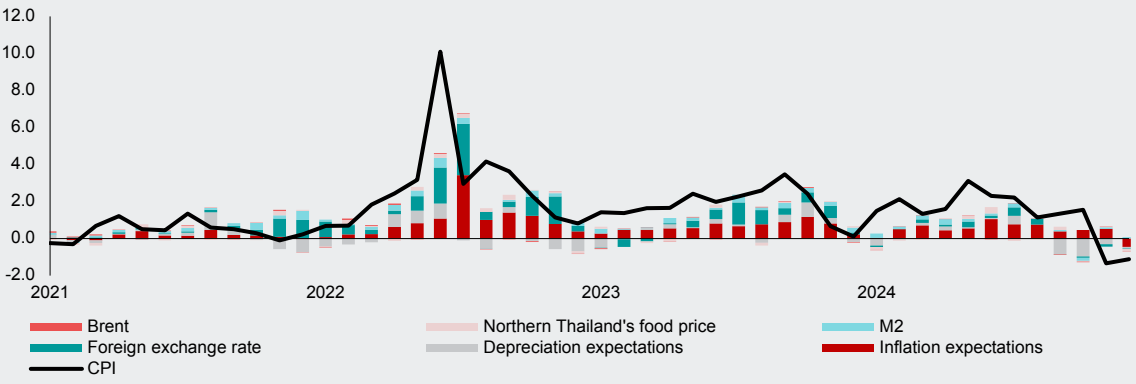
Source: Lao Statistics Bureau; AMRO staff calculations.
Note: Data cover from January 2010 to December 2024. The dotted line represents the fitted line of the plot. The inflation expectations in this figure are represented by the month-on-month Consumer Price Index inflation of the previous month.

Figure 2.4.2. Lao PDR: Depreciation Expectations versus Inflation



Source: BOL; Lao Statistics Bureau; AMRO staff calculations.
Note: Data covers from January 2010 to December 2024. The dotted line represents the fitted line of the plot. The depreciation expectations in this figure are represented by the previous month's monthly change in the gap between the parallel and commercial bank rates of the Nominal Effective Exchange Rate.

Figure 2.4.3. Lao PDR: Inflation Decomposition
(Percentage points, month-on-month)



Source: BOL; Lao Statistics Bureau; CEIC; AMRO staff calculations.
Note: CPI = consumer price index; M2 = broad money. The calculations cover up to June 2024 due to data availability. The LAK/USD exchange rate case of the regression results of AMRO (2024) is used for the computation.

Box 2.5:

Understanding the Low Inflation in China

Inflation in China has been persistently low even after the economy reopened following the COVID-19 pandemic. Headline CPI in China fell into negative territory in the second half of 2023 and has remained comparatively low in 2024. The low inflation in China, alongside a significant downturn in the property market has sparked speculations and discussions on whether China is heading towards or is already experiencing deflation. This box examines recent inflation dynamics in China and discusses its key drivers.

The low inflation in China reflects a disinflation process, primarily driven by a stronger recovery on the supply side than on the demand side, coupled with intense competition in industries such as EVs and other consumer products. Such imbalances between supply and demand date back to the COVID-19 years when support measures focused more on the supply side. Unlike many economies, China avoided upward price pressure from global oil supply shocks and instead was able to maintain the operation of its domestic supply chain and boost production for exports due to effective COVID-19 containment measures in 2020–2022. Consumption, on the other hand, weakened because of strict lockdown and containment measures across the country as well as the drag from the downturn in the real estate sector. China also did not implement extensive cash handouts to households to boost household spending during the COVID-19 period. Following China's economic reopening in 2023, these demand-supply dynamics persisted, resulting in a decline in prices.

The rebound in demand remains notably subdued, reflecting the ongoing property market distress and sluggish wage growth. Consumer confidence remained weak, in part dragged by the prolonged distress in the property market including the negative wealth effect from declining property prices (Figure 2.5.1). Labor market improvement has also been modest, with youth unemployment remaining higher than pre-pandemic levels. Wages grew at a slower pace than pre-pandemic across the board, and certain sectors even experienced wage reductions. As a result, post-reopening revenge spending proved to be short-lived in China, and the recovery in consumption of goods has lagged behind production.

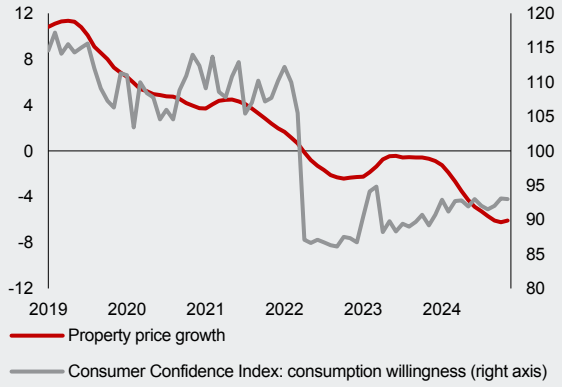
The recovery in retail sales has been uneven as well. While some high-value products, such as automobiles and cellphones, experienced stronger growth, the demand for household appliances, furniture and other durable goods has been weak, likely associated with sluggish home sales amid the ongoing property market distress (Figure 2.5.2). The ongoing property market distress has also dampened private investment at large. Real estate investment fell by 8.1 percent in 2023 and 10.6 percent in January–November in 2024, with developers hesitant to commit to new projects amid declining property prices and subdued home sales. The decrease in property investment coupled with its knock-on effects continues to weigh on investment demand.

On the other hand, the strong recovery in production has led to a surplus of goods and services, creating disinflationary pressure. A closer examination of the CPI components reveals that the recent low inflation rates in China following its reopening is primarily due to falling prices of food and goods. In particular, food prices fell by 0.3 percent in 2023 and by 2.7 percent y-o-y in the first half of 2024. Pork prices was a major driver, experiencing significant price decline as hog supply increased amid the hog cycle upturn before rebounding since mid-2024 (Figure 2.5.3). In addition, consumer goods contributed to reducing headline CPI by 0.15 percentage points in 2023 and by 0.22 percentage points in the first half of 2024, before showing signs of a mild recovery from July 2024. The prices of transportation facilities and household appliances have also declined significantly since 2023. At the same time, the production of a wide range of products has surged over the past year. For instance, the "new three" manufactured products in China—namely solar cells, EVs, and batteries—achieved extraordinary growth in production volume at 61 percent, 35 percent, and 6 percent respectively in 2023 (Figure 2.5.4). This rapid production expansion has intensified competition and triggered price reductions in those industries.

This box was written by Ke Ji and Jungsung Kim, based on Ji and Kim (2025).

