INTERNATIONAL MONETARY FUND

WORLD ECONOMIC OUTLOOK

Resilience Under Strain, Urgent Choices

2026
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ASSUMPTIONS AND CONVENTIONS

A number of assumptions have been adopted for the projections presented in the *World Economic Outlook* (WEO). It has been assumed that real effective exchange rates remained constant at their average levels during July 31, 2026–August 28, 2026, except those for the currencies participating in the European Exchange Rate Mechanism II, which are assumed to have remained constant in nominal terms relative to the euro; that established policies of national authorities will be maintained (for specific assumptions about fiscal and monetary policies for selected economies, see Box A1 in the Online Statistical Appendix); that the average price of oil will be $95.74 a barrel in 2026 and $87.39 a barrel in 2027; that the three-month government bond yield for the United States will average 3.8 percent in 2026 and 4.3 percent in 2027, that for the euro area will average 2.3 percent in 2026 and 3.0 percent in 2027, and that for Japan will average 1.0 percent in 2026 and 1.4 percent in 2027; and that the 10-year government bond yield for the United States will average 4.5 percent in 2026 and 4.6 percent in 2027, that for the euro area will average 3.1 percent in 2026 and 3.5 percent in 2027, and that for Japan will average 2.6 percent in 2026 and 3.0 percent in 2027. These are, of course, working hypotheses rather than forecasts, and the uncertainties surrounding them add to the margin of error that would, in any event, be involved in the projections. The estimates and projections are based on statistical information available through September 30, 2026, but may not reflect the latest published data in all cases. For the date of the last data update for each economy, please refer to the notes provided in the online WEO database.

The following conventions are used throughout the WEO:

- . . . to indicate that data are not available or not applicable;
- – between years or months (for example, 2025–26 or January–June) to indicate the years or months covered, including the beginning and ending years or months; and
- / between years or months (for example, 2025/26) to indicate a fiscal or financial year.
- "Billion" means a thousand million; "trillion" means a thousand billion.
- "Basis points" refers to hundredths of 1 percentage point (for example, 25 basis points are equivalent to ¼ of 1 percentage point).
- Data refer to calendar years, except in the case of a few countries that use fiscal years. Please refer to Online Table F in the Online Statistical Appendix, which lists the economies with exceptional reporting periods for national accounts and government finance data.
- For some countries, the figures for 2025 and earlier are based on estimates rather than actual outturns. Please refer to Online Table G in the Online Statistical Appendix, which lists the latest actual outturns for the indicators in the national accounts, prices, government finance, and balance of payments for each country.

What is new in this publication:

- Nauru is now referred to as Naoero.
- Composites for Net Debtor Economies, Net Debtor Economies with Arrears and/or Rescheduling, and Heavily Indebted Poor Countries (HIPCs) are no longer published in the Online Statistical Appendix Tables.

In the tables and figures, the following conventions apply:

- Tables and figures in this report that list their source as "IMF staff calculations" or "IMF staff estimates" draw on data from the WEO database.
- When countries are not listed alphabetically, they are ordered on the basis of economic size.
- Minor discrepancies between sums of constituent figures and totals shown reflect rounding.

- Composite data are provided for various groups of countries organized according to economic characteristics or region. Unless noted otherwise, country group composites represent calculations based on 90 percent or more of the weighted group data.
- The boundaries, colors, denominations, and any other information shown on maps do not imply, on the part of the IMF, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.

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FURTHER INFORMATION

Data

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The WEO database is published twice a year in April and October in conjunction with the biannual flagship WEO report. The Online Statistical Appendix, Online Statistical Appendix Tables A, and Online Statistical Appendix Tables B are available online only, at www.IMF.org/en/Publications/WEO, and the Chapter 1 annex tables now cover all economies rather than selected economies. The database (available on the IMF Data Portal at https://data.imf.org/en/datasets/IMF.RES:WEO) includes selected data on national accounts, inflation, unemployment rates, balance of payments, fiscal indicators, trade for countries and country groups (aggregates), and commodity prices whose data are reported by the IMF. Data are available from 1980 to the present, and projections for most data series are provided for the following five years. For some countries, country groups, and indicators, data are incomplete or unavailable for certain years.

Corrections and Revisions

The data and analysis appearing in the *World Economic Outlook* (WEO) are compiled by the IMF staff at the time of publication. Every effort is made to ensure their timeliness, accuracy, and completeness. When errors are discovered, corrections and revisions are incorporated into the digital editions available from the IMF website and on the IMF eLibrary (see below). Any substantive changes are listed on the copyright page of the web PDF and on the corrections page of the IMF eLibrary, at https://www.elibrary.IMF.org/page/51.

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PREFACE

The analysis and projections contained in the *World Economic Outlook* are integral elements of the IMF's surveillance of economic developments and policies in its member countries, of developments in international financial markets, and of the global economic system. The survey of prospects and policies is the product of a comprehensive interdepartmental review of world economic developments, which draws primarily on information the IMF staff gathers through its consultations with member countries. These consultations are carried out in particular by the IMF's area departments—namely, the African Department, Asia and Pacific Department, European Department, Middle East and Central Asia Department, and Western Hemisphere Department—together with the Strategy, Policy, and Review Department; Monetary and Capital Markets Department; and Fiscal Affairs Department.

The analysis in this report was coordinated in the Research Department under the general direction of Silvana Tenreyro, Economic Counsellor and Director of Research. The project was directed by Petya Koeva Brooks, Deputy Director, Research Department, and Deniz Igan, Assistant Director, Research Department.

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The analysis has benefited from comments and suggestions by IMF staff in other departments, as well as by Executive Directors following their discussion of the report on September 28, 2026. However, estimates, projections, and policy considerations are those of the IMF staff and should not be attributed to Executive Directors or to their national authorities.

FOREWORD

In less than seven years, the global economy has been subjected to an exceptional sequence of events. The pandemic and the ensuing disruptions to global supply chains; the wars in Ukraine and the Middle East, with the consequent sharp increases in the prices of energy and other commodities; and significant changes in trade barriers and trading relations have tested the resilience of households, firms, financial markets, and governments. Individually, each of these major developments would have been considered unlikely. Their confluence over such a short period of time is even more extraordinary.

Yet, despite this barrage of shocks, the global economy has held up. Labor markets have remained unexpectedly strong; financial systems have broadly withstood the shocks and the sharpest monetary tightening in half a century; and inflation has receded from its peaks in many economies, although it remains persistent in some cases.

This resilience is reflected in our latest global growth forecast, which remains broadly unchanged from April, despite a more persistent energy market disruption than anticipated. Global activity is projected to grow at 3.1 percent in 2026 and 3.4 percent in 2027. Global headline inflation is projected to rise to 4.7 percent this year, reflecting primarily higher commodity prices, and to fall back to 4.1 percent in 2027; the pass-through to core inflation is expected to be limited.

What has helped the global economy withstand this latest shock? There are two main sets of factors.

First, the rerouting of energy supplies; increased energy production in other countries; inventory drawdowns; substitution to other sources of energy, including renewables; and higher energy efficiency have all helped cushion the impact on energy markets. Without these margins of adjustment, the oil disruption alone would have significantly reduced global growth in 2026.

Second, the investment boom triggered by artificial intelligence has provided impetus to global activity and supported international trade. Investment has continued to rise in anticipation of higher expected returns and real incomes (reflected in stock valuations).

However, this resilience is under strain. Without shoring up supply capacity and replenishing policy buffers, the global economy could soon test the limits of resilience. Inventories in energy markets are dwindling and additional geopolitical shocks could still transmit rapidly through prices and supply disruptions. Other commodity markets also face risks. Low-income countries and households remain especially vulnerable to higher food prices from transport disruptions, higher fertilizer costs, export restrictions, and extreme weather events. Technology-related investment, while an important boon against the energy shock, is concentrating risks: With gains clustered in a small number of firms, sectors, and economies, global expansion is heavily reliant on a narrow set of technological and financial conditions. More generally, resilience has been uneven, varying noticeably with economies' exposure to the war and the AI boom, and causing divergent outcomes.

Policy constraints are also more binding now. Borrowing costs have risen sharply in major advanced economies, owing to both supply- and demand-driven price pressures, along with fiscal and credit risks. Public debt is high in many economies, and fiscal buffers that could otherwise have helped meet rising spending pressures from aging populations, climate change, and national security needs have instead been used to absorb the repeated shocks. The interaction of higher financing costs with elevated debt levels exposes a key margin of vulnerability. Strong and deliberate actions are required to rebuild buffers and shore up the capacity to withstand future shocks—new or the same.

Fiscal policy must be restrained and help contain demand pressures at a time of heightened inflationary risks. While monetary policy tightened significantly in the aftermath of the pandemic, primary deficits have remained elevated and are significantly larger than before the pandemic in many countries. Importantly, the increase in borrowing costs and its implications for fiscal sustainability make the need for fiscal adjustment all the more urgent. Chapter 1 of this report considers a risk scenario in which there is a loss of fiscal and monetary credibility in major economies, in addition

to commodity price increases. In that scenario, global growth in 2027 would be materially lower than in the baseline projections, with inflation significantly higher; the shock would have tangible spillovers for emerging market and developing economies. To prevent such a scenario, public debt levels need to be put back on a durably sustainable path. Chapter 2 underscores that, in cost-of-living crises, measures that preserve price signals and rely primarily on temporary and targeted income support for the most vulnerable households are both effective and efficient. Chapter 3 shows that corporate income tax policy can help from the revenue side but has important domestic and cross-border implications: Debt-financed tax cuts may support activity in the short term but can crowd out investment elsewhere, while the reduction in tax revenues can constrain public investment and productive capacity over time.

In turn, monetary policy should remain firmly focused on price stability, in line with central banks' mandates. The policy stance should be sufficiently restrictive to return inflation to target in a timely fashion, preventing second-round effects. Where commodity price increases and technology-related investment (or other factors) add to persistent inflationary pressures, monetary policy will need to tighten further. Starting levels of inflation, labor market tightness, and technology and commodity exposures remain key policy guideposts. The appropriate stance will differ across countries, but the objective is the same: to ensure price stability. Central bank independence is instrumental in achieving that goal.

Over the medium term, a comprehensive strategy to guarantee supply-side resilience is essential in an environment marked by virulent weather events and heightened geopolitically induced disruptions. Such a strategy should rest on three mutually reinforcing pillars. The first is *technological diversification*: greater investment in critical technologies and inputs for which substitutes are limited. Energy is a clear example. Diversification means continuing to expand sources of energy, including renewables. Progress is already underway, with clean energy generation rising rapidly. But the transition must go further. The second pillar is *trade diversification*. More diversified trade relationships reduce exposure to individual input suppliers and buyers and can lower volatility. Reshoring is not a viable solution for most countries; it is often inefficient and can increase the concentration of risks in the domestic economy. The third pillar, complementing the previous two, is *stronger supply buffers* in critical sectors, such as energy, water, food, and other essential inputs. A well-designed strategy must encompass both the public and private sectors, with the latter bolstered by structural reforms to boost entrepreneurship and business dynamism. Its objective should be not only to help economies cope with shocks ex post, but also to reduce exposure ex ante; limit abrupt and costly adjustments; and strengthen economies' ability to grow.

Last but not least, international cooperation remains indispensable. Many of the shocks weighing on the global economy cross borders, and so must the response. In a more shock-prone and still interconnected world, resilience cannot be built by countries acting alone. Transparent and predictable trade rules can facilitate long-term planning and enhance investment. Cooperation on energy security and critical supply chains can make adjustment less disruptive when shocks occur. As artificial intelligence reshapes production and trade, policymakers must work together to prudently harness and broaden the gains and manage the risks from technological transformation. The benefits of innovation should help raise living standards and make growth more durable and inclusive.

The task ahead is to move from coping to rebuilding: rebuilding supply-side resilience, restoring fiscal space, lifting growth potential, and ensuring that the next decade is defined by growth and shared prosperity.

This issue of the *World Economic Outlook* was made possible by the hard work and dedication of the staff in the IMF research and area departments, and the vision and thoughtful guidance of my predecessor, Pierre-Olivier Gourinchas.

Silvana Tenreyro
Economic Counsellor

EXECUTIVE SUMMARY

The global economy is again proving resilient, but unevenly so and with rapidly narrowing margins of adjustment in the near term. Activity in the first half of 2026 held up better than expected despite the dragging war in the Middle East and continuing strains from trade tensions. The technology cycle has provided a demand impulse, driven by strong investment in artificial intelligence (AI). The interaction of these forces—geopolitics and technology—has produced a split global economy: Favorable terms of trade or technology-related exports and investment give some countries a cushion, whereas others face higher import bills and weaker demand. Use of buffers and adaptability have helped economies weather the negative shocks so far. Flexible supply responses, rerouting of shipments, inventory drawdowns, fiscal support measures, and lower energy intensity than in previous decades have helped contain the hit to activity from the war. Private firms have continued to adjust to repeated shocks, including geopolitical risk and shifts in trade policy, while financial markets have maintained a broadly benign view of the challenges, also buoyed by exuberance in the technology segment. Yet these margins of adjustment are not unlimited. Inventories have been drawn down, commodity markets remain vulnerable, fragmentation could become a greater drag on efficiency, prolonged uncertainty could eventually weigh more heavily on confidence, constraints on energy could impair the AI-led impetus, and financing conditions could change abruptly for any number of reasons, including fiscal sustainability concerns.

Global growth is projected at 3.1 percent in 2026 and 3.4 percent in 2027, unchanged for 2026 and revised moderately upward for 2027, relative to the projections in the April 2026 *World Economic Outlook* (WEO). Global headline inflation is projected to increase to 4.7 percent in 2026 before easing to 4.1 percent in 2027, marking a cumulative upward revision of 0.7 percentage point with the temporary increase driven mainly by energy and food prices.

The stable global aggregate masks a reallocation of growth across economies. Countries with limited direct exposure to the war shock and strong participation in the technology upturn are seeing activity hold up or strengthen. Energy exporters outside the immediate conflict zone benefit from favorable terms of trade. Conversely, energy-importing economies with little connection to the technology value chain face the most difficult configuration: higher import costs and exchange rate pressures, weaker real incomes, more constrained fiscal space, and fewer offsetting demand impulses. Many low-income and vulnerable countries belong to this latter group, increasing the risk that recent shocks will widen income gaps across and within countries.

World trade volume growth is projected to slow in 2026 and stabilize in 2027, reflecting the drag from tariffs, adjustment in production chains, and continued strength in technology-related trade. Global imbalances are expected to decline only modestly over the medium term, as large fiscal deficits, limited domestic rebalancing, technology-driven capital flows, and differing demand compositions across major economies under current policies continue to sustain external gaps. The medium-term growth outlook remains lackluster by historical standards and uneven across countries, in part reflecting varying degrees of AI preparedness and robustness of the energy mix.

Risks are skewed to the downside. A prolonged stalemate or further escalation in the Middle East could keep energy and food prices elevated and volatile, revive inflationary pressures, worsen fiscal and external balances, and weigh on growth. Further disruptions to energy infrastructure, cyberattacks, or extreme weather events could amplify these effects. As the Commodity Special Feature shows, price increases driven by physical supply disruptions have larger and more persistent macroeconomic effects than those driven by geopolitical risks. A reassessment of AI-related profitability and productivity prospects could sharply reduce investment, trigger equity market corrections, and tighten financial conditions, with spillovers to economies integrated into technology supply chains and stakes in technology stocks.

Fiscal vulnerabilities and renewed trade tensions could further weaken growth. Upside risks are also evident: AI-related investment could prove more persistent, productivity gains could materialize faster than assumed, new trade arrangements could improve predictability and resilience, and higher fossil fuel prices could accelerate investment in energy security.

Policy needs to navigate competing forces without losing sight of medium-term stability. Given elevated debt, rising sovereign yields, and pressing spending needs, a renewed focus on rebuilding fiscal space is increasingly urgent. Governments should implement credible fiscal adjustment plans that combine enhancements on the revenue side with spending rationalization, supported by institutional improvements. Any support to ease the impact of higher energy and food prices should be temporary, targeted, and nondistortionary, and should not jeopardize fiscal sustainability goals. Monetary policy needs to be tailored to circumstances, in line with central banks' mandates, considering initial conditions before the war, inflation expectations and broader underlying inflation gauges, and the level of the policy rate relative to its neutral level. The case for maintaining a cautious stance is strongest in energy importers outside the technology value chain with inflation at or below target, while the case for tightening is strongest in economies that are plugged into stronger demand pressures from the technology value chain, where inflation was already above target before the twin shocks and remains so, and where broader price pressures are expected to remain elevated. At a structural level, strengthening energy security, improving AI readiness, and maintaining open channels for trade and cooperation are essential to raising resilience in a world where shocks are increasingly frequent and asymmetric.

The analytical chapters of this report provide insights on fiscal frameworks that could deliver better results when dealing with disruptive shocks and building policy space through revenue measures. As Chapter 2 demonstrates, when faced with cost-of-living crises, governments should preserve price signals and rely primarily on temporary, targeted income support for the most vulnerable, underscoring the importance of investing in stronger social protection systems that can be rapidly scaled up during crises. As Chapter 3 shows, the global effects of changes in corporate income tax (CIT) policy depend on how governments' budgets adjust: Debt-financed tax cuts support domestic activity but can crowd out investment in other economies and generate negative spillovers in the short term. In the long term, spillovers can be positive, owing to cross-border knowledge transfers, while presenting trade-offs domestically if lower revenues constrain public investment and productive capacity, notably for emerging market and developing economies, which rely more heavily on CIT revenues.

CHAPTER 1

GLOBAL PROSPECTS AND POLICIES

A Split View of the Global Economy

Two major transformative forces—geopolitics and technology—are reshaping the global economy, with their short-term impact gradually coming into view and their longer-term impact still largely unknown.

Geopolitics has its latest and most acute manifestation in the war in the Middle East, while hostilities in other regions and tensions in international trade relations continue to cast a shadow on economic activity. The negative supply shock from the war is working its way through the economy through higher and more volatile energy prices and their impact on inflation dynamics. The private sector appears to have so far adjusted well to the geopolitical shocks of direct conflict and contestations over trade. But as brief pauses and bouts of attacks alternate in a prolonged and dragging conflict, some of the margins of adjustment that buffered the global economy at the onset under the assumption of short-lived hostility get narrower, and the possibility of larger economic costs becomes more palpable. Beyond the near term, the economic fallout from shifting political power balances and eroding stability and trust, both within the region and elsewhere, is highly uncertain.

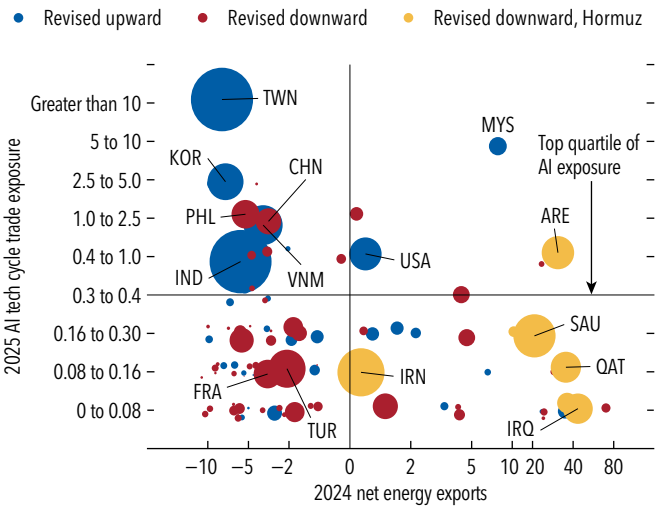
Technology is most recently playing out as a positive demand shock powered by investment in artificial intelligence (AI) and related hardware and infrastructure. Trade flows show this most strikingly. Whether this positive demand shock will transform into a positive supply shock in the long term by delivering faster productivity growth remains to be seen.

Other forces—fiscal policies and financial conditions, in particular—matter and, to some extent, are affected by the same two shocks. Fiscal support has been deployed to cushion households and firms from higher energy costs stemming from the war. Spending on defense is increasing in response to shifting geopolitical alignments. Financial conditions, which tightened sharply earlier in the year before easing again despite repeated large negative shocks and prolonged uncertainty, reflect concerns about war-induced inflation and public-spending pressures on the one hand and market enthusiasm and expectations around technology investment on the other.

Economies differ both in their exposure to the war shock—reflecting their proximity to and connections with the conflict zone, energy import dependence, and sensitivity to commodity price swings—and in their ability to benefit from the AI upturn, depending on their position in technology value chains, domestic investment capacity, and readiness to absorb new technologies. The consequence of these differences is a bifurcated outlook, rather than a uniform or synchronized one. Countries in the most favorable quadrant—limited exposure to the negative energy shock from the war and strong participation in the technology value chain, as either a producer or a final consumer of computing hardware—are seeing activity hold up or even strengthen (Figure 1.1). Energy exporters outside the conflict zone benefit from favorable terms of trade, even where their direct participation in the technology cycle is more limited. By contrast, energy importers with little connection to the technology value chain face the most difficult configuration: higher import bills and exchange rate pressures, weaker real incomes, more challenging policy trade-offs, and fewer offsetting demand impulses. Many low-income and vulnerable countries fall into this quadrant or closer to it than not, threatening to widen the gap between richer and poorer economies.

The fragmented outlook leaves the global economy vulnerable to setbacks from both directions. Headwinds from a prolonged war and persistent geopolitical tensions could revive inflationary pressures, strain fiscal and external positions, and hit energy-importing and low-income countries hardest. At the same time, the current technology tailwind could stop abruptly if expectations about AI-related profits and productivity gains are reassessed, weakening investment and tightening financial conditions. But the potential upside should not be dismissed: The constellation of accommodative financial conditions, robust private sector adjustment, and AI-related investment could carry activity through the war shock and begin to lift productivity.

Figure 1.1. Diverging Forces Are Shaping the Economy
(Percent of GDP)



Sources: CEPII BACI; Trade Data Monitor; and IMF staff calculations.

Note: Bubble sizes indicate each economy's absolute contribution to the world cumulative growth revision for 2026–27 between the January 2026 *World Economic Outlook* (WEO) Update and October 2026 WEO. "Net energy exports" are defined as exports minus imports of crude oil, refined oil, natural gas, coal, coke, and lignite. "AI tech cycle trade exposure" is measured as the absolute value of the 2025 trade balance of an AI hardware basket composed of Harmonized System codes 847150, 847170, 847180, 847330, 848610, 848620, 848640, 848690, 854231, and 854232. The figure uses own-reported data, except for MEX, MYS, THA, and VNM, for which it uses partner-reported data. The *y*-axis is banded, and the *x*-axis is shown on a signed-log scale. HKG, MAC,MLT, PAN, and SGP are excluded. Data labels and the economy list are based on International Organization for Standardization (ISO) codes. AI = artificial intelligence.

Policymakers need to do two things at once: Contain the immediate risks from inflation, debt, and financial fragility while putting in place the infrastructure, skills, and competitive environment needed for technological transformation to translate into broader and more balanced growth, with the gains distributed more evenly across and within countries.

Recent Developments: Resilient but Uneasy

Global growth in the first half of 2026 held up better than expected, although activity followed a divergent path across countries. In the United States, real GDP growth slowed to 2.2 percent at an annual rate in the second quarter of 2026, after reaching 2.5 percent in the first quarter, as business investment, stronger private consumption, and exports helped offset softer government spending and the drag from imports. Euro area activity rebounded from a flat GDP in the first quarter to an expansion of 2.6 percent in the second quarter. This expansion was driven mainly by a very strong recovery in Ireland and continued momentum in Spain, while growth was broadly stable elsewhere. Strong technology-related impulses continued in parts of Asia, as global trade flows remained robust. Japan's second-quarter GDP release was better than the IMF staff had expected. India's growth remained robust, underpinned by domestic demand and services, despite higher oil prices. China's second-quarter performance was weaker than expected, at 4.3 percent year over year. Sluggishness in domestic consumption and weakening investment amid continued property sector strains were only partly offset by robust export performance.

Global headline inflation rose in August, as energy prices bounced back following the short-lived ceasefire in the Middle East. Core inflation remained moderate, even though core-goods prices in some advanced economies started to reflect the rapidly rising cost of memory chips. US core inflation increased, mainly driven by a rebound in travel services prices.

Notwithstanding volatility driven by war and AI news, global financial conditions remain accommodative from a historical point of view (see the October 2026 *Global Financial Stability Report*). This, however, reflects strong equity valuations offsetting tightening elsewhere. A resurgence of inflation, the expected path for short-term policy rates, and concerns about fiscal sustainability have raised sovereign bond yields in many jurisdictions, with increased competition from qualified corporate borrowers—in particular, technology firms looking to finance AI investments—and actual and signaled scaling back of purchases by price-insensitive public sector buyers possibly adding to pressures. Advanced economy benchmark rates have climbed to multidecade highs, pushing up borrowing costs also for emerging markets. Exchange rates have experienced high volatility, especially those in Asia, prompting intervention by authorities, including a joint Japan-US operation.

Fiscal policy remains loose. Public debt is high and rising; deficits are historically large in several major economies. With the conflict dragging on, many countries have resorted to a variety of measures to protect households and firms from the fallout in commodity markets, not always following principles for designing such measures to be targeted, temporary, and nondistortionary. Windfalls in energy exporters outside the conflict zone and countries benefiting from the technology upturn have triggered supplemental spending rather than being saved. Monetary policy has

been cautious, weighing signals on domestic momentum against the possibility of a persistent inflationary impact from the war.

The Sources of Resilience

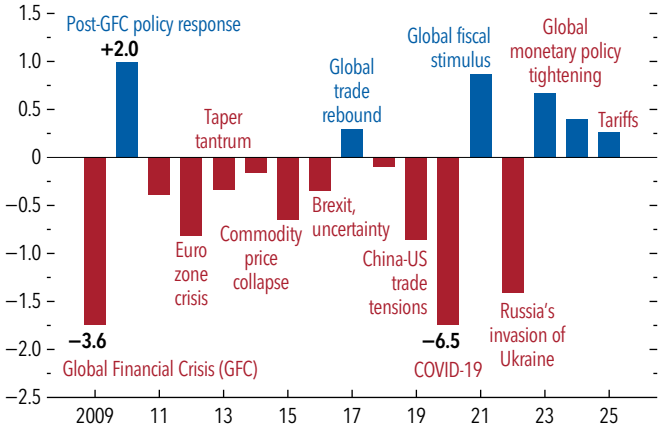
In the past few years, the global economy has exhibited a remarkable capacity to absorb shocks. Coming out of the Great Recession, *World Economic Outlook* (WEO) forecasts tended to overestimate global growth (Figure 1.2). The COVID-19 pandemic in 2020 and Russia's invasion of Ukraine in 2022 were unexpected events that led to large negative forecast errors. Other misses in either direction were in line with the sign of the shock the global economy faced at the time. Since 2023, WEO forecasts have underestimated global growth three years in a row—although the errors were small, especially considering the size of the recent shocks—raising questions about whether cyclical momentum has been stronger than foreseen or repeated shocks have ushered in structural improvements in economies' ability to cope with and adapt to new conditions.

Unpacking the drivers of the 2023–25 resilience points to a combination of circumstantial and institutional factors as well as offsetting forces. During the aggressive global monetary policy tightening, the global economy defied the historical experience of hard landings, thanks to the household and corporate cash cushions created by the massive fiscal response to the pandemic (see Chapter 1 of the April 2024 WEO); the long period of low interest rates preceding the pandemic that facilitated shifts toward longer-maturity, fixed-rate private debt (see Chapter 2 of the April 2024 WEO); the hard-earned credibility of central banks keeping inflation expectations anchored; and other improvements in monetary, fiscal, and financial policy frameworks (see Chapter 2 of the October 2025 WEO). In 2025, scaling back of originally announced tariff rates, adaptability of the private sector to higher trade barriers, accommodative financial conditions, fiscal stimulus, and a marked pickup in AI-related technology investment all contributed to the observed resilience (see Box 1.1 of the April 2026 WEO).

Supply Flexibility and Reduced Dependence on Oil

Similar dynamics have been in play following the outbreak of war in the Middle East. Although oil prices almost doubled in the early months of the conflict, they later settled at levels only 20 percent to 40 percent higher than those before the conflict, reflecting market assessment that a resolution would follow soon enough. In addition, resilience of activity in the first half of 2026 in some economies reflected a combination of the flexible supply adjustment, a drawdown of inventories, lower energy intensity than in previous decades, and the ability of households and firms to adapt to higher energy prices. The closure of the Strait of Hormuz resulted in a significant supply shock, disrupting a transit route through which about 20 million barrels of oil, or roughly a quarter of the world's maritime oil trade, flowed each day prior to the start of the war. However, the flexibility of supply limited how much volume was lost. Persian Gulf producers redirected some supply to other ports, while production outside the Gulf rose by 2 million barrels a day. The release of global inventories supplied a further 4 million barrels. Balancing of the market at the observed higher prices still implied demand compression of about 5 million barrels a day during the second quarter of 2026. China, the world's largest oil importer, helped absorb some of the adjustment in global oil markets by reducing the volume of its crude oil imports by 23 percent between March and June 2026 relative to the same period a year earlier,

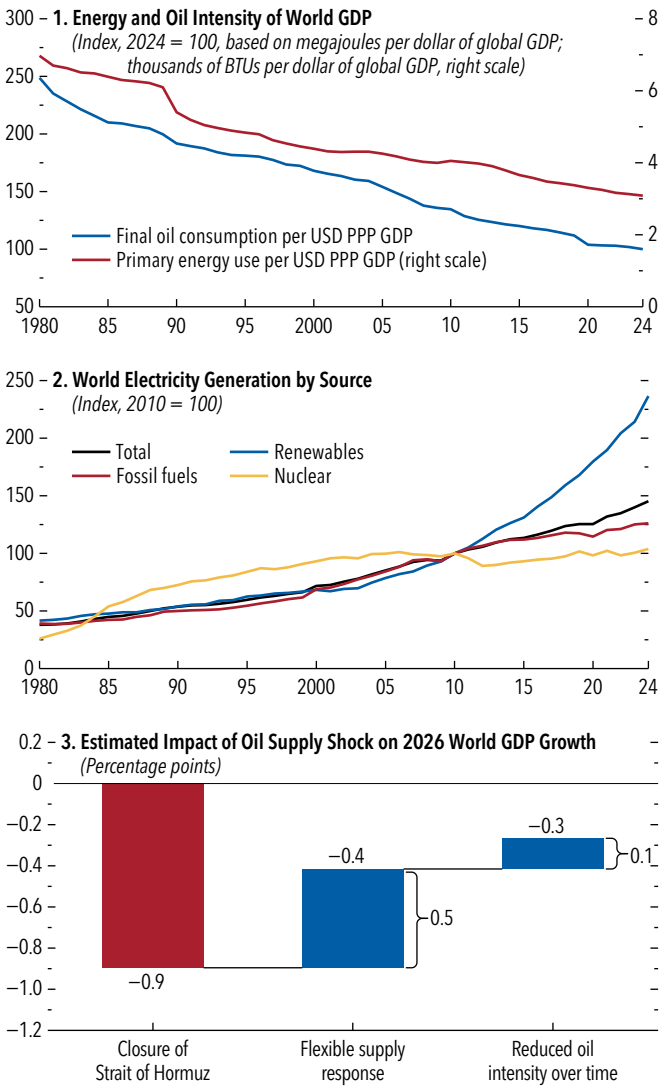
Figure 1.2. WEO Forecast versus Actual Outturn
(Percentage points, positive = better than expected)



Source: IMF staff calculations.

Note: The figure presents actual outturns minus one-year-ahead GDP growth forecasts from past October WEO reports. The *x*-axis labels denote years of outturns which are retrieved from one-year-ahead October WEO reports. For example, 2009 value is calculated using the 2009 forecast in October 2008 WEO and the 2009 outturn in October 2010 WEO. Blue labels denote positive shocks, and red labels denote negative shocks. WEO = *World Economic Outlook*.

Figure 1.3. Resilience to the Energy Shock



Sources: US Energy Information Administration (August 2026); and IMF staff calculations.

Note: In panel 3, the impact on global growth is estimated using a reduction in oil production in the IMF's Flexible System of Global Models. The impact of a reduction in the oil intensity of growth is estimated using simulations from the IMF's Global Dynamic Network Model (see Online Annex 2.4 of the October 2024 *World Economic Outlook* for details). BTU = British thermal unit; PPP = purchasing power parity; USD = US dollar.

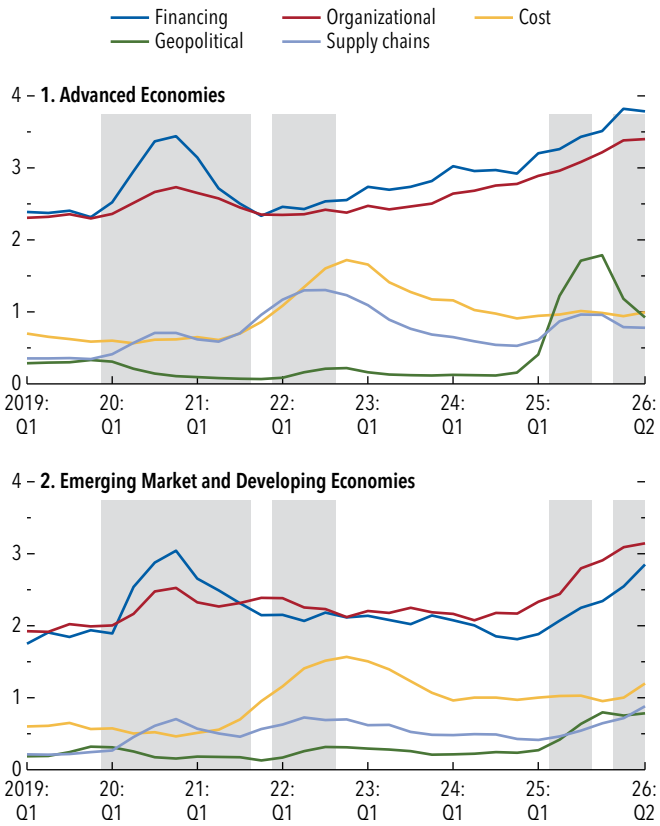
a reduction driven by both withdrawals from its large domestic inventories and a compression in its refined-oil consumption. At the same time, the dependence of the global economy on oil—while still significant—has fallen steadily over time (Figure 1.3, panel 1). This reflects greater energy efficiency and a shrinking share of energy-intensive activities in the economy—at least until recently—as well as a diversification of energy sources away from fossil fuels, driven primarily by electrification and greener electricity production (Figure 1.3, panel 2). Over the past two decades, energy usage per dollar of global GDP has fallen by 32 percent. Furthermore, since 2010, electricity generated by renewable sources has surged, while fossil fuel generation has stagnated, with renewables accounting for 60 percent of the total increase in electricity production. Reduced dependence on oil has likely lowered the sensitivity of growth to the oil price compared with past large shocks. It is unclear, however, whether the trend toward renewable electricity production will continue, with the demand pressures coming from AI data centers.

A closure of the Strait of Hormuz without the flexibility of supply responses would have resulted in a severe increase in oil prices and reduction in growth. Model-based estimates suggest that the initial loss in oil supply from the closure would have increased oil prices to an average of about $110 a barrel for the year, reducing global growth in 2026 by 0.9 percentage point (Figure 1.3, panel 3). The flexibility of supply, however—including rerouted production in the Gulf, increased production elsewhere, and drawdown of inventories—is estimated to have lowered the implied increase in oil prices to an average of $85 a barrel for the year, reducing the hit to global growth by 0.5 percentage point to 0.4 percentage point. Furthermore, the 20 percent reduction in the oil intensity of world GDP experienced since the mid-2010s has likely reduced the estimated impact of higher oil prices on global growth in 2026 by an additional 0.1 percentage point, bringing the net toll to 0.3 percentage point.

An Agile Private Sector

Private firms and producers not only absorb shocks through profit margins and short-term workarounds in inventory management but also adapt to geopolitical risks and policy shifts through a combination of engagement and adaptation strategies (de Souza and others 2025; Andrews, Puhr, and Knill 2026). Firms engage with policymakers and regulators to shape or anticipate policy outcomes while simultaneously adapting by diversifying supply chains, regionalizing production, restructuring ownership, searching for alternative markets, and investing in greater operational flexibility (Yang 2026). Firms respond not only to formal measures such as tariffs, sanctions, export controls, and investment restrictions, but also to informal pressure points, including policy uncertainty and changing stakeholder expectations.

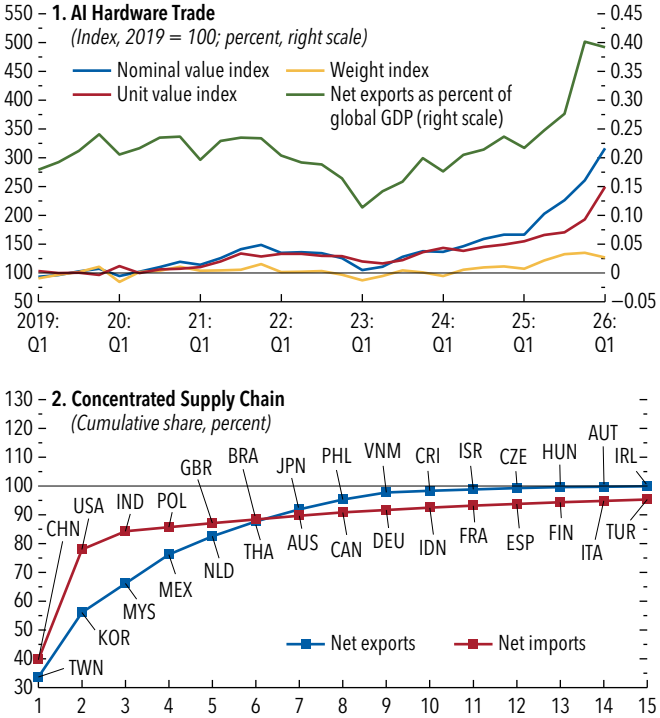
Figure 1.4. Corporate Talk about Resilience and Adaptation
(Index, three-quarter moving average)



Sources: London Stock Exchange Group transcripts; and IMF staff calculations.

Note: The figure shows indices of references to resilience or adaptation and their subcomponents in companies' earnings calls. The indices are computed as the number of sentences containing terms associated with "resilience" or "adaptation" and their respective subcomponents, based on a comprehensive dictionary, divided by the total number of sentences in earnings call transcripts. Shaded areas indicate periods associated with (from left to right) the pandemic, the energy shock, the tariff shock, and the war in the Middle East.

Figure 1.5. AI Trade: Boom, Concentration, and Magnitude



Sources: Trade Data Monitor; and IMF staff calculations.

Note: "AI Hardware" basket includes products classified under Harmonized System codes 847150, 847170, 847180, 847330, 848610, 848620, 848640, 848690, 854231, and 854232. In panel 1, "Net exports" are the sum of trade balances across economies with a surplus in the AI hardware basket. "Unit values" are measured in US dollars per kilogram, and the unit value and weight indices use reporting data from CHN, CZE, DEU, FRA, GBR, HUN, IRL, KOR, NLD, PHL, POL, and TWN. In panel 2, each economy's 2025 net exports (net imports) are expressed as a percentage of the sum of the 2025 trade balances across all economies with a surplus (deficit) in the AI hardware basket. *X*-axis labels show the respective rank by this share in descending order. The figure uses own-reported data, except for MEX, MYS, THA, and VNM, for which it uses partner-reported data. HKG and SGP are excluded. Data labels and the economy list are based on International Organization for Standardization (ISO) codes. AI = artificial intelligence.