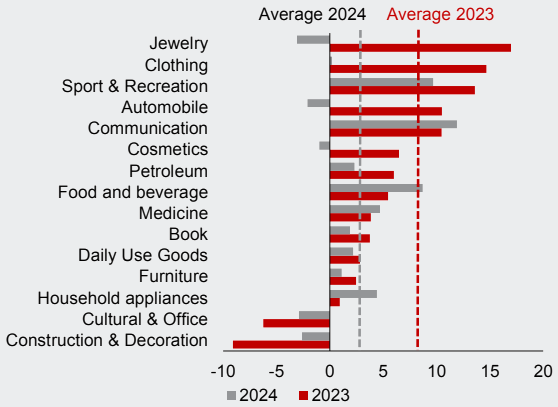
While China does not yet exhibit symptoms of significant deflation, disinflationary forces do persist, and the authorities must act to prevent these from evolving into a prolonged deflationary spiral. Both demand and supply are growing, albeit at different paces especially across sectors. The housing market distress has not caused broad deleveraging of the household and corporate sector. In the near term, strong policy responses are crucial for China to keep deflation at bay. Stabilizing the property market remains essential to restore consumer confidence. Monetary and especially fiscal policies should provide more support to stimulate domestic demand. Fiscal policy also needs to play a key role in improving income distribution, social welfare, and public spending to boost consumer confidence.

Figure 2.5.1. China: Property Prices and Consumer Confidence
(Percent, year-on-year; index)



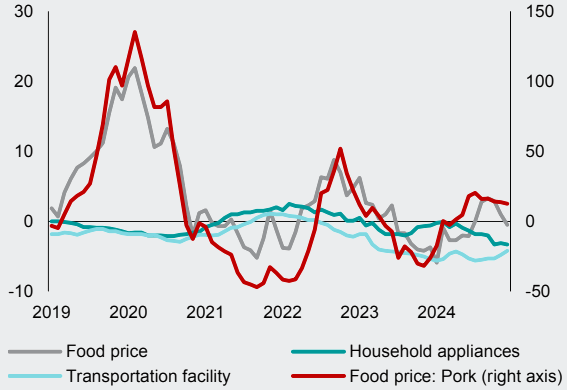
Source: China NBS via CEIC; AMRO staff calculations.
Note: Consumer Confidence Index readings above 100 indicate that consumers are optimistic while readings below 100 suggest that consumers are pessimistic. Property price growth is the average of new residential housing in 70 cities.

Figure 2.5.2. China: Retail Sales Growth
(Percent, year-on-year)



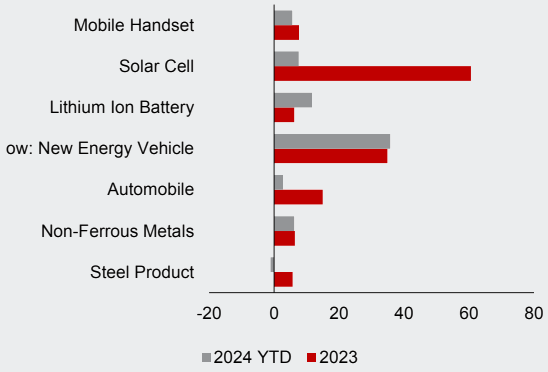
Source: China NBS via CEIC; AMRO staff calculations.
Note: 2024 data is up to September 2024.

Figure 2.5.3. China: Food and Selected Consumer Goods Prices
(Percent, year-on-year)



Source: China NBS vis CEIC; AMRO staff calculations.

Figure 2.5.4. China: Industrial Production Growth: Selected Products
(Percent, year-on-year)



Source: China NBS via CEIC; AMRO staff calculations.
Note: Data 2024 is up to September 2024.

Box 2.6:

The Impact of US and China Trade Prices on ASEAN+3 Inflation

Inflation across regional economies exhibits a strong common trend. Principal component analysis reveals significant co-movement, with a common factor accounting for about 60 percent of local variations in the producer price index (PPI) and 40 percent of consumer price index (CPI) and core CPI variations. The degree of synchronization varies across economies, with Korea, Singapore, and Thailand showing the strongest co-movement with regional PPI and CPI trends, while others like Hong Kong and Indonesia display weaker correlation (Box 1 in the 2024 AREO October Update).

The presence of strong regional inflation trend may reflect regional economies' common exposure to external factors. Regional economies' inflation dynamics are exposed to external factors through international trade linkages, particularly through their deep trade integration with China and the United States. With China serving as a key import source (30 percent of total imports) and the United States as a key export destination (17 percent of exports), their trade prices play a crucial role in regional price synchronization (Figure 2.6.1).

Results from panel regression[1] show that inflation is significantly influenced by global inflation trends. As trade prices and oil prices tend to move in tandem with global inflation, the effect of global inflation is isolated from these prices before the regression (Figure 2.6.2). The coefficient for global inflation was found to be the largest for PPI, followed by CPI, and core CPI, all statistically significant at 1 percent. This finding likely reflects regional producers' deep integration in global value chains. Traditional determinants like output gap, oil prices, and exchange rates are also significant, with oil price effects impacting PPI the most. The lagged policy rate is most significant for CPI, which reflects CPI's role as the major price target for policymakers.

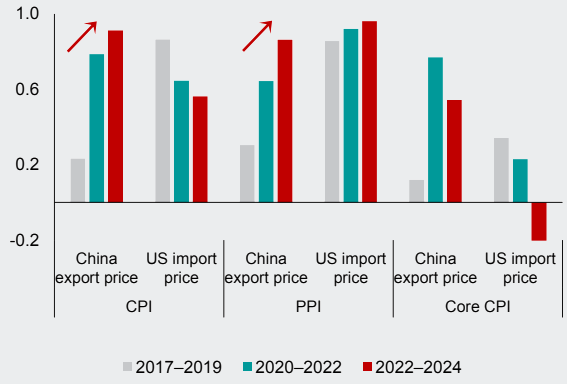
China and US trade prices demonstrate significant influence on regional inflation, reflecting the region's extensive trade linkages with both economies. The effects of trade prices are strongest on PPI and have intensified since the rise in trade tensions in 2017 (Figure 2.6.3, Figure 2.6.4). US import price effects remain consistently stronger across all inflation measures compared to China's export prices, suggesting regional prices may be more sensitive to external demand conditions than supply factors. The effects of US and China trade prices on CPI and core CPI, on the other hand, have diminished since 2017.

The growing influence of China and US trade prices on regional inflation may reflect shifts in regional trade patterns since 2017. The region's import dependence on China has risen, particularly for the economies of Indonesia, Malaysia, the Philippines, Singapore, and Thailand (ASEAN-5) and Brunei, Cambodia, Lao PDR, Myanmar, and Vietnam (BCLMV), as shown in Figure 2.6.5. The simultaneous rise in BCLMV imports from China and exports to the United States, coupled with declining direct China-US trade, suggests potential trade diversion through the regional production network (Figure 2.6.6). This reorientation of trade flows may reinforce the influence of US and China trade prices on regional PPI. Meanwhile, the weakening impact on consumer prices likely reflects domestic structural changes, such as the rising services component in consumer baskets, or producers absorbing more trade price changes rather than passing them to consumers. Further studies are needed to further explore the factors driving the diverging impact of trade prices on producer and consumer prices.

This box was written by Haobin Wang and Yuhong Wu.

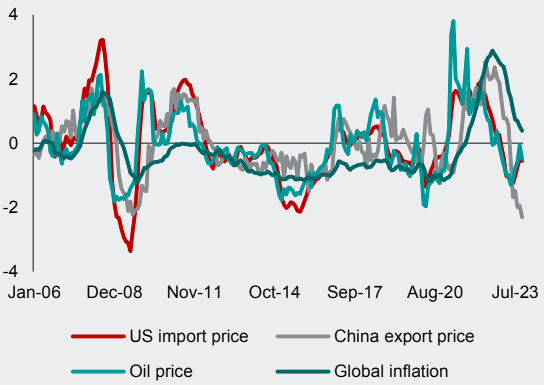
1/ A panel regression was conducted on headline inflation using the annual change in China export price, US import price, global price, global oil price, bilateral exchange rates against the USD, lagged headline inflation; and the respective economies' output gap and lagged policy rate in levels. To avoid multicollinearity, the global inflation trend was first extracted using principal component analysis across 56 economies. Orthogonal components of China and US trade prices and oil prices were then obtained as residuals from the regression on global inflation. Headline inflation and policy rate were included with a 12-month lag.

Figure 2.6.1. Selected ASEAN+3: Correlation between First Principal Components of Regional Inflation and Trade Prices
(Correlation)



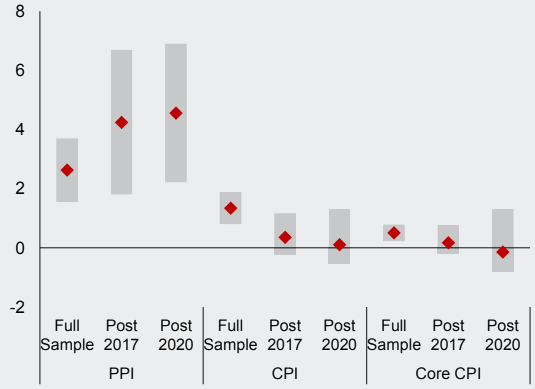
Source: National authorities via Haver Analytics, World Bank; AMRO staff calculations.
Note: CPI = consumer price index; PPI = producer price index. First principal component of regional inflation excludes China for analysis with China export prices; and Myanmar, Lao PDR (from CPI and Core CPI); Brunei, Cambodia, Myanmar, Lao PDR (from PPI) due to data unavailability.

Figure 2.6.2. World: Global Inflation, Oil Price, US and China Trade Prices
(Percent, year-on-year)



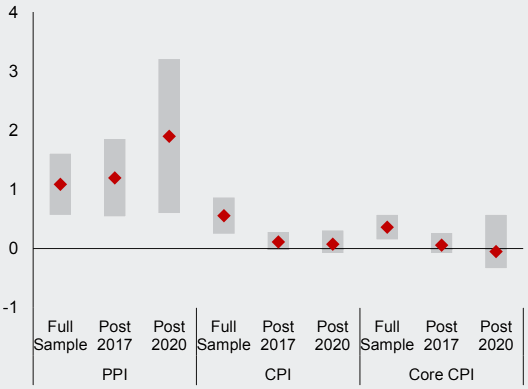
Source: National authorities via Haver Analytics, World Bank; AMRO staff calculations.
Note: Global inflation is the first component of headline CPI across 56 economies from the World Bank Global Inflation Database. The oil price is the European free market price of Brent crude oil.

Figure 2.6.3. ASEAN+3: Change in Headline Inflation due to 1 Percent Change in US Import Prices
(Percentage points)



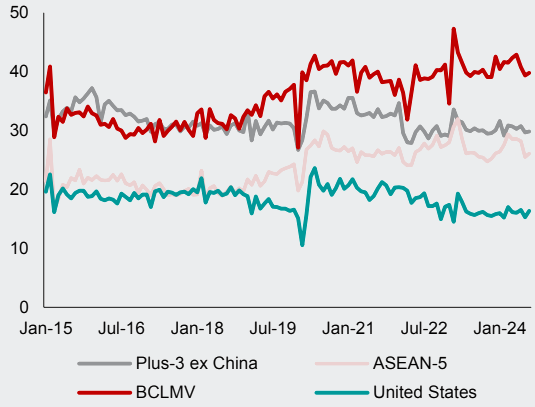
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: CPI = consumer price index; PPI = producer price index. The chart shows the panel regression coefficient of US import price (orthogonal to global inflation and oil prices). The line shows the 95 percent confidence interval.

Figure 2.6.4. ASEAN+3: Change in Headline Inflation due to 1 Percent Change in China Export Prices
(Percentage points)



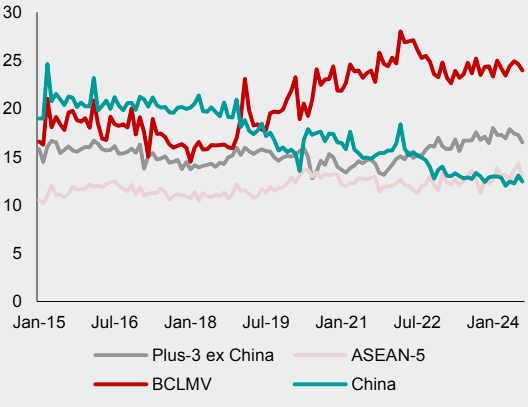
Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: CPI = consumer price index; PPI = producer price index. The chart shows the panel regression coefficient of China export price (orthogonal to global inflation and oil prices). The line shows the 95 percent confidence interval.

Figure 2.6.5. ASEAN+3: Imports from China
(Percent of total imports)



Source: International Monetary Fund; 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 chart shows the seasonally adjusted share of imports from China over total imports from the world to the region.

Figure 2.6.6. ASEAN+3: Exports to the United States
(Percent of total exports)



Source: International Monetary Fund; 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 chart shows the seasonally adjusted share of exports to the United States over total exports from the region.

III. Policy Experience and Lessons Learnt

With supply-side factors and global developments increasingly influencing inflation, policy considerations in the region have become more complex. Despite significant inflationary pressures in the past four years, ASEAN+3 authorities have managed to keep inflation lower than many other regions, offering valuable lessons for future policy response. Inflation dynamics will likely remain challenging with significant macroeconomic uncertainty, volatile global commodity prices reflecting ongoing geopolitical developments and climate-related events, and structural shifts such as aging population and technological change that realign inflation patterns. The recent experience therefore offers crucial lessons in preparing for price stability challenges—balancing domestic and external factors, while calibrating policy mixes to meet the needs of each economy.

Policy Responses by ASEAN+3 Economies

ASEAN+3 economies have implemented a range of policy measures in response to shifting inflation dynamics over the past four years (Table 2.1). Most regional economies have tightened monetary policy when inflation surged in 2021–2022 to prevent inflation from becoming entrenched—and to a lesser extent, mitigate excessive exchange rate depreciation that could exacerbate imported inflation. Fiscal policy support was deployed where possible to cushion the impact of inflation. In addition, some economies imposed price ceilings to ensure that fuel and other essential goods and services remained affordable. Regional economies with significant domestic production of essential goods, such as rice or cooking oil, controlled exports and calibrated production to prevent self-induced shortages and price hikes. The specific policies, timing, and extent of support varied depending on each economy's circumstances, policy space, and framework.