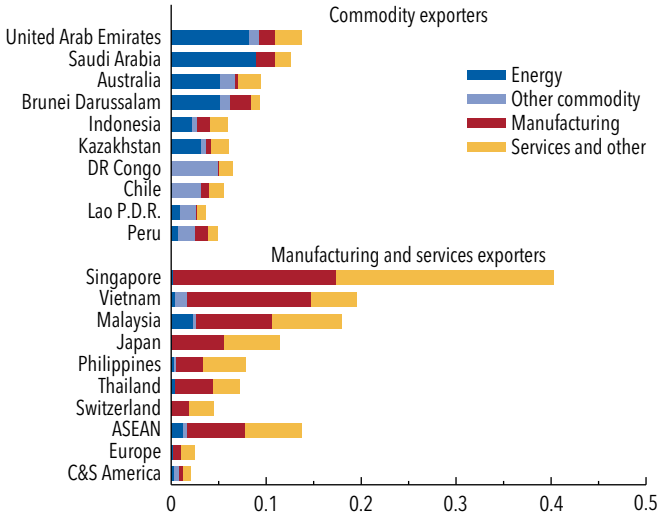
These behaviors have been at work in recent years. Discussions of resilience and adaptation strategies have been on the rise in corporate earnings calls (Figure 1.4). Firms have redirected a meaningful share of trade toward alternative destinations, helping cushion the aggregate trade impact of the bilateral China-US tariff shock (Box 1.1; see also Antràs and others 2026). In response to increasing fertilizer prices because of the war, US farmers have shifted from high-cost nitrogen-intensive grains like corn to less demanding or more profitable crops like soybeans, and they have reduced acreage or fertilizer application, although farmers in poorer countries have much more limited room to maneuver (Arita and others 2026; Kauffman and Kreitman 2026; USDA 2026).

An Offsetting Force

The AI-driven technology momentum provides an important offset to the geopolitical headwinds. In the short term, this comes in the form of increased exports and through higher investment and capital deepening. In the longer term, broader AI adoption could potentially change productivity profiles.

Net trade in AI hardware has increased exponentially as a share of world GDP, with the change driven by price effects rather than volumes (Figure 1.5, panel 1). But the AI momentum is unlikely to lift all economies equally. The global AI landscape remains highly concentrated in the upstream (computation hardware required for AI training and inference) as well as in the downstream (the development and

Figure 1.6. Value-Added Spillovers from Technology Exports from Korea and Taiwan Province of China
(Percent of domestic value added)



Sources: Organisation for Economic Co-operation and Development, Trade in Value-Added (TiVA) database (2022 data, 2025 edition); and IMF staff calculations.

Note: The figure shows the value-added impact through the value chain resulting from a 40 percent increase in computer, electronics, and optical products exports from Korea and Taiwan Province of China. The estimates assume no change in prices. ASEAN = Association of Southeast Asian Nations; C&S America = Central and South America; DR Congo = Democratic Republic of the Congo; Lao P.D.R. = Lao People's Democratic Republic.

running of frontier AI models). In the upstream, only a few economies produce advanced semiconductors at scale, with Taiwan Province of China and Korea sourcing 62 percent of the net trade in computing hardware related to AI (Figure 1.5, panel 2). Given the structure of supply chains for technology exports from these two economies, a handful of commodity exporters and other manufacturing hubs in east Asia are likely to see spillovers from this activity, although for Gulf oil exporters this will depend critically on the normalization of maritime trade (Figure 1.6). Similarly, the need for energy, core inputs, infrastructure, auxiliary services, and proprietary knowledge has concentrated the building of data centers and the training and running of AI models in just a few countries. China and the United States are responsible for more than 75 percent of the net imports of AI-related computing hardware in 2025 and 57 percent of newly built data centers since 2024.

In addition to highly concentrated short-term effects on demand, AI will also likely bring in supply effects, but it remains unclear when and by how much. There is a gap between studies showing large productivity gains for specific tasks and the relatively modest effects observed in economy-wide data (Imas 2026). Randomized and field experiments consistently find that generative AI improves performance in writing, coding, customer service, consulting, advertising, and health care. For example, customer support productivity is reported to increase by 14–15 percent, with gains of 30–35 percent for less experienced workers (Brynjolfsson, Li, and Raymond 2025), and software development output by 26 percent (Cui and others 2026). However, the micro-level evidence is not uniformly positive. Experienced open-source developers can become 19 percent slower when using AI (Becker and others 2025), and AI can impair learning and skill acquisition (Shen and Tamkin 2026). A jagged frontier featuring strong gains when tasks fit AI capabilities but worse outcomes when users rely too much on AI outside its competence range could reconcile the mixed findings (Dell'Acqua and others 2023). At the macro level, large surveys and administrative data show widespread adoption but limited effects on wages, hours worked, employment, or measured productivity (Humlum and Vestergaard 2026; Yotzov and others 2026). Yet recent revisions to US employment and activity data—downward revisions to total payroll growth with robust GDP growth—may be an early indication of an AI-driven boost showing up in macroeconomic statistics (Brynjolfsson 2026). It may be that adoption frictions, inadequate training, organizational bottlenecks, and investments in intangible capital delay the translation of task-level gains into aggregate productivity, in line with the idea of a "productivity J-curve" (Brynjolfsson, Rock, and Syverson 2021).

An Enabling Push

Financial markets have largely remained calm despite a succession of large negative shocks, from geopolitical conflict and energy disruptions to trade uncertainty and fiscal pressures. This resilience may partly reflect AI-related exuberance, but it could also point to markets' limited ability to price geopolitical tail risks (see Chapter 2 of the April 2025 *Global Financial Stability Report*) or to beliefs that policy support will cushion adverse outcomes. That said, fundamentals may have also played a role: Corporate earnings have been strong, and emerging markets have proved relatively resilient during recent shocks. Whatever the source, accommodative financial conditions have helped sustain activity in key jurisdictions, especially those benefiting from the technology cycle, with positive spillovers through investment, trade, wealth effects, and capital flows.

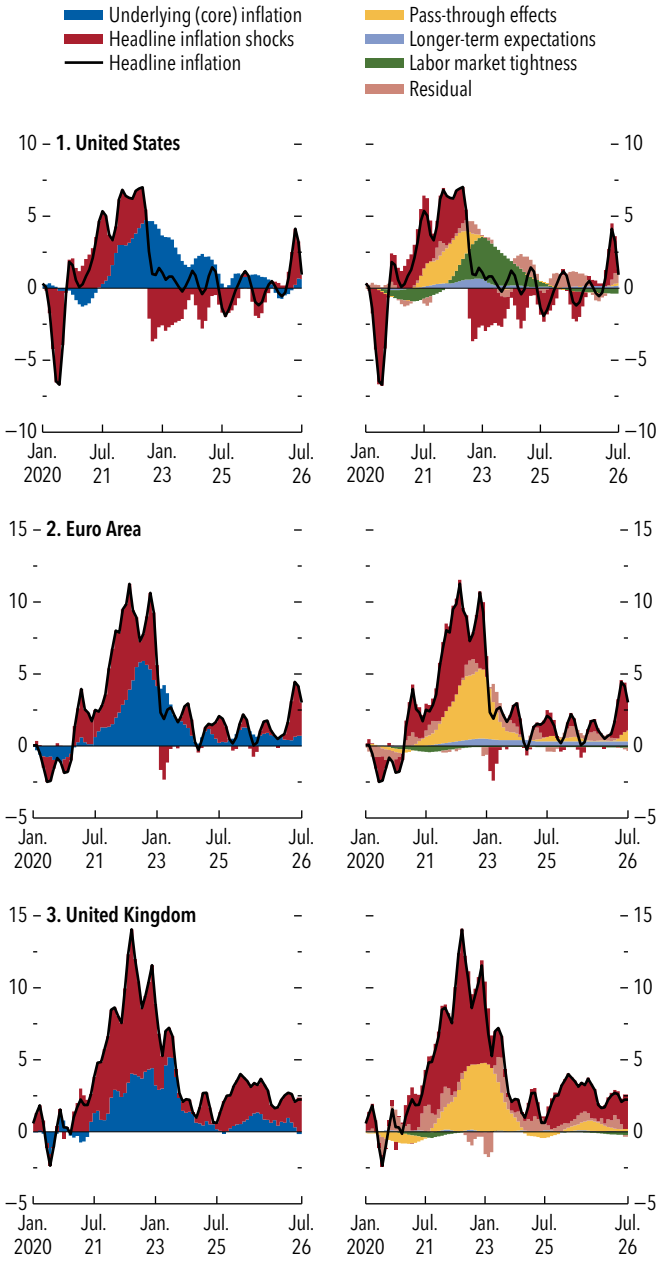
The Limits of Resilience

While supporting activity, the AI investment boom is contributing to inflationary pressures and financial fragility. This is a large, front-loaded demand shock exposing capacity constraints in several sectors at once. Spending on semiconductors, data centers, cloud infrastructure, electricity generation, grid connections, cooling systems, and specialized real estate raises demand for capital goods, construction services, land, energy, and skilled labor before any broad productivity gains have materialized. While spillovers to core inflation in major economies appear to be limited so far (Figure 1.7), in economies already operating near capacity, stronger demand can soon push up prices more broadly by, among other things, strengthening the pass-through effects from headline to core inflation. In the meantime, the rise in technology stocks has supported aggregate demand through wealth effects, but at the cost of more stretched equity valuations and greater market concentration, particularly among AI-related firms (April 2026 *Global Financial Stability Report*). The effects of favorable corporate valuations currently appear to outweigh those of higher interest rates, but sustainability of these conditions is not guaranteed.

The margins of adjustment are narrowing, and might have costs that will become apparent only with time. In energy markets, escalations in the Red Sea and the Black Sea threaten the margins provided by rerouting and non-Gulf production, as the depletion of global inventories continues, pushing inventories closer to stress levels that could lead to nonlinear price adjustments (see the Commodity Special Feature). Trouble in energy markets could also endanger the AI-led impetus, given the heavy energy needs of much of the infrastructure and operations (see the Commodity Special Feature in the April 2025 WEO). In goods trade, the reorientation of flows has mitigated the damage from higher trade barriers in the short term, but duplication and higher operating costs may reduce production efficiency in the long term.

More generally, the resilience of the global economy to the large shocks of the past few years has been closely linked to the use of fiscal space. Historical experience since the late 19th century shows that global public debt tends to rise following major shocks (Figure 1.8, panel 1). Consistent with this pattern, primary deficits during 2020–25 in the largest advanced and emerging market economies remained, on average, substantially larger than before the pandemic (Figure 1.8, panel 2). In most of these economies, with India an exception, stabilizing debt-to-GDP ratios at 2025 levels would require greater fiscal consolidation than currently envisaged under existing policies. At the same time, governments are finding it more challenging to refinance debt, with real long-term interest rates rising and

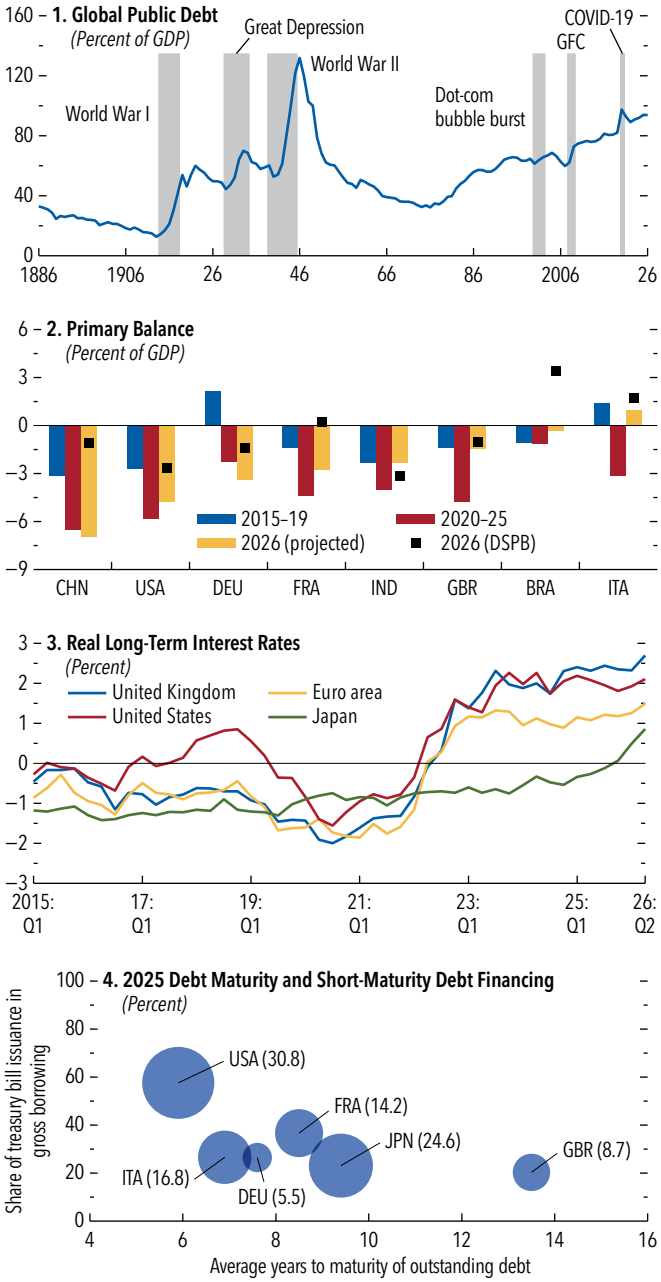
Figure 1.7. Decomposition of Inflation Drivers
(Percentage points; three-month annualized inflation; deviation from December 2019)



Source: IMF staff calculations.

Note: "Underlying (core) inflation" denotes weighted median inflation. "Headline inflation shocks" reflect large relative price changes across industries. "Pass-through effects" measure the transmission of those shocks to core inflation. "Labor market tightness" captures the contribution of the vacancy-to-unemployment ratio. Methodology is as in Dao and others (2024); and Ball, Leigh, and Mishra (2022).

Figure 1.8. Fiscal Policy



Sources: Consensus Economics; Eurostat; Organisation for Economic Co-operation and Development; and IMF staff calculations.

Note: In panel 1, global public debt is calculated as a purchasing-power-parity-GDP-weighted average of economy-level debt ratios. In panel 2, "debt-stabilizing primary balance" (DSPB) is the primary balance required to stabilize the debt-to-GDP ratio, given projected effective interest rates and GDP growth and with stock-flow adjustments accounted for. In panel 3, the real long-term interest rate is calculated as the nominal yield on 10-year government bonds minus 10-year-ahead expected inflation from Consensus Economics. Bubble sizes and labels in panel 4 indicate countries' refinancing requirements as a share of GDP. Data labels use International Organization for Standardization (ISO) codes. GFC = global financial crisis.

debt maturity shortening (Figure 1.8, panels 3 and 4). This further exposes governments to refinancing risks and fluctuations in short-term interest rates (see the April 2026 *Fiscal Monitor*), especially amid increasing pressures for spending, on defense, among other things (see Chapter 2 of the April 2026 WEO).

The Outlook: Divided amid Crosscurrents

Global economic prospects continue to be uneven, in both the short and the long term.

Global Assumptions

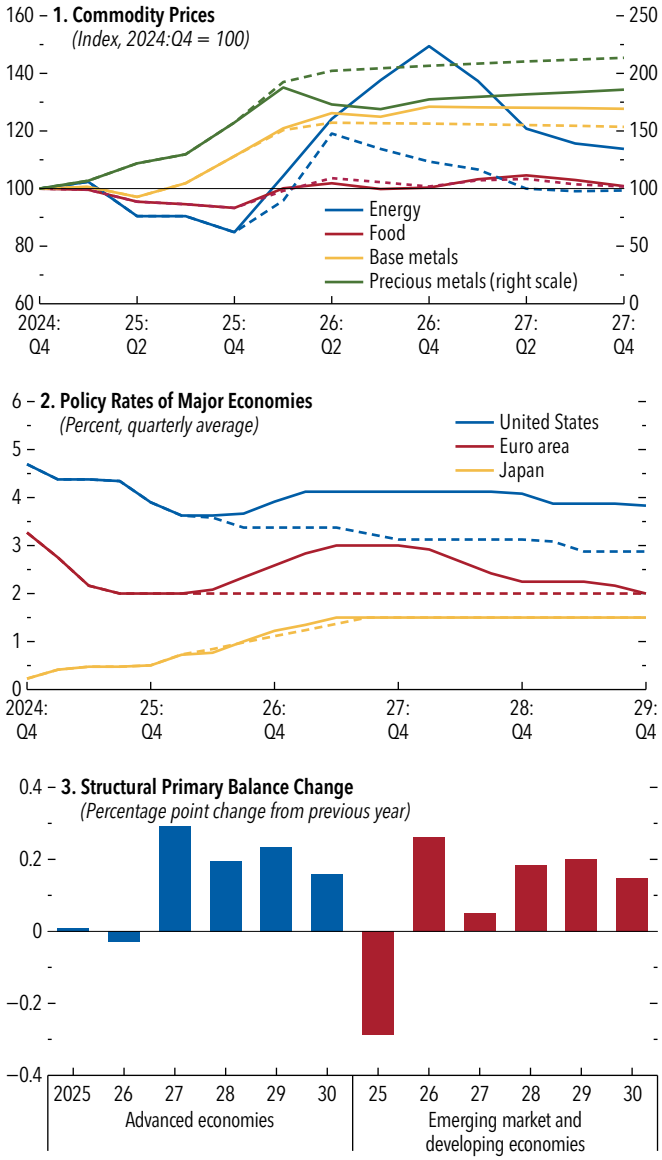
The baseline forecasts are predicated on several assumptions regarding the path of the Middle East war and the technology upturn, which are embedded in projections for global commodity prices, interest rates, and fiscal and trade policies (Figure 1.9).

The reopening of the Strait of Hormuz is assumed to resume in March 2027, with a return to prewar conditions broadly by October 2027. This assumption implies a gradual restoration of production, shipping, insurance, and payment arrangements rather than immediate normalization of energy flows. Severe shortages would generally be avoided through further inventory drawdowns, expanded use of alternative routes, and some additional supply from producers outside the conflict zone, but shortages are assumed to arise in some emerging market and developing economies that do not have stocks available and encounter strong competition from wealthier counterparts for available cargoes. Policy and geopolitical uncertainty are assumed to remain elevated through 2027.

Meanwhile, the AI-driven global technology cycle is assumed to moderate. Productivity growth is generally assumed to be steady and, in countries where it has seen a recent uptick, to converge gradually to approximately its long-term trend. There is no assumption of an additional exogenous boost to productivity growth from AI adoption over the forecast horizon.

- *Commodity price* projections are based on market pricing as of September 21, which is consistent with the assumed timeline for the war and with a futures curve that still embeds geopolitical risk premiums through the end of 2026 and into the first half of 2027. Energy prices are projected to remain higher than before the war. The average petroleum spot price index in 2026 is projected at $96 a barrel, 16 percent higher than assumed under the reference

Figure 1.9. Global Assumptions



Source: IMF staff calculations.

Note: In panels 1 and 2, solid lines denote assumptions from the October 2026 *World Economic Outlook* (WEO) and dashed lines those from the April 2026 WEO. In panel 3, year-over-year changes from the latest WEO are calculated by using general government structural primary balance as a percent of potential GDP. The "structural primary balance" is the cyclically adjusted balance excluding net interest payments and corrected for a broader range of noncyclical factors such as changes in asset and commodity prices.

forecast in the April 2026 WEO, and natural gas prices, measured using Title Transfer Facility futures, are projected at $20 a million British thermal units, or roughly 36 percent higher than the April reference forecast price. This corresponds to an increase of 41 percent in crude oil prices and 48 percent in natural gas prices in 2026 relative to those in 2025. Fertilizer prices are projected to rise by 10 percent in 2026. Reflecting higher energy and fertilizer costs and more expensive transport and insurance, food prices are expected to increase by 5 percent. Prices paid for commodities in different countries may deviate substantially from global benchmarks, depending on contract structures, fuel taxes and subsidies, shipping distances, access to inventories, sanctions, and the ability of governments and firms to secure long-term supply arrangements.

- *Monetary policy* is expected to be less supportive than assumed in April, given visible inflationary pressures combined with a muted slowdown in activity. Policy rates in the euro area and the United States are projected to increase in ex ante real terms, whereas the policy rate in Japan is expected to gradually move toward a neutral setting.
- *Fiscal policy* in advanced economies is expected to be broadly neutral in 2026 before tightening later. In emerging market and developing economies, fiscal policy is expected to tighten gradually. Public debt is projected to continue to climb: in advanced economies, from 108 percent of GDP in 2025 to 115 percent of GDP in 2031, and in emerging market and developing economies from 74 percent of GDP in 2025 to 84 percent of GDP in 2031.
- Current *trade policies* are assumed to be maintained through the forecast horizon, including measures presented as temporary. Both the effective US tariff rate underlying the forecast and the tariff rate imposed by the rest of the world on US imports are slightly higher than those in the April 2026 WEO. This reflects the expiring tariffs under Section 122 of the US Trade Act of 1974 being largely replaced by the introduction of new tariffs under Section 301 of that act and the introduction of additional tariffs between the United States and a few of its trading partners.

Growth Forecast

Global growth is projected to decelerate from 3.5 percent in 2025 to 3.1 percent in 2026 before recovering to 3.4 percent in 2027, unchanged from that in April for 2026 and revised upward by 0.2 percentage point for 2027 (Tables 1.1 and 1.2). But the stable aggregate masks large cross-country offsetting movements and a greater concentration of global growth: 32 economies now account for 95 percent of global growth, compared with 54 economies in April, while downward revisions have

Table 1.1. Overview of the *World Economic Outlook* Baseline

(Percent change, unless noted otherwise)

		Projections		Difference from July 2026 WEO *Update*[1]		Difference from April 2026 WEO[1]	
	2025	2026	2027	2026	2027	2026	2027
World Output	**3.5**	**3.1**	**3.4**	**0.1**	**0.0**	**0.0**	**0.2**
Advanced Economies	**2.0**	**2.1**	**1.8**	**0.4**	**0.0**	**0.3**	**0.1**
United States	2.3	2.3	2.3	0.0	0.1	0.0	0.2
Euro Area	1.2	1.1	1.2	0.2	0.0	0.0	0.0
Germany	0.2	1.3	1.1	0.6	0.1	0.5	–0.1
France	0.9	0.4	0.7	–0.2	–0.2	–0.5	–0.2
Italy[2]	0.5	0.8	0.6	0.3	0.1	0.3	0.1
Spain	2.6	2.5	1.8	0.4	0.0	0.4	0.0
Japan	1.2	0.7	0.7	0.1	0.0	0.0	0.1
United Kingdom	1.2	1.3	1.2	0.3	–0.1	0.5	–0.1
Canada	1.9	1.1	1.7	0.0	0.0	–0.4	–0.2
Other Advanced Economies[3]	3.1	4.2	2.7	1.4	0.4	1.6	0.5
Emerging Market and Developing Economies	**4.5**	**3.7**	**4.4**	**–0.1**	**–0.1**	**–0.2**	**0.2**
Emerging and Developing Asia	5.6	5.1	4.9	0.1	0.1	0.2	0.1
China	5.0	4.5	4.0	–0.1	–0.1	0.1	0.0
India[4]	7.8	7.0	7.0	0.6	0.3	0.5	0.5
Emerging and Developing Europe	2.0	1.7	2.1	–0.2	0.0	–0.3	0.0
Russia	1.0	0.9	0.9	–0.2	–0.2	–0.2	–0.2
Latin America and the Caribbean	2.5	2.3	2.5	–0.1	–0.2	0.0	–0.2
Brazil	2.3	2.2	1.9	–0.2	–0.3	0.3	–0.1
Mexico	0.5	1.5	1.8	0.3	–0.1	–0.1	–0.4
Middle East and Central Asia	3.7	–0.3	6.3	–1.0	–0.2	–2.2	1.7
Saudi Arabia	4.6	–3.3	7.9	–5.0	2.4	–6.4	3.4
Sub-Saharan Africa	4.5	4.5	4.5	0.2	0.0	0.2	0.1
Nigeria	4.0	4.2	4.3	0.1	0.0	0.1	0.0
South Africa	1.1	1.0	1.3	–0.1	0.0	0.0	0.0
Memorandum							
World Growth Based on Market Exchange Rates	2.9	2.5	2.8	0.1	0.0	–0.1	0.2
European Union	1.5	1.4	1.4	0.2	0.0	0.1	0.0
ASEAN-5[5]	4.5	4.4	4.3	0.3	0.0	0.3	–0.1
Middle East and North Africa	3.3	–2.0	7.0	–1.5	–0.3	–3.1	2.2
Emerging Market and Middle-Income Economies	4.5	3.6	4.4	–0.1	0.0	–0.2	0.3
Low-Income Developing Countries	4.8	4.8	4.8	0.0	–0.1	0.0	–0.1
World Trade Volume (goods and services)	**5.0**	**4.6**	**4.7**	**1.1**	**0.4**	**1.8**	**0.9**
Imports							
Advanced Economies	4.7	5.0	4.2	1.5	0.8	2.4	1.1
Emerging Market and Developing Economies	5.4	4.0	5.1	0.4	–0.2	1.3	0.2
Exports							
Advanced Economies	3.6	5.1	3.7	1.8	0.5	2.6	1.0
Emerging Market and Developing Economies	7.1	3.6	6.6	0.0	0.2	0.1	1.2
Commodity Prices							
Oil[6]	–14.4	41.3	–8.7	9.5	3.1	19.9	–1.1
Nonfuel (average based on world commodity import weights)	9.9	17.3	2.6	–1.3	1.3	–4.4	0.7
World Consumer Prices[7]	**4.1**	**4.7**	**4.1**	**0.0**	**0.2**	**0.3**	**0.4**
Advanced Economies[8]	2.5	3.1	2.7	0.1	0.3	0.3	0.5
Emerging Market and Developing Economies[7]	5.2	5.7	5.1	–0.1	0.3	0.2	0.5

Source: IMF staff estimates.

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing from July 31, 2026, to August 28, 2026. Economies are listed on the basis of economic size. The aggregated quarterly data are seasonally adjusted. WEO = *World Economic Outlook*.

[1] Difference based on rounded figures for the current, July 2026 WEO *Update*, and April 2026 WEO forecasts.

[2] See the country-specific note for Italy in the "Country Notes" section of the Online Statistical Appendix.

[3] Excludes the Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries.

[4] For India, data and projections are presented on a fiscal year (FY) basis, with FY 2025/26 (starting in April 2025) shown in the 2025 column. India's growth projections are 7.4 percent for 2026 and 7.0 percent for 2027 on a calendar year basis.

[5] Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

[6] Simple average of prices of UK Brent, Dubai Fateh, and West Texas Intermediate crude oil. The average price of oil in US dollars a barrel was $67.74 in 2025; the assumed price, based on futures markets, is $95.74 in 2026 and $87.39 in 2027.

[7] Excludes Venezuela. See the country-specific note for Venezuela in the "Country Notes" section of the Online Statistical Appendix.

[8] The assumed inflation rates for 2026 and 2027, respectively, are as follows: 3.1 percent and 2.8 percent for the euro area, 2.0 percent and 2.6 percent for Japan, and 3.6 percent and 2.8 percent for the United States.

Table 1.1. Overview of the *World Economic Outlook* Baseline *(continued)*
(Percent change, unless noted otherwise)

	Q4 over Q4[9]						
		Projections		Difference from July 2026 WEO *Update*[1]		Difference from April 2026 WEO[1]	
	2025	2026	2027	2026	2027	2026	2027
World Output	**3.4**	**3.1**	**3.3**	**0.2**	**–0.1**	**0.2**	**–0.2**
Advanced Economies	**1.9**	**2.0**	**1.9**	**0.4**	**0.0**	**0.5**	**0.0**
United States	2.0	2.5	2.1	0.2	0.0	0.3	0.0
Euro Area	1.1	1.4	1.2	0.4	–0.3	0.2	–0.3
Germany	0.3	1.3	0.8	0.8	–0.4	0.6	–0.5
France	1.1	0.1	0.9	–0.3	–0.1	–0.5	–0.1
Italy[2]	0.9	0.5	0.9	0.4	–0.1	0.7	–0.9
Spain	2.5	2.2	1.7	0.7	–0.5	0.6	–0.5
Japan	0.5	1.0	0.9	–0.1	0.1	0.0	0.2
United Kingdom	0.8	1.4	1.5	0.5	–0.6	0.4	–0.4
Canada	0.7	2.1	1.2	0.0	0.2	–0.2	–0.3
Other Advanced Economies[3]	4.3	2.8	3.2	1.2	0.5	1.3	0.7
Emerging Market and Developing Economies	**4.6**	**3.9**	**4.3**	**0.0**	**–0.2**	**–0.1**	**–0.3**
Emerging and Developing Asia	5.7	5.0	4.8	0.5	–0.6	0.3	–0.3
China	4.6	4.3	4.0	0.3	–0.9	0.4	–0.6
India[4]	8.6	6.9	7.1	1.1	0.3	–0.2	0.6
Emerging and Developing Europe	1.7	1.8	2.6	–0.5	0.7	0.0	0.4
Russia	0.7	0.9	0.7	–1.0	0.6	0.3	0.1
Latin America and the Caribbean	2.2	2.2	2.5	–0.8	0.3	–0.7	0.2
Brazil	2.0	2.3	2.4	–0.6	0.3	–0.3	0.5
Mexico	1.6	1.5	1.8	0.0	0.1	0.0	–0.6
Middle East and Central Asia	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Saudi Arabia	5.2	–6.2	9.1	–8.0	3.5	–9.3	4.6
Sub-Saharan Africa	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nigeria	3.9	4.2	4.4	0.4	–0.1	0.4	–0.1
South Africa	1.5	0.6	2.2	0.1	0.2	–0.1	0.7
Memorandum							
World Growth Based on Market Exchange Rates	2.7	2.6	2.7	0.1	0.0	0.2	0.0
European Union	1.3	1.4	1.5	0.2	–0.1	0.3	–0.3
ASEAN-5[5]	4.7	4.1	4.3	0.6	–0.6	0.4	–0.4
Middle East and North Africa	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Emerging Market and Middle-Income Economies	4.6	3.9	4.3	0.0	–0.2	0.0	0.0
Low-Income Developing Countries	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Commodity Prices							
Oil[6]	–15.1	73.9	–24.6	35.4	–13.4	44.7	–17.9
Nonfuel (average based on world commodity import weights)	14.4	10.6	1.6	–0.2	0.3	–4.0	0.5
World Consumer Prices[7]	**3.5**	**4.4**	**3.1**	**0.1**	**0.2**	**0.5**	**0.1**
Advanced Economies[8]	2.5	3.6	2.1	0.3	0.1	0.7	0.1
Emerging Market and Developing Economies[7]	4.2	5.1	3.8	0.0	0.2	0.5	0.1

[9] For world output, the quarterly estimates and projections account for approximately 90 percent of annual world output at purchasing-power-parity weights. For emerging market and developing economies, the quarterly estimates and projections account for approximately 85 percent of annual emerging market and developing economies' output at purchasing-power-parity weights.

become more widespread, with about 47 percent of economies downgraded. The global economy is not simply slowing or accelerating; rather, growth is being reallocated across countries according to their exposure to the war-induced supply shock and AI-related demand strength.

Growth Forecast for Advanced Economies

Growth in *advanced economies* is expected to slightly rise from 2.0 percent in 2025 to 2.1 percent in 2026 before decelerating to 1.8 percent in 2027. Outcomes remain uneven within the group: Net energy exporters are partly cushioned by favorable terms-of-trade effects, whereas net energy importers experience a more pronounced drag from higher energy prices unless their economies are lifted by technology-related activity.

- In the *United States*, growth is projected at 2.3 percent in 2026 and in 2027, unchanged from April for 2026 and an upward revision of 0.2 percentage point for 2027. Activity is supported by robust private consumption, fiscal policy,

Table 1.2. Overview of the *World Economic Outlook* Baseline at Market Exchange Rate Weights
(Percent change)

		Projections		Difference from July 2026 WEO *Update*[1]		Difference from April 2026 WEO[1]	
	2025	2026	2027	2026	2027	2026	2027
World Output	**2.9**	**2.5**	**2.8**	**0.1**	**0.0**	**–0.1**	**0.2**
Advanced Economies	**1.9**	**2.0**	**1.9**	**0.3**	**0.1**	**0.2**	**0.2**
Emerging Market and Developing Economies	**4.3**	**3.3**	**4.2**	**–0.1**	**–0.1**	**–0.4**	**0.3**
Emerging and Developing Asia	5.3	4.8	4.5	0.0	0.0	0.1	0.0
Emerging and Developing Europe	2.1	1.8	2.2	–0.1	0.0	–0.3	0.0
Latin America and the Caribbean	2.3	2.2	2.4	–0.1	–0.2	–0.1	–0.2
Middle East and Central Asia	3.8	–2.2	7.2	–1.4	–0.5	–3.8	2.4
Sub-Saharan Africa	4.5	4.4	4.3	0.3	0.1	0.3	0.1
Memorandum							
European Union	1.4	1.3	1.4	0.2	0.1	0.0	0.0
Middle East and North Africa	3.6	–3.8	8.0	–1.7	–0.7	–4.8	3.1
Emerging Market and Middle-Income Economies	4.3	3.2	4.1	–0.2	–0.1	–0.4	0.2
Low-Income Developing Countries	4.9	4.8	4.8	0.0	–0.1	0.0	–0.1

Source: IMF staff estimates.

Note: The aggregate growth rates are calculated as a weighted average, in which a moving average of nominal GDP in US dollars for the preceding three years is used as the weight. WEO = *World Economic Outlook*.

[1] Difference based on rounded figures for the current, July 2026 WEO *Update*, and April 2026 WEO forecasts.

accommodative financial conditions, and continued technology-related business investment (net of its large import content) and productivity strength, with only limited direct impact from the war given the country's net energy exporter status.

- In the *euro area*, growth is projected at 1.1 percent in 2026 and 1.2 percent in 2027. The forecast is unchanged from the April WEO for both years, reflecting the continued drag from higher energy prices and weak consumer confidence.
- In the *United Kingdom*, growth is projected to remain stable at 1.3 percent in 2026, a 0.5 percentage point upward revision from the April WEO, and to edge down to 1.2 percent in 2027 as higher energy prices and long-term interest rates weigh on consumption and investment. Growth in *Japan* is projected to slow to 0.7 percent in 2026, with fiscal support measures partly cushioning the impact from higher energy prices, and to stabilize at that level in 2027 as the energy shock dissipates and monetary policy gradually normalizes. In *Korea*, growth is expected to increase to 3.3 percent in 2026 and 2.8 percent in 2027, buoyed by strong external demand for semiconductors, which supersedes the negative impact of the war. In *Canada*, growth is expected to ease to 1.1 percent in 2026 and rise to 1.7 percent in 2027, with supportive policies and positive terms-of-trade effects partly offsetting weaker momentum and elevated trade uncertainty.

Growth Forecast for Emerging Market and Developing Economies

In *emerging market and developing economies*, growth is projected to slow from 4.5 percent in 2025 to 3.7 percent in 2026 before recovering to 4.4 percent in 2027. The outlook is heterogeneous, reflecting differences in commodity dependence, geographic exposure to the Middle East conflict, remittances and tourism receipts, financial conditions, policy frameworks, and position in the global technology value chain. Those directly impacted by the war drive the V-shaped pattern, whereas other regions are expected to follow a more even growth path.

- Growth in *emerging and developing Asia* is expected to slow down a notch. *China*'s 2026 growth is projected to slow to 4.5 percent, as higher global oil prices, together with protracted uncertainty and structural headwinds, are expected to weigh on activity. Policy support is expected to prevent a sharper slowdown. *India* remains among the fastest-growing major economies, with growth in 2026 projected at 7.0 percent. This reflects stronger-than-expected momentum, supported by resilient domestic demand and robust services activity. Several southeast Asian economies are projected to benefit from data center activity and the upturn in the global technology cycle and in some cases from emergency fiscal measures. By contrast, small island developing states are expected to experience

slower growth because of higher energy costs as well as weaker tourism and remittances.

- In the *Middle East and Central Asia*, growth is projected to drop to –0.3 percent in 2026 before rebounding to 6.3 percent in 2027. Relative to the April projection, this is a downward revision of 2.2 percentage points for 2026 and an upward revision of 1.7 percentage points for 2027, consistent with a longer closure of the Strait of Hormuz, compared with the baseline assumptions in the April WEO, and a corresponding larger rebound after the Strait reopens. *Bahrain*, *Iraq*, *Kuwait*, and *Qatar*—commodity producers most affected by disruptions to energy output and transport—are projected to experience double-digit contractions of their economies in 2026, followed by double-digit expansions in 2027 as production, exports, and logistics normalize. *Saudi Arabia* is somewhat less affected, as an economy with more diversified export routes, with a projected contraction of 3.3 percent in 2026 and growth of 7.9 percent in 2027. Growth in *Iran* in 2026 is revised downward amid resumed military exchanges, the reimposition of the naval blockade, and enhanced sanctions. Commodity importers in the Middle East and North Africa are expected to remain relatively resilient to the negative terms-of-trade shock from higher energy and food prices, while countries in the Caucasus and Central Asia continue to experience favorable growth tailwinds from commodity prices, remittances, and reform momentum.
- Growth in *sub-Saharan Africa* is expected to remain stable at 4.5 percent in 2026, though this masks substantial divergence across countries, reflecting differences in policy space, reform implementation, commodity exposure, climate shocks, and access to external financing. Oil-importing, non-resource-intensive economies are more adversely affected by higher energy and food prices, whereas some larger economies continue to benefit from earlier stabilization and reform efforts, even though they are largely absent from the AI-driven global technology upswing and face headwinds from declines in official development assistance. *Nigeria* is supported by improved macroeconomic stability and favorable terms-of-trade effects, though higher prices for essentials are expected to further aggravate poverty and food insecurity. *South Africa*'s growth outlook is expected to remain stable in the near term and improve gradually over the medium term, underpinned by strengthened policy frameworks and ongoing structural reforms. Growth in the rest of the region is expected to slow from 5.6 percent in 2025 to 5.5 percent in 2026 and 5.3 percent in 2027.
- In *Latin America and the Caribbean*, growth is projected to edge down to 2.3 percent in 2026 and to pick up modestly to 2.5 percent in 2027. Across the region, the macroeconomic implication of the energy shock reflects the balance between gains for commodity exporters and losses for energy importers, as well as the credibility of inflation-targeting frameworks, whereas there is little offset from the technology upturn in most countries. Growth in *Brazil* is expected to slow somewhat from 2.2 percent in 2026 to 1.9 percent in 2027, reflecting still-restrictive monetary conditions aimed at returning inflation to target, withdrawal of fiscal policy support, and global uncertainty. In *Mexico*, growth is projected to accelerate modestly from 1.5 percent in 2026 to 1.8 percent in 2027 amid continued support from exports, including through AI value chains, and stabilizing investment, but trade and other uncertainties will continue to constrain activity.
- In *emerging and developing Europe*, growth is expected to slow from 2.0 percent in 2025 to 1.7 percent in 2026 and recover to 2.1 percent in 2027. The regional outlook is shaped by the interaction of higher energy costs, continuing security-related uncertainty, tighter financing conditions, and the reorientation of trade and investment patterns. Higher commodity prices provide some support to activity in *Russia* despite lower overall oil exports due to damage to oil infrastructure, whereas the prospects for energy-intensive economies and those that depend on fossil fuel imports are weaker, although the weakness is partly offset by tailwinds from increased defense spending.

Inflation Forecast

Global inflation is expected to pause its steady decline, primarily because of the war-induced negative supply shock. Headline inflation is projected to rise from 4.1 percent in 2025 to 4.7 percent in 2026 before easing to 4.1 percent in 2027, with the increase for 2026 driven mainly by higher energy and food prices. The forecast is unchanged for 2026 from that in the July WEO *Update*, but it is revised upward by

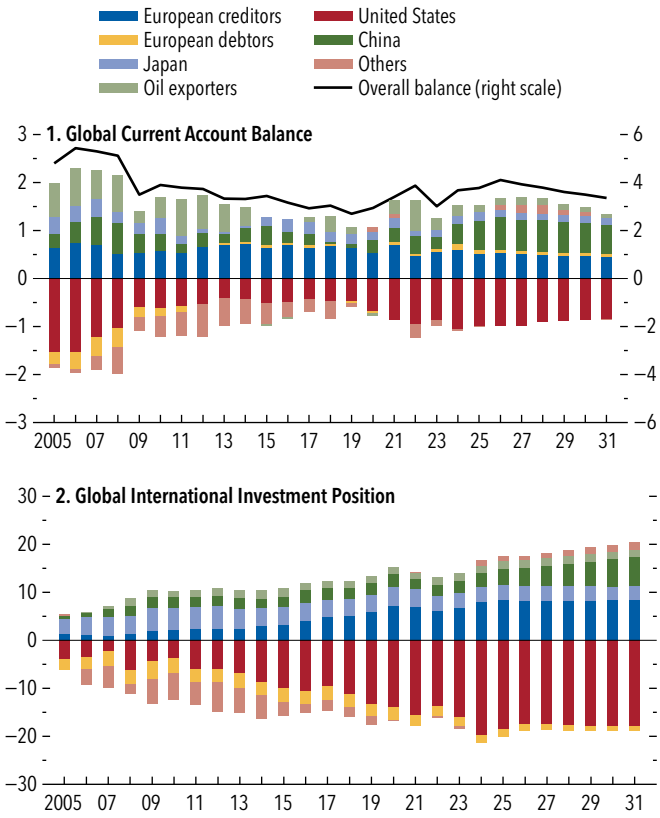
0.2 percentage point for 2027. The revision compared with that in the April 2026 WEO is a cumulative 0.7 percentage point. Inflation dynamics are expected to remain uneven across countries, reflecting differences in exchange rate pass-through, the persistence of services price inflation, labor market conditions, policy credibility, and administered price systems. Core inflation is expected to return to 2 percent only gradually in several major economies: by the end of 2027 in Japan and the United Kingdom and by mid-2028 in the euro area and the United States. Inflation in China is expected to rise from low levels.

World Trade Outlook and Global Imbalances

World trade volume growth is projected to slow from 5.0 percent in 2025 to 4.6 percent in 2026 and stabilize at 4.7 percent in 2027. These dynamics reflect the drag from tariffs alongside the gradual adjustment of trade linkages and production chains through trade reconfiguration and substitution of suppliers, as well as brisk growth in technology-related trade flows.

Global imbalances are projected to decline only modestly over the medium term (Figure 1.10). This limited narrowing might not materialize and, in recent years, the WEO forecasts for global current account balances have tended to exhibit a downward bias. Global current account balances increased further in 2025 to about 3.8 percent of world GDP, continuing the upward trend observed since the pandemic and reversing the decline following the global financial crisis (see the 2026 *External Sector Report*). The widening was driven primarily by a sharp increase in China's surplus, which increased to about 0.6 percent of world GDP (3.7 percent of China's GDP), alongside larger surpluses in several Asian economies, whereas the euro area surplus narrowed and oil exporters' surpluses declined. At the same time, the United States remained the world's largest deficit economy, with a current account deficit of about 1.0 percent of world GDP. Early 2026 trade data indicate that global imbalances are expected to increase slightly this year and are projected to remain elevated in 2027, with further increases in trade surpluses in China and other Asian exporters and weaker balances in the United States and the euro area. Persistent domestic saving-investment distortions in major economies continue to shape global imbalances. Expansionary fiscal policy in some economies with current account surpluses is expected to contribute to the projected cyclical decline. Partly offsetting this is

Figure 1.10. Current Account and International Investment Positions
(Percent of global GDP)

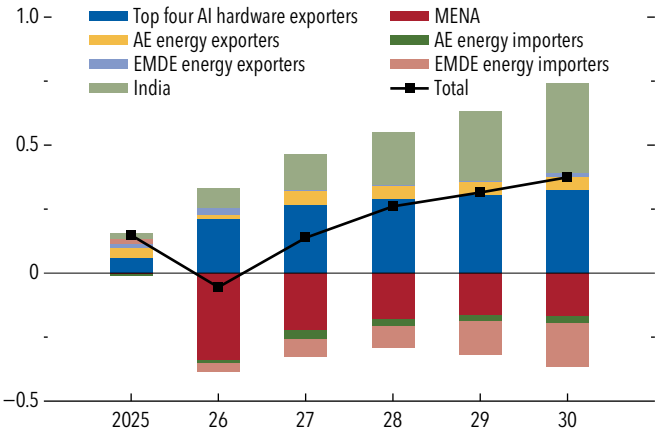


Source: IMF staff calculations.

Note: "European creditors" are Austria, Belgium, Denmark, Finland, Germany, Italy, Luxembourg, The Netherlands, Norway, Slovenia, Sweden, and Switzerland. "European debtors" are Cyprus, Greece, Ireland, Portugal, and Spain. "Oil exporters" are Algeria, Azerbaijan, Iran, Kazakhstan, Kuwait, Nigeria, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, and Venezuela. Overall balance is the sum of absolute values of current account surpluses and deficits.

the surge in technology-driven business investment, which, even as it moderates, is expected to keep attracting capital to the United States and sustain large trade surpluses in several Asian economies. Stronger productivity growth in the United States could enhance US competitiveness in technology-related services and improve the country's trade balance. But positive wealth effects would boost domestic demand, complement capital inflows driven by higher returns, and keep the US current account deficit wider than that observed in the decade preceding the COVID-19 pandemic. Sustained large fiscal deficits in the United States and limited rebalancing to domestic consumption in China contribute to external imbalances in these two countries, which together account for about 40 percent of global current account balances.

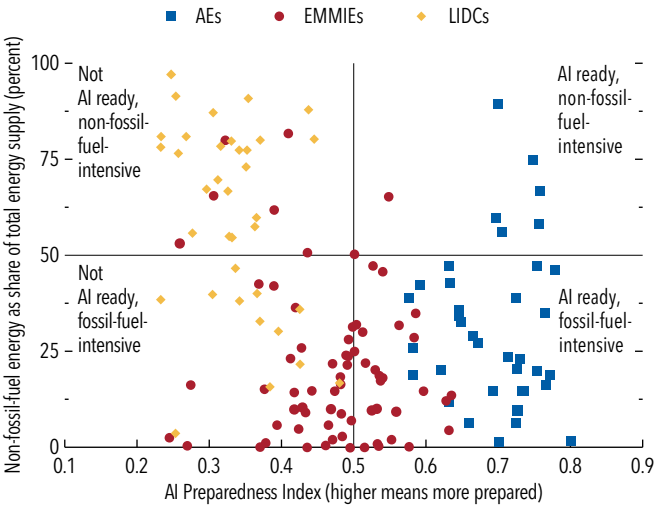
Figure 1.11. Medium-Term Scarring
(Percentage point deviation from cumulative growth in January 2026 WEO Update)



Source: IMF staff calculations.

Note: Bars show revisions to cumulative GDP growth between the January 2026 WEO *Update* and the October 2026 WEO. Economies are defined as energy exporters or importers based on 2024 oil, natural gas, and coal trade data. The "top four AI hardware exporters" are defined by their net exports of AI hardware as a share of GDP, and they are KOR, MYS, THA, and TWN. "EMDE energy exporters" exclude MENA, and "EMDE energy importers" exclude India. HKG and SGP are excluded. The economy list is based on International Organization for Standardization (ISO) codes. AE = advanced economy; AI = artificial intelligence; EMDE = emerging market and developing economy; MENA = Middle East and North Africa; WEO = *World Economic Outlook*.

Figure 1.12. AI Preparedness versus Energy Mix



Sources: International Energy Agency; and IMF staff calculations.

Note: The figure plots countries according to the IMF AI Preparedness Index and non-fossil-fuel energy as a share of total energy supply in 2024. Non-fossil-fuel energy includes renewable and nuclear sources. AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

Medium-Term Outlook

Global output is projected to expand at an average annual pace of 3.2 percent in 2028–31, a persistently lackluster performance compared with the prepandemic (2000–19) historical average of 3.7 percent. Relative to that in January 2026, the medium-term outlook has become increasingly uneven, with downgrades concentrated among economies directly affected by the conflict in the Middle East and energy-importing emerging market and developing economies elsewhere, excluding India (Figure 1.11). India stands out with upward revisions, reflecting sustained momentum and growing evidence of stronger growth potential supported by favorable demographic dynamics, a large and expanding domestic market, and continued structural reforms.

As geopolitics and technology reshape the global economy, how well prepared each country is to adapt to the changes will determine its medium-term potential. Readiness to adopt AI and to reliably meet energy needs will be crucial. Countries that rely more heavily on fossil fuels for energy generation are more exposed to geopolitical shocks. Given their gaps along both dimensions, the world's poorest countries are likely to see their productivity and growth momentum decelerate and the gap in their per capita incomes relative to those in advanced economies widen (Figure 1.12).

Risks: Narrower Margins, Larger Stakes

As in April, risks to the outlook are tilted to the downside (see Box 1.2).

Downside Risks

Persistent conflicts, cyber threats, and extreme weather events. A prolonged stalemate or further escalation in the Middle East or Ukraine could make commodity prices higher and more volatile for longer, exacerbating inflationary pressures and raising term premiums (see the downside scenario on commodity and bond markets in Box 1.2). Energy markets are highly sensitive to further disruptions in major transit routes and supply chains generated by developments in the conflict regions. Moreover, the backwardation observed in oil markets—a situation in which the spot price is higher than prices for future deliveries—still suggests that markets continue to treat the supply disruptions as largely temporary. If tensions were to go on, expectations could shift toward the shock being more persistent, driving up prices not only for

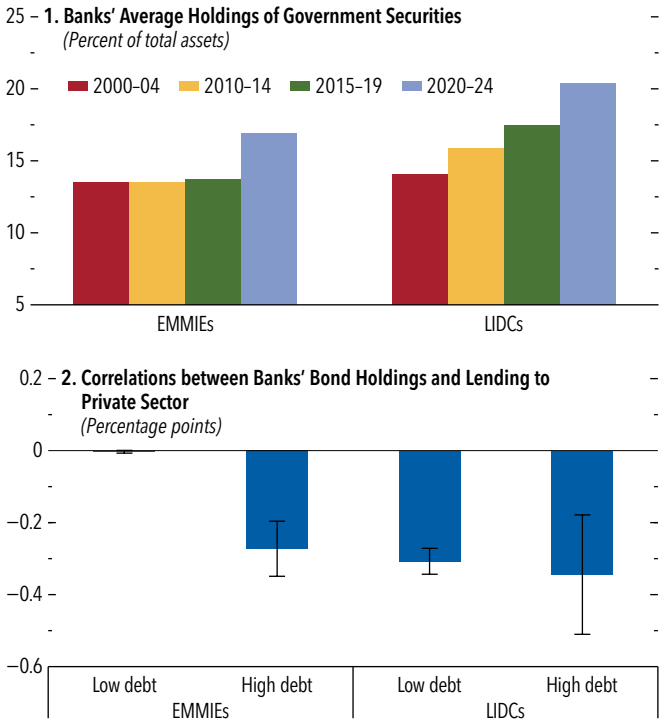
near-term delivery, but also further along the futures curve, unless planned adjustments for the longer term—such as building of new routes and activation of new supply—help ease concerns. At the same time, natural gas inventories remain below seasonal norms in parts of Europe, leaving gas market conditions vulnerable to adverse weather ahead of the winter heating season. Ongoing conflicts could also increase the risk of cyberattacks, with potential disruptions to critical infrastructure and financial services owing to digitalization, reliance on common technology providers, and the growing sophistication of cyberthreats, including those facilitated by AI models (Chapter 3 of the April 2024 *Global Financial Stability Report*). Moreover, extreme weather events—including flooding, prolonged drought, and water stress exacerbated by the ongoing El Niño episode—might further undermine commodity markets, compound the impact of elevated fertilizer prices, and disrupt other climate-sensitive sectors, such as transportation. Past episodes have shown that El Niño events typically put upward pressure on food and commodity prices while weighing on activity, especially in economies in which food represents a significant share of consumers' basket, including low-income countries (Cashin, Mohaddes, and Raissi 2017).

These risks would be particularly challenging for energy-importing countries and especially emerging market and developing economies with limited fiscal space and external buffers. Persistently higher commodity prices could widen current account deficits, increase external financing needs, and intensify exchange rate pressures. At the same time, higher inflation could require tighter monetary policy and add a drag to growth. Higher energy and food prices could have severe effects on poverty and food security and heighten the risk of social unrest and political instability, especially in the most vulnerable economies (see Chapter 1 of the April 2026 *Regional Economic Outlook: Sub-Saharan Africa*).

Reassessment of AI-related expectations. If expectations of AI-driven profitability and productivity gains prove overly optimistic, investment in AI-related infrastructure and technology could slow sharply. Investment could also slow should technology companies deliberately slow their pace in response to safety concerns or capacity constraints, including in energy markets (see scenario B in Box 1.2). Equity markets, particularly those with high concentrations of AI-related firms, could be vulnerable to a broad repricing, as illustrated by recent bouts of volatility in technology-related equities in some jurisdictions, including Korea and the United States, and its repercussions (see scenario C in Box 1.2 and the October 2026 *Global Financial Stability Report*). Spillovers could propagate through lower global demand for technology-related goods and services, reduced capital flows to economies integrated into the AI value chain, and losses on cross-border portfolio holdings. Risks could also arise from self-reinforcing circular financing arrangements and increased leverage within the AI ecosystem.

Financial market stress and fiscal vulnerabilities. A broad repricing of financial assets, driven by a reversal of the recent benign attitude in markets rather than triggered by particular news related to the war or AI, could test firms' resilience and weigh on household consumption through negative wealth effects. Market stress could lead to a flight to safety and affect particularly emerging market economies through wider sovereign spreads, exchange rate pressures, and tighter domestic financial conditions (Ahmed 2023). These effects could interact with already-elevated fiscal vulnerabilities. With long-term government borrowing costs on the rise in major advanced economies, elevated public debt and large refinancing needs leave sovereigns increasingly exposed to such abrupt changes in financial conditions. More persistent inflation and monetary policy remaining restrictive for longer than currently expected could further increase debt-service costs, crowd out other critical spending, constrain fiscal policy's ability to respond to future shocks, and place upward pressure on global interest rates. Higher long-term borrowing costs in major economies could themselves weigh on growth in those economies and, in turn, spill over to financing conditions elsewhere. In low-income countries, these challenges could be compounded by declining official development assistance, leaving fewer resources to cushion shocks and finance development needs. Financial vulnerabilities could also intensify through the sovereign-bank nexus, particularly in economies with limited fiscal space and high reliance on domestic banks (see Chui and Gambacorta 2026; Wezel, Barrail, and Dehmej 2026; and the April 2026 *Global Financial Stability Report*). The average bank's holdings of government bonds relative to total assets have increased significantly since the early 2000s: by about 25 percent in emerging market economies and 45 percent in low-income countries (Figure 1.13, panel 1). Bank-level evidence suggests that greater

Figure 1.13. Sovereign-Bank Nexus in Emerging Market and Developing Economies



Sources: Fitch Connect; and IMF staff calculations.

Note: In panel 2, the figure reports coefficients from bank-level regressions of the bond-holdings-to-assets ratio on the loans-to-assets ratio. Regressions control for a set of bank- and country-level variables, as well as country, year, and bank fixed effects. High- and low-debt countries are defined based on whether government debt to GDP is above or below the 75th percentile of the sample distribution within each country group. Bars denote point estimates; whiskers denote 90 percent confidence intervals. EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

holdings of government securities are correlated with lower lending to the private sector, with the effect particularly pronounced in high-debt emerging market economies and low-income countries (Figure 1.13, panel 2). Such potential crowding out of private credit could further weaken domestic investment, reduce growth prospects, and reinforce adverse feedback loops among fiscal vulnerabilities, domestic financial systems, and private investment.

Renewed trade tensions. Trade tensions could reignite, particularly if they become increasingly intertwined with ongoing conflicts or if trade reallocation and rerouting become more disruptive. Prolonged disruptions to energy markets and strategic supply chains or unbalanced trade could prompt more countries to adopt protectionist measures in an effort to safeguard domestic supply, weighing on global activity. Additional tariffs and nontariff barriers introduced in response to shifting trade patterns or widening external imbalances would further dampen global growth, whereas restrictions affecting upstream industries—including energy, critical minerals, and other key production inputs—could amplify supply bottlenecks and inflationary pressures. These effects would be compounded if such measures triggered retaliatory trade actions.

Upside Risks

Continued momentum in the technology cycle and faster productivity gains from AI. The baseline forecast assumes that the current AI-driven technology cycle gradually moderates. However, the surge in AI-related investment and demand could prove more persistent than expected, sustaining global activity for longer. Continued investment in AI hardware and infrastructure could further boost external demand in economies integrated into the AI value chain, and increasing equity valuations could continue to support private consumption. A greater-than-expected AI build-out could increase world GDP by 0.6 percent by 2029, with larger effects in the United States and Asia (see scenario A in Box 1.2). The baseline also assumes no exogenous acceleration in productivity growth from AI, reflecting still-limited adoption across many sectors (see the April 2026 WEO). Faster diffusion of AI technologies, together with complementary investments in digital infrastructure and intangible capital, could generate larger productivity gains than those currently embedded in the forecast, increasing global growth by as much as 0.3 percentage point in the near term and by 0.1–0.8 percentage point over the medium term (see Box 1.3 of the October 2025 WEO). Such gains would be largest in economies with the capacity to facilitate AI adoption through complementary investments in energy infrastructure, digital connectivity, workforce skills, and the supply of critical intermediate inputs. In the United States, for example, stronger productivity growth could help sustain the elevated pace of labor productivity observed in recent years, providing an additional boost to domestic activity.

Reconfiguration of the international trading system. Tangible progress in trade arrangements could reduce trade costs, improve policy predictability, make trading relationships more sustainable, and support global activity. In this context, efforts to negotiate or deepen

new regional and bilateral trade agreements—such as the EU's recent trade agreements with India and MERCOSUR (the Southern Common Market) or the United Kingdom's agreement with India—could lower tariffs and nontariff barriers on traded goods and services among participating economies, facilitate adjustments to recent trade policy changes, and strengthen supply-chain resilience. The gains to global activity could be larger if such agreements cover services trade more extensively, foreign direct investment, and international taxation. Over time, the benefits of deeper economic integration among economies could encourage broader participation from other countries and further contribute to a more stable and predictable international trading system.

More resilient energy supply chains and an accelerated energy transition. Geopolitical tensions in the Middle East could accelerate efforts to diversify global energy supply routes away from traditional transit choke points. Increased investment in new pipelines, transport infrastructure, and alternative export corridors could provide a near-term boost to activity in economies undertaking these investments while strengthening the resilience of global energy markets to isolated shocks over the medium term. At the same time, higher and more volatile fossil fuel prices could further incentivize investment in renewable energy production, storage, and efficiency. Such investments would not only support short-term activity but also reduce vulnerability to future disruptions. That said, the benefits might not be even across countries: Under plausible global energy transition scenarios, high-cost coal exporters face early losses and low-cost producers potentially gain market share, while new growth opportunities emerge for countries with critical mineral endowments and green energy potential (Spray, Thube, and Zhang 2026).

Policies: Agility under Constraint

Policymakers are facing the same major forces but with different consequences. For a majority of countries, the war in the Middle East is acting mainly as an adverse supply shock, raising costs while weighing on confidence. For some, however, it is a positive terms-of-trade shock, lifting national real income and generating fiscal windfalls. At the same time, the AI-driven technology upturn is supporting investment, exports, and asset prices in economies connected to the global technology value chain, but it is also adding to demand pressures and increasing concentration and repricing risks in financial markets. In economies outside the chain, the short-term lift in activity may be absent, while the possibility of fallout from a potential market correction and of falling behind in an AI-driven global economy is still present.

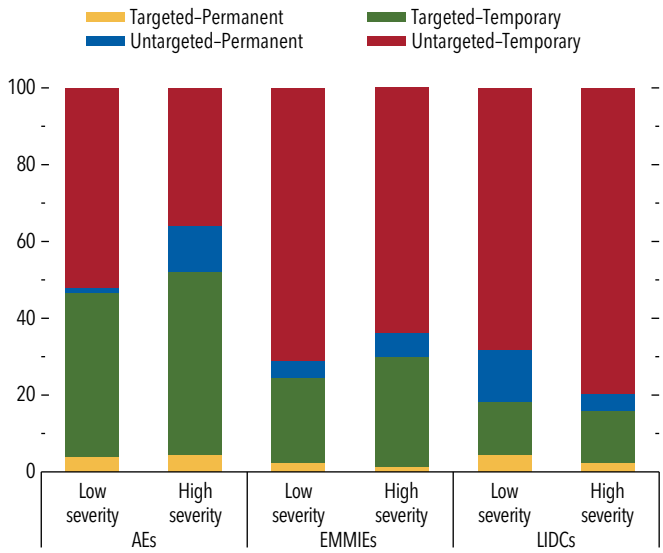
Fiscal Policy

A renewed focus on rebuilding fiscal space is urgent, given elevated debt, higher borrowing costs, multiplying demands on public budgets, and heightened uncertainty. Any new spending increases or tax cuts should be well funded to secure the necessary fiscal adjustment paths. Credible medium-term consolidation should rest on well-specified plans, including durable revenue measures, stronger tax administration, broader tax bases, better compliance, and greater spending efficiency, accompanied by meaningful up-front down payments and supported by institutional improvements. Adjustment should be designed to protect growth- and equity-enhancing spending, such as investment in infrastructure and skills and well-targeted social protection. In high-debt economies, the required adjustment may be larger than what has generally proved feasible in the past and may need to be complemented by deeper spending rationalization through, among other things, a rethinking of the scope of government activity and growth-enhancing structural reforms.

For countries with above-target inflation or elevated underlying inflationary pressures, fiscal consolidation can moderate demand and complement monetary policy efforts to maintain price stability. Prudent debt management and financial regulation would help reduce intertemporal borrowing costs, contain refinancing vulnerabilities, and limit currency mismatches and hence mitigate the risk of destabilizing feedback loops that could give way to fiscal dominance.

Economies benefiting from commodity windfalls or the technology upturn should resist procyclical spending pressures. There may be a case for commodity exporters in the conflict zone to use available fiscal space to temporarily support non-oil activity or build resilience-enhancing infrastructure, with medium-term consolidation to reinforce intergenerational equity. Otherwise, windfall revenues should be saved, used to rebuild buffers, or redeployed toward high-return investment. Credibility will be strongest where governments pair near-term discipline with reforms that

Figure 1.14. Duration and Targeting of Fiscal and Price-Based Policy Responses
(Percent)



Source: IMF staff calculations.

Note: Bars show fiscal and price-based policy responses to the war in the Middle East between February 2026 and June 9, 2026, based on the IMF Global Policy Tracker. "Fiscal policy responses" include measures affecting government spending, taxation, and below-the-line operations. "High-" and "low-severity" groups are defined based on the severity of the domestic fuel price shock within each income group, measured by the average increase in gasoline and diesel prices during March–July relative to January 2026. AEs = advanced economies; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries.

raise potential growth and where medium-term fiscal frameworks are supported by independent institutions, transparent reporting, realistic macroeconomic assumptions, and contingency planning.

Rebuilding fiscal space will have to be balanced with the task of cushioning the impact of current shocks on the most vulnerable. Many countries have turned to fiscal tools in response to another war shaking commodity markets, but they have not always followed the core tenets of making such fiscal measures targeted and temporary (Figure 1.14). The room to maneuver is more limited than during earlier crises because debt levels are elevated, borrowing costs are higher, and demands on public budgets have multiplied.

Fiscal support measures should be used sparingly, designed in a way not to complicate the task of monetary policy, and unwound rapidly as the shock dissipates. Broad-based fuel subsidies, generalized tax cuts, and price controls should be avoided. These measures are typically poorly targeted, fiscally costly, distortionary, and politically difficult to withdraw once introduced. They also weaken price signals that encourage energy conservation and substitution and investment in energy efficiency. If support is necessary to prevent severe hardship or social instability, it should be temporary, tightly targeted to vulnerable households, and delivered preferably through cash transfers or existing social protection systems (see Chapter 2 for more on the effectiveness of different fiscal measures in response to cost-of-living crises). Eligibility criteria, sunset clauses, and budgetary offsets should be specified up front, especially where fiscal space is constrained. The bar for supporting firms should be high. Assistance should be limited to viable firms facing temporary liquidity pressures from higher energy costs or supply disruptions. It should not entrench incumbents or delay necessary sectoral reallocation. When public support is justified, it should be transparent, subject to ex post evaluation, and consistent with medium-term fiscal objectives.

A key lesson from repeated shocks is that the capacity to deliver targeted support cannot be built overnight. Countries should invest in national registries, digital payment systems, interoperable administrative data, and delivery mechanisms that can be scaled rapidly when shocks hit. Committing in advance to principles for emergency support—temporary duration, narrow targeting, preservation of price signals, transparent eligibility, and identified financing—can help governments withstand calls for broad-based measures. In low-income countries and fragile states, where administrative capacity is weaker and food and fuel have a larger weight in household consumption, international assistance may be needed to support well-targeted transfers and protect critical health, education, and nutrition spending. But even where external financing is available, it should complement rather than replace domestic efforts to improve expenditure prioritization and revenue mobilization (IMF 2026a).

Monetary and Financial Policies

Monetary policy should remain firmly focused on central banks' mandates, including to preserve, or where necessary restore, price stability. The two forces shaping the global economy have heterogeneous inflationary effects across countries. While the energy disruption has put upward pressure on inflation globally, the exact dynamics vary substantially between energy importers and exporters. In parallel, AI-related activity

is putting pressure on prices in the subset of economies that are part of the technology value chain. Countries also differ in their initial conditions, with some having inflation still above target at the onset of the conflict. Taken together, these factors dictate the differences in monetary policy recommendations.

For energy importers, higher fuel prices present a stagflationary challenge by simultaneously raising headline inflation and depressing output. Monetary policy can look through the direct effects and possibly short-term indirect effects, but only if the shock is temporary—an assessment that could be informed by drawing a distinction between price increases driven by geopolitical risk premiums and those driven by actual supply disruptions (see the Commodity Special Feature)—and second-round effects, including any sign of de-anchoring inflation expectations, remain contained. These conditions are less likely to be satisfied when inflation is already above target and broader price pressures are expected to remain elevated, justifying a bias toward tightening. Even where looking through the shock is deemed the right path, maintaining an unchanged real policy stance over a given horizon may require increases in nominal policy rates if expected inflation rises. A passive stance could lower real interest rates, adding demand pressures at the wrong moment. For energy exporters not directly affected by the closure of the Strait of Hormuz, this is a positive terms-of-trade shock that pushes income and aggregate demand upward, which can kick off second-round effects. This in turn could make tightening appropriate, more cautiously if inflation is at target and more decisively if it is above target.

In economies integrated into the technology value chain, the case for tightening gets stronger, independent of their energy importer-versus-exporter status and with more urgency added to the case if inflation is already above target. For energy importers benefiting from the technology-driven offset to activity, the flip side is that there are not one but two forces imposing upward pressure on prices. For energy exporters plugged into the technology value chain, there needs to be vigilance to signs of overheating. Tightening would be a preemptive action if inflation is at target but the medium-term inflation outlook points to elevated price pressures, and a must if it is above target.

With economic conditions in flux, agility is at a premium. Central banks should avoid reacting too strongly to high-frequency movements in headline inflation, particularly when those movements are driven by volatile energy prices. They should, however, respond if higher inflation starts feeding into expectations or wage setting or if technology-driven activity starts strengthening pass-through from headline to core inflation. Where the postpandemic inflation episode may have weakened confidence in the monetary policy framework, central banks should be quicker to respond to signs of such feedback from inflation to expectations or stronger pass-through. Indeed, not arresting a drift in inflation expectations in response to the current shocks can be costly when shocks of similar nature arrive in the future because it puts the credibility of monetary policy on the line. Should the adverse demand effects from the war or materialization of financial risks eventually dominate—weakening growth materially, softening labor markets, and consequently reducing underlying inflationary pressures—scope for monetary policy to pivot toward easing could emerge. Any such easing should be gradual and data dependent and remain consistent with returning inflation to target.

Under elevated uncertainty, communication is itself a policy instrument, although not a substitute for action. Central banks should explain clearly how incoming data alter the balance of risks, what would justify a change in the policy path, and how they are distinguishing between first-round relative price effects and broader inflationary pressures. This can reduce the risk that households, firms, and financial markets will misread conditional policy guidance as unconditional promises. With fiscal costs rising and electoral pressures intensifying in many countries, central banks may face renewed calls to accommodate higher public borrowing or tolerate inflation above target. Ensuring legal and operational independence of central banks and shielding monetary policy from political interference and fiscal dominance are therefore essential.

Maintaining orderly adjustment and financial stability is vital while large shocks are unfolding. For countries with credible inflation targets or other domestic nominal anchors, exchange rate flexibility should generally remain the first line of defense, helping economies absorb external shocks, preserve relative price adjustment, and avoid costly depletion of reserves. But exchange rate flexibility does not imply indifference to disorderly market conditions. Where depreciation becomes self-reinforcing, market liquidity evaporates,

or currency movements threaten price stability through large pass-through or balance sheet stress, temporary foreign exchange intervention, macroprudential measures, or capital flow management measures may complement the broader policy mix, consistent with the IMF's Integrated Policy Framework. Such measures should not substitute for warranted macroeconomic adjustment, should be transparent and temporary, and should be deployed with due regard to reserve adequacy, institutional capacity, and multilateral spillovers. Supervisors should also intensify monitoring of sovereign-bank links, foreign currency exposures, nonbank financial institutions, and liquidity mismatches. The concentration of market capitalization and investor expectations around AI-related firms calls for close scrutiny of leverage, crowded positions, collateral valuations, and cross-border exposures. Stress tests should include scenarios combining commodity price spikes, currency depreciation, higher term premiums, tighter funding conditions, and a sharp correction in asset prices. Capital, liquidity, and reserve buffers should remain adequate in normal times and be released in a timely and well-communicated manner if financial conditions deteriorate and macrofinancial feedback loops emerge.

Structural and International Policies

Structural reforms can ease macroeconomic trade-offs by increasing flexibility, resilience, and supply capacity while lifting medium-term growth potential. Priorities should start with measures to enhance business dynamism: lowering barriers to entry and exit, improving competition, reducing regulatory uncertainty and complexity, strengthening insolvency frameworks, and facilitating labor mobility across firms and sectors. These reforms can help economies absorb relative price changes with less output loss and can accelerate reallocation toward sectors benefiting from new technologies. Energy security is another immediate priority. Faster deployment of renewable energy, improved grids, greater energy efficiency, and better storage and interconnection infrastructure can reduce vulnerability to future commodity shocks while supporting climate objectives. Such reforms are especially important for energy importers, but they also matter for economies benefiting from AI-related investment, since data centers and digital infrastructure require reliable and affordable electricity. The gains from AI and digitalization will be larger if supported by investment in human capital and infrastructure, as well as robust governance for data protection, cybersecurity, competition, and responsible use.

At the macroeconomic level, correcting domestic imbalances would improve global adjustment: Further rebalancing in China toward domestic consumption; credible fiscal consolidation in the United States; and deeper single-market integration, reforms, and investment in the European Union would help reduce external imbalances, strengthen demand composition, and raise medium-term growth.

Commonly agreed-upon international economic rules are essential for reducing uncertainty and limiting fragmentation. Trade policy frameworks that are clear, transparent, predictable, and mutually beneficial are essential to produce more sustainable growth and international economic integration. Trade measures that are implemented to address cross-border spillovers, including those arising from industrial policies, should be carefully targeted. Pragmatic cooperation is needed to safeguard key global commons and to update international rules to reflect structural shifts, such as the growing role of services, and align with policies that bolster job growth and supply-chain resilience. Trade negotiations at the bilateral, regional, and plurilateral levels should aim to reduce frictions and minimize distortive provisions, with a view to ensuring the durability of any agreement.

In a world shaped simultaneously by geopolitical shocks and rapid technological change, cooperative mechanisms that make adjustment less costly and more durable remain critical, particularly for managing spillovers from commodity market pressures, refugee flows, and debt vulnerabilities.

- Export bans and other beggar-thy-neighbor measures should be avoided (see Chapter 2 for an analysis demonstrating how price-suppressing measures to confront commodity price shocks could lead to unintended consequences when enacted at the same time by multiple countries). They may appear to protect domestic consumers in the short term, but they worsen shortages for trading partners, increase global price volatility, and distort domestic allocation by artificially depressing prices at home. Cooperation to keep energy, food, fertilizer, and critical transport routes open would reduce the risk that national stockpiling and trade restrictions amplify the shock.

- Conflict-driven displacement can transmit shocks well beyond the conflict zone, especially when large and sudden inflows strain housing, social welfare systems and infrastructure, and labor markets in transit and destination locations (Chapter 3 of the April 2025 WEO). Emerging market and developing economies host the bulk of displaced people and often face the largest short-term fiscal and administrative pressures to meet immediate service delivery demands. Well-managed inflows can increase labor supply, aggregate demand, and output over time. This requires policy frameworks that facilitate labor market access—for instance, through recognition of qualifications and language training—financial inclusion, and investment in schooling and other public services. By reducing informality, increasing fiscal contributions, and easing social tensions, such frameworks can turn displacement from a persistent drain on scarce resources into a source of resilience and growth. International burden sharing is essential because the costs are often concentrated in host countries, whereas the benefits of successful integration and regional stability are more widely shared.
- Multilateral financing, including emergency liquidity through IMF facilities, can provide an important backstop to countries facing liquidity strains, helping preserve essential imports and avoid abrupt compression of demand. But liquidity support is not a substitute for timely and orderly debt resolution when debt is unsustainable. Countries facing debt distress need timely and orderly restructuring, supported by continued progress under the Group of Twenty Common Framework and the Global Sovereign Debt Roundtable. More predictable creditor coordination, faster information sharing, and clearer comparability of treatment would reduce uncertainty and limit the economic and social costs—including those that cross borders—of delayed resolution.

Box 1.1. Where Did Displaced Trade Go? Evidence on Trade Reconfiguration and Export Resilience

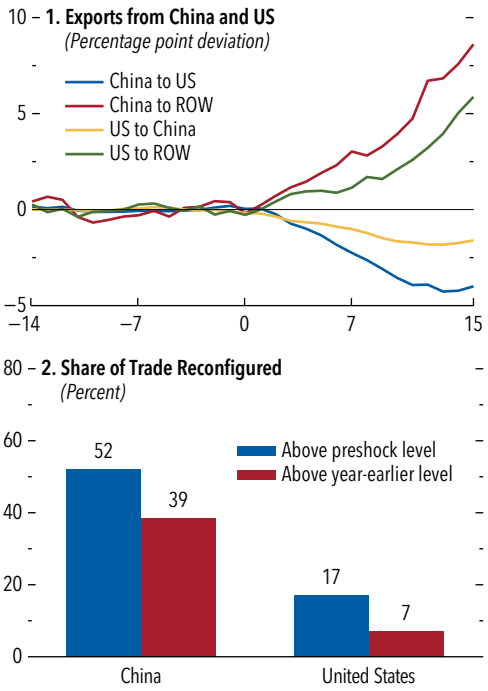
The tariffs introduced by the US administration in April 2025 altered the international economic landscape, yet world trade volume growth remained relatively robust. This box explores the role of the ensuing trade reconfiguration, with a focus on the bilateral relationship that has seen the largest increase in trade barriers, that is, the one between China and the United States. The reallocation of exports from a tariff-imposing market toward third-country destinations within the same product lines is also referred to as "trade deflection" in the literature (Bown and Crowley 2007).

Despite a sharp contraction in bilateral China-US trade following the imposition of the 2025 tariffs, overall exports from both economies remained broadly resilient, as trade was redirected toward third markets (Figure 1.1.1, panel 1). Chinese exports to the United States fell 22 percent between February 2025 and January 2026, and US exports to China fell 25 percent over that same period. That subtracted 3.3 and 1.7 percentage points from each economy's total export growth, respectively. Exports to third markets from the two countries grew faster than under their pretariff trends over the same period. By January 2026, Chinese exports to third markets stood at 4.7 percentage points and US exports to third markets at 2.6 percentage points above trend. These gains helped keep total exports for both economies within about 1 percentage point of their pretariff trends. Third-market gains widened through May 2026, while bilateral trade between China and the United States recovered part of its earlier decline.

Evidence suggests that a substantial share of tariff-affected trade was redirected to alternative destinations (Ruta and Sztajerowska, forthcoming). Looking first at Chinese exports that experienced losses in the US market in 2025, it is evident that exports of these products to third markets increased within a year to 52 percent of the trade at risk—that is, China's preshock exports of the same products to the United States. Because exports to third markets were already growing before the tariffs, however, part of this increase would have occurred even without the shock. Relative to the year-earlier level, trade reconfiguration attributable to the tariff shock amounts to 39 percent of trade at risk (Figure 1.1.1, panel 2). Applying this approach to US exports that experienced losses in the Chinese market following China's retaliatory tariffs points to smaller reconfiguration. Within a year, US exports of these products to third markets increased by 17 percent of the corresponding trade at risk—the preshock US exports of the same products to China—with about 7 percent attributable to the shock after preexisting trends are accounted for. This asymmetry reflects, among other factors, the greater exposure of Chinese exports to the tariff shock: Prior to tariff

The authors of this box are Hippolyte Balima and Monika Sztajerowska.

Figure 1.1.1. Trade Reconfiguration



Sources: Ruta and Sztajerowska, forthcoming; Trade Data Monitor; and IMF staff calculations.