Monetary Tightening to Stem Demand Pressures

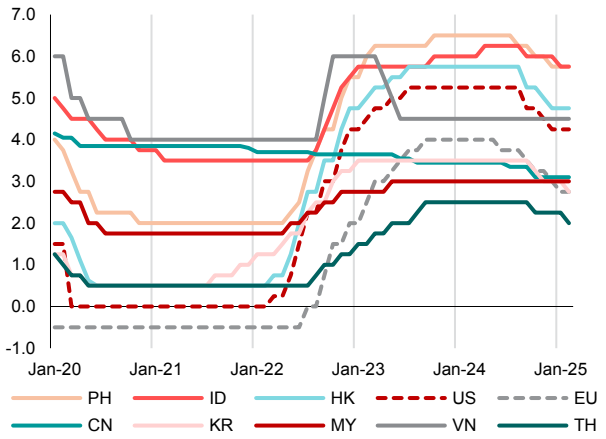
Monetary policy tightening was broadly synchronized across the region, though the magnitude, timing, and pace varied. As economies reopened in 2021 and inflation began to surge due to pent-up demand, supply chain disruptions, and commodity price shocks, most monetary authorities started tightening monetary policy to contain inflationary pressures, prevent robust domestic demand recovery from fueling rapidly-rising inflation, and to anchor inflation expectations (Figure 2.25). Monetary policy tightening was faster and to a greater extent for monetary authorities with explicit targets such as an inflation target, or currency stability. Inflation targeters such as Korea, Thailand, and the Philippines raised policy rates at a faster pace and with greater magnitude than other regional economies in line with their commitment to the inflation targeting framework and robust economic growth. Similarly, the Monetary Authority of Singapore, which sets the path for the Singapore dollar nominal effective exchange rate, has tightened monetary policy five times in one year, including through two off-cycle monetary policy decisions—marking the most aggressive tightening in more than two decades.

Monetary policy was not tightened in China and Japan because of country-specific factors. China eased monetary policies, with the People's Bank of China gradually cutting various policy rates and the reserve requirement ratio (RRR) as inflation was very low, owing to subdued domestic demand, intense price competition in the electric vehicle, solar panel, and other consumer goods industries, and a weak real estate sector. Similarly, the Bank of Japan maintained its yield curve control (YCC) and negative interest rate policy (NIRP) until March 2024, when it terminated YCC and NIRP and started raising its policy rate as signs of sustained inflation, wage growth, and economic recovery became more evident.

For the CLMV countries, persistent currency depreciation led to high inflation in Lao PDR and Myanmar due to high exchange-rate passthrough, while the effectiveness of monetary policy tools was limited. Inflation in Lao PDR is declining but remains high because of persistent currency depreciation, which was exacerbated by a massive supply of base money to liquidate government arrears bonds. The large supply of base money fueled the depreciation of the Lao kip due to currency substitution. Since 2023, the Bank of the Lao PDR (BOL) has tightened monetary policy by issuing bills to absorb excess liquidity in kip and raising the RRR. As a result, the kip exchange rate has stabilized, and inflation has begun to trend down gradually. Similarly, Myanmar's inflation has been driven by currency depreciation, reflecting a sharp deterioration in its balance of payments following the military coup in 2021. While Cambodia's economy is highly dollarized, it has followed a very conservative fiscal policy in the past and has ample fiscal and foreign reserves. As a result, the Cambodian riel exchange rate has been very stable, which helped to contain inflationary pressures and anchor inflation

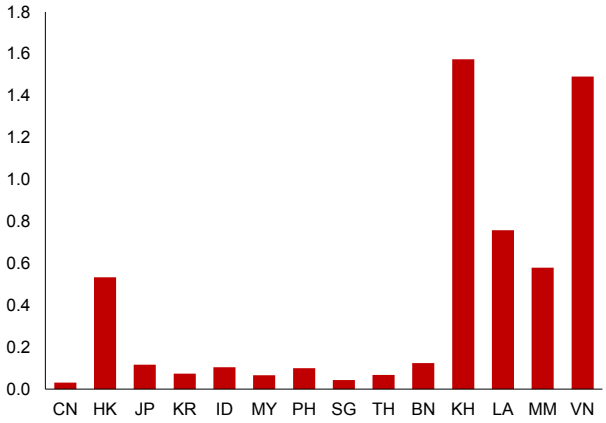
expectations. In contrast, Vietnam has sharply reduced the dollarization of its economy over the past decade and its monetary policy framework is relatively autonomous. Vietnam initially raised its policy rate in September 2022 in response to the surge in inflation but reversed course in March 2023 following signs of weaker domestic economic activity. AMRO estimates that exchange-rate passthrough is higher in CLMV economies—where a 1 percent depreciation of the local currency against the US dollar would raise the headline inflation by 0.5 percentage points to 1.5 percentage points (Figure 2.26). For the rest of the ASEAN+3 economies, exchange-rate passthrough ranged from 0.03 percentage points to 0.12 percentage points.

Figure 2.25. Selected Economies: Policy Interest Rates
(Percentage points)



Source: National authorities via Haver Analytics.
Note: Data are up to February 2025. Policy rates refer to one-year loan prime rate (China, CN); BI Rate (Indonesia, ID); the target rate for the 10-year government bond yield (Japan, JP); base rate (Hong Kong, HK; Korea, KR); overnight policy rate (Malaysia, MY); overnight reverse repo rate (the Philippines, PH); one-day repurchase rate (Thailand, TH); refinancing rate (Vietnam, VN); federal funds rate (upper range) (United States, US); and deposit facility rate (euro area, EU).

Figure 2.26. ASEAN+3: Exchange-Rate Passthrough
(Percentage points)



Source: National authorities via Haver Analytics; AMRO staff calculations.
Note: BN = Brunei; KH = Cambodia; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; LA = Lao PDR; MY = Malaysia; MM = Myanmar; PH = Philippines; SG = Singapore; TH = Thailand; VN= Vietnam. Exchange-rate passthrough is defined as the increase in percentage points of year-on-year headline inflation due to 1 percent year-on-year depreciation (lagged moving four-quarter average).

Fiscal Support to Minimize Inflation Passthrough

Energy and food subsidies[7] played a major role in shielding consumers and producers from sharp global commodity price increases. The region generally faced lower energy price inflation than the global average. In particular, ASEAN+3 economies with energy subsidies experienced significantly lower fuel price inflation compared to the global economy (Figure 2.27). In 2022, AMRO estimates that energy subsidies prevented headline inflation in Indonesia and Malaysia from rising by an additional 0.9 and 4.8 percentage points, respectively (Figure 2.28).[8] In energy-importing economies, such as Japan, Korea, and Thailand, energy subsidies were temporarily introduced to prevent large price spikes. Subsidies on fertilizers and agricultural inputs were also provided to farmers to stabilize food production costs in Cambodia, China, Malaysia, Philippines, Thailand, and Vietnam.

Besides stemming direct price increases domestically, governments provided cash assistance to help vulnerable groups and ensure essential services remain accessible. ASEAN+3 economies have implemented various forms of targeted cash transfers to help lower-income households manage the increased cost of living during the high inflationary period. For example, Singapore offered utility rebates to lower-income households to cushion the impact of rising electricity and gas prices. At the same time, governments tightened control and oversight over healthcare, education, housing, and public transportation to keep price increases in these essential services moderate. In Hong Kong, special relief was provided to public housing tenants following the upward adjustment in public housing rent.