Note: In panel 1, lines show total exports, excluding nonmonetary gold, relative to a linear pretariff trend estimated over the 14 months through January 2025 and extrapolated thereafter, using 12-month rolling sums. The horizontal axis shows months relative to February 2025. Data cover January 2023 to May 2026. Panel 2 shows Chinese and US exports to alternative destinations, excluding each other, as shares of their respective trade at risk. ROW = rest of the world.

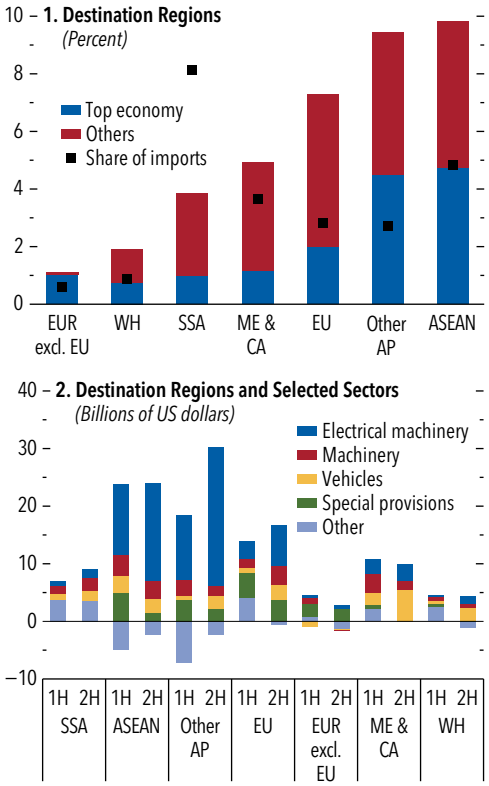
Box 1.1 *(continued)*

escalation, the United States accounted for a substantially larger share of China's exports than China did of US exports (15 percent versus 7 percent), leading to larger losses in absolute terms.

One question is which markets and products absorbed the gains (see also IMF 2026b). Emerging and advanced Asia together absorbed about half of the reallocated trade, followed by the European Union with close to one-fifth and progressively smaller shares absorbed by the Middle East and Central Asia, Africa, and the Western Hemisphere (Figure 1.1.2, panel 1). Relative to these destinations' own imports of the affected products, the redirected trade remained modest, with the largest shares in Africa, member countries of the Association of Southeast Asian Nations, and the Middle East and Central Asia. By product group, electrical machinery accounted for the bulk of the increase to Asia, vehicles to the Middle East and Central Asia, and special provisions to Europe (Figure 1.1.2, panel 2).

Overall, trade reconfiguration appears to have helped offset losses experienced by China and the United States. Firms were able to redirect a meaningful share of trade toward alternative destinations, helping cushion the aggregate trade impact of the bilateral trade shock. More broadly, the results point to the flexibility of global trade and production networks in dampening the effect of trade restrictions on aggregate trade flows. The mechanisms underlying this adjustment may include supply-chain reconfiguration (Alfaro and Chor 2023; Freund and others 2024; Graziano, Sztajerowska, and Volpe Martincus 2026) and rerouting (Freund and others 2025; Iyoha and others 2025), as well as broader supply and demand forces. Disentangling the relative importance of these channels remains an area for future work. At the same time, while trade reconfiguration has enhanced the resilience of trade flows in the short term, persistent trade frictions may entail efficiency costs that could accumulate over time.

Figure 1.1.2. Trade Reconfiguration by Destination Regions and Selected Sectors



Sources: Ruta and Sztajerowska, forthcoming; Trade Data Monitor; and IMF staff calculations.

Note: Panel 1 shows each region's contribution to total trade reconfiguration; blue bars denote the contribution of the largest recipient economy within each region. Squares show each region's trade reconfiguration relative to its annual imports of affected products. Panel 2 shows trade reconfiguration by product group over each half year (1H: February–July 2025; 2H: August 2025–January 2026); negative values indicate exports below year-earlier levels. Product groups correspond to Harmonized System chapters: electrical machinery (85), machinery (84), vehicles (87), special provisions (98), and other (all remaining products). ASEAN = Association of Southeast Asian Nations; EUR excl. EU = Europe excluding European Union; ME & CA = Middle East and Central Asia; Other AP = Other Asia and Pacific; SSA = sub-Saharan Africa; WH = Western Hemisphere.

Box 1.2. Risk Assessment Surrounding the Baseline Projection

This box uses the IMF's Group of Twenty (G20) and Global Integrated Monetary and Fiscal (GIMF) models to (1) derive confidence bands around the *World Economic Outlook* (WEO) baseline forecast, (2) produce a downside scenario in which incipient risks from commodity and bond markets materialize more prominently, and (3) assess three scenarios centered around artificial intelligence (AI) (strong payoffs, capacity constraints, and market correction).

Confidence Bands

The G20 model is used to generate distributions around the baseline by sampling shocks recovered from the underlying historical data (Andrle and Hunt 2020). As in the April 2026 WEO, oil price episodes of the 1970s have been sampled more often than other years to capture the risk of large negative supply shocks materializing over the WEO horizon. The distribution of risks remains skewed to the downside.

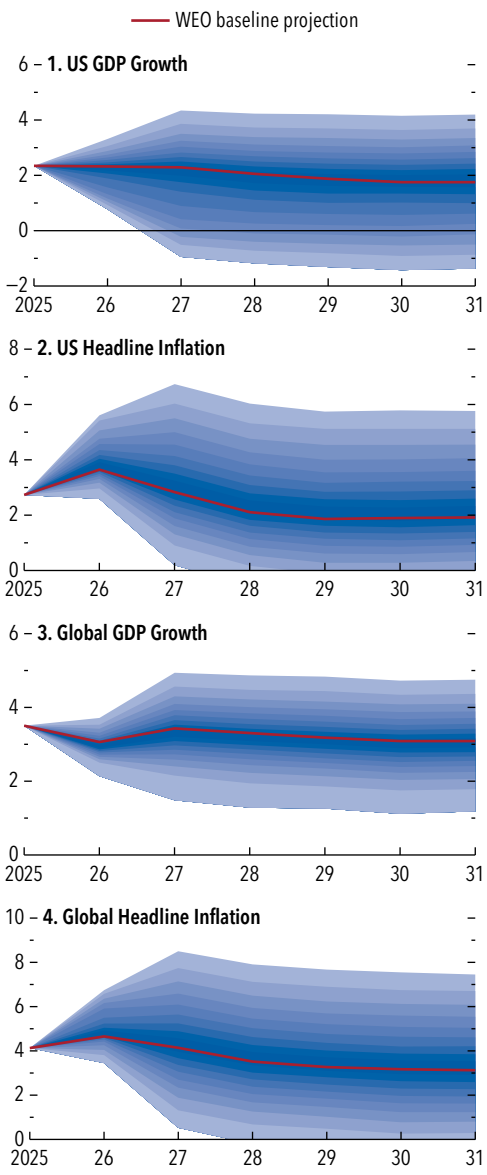
Panels 1 and 2 in Figure 1.2.1 show the distributions for US growth and headline inflation, respectively. The probability of annual growth falling below 1 percent in 2027, consistent with a relatively mild recession starting in the fourth quarter of 2026, is assessed at about 30 percent, somewhat lower than the recession probability estimated in April (35 percent). Regarding inflation, the probability that US headline inflation will increase above 4 percent in 2027 is about 30 percent, higher than in April (20 percent).

Panels 3 and 4 in Figure 1.2.1 show the distributions for global growth and headline inflation, respectively. The probability that global growth in 2027 will fall below 2 percent is about 10 percent, slightly lower than in April (20 percent). The probability that 2027 global headline inflation will rise above 5 percent is about 35 percent, higher than in April (30 percent).

Commodity and Bond Markets: A Clear and Present Danger

The G20 model is used to produce a scenario in which (1) the war in the Middle East lasts longer than assumed in the baseline and (2) long-term yields increase because of higher term premiums and a modest de-anchoring of medium-term inflation expectations. Relative to the version used in April to

Figure 1.2.1. Forecast Uncertainty around Global Growth and Inflation Projections
(Percent)



Source: IMF staff estimates.

Note: Each shade of blue represents a probability interval of 5 percentage points. WEO = *World Economic Outlook*.

The authors of this box are Jared Bebee, Benjamin Carton, Chris Jackson, Dirk Muir, and Rafael Portillo.

Box 1.2 *(continued)*

assess the impact of the conflict, the calibration of the G20 model has been revised to reflect up-to-date oil intensities and exposure to oil shocks across countries.

Extension of the conflict disrupts oil and natural gas markets. The conflict persists through the end of June 2027, keeping the Straits of Hormuz and Bab el Mandeb largely closed to commercial shipping, extending damages to oil infrastructures in the region, and delaying the recovery in oil supply to the end of 2027. Oil production in OPEC (Organization of the Petroleum Exporting Countries) is 10 and 22 percent lower than that in the baseline in 2026 and 2027, respectively, and it normalizes in 2028. With limited scope for further inventory drawdown, oil prices reach $130 from the fourth quarter of 2026 to the first quarter of 2027 and return to baseline by the fourth quarter of 2027. Oil prices are 17 and 40 percent higher on average in 2026 and 2027, respectively. The crack spread—the price difference between crude oil and refined products—which has been gradually increasing since the beginning of the conflict, takes longer to normalize than in the baseline. Production and trade of liquefied natural gas are also impacted, affecting natural gas prices in Africa, Asia, Europe, and the Middle East. Natural gas benchmarks for Asia and Europe are 17 and 26 percent higher than in the baseline in 2026 and 2027, respectively. Natural gas prices in the Americas do not increase.

The energy shock and concerns about the fiscal outlook lead to a reassessment of risks on long-term public borrowing, raising term premiums and medium-term inflation expectations. To align with recent developments in bond markets and despite historical evidence pointing to a greater tightening of financial conditions for emerging markets in the presence of negative shocks, this reassessment is assumed to increase term premiums equally in advanced economies and emerging markets excluding China (by 60 basis points relative to the baseline starting in the fourth quarter of 2026). This implies a more pronounced impact on advanced economies. China sees a smaller increase in the term premium (40 basis point increase). The increase in the premiums is persistent.

The scenario assumes no additional fiscal consolidation over the WEO horizon, relative to what is already incorporated in the baseline. Policy is assumed to adjust beyond 2031, with debt stabilizing at a permanently higher level as a result of higher interest payments by governments.

The recurrence of supply shocks, several years of above-target inflation, and fiscal concerns lead to a moderate de-anchoring of medium-term inflation expectations. Inflation expectations increase gradually over the WEO horizon, reaching about 30 basis points in advanced economies and 20 basis points in emerging markets excluding China by 2031. No upward drift in expectations is assumed for China. The de-anchoring fades once debt is stabilized.

The combined effect is a sizable decrease in global growth and increase in global inflation. Global growth is lower by 0.2 and 0.5 percentage point in 2026 and 2027, respectively (Table 1.2.1). The growth impact is broadly similar across advanced economies and emerging markets. About two-thirds of the global growth effect comes from the disruption in oil and gas markets, as higher energy costs reduce households' purchasing power and the returns to investment. Higher energy costs also account for most of the increase in global inflation, which is higher by 1.1 percentage points in 2027.

Table 1.2.1. Outlook in the Commodity and Bond Market Scenario
(Percentage point deviation from baseline)

	Impact on GDP Growth						Impact on Headline Inflation					
	2026			2027			2026			2027		
	Conflict	Term Premium	Total	Conflict	Term Premium	Total	Conflict	Term Premium	Total	Conflict	Term Premium	Total
World	–0.2	–0.1	–0.2	–0.4	–0.2	–0.5	0.4	0.0	0.4	1.0	0.1	1.1
AEs	–0.1	–0.1	–0.2	–0.3	–0.2	–0.5	0.4	0.1	0.5	1.1	0.1	1.2
EMDEs	–0.2	0.0	–0.3	–0.5	–0.1	–0.6	0.4	0.0	0.4	1.0	0.0	1.0

Source: IMF staff estimates.

Note: AEs = advanced economies; EMDEs = emerging market and developing economies.

Box 1.2 *(continued)*

Advanced economies are relatively more affected by higher premiums and inflation expectations, as these economies are more sensitive to changes in financial conditions and the increase in long-term rates is greater (100 basis points in advanced economies in 2027 versus 90 basis points in emerging markets). While higher term premiums should be disinflationary, global inflation increases by 0.1 percentage point in 2027 from the de-anchoring of expectations. The latter also accounts for most of the monetary policy tightening in the scenario: Policy rates increase by 50 basis points in advanced economies in 2027 (25 basis points in emerging markets), adding to the tightening in financial conditions. The impact on activity builds over time: The level of GDP in advanced economies falls by 0.7 percent relative to that in the baseline by 2031. A broader tightening in global financial conditions, extending beyond term premiums, would worsen the hit to global activity but is not considered here.

Public debt in advanced economies increases by more than 3 percentage points of GDP by 2031 (2 percentage points globally). Fiscal consolidation, not considered here, could limit the increase in debt but possibly at the cost of lower activity, depending on the instrument used and whether the consolidation is front-loaded.

Artificial Intelligence: Two-Sided Risks

The GIMF model is used to produce the AI scenarios. It features eight regions, including China, Japan, the rest of Asia, the euro area, and the United States. The scenarios build on AI-related shocks considered in the October 2025 and April 2026 WEO reports. As is standard, the scenarios assume that monetary policy responds endogenously, with floating exchange rates in most regions. China's currency is assumed to have some limited adjustment relative to the US dollar. Automatic stabilizers operate on the fiscal side.

Scenario A: Strong Payoffs

The AI build-out is greater than in the current baseline, with further spending on computing and AI-related infrastructure concentrated in the United States and to a lesser extent China. Total US investment increases by 2029 by 4 percent relative to that in the baseline from this component alone, and China's investment increases by 1 percent. The additional AI build-out fades beyond the WEO horizon. Because AI-related capital goods are largely sourced from Asian economies, such as Korea, the import intensity of US investment increases, producing larger spillovers than usual to Asia. Scenario A assumes Asian producers have the capacity to meet the increased external demand, limiting the increase in the region's export prices.

Productivity gains from the adoption of AI are higher and accrue early on. Deployment of AI tools increases global levels of total factor productivity by 0.8 percent over 10 years relative to those in the baseline, with two-thirds of the gains occurring in the first five years. This estimate is based on the lower bound from Cerutti and others (2025), with countries more exposed to gains in automation and better prepared for AI adoption experiencing larger productivity gains. Higher productivity adds to the investment surge while supporting consumption through wealth effects. Scenario A also assumes a gradual but permanent increase in demand for technology goods and software services to reap the benefits from the new technology, moderately increasing the share of global imports sourced from Asia, including China, and from the United States.

Scenario B: Capacity Constraints

The AI build-out runs into supply constraints in Asia. While nominal spending on AI is the same as that in scenario A, supply is slow to respond, triggering a significant increase in the price of high-end technology goods. This causes a large temporary increase in the terms of trade for exporters of these goods in Asia and a corresponding decrease for significant importers of AI capital and consumer goods, such as the United States and other advanced economies.

The productivity gains from the adoption of AI are more back-loaded than those in scenario A. While long-term productivity gains (and change in trade shares) are the same as in scenario A, the improvement starts to materialize only by the end of the WEO horizon.

Despite slower improvements in productivity, near-term demand is strong. Scenario B assumes wealth effects are similar to those in scenario A. Given strong demand, higher import prices, and several years of above-target inflation in the United States, the inflation response is assumed to be stronger than usual; that is, the US Phillips curve steepens and shifts upward. In addition, in anticipation of a monetary policy tightening in the United States, financial conditions tighten moderately in emerging markets not involved in the AI boom. Sovereign (corporate)

Box 1.2 *(continued)*

premiums in emerging markets outside Asia increase by 25 (50) basis points for two years.

Scenario C: Market Correction

The productivity gains from AI investment fail to materialize. This triggers a sharp decline in investment in the technology sector, concentrated in the United States. As in scenarios A and B, the import intensity of the reduced investment is higher than usual and skewed toward Asia, resulting in a decrease in external demand for that region and in the price of high-end technology goods.

The reappraisal triggers a sharp reduction in asset prices and tighter financial conditions. Equity prices in the United States fall by 20 percent in 2026 and 15 percent elsewhere. The correction leads to a loss of risk appetite. Corporate risk premiums temporarily increase by 75 basis points in the United States, 50 basis points in other advanced economies and China, and 75–100 basis points in other emerging markets.

Reduced risk appetite spills over to sovereign bond markets, leading to a moderate temporary increase in term premiums of 30–50 basis points in advanced economies and 75–100 basis points in emerging markets. The concentration of the investment and asset-price shocks in the United States manifests as less appetite for US assets and puts downward pressure on the US dollar. These shocks fade over the WEO horizon.

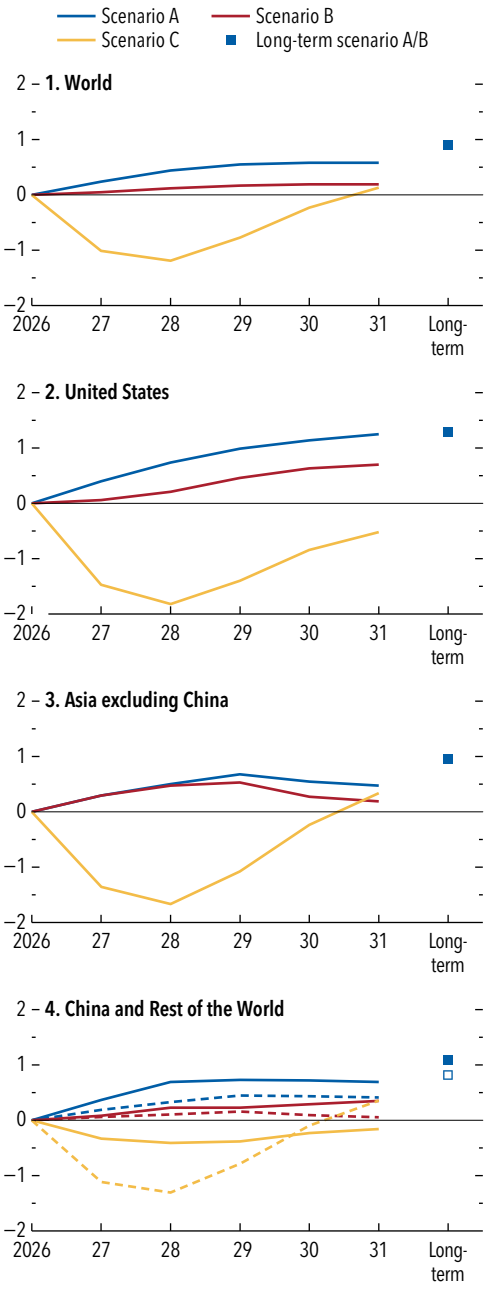
Impact on the World Economy

Figure 1.2.2 presents, for scenarios A, B, and C, the effects on the level of GDP during 2027–31 for the world, the United States, China, Asia excluding China, and remaining countries. Figure 1.2.3 shows results for selected variables: inflation and policy rates in the United States and in the rest of the world, and the real effective exchange rate and the current account in percent of GDP for the United States and Asia excluding China. Results are shown in deviation from baseline.

Scenario A: Strong Payoffs

The AI build-out increases world GDP by 0.6 percent by 2029, relative to that in the baseline. The impact is largest for the United States and Asia. US GDP increases by 0.4 percent in 2027 and keeps growing over the WEO horizon, reaching 1.3 percent by 2031. The direct impact of the AI build-out on the US economy is modest, as a large part of the

Figure 1.2.2. Impact of Scenarios on the Level of GDP
(Percent deviation from baseline)

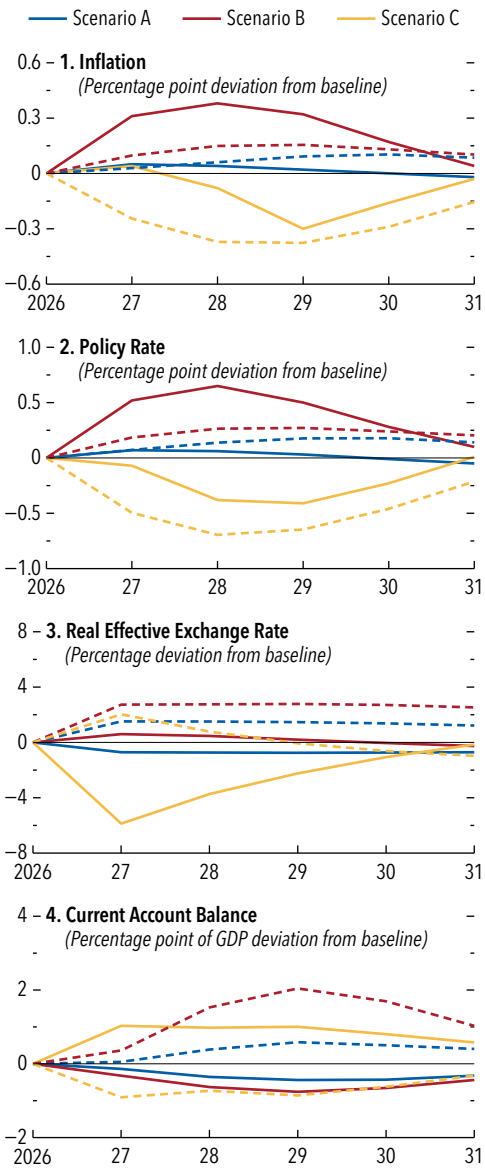


Source: IMF staff estimates.

Note: "Long-term" is at least 50 years ahead. In panel 4, solid lines and the solid marker represent China, and dashed lines and the hollow marker represent the rest of the world.

Box 1.2 *(continued)*

Figure 1.2.3. Impact of Scenarios on the Other Key Macroeconomic Variables



Source: IMF staff estimates.

Note: In all panels, solid lines represent the United States. In panels 1 and 2, dashed lines represent the rest of the world excluding the United States; in panels 3 and 4, they represent Asia excluding China.

investment impulse goes to imports, but the productivity gains are larger and more immediately visible than those in other countries. Higher investment results in a widening of the US current account deficit of 0.4 percentage point of baseline GDP by 2029 and a small real depreciation of the US dollar. Asia excluding China benefits in the short term from higher external demand. Over the WEO horizon, activity peaks at 0.8 percent of baseline by 2029, with most of the GDP gains occurring in high-end technology exporters. The region also experiences an increase in its current account balance, peaking at 0.7 percentage point of baseline GDP; an appreciation of its currencies (especially in technology-oriented economies); and a small increase in export prices. China's GDP increases by 0.7 percent by 2029, as the country benefits from the increase in domestic investment, its central position in Asian supply chains, and the renminbi depreciation in real effective terms in the short term. The near-term impact on other regions is smaller, as they are less involved in the AI build-out.

The impact on global inflation in this scenario is small, since increases in productivity largely keep pace with increases in demand. This is notably the case in the United States. The US policy rate does not increase relative to that in the baseline. The inflationary impact is modest in Asia as a whole, but it is concentrated in high-end technology exporters.

Global output increases in the long term by close to 1 percent. Although all regions benefit, the long-term impact is higher in the United States, because the latter is both highly exposed to the gains from automation and to the production of AI-related services, for which the scenario assumes a permanent increase in demand. Other advanced economies are highly exposed to productivity gains from AI but benefit less from the increased demand for technology goods and services, whereas Asia benefits from a persistent increase in demand for technology goods. The increase in GDP is smallest in other emerging markets least exposed to gains from automation and technology industries.

Scenario B: Capacity Constraints

While the long-term effect is the same, the increase in global GDP in the near term is smaller than that in scenario A. Global GDP increases by just 0.2 percent by 2029, relative to that in the baseline, in part because productivity gains are slower to materialize.

Box 1.2 *(continued)*

In addition, the AI-driven investment surge is more inflationary than that in scenario A, especially in the United States, where inflation increases by 0.4 percentage point by 2028. Two channels play a role. The steep rise in the price of technology goods increases export prices for Asia excluding China by 10 percent relative to those in the baseline (40 percent for high-end technology exporters), increasing imported inflation in other countries and weighing on demand. Domestic inflation also increases as wealth and anticipation effects bring forward consumption before productivity has increased, especially in the United States. This induces a tightening in monetary policy: US policy rates increase by about 70 basis points, further slowing activity in the near term.

For most economies, the increase in near-term GDP is smaller than that in scenario A, in some cases below that in the baseline. Emerging markets outside Asia are affected by the combination of a negative terms-of-trade shock and a tightening in financial conditions from the start of a tightening cycle in the United States. Asia excluding China is the only region that experiences an increase in activity similar to that in scenario A: Although the increase in export volumes is much smaller because of supply constraints in the technology sector, domestic demand benefits from the large, positive terms-of-trade shock.

The terms-of-trade swings lead to a greater widening of global imbalances. The US current account deficit widens by 0.8 percent of baseline by 2029, and the aggregate current account surplus in Asia excluding China now increases by 2.5 percent of baseline GDP. The appreciation of Asian currencies is also larger than that in scenario A, and the US dollar also appreciates in response to the tightening of US monetary policy.

Scenario C: Market Correction

The reevaluation of the productivity gains from AI causes AI-related investment to unwind, reducing US investment by 5 percent and US GDP by 0.8 percent from this layer alone. While the pullback is smaller in other economies, spillovers to Asia are sizable, reducing the region's GDP by about half a percent by 2029, relative to that in the baseline, and with GDP losses concentrated in the high-end technology exporters. Asian technology exporters experience a 20 percent decline in export prices, whereas others in the Asia region see a 4 percent decline. Overall, the unwinding of AI-related investment directly reduces global GDP by as much as 0.4 percent and investment by as much as 1.3 percent by 2028.

The correction in asset prices and tightening in financial conditions amplify the shock. Negative wealth effects cause a large contraction in consumption, particularly in the United States, with global consumption falling by 0.6 percent by 2028. The effect is amplified by a tightening in financial conditions, weighing on investment. Together these effects reduce global output by 0.6 percent and investment by 1 percent, relative to those in the baseline.

Spillovers to sovereign bond markets and demand for US assets subtract a further 0.3 percent from global output. Output in emerging market economies is affected by the increase in term premiums. In the United States, two channels broadly offset each other: A depreciation of the US dollar of about 6 percent supports demand for US exports, and a tightening of financial conditions weighs on domestic demand. China benefits in the short term from the depreciation of the US dollar. Other regions, however, experience a decrease in GDP from lower external demand.

The combined effect is a large decrease in global activity, which is 1.1 percent lower than that in the baseline by 2028, with larger losses in the United States (1.8 percent lower) and Asia (1.7 percent lower). Global and US inflation and policy rates are lower than those in the baseline—with US policy rates lower despite the depreciation of the US dollar—and global imbalances narrow.

Commodity Special Feature: Market Developments and the Real-Time Impact of Geopolitics on Energy Prices

Primary commodity prices decreased by 6.3 percent between March 2026 and August 2026. Prices of precious metals fell, driven by tighter monetary conditions, and energy prices retreated from highs reached following the escalation of conflict around the Strait of Hormuz. Agricultural price trends diverged across commodity groups, with prices of wheat, beverages, and cereals showing significant increases. This Commodity Special Feature proposes a new analytical framework for analyzing the transmission of geopolitical shocks in commodity markets and their macroeconomic implications in real time.

Commodity Market Developments

Oil prices have been volatile since the April 2026 World Economic Outlook *(WEO), reflecting the ebb and flow of the war in the Middle East.* As shipments through the Strait of Hormuz nearly halted, disrupting about 20 percent of global oil supply, oil prices peaked in late March at $126 a barrel, reflecting extreme tightness in the physical market, visible in the Dubai-Brent spread widening to $54. The market adjusted through increased production outside the Persian Gulf (notably in Brazil, Kazakhstan, the United States, and Venezuela); a drawdown of oil inventories, especially through the International Energy Agency (IEA) emergency stocks release, and of China's stocks; and a compression of crude oil demand, especially large in absolute terms, from China (see also Natal and Sadikov 2026). In early June, the market stabilized at about $100 a barrel, with a supply deficit of 1.9 million barrels a day (mb/d) being covered by rapidly depleting reserves. The mid-June signing of a memorandum of understanding between Iran and the United States led to a brief and sudden reopening of the Strait and the release of about 90 million barrels of oil accumulated in the Gulf during its closure. This created a temporary glut, which led to a collapse in prices to $68 a barrel. The short-lived ceasefire has now been replaced by a low-intensity conflict, which has expanded to the Red Sea and threatens additional exports from the region.

Refined petroleum product markets have been affected more than crude oil markets, with prices still between 70 percent and 95 percent above prewar levels. Refinery outages and damage in the Gulf and Russia have chipped away about 20 percent of the international supply of refined products, and export curbs have further tightened markets. Price pressures initially centered on jet fuel but are now most pronounced for diesel and gasoline, with impacts varying across regions according to their exposure to Gulf and Russian exports and domestic demand conditions.

Additional pressure on global crude oil and product markets has stemmed from attacks on Russian oil infrastructure on shore and in the Black Sea. The attacks have prevented exports of Kazakh crude oil through the Caspian Pipeline Consortium route and the Black Sea, while Russia's overall oil exports have declined owing to a sharp drop in diesel and other refined petroleum products. Because of these supply shortages, global reserves continue to be depleted by about 2.7 mb/d and are rapidly reaching stress levels that could lead to nonlinear price adjustments. Futures exhibit a steep backwardation, which is in line with a gradual resumption of flows from early 2027. Brent futures indicate a return to preconflict prices of $79 a barrel by the end of 2027.

While the Strait of Hormuz remained mostly closed for Gulf oil exports until the end of August, traffic picked up significantly in September. Exports of crude from the Gulf reached an average of 16.7 mb/d or 88 percent of prewar levels, and ended the month at 13.4 mb/d. Much of this increase reflects renewed traffic through the Strait of Hormuz, substituting for Red Sea bypass routes. Although risks, freight rates, and insurance costs remain elevated, recent attacks and threats against Red Sea–bound oil infrastructure by the Houthis and other Iran-aligned militias have prompted shipments to return to the Strait of Hormuz. Despite this favorable development, the crude market remains tight and the geopolitical risk premium remains high.

Natural gas prices have been even more volatile, reflecting market-specific features. Title Transfer Facility (TTF) trading hub prices increased by 18 percent between

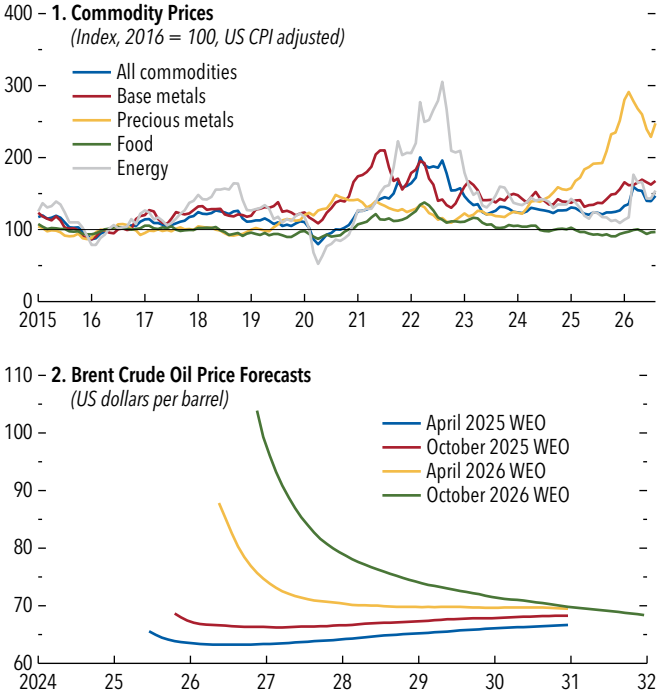
The contributors to this Special Feature are Patricia Gomez-Gonzalez (co-lead), Regis Kouassi, Jianhong Liu, Jorge Miranda-Pinto, Jean-Marc Natal (team lead), Andrea Paloschi, and Evgenia Weaver, with research assistance from Francis Cuadros Bloch, Maximiliano Jerez Osses, Joseph Moussa, and Chris Stumphius. This Special Feature is based on Gomez-Gonzalez and others (2026).

March 2026 and August 2026 to $20.9 a million British thermal units (MMBtu). Relative to oil markets, the European natural gas market displayed greater volatility, amplified by severe damage to the energy infrastructure of Qatar, the region's main exporter; historically low gas stockpiles in Europe, near 15-year lows; and repeated heat waves during the summer. Gas-to-coal substitution in Asian markets and stronger gas deliveries from non-Gulf sources have limited some of the impact on European prices. Meanwhile, the US natural gas market has remained insulated from the effects of the Middle East conflict, with Henry Hub prices falling by 9.2 percent to $2.8 a MMBtu amid robust domestic gas supplies and strong domestic underground storage inventories. Futures markets suggest that TTF prices will average $19.8 a MMBtu in 2026, steadily decreasing to $8.4 a MMBtu in 2031, owing to expectations of an end to current supply disruptions and the prospect that US export capacity will double. Henry Hub prices are expected to increase from $3.1 a MMBtu in 2026 to $3.6 a MMBtu in 2031 as foreign demand builds.

Inflationary risks and associated tightening of monetary conditions have driven demand away from precious metals, whereas supply disruptions in the Strait of Hormuz have put upward pressure on prices for a subgroup of base metals. The IMF's metals price index declined 4.5 percent between March and August 2026 (Figure 1.SF.1, panel 1). Prices of precious metals drove the drop, with the gold price losing 9.1 percent and the silver price decreasing 17 percent as higher interest rates increased the opportunity cost of holding nonyielding assets and investors shifted toward more liquid, interest-bearing alternatives. On the other hand, the base metals price index increased 4.9 percent, influenced by supply constraints from the closure of the Strait, through which a large share of aluminum and sulfur (a key input for nickel production) transit. Futures markets suggest a modest increase of 2.3 percent in 2027.

Agricultural prices have been driven higher by gains in prices for cereals and beverages, whereas fertilizer markets have remained mixed. Between March and August 2026, the IMF food and beverages price index *increased* by 0.8 percent, reflecting mixed developments across agricultural markets. Wheat and corn prices increased 22.7 percent and 3.8 percent, respectively, amid disruptions to Black Sea grain flows and heat waves across Europe, and soybean prices increased 5.3 percent on weather-related supply concerns and resilient demand. Higher fuel and transportation costs also added upward pressure across grain markets.

Figure 1.SF.1. Commodity Market Developments



Sources: Bloomberg Finance L.P.; Haver Analytics; IMF, Primary Commodity Price System; International Energy Agency; and IMF staff calculations.

Note: In panel 2, expiration dates are on the *x*-axis. CPI = consumer price index; WEO = *World Economic Outlook*.

In contrast, seafood prices fell sharply, led by a 16.0 percent decline in salmon prices as abundant farmed supply weighed heavily on spot markets, with prices for other fish and for shrimp also moving lower.

Beverage prices increased 19.2 percent, led by an 83.6 percent increase in cocoa prices as adverse weather in Côte d'Ivoire and Ghana renewed supply concerns. Coffee prices increased 8.0 percent after heavy rainfall in Brazil's Minas Gerais state delayed harvesting and increased concerns about crop quality. Although cocoa prices remained elevated, expectations of a market surplus this year are likely to limit further gains.

Fertilizer prices have diverged since March. While the IMF fertilizer index declined 10.5 percent, supply disruptions have kept the price of phosphate up by 22.4 percent. Prices of nitrogen-based fertilizers, on the other hand, have dropped 31.5 percent since March, as higher Chinese exports and weaker seasonal demand across the Northern Hemisphere have weighed on urea prices.

Food prices are projected to increase 5.0 percent in 2026 and 2.4 percent in 2027, whereas beverage prices are expected to fall 21.5 percent in 2026 and increase

3.2 percent in 2027 due to El Niño. Upside risks stem from elevated fertilizer prices ahead of the Southern Hemisphere planting season, which could reduce input use, lower yields, and tighten grain supplies in 2027. A stronger-than-expected El Niño event could further disrupt weather conditions in key producing regions, and tariffs and geopolitical tensions could put additional upward pressure on prices.

Pricing Geopolitical Risk: Real-Time Evidence from Oil and Gas Markets

Motivation

In March 2026, the war in the Middle East effectively closed the Strait of Hormuz, stranding in the Persian Gulf oil and liquefied gas equal to about 20 percent of world consumption. In episodes like this, policymakers naturally focus on the supply loss. But fears of supply disruptions can also exert upward price pressure. Indeed, in January and February, before the start of the war, oil prices increased by about 10 percent amid rumors of an impending US attack on Iran.

Energy prices are among the most important drivers of inflation and business cycles. But not all energy price increases have the same causes or require the same policy response. It is thus essential for policymakers, and especially central banks, to understand why energy prices are moving. The case for monetary tightening is clearest when oil prices increase on stronger *demand*: Higher energy prices signal broader demand pressures, and stabilizing inflation is consistent with stabilizing activity (Blanchard and Galí 2007). A policy trade-off arises only when prices increase because of *supply* disruption, actual or expected. When barrels are physically unavailable, headline inflation increases and real activity weakens. When tightening, central banks must balance the risk of an inflation spiral against the risk of deepening the output loss (Woodford 2003). Much will depend on the persistence of the shock and how it spills over to inflation expectations and broader price setting (Natal 2012). The case for tightening is more uncertain still when prices increase because of geopolitical supply risk—the threat of potential future supply disruption—which increases precautionary oil inventory demand and risk premiums. If the anticipated supply disruption does not materialize, the associated increase in energy prices may prove short-lived, making policy tightening unnecessary or even counterproductive (Caldara and others 2026). If the risk is realized, however, geopolitical tensions give way to actual supply disruptions, and the standard inflation-output trade-off reemerges.

Because multiple shocks often unfold simultaneously, identifying their relative importance, and doing so in real time, is critical for an appropriate policy response. Waiting for official data, which are available only with lags, can lead to costly mistakes. Despite substantial progress in disentangling demand and supply shocks in structural empirical models (among others, Kilian 2009, Baumeister and Hamilton 2019 for oil, and Nick and Thoenes 2014 for gas), the literature has paid relatively little attention to isolating the contribution of geopolitical risk separately from actual supply disruptions. With geopolitical risks at levels not seen in decades (see the April 2026 WEO), policymakers need new tools.

This Commodity Special Feature fills this need by developing a framework that separately identifies geopolitical risk shocks and supply shocks (alongside traditional demand shocks), providing policymakers with a tool—the Commodity Price Tracker—for assessing energy price movements as events unfold. It also addresses two key questions. First, what drives movements in oil and natural gas prices? In particular, what are the respective contributions of *current* and *expected* demand and supply conditions? Second, what are the *macroeconomic effects* of these different drivers of energy prices? Do these effects depend on the source of the shock, and do they differ between oil and natural gas markets?

Determining the Drivers of Oil and Gas Price Fluctuations: A New Analytical Framework

Economic shocks rarely occur in isolation, and to calibrate monetary and fiscal policy adequately, it is critical to disentangle the supply and demand drivers of energy prices in real time. In early April 2025, for example, energy markets faced two almost simultaneous surprise announcements: the US announcement of broad new trade tariffs on April 2 and the surprise unwinding of oil production cuts by OPEC+ (Organization of the Petroleum Exporting Countries, including Russia and other non-OPEC oil exporters) on April 3. Consequently, oil and European gas prices dropped, but a key question arises: How much of the oil price drop was driven by each announcement?