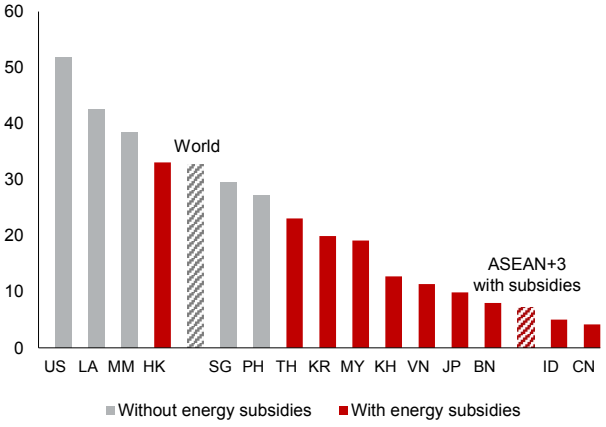
In addition to direct fiscal support, most ASEAN+3 governments adjusted tax measures to increase disposable income for households and businesses. To ease the burden of rising cost of living, Indonesia postponed its planned value-added tax increase by about two years and applied it mainly to luxury goods, while Singapore staggered its planned goods

7/ Energy subsidies include gasoline, diesel, liquefied petroleum gas, and electricity, while food subsidies cover essential items such as cooking oil, rice, and sugar.

8/ The estimates are based on a counterfactual scenario in which domestic fuel prices are market-determined. In the case of Malaysia, RON95 and diesel prices are regressed against RON97 prices during the managed float system period (2015–2018) to obtain the coefficients. For Indonesia, Pertalite prices are assumed to follow Pertamax prices, while Solar prices follow Dex prices.

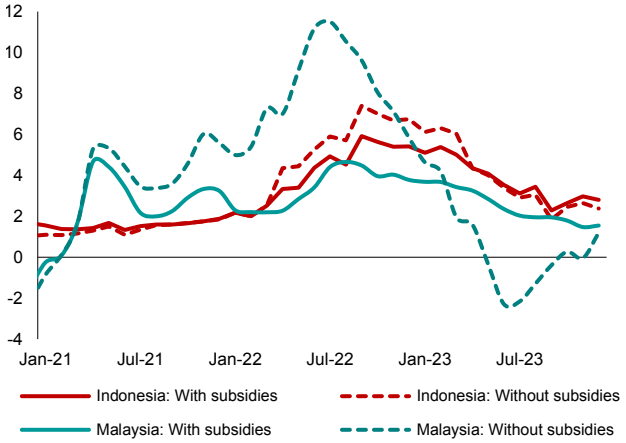
and services tax rate hike and provided consumption vouchers. Regional economies across both Plus-3 and ASEAN also expanded personal income tax deductions to include essential goods and services such as healthcare and education. In addition, corporate tax relief was extended to small and medium enterprises in sectors hit hardest by the pandemic and inflation, such as tourism and manufacturing. For example, the Philippine government introduced a value-added tax refund mechanism to boost tourism.

Figure 2.27. Selected ASEAN+3: Energy Inflation
(Percent, year-on-year)



Source: World Bank Global Database of Inflation; AMRO staff calculations.
Note: Global and regional aggregation is done using 2023 GDP purchasing power parity weights.

Figure 2.28. Indonesia and Malaysia: Headline Inflation with and Without Energy Subsidies
(Percent, year-on-year)



Source: National Authority via Haver Analytics; AMRO staff calculations.
Note: Counterfactual headline inflation refers to AMRO's estimate of headline inflation if pump prices for Pertalite and Solar (Indonesia) and RON95 and diesel (Malaysia) are fully market-determined.

Supply Management to Stabilize Domestic Prices

Strategic stockpile management and administered pricing have been crucial in stabilizing rice prices, a staple food essential for food security and economic stability in the region. Most ASEAN economies, including Brunei, Indonesia, Malaysia, Philippines, Thailand, and Vietnam, have implemented price ceilings on rice to ensure affordability. Government agencies also manage national rice stockpiles, releasing additional supply when market prices have risen sharply. Thailand, a major rice exporter, has a rice price guarantee scheme to maintain stable incomes for farmers and steady rice supply and prices. Similarly, Korea operates a rice price support system, purchasing rice from farmers when prices drop and selling it when prices become too high. The Philippines lowered the tariff rates for rice and other food items, with an aim to lower the overall domestic food prices and augment local supply.

Trade-related measures were used by several countries to manage domestic supply and inflation. During times of local shortages or volatile international prices, some economies restricted exports to ensure adequate domestic supply and stable prices, such as for rice (Myanmar), sugar (Thailand), chicken (Malaysia), and coal and palm oil (Indonesia). As most ASEAN+3 economies are food importers, easing import restrictions helped to stabilize local prices. These include the Philippines' rice tariffication law—implemented in 2019—which replaced quantitative restrictions on rice imports with tariffs; relaxation of imports of wheat (Japan), meat (Thailand), and fertilizers (Indonesia, Malaysia, Thailand, Vietnam); and reduction in import tariffs on fuel and energy products (Korea, Philippines, Vietnam).

Policy Lessons Learnt to Safeguard Price Stability

The ASEAN+3 experience highlights that a combination of both monetary and non-monetary measures is often necessary to effectively control inflation (Table 2.1). Monetary tightening may be less effective in addressing inflation driven by commodity price surges or supply disruptions due to its long transmission lag and broad-based impact. In such instances, non-monetary measures such as fuel price subsidies or price controls can have an immediate impact but entail fiscal costs and potential resource allocation distortions. Most ASEAN+3 economies adopted a mix of policies tailored to the individual economy's specific circumstances, balancing monetary tightening with energy or food subsidies. Economies with little or no price controls, such as the Philippines and Singapore, tend to be more aggressive on monetary tightening, while economies like Malaysia and Indonesia have employed fiscal subsidies alongside policy rate hikes to contain inflation (Khor and Pongsaparn 2024).

Table 2.1. ASEAN+3: Major Policies to Combat Consumer Price Inflation and/or Address the Inflationary Impact in ASEAN+3 Economies, 2021–2023

	Monetary policy	Fiscal policy					Other measures	
		Energy subsidies	Administered prices or subsidies for staple food	Cash assistance	Income tax relief	Consumption tax reduction or exemption	Stockpile management	Trade-related measures
Brunei		✓	✓	✓			✓	
Cambodia		✓	✓	✓			✓	
China		✓	✓	✓	✓	✓	✓	
Hong Kong		✓	✓	✓				
Indonesia	✓	✓	✓	✓	✓		✓	✓
Japan		✓	✓	✓	✓		✓	✓
Korea	✓	✓	✓	✓	✓		✓	✓
Lao PDR	✓		✓	✓				
Malaysia	✓	✓	✓	✓	✓	✓	✓	✓
Myanmar			✓	✓				✓
Philippines	✓		✓	✓	✓	✓	✓	✓
Singapore	✓		✓	✓				
Thailand	✓	✓	✓	✓	✓	✓	✓	✓
Vietnam	✓	✓	✓	✓	✓	✓	✓	✓

Source: AMRO staff compilation from news flows and reports by national authorities.

In periods of inflationary shocks, more effective support can be achieved by targeting non-monetary measures at the most vulnerable populations, thereby ensuring protection without imposing a large fiscal burden. Non-monetary measures such as energy and food subsidies can directly relieve the cost of living, but these measures often entail significant budgetary costs, especially when the subsidies are broad-based. Broad-based subsidies should generally be used temporarily during periods of stress and phased out once the situation normalizes. The removal or rationalization of subsidies must be carefully timed and replaced with measures that focus on vulnerable groups, such as lower-income households, who would benefit more from these subsidies.