This Commodity Special Feature develops a high-frequency four-variable structural vector autoregression (SVAR) model (Gomez-Gonzalez and others 2026)—the Commodity Price Tracker—that builds on

Gazzani, Venditti, and Veronese (2024). The model decomposes oil and European gas (TTF) price fluctuations using daily financial and newspaper-based data, which unlike GDP data are not subject to revision. The sample covers June 1, 2007 (October 4, 2013, for gas), to May 29, 2026, and it is estimated using Bayesian methods with the European Central Bank's Bayesian Estimation, Analysis, and Regression (BEAR) toolbox (Dieppe, Legrand, and van Roye 2016).

The SVARs include the following daily variables—adjusted front-month energy price,[1] 13-month futures price, returns from an equity index (a world index for oil and a European index for gas), and the newspaper-based Geopolitical Risk Threats (GPRT) index from Caldara and Iacoviello (2022)[2] —to decompose energy price movements into four shocks: *current* demand, *forward-looking* demand, *current* supply disruption, and *forward-looking* supply disruption or geopolitical supply risk.[3]

The first innovation of the approach is distinguishing between realized supply disruptions and geopolitical supply risk—the possibility of future disruptions—in real time. This richer decomposition is relevant for policymakers, because these shocks can have markedly different macroeconomic effects and demand different policy responses. A second innovation is the extension of the framework to natural gas markets, recognizing the growing macroeconomic importance of gas, particularly in Europe.

Distinguishing between *current* and *forward-looking* oil *demand* shocks is important. Current demand shocks, typically characterized by cyclical changes in economic activity that affect energy demand, such as a slowdown in manufacturing, often have only temporary effects. Forward-looking demand shocks capture changes in expected future economic activity and therefore may signal more persistent macroeconomic developments (Gazzani, Venditti, and Veronese 2024) that require a stronger monetary policy response.

Similarly, disentangling *current supply* from *expected future supply* shocks (geopolitical supply risk) is key for policymakers, as geopolitical supply risk may have a more transient impact on prices and activity than current supply shocks. To disentangle these shocks, the SVAR combines an instrumental variable using stock and oil market volatility indices (the Chicago Board Options Exchange Volatility Index, or VIX, and the Crude Oil Volatility Index, or OVX), gold prices, and front-month oil prices with a set of parsimonious sign and relative magnitude restrictions based on economic theory.

The *natural gas* market is fragmented, with the US market largely disconnected from that in the rest of the world and European and Asian markets competing for the largest share of liquefied natural gas supply. Focusing on European prices, the identification strategy for gas closely mirrors that for oil on the supply side, with a few differences. The equity index considered is narrower and includes only European firms, reflecting the regional focus of the TTF. In addition, the SVAR is adapted to the specifics of gas markets when identifying demand-side shocks. Unlike oil markets, gas markets are less financialized: Whereas oil futures have long been traded as a financial asset, such trading is a relatively recent phenomenon in regard to the TTF. Instead, short-term gas demand is strongly influenced by weather conditions, particularly unexpected cold spells or heat waves that increase electricity demand for heating or cooling (Mu 2007). The SVAR therefore uses daily forecast temperature anomalies (Saha and others 2014) as an instrumental variable for current demand.[4]

Transmission of Shocks to Financial Markets and the Macroeconomy

Before historical episodes are decomposed into different shocks, it is important to understand how each individual shock affects energy prices and financial variables (Figure 1.SF.2, with shocks normalized to one standard deviation) and their implications for policy-relevant macroeconomic variables (Figure 1.SF.3, with shocks normalized so that the front-month price increases 1 percent on the shock's impact).

Daily oil SVAR impulse response functions (red lines in Figure 1.SF.2) show that both forward-looking

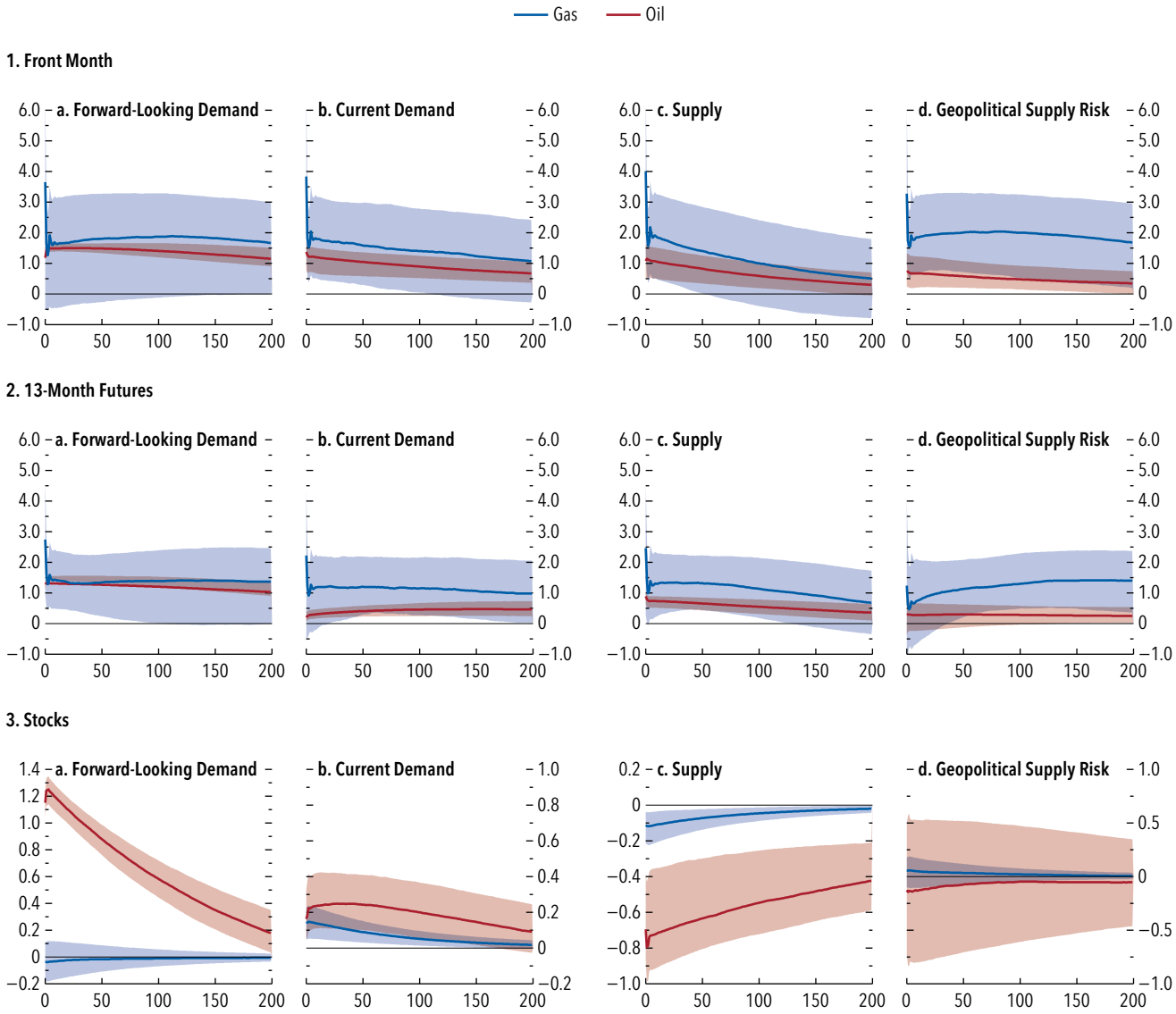
[1]For oil front-month prices, a weighted average of Front-Month Brent and Dated Brent is used, so that the resulting index always refers to a barrel to be delivered one month forward. For gas, front-month and 13-month futures prices are first adjusted to smooth changes in delivery dates from futures contracts and subsequently seasonally adjusted. See Gomez-Gonzalez and others (2026) for further details on the transformations.

[2]The Geopolitical Risk Threats index reports the share of articles from 10 US newspapers that include keywords related to war threats, imperiled peace agreements, military buildups, nuclear threats, and terror threats.

[3]The last shock can be interpreted as a change induced by geopolitical tensions in the expectation of future supply.

[4]The identification strategies for the oil and gas markets are discussed in more detail in Online Annex 1.1. All online annexes are available at www.imf.org/en/Publications/WEO.

Figure 1.SF.2. Impulse Response from Four-Variable High-Frequency VAR
(Percent change; days after the shock on the x-axis)



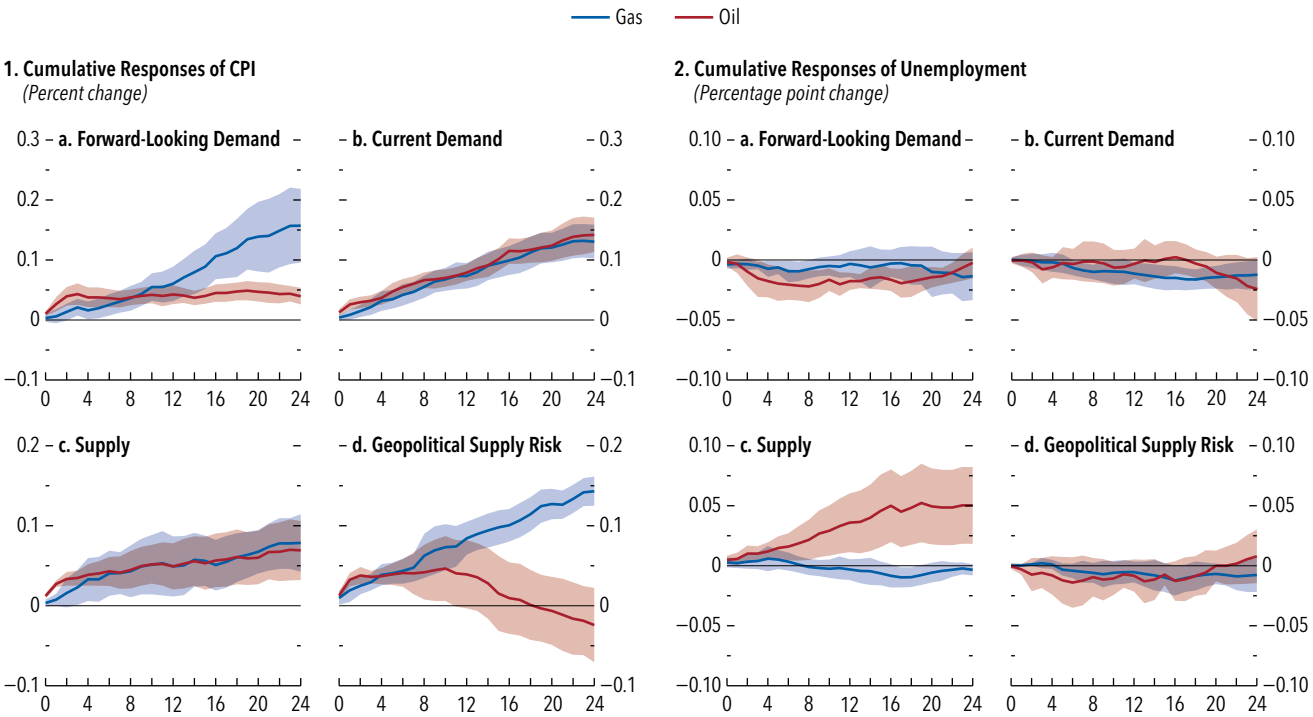
Sources: Bloomberg Finance L.P.; Caldara and Iacoviello 2022; MSCI; and IMF staff calculations.

Note: Rows show endogenous variables in VAR: "Front Month," "13-Month Futures," and "Stocks." Columns show structural shocks identified from VAR: "Forward-Looking Demand," "Current Demand," "Supply," and "Geopolitical Supply Risk." All responses are expressed as percent deviation from a no-shock baseline. "Front month" ("13-Month Futures") refers to the price of futures contracts for the nearest available maturity (13 months ahead); "Stocks" refers to the MSCI Global (Europe) Index in the oil (natural gas) analysis. Each shock is normalized to one standard deviation. Solid lines represent median responses, and shaded areas denote 68 percent confidence intervals. Red corresponds to oil (Brent), and blue corresponds to natural gas (Title Transfer Facility). Sample coverage: June 1, 2007, to May 29, 2026, for oil; October 4, 2013, to May 29, 2026, for natural gas, with daily frequency. VAR = vector autoregression.

and current demand shocks lead to increases in the prices of energy—front month and futures—and equities. However, whereas current demand promotes backwardation (a bigger increase of front-month than of 13-month futures) in line with the temporary nature of the shock, forward-looking demand causes an upward shift of the whole futures curve. Similarly to a current demand shock, a current supply shock promotes backwardation, as the physical market tightens. Equities fall after a supply shock, consistent with firms' lower profits.

The results for gas exhibit some important differences. First, current demand shocks do not affect European equities, as current demand is driven by

Figure 1.SF.3. Local Projections of Oil and Gas Shocks on the Consumer Price Index and Unemployment



Sources: Haver Analytics; and IMF staff calculations.

Note: Responses to oil shocks are estimated for advanced economies that are net oil importers; responses to gas shocks are estimated for the five largest European economies. Reported responses net out the effects of the COVID-19 pandemic. The figure plots the response of the log differences [(t+h)−(t−1)] in the log of the consumer price index (CPI, headline inflation) and in the unemployment rate at different monthly horizons (h) to shocks identified using high-frequency oil and gas structural vector autoregressions at time t. Shaded areas denote 90 percent confidence intervals. Daily shocks are aggregated to monthly frequency using averages and scaled such that, on impact, energy prices increase by 1 percent. The local projection specifications include country fixed effects, 12 lags of monthly inflation in the CPI equations, 12 lags of monthly unemployment in the unemployment equations, a COVID-19 dummy, and an interaction between the COVID-19 dummy and the shock. CPI = consumer price index.

weather conditions, which have little bearing on the broader European stock market. Second, the impact of future demand shocks on front-month TTF prices is not statistically significant, consistent with weather remaining the dominant driver of short-term fluctuations in gas prices. Finally, the response of gas prices (front month and futures) to current demand is more persistent than that for oil, highlighting the key role of gas inventories in smoothing the effect of shocks on prices.

Turning to the *geopolitical risk shock*, the main difference with the actual supply disruption concerns the response of equities. For both gas and oil, a supply shock decreases equity prices, and their response to the geopolitical supply risk shock is not different from zero, with statistical significance in line with earlier work (April 2025 *Global Financial Stability Report*). This suggests that although geopolitical tensions do impact energy prices, the effect on the real economy is bound to be quite small.

To gauge the macroeconomic impact of these shocks—and in particular the difference between geopolitical supply risk shocks and actual supply disruptions—daily shocks are aggregated to monthly frequency and their impact on inflation and unemployment analyzed using local projections (Jordà 2005). The results presented are for a panel of oil-importing advanced economies. When the impact of gas shocks is explored, the focus is on European countries only, given the regional importance of TTF.[5]

All oil shocks are inflationary, as expected, but the magnitude and persistence vary considerably depending on the shock (Figure 1.SF.3, panel 1). Although forward-looking demand, current demand, and actual supply shocks that increase front-month monthly oil prices by 1 percent all increase prices by

[5]Gomez-Gonzalez and others (2026) extend the sample to emerging market economies and low-income countries, when data availability allows.

roughly 0.06 percent[6] after one year, the effect of the geopolitical supply risk shock on inflation is short-lived, with prices back to their preshock levels within six months to a year.[7] For oil importers, demand-driven oil shocks, especially the forward-looking one, decrease the unemployment rate persistently, with unemployment below its preshock levels almost two years after the shock (Figure 1.SF.3, panel 2). Negative supply shocks that increase front-month oil prices by 1 percent increase the unemployment rate by 0.04 percentage point one year after the shock. The geopolitical supply risk shock has no statistically significant impact on the unemployment rate.[8] This exercise underscores the policy relevance of disentangling actual oil supply disruptions from geopolitical supply risk shocks, as the former have large and persistent effects on inflation and unemployment, whereas the latter do not.[9] It also highlights the benefit of isolating changes in the probability of future supply disruptions from (1) geopolitical shocks that increase macroeconomic uncertainty captured in forward-looking demand and (2) actual supply disruptions, since these two other shocks tend to have bigger macroeconomic effects (Kilian, Plante, and Richter 2026; Verduzco-Bustos and Zanetti 2026).

The inflationary pressures of gas shocks in Europe vary considerably across shocks (Figure 1.SF.3, panel 1). A shock, normalized so that the TTF price increases by 1 percent, increases the price level by about 0.05 percent after one year when driven by forward-looking demand or supply shocks and by roughly 0.08 percent when driven by current demand and geopolitical supply risk shocks.[10] All shocks, and particularly geopolitical supply risk, have more persistent effects on inflation than their oil counterparts. This difference reflects the greater persistence of natural gas prices following gas shocks, especially geopolitical supply risk shocks, compared with the response of oil prices to oil shocks, highlighting the role of inventories in smoothing fluctuations (Figure 1.SF.2). The responses of the unemployment rate to gas shocks are relatively muted (Figure 1.SF.3, panel 2), as natural gas is used mainly for heating and cooling, whereas oil is used primarily for transportation (IEA 2025).[11]

Revisiting Historical Energy Price Shocks

The analytical framework just presented is particularly useful during periods of multiple concurrent shocks and geopolitical escalations. To illustrate the model's ability to disentangle shocks in real time,[12] front-month oil and gas prices are decomposed into their main drivers during two relevant and recent conflicts with varying degrees of supply disruptions: Russia's invasion of Ukraine in 2022 and the 2026 war in the Middle East.[13] Russia's invasion of Ukraine entailed a major supply disruption for European gas markets, with TTF prices quadrupling in six months, whereas the oil disruption was minimal. Still, oil prices spiked. In contrast, both oil and gas supplies have been heavily disrupted during the 2026 war in the Middle East, and fears of a worsening geopolitical situation have been paramount.

The decompositions show that geopolitical supply risk exerted upward pressure on prices of energy, both oil and gas, before the wars began (Figure 1.SF.4),[14] reflecting increasing expectations of military escalation. Once the conflicts started, the decomposition of oil prices reveals notable differences across episodes.

[6]The inflationary effect of the oil shocks is broadly in line with other estimates found in the literature (Choi and others 2018; Känzig 2021), though slightly larger.

[7]The short-lived impact of geopolitical supply risk on inflation echoes the findings in Caldara and others (2026) and is consistent with the model in Ambrosino, Chan, and Tenreyro (2026).

[8]The response of the unemployment rate to geopolitical supply risk is also muted when the sample is restricted to before November 2022, when ChatGPT was launched (see Online Annex Figure 1.1.1). This ensures that the AI boom in US financial markets is not acting as a confounding factor during a period of high geopolitical risk and relatively strong labor markets.

[9]The relatively muted impact of geopolitical supply risk on activity is consistent with the model in Kilian, Plante, and Richter (2026), which shows that geopolitically induced changes in the probability of an oil production shortfall (higher geopolitical supply risk) are not a major driver of macroeconomic fluctuations.

[10]These magnitudes are very similar to the one found in López and others (2026) for gas supply shocks.

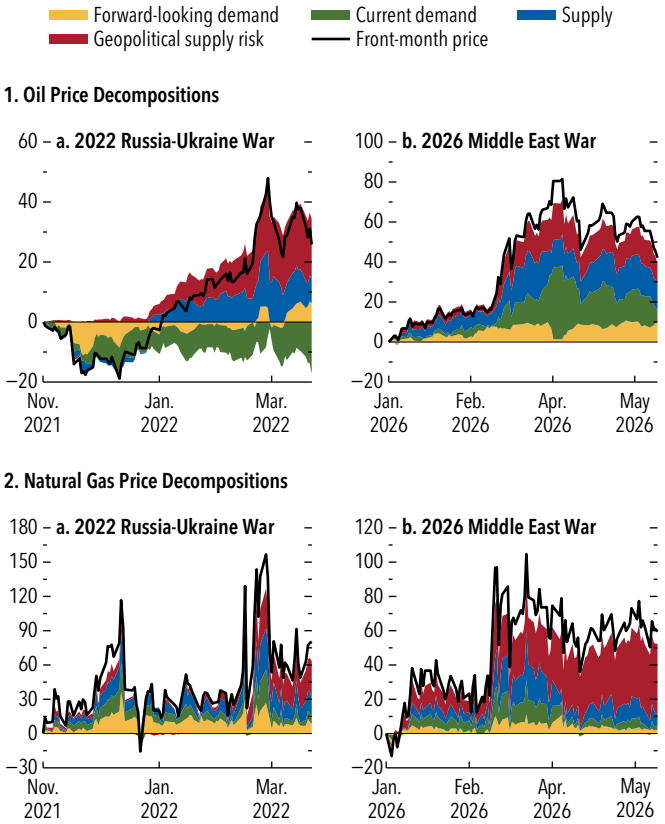
[11]The relatively muted effects on aggregate activity are consistent with previous work that highlights the power of substitution—geographic and of energy sources—in explaining very mild recessions after natural gas shocks (Moll, Schularick, and Zachmann 2023).

[12]To be sure, the analysis presented here is quasi–real time. Although the data used to estimate the SVAR are daily financial data and are not revised, the model is estimated over the whole sample. Robustness exercises in Gomez-Gonzalez and others (2026) show that the results are not different when only data available in real time are used to estimate the model.

[13]The decomposition of oil and gas prices at the time of the US announcement of tariffs in early April 2025, described earlier and an example of concurrent shocks, is in Gomez-Gonzalez and others (2026).

[14]The starting dates of these conflicts were February 24, 2022, for the conflict in Ukraine and February 27, 2026, for that in the Middle East.

Figure 1.SF.4. Front-Month Price Decompositions around Selected Episodes
(Percent change from value at beginning of period)



Sources: Bloomberg Finance L.P.; Caldara and Iacoviello 2022; and IMF staff calculations.

Note: The figure shows variance decompositions of front-month energy prices using four-variable structural vector autoregression models. Front-month price refers to the price of futures contracts for the nearest available maturity. Data used to estimate the models for oil are from June 2007 to May 29, 2026; those used to estimate the models for natural gas are from October 4, 2013, to May 29, 2026 (daily frequency).

During the war in Ukraine, the contribution of geopolitical supply risk has been more than twice as large as that of actual supply, whereas during the 2026 Middle East war, the two shocks have contributed roughly equally. This difference is consistent with the greater severity of the actual supply losses in the latter episode. In contrast, supply emerges as a key driver of gas price movements during the war in Ukraine, reflecting the prominent gas supply disruptions in that conflict. In the 2026 Middle East war, geopolitical supply risk has put substantial upward pressure on gas prices, followed by supply, again in line with the elevated uncertainty, shipping affected by the closure of the Strait of Hormuz, and damage to Qatari facilities. The contribution of demand, however, has been similar across oil and gas during the 2026 war. It exerted upward pressure on prices at the beginning of the war, as refineries and electrical firms likely competed for the scant crude and liquefied natural gas available. As the war has continued, the decomposition starts showing a lower demand contribution, signaling demand compression. A key takeaway from these decompositions is that realized energy shortages do not eliminate the influence of geopolitical risk. Even after supply disruptions materialize, heightened geopolitical supply risk continues to exert upward pressure on energy prices during geopolitical crises. Hence, not all the observed increase in energy prices during these crises should be interpreted as evidence of physical scarcity; part of the rise reflects elevated risk premiums associated with uncertainty about future disruptions.

Conclusion

The key takeaway from this Commodity Special Feature is that effective policy responses to energy-related shocks require identifying the source of energy price movements in real time. Because the macroeconomic implications are different, policymakers should be able to distinguish between price increases driven by demand shocks and those driven by supply shocks and, among the latter, between price increases as a result of geopolitical tensions and those caused by actual supply disruptions. For example, whereas oil-related geopolitical supply risk typically has only short-lived effects on prices and no measurable effect on unemployment, supply disruptions and forward-looking demand shocks generate larger and more persistent macroeconomic effects.

Policymakers' task is further complicated by the fact that shocks usually arise simultaneously. Recent events in the Middle East show that energy prices often increase in anticipation of supply disruptions and that geopolitical risk continues to influence prices even when shortages have already occurred. As a result, interpreting higher energy prices solely as evidence of physical scarcity can lead to inappropriate policy responses.

The Commodity Price Tracker offers a real-time framework for distinguishing among commodity price shocks, thereby supporting more timely and effective policy responses. Whereas the focus of this Commodity Special Feature is on oil and gas, the framework is flexible enough to be extended to other commodities of interest in the future.

Annex Table 1.1.1. European Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2025	2026	2027	2025	2026	2027	2025	2026	2027	2025	2026	2027
Europe	**1.6**	**1.4**	**1.6**	**6.2**	**5.9**	**5.1**	**1.5**	**1.5**	**1.5**	**. . .**	**. . .**	**. . .**
Advanced Europe	**1.3**	**1.3**	**1.3**	**2.3**	**2.9**	**2.7**	**2.2**	**2.1**	**2.1**	**5.9**	**6.0**	**5.9**
Euro Area[4,5]	1.2	1.1	1.2	2.1	3.1	2.8	1.7	1.2	1.3	6.3	6.3	6.3
Germany	0.2	1.3	1.1	2.3	2.7	3.1	4.5	4.5	4.2	3.8	4.0	3.7
France	0.9	0.4	0.7	0.9	2.4	2.2	–0.4	–0.7	–0.2	7.7	8.4	8.3
Italy[6]	0.5	0.8	0.6	1.6	3.3	2.8	1.1	0.7	1.2	6.1	5.6	5.8
Spain	2.6	2.5	1.8	2.7	3.7	2.7	3.2	2.6	2.0	10.5	9.8	9.8
The Netherlands	1.6	1.5	1.3	3.0	2.9	2.8	7.6	8.3	8.2	3.9	4.0	4.1
Belgium	1.0	0.7	1.1	3.0	3.8	2.9	–1.9	–2.8	–2.6	6.2	6.2	6.1
Ireland	8.0	–1.0	3.7	2.1	3.4	2.8	8.0	7.4	7.5	4.7	5.0	5.0
Austria	0.8	0.6	0.9	3.6	3.1	3.3	1.9	1.4	1.6	5.7	5.7	5.6
Portugal	1.9	2.1	1.9	2.2	3.2	3.0	1.2	0.0	1.2	6.0	5.9	5.9
Greece	2.1	1.8	1.8	2.9	4.2	3.6	–5.7	–6.6	–5.9	8.9	8.0	7.6
Finland	0.8	1.7	1.4	1.8	2.4	1.6	1.0	0.3	0.3	9.7	10.2	9.6
Bulgaria	3.1	2.6	2.7	3.5	4.9	4.8	–6.1	–8.0	–6.6	3.6	3.4	3.3
Slovak Republic	0.8	0.8	1.6	4.2	3.6	3.5	–3.6	–3.4	–2.9	5.4	5.8	5.7
Croatia	3.4	2.2	2.3	4.4	4.5	3.3	–3.5	–4.4	–3.3	4.5	4.5	4.6
Lithuania	2.9	2.7	2.1	3.4	5.4	3.5	–1.0	–2.3	–2.1	6.9	6.8	6.6
Slovenia	1.5	3.2	2.2	2.5	3.5	2.5	4.1	2.9	2.4	3.9	3.9	4.0
Luxembourg	0.6	1.1	1.6	2.5	3.0	2.6	4.8	4.2	3.9	6.0	6.4	6.5
Latvia	2.1	2.3	1.8	3.8	3.6	3.9	–5.3	–5.9	–6.1	6.9	6.7	6.5
Estonia	1.3	2.1	2.2	4.8	3.0	3.3	0.3	–2.5	–3.6	7.4	6.8	6.6
Cyprus	3.8	2.9	3.2	0.8	3.7	1.9	–6.4	–7.7	–7.7	4.4	4.0	4.4
Malta	4.7	4.2	4.0	2.4	2.4	2.2	8.6	6.5	5.8	3.0	3.0	3.0
United Kingdom	1.2	1.3	1.2	3.4	3.3	2.8	–3.0	–3.3	–3.2	4.9	5.3	5.3
Switzerland	1.6	1.9	1.2	0.2	0.7	0.8	5.6	6.2	6.5	2.8	3.0	3.0
Sweden	1.4	2.5	2.2	2.6	1.1	1.9	6.7	7.3	6.4	8.9	8.5	8.1
Czech Republic	2.6	1.8	1.9	2.5	2.1	2.8	0.7	–1.9	–1.6	2.8	3.0	2.9
Norway	1.1	1.5	1.3	3.0	3.2	2.8	14.2	20.7	17.4	4.5	4.6	4.3
Israel	3.5	4.5	4.4	3.0	1.8	2.0	2.1	1.1	1.7	3.0	3.1	3.2
Denmark	3.5	3.7	2.0	1.8	1.8	2.5	12.3	11.2	10.3	2.9	3.0	3.1
Iceland	1.1	1.4	1.8	4.1	5.6	3.6	–4.0	–2.5	–1.4	4.3	4.8	4.5
Liechtenstein	0.0	1.0	1.0	0.2	0.7	0.8	16.2	16.6	16.5	2.0	2.3	2.2
Andorra	3.9	1.9	1.7	2.4	4.0	3.2	20.0	20.5	20.6	1.3	1.5	1.7
San Marino	1.5	1.3	1.0	2.2	2.8	2.6	17.1	17.0	16.7	4.5	4.4	4.4
Emerging and Developing Europe	**2.0**	**1.7**	**2.1**	**13.5**	**11.3**	**9.5**	**–1.3**	**–0.6**	**–0.6**	**. . .**	**. . .**	**. . .**
Russia	1.0	0.9	0.9	8.7	6.1	4.8	1.5	3.8	3.2	2.2	2.2	2.4
Türkiye	3.7	2.7	3.6	34.9	31.2	26.5	–1.9	–2.9	–2.4	8.3	8.2	8.3
Poland	3.7	3.4	2.5	3.6	3.2	2.8	–1.0	–1.9	–1.5	3.1	3.2	3.2
Romania	0.7	–0.5	2.2	7.3	8.2	4.1	–7.9	–7.0	–6.7	6.1	6.5	5.9
Ukraine[6]	1.8	1.0	3.5	12.7	8.9	8.7	–16.0	–11.0	–4.7	11.6	10.2	11.3
Hungary	0.5	1.9	2.1	4.4	1.9	2.8	1.7	–0.5	0.3	4.4	4.5	4.2
Belarus	1.3	1.9	1.2	6.6	5.1	5.1	–1.9	–3.2	–3.4	2.5	2.5	2.5
Serbia	2.0	3.3	4.0	3.9	3.1	4.2	–4.9	–4.6	–3.5	8.7	8.6	8.5
Bosnia and Herzegovina	2.4	2.3	2.6	4.0	5.0	3.3	–3.1	–4.9	–4.8	12.2	12.2	12.2
Albania	3.7	3.5	3.2	2.2	3.2	3.2	–0.7	–2.1	–2.5	8.7	8.7	8.7
North Macedonia	3.5	3.5	3.2	4.1	4.0	4.5	–4.4	–5.8	–5.1	11.5	11.5	11.4
Moldova	2.4	1.5	2.3	7.8	7.4	9.0	–19.7	–22.0	–22.8	3.8	3.8	3.6
Kosovo	3.6	3.5	3.6	3.9	6.8	4.5	–8.3	–9.3	–8.9	. . .	. . .	. . .
Montenegro, Rep. of	2.7	3.0	2.8	3.9	3.5	3.3	–20.6	–19.7	–19.0	. . .	. . .	. . .

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Online Table F in the Online Statistical Appendix for a list of economies with exceptional reporting periods.

[1] Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Online Tables A6 and A7 in the Online Statistical Appendix.
[2] Percent of GDP.
[3] Percent. National definitions of unemployment may differ.
[4] Current account position corrected for reporting discrepancies in intra-area transactions.
[5] Based on Eurostat's harmonized index of consumer prices.
[6] See the country-specific notes for Italy and Ukraine in the "Country Notes" section of the Online Statistical Appendix.

Annex Table 1.1.2. Asian and Pacific Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2025	2026	2027	2025	2026	2027	2025	2026	2027	2025	2026	2027
Asia	**5.0**	**4.8**	**4.4**	**1.4**	**2.6**	**2.6**	**3.6**	**4.2**	**4.1**	**. . .**	**. . .**	**. . .**
Advanced Asia	**2.5**	**3.2**	**2.0**	**2.5**	**2.4**	**2.4**	**6.2**	**8.7**	**8.3**	**2.9**	**3.0**	**3.0**
Japan	1.2	0.7	0.7	3.2	2.0	2.6	4.9	4.6	4.3	2.5	2.5	2.5
Korea	1.1	3.3	2.8	2.1	2.7	2.3	6.5	18.8	16.1	2.8	2.8	2.9
Australia	2.0	1.9	1.6	2.8	3.9	3.1	–2.6	–3.1	–2.7	4.2	4.4	4.7
Taiwan Province of China	8.8	10.7	4.3	1.7	2.0	1.8	20.0	22.0	23.1	3.4	3.4	3.4
Singapore	5.0	5.0	3.0	0.9	2.3	2.2	16.7	16.7	16.6	2.0	2.1	2.1
Hong Kong SAR	3.6	3.8	2.8	1.4	1.9	1.9	12.3	13.8	13.1	3.6	3.8	3.5
New Zealand	0.3	2.0	2.6	2.8	4.1	2.8	–3.0	–3.4	–3.4	5.3	5.4	5.1
Macao SAR	4.7	3.3	3.1	0.3	1.8	1.9	39.6	39.8	39.3	1.7	1.7	1.7
Emerging and Developing Asia	**5.6**	**5.1**	**4.9**	**1.1**	**2.7**	**2.7**	**2.7**	**2.5**	**2.6**	**. . .**	**. . .**	**. . .**
China	5.0	4.5	4.0	0.0	1.0	1.4	3.7	4.0	3.9	5.1	5.1	5.1
India[4]	7.8	7.0	7.0	2.0	5.0	4.4	–0.7	–1.5	–1.3	5.0	5.0	5.0
Indonesia	5.1	5.1	5.1	1.9	3.3	2.8	–0.1	–1.6	–1.0	4.9	4.7	4.7
Thailand	2.4	2.1	2.1	–0.1	2.1	1.7	3.0	–1.2	1.4	1.0	1.0	1.0
Vietnam	8.0	8.4	7.5	3.3	4.7	4.9	6.7	0.3	3.4	2.2	2.1	2.2
Malaysia	5.2	5.2	4.6	1.4	2.2	1.9	1.6	2.1	2.1	3.0	3.0	3.0
Philippines	4.4	3.4	5.1	1.7	5.6	4.1	–3.3	–4.8	–3.6	4.2	5.4	5.2
Other Emerging and Developing Asia	**3.5**	**3.5**	**3.3**	**8.4**	**8.5**	**9.5**	**1.1**	**0.5**	**–1.3**	**. . .**	**. . .**	**. . .**
Bangladesh	3.5	3.6	3.2	10.0	8.7	10.9	0.0	–0.3	–2.1	. . .	. . .	. . .
Myanmar	–2.0	2.0	2.0	21.1	20.0	16.0	1.8	–0.8	–1.1	. . .	. . .	. . .
Nepal	4.4	3.6	3.7	4.1	3.1	5.8	6.6	13.9	2.0	. . .	. . .	. . .
Cambodia	5.3	3.0	4.0	2.5	5.6	3.1	–3.7	–8.7	–7.6	. . .	. . .	. . .
Lao P.D.R.	4.8	4.5	4.5	7.7	9.2	9.8	12.0	5.1	1.4	. . .	. . .	. . .
Mongolia	6.8	6.2	5.9	8.6	11.0	10.7	–8.4	–2.2	–2.4	5.3	5.0	5.0
Papua New Guinea	6.2	3.1	4.0	4.4	4.8	5.1	14.3	14.1	12.3	. . .	. . .	. . .
Brunei Darussalam	1.0	1.9	1.3	–0.3	0.8	0.9	18.0	23.7	20.0	4.7	4.7	4.7
Fiji	2.5	1.9	2.3	–1.4	4.2	3.0	–7.7	–12.9	–11.8	5.0	5.0	4.5
Maldives	6.3	1.0	3.8	3.5	4.0	2.5	–6.1	–18.6	–14.8	. . .	. . .	. . .
Bhutan	8.2	7.0	6.9	2.6	5.6	6.5	–16.0	–16.3	–17.7	. . .	. . .	. . .
Timor-Leste[4]	4.5	4.0	3.7	0.5	2.1	2.2	–35.8	–38.5	–38.4	. . .	. . .	. . .
Solomon Islands	3.6	2.7	2.8	2.7	5.1	5.0	5.6	–3.2	–3.2	. . .	. . .	. . .
Samoa	4.2	0.4	1.7	1.8	1.4	5.7	5.7	5.6	–4.6	. . .	. . .	. . .
Vanuatu	3.7	3.5	3.2	0.7	2.8	3.5	–6.0	–6.3	–5.6	. . .	. . .	. . .
Tonga	4.4	1.8	1.9	3.1	3.8	7.5	–4.3	–7.2	–9.7	. . .	. . .	. . .
Kiribati	4.3	3.0	2.5	5.9	4.5	3.1	–15.2	–16.1	–16.0	. . .	. . .	. . .
Micronesia	2.1	1.4	1.7	2.8	3.2	4.5	3.7	0.0	–16.1	. . .	. . .	. . .
Palau	6.0	4.3	2.7	0.2	1.7	3.7	–11.6	–13.8	–14.0	. . .	. . .	. . .
Marshall Islands	1.8	3.0	2.2	4.1	8.6	5.8	33.8	10.7	13.1	. . .	. . .	. . .
Naoero	2.2	2.1	2.0	6.1	5.7	4.3	2.7	2.2	2.0	. . .	. . .	. . .
Tuvalu	5.2	3.4	2.8	2.9	4.3	3.0	21.1	4.7	–0.6	. . .	. . .	. . .
Sri Lanka	5.0	4.0	3.7	–0.5	5.3	5.4	1.6	–0.5	–0.3	3.9	3.9	3.9
Memorandum												
ASEAN-5[5]	4.5	4.4	4.3	1.4	3.2	2.6	3.0	1.8	2.5	. . .	. . .	. . .
Emerging Asia[6]	5.7	5.2	4.9	0.8	2.4	2.4	2.7	2.6	2.7	. . .	. . .	. . .

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Online Table F in the Online Statistical Appendix for a list of economies with exceptional reporting periods.

[1] Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Online Tables A6 and A7 in the Online Statistical Appendix.
[2] Percent of GDP.
[3] Percent. National definitions of unemployment may differ.
[4] See the country-specific notes for India and Timor-Leste in the "Country Notes" section of the Online Statistical Appendix.
[5] Indonesia, Malaysia, the Philippines, Singapore, and Thailand.
[6] Emerging Asia comprises China, India, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.

Annex Table 1.1.3. Western Hemisphere Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2025	2026	2027	2025	2026	2027	2025	2026	2027	2025	2026	2027
North America	**2.1**	**2.2**	**2.2**	**2.8**	**3.6**	**2.9**	**–3.5**	**–3.4**	**–3.4**	**. . .**	**. . .**	**. . .**
United States	2.3	2.3	2.3	2.7	3.6	2.8	–3.8	–3.9	–3.8	4.3	4.2	4.0
Mexico	0.5	1.5	1.8	3.8	3.8	3.6	–0.5	–0.3	–0.5	2.6	2.8	2.8
Canada	1.9	1.1	1.7	2.1	2.8	2.4	–0.9	–0.1	–0.2	6.9	6.5	6.3
Puerto Rico[4]	0.3	–0.1	1.0	1.5	3.1	3.6	. . .	. . .	. . .	5.6	5.4	5.3
South America[5]	**2.9**	**2.1**	**2.4**	**9.7**	**8.4**	**6.7**	**–1.6**	**–1.1**	**–1.2**	**. . .**	**. . .**	**. . .**
Brazil	2.3	2.2	1.9	5.0	4.4	4.1	–2.9	–2.4	–2.0	6.0	6.2	6.8
Argentina	4.5	2.1	3.5	41.9	32.5	21.2	–1.1	0.6	0.6	7.4	7.6	7.1
Colombia	2.6	2.2	2.3	5.1	6.0	5.7	–2.4	–2.6	–3.4	8.0	9.0	10.0
Chile	2.5	0.6	2.6	4.2	3.7	3.5	–1.2	–0.3	–1.5	8.5	9.5	9.6
Peru	3.4	3.0	2.9	1.5	3.8	2.6	3.5	4.0	3.0	5.9	5.0	5.2
Ecuador	3.7	2.7	2.5	0.7	2.0	2.1	5.9	4.6	4.6	3.1	3.1	3.1
Venezuela	9.0	5.0	7.0	252.0	467.9	174.7	0.6	–1.0	–3.4	. . .	. . .	. . .
Bolivia	–1.6	–3.0	–1.5	19.5	12.7	15.8	–1.9	1.6	1.0	3.3	4.5	5.2
Paraguay	6.6	4.5	4.0	4.0	3.1	3.3	–2.5	–2.8	–3.0	4.8	4.7	4.7
Uruguay	1.8	1.3	2.4	4.7	4.0	4.5	–0.5	–0.9	–1.0	7.5	7.5	7.5
Central America	**3.7**	**4.2**	**4.0**	**1.8**	**3.0**	**3.7**	**1.0**	**–0.3**	**–0.7**	**. . .**	**. . .**	**. . .**
Dominican Republic	2.1	4.6	4.4	3.9	5.1	5.3	–1.2	–1.5	–1.7	5.3	5.3	5.2
Guatemala	4.3	4.0	3.8	1.6	3.0	4.1	4.7	3.6	3.1	. . .	. . .	. . .
Panama	4.4	5.0	4.2	–0.1	1.8	2.2	–0.2	–1.5	–2.5	10.4	9.1	8.7
Costa Rica	4.6	3.3	3.5	–0.1	–0.8	2.2	–0.6	–1.5	–1.6	6.3	7.0	7.2
El Salvador	3.9	4.5	4.0	0.3	2.7	2.1	–3.5	–4.8	–3.0	4.2	4.3	4.4
Honduras	3.8	3.3	3.4	4.6	5.6	5.3	2.4	–2.0	–3.5	4.9	7.1	7.4
Nicaragua	4.9	3.8	3.8	2.1	3.5	3.2	9.5	6.4	4.0	2.7	3.1	2.7
Caribbean	**6.1**	**8.0**	**7.4**	**5.9**	**5.9**	**5.7**	**1.6**	**3.9**	**1.3**	**. . .**	**. . .**	**. . .**
Guyana	19.3	22.3	16.8	3.3	4.1	5.1	21.4	31.6	17.5	. . .	. . .	. . .
Trinidad and Tobago	–0.5	0.2	2.2	1.0	0.8	1.5	5.0	5.6	8.1	4.5	4.4	4.5
Jamaica	0.1	0.0	2.4	3.9	5.9	5.5	1.5	–5.1	–3.6	3.4	. . .	. . .
Haiti	–2.7	–1.7	–0.5	28.3	21.5	15.7	1.4	1.3	0.2	. . .	. . .	. . .
Bahamas, The	3.8	2.5	1.9	1.1	3.8	4.2	–8.3	–9.3	–8.7	9.4	9.3	9.1
Suriname	4.0	4.0	4.1	9.2	10.5	12.4	–53.3	–51.0	–51.4	9.5	9.0	8.0
Barbados	2.7	1.8	2.2	0.9	2.6	2.8	–5.9	–6.3	–6.2	7.2	7.3	7.3
Belize	2.6	1.9	2.0	1.1	3.5	2.4	–2.8	–5.2	–4.2	2.0	2.0	2.0
Aruba	6.3	3.7	2.7	0.1	1.8	2.2	11.6	10.5	9.9	4.0	3.9	4.0
St. Lucia	–0.6	1.2	1.8	0.7	2.9	2.5	–5.2	–5.8	–4.9	. . .	. . .	. . .
Antigua and Barbuda	3.0	2.4	2.5	1.4	3.6	3.1	–11.6	–12.7	–11.9	. . .	. . .	. . .
Grenada	4.8	3.9	3.0	0.6	1.7	1.8	–23.1	–22.8	–18.8	. . .	. . .	. . .
St. Vincent and the Grenadines	2.4	2.3	2.4	0.9	2.7	2.6	–16.4	–17.2	–15.2	. . .	. . .	. . .
St. Kitts and Nevis	1.5	1.8	2.3	0.8	3.6	3.2	–14.4	–16.2	–15.4	. . .	. . .	. . .
Dominica	4.5	3.1	2.8	0.9	2.7	1.1	–38.7	–35.7	–28.5	. . .	. . .	. . .
Memorandum												
Latin America and the Caribbean[6]	2.5	2.3	2.5	7.6	6.8	5.7	–1.0	–0.7	–0.9	. . .	. . .	. . .
Eastern Caribbean Currency Union[7]	2.1	2.4	2.4	0.9	2.8	2.5	–10.6	–10.9	–10.1	. . .	. . .	. . .

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Online Table F in the Online Statistical Appendix for a list of economies with exceptional reporting periods.

[1] Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Online Tables A6 and A7 in the Online Statistical Appendix. Aggregates exclude Venezuela.

[2] Percent of GDP.

[3] Percent. National definitions of unemployment may differ.

[4] Puerto Rico is a territory of the United States, but its statistical data are maintained on a separate and independent basis.

[5] See the country-specific notes for Argentina, Uruguay, and Venezuela in the "Country Notes" section of the Online Statistical Appendix.

[6] Latin America and the Caribbean comprises Mexico and economies from the Caribbean, Central America, and South America. See the country-specific notes for Argentina and Venezuela in the "Country Notes" section of the Online Statistical Appendix.

[7] Eastern Caribbean Currency Union comprises Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines, as well as Anguilla and Montserrat, which are not IMF members.

Annex Table 1.1.4. Middle East and Central Asia Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2025	2026	2027	2025	2026	2027	2025	2026	2027	2025	2026	2027
Middle East and Central Asia	**3.7**	**–0.3**	**6.3**	**11.2**	**13.0**	**10.2**	**0.6**	**–1.0**	**0.9**	**. . .**	**. . .**	**. . .**
Oil Exporters	**3.3**	**–3.8**	**7.4**	**10.6**	**15.4**	**9.7**	**2.4**	**0.4**	**3.1**	**. . .**	**. . .**	**. . .**
Saudi Arabia	4.6	–3.3	7.9	2.0	1.9	2.2	–2.6	–3.5	–1.3	3.2	. . .	. . .
Iran[4]	–0.9	–7.6	3.6	50.6	78.6	42.0	3.3	–1.2	1.2	7.5	9.2	9.0
United Arab Emirates	6.2	–3.9	7.7	1.3	4.5	2.5	13.3	4.8	7.8	. . .	. . .	. . .
Kazakhstan	6.5	4.4	4.9	11.4	10.3	8.2	–4.1	0.5	–0.7	4.6	4.6	4.5
Algeria	3.9	3.8	3.2	1.4	6.2	3.9	–8.9	–0.8	–1.8	. . .	. . .	. . .
Iraq	–0.4	–16.0	19.0	0.3	3.5	3.0	–3.8	–10.8	2.2	. . .	. . .	. . .
Qatar	1.8	–15.6	18.8	0.6	3.6	3.1	16.4	7.1	13.7	. . .	. . .	. . .
Kuwait	2.7	–16.7	17.1	2.4	2.2	2.4	22.7	18.3	24.9	. . .	. . .	. . .
Azerbaijan	1.4	1.7	2.3	5.6	5.8	5.6	4.6	11.3	9.8	5.3	5.3	5.2
Oman	2.4	4.1	2.2	1.0	3.2	2.7	–1.1	5.0	6.7	. . .	. . .	. . .
Turkmenistan[4]	3.6	2.4	2.5	2.7	5.6	4.3	1.7	1.4	1.8	. . .	. . .	. . .
Libya[4]	15.9	3.3	2.9	1.8	14.1	16.1	1.1	0.9	0.4	. . .	. . .	. . .
Bahrain	3.5	–11.3	13.9	–0.1	2.2	1.5	5.0	3.6	4.5	5.6	. . .	. . .
Oil Importers[5]	**4.3**	**4.7**	**4.7**	**12.1**	**9.4**	**11.0**	**–4.1**	**–4.4**	**–4.5**	**. . .**	**. . .**	**. . .**
Egypt	4.4	5.1	4.7	20.4	13.3	14.8	–4.2	–4.4	–4.9	7.3	. . .	. . .
Pakistan	3.2	3.6	3.5	4.5	7.1	9.9	0.5	0.0	–1.0	7.1	6.9	6.5
Uzbekistan	7.7	7.8	6.5	8.8	6.9	5.7	–3.9	–5.1	–4.6	4.8	4.3	3.8
Morocco	4.9	4.5	4.2	0.8	0.9	1.4	–2.4	–4.9	–4.1	13.0	12.2	11.3
Tunisia	2.7	2.4	2.0	5.3	5.5	6.3	–3.3	–4.9	–5.3	15.2	. . .	. . .
Jordan	2.8	2.7	3.1	1.8	2.5	2.3	–5.6	–7.5	–5.7	21.3	. . .	. . .
Sudan[4]	0.0	7.0	15.0	99.9	41.3	50.9	–8.6	–14.6	–13.0	61.2	59.5	54.7
Georgia	7.5	7.2	5.7	3.9	5.4	3.6	–2.6	–3.5	–3.7	13.9	13.9	13.9
Afghanistan[4]	1.5	. . .	. . .	3.6	. . .	. . .	–37.9	. . .	. . .	. . .	. . .	. . .
Armenia	7.1	5.5	5.5	3.3	4.6	3.6	–8.7	–8.2	–7.7	12.8	12.8	12.7
Lebanon[4]	4.0	. . .	. . .	14.6	. . .	. . .	–22.5	. . .	. . .	. . .	. . .	. . .
Kyrgyz Republic	11.1	9.0	7.0	8.2	12.7	14.3	–24.9	–9.0	–8.7	4.0	4.0	4.0
Tajikistan	8.4	7.3	6.8	3.4	4.1	4.8	17.2	8.2	3.5	. . .	. . .	. . .
Mauritania	3.6	4.4	4.4	1.6	8.0	7.2	–5.8	–7.8	–7.4	. . .	. . .	. . .
Somalia	3.1	2.3	2.7	3.7	6.3	5.5	–24.3	–25.4	–25.2	. . .	. . .	. . .
Yemen[4]	–0.5	–1.5	0.0	20.2	5.0	17.0	–6.8	–3.3	–4.1	. . .	. . .	. . .
Djibouti	4.9	5.6	5.0	–0.3	2.3	2.7	14.5	11.5	10.0	. . .	. . .	. . .
West Bank and Gaza[4]	4.3	. . .	. . .	10.5	. . .	. . .	–15.8	. . .	. . .	. . .	. . .	. . .
Memorandum												
Caucasus and Central Asia	6.2	5.2	5.0	8.4	8.0	6.7	–2.7	–0.1	–0.8	. . .	. . .	. . .
Middle East, North Africa, Afghanistan, and Pakistan[5]	3.3	–1.3	6.6	11.7	13.8	10.8	1.1	–1.2	1.2	. . .	. . .	. . .
Middle East and North Africa	3.3	–2.0	7.0	12.8	14.9	11.0	1.3	–1.3	1.4	. . .	. . .	. . .

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Online Table F in the Online Statistical Appendix for a list of economies with exceptional reporting periods.

[1] Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Online Tables A6 and A7 in the Online Statistical Appendix.
[2] Percent of GDP.
[3] Percent. National definitions of unemployment may differ.
[4] See the country-specific notes for Afghanistan, Iran, Lebanon, Libya, Sudan, Turkmenistan, West Bank and Gaza, and Yemen in the "Country Notes" section of the Online Statistical Appendix.
[5] Excludes Afghanistan and Syria because of a lack of adequate data. See the country-specific notes in the "Country Notes" section of the Online Statistical Appendix.

Annex Table 1.1.5. Sub-Saharan African Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2025	2026	2027	2025	2026	2027	2025	2026	2027	2025	2026	2027
Sub-Saharan Africa	**4.5**	**4.5**	**4.5**	**12.6**	**8.6**	**8.6**	**–0.8**	**–0.6**	**–0.9**	**. . .**	**. . .**	**. . .**
Oil Exporters	**4.0**	**4.2**	**4.1**	**21.3**	**13.9**	**13.4**	**2.3**	**5.3**	**2.8**	**. . .**	**. . .**	**. . .**
Nigeria[4]	4.0	4.2	4.3	23.0	15.6	14.7	4.8	7.0	4.4	. . .	. . .	. . .
Angola	3.1	4.4	3.3	20.2	10.6	10.2	0.3	2.8	–0.1	. . .	. . .	. . .
Chad	5.1	4.5	5.4	–2.6	–0.7	5.3	–0.6	1.3	–0.3	. . .	. . .	. . .
Gabon	3.2	3.0	2.9	1.8	0.8	1.9	–6.0	1.3	–2.2	. . .	. . .	. . .
Republic of Congo	2.4	3.5	3.6	2.6	4.0	3.4	–5.1	5.2	3.6	. . .	. . .	. . .
Equatorial Guinea	–5.8	–1.7	–1.0	2.3	3.3	2.9	–2.4	–0.1	–0.8	. . .	. . .	. . .
South Sudan	41.4	10.5	3.9	97.6	27.6	28.3	–6.4	8.2	5.0	. . .	. . .	. . .
Middle-Income Countries	**3.5**	**3.3**	**3.4**	**4.5**	**4.3**	**4.5**	**–0.5**	**–1.2**	**–1.3**	**. . .**	**. . .**	**. . .**
South Africa	1.1	1.0	1.3	3.2	4.4	3.9	–0.5	–0.7	–0.9	32.4	33.2	33.0
Kenya	4.6	4.5	4.7	4.1	6.0	5.0	–2.8	–4.5	–4.1	. . .	. . .	. . .
Ghana	6.0	5.7	5.2	14.2	4.8	7.8	8.1	6.0	5.6	. . .	. . .	. . .
Côte d'Ivoire	6.5	6.0	6.1	0.1	2.2	2.5	–0.6	–2.4	–3.2	. . .	. . .	. . .
Cameroon	3.5	3.2	3.6	3.5	3.4	4.3	–3.8	–4.8	–4.6	. . .	. . .	. . .
Senegal[4]	6.7	. . .	. . .	1.4	. . .	. . .	–1.2	. . .	. . .	. . .	. . .	. . .
Zambia	3.8	5.6	4.9	13.9	8.0	7.5	–5.5	2.3	3.9	. . .	. . .	. . .
Benin	8.1	7.0	6.8	1.1	0.8	2.0	–5.7	–5.6	–5.2	. . .	. . .	. . .
Botswana	–0.7	4.4	2.2	2.8	7.2	7.4	3.1	–1.0	–1.0	. . .	. . .	. . .
Mauritius	3.2	2.7	3.2	3.7	4.7	5.5	–7.0	–7.9	–5.8	5.7	6.0	5.9
Namibia	1.7	2.0	2.7	3.5	4.1	4.2	–13.1	–16.9	–14.4	. . .	. . .	. . .
Eswatini	4.9	3.7	3.4	3.1	2.9	3.2	2.4	1.8	1.9	. . .	. . .	. . .
Lesotho	1.5	1.1	0.8	4.0	4.6	3.9	–1.2	–2.5	–0.6	. . .	. . .	. . .
Cabo Verde	6.3	5.0	5.0	2.3	1.2	2.8	3.4	–1.9	–2.2	8.5	8.5	8.5
Seychelles	5.8	1.0	4.0	0.3	0.9	2.3	–7.7	–8.5	–5.3	2.6	2.6	2.6
Comoros	3.8	2.9	3.1	3.2	4.0	3.2	–0.5	–6.1	–4.8	. . .	. . .	. . .
São Tomé and Príncipe	1.0	0.4	1.9	0.9	11.0	9.6	–4.3	–6.1	–4.8	. . .	. . .	. . .
Low-Income Countries[5]	**6.7**	**6.4**	**6.4**	**11.6**	**6.7**	**7.4**	**–3.5**	**–4.8**	**–3.5**	**. . .**	**. . .**	**. . .**
Ethiopia	9.2	9.2	7.8	16.0	11.7	12.3	–0.8	–2.5	–1.3	. . .	. . .	. . .
Tanzania	5.9	6.0	5.9	3.3	4.0	4.2	–2.6	–2.7	–2.6	. . .	. . .	. . .
Democratic Republic of the Congo	5.7	5.2	5.7	7.4	4.3	7.4	–3.7	–1.9	–0.9	. . .	. . .	. . .
Uganda	6.7	6.2	9.9	3.6	4.2	5.3	–5.1	–7.3	–2.4	. . .	. . .	. . .
Zimbabwe	8.3	5.0	3.5	81.4	4.0	5.0	3.6	5.3	3.6	. . .	. . .	. . .
Mali	4.9	5.5	5.7	2.3	3.0	2.5	0.1	–3.4	–3.4	. . .	. . .	. . .
Guinea	6.9	7.2	7.8	3.1	6.3	5.8	–14.7	–10.7	–3.5	. . .	. . .	. . .
Burkina Faso	5.3	4.4	4.8	–0.5	2.1	2.2	5.8	–0.6	–1.7	. . .	. . .	. . .
Madagascar	3.1	3.8	4.5	8.0	8.4	8.0	–6.0	–8.7	–7.0	. . .	. . .	. . .
Niger	6.9	7.0	6.5	–4.7	–1.9	2.0	–3.7	–3.0	–3.3	. . .	. . .	. . .
Mozambique	–0.2	1.0	2.0	4.4	5.6	6.8	–13.5	–41.0	–37.8	. . .	. . .	. . .
Rwanda	9.4	7.4	7.2	7.0	12.3	7.9	–9.8	–10.5	–9.0	. . .	. . .	. . .
Malawi	2.5	2.6	2.3	28.4	21.9	25.0	–13.8	–12.2	–12.2	. . .	. . .	. . .
Togo	6.3	5.0	5.3	0.4	1.1	2.3	–2.8	–4.8	–3.4	. . .	. . .	. . .
Sierra Leone	4.8	4.0	4.4	7.6	13.8	13.0	–5.2	–4.7	–4.2	. . .	. . .	. . .
Burundi	4.2	3.6	4.7	34.0	10.5	12.2	–6.4	–6.8	–5.2	. . .	. . .	. . .
Liberia	5.1	5.5	5.1	8.3	5.9	7.1	–7.0	–19.9	–19.6	. . .	. . .	. . .
The Gambia	5.7	5.1	5.1	7.9	7.0	5.7	–4.1	–5.9	–5.2	. . .	. . .	. . .
Central African Republic[4]	5.8	2.7	3.3	1.0	3.5	3.0	–2.6	–3.3	–3.4	. . .	. . .	. . .
Guinea-Bissau	5.8	4.7	4.9	0.9	2.5	2.1	–6.2	–7.0	–5.7	. . .	. . .	. . .

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Online Table F in the Online Statistical Appendix for a list of economies with exceptional reporting periods.

[1] Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Online Tables A6 and A7 in the Online Statistical Appendix.

[2] Percent of GDP.

[3] Percent. National definitions of unemployment may differ.

[4] See the country-specific notes for the Central African Republic, Nigeria, and Senegal in the "Country Notes" section of the Online Statistical Appendix

[5] Excludes Eritrea because of a lack of adequate data. See the country-specific note in the "Country Notes" section of the Online Statistical Appendix.

Annex Table 1.1.6. Summary of World Real per Capita Output

(Annual percent change; in constant 2021 international dollars at purchasing power parity)

	Average									Projections	
	2008–17	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
World	**1.8**	**2.5**	**1.8**	**–3.9**	**5.7**	**2.8**	**2.3**	**2.5**	**2.6**	**2.1**	**2.5**
Advanced Economies	**0.8**	**1.9**	**1.5**	**–4.4**	**6.0**	**2.5**	**0.9**	**1.4**	**1.7**	**1.9**	**1.7**
United States	0.8	2.4	2.1	–2.9	5.9	1.9	2.1	2.0	1.8	2.0	2.0
Euro Area[1]	0.4	1.6	1.5	–6.3	6.5	3.4	–0.1	0.8	1.0	1.0	1.1
Germany	1.2	1.1	1.0	–3.9	4.1	1.2	–1.9	–0.3	0.2	1.6	1.3
France	0.3	1.3	1.7	–7.9	6.4	2.3	1.3	1.1	0.6	0.1	0.5
Italy	–0.8	1.0	0.6	–8.6	9.7	5.2	1.0	0.8	0.6	0.9	0.7
Spain	0.1	1.8	1.1	–11.1	6.5	5.0	1.2	2.6	1.9	1.5	0.8
Japan	0.6	1.0	–0.1	–4.0	3.9	1.6	1.4	0.5	1.7	1.3	1.2
United Kingdom	0.6	1.1	0.9	–10.2	8.1	4.0	–0.9	0.0	0.9	0.7	0.9
Canada	0.5	1.3	0.4	–6.1	5.3	2.9	–0.8	–0.9	0.7	1.5	1.7
Other Advanced Economies[2]	1.7	2.1	1.3	–2.2	6.0	2.0	0.6	1.9	2.8	3.6	2.3
Emerging Market and Developing Economies	**3.3**	**3.3**	**2.5**	**–3.2**	**5.9**	**3.2**	**3.4**	**3.4**	**3.5**	**2.6**	**3.4**
Emerging and Developing Asia	6.1	5.6	4.5	–1.3	7.1	4.1	5.1	4.9	5.1	4.6	4.4
China	7.7	6.4	5.7	2.2	8.5	3.2	5.5	5.1	5.2	4.7	4.2
India[3]	5.3	5.3	2.8	–6.7	8.8	6.8	6.4	6.2	6.9	6.1	6.1
Emerging and Developing Europe	1.8	3.4	2.4	–1.9	7.6	1.7	3.8	4.3	2.4	1.9	2.0
Russia	1.0	2.6	2.1	–2.5	6.3	–1.3	4.2	5.4	1.6	1.3	1.2
Latin America and the Caribbean	0.8	0.0	–1.0	–8.0	6.7	3.6	1.5	1.6	1.7	1.6	1.8
Brazil	0.8	1.1	0.6	–3.9	4.3	2.6	2.8	3.0	1.9	1.8	1.5
Mexico	0.3	1.0	–1.3	–9.1	5.4	2.9	2.2	0.6	–0.3	0.7	1.0
Middle East and Central Asia	1.1	0.8	0.3	–4.5	3.0	4.2	0.5	1.0	1.9	–2.4	4.3
Saudi Arabia	0.5	5.9	2.1	–8.3	9.2	7.2	–4.0	–2.0	2.5	–5.2	5.8
Sub-Saharan Africa	1.5	0.6	0.3	–5.7	1.4	1.9	1.3	1.5	2.0	2.0	2.0
Nigeria[3]	2.1	–0.4	0.0	–8.3	–1.0	2.2	1.2	1.9	1.9	2.1	2.2
South Africa	0.2	0.0	–1.3	–7.5	3.8	0.9	–0.5	–0.8	1.0	–0.2	0.1
Memorandum											
European Union	0.7	2.1	1.9	–5.7	6.7	3.5	0.0	1.1	1.3	1.3	1.3
ASEAN-5[4]	3.5	3.8	3.2	–5.5	3.4	4.6	3.1	3.9	3.6	3.5	3.5
Middle East and North Africa	0.7	0.2	–0.1	–4.7	3.1	4.5	0.4	0.7	1.6	–4.1	5.0
Emerging Market and Middle-Income Economies	3.6	3.6	2.7	–2.9	6.6	3.5	3.8	3.8	3.8	2.9	3.7
Low-Income Developing Countries	2.7	2.2	2.2	–3.8	1.4	2.6	1.8	1.9	2.5	2.6	2.6

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Online Table F in the Online Statistical Appendix for a list of economies with exceptional reporting periods.

[1] Data are calculated as the sum of data for individual euro area countries.
[2] Excludes the Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries.
[3] See the country-specific notes for India and Nigeria in the "Country Notes" section of the Online Statistical Appendix.
[4] Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

References

Ahmed, R. 2023. "Flights-to-Safety and Macroeconomic Adjustment in Emerging Markets: The Role of U.S. Monetary Policy." *Journal of International Money and Finance* 133: 102827.

Alfaro, L., and D. Chor. 2023. "Global Supply Chains: The Looming 'Great Reallocation.'" NBER Working Paper 31661, National Bureau of Economic Research, Cambridge, MA.

Ambrosino, L., J. Chan, and S. Tenreyro. 2026. "Trade Fragmentation, Inflationary Pressures and Monetary Policy." *Journal of International Economics* 163: 104219.

Andrews, D. S., H. Puhr, and A. Knill. 2026. "Transmission of Geopolitical Shocks to Firm Behavior: A Synthesis and Integrative Model." *Journal of International Business Policy* 9: 124–45.

Andrle, M., and B. L. Hunt. 2020. "Model-Based Globally-Consistent Risk Assessment." IMF Working Paper 20/64, International Monetary Fund, Washington, DC.

Antràs P., A. Kulesza, and A. Presbitero. 2026. "The Remains of the Trade: the US-China Trade War and Its Aftermath." NBER Working Paper 35785, National Bureau of Economic Research, Cambridge, MA.

Arita, S., R. Chakravorty, J. Kim, W. Y. Lwin, and S. Steinbach. 2026. "Strait of Hormuz Closure and Global Fertilizer Trade Disruptions." *NDSU [North Dakota State University] Agricultural Trade Monitor*, March 2026.

Ball, L. M., D. Leigh, and P. Mishra. 2022. "Understanding U.S. Inflation during the COVID-19 Era." *Brookings Papers on Economic Activity* (Fall): 1–54.

Baumeister, C., and J. D. Hamilton. 2019. "Structural Interpretation of Vector Autoregressions with Incomplete Identification: Revisiting the Role of Oil Supply and Demand Shocks." *American Economic Review* 109 (5): 1873–910.

Becker, J., N. Rush, B. Barnes, and D. Rein. 2025. "Measuring the Impact of Early-2025 AI on Experienced Open-Source Developer Productivity." arXiv Working Paper 2507.09089. https://doi.org/10.48550/arXiv.2507.09089.

Blanchard, O. J., and J. Galí. 2007. "The Macroeconomic Effects of Oil Price Shocks: Why Are the 2000s So Different from the 1970s?" NBER Working Paper 13368, National Bureau of Economic Research, Cambridge, MA.

Bown, C. P., and M. A. Crowley. 2007. "Trade Deflection and Trade Depression." *Journal of International Economics* 72 (1): 176–201.

Brynjolfsson, E. 2026. "The AI Productivity Take-Off Is Finally Visible." *Financial Times*, February 15, 2026.

Brynjolfsson, E., D. Li, and L. R. Raymond. 2025. "Generative AI at Work." *Quarterly Journal of Economics* 140 (2): 889–942.

Brynjolfsson, E., D. Rock, and C. Syverson. 2021. "The Productivity J-Curve: How Intangibles Complement General Purpose Technologies." *American Economic Journal: Macroeconomics* 13 (1): 333–72.

Caldara, D., S. Conlisk, M. Iacoviello, and M. Penn. 2026. "Do Geopolitical Risks Raise or Lower Inflation?" *Journal of International Economics* 159: 104188.

Caldara, D., and M. Iacoviello. 2022. "Measuring Geopolitical Risk." *American Economic Review* 112 (4): 1194–225.

Cashin, P., K. Mohaddes, and M. Raissi. 2017. "Fair Weather or Foul? The Macroeconomic Effects of El Niño." *Journal of International Economics* 106 (May): 37–54.

Cerutti, E., A. Garcia Pascual, Y. Kido, L. Li, G. Melina, M. M. Tavares, and P. Wingender. 2025. "The Global Impact of AI: Mind the Gap." IMF Working Paper 25/76, International Monetary Fund, Washington, DC.

Choi, S., D. Furceri, P. Loungani, S. Mishra, and M. Poplawski-Ribeiro. 2018. "Oil Prices and Inflation Dynamics: Evidence from Advanced and Developing Economies." *Journal of International Money and Finance* 82 (April): 71–96.

Chui, M., and L. Gambacorta. 2026. "Africa's Public Debt amid Global Headwinds: Balancing Resilience and Vulnerabilities." BIS Bulletin 132, Bank for International Settlements, Basel.

Cui, Z., M. Demirer, S. Jaffe, L. Musolff, S. Peng, and T. Salz. 2026. "The Effects of Generative AI on High-Skilled Work: Evidence from Three Field Experiments with Software Developers." *Management Science*, ahead of print, February 27, 2026.

Dao, M. C., P.-O. Gourinchas, D. Leigh, and P. Mishra. 2024. "Understanding the International Rise and Fall of Inflation since 2020." *Journal of Monetary Economics* 148: 103658.

de Souza, G., H. Li, Z. Park, and Y. Wang. 2025. "Trade Policy Uncertainty and Supply Chain Disruptions: Firm-Level Evidence from 'Liberation Day.'" CESifo Working Paper 12285, CESifo, Munich.

Dell'Acqua, F., E. McFowland III, E. Mollick, H. Lifshitz-Assaf, K. C. Kellogg, S. Rajendran, L. Krayer, F. Candelon, and K. R. Lakhani. 2023. "Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality." Harvard Business School Working Paper 24-013, Harvard Business School, Boston, MA.

Dieppe, A., R. Legrand, and B. van Roye. 2016. "The BEAR Toolbox." ECB Working Paper 1934, European Central Bank, Frankfurt.

Freund, C., A. Mattoo, A. Mulabdić, and M. Ruta. 2024. "Is U.S. Trade Policy Reshaping Global Supply Chains?" *Journal of International Economics* 152: 104011.

Freund, C., A. Mattoo, A. Mulabdić, M. Ruta, and K. Wilczyńska. 2025. "Enduring Dependence: De Minimis, Transshipment, and US-China Trade." In *The State of Globalisation*, edited by R. Baldwin and M. Ruta, 37–45. Paris and London: CEPR Press.

Gazzani, A., F. Venditti, and G. Veronese. 2024. "Oil Price Shocks in Real Time." *Journal of Monetary Economics* 144: 103547.

Gomez-Gonzalez, P., R. Kouassi, J. Liu, J. Moussa, J.-M. Natal, A. Paloschi, and E. Weaver. 2026. "Fear and Shortages: Identifying Geopolitical Risk and Supply Disruptions in Energy Markets." IMF Working Paper 26/218, International Monetary Fund, Washington, DC.

Graziano, A., M. Sztajerowska, and C. Volpe Martincus. 2026. "Trading Places: How Trade Policy Is Reshaping Multinational Firms' Location." CEPR Discussion Paper 21547, Centre for Economic Policy Research, London.

Humlum, A., and E. Vestergaard. 2026. "Still Waters, Rapid Currents: Early Labor Market Transformation under Generative AI." NBER Working Paper 33777, National Bureau of Economic Research, Cambridge, MA.

Imas, A. 2026. "What Is the Impact of AI on Productivity? Reconciling the Micro and Macro Evidence." *Ghosts of Electricity*, updated March 2026. https://aleximas.substack.com/p/what-is-the-impact-of-ai-on-productivity.

International Energy Agency (IEA). 2025. *World Energy Outlook 2025*. Paris: IEA.

International Monetary Fund (IMF). 2026a. "Macroeconomic Developments and Prospects in Low-Income Countries—2026." IMF Policy Paper 2026/005, Washington, DC.

International Monetary Fund (IMF). 2026b. "People's Republic of China: Selected Issues." IMF Country Report 26/214, Washington, DC.

Iyoha, E., E. Malesky, J. Wen, and S.-J. Wu. 2025. "Exports in Disguise? Trade Rerouting during the U.S.-China Trade War." CITP Working Paper 022, Centre for Inclusive Trade Policy, University of Sussex Business School, East Sussex, UK.

Jordà, O. 2005. "Estimation and Inference of Impulse Responses by Local Projections." *American Economic Review* 95 (1): 161–82.

Känzig, D. R. 2021. "The Macroeconomic Effects of Oil Supply News: Evidence from OPEC Announcements." *American Economic Review* 111 (4): 1092–125.

Kauffman, N., and T. Kreitman. 2026. "Resilience, Not Crisis, in the U.S. Agricultural Economy." Economic Bulletin, Federal Reserve Bank of Kansas City, Kansas City, MO.

Kilian, L. 2009. "Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market." *American Economic Review* 99 (3): 1053–69.

Kilian, L., M. Plante, and A. W. Richter. 2026. "Geopolitical Oil Price Risk and Economic Fluctuations." Research Department Working Paper 2403, Federal Reserve Bank of Dallas, Dallas, TX.

López, L., F. Odendahl, S. Párraga Rodríguez, and E. Silgado-Gómez. 2026. "The Pass-Through to Inflation of Gas Price Shocks." *Journal of Economic Dynamics and Control* 182: 105218.

Moll, B., M. Schularick, and G. Zachmann. 2023. "The Power of Substitution: The Great German Gas Debate in Retrospect." *Brookings Papers on Economic Activity* 2023 (Fall): 395–455.

Mu, X. 2007. "Weather, Storage, and Natural Gas Price Dynamics: Fundamentals and Volatility." *Energy Economics* 29 (1): 46–63.

Natal, J.-M. 2012. "Monetary Policy Response to Oil Price Shocks." *Journal of Money, Credit and Banking* 44 (1): 53–101.

Natal, J.-M., and A. Sadikov. 2026. "The Oil Market Absorbed the War Shock, but Buffers Are Running Low." *IMF Blog*, July 15. https://www.imf.org/en/blogs/articles/2026/07/15/the-oil-market-absorbed-the-war-shock-but-buffers-are-running-low.

Nick, S., and S. Thoenes. 2014. "What Drives Natural Gas Prices? A Structural VAR Approach." *Energy Economics* 45: 517–27.

Ruta, M., and M. Sztajerowska. Forthcoming. "Trade Deflection after the 2025 Tariff Shock." IMF Working Paper, International Monetary Fund, Washington, DC.

Saha, S., S. Moorthi, X. Wu, J. Wang, S. Nadiga, P. Tripp, D. Behringer, and others. 2014. "The NCEP Climate Forecast System Version 2." *Journal of Climate* 27 (6): 2185–208.

Shen, J. H., and A. Tamkin. 2026. "How AI Impacts Skill Formation." arXiv Working Paper 2601.20245v1. https://doi.org/10.48550/arXiv.2601.20245.

Spray, J., S. Thube, and A. T. Zhang. 2026. "The Economic Implications of the Energy Transition in Asia-Pacific." IMF Working Paper 26/01, International Monetary Fund, Washington, DC.

US Department of Agriculture (USDA). 2026. "Corn Planted Acreage Down 3% from 2025, Soybean Acreage Up 5% from Last Year." News Release, National Agricultural Statistics Service, Washington, DC, June 30. https://www.nass.usda.gov/Newsroom/2026/06-30-2026.php.

Verduzco-Bustos, G., and F. Zanetti. 2026. "The Effects of Geopolitical Oil Price Shocks." CFM Discussion Paper 2026-08, Centre for Macroeconomics, London School of Economics, London.

Wezel, T., Z. Barrail, and S. Dehmej. 2026. "The Sovereign-Bank Nexus in Emerging Markets and Developing Economies: Trends, Determinants, and Macrofinancial Implications." IMF Working Paper 26/113, International Monetary Fund, Washington, DC.

Woodford, M. 2003. *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton, NJ: Princeton University Press.

Yang, B. 2026. "Information-Seeking Lobbying and Strategic Stockpiling under Trade Policy Uncertainty." *Strategic Management Journal* 47 (8): 2127–50.

Yotzov, I., J. M. Barrero, N. Bloom, P. Bunn, S. J. Davis, K. M. Foster, A. Jalca, and others. 2026. "Firm Data on AI." NBER Working Paper 34836, National Bureau of Economic Research, Cambridge, MA.

CHAPTER 2

NAVIGATING A SHOCK-PRONE WORLD: LESSONS FROM COST-OF-LIVING CRISES

Abrupt surges in the prices of food, energy, and other basic necessities have become a recurring source of economic and social stress across countries. As the global economy becomes more exposed to geopolitical tensions, climate-related disruptions, and other supply shocks, policymakers are increasingly confronted with difficult trade-offs among protecting vulnerable households, preserving price signals, maintaining fiscal sustainability, and safeguarding macroeconomic stability. This chapter examines the anatomy of cost-of-living crises, the policy responses adopted in past crisis episodes, and the lessons they offer for a more shock-prone world. The analysis shows that these crises can have disproportionately large consequences for lower-income households. Targeted and temporary transfers are the most effective way of protecting the most vulnerable from a spike in the cost of basic necessities while facilitating the necessary demand adjustment and preserving fiscal space. Providing the same protection through measures that suppress prices can require between 3 and 22 times the amount of fiscal resources, and the measures can become ineffective when fiscal space is limited or when many countries implement subsidies simultaneously.