Over the medium to long term, structural measures could also help address supply-side challenges and help manage inflation. Structural supply-side measures to help manage inflation over the medium to long terms include improving supply chain efficiency, diversifying supply sources, encouraging sustainable domestic production, and incentivizing use of renewable energy. Significant investments have been made in logistics and transportation infrastructure to help facilitate smoother movement of goods and reduce costs. Many countries have also sought to diversify supply chains by reducing dependence on specific countries or supplies. In addition, many governments seeking to reduce reliance on imports and enhance self-sufficiency have provided incentives for local production by encouraging the application of technology to raise productivity and promote sustainable agricultural practices. Governments, especially in advanced economies, are also making significant investments in green technologies such as solar power and electric vehicles to reduce exposure to global energy price fluctuations.

Ongoing structural shifts are likely to affect inflation dynamics going forward. Geoeconomic fragmentation and supply chain reconfiguration precipitated in part by escalating trade and technology tensions between the United States and China have shifted inflationary pressures across sectors and economies. Recent developments, including renewed threats of higher tariffs, are likely to accelerate this fragmentation process. The region's rapidly aging population is changing saving and investment behavior and inflation dynamics. The transition to net-zero emissions would also contribute to inflation, due mainly to increased costs arising from carbon pricing, higher regulatory and compliance costs, and green investments. However, these structural shifts may also have deflationary effects. The inflation outcomes of these structural changes would also depend on policy choices by central banks and governments. Inflation dynamics are therefore likely to have even more facets, with supply factors becoming more significant, making the task of devising an optimal policy response increasingly complex.

- ***Geoeconomic fragmentation:*** Increased geoeconomic fragmentation could lead to more volatile inflation in the ASEAN+3 region (AMRO 2024b). Globalization has historically reduced inflation by shifting supplies to countries with the lowest cost of production and by increasing competition and efficiency, but fragmentation risks reversing this trend by reducing imports from lower-cost economies and

raising imports from economies with higher cost of production. Price volatility is therefore expected to rise, particularly in highly concentrated markets, with estimates showing substantial price increases for key commodities like lithium, iron ore, and copper.

- ***Aging population:*** While favorable demographics have kept inflation low, a shrinking labor force is expected to reverse this trend and create inflationary pressures (AMRO 2024b). Shifting consumption preferences between younger people who spend more on goods and older individuals who spend more on services would also change inflation dynamics. However, aging may also exert downward pressure on prices due to expectations of weaker growth, complicating central banks' efforts to manage inflation, especially in economies with already low inflation like Japan.

- ***Climate change:*** Policies like carbon taxes and emissions trading schemes can raise the price of polluting goods, while investments in green sectors may increase costs for specific industries, especially for minerals essential to low-carbon technologies. Limited supply and high demand for critical minerals, such as lithium and cobalt, can exacerbate inflationary pressures. The scale of the inflationary effect will depend on the speed of the transition, with a rapid shift potentially causing greater price increases, although renewable energy costs are expected to decrease over time, which could ease the cost of transition (Box 2.7).

The evolving nature of supply shocks may require monetary authorities to reconsider their traditional approach to supply-driven inflation. Experience shows that central banks typically respond less forcefully to supply-driven than demand-driven inflationary pressures, since supply shocks create a direct trade-off between stabilizing inflation and output—tightening policy to contain inflation from negative supply shocks could exacerbate the decline in economic activity. This more muted response has historically helped manage growth-inflation trade-offs when inflation expectations remained well-anchored, but may become increasingly difficult to maintain (Hofmann, Manea, and Mojon 2024).

Looking ahead, ASEAN+3 policymakers could come under pressure to respond more forcefully even to supply shocks. This concern is more salient if risks of de-anchoring inflation expectations emerge, particularly amid more frequent and persistent supply disruptions from geopolitical tensions, climate change, and demographic shifts. Careful monitoring and accurate diagnosis of inflation drivers would be crucial in the calibration of such responses. The post-pandemic experience illustrates these challenges: what was initially viewed as primarily supply-driven inflation from supply disruptions and commodity price hikes contained significant demand elements arising from expansionary monetary and fiscal policies, which contributed to delayed policy adjustments in many economies (Hofmann, Manea, and Mojon 2024). This suggests potential benefits from enhanced surveillance frameworks and analytical tools to better distinguish between supply and demand factors in real time, helping minimize diagnostic errors and support appropriately calibrated responses. At the same time, timely and effective communication—tailored for different audience—to convey the assessment of inflation drivers and policy response is an essential complement to anchor inflation expectations amid the implementation of appropriate policy measures.

A skilful mix of monetary policy and non-monetary measures is therefore key to ASEAN+3 economies' effectiveness in containing inflation. An increasing role of supply-side factors in driving inflation dynamics highlights the need for effective use of supply-side policies alongside monetary policy. The optimal ingredients for the policy mix depend on country specific circumstances, the nature of shocks, and the state of the economy. Whereas monetary policy is broad-based and needs to be calibrated to strike a good balance between inflation and growth objectives, non-monetary measures can be temporary and more targeted to minimize potential fiscal costs and market distortions. At a time when global uncertainties—including potential US tariff actions—are elevating inflation risks, structural challenges will further complicate inflation dynamics, making it imperative for economies to rebuild policy buffers to effectively navigate both immediate and longer-term challenges.

Box 2.7:

Carbon Taxes and ASEAN+3: What Will It Mean for Prices?

Understanding the impact of a carbon tax policy across different industries provides an additional view of how the transition to net zero can reverberate across ASEAN+3. Some sectors face more risks from the implementation of carbon taxes, by increasing their costs of production. Depending on how much of this burden is passed on to consumers, certain commodities or services may also experience a fall in demand as the market moves toward less carbon-intensive or "clean" substitutes.

To estimate the industry-level *price* effects that could arise from the imposition of a carbon tax policy, AMRO staff employed the Leontief Price Model, a supply-driven model derived from the Input-Output accounting framework that estimates the change in prices of finished output that results from a change in factor costs.[1] The price shock was made consistent with the Network for Greening the Financial System (NGFS) Net Zero 2050 scenario—the NGFS' most ambitious scenario that limits global warming to below 1.5° Celsius—to give a sense of how ASEAN+3 economies' inflation trajectories could evolve should very stringent climate policies be put into place (NGFS 2024). By design, this scenario carries significant transition risks.

With the energy sector comprising about 80 percent of ASEAN+3's carbon dioxide emissions (AMRO 2023), the utility sector will face the highest average effective carbon tax rates, following a tax hike policy (Figure 2.7.1). This is followed by the transport sector, but especially aviation and shipping. The range of tax rates suggests that the cost of transition for several ASEAN+3 sectors could be significant. In particular, large cost increases in sectors that provide intermediate inputs to other industries would materially impact overall price levels across the region.