Introduction

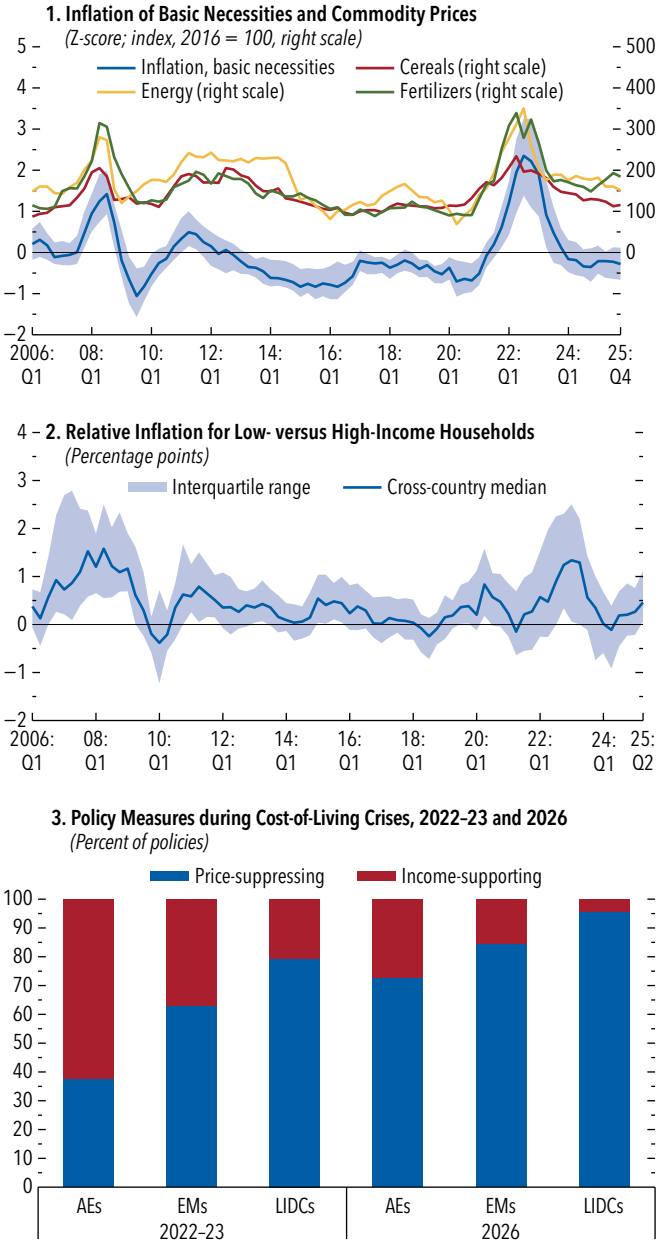
The rising cost of living has emerged as a major concern for households across much of the world in recent years (EP 2023; OECD 2023; Ipsos 2026). Central to this concern have been abrupt increases in the prices of basic necessities—food, transport, and housing-related expenses, including energy utilities—following major disruptions to global commodity markets, including those since Russia's invasion of Ukraine in 2022 and during the conflict in the Middle East in 2026. Events marked by severe surges in the prices of basic household necessities have been relatively infrequent but are not unprecedented, with the global food crisis in 2007–08 being a notable earlier episode (Figure 2.1, panel 1). Because demand for the goods and services that are considered basic needs for households is highly inelastic, even temporary spikes in the prices of those goods and services can impose substantial welfare losses when households cannot borrow or draw on liquid savings to smooth consumption. Moreover, these losses fall disproportionately on lower-income households, which devote a larger share of their spending to basic necessities and therefore must deal with significantly stronger cost-of-living pressures during such episodes (Figure 2.1, panel 2). These events also threaten macroeconomic stability and create difficult policy trade-offs through their effects on headline inflation, inflation expectations, and economic sentiment.

As a result, these cost-of-living crises are highly salient social and political events that often precipitate costly ad hoc policy interventions, even when fiscal space is already limited. During the 2022–23 cost-of-living crisis, for example, many countries complemented monetary tightening with a range of measures, including transfers to households, price caps, subsidies, tax cuts, and export restrictions (Arregui and others 2022; Amaglobeli and others 2023; Sgaravatti and others 2023). These interventions were frequently introduced rapidly, came amid mounting political pressure and protests (Hossain and Hallock 2022), and consisted largely of broad-based and untargeted measures—at odds with standard policy recommendations (Amaglobeli and others 2022).[1] Policy actions observed so far in 2026 point to a similar pattern (Amaglobeli and others 2026; Dabla-Norris and others 2026; Figure 2.1, panel 3). Beyond political pressure and distributional concerns, policymakers have also justified intervention on macroeconomic grounds,

The authors of this chapter are Marijn A. Bolhuis, Braulio Britos, Bertrand Gruss (co-lead), Chiara Maggi (co-lead), Galip Kemal Ozhan, and Sihwan Yang, with support from Maryam Abdou, Owen Russell Desberg, Riya Varghese, and Yarou Xu. Adeleke Hakeem Adeyemi provided technical and computational assistance. The work in this chapter is partly supported by the Macroeconomic Research in Low-Income Countries program of the United Kingdom's Foreign, Commonwealth and Development Office (FCDO) and the Macroeconomic Research on Climate Change and Emerging Risks in Asia program of the Ministry of Economy and Finance of the government of the Republic of Korea.

[1]For analysis of the effectiveness of policies during the 2022–23 episode, see, for instance, Dao and others (2023), Auclert and others (2024), Erceg and others (2024), and Lemoine, Petronevich, and Zhutova (2024).

Figure 2.1. Surges in Cost of Basic Necessities over Time and across Income Quintiles, and Policy Responses



Sources: Amaglobeli and others 2023; Eurostat, Household Budget Surveys; IMF, Primary Commodity Prices database; IMF, Consumer Price Index dataset; IMF Global Policy Tracker; Kpodar and Liu 2022; Luxembourg Income Study Database; national sources; and IMF staff calculations.

Note: In panel 1, the blue line represents the median *z*-score of inflation in the prices of basic necessities across countries and the shaded area the interquartile range. Basic necessities include Classification of Individual Consumption According to Purpose (COICOP) categories "Food and non-alcoholic beverages," "Housing, water, electricity, gas, and other fuels," and "Transport." Panel 2 shows the cross-country distribution of the difference between year-over-year consumer price index inflation experienced by households in the lowest and highest income quintiles. Panel 3 shows the relative share of "price-suppressing" and "income-supporting" policies implemented by country income group. Information on policies in 2026 is updated until June 2026. See Online Annex 2.1 for details on the sample composition. AEs = advanced economies; EMs = emerging markets; LIDCs = low-income developing countries.

arguing that sharp increases in salient prices could de-anchor inflation expectations, trigger second-round effects, and weigh on consumer sentiment (Bénassy-Quéré 2024).

As the global economy becomes more prone to shocks (Georgieva 2022; Gopinath 2024), it is increasingly important to understand how policymakers should respond to cost-of-living crises. Taking as given that policymakers seek to respond to episodes of such crises, this chapter examines how different macroeconomic stabilization policies can help economies cope with sudden and acute increases in the cost of basic necessities while balancing the trade-offs among preserving price signals, which encourage the demand adjustment needed to restore market balance; protecting vulnerable households; maintaining fiscal sustainability; and safeguarding macroeconomic stability. To achieve this objective, the chapter seeks to address the following questions:

- *Anatomy of cost-of-living crises.* How widespread, frequent, and heterogeneous have cost-of-living crises been across countries and over time? What have been their main drivers? How have key macroeconomic variables evolved, and how have outcomes for different segments of the population varied during episodes of such crises?
- *Policy responses and their effectiveness.* What measures have policymakers used to respond to cost-of-living crises? How have their responses differed across episodes and country groups, and how effective have they been in reaching affected households?
- *Toolkit for a shock-prone world.* Looking ahead, how should policymakers prioritize their available fiscal policy tools when responding to cost-of-living crises? Under what circumstances are different fiscal interventions warranted, and what trade-offs do they entail?

To answer these questions, the chapter employs an array of empirical evidence and model-based analysis. It begins by examining the prevalence, drivers, and macroeconomic and distributional consequences of cost-of-living crises over the past two decades. It then documents the policy measures deployed during these episodes and assesses the effectiveness of those measures in influencing macroeconomic outcomes and the role of the measures in cushioning the impact of the crises on affected households. Finally, the chapter uses a novel model framework to evaluate the effectiveness and costs of fiscal measures employed in past crisis episodes and draw lessons for how these interventions

should be prioritized when a response is deemed necessary to protect vulnerable households.[2]

The chapter's main findings are as follows:

- *Cost-of-living crises are infrequent but can severely affect households and threaten macroeconomic stability.* Typically triggered by shocks that disrupt global commodity markets, episodes of such crises are characterized by sustained increases in the relative prices of basic necessities and declines in real wages. Inflation expectations, even at medium-term horizons, also increase persistently, creating difficult policy trade-offs.
- *The burden of cost-of-living crises falls disproportionately on lower-income households.* Because low-income households devote a larger share of spending to basic necessities, they experience significantly higher inflation during cost-of-living crises relative to higher-income households. Accounting for the inflation experienced by poorer households also suggests that substantially more people fell below the poverty line in emerging market and developing economies during 2021–24 than implied by measures based on aggregate inflation.
- *Fiscal policy can help cushion the impact of cost-of-living crises on the most vulnerable households, but the design of support measures requires careful consideration.* During past episodes, countries—particularly emerging market economies and low-income developing countries—relied heavily on broad-based price-suppressing interventions, including reductions in consumption taxes, price subsidies, and price controls. When income-supporting measures were deployed, they often relied on broad rather than targeted instruments. The chapter shows that targeted transfers are the most cost-effective way of supporting vulnerable households. They preserve price signals, facilitate necessary adjustment in demand, and safeguard critical fiscal space. Achieving a comparable degree of protection through price-suppressing measures can require between 3 and 22 times the fiscal resources, depending on the country characteristics and the source of the shock. Although subsidies can provide support in the near term, their benefits for low-income households are generally outweighed by subsequent fiscal consolidation costs. Moreover, the effectiveness of subsidies declines when fiscal space is limited, and they can become counterproductive when many countries deploy them simultaneously.
- *Emerging market and developing economies face starker policy trade-offs than advanced economies.* Because food and other basic necessities account for a larger share of household spending, providing support to vulnerable households can be particularly costly in these economies, underscoring the importance of targeted interventions. When countries have limited fiscal space to respond, the relative cost-effectiveness of targeted transfers is magnified, and the fiscal burden associated with broad-based subsidies can ultimately outweigh their near-term benefits for vulnerable households. In past episodes, however, these economies—particularly low-income developing countries—relied extensively on broad-based interventions, likely reflecting limitations in their social protection infrastructure.

Cost-of-Living Crises: A Primer

This chapter defines *cost-of-living crises* as episodes in which the prices of basic necessities rise sharply and abruptly, outpacing both the prices of other goods and services and nominal wage growth. Such episodes are typically triggered by adverse supply shocks that raise the relative price of necessities, whether those shocks are global in nature—such as extreme weather events affecting major agricultural producers, geopolitical tensions, wars, or supply-chain disruptions—or country specific, such as local weather shocks.

Two characteristics can make cost-of-living crises more consequential and distinguish them from other inflationary episodes. First, demand for basic necessities is highly inelastic, as consumers cannot easily substitute for these goods and services or wait for their prices to fall. Second, basic necessities account for a large share of household spending, especially among lower-income households. In the median advanced economy, these necessities represent about 50 percent of total consumption for high-income households and 70 percent for low-income households. In the median low-income developing country, the corresponding shares are about 70 and 80 percent, respectively (Online Annex Figure 2.2.2).[3] Together, these characteristics suggest that cost-of-living crises can have greater welfare and distributional consequences than shocks that raise the

[2]See Chapter 2 of the October 2024 *World Economic Outlook* for a discussion of how the interaction of demand pressures with supply bottlenecks affected the trade-offs faced by monetary policy during the 2022–23 inflationary episode.

[3]All online annexes are available at www.imf.org/en/Publications/WEO.

relative price of nonessential goods and services or inflationary episodes driven by demand pressures.

A supply shock that drives a surge in the relative prices of basic necessities ultimately requires some adjustment in demand to restore market balance. Policy interventions cannot eliminate the need for this adjustment and should instead seek to facilitate it while cushioning the impact on vulnerable households and preventing broader macroeconomic instability. Regarding monetary policy, the textbook prescription is to look through temporary spikes in headline inflation caused by supply shocks while remaining ready to tighten the policy stance if inflation expectations begin to drift upward or risks of second-round effects emerge (Humpage 2008; Borio and others 2021; Gopinath 2024). Addressing the distributional consequences of these shocks is primarily the role of fiscal policy. Automatic stabilizers and social safety nets would be the first line of defense for protecting households amid supply shocks within the range of historical experience. However, social protection systems may be underdeveloped in some countries and, even where well developed, may not be well equipped to absorb exceptionally severe and disruptive shocks. In practice, policymakers have often resorted to ad hoc discretionary interventions when sharp increases in the prices of basic necessities have threatened food security, social cohesion, or macroeconomic stability. Even when the risks associated with such developments may warrant some discretionary measures, fiscal support at odds with initial monetary conditions (notably when inflation is above target and inflation expectations are drifting) could jeopardize disinflation efforts, accentuating cost-of-living pressures (see, for instance, Chapter 2 of the April 2023 *Fiscal Monitor*).

For the purposes of this chapter, *basic necessities* comprise food, transport, and housing-related expenses, including utilities such as electricity, gas, and other fuels.[4] Some consumption categories are also important for household well-being but are not the focus of this chapter. Although a deep dive into housing markets is beyond the scope of the chapter, Box 2.1 analyzes the evolution of rents during cost-of-living crises, the distributional implications of this evolution, and its relationship with monetary policy. Health care, childcare, and education are likewise important for household welfare, and their relative prices may exhibit persistent upward trends, the strength of which may vary across countries. However, these sectors are generally less susceptible to sudden and sharp price surges, partly because the prices of their underlying goods and services are often shaped by public provision or regulation, and so are not included among the basic necessities considered in this chapter. More broadly, this chapter focuses on abrupt and transitory shocks to the cost of basic necessities rather than on slow-moving increases arising from structural factors, such as restrictive regulations, limited competition, demographic trends, or chronically high inflation. Although these forces can also have important welfare and distributional consequences, they typically require structural reforms and durable policy adjustments rather than emergency support measures.

Anatomy of Cost-of-Living Crises

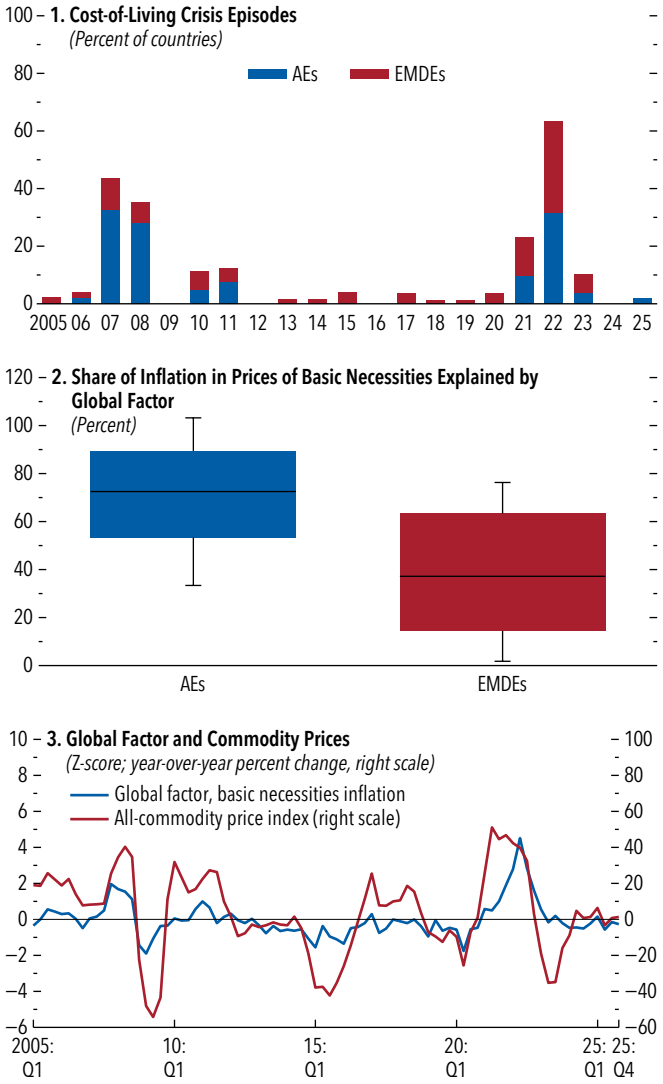
An operational definition of cost-of-living crises uses disaggregated consumer price indexes for 85 advanced and emerging market and developing economies over 2005–25 to identify the onset of crisis episodes at the country level. More precisely, a country is considered to have entered a cost-of-living crisis when the quarter-over-quarter increase in the prices of basic necessities is two standard deviations above its country-specific mean and the increase in the prices of other goods and services, as well as the quarter-over-quarter growth rate of nominal wages, is below that threshold and remains below it for two subsequent quarters (see Online Annex 2.2.1).[5]

Most economies (75 out of the 85 studied) experienced at least one cost-of-living crisis between 2005 and 2025, with 46 percent experiencing at least two episodes and 13 percent more than two. Significant clustering of episodes occurred around 2007–08, during the food price shock that preceded the global financial crisis; in 2022–23; and to a lesser extent in 2010–11 (Figure 2.2,

[4]In terms of national price statistics, the categories considered basic necessities in the chapter encompass three Classification of Individual Consumption According to Purpose (COICOP) divisions used in calculating the consumer price index: Food and non-alcoholic beverages (COICOP 1), Housing, water, electricity, gas, and other fuels (COICOP 4), and Transport (COICOP 7). They largely overlap with categories excluded from core inflation, with the exception of some housing costs (for example, rents and water) and nonenergy transport goods and services (for example, public transit).

[5]Since domestic prices can reflect policies introduced precisely to shield households and preexisting practices (for example, how administered prices are adjusted), an alternative approach combines global commodity prices with country-specific consumer price index weights and constructs a counterfactual price index of basic necessities—akin to a Bartik-style instrument—to identify cost-of-living crisis episodes. The dynamics of macroeconomic variables around cost-of-living crises are robust to this alternative approach (Online Annex 2.2).

Figure 2.2. Cost-of-Living Crisis Episodes and Their Drivers



Sources: Eurostat, Household Budget Surveys; IMF, Primary Commodity Prices database; IMF, Consumer Price Index dataset; Kpodar and Liu 2022; Luxembourg Income Study Database; national sources; and IMF staff calculations.

Note: Panel 1 shows the share of countries identified as entering a cost-of-living crisis in any quarter of the years shown, and panel 2 shows the share of inflation in the prices of basic necessities during those episodes that is explained by a common factor across countries, based on estimates from a dynamic factor model. The edges of the boxes represent the interquartile range, the line inside each box indicates the median, and the whiskers denote the 10th and 90th percentiles, respectively. Panel 3 plots the evolution of the estimated global factor and the year-over-year percent change in the all-commodity price index (IMF Primary Commodity Price System). See Online Annex 2.1 for details on the sample composition. AEs = advanced economies; EMDEs = emerging market and developing economies.

panel 1). Outside of these windows, a handful of countries, mostly emerging market and developing economies, experienced cost-of-living crises.

What have been the main drivers of cost-of-living crises in different countries? Analysis based on a dynamic factor model suggests that a large fraction of the inflation in the prices of basic necessities experienced during cost-of-living crises can be accounted for by a global factor that generates common dynamics across countries.[6]

For the median advanced economy, this global factor accounts for about 70 percent of the inflation in the prices of basic necessities recorded during cost-of-living crises (Figure 2.2, panel 2). For the median emerging market and developing economy, the global factor accounts for slightly less than 40 percent of the inflation in the prices of basic necessities during these episodes. The larger role of country-specific forces could reflect a larger incidence of local shocks (for example, weather shocks driving food prices) or domestic factors such as persistent price subsidies—or their abrupt removal—which may have weakened the link between global shocks and domestic prices.

The common factor that accounts for most of the variation in the prices of basic necessities during cost-of-living crises is closely linked to global commodity price movements (Figure 2.2, panel 3). A composite commodity price index explains roughly half of the variation in the global factor.

Macroeconomic Dynamics around Cost-of-Living Crises

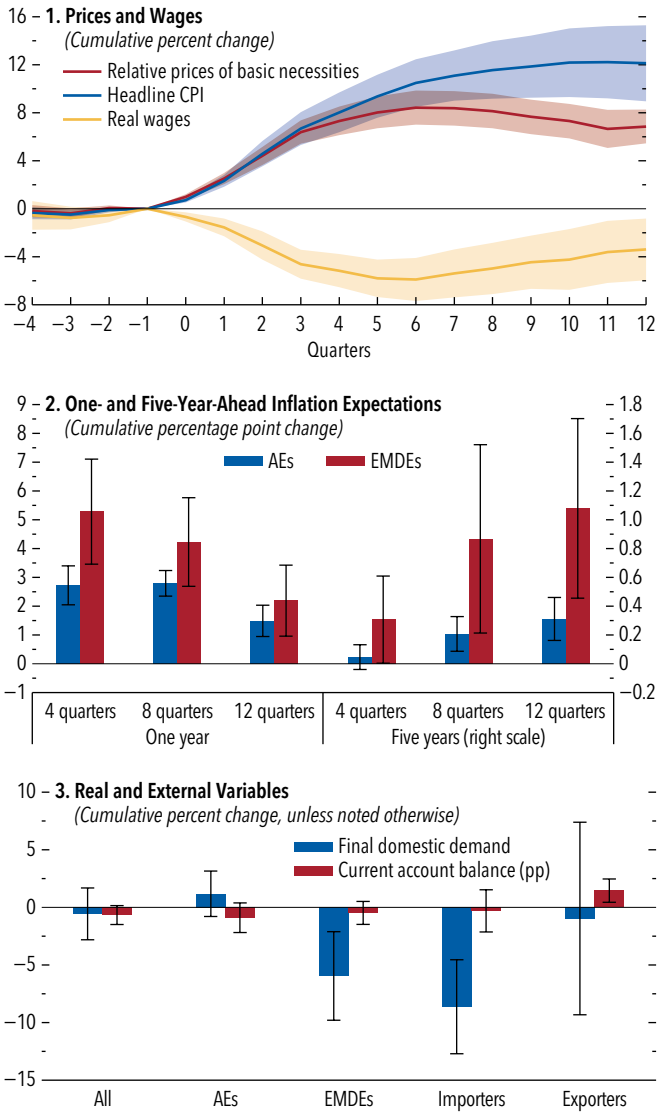
How do key macroeconomic variables evolve around cost-of-living crises? To address this question, a set of local-projection regressions traces the evolution of key macroeconomic variables around the onset of identified crisis episodes (Online Annex 2.2.3).[7] By definition, the episodes are marked by a spike in the relative prices of basic necessities. On average, however, the relative prices of basic necessities continue to increase for several quarters and peak only 1½ years after the onset of a crisis (Figure 2.3, panel 1). Moreover, the drift in relative prices is highly persistent, with the prices of basic necessities remaining, on average, about 7 percent higher than the prices of other goods and services, even three years after the start of a cost-of-living crisis.

The headline consumer price index (CPI), initially bolstered by the surge in the prices of basic necessities, continues to increase for longer and throughout the

[6]The dynamic factor model assumes that the behavior of domestic inflation in the prices of basic necessities can be explained by a global common factor (reflecting global demand or supply shocks) and idiosyncratic shocks (reflecting country-specific events); see Online Annex 2.2.2 for details.

[7]Since the variable capturing the onset of identified episodes is binary, quantitative interpretation of the results requires caution.

Figure 2.3. Macroeconomic Dynamics around Cost-of-Living Crises



Sources: Consensus Economics; Haver Analytics; IMF, Balance of Payments statistics; IMF, Consumer Price Index dataset; IMF, *World Economic Outlook*; and IMF staff calculations.

Note: The figure reports difference-in-differences local-projection estimates from a quarterly panel of countries over 2005–25 with country fixed effects; quarter 0 denotes the onset of a cost-of-living crisis. Shaded areas and whiskers indicate 90 percent confidence intervals based on country-clustered standard errors. In panel 1, the relative prices of basic necessities are measured as the CPI for food, transport, and housing-related expenses including utilities relative to the CPI for all other items; real wages are nominal wages deflated by headline CPI. Panel 2 reports cumulative responses of inflation forecasts after 4, 8, and 12 quarters. Panel 3 reports cumulative response of domestic demand (percent change) and current account balance over GDP (percentage points) four quarters after the onset of a crisis for the full sample, by income group and by net energy-trading position. See Online Annex 2.1 for details on the sample composition. AEs = advanced economies; CPI = consumer price index; EMDEs = emerging market and developing economies; pp = percentage points.

third year, reaching an average cumulative increase across countries and episodes of about 13 percent. Although by definition nominal wages lag prices at the onset of cost-of-living crises, the fall in real wages is very persistent. Three years after the onset of a crisis episode, real wages remain about 3 percent below their precrisis path.[8]

The sustained increase in the headline CPI beyond the peak in the relative prices of basic necessities likely reflects not only important first-round effects, but also sizable second-round effects. Indeed, both near- and medium-term inflation expectations increase significantly during cost-of-living crisis episodes (Figure 2.3, panel 2). One-year-ahead expectations remain about 2.7 percentage points higher in advanced economies four quarters after the onset of a cost-of-living crisis and 5.3 percentage points higher in emerging market and developing economies. Although expectations ease thereafter, they remain significantly above their precrisis level even three years after crisis onset. Strikingly, medium-term inflation expectations also register a significant drift. Five-year-ahead inflation expectations increase modestly initially, but three years after the onset of a crisis episode they are, on average, about 0.3 percentage point higher in advanced economies and about 1.1 percentage points higher in emerging market and developing economies. This suggests that cost-of-living crises may contribute to some de-anchoring of inflation expectations.

In regard to real and external variables, final domestic demand falls in the year following crisis onset by about 6 percent in emerging market and developing economies and by 8 percent in net energy importers while remaining broadly resilient in advanced economies and net energy exporters (Figure 2.3, panel 3). The current account balance strengthens for net energy exporters by about 1.5 percentage points of GDP over the same period while remaining broadly unchanged in other country groups.

The estimates in this section describe conditional moments around episodes rather than causal effects, and the identified episodes could reflect both demand and supply shocks. However, the dynamics of macroeconomic aggregates are broadly comparable with those arising when cost-of-living crisis episodes are detected using global commodity prices, or when exogenous oil supply shocks (Känzig 2021) are

[8]By contrast, additional exercises suggest that losses in real wages are much smaller and less persistent following demand-driven inflationary shocks (Online Annex 2.2.3).

employed in the local-projection regressions (Online Annex 2.2.3). Together, the evidence suggests that the identified episodes largely capture global supply shocks, although it does not allow other types of shocks to be ruled out.

Distributional Implications

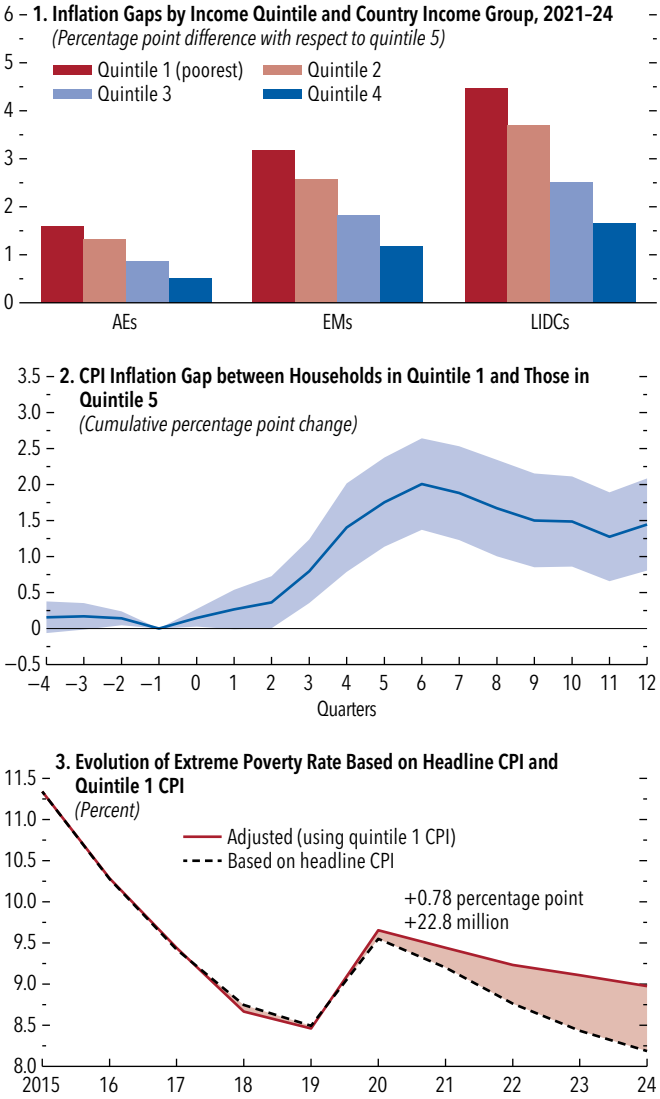
How do outcomes for different segments of the population vary during cost-of-living crises? To answer this question, the analysis combines household budget survey data with disaggregated price indexes to construct income-specific consumption price indexes (following Lokshin, Sajaia, and Torre 2025 and Jaravel 2026). The results reveal substantial inflation inequality during cost-of-living crises, with inflation for low-income households markedly higher than inflation for high-income households. These disparities are particularly pronounced in emerging market and developing economies. The cumulative inflation gap between the bottom and top income quintiles reached 1.6 percentage points in the median advanced economy over 2021–24, 3.2 percentage points in the median emerging market economy, and 4.5 percentage points in the median low-income developing country (Figure 2.4, panel 1).

Local-projection estimates using the full sample confirm that low-income households have experienced significantly higher inflation than high-income households during cost-of-living crisis episodes.[9] On average across countries and episodes, households in the bottom income quintile experienced nearly 2 percentage points more cumulative inflation than households in the top quintile about 1½ years after the onset of a cost-of-living crisis. The inflation gap remained above 1 percentage point even three years later (Figure 2.4, panel 2). Consistent with this evidence, well-identified oil supply shocks also generate persistent increases in the inflation gap between lower- and higher-income households (Online Annex 2.2.3). By contrast, demand-driven inflationary shocks, proxied by monetary policy surprises, do not produce a similar widening in income-specific consumer price indexes.[10]

[9]The estimated significant increase in the inflation differential during cost-of-living crises should be interpreted as in addition to the trend differential observed in noncrisis periods (see, for instance, evidence for the United States in Jaravel 2021).

[10]These results are also consistent with those of Argente and Lee (2021), who find that the gap in inflation experienced by lower- and higher-income households narrows during business cycle expansions, when broad-based inflationary pressures are stronger.

Figure 2.4. Distributional Dynamics around Cost-of-Living Crises



Sources: Eurostat, Household Budget Surveys; IMF, Consumer Price Index dataset; Kpodar and Liu 2022; Luxembourg Income Study Database; national sources; World Bank; and IMF staff calculations.

Note: Panel 1 presents the difference between the inflation experienced by households in the first four income quintiles relative to that experienced by the fifth quintile over 2021–24 in the median country in each group. Panel 2 plots difference-in-differences local-projection estimates of quarterly distributional CPI (CPI of quintile 1 divided by CPI of quintile 5) over 2005–25; quarter 0 denotes the onset of a cost-of-living crisis. Shaded areas represent 90 percent confidence intervals (country-clustered standard errors). In panel 3, the extreme poverty rate is based on $2.15 a day at 2017 purchasing power parity for a sample of 37 emerging markets and 25 low-income developing countries. See Online Annex 2.1 for details on the sample composition. AEs = advanced economies; CPI = consumer price index; EMs = emerging markets; LIDCs = low-income developing countries.

To further assess the distributional consequences of cost-of-living crises, a second exercise examines the implications of such crises for poverty when low-income households face persistently higher inflation than the population average. Specifically, it constructs adjusted poverty rates using income-specific consumption price indexes instead of aggregate CPI (Lokshin, Sajaia, and Torre 2025; Jaravel 2026) for a sample of 37 emerging markets and 25 low-income developing countries over 2015–24. Although the adjusted poverty rate tracks the standard metric closely up to 2020, a sizable gap emerges during 2021–24 (Figure 2.4, panel 3). By 2024, the extreme poverty rate—the share of people living on less than $2.15 a day in 2017 purchasing-power-parity terms—is, on average across countries, about 0.8 percentage point higher when adjusted poverty thresholds are used than when poverty is measured using aggregate CPI. For the sample of countries considered, this represents almost 23 million more people living in extreme poverty.

Taken together, the evidence in this section highlights the distinct policy challenges around cost-of-living crises. The spike in the cost of basic necessities during episodes of such crises is highly persistent, eroding real wages, weighing on domestic demand, and pushing medium-term inflation expectations upward. Low-income households face persistently higher inflation than higher-income households, with important distributional and poverty implications.

Policy Responses in Past Crises

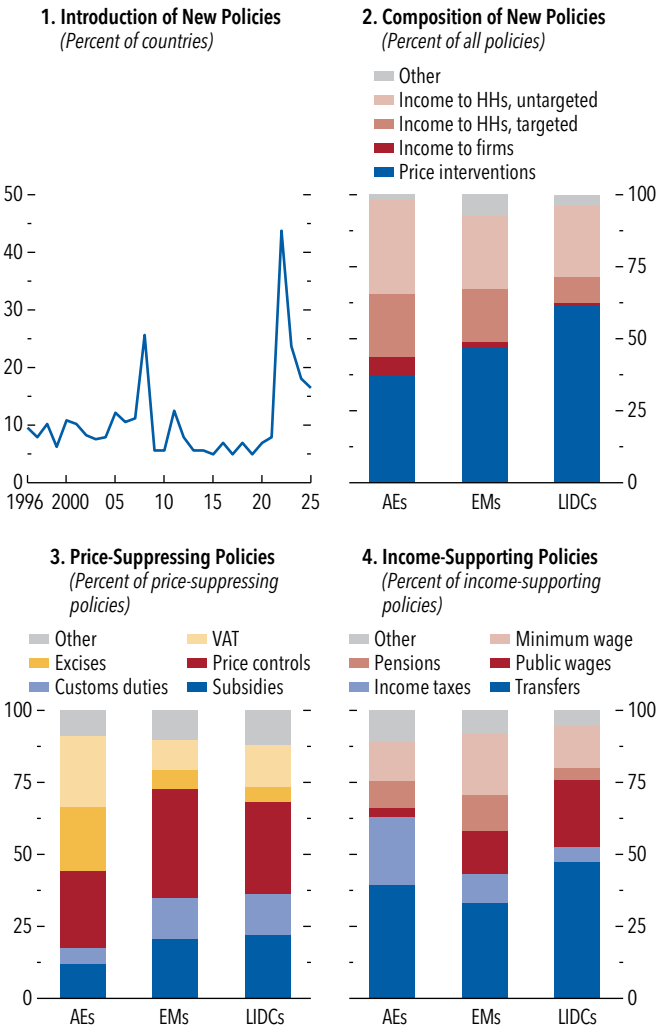
How have policymakers responded to past cost-of-living crises, and how effective were their interventions? To answer this question, this chapter constructs a novel narrative database of policy interventions aimed at supporting households' purchasing power amid rising food and energy costs. More precisely, it uses text analysis of quarterly Economist Intelligence Unit reports spanning 26 advanced economies, 36 emerging markets, and 14 low-income developing countries between 1996 and 2025.[11]

The introduction of policy measures in response to cost-of-living crises spiked in 2007–08 and 2022–23 (Figure 2.5, panel 1). At the peak of the price surge following Russia's invasion of Ukraine, for instance, nearly half of the countries in the sample introduced at least one new measure to mitigate the impact of rising prices.

In general, countries have relied extensively on price interventions (Figure 2.5, panel 2), but the characteristics of past policy responses differ markedly across country groups (Figure 2.5, panels 2–4):

- Advanced economies relied somewhat more on income-supporting measures, which accounted for roughly 60 percent of interventions during crisis

Figure 2.5. Policy Interventions in Response to Cost-of-Living Crises



Sources: Economist Intelligence Unit; and IMF staff calculations.

Note: Panel 1 shows the share of countries implementing a new policy intervention in response to a cost-of-living crisis. Results are based on a narrative database of policy interventions in cost-of-living crises from quarterly Economist Intelligence Unit reports for 76 countries between 1996 and 2025. See Online Annex 2.1 for details on the sample composition. AEs = advanced economies; EMs = emerging markets; HHs = households; LIDCs = low-income developing countries; VAT = value-added tax.

[11]In the narrative database, episodes of rising food and energy prices are identified from textual references in quarterly Economist Intelligence Unit reports starting in 1996. Consequently, the classification of fiscal policy interventions as responses to cost-of-living pressures relies exclusively on the narrative evidence in these reports and does not use the episodes identified in the previous section, which are available only from 2005 onward (Figure 2.2, panel 1).

periods. Low-income developing countries instead made greater use of price-suppressing measures, likely reflecting more limited social protection infrastructure (IMF 2024).

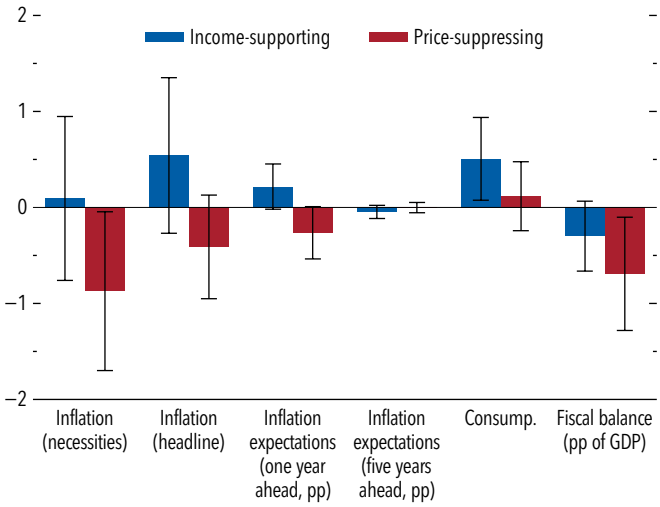
- The composition of price-suppressing measures varied across countries. Advanced economies used mainly value-added tax and excise tax reductions, which directly reduce consumer prices, whereas emerging market and developing economies, with larger informal sectors, relied more often on producer subsidies, price controls, and reductions in customs duties to curb costs that feed through production and distribution chains before reaching households (Figure 2.5, panel 3).
- Among income-supporting measures, advanced economies implemented largely changes to income taxes and transfers, half of which were targeted to specific groups of people, based on income or age (Figure 2.5, panel 4). Emerging markets and low-income developing countries instead relied more heavily on adjustments to minimum wages, public sector wages, and pensions.

The mix of price-suppressing and income-supporting measures adopted by policymakers often reflects the need to deliver rapid temporary support within the constraints of the country's social safety net infrastructure.[12] But have these interventions been effective in stabilizing macroeconomic outcomes and protecting the most vulnerable households?

Macroeconomic Effectiveness of Policy Interventions

To assess the effectiveness of policy interventions in stabilizing aggregate macroeconomic variables, the analysis estimates a series of difference-in-differences regressions that trace the effects of new policy measures.[13] The results point to important differences

Figure 2.6. Macroeconomic Impact of Fiscal Policy Interventions during Cost-of-Living Crises
(Percent, unless noted otherwise)



Sources: Consensus Economics; Economist Intelligence Unit; IMF, Consumer Price Index dataset; IMF, *World Economic Outlook*; national sources; and IMF staff calculations.

Note: The figure shows augmented inverse propensity weighted (AIPW) estimates from a quarterly panel of 75 countries between 1995 and 2025. Results refer to four quarters after policy introduction. The whiskers indicate 90 percent confidence intervals based on country-clustered standard errors. See Online Annex 2.1 for details on the sample composition. Consump. = consumption; pp = percentage points.

in the average effects of income-supporting and price-suppressing measures on macroeconomic outcomes (Figure 2.6):

- Income-supporting measures appear effective at cushioning aggregate consumption. Although they support domestic demand, they do not lead, on average, to statistically significant changes in aggregate inflation dynamics or inflation expectations. Their impact on a country's fiscal balance is not statistically significant, which could, however, reflect the fact that the overall cost of these measures can remain contained when they are duly targeted (as shown later in the chapter with model simulations) but also offset reductions in other spending.
- By contrast, price-suppressing measures have, on average, a statistically significant effect on the inflation in prices of basic necessities, as intended. They reduce near-term inflation expectations slightly, but do not have a significant effect on longer horizons. They do not seem to have a significant effect on aggregate consumption but do have a significant negative effect on fiscal balances. Moreover, the fiscal cost of price-suppressing measures may be larger than estimated here. In particular, price-suppressing measures can generate contingent liabilities, arrears, and losses in state-owned enterprises, whose

[12]Although assessing policy duration in the narrative database is difficult, evidence from the political economy of energy subsidy reforms suggests that fuel price interventions often prove persistent, as temporary subsidies can become politically entrenched and difficult to remove once introduced (Inchauste and Victor 2017).

[13]To mitigate endogeneity concerns, the analysis relies on an augmented inverse propensity weighted estimator (see details in Online Annex 2.3.2). One caveat to our treatment variables, though, is that cost-of-living-related measures may be introduced as part of broader policy packages (such as loan guarantees, credit support, regulatory relief, or payment deferrals). Another caveat is that the treatment variable captures the use of a policy instrument rather than the size of the intervention. Subsequent model analysis addresses these limitations by explicitly calibrating the size of specific policy measures.

consequences in regard to the fiscal balance would materialize only with a lag.

Distributional Effectiveness of Policy Interventions

To assess how effectively fiscal interventions have protected vulnerable households during past cost-of-living crises, this section uses a theoretical framework that captures heterogeneity in households' exposure to crisis episodes, reflecting differences in their consumption baskets, income, and asset and liability holdings (Cardoso and others 2022; April 2023 *Fiscal Monitor*, Chapter 2; Pallotti and others 2024; Del Canto and others 2025; see Online Annex 2.4 for details). Using detailed information on policy interventions, the framework is used to evaluate how alternative fiscal measures have affected welfare across household groups, distinguishing between various price-suppressing measures and targeted or untargeted transfers.[14]

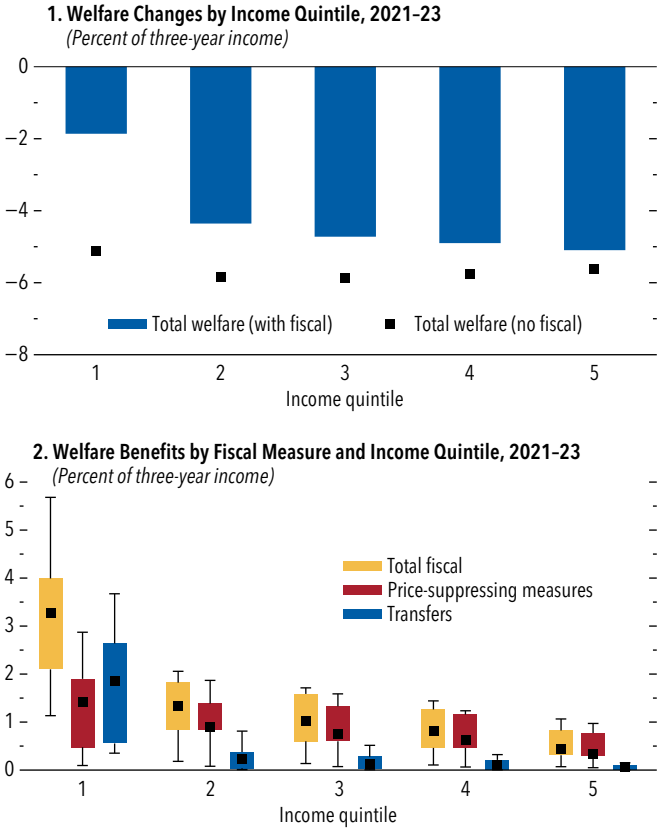
Results for a sample of 18 European countries during 2021–23 show that absent policy support, households across all income quintiles would have experienced welfare losses between 5 and 6 percent of their income over the three years (Figure 2.7, panel 1).[15] Fiscal interventions significantly cushioned these losses, particularly for lower-income households. After policy support is accounted for, welfare losses for the bottom quintile amounted to less than 2 percent of income in that period, compared with more than 4 percent for higher-income households.

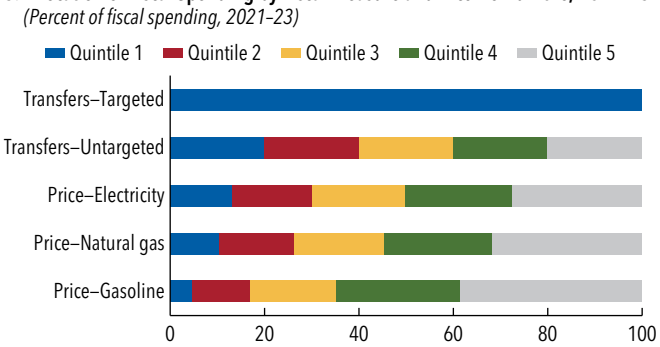
Decomposing these gains by policy instrument reveals important differences across the income distribution (Figure 2.7, panel 2). Low-income households benefited equally from income-supporting and price-suppressing measures, whereas most of the gains accruing to higher-income households stemmed from price-suppressing interventions. Fiscal interventions, however, can be costly. In environments

[14]Counterfactual price and income series without policies are constructed from the intervention-level database in Sgaravatti and others (2023). See Online Annex 2.4 for details.

[15]Despite being disproportionately exposed to increases in the cost of basic necessities, lower-income households can benefit from the erosion of the real value of nominal debt. In this sample of European countries, the resulting debt relief more than offsets the additional losses arising from the composition of these households' consumption basket, leading to broadly similar pre-fiscal-intervention welfare losses across income quintiles (Figure 2.7, panel 1 and Online Annex Figure 2.4.1). However, the importance of this channel is likely much smaller in emerging market economies and low-income developing countries with more limited access to financial markets.

Figure 2.7. Impact of Policy Interventions across Households during 2021–23





Sources: Consensus Economics; European Central Bank, Household Finance and Consumption Survey; European Commission, *Weekly Oil Bulletin*; Eurostat, Household Budget Surveys; national sources; Sgaravatti and others 2023; and IMF staff calculations.

Note: The results in the figure are based on a sample of 18 European countries between 2021 and 2023. Panel 1 displays the average welfare impact in 2021–23 across countries (weighted by 2019 GDP at purchasing power parity), expressed as a share of households' three-year income, by household income quintile (Online Annex 2.4). Panel 2 shows the cross-country distribution of welfare changes (as a share of three-year income) due to policy interventions during 2021–23, by household income quintiles (overall and by type of policy instrument). The edges of the boxes represent the interquartile range, the black square inside each box indicates the median country, and the whiskers denote the 10th and 90th percentiles of the cross-country distribution. Panel 3 displays the allocation across income quintiles of fiscal spending on transfers and on measures suppressing the prices of electricity, natural gas, and gasoline. See Online Annex 2.1 for details on the sample composition.

with limited fiscal space, policymakers face a trade-off between the magnitude of support and its targeting. Figure 2.7, panel 3, relates the welfare gains received by each income quintile to the fiscal resources devoted to each policy instrument. Not surprisingly, lower-income households received the full amount of benefits from targeted transfers. However, the benefits of price-suppressing measures accrued mostly to higher-income households. For each euro spent on price-suppressing measures for electricity, gasoline, and natural gas, lower-income households received less than 20 cents. In the case of measures on gasoline, the top income quintile of the population received about 40 cents per euro spent.

Overall, the results suggest that although broad-based price interventions and untargeted transfers do provide some support to vulnerable households, they do so at a substantially higher fiscal cost than well-targeted income transfers.

Looking Ahead: Adjusting the Toolkit for a Shock-Prone World

The previous sections show that policymakers have deployed a broad set of income-supporting and price-suppressing measures to contain the impact of cost-of-living crises. The empirical evidence suggests that income-supporting measures may have been more effective in protecting the most vulnerable while preserving fiscal space. Given the difficulties of isolating the source of a crisis and identifying the causal effect of policies empirically, this section complements the empirical evidence with simulations from a novel global model with features that are critical for assessing policy trade-offs in the context of specific supply shocks that can trigger cost-of-living crises (see details in Online Annex 2.5).[16]

- *Heterogeneous households.* The model features low-income households (LIHHs) and high-income households (HIHHs) in each economy that differ in their exposure to the shock and in their access to financial markets.[17] In line with empirical evidence, LIHHs are assumed to devote a larger share of their expenditure to basic necessities than HIHHs and to lack access to financial markets.[18]
- *Production network.* The model includes 12 production sectors in both the home economy and the rest of the world, featuring sectoral linkages within and across countries, and heterogeneous price stickiness across sectors.
- *Cost-of-living crises.* In the model, such crises are triggered by transitory shocks to the global supply of *energy* (an exogenous drop in total factor productivity in the mining and quarrying sector, affecting the supply of crude oil and natural gas) or *food* (affecting the agricultural sector and therefore the availability of basic staples). The shocks are calibrated such that the relevant global commodity price increases by about two standard deviations (close to 70 percent for energy prices, akin to the surge in the oil price at the onset of the conflict in the Middle East, and about 45 percent in the case of food prices). They have a half-life of two quarters, so about 80 percent of the initial price increase is reversed one year after the shock.
- *Country coverage.* Households' expenditure patterns, production structures, and import dependence on energy and food, as well as fiscal space, vary significantly across countries. To assess how these differences affect policy trade-offs, the model is calibrated separately for a representative advanced economy, a representative emerging market economy, and a representative low-income developing country. All three representative economies are assumed to be net energy importers, but low-income developing countries are assumed to be net food exporters (Online Annex Table 2.5.4).
- *Monetary policy.* The model assumes monetary policy follows a Taylor rule focused on headline CPI with a positive weight on projected inflation, so that a country's central bank partly looks through temporary shocks to headline inflation.
- *Fiscal policy.* Inspired by the policy interventions documented in previous sections, the model includes both income-supporting and price-suppressing measures. Regarding the former, it includes *targeted transfers* to LIHHs and *untargeted transfers*

[16]The model is an extension of the Global Dynamic Network Model used in Chapter 2 of the October 2024 *World Economic Outlook* to draw lessons for monetary policy in the aftermath of the COVID-19 pandemic and documented in Ozhan and others (2026).

[17]See Passadore and others (2025) for a model with household heterogeneity in a price-taking small open economy with no effects on global aggregates, rather than in a two-region setting as in this chapter.

[18]*Low-income households* are defined as households in the bottom income quintile in the model calibration for advanced economies, but as households in the bottom two income quintiles in the model calibration for emerging market economies and low-income developing countries, reflecting evidence that a larger share of households in these economies exhibit hand-to-mouth behavior (Bracco and others 2026, for example).

(distributed evenly across all households). In terms of price measures, the model includes *consumer subsidies*, which are akin to cuts to value-added or excise taxes used in practice, and *producer subsidies*, which reduce the cost of inputs for firms that are exposed to the subsidized sector (such as refineries and utility firms in the case of shocks to energy prices).[19] When fiscal measures are deployed, the model assumes lump-sum taxes on all households are increased over the medium term such that debt reverts to the preshock level, with a half-life of four to five years.

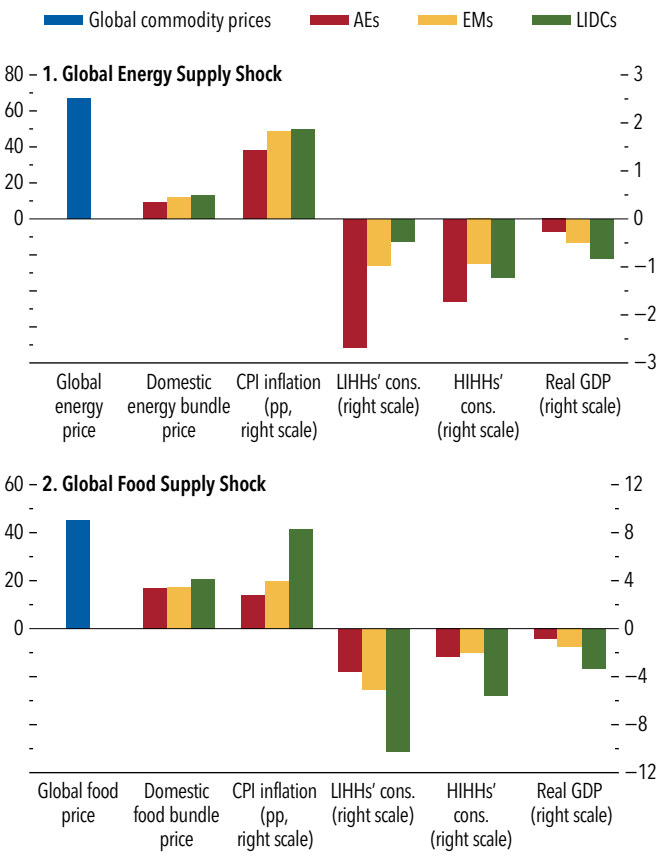
Costly Supply Shocks with Important Distributional Implications

Before the chapter turns to the role of fiscal policies, this subsection documents the effects of cost-of-living shocks in the model's no-policy baseline simulations. In energy-importing advanced economies, a temporary shock that pushes global *energy* prices upward by close to 70 percent on impact leads to an increase in domestic consumer prices of all energy-related products (including, for example, fuel, electricity, and transport) by about 10 percent (Figure 2.8, panel 1). Annual consumer price inflation peaks at 1½ percentage points above target, and private consumption falls by close to 2 percent. The fall in consumption among LIHHs is almost 60 percent larger than among HIHHs, reflecting the higher exposure of LIHHs to energy-related products in advanced economies and their inability to borrow. Higher energy input costs, weaker household consumption, and tighter monetary policy weigh on output, with exchange rate depreciation mitigating part of the decline in activity.

The impact of a global energy shock on activity in emerging markets and low-income developing countries is larger than that in advanced economies. However, households are generally less exposed to energy prices, and aggregate consumption falls by less than it does in advanced economies. In emerging markets, the decline in consumption among LIHHs is comparable to that among HIHHs, and in low-income developing countries, it is actually smaller. This reflects the smaller share of expenditure on energy-related goods and services (such as electricity and heating fuels) among LIHHs relative to that among HIHHs in less-developed economies (Online Annex Figure 2.2.2).

A global *food* shock of comparable severity has substantially larger effects, especially in low-income developing countries (Figure 2.8, panel 2). A 45 percent increase in global food prices raises the domestic food bundle price by about 20 percent in those countries, reflecting the much larger weight of food in consumption baskets. The resulting decline in household consumption in low-income developing countries (about 7½ percent) is considerably larger than that in emerging markets (about 3.2 percent) and advanced economies (about 2.6 percent), with LIHHs

Figure 2.8. Impact of Global Supply Shock to Energy and Food Sectors: Model Simulations
(Deviation from steady state, percent, unless noted otherwise)



Source: IMF staff calculations.

Note: The figure shows the peak response of selected variables from model simulations in response to global supply shocks in the energy and food sectors. The shocks in each sector are calibrated to match a response in the corresponding global commodity prices of energy (crude oil, natural gas, coal) and cereals of about two standard deviations in historical data over 1992–2025. AEs = advanced economies; cons. = consumption; CPI = consumer price index; EMs = emerging markets; HIHHs = high-income households; LIDCs = low-income developing countries; LIHHs = low-income households; pp = percentage points.

[19]Many economies, notably emerging market and developing economies, resorted to cuts to customs duties in past cost-of-living crises. In the model, producer subsidies are akin to reductions in customs duties.

experiencing disproportionately large losses (about 80 percent larger than those of HIHHs), given their heavy exposure to food expenditures. Although low-income developing countries in the model benefit from an improvement in their terms of trade as net food exporters, the direct hit to agricultural production, together with weaker household purchasing power and domestic demand, more than offsets these gains.

The Role of Well-Targeted and Temporary Fiscal Measures

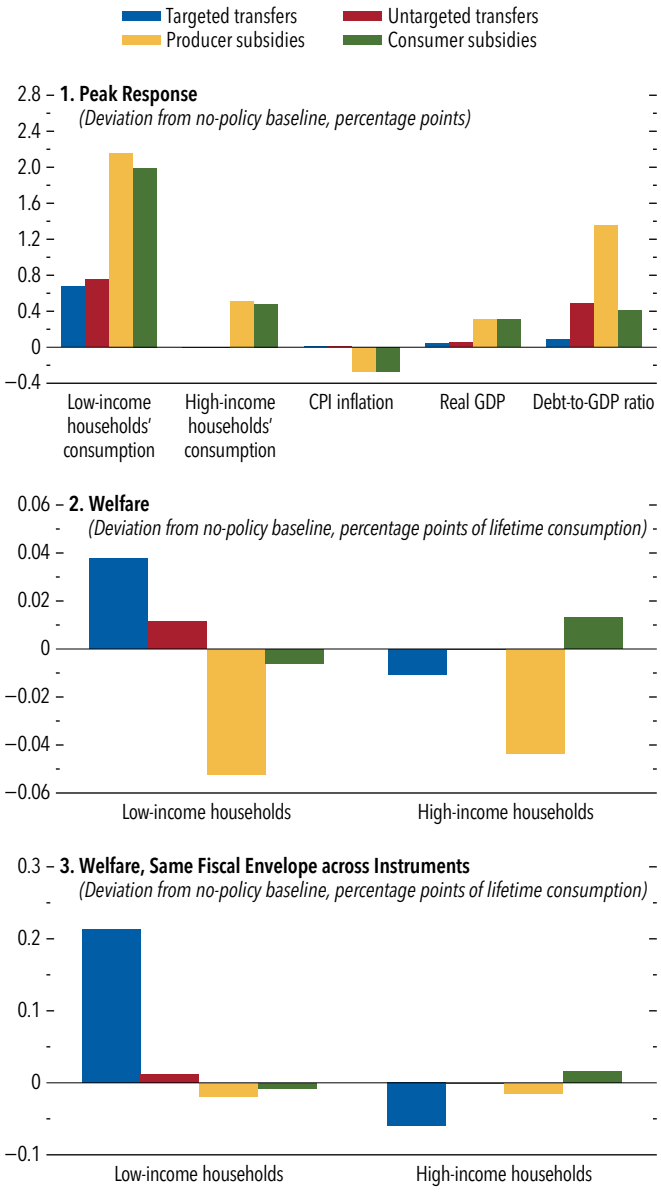
Each type of income and price intervention used in past cost-of-living crises affects incentives differently for firms and for households across the income distribution. They also entail different trade-offs between near-term support and future consolidation efforts. To provide a comprehensive comparison of the relative merits of different tools across circumstances, the analysis in this section focuses both on how policies affect the peak response of macroeconomic aggregates during a crisis and on the implications for households' lifetime welfare (which incorporates the cost of future fiscal consolidation). To ensure comparability across fiscal tools, the first exercise in the subsection assumes that the policy objective is to contain the impact on households from higher consumer prices at half of what it would otherwise have been: Subsidies are set such that the pass-through from global to domestic prices of the related consumption bundle (energy- or food-related products) is 50 percent of what it would have been in the absence of interventions, thus preserving price signals to some extent; transfers are set to 50 percent of the additional cost households face for purchasing, at the new prices, the same quantities of the energy and food bundles they consumed before the shock.[20]

Price-Suppressing Measures Can Protect Consumers but Are Highly Inefficient

With respect to price interventions, which have been used extensively in the past, the results for advanced economies during an *energy* shock show that *consumer subsidies* contain the impact on headline inflation (Figure 2.9, panel 1). As a result, monetary policy does not need to be tightened as much, easing the drop in output. With a smaller increase in consumer prices and stronger activity, fiscal intervention attenuates the drop in consumption, especially among LIHHs. Although the shock is short-lived and the subsidy aims at limiting the pass-through only by half (containing the spike in domestic energy prices at 5 percent instead of

[20]In the model, the introduction of fiscal measures follows a shock that hits an economy in its steady state, when inflation is at target and the output gap closed. The results should be interpreted with this assumption in mind.

Figure 2.9. Impact of Fiscal Measures in Response to Energy Price Shock, Advanced Economies



Source: IMF staff calculations.

Note: Panel 1 reports peak deviations from the steady state when the policies shown are in place, minus the peak response under the no-policy baseline. Panel 2 reports the welfare impact of each fiscal instrument, relative to the no-policy baseline, corresponding to the interventions in panel 1. In panel 3, the amount spent on each instrument is the same and equal to that of untargeted transfers in panel 1. CPI = consumer price index.

10 percent), the impact on public debt is meaningful, at about ½ percentage point of GDP.

Although *producer subsidies* lead to very similar outcomes for the peak response of inflation, output, and household consumption, they also drive a strong expansion of exports in downstream sectors benefiting from lower input prices, relative to the no-policy baseline (Online Annex Figure 2.5.2). As a result, the intensity of the intervention to achieve a given pass-through to domestic retail prices is much larger than in the case of *consumer subsidies*, with an increase in public debt that is more than three times larger (close to 1½ percentage points of GDP).[21] Moreover, the fiscal cost of subsidies can increase significantly if a shock is more persistent—or in a context of recurrent short-lived shocks. In a scenario in which only 40 percent of the initial price spike in a crisis is reversed by the end of the first year (instead of 80 percent), the cost of producer subsidies would push debt upward by close to 3½ percentage points of GDP (Online Annex Figure 2.5.3).

The higher fiscal effort needed to contain the effect on consumers using *producer subsidies* also entails costs from larger consolidation needs over the medium term.[22] Indeed, Figure 2.9, panel 2, shows that once the whole path for consumption and the future cost of fiscal adjustment are taken into account, all households face larger welfare losses under *producer subsidies* than in the no-intervention baseline. *Consumer subsidies* attenuate the decline in consumption in the short term, but the welfare gains from such subsidies accrue only to HIHHs; LIHHs remain worse off despite the near-term support.

De-anchored inflation expectations. Empirical evidence shows that temporary shocks to retail fuel and grocery prices have a significant effect on inflation expectations and one that is disproportionately large compared with their weight in consumption baskets (Coibion and Gorodnichenko 2015; D'Acunto and others 2021; Jo and Klopack 2025). Related concerns may help explain the widespread use of price-suppressing measures during past cost-of-living crises. To assess the implications of de-anchored inflation expectations, an illustrative exercise assumes that surging retail energy prices push inflation expectations upward significantly, leading inflation in nonenergy sectors to increase by about 0.85 percentage point more than when expectations are assumed to remain anchored.[23] In this extreme case, *consumer subsidies* further reduce the need for monetary policy tightening by mechanically containing the increase in retail energy prices and in inflation expectations. The lower persistence of inflation leads to welfare gains among LIHHs roughly comparable to those under *targeted transfers* (Online Annex Figure 2.5.4), rather than leading to losses, as when expectations are anchored (Figure 2.9). However, the empirical results in earlier sections suggest that, on average, past price-suppressing interventions did not have a significant impact on medium-term inflation expectations despite some near-term relief on the prices of basic necessities (Figure 2.6).

Spillovers to global prices. Subsidies attenuate the price signal that consumers receive related to the global scarcity of supply, leading to smaller demand compression. Although the effect on global demand from a small economy introducing subsidies would be negligible, multiple countries introducing subsidies at the same time would have spillovers to global prices. Indeed, model simulations from a scenario in which all countries introduce consumer subsidies aimed at containing the pass-through to retail prices to one-half of what it would otherwise have been show that global oil prices increase by about 3 percentage points more (Online Annex Figure 2.5.5), in line with results in Auclert and others (2024) and Erceg and others (2024). Thus, even when the risk of de-anchored inflation expectations provides a rationale for temporary *consumer subsidies*, the effectiveness of those subsidies falls sharply when many countries adopt them simultaneously, as the smaller adjustment of demand puts further upward pressure on global commodity prices

[21]To preserve viable productive capacity, providing liquidity support through, for instance, temporary credit lines and deferred tax and social security payments is likely to be more effective than through price-suppressing measures (Ari and others 2023; Gourinchas and others 2026).

[22]The model assumes that policies are removed as soon as a shock dissipates, whereas in practice, removing measures, notably subsidies, has often proved politically challenging. Moreover, simulations do not include any increase in risk premiums, as public debt rises as a result of the support package. Finally, the model assumes lump-sum (rather than distortionary) taxes are used for fiscal consolidation after a crisis. Therefore, the welfare costs associated with the needed fiscal consolidation could be interpreted as a lower bound, especially in cases in which higher initial debt would lead to a higher sensitivity of interest rates to additional borrowing needs.

[23]In this illustrative scenario, a shock that raises energy prices by nearly 70 percent causes inflation expectations to increase by about 84 basis points. This compares with an estimated average increase of about 40 basis points in medium-term inflation expectations following a similarly sized oil-price shock induced by the oil-supply disturbances identified in Känzig (2021) for the countries in Online Annex Figure 2.2.1.

(Online Annex Figure 2.5.4), which can disproportionately affect low-income developing countries (as shown later in the chapter for a global food supply shock).

Targeted Transfers Are the Most Cost-Effective Fiscal Intervention

Transfers support household consumption while preserving price signals, encouraging households to conserve energy and producers to boost supply. *Untargeted transfers* do support consumption of LIHHs relative to that in the no-policy baseline but have little impact on HIHHs' consumption (Figure 2.9, panel 1): The latter have access to financial markets and save most of the additional income. The impact on debt is comparable to that of *consumer subsidies*, as they are uniformly distributed to all households.

When *targeted transfers* are used instead, the impact on households' consumption is comparable to that of *untargeted transfers*. However, the cost is significantly lower, because only LIHHs receive support.[24] The peak increase in public debt is about one-fifth of the increase under *untargeted transfers* or *consumer subsidies* and about one-sixteenth of that under *producer subsidies*. In other words, achieving a similar degree of protection for vulnerable households through subsidies requires between 5 and 16 times the fiscal resources.[25] Although LIHHs do face higher taxes over the medium term to bring debt back to its preshock level, the burden of fiscal consolidation falls on all households. On balance, LIHHs are better off when transfers are used than in the absence of fiscal intervention (Figure 2.9, panel 2).

Holding the fiscal envelope constant across instruments. To compare the cost-effectiveness of different fiscal measures more directly, an alternative exercise assumes the fiscal effort is the same across instruments and equal to the cost of *untargeted transfers* in the previous exercise. By channeling all support to LIHHs, which have a larger propensity to consume additional income than HIHHs, *targeted transfers* support aggregate demand and attenuate the drop in output, with little effect on inflation (Online Annex Figure 2.5.6). They also deliver the largest welfare gains for LIHHs, financed in part through redistribution from HIHHs (Figure 2.9, panel 3).

Although *consumer subsidies* generate a similar increase in LIHHs' consumption under the same fiscal envelope, they fail to improve welfare and instead result in net welfare losses. Moreover, the advantage of *targeted transfers* becomes even larger when the shock is more persistent (Online Annex Figure 2.5.3).

Emerging Market and Developing Economies Face Stark Policy Trade-Offs

How different are policy trade-offs among emerging market and developing economies? The model simulations suggest that they are considerably sharper in low-income developing countries, where basic necessities account for a larger share of household spending and fiscal resources are more limited.

Producer subsidies are particularly costly and inefficient. In low-income developing countries, containing the pass-through from global to domestic *energy* prices, through producer subsidies, at one-half of what it would otherwise have been would increase public debt by roughly 22 times as much as under targeted transfers (Online Annex Figure 2.5.8), compared with about 16 times as much in advanced economies (Figure 2.9) and 14 times as much in emerging markets (Online Annex Figure 2.5.9).

Consumer subsidies are less costly than *producer subsidies* but still represent an expensive way of protecting vulnerable households. In the case of the short-lived global *food* shock shown in Figure 2.8, simulations suggest that using *consumer subsidies* in low-income developing countries to contain the pass-through to domestic food prices to one-half of what it would otherwise have been reduces the surge in inflation by close to 4 percentage points and limits the decline in LIHHs' consumption by 5.5 percentage points (Figure 2.10, panel 1). However, this comes at a sizable fiscal cost, with debt increasing by about 7½ percentage points of GDP. This is significantly larger than the corresponding increase in debt in emerging markets (close to 4 percentage points of GDP) and especially that in advanced economies (about 1½ percentage points) facing the same shock (Online Annex Figures 2.5.7 and 2.5.10).

By contrast, *targeted transfers* deliver a similar improvement in LIHHs' consumption at roughly

[24]The model assumes complete take-up of untargeted transfers and abstracts from potential implementation challenges for targeted transfers (such as bunching around eligibility thresholds), which can affect the relative performance of targeted versus untargeted transfers.

[25]Although the inflationary impact of a comparable global shock to food prices is larger (Figure 2.8, panel 2), the relative cost-effectiveness of alternative policy interventions remains unchanged. Containing the pass-through from global to domestic food prices in advanced economies, through *consumer subsidies*, to one-half of what it would otherwise have been would entail a fiscal cost almost seven times as large as that under *targeted transfers* (Online Annex Figure 2.5.7).

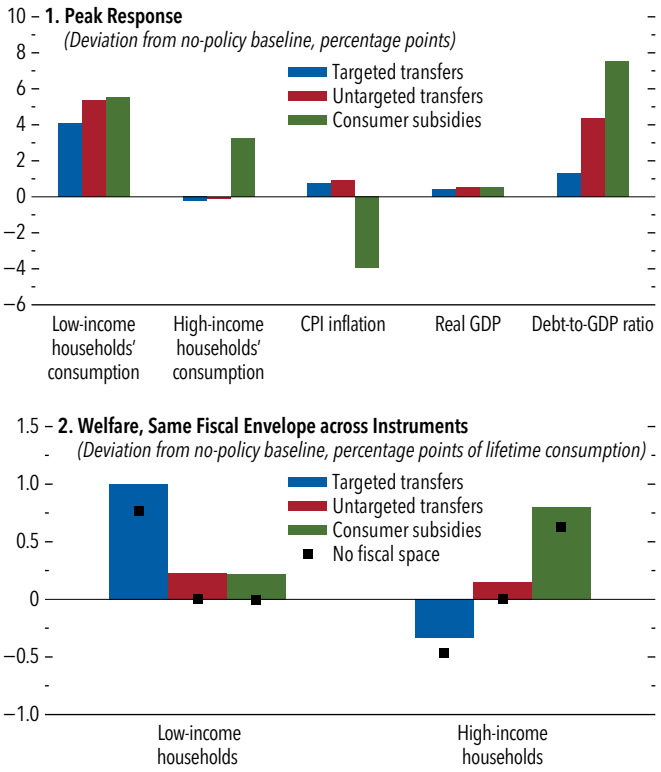
one-sixth of the fiscal cost, implying that consumer subsidies are about six times as expensive for achieving a similar degree of protection. Moreover, simulations confirm that once the future costs of debt consolidation are accounted for, *targeted transfers* are by far the most cost-effective way to support low-income households in emerging markets and low-income developing countries (Figure 2.10, panel 2; Online Annex Figures 2.5.8, 2.5.9, and 2.5.10).[26]

Limited fiscal space. Initial conditions, particularly the availability of fiscal space, can shape the ability of low-income developing countries to respond to cost-of-living crises. How do policy trade-offs change when governments cannot borrow and must instead finance support through higher taxes or expenditure reallocation? To address this question, an alternative set of simulations for low-income developing countries assumes their fiscal deficits cannot increase and all additional support is financed through higher taxes.[27] The results suggest that *targeted transfers* remain effective even when fiscal space is exhausted. Although part of the transfer is offset by the higher tax burden borne by all households, vulnerable households remain better off overall (the markers in Figure 2.10, panel 2). By contrast, *consumer subsidies* cease to generate welfare gains for LIHHs once the subsidies must be financed contemporaneously rather than through additional borrowing.

Spillovers from price subsidies can be particularly costly for low-income developing countries. Results from a scenario in which all other countries use *consumer subsidies* in response to a global food supply shock, while low-income developing countries do not, suggest that global food prices would rise by an additional 25 percentage points, and domestic food prices in low-income developing countries would increase by almost 5 percentage points more, relative to a scenario in which no country uses subsidies (Figure 2.11). Although low-income developing countries benefit from an improvement in their terms of trade as net food exporters, which provides some support to aggregate activity, the increase in domestic food prices disproportionately hurts vulnerable households.

Consequently, the decline in LIHHs' consumption is 2.2 percentage points larger than in a scenario without spillovers. The results suggest that when many countries deploy subsidies simultaneously, the resulting increase in global prices can worsen outcomes for vulnerable households in countries that lack the fiscal space to respond.

Figure 2.10. Impact of Fiscal Measures in Response to Food Price Shock, Low-Income Developing Countries



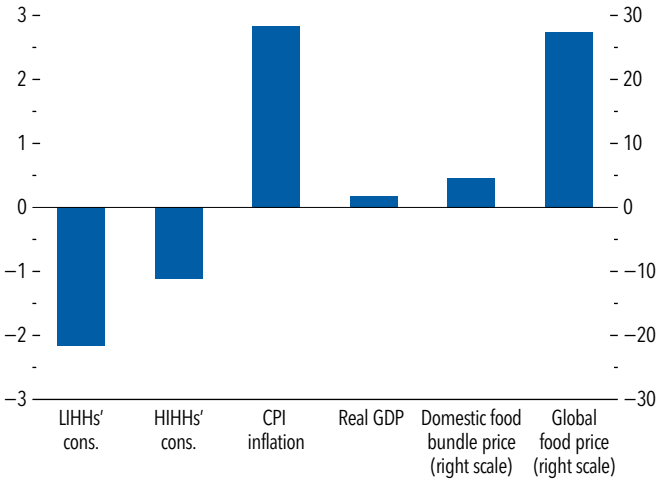
Source: IMF staff calculations.

Note: Panel 1 reports peak deviations from the steady state when the policies shown are in place, minus the peak response under the no-policy baseline. Panel 2 reports the welfare impact of each fiscal instrument, relative to the no-policy baseline, when the amount spent on each instrument is the same and equal to that of untargeted transfers in panel 1. The black squares report results when measures are financed with taxes rather than debt.

[26]In the model, low-income developing countries are assumed to be net exporters of agricultural and manufactured food products (Online Annex Table 2.5.4), so the improvement in the terms of trade partly cushions the effect of a shock on aggregate demand and activity. If low-income developing countries were instead assumed to have a smaller agricultural sector and be net food importers, the food shock would be associated with a deterioration in the terms of trade, weighing on domestic demand and output, but the direct impact of the shock on GDP would be smaller. The results for emerging markets (Online Annex Figure 2.5.10) suggest the relative performance of the different fiscal instruments would remain unchanged if low-income developing countries were assumed to be net food importers.

[27]Although in practice countries can also reorient spending to finance emergency support packages, spending in the model is assumed to be wasteful, so reducing it to fund transfers or subsidies would mechanically bias the results in favor of the intervention. However, the model also assumes financing through lump-sum taxes, which are less distortive than taxes used in reality. More broadly, mobilizing domestic revenue in low-income developing countries can be challenging, especially in the context of a large shock to the prices of basic necessities, while other financing options used in practice, including monetary financing, could entail worse outcomes. Taken together, these assumptions imply that the welfare impact of fiscal interventions in the limited-fiscal-space scenario should be interpreted as an upper bound.

Figure 2.11. Impact of Price Spillovers from Consumer Subsidies in Low-Income Developing Countries
(Deviation from no-policy baseline, percentage points)



Source: IMF staff calculations.

Note: The figure reports the peak deviation from the steady state in low-income developing countries when other economies use consumer subsidies in the context of a shock to global food supply, minus the peak response under the no-policy baseline. cons. = consumption; CPI = consumer price index; HIHHs = high-income households; LIHHs = low-income households.

In summary. When the objective is to shield vulnerable households from a spike in the cost of basic necessities, the model simulations confirm that *targeted transfers*, which preserve price signals, provide adequate protection at a significantly lower cost than alternative measures (Table 2.1). Depending on the instrument, the shock, and the economy, achieving a comparable degree of protection for vulnerable households through broad-based price interventions can require between 3 and 22 times the fiscal resources as *targeted transfers*. Once the cost of subsequent fiscal adjustment is taken into account, subsidies can reduce the welfare of low-income households despite cushioning their consumption in the near term. Moreover, the relative performance of subsidies deteriorates further as fiscal space becomes more constrained and when multiple countries deploy them simultaneously.

Conclusions and Policy Implications

This chapter shows that abrupt surges in the prices of basic necessities, such as food and energy, can impose substantial economic and social costs, with particularly large welfare losses for lower-income households, which are more exposed to the cost of basic necessities. Moreover, surges in the price of highly salient goods and services increase the risk of inflation expectations becoming de-anchored, amplifying the economic costs of a shock.

An appropriate first line of defense against temporary supply shocks that raise the relative prices of basic necessities relies on monetary policy geared toward delivering low and stable inflation, alongside social protection systems that allow automatic stabilizers to support vulnerable households. Cost-of-living crises, however, have often prompted policymakers to go beyond this standard policy framework, with the mix of instruments deployed varying substantially across countries.

In the past, policymakers have relied extensively on broad-based untargeted measures, but with important differences across countries. Advanced economies have tended to rely more on price measures that are closer in the value chain to final consumers, such as temporary value-added tax or excise tax cuts, and on direct income support through transfers and tax measures.

Table 2.1. Model Simulations: Relative Performance of Policy Instruments
(Percentage points)

	Energy Shock						Food Shock					
	AEs		EMs		LIDCs		AEs		EMs		LIDCs	
	Welfare	Debt	Welfare	Debt	Welfare	Debt	Welfare	Debt	Welfare	Debt	Welfare	Debt
Targeted Transfers	0.04	0.09	0.01	0.17	0.02	0.09	0.09	0.21	0.06	0.87	0.32	1.31
Untargeted Transfers	0.01	0.49	0.00	0.65	0.02	0.40	0.03	1.28	0.01	2.74	0.23	4.34
Consumer Subsidies	–0.01	0.41	–0.02	0.53	–0.01	0.31	–0.01	1.40	–0.06	3.85	0.32	7.55
Producer Subsidies	–0.05	1.35	–0.07	2.35	–0.11	2.09						

Source: IMF staff calculations.

Note: The table reports the effect of the policy instruments shown, relative to the corresponding no-policy baseline, on the welfare of low-income households (measured as percentage points of lifetime consumption) and on public debt (measured as the peak deviation of the debt-to-GDP ratio from the corresponding no-policy baseline over the first three years after a shock). Each instrument is calibrated to contain by half the impact on households from higher consumer prices, so debt differences reflect the fiscal cost of delivering the same degree of protection. Color scales are set separately by metric and by sector of the shock, spanning all instruments and country groups. Producer subsidies are not considered for the food shock. AEs = advanced economies; EMs = emerging markets; LIDCs = low-income developing countries.

Emerging market economies and low-income developing countries, by contrast, have relied more heavily on producer subsidies, price controls, and reductions in customs duties, as well as on broad-based increases in wages and pensions. These differences likely reflect more limited capacity in the latter group of countries to identify and reach vulnerable households through targeted transfer systems (IMF 2024).

The analysis in this chapter shows that broad-based price-suppressing measures are a costly and inefficient way of protecting households during cost-of-living crises. Subsidies can alleviate trade-offs for monetary policy