The initial, substantial increase in producer prices will be primarily concentrated in a few ASEAN+3 sectors—mostly within the five most carbon-intensive industries (Figure 2.7.2). Nevertheless, the overall increase in prices is primarily driven by the carbon tax hike's *indirect* impact, rather than the *direct* rise in factor costs (Figure 2.7.3). Tight industry linkages in ASEAN+3 will play a key role in transmitting the impact of the carbon price to the rest of the economy through higher *intermediate* input costs.[2] Clearly, transition risks can spread beyond individual industries—with implications on economy-wide price and economic stability.

Hefty or multiple price increases can translate into lower demand for a sector's goods or services, and consequently, revenues. To gauge which ASEAN+3 sectors could face the largest revenue declines, estimates from the Leontief Price Model were fed into a second demand-driven Input-Output (IO) model that takes on two different demand scenarios: one with a (1) *moderate* shock and another with a (2) *severe* shock.[3] The two differ in their price elasticity assumptions. The first scenario assumes perfectly elastic pricing for a subset of industries, while the second extends this assumption to all sectors.[4]

Under a *moderate* demand shock scenario (where, in response to the carbon tax policy, demand only falls in certain industries faced with discretionary spending), the larger revenue losses will cut across ASEAN+3 manufacturing—especially transport equipment, furniture, and electronics—and services, especially aviation (Figure 2.7.4, Figure 2.7.5). In ASEAN-5, services related to tourism and travel, as well as to motor vehicles, could face significant revenue declines, especially as the transportation sector remains as one of the largest emitters in

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This box was written by Marthe M. Hinojales. An earlier version of this analysis can be found in MAS (2024).

1/ The analysis was implemented across 35 industries for nine ASEAN+3 economies, following the structure of the Asian Development Bank's Multiregional Input-Output Tables (2023), from which the latest available IO data—for 2022—were sourced.

2/ Whereas the derived sector-level carbon tax rates can be viewed as the direct price effect of the tax, there is also the indirect effect: those arising from higher intermediate input prices passed on by supplier industries that similarly face a carbon tax.

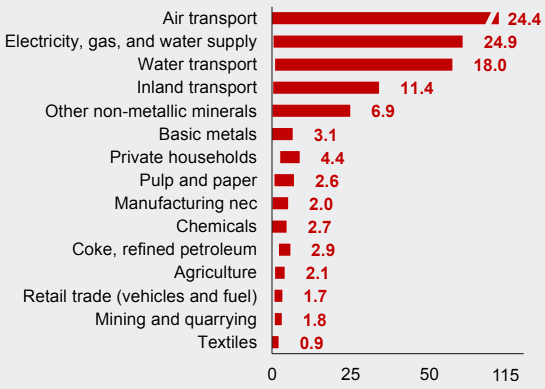
3/ This refers to the Leontief Output Model, which estimates the change in sector-specific revenues that results from a change in final demand.

4/ As in Kay and Jolley (2023), the moderate shock scenario assumes $\Delta p' = \Delta x$ (perfectly elastic pricing) for a subset of 11 sectors, where consumer spending tends to be discretionary. The severe shock scenario assumes $\Delta p' = \Delta x$ for all 35 sectors; that is, the change in price caused by the carbon tax will lead to a decline in final demand—of the same magnitude—for all sectors of the economy.

the region (AMRO 2023). The negative impact on revenues is especially magnified when considering the *indirect* revenue loss, or the corresponding reduction in supply chain/procurement activity because of the fall in final demand. On average, economy-wide revenue losses across the ASEAN+3 sample could be about 1.5 times higher, once the fall in supply chain activity is fully considered.

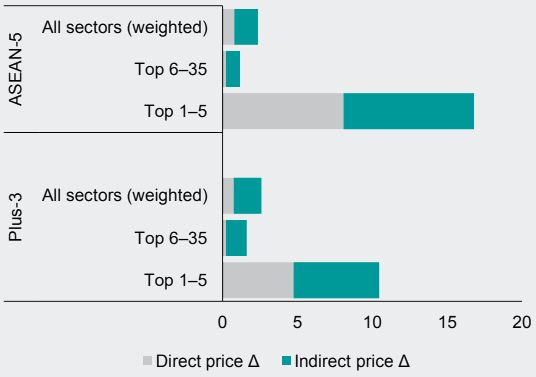
These results carry key policy implications for ASEAN+3 economies. *First*, the overall cost of net zero transition would be significantly lower than estimated if households and firms switch to cheaper, less carbon-intensive alternatives (Figure 2.7.6). This would, of course, rely on the wider availability and reliability of "clean" alternatives for firms to switch into—otherwise, energy and energy-related prices would be significantly higher until the transition to clean energy is complete (AMRO 2023). The estimated price changes and revenue losses discussed above therefore technically represent the upper-bound of the impact of carbon pricing if there are no factor substitution (Perese 2010).[5]

Figure 2.7.1. Selected ASEAN+3: Top Sectors with Highest Effective Carbon Tax Rates
(Range of rates, percent)



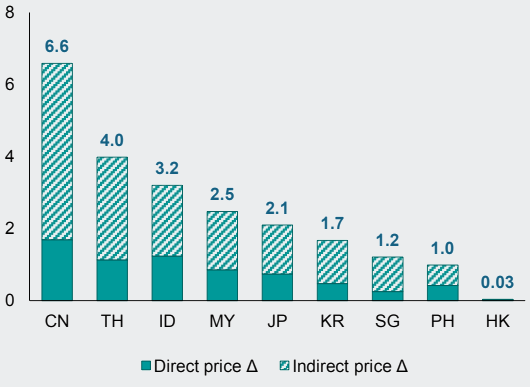
Source: Global Trade Analysis Project; Asian Development Bank Multiregional Input-Output Tables; AMRO staff calculations.
Note: Chemicals include chemical products. Private Households (are those with employed persons). Figures in blue represent average tax rates.

Figure 2.7.2. Selected ASEAN+3: Change in Producer Prices due to Carbon Tax Hike, by Sector Distribution
(Percent)



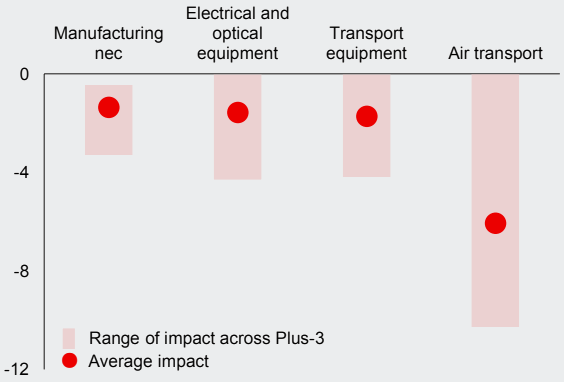
Source: AMRO staff calculations.
Note: Each industry's share to total output were used as weights.

Figure 2.7.3. Selected ASEAN+3: Change in Producer Prices based on a Net Zero 2050 Scenario, by Economy
(Percent change from reference year)



Source: AMRO staff calculations.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand. The numbers in the chart represent *total* producer price increase.

Figure 2.7.4. Plus-3: Top Sectors with Highest Revenue Decline, based on a Net Zero 2050 Scenario
(Percent change from reference year)

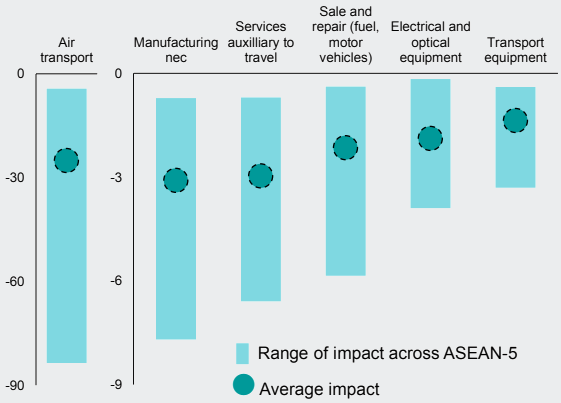


Source: AMRO staff calculations.
Note: nec = not elsewhere classified. Sectors identified above are included in the top 4 most affected sectors for China, Hong Kong, and Japan. For Korea, electrical and optical equipment is in the top 9, while the rest are in the top 4.

5/ Critical to this are two assumptions of the IO model: *first*, that labor and capital are perfectly competitive, thus allowing the carbon tax hike to be passed full on to consumers through higher prices of carbon-intensive products and services; and *second*, the model's fixed production function implies no factor substitution.

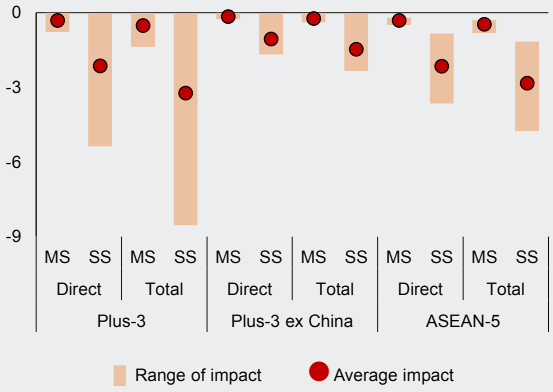
Second, the overall economic impact could be less severe if sectors are given a clear, gradual, and predictable timeline of policy implementation. The results above illustrate how prices and output in ASEAN+3 will react to a sudden, one-off increase in carbon tax: for some in ASEAN, this represents a sudden cost of USD 160 for every ton of carbon dioxide equivalent, from essentially zero. The timeline would also benefit from accounting for different end-consumer spending behaviors, and the indirect transmission channels of the carbon tax. Given the estimated size of the indirect price and output effects, managing transition risks implies a granular view of emissions along ASEAN+3's domestic supply chains; this will be especially crucial for economies where there is a large presence of small and medium-sized enterprises.

Figure 2.7.5. ASEAN-5: Top Sectors with Highest Revenue Decline, based on a Net Zero 2050 Scenario
(Percent change from reference year)



Source: AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Sectors identified above are included in the top 6 most affected sectors for all of ASEAN-5 except electrical equipment for Singapore (top 11), and transport equipment for Thailand (top 9).

Figure 2.7.6. Selected ASEAN+3: Estimated Revenue Losses, by Subgroup and Scenario
(Percent change from reference year)



Source: AMRO staff calculations.
Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; MS = moderate shock; Plus-3 = China, Hong Kong, Japan, and Korea; SS = severe shock. The difference between the "direct loss" and the "total loss" corresponds to the "indirect loss," or all corresponding reduction in supply chain activity across the entire economy.

Annex 1. Methodology: Supply and Demand Decomposition

Demand and supply factors driving inflation of all economies in the region are decomposed using the Federal Reserve's framework in Shapiro (2022). The decomposition is obtained by classifying inflation subcomponents into demand- and supply-driven factors of each economy. The subcomponents with the same driving forces are then aggregated by multiplying the CPI weights by the year-on-year inflation of the corresponding subcomponents. The demand- and supply-driven classification is made based on the results of the following equation:

$$\Delta ln\,(P_{it}) = c + \sum_{j=1}^{4} \beta_j \Delta ln\,(FP_{t-j}) + \beta_5\, OutputGap_{t-1} + \beta_6 \Delta ln\,(P_{it-1}) + \varepsilon_{it}$$

(Equation A1.1)

where P_{it} is the quarterly price index for subcategory i of the CPI at time t; FP_{t-j} is foreign price index, represented by the IMF's International Commodity Price Index (the IMF's International Food Price Index is applied to food subcategories) denominated in local currency at lag j; $OutputGap_{t-1}$ is defined as (Actual GDP–Potential GDP)/ Potential GDP at lag 1, in which the Potential GDP is estimated by applying the Hodrick-Prescott (HP) filter to quarterly GDP. All series are seasonally adjusted, and the sample period is from the first quarter of 2001 to the fourth quarter of 2024, subject to data availability.

Inflation subcomponents that are driven by supply and demand factors are classified based on the signs of the price and quantity equations for each subcomponent in the CPI basket. Specifically, demand shocks move prices and quantities in the same direction along the upward-sloping supply curve, while supply shocks move prices and quantities in opposite directions along the downward-sloping demand curve. As the data on quantities of goods transacted are not available, the output gap is used as a proxy in Equation A1.1, and the drivers of inflation are assigned as follows:

- ***Supply-driven inflation components:*** Sum of the coefficients of all lagged foreign prices is positive and has a p-value of Wald F-statistics < 0.2; and/or negative sign for output gap.

- ***Demand-driven inflation components:*** All components are not driven by foreign prices and have a positive sign for the output gap.

Annex 2. Methodology: Global and Domestic Factors

The decomposition of headline inflation for each economy are estimated by regressing the headline inflation on the output gap, the change in the bilateral exchange rate against the US dollar, the policy rate, and global commodity price inflation, as in the following equation.

$$CPI_t^{YoY} = c + \beta_1 OutputGap_{t-j} + \beta_2 ER_{t-k}^{YoY} + \beta_3 \Delta_4 PR_{t-1} + \beta_4 CommodityPrice_{t-m}^{YoY} + \varepsilon_t \quad \text{(Equation A2.1)}$$

where CPI_t^{YoY} is the year-on-year headline CPI inflation at quarter t; $OutputGap_{t-j}$ is the estimated output gap at lag j, where the output gap is calculated as in *Annex 1*; ER_{t-k}^{YoY} is the year-on-year change in the bilateral exchange rate against the US dollar at lag k; $\Delta_4 PR_{t-1}$ is the change in policy rate over four quarters at lag l; $CommodityPrice_{t-m}^{YoY}$ is the year-on-year change in IMF's International Commodity Price Index at lag m. For all independent variables, the four-quarter or eight-quarter moving average is applied, and the lags (j,k,l,m) are chosen from lag 1–lag 4, based on the signs and significance of the variables. Country-specific factors are added if needed. The sample period is from the first quarter of 2010 to the fourth quarter of 2024, subject to data availability.

The coefficients in Equation A2.1 represent the sensitivity of CPI inflation to the changes in different independent variables. Specifically, β_2 is the exchange-rate passthrough, that is, the percentage point change in year-on-year CPI inflation subject to a 1 percent increase in the four-quarter moving average of the bilateral exchange rate (local currency depreciation against the US dollar) over a year.

Based on the estimation results in Equation A2.1, headline inflation could be decomposed by the contributions of different economic factors, including the output gap, the exchange rate, the policy rate, global commodity prices, and "Others" which reflect the impacts of the country-specific factors other than the four factors above.

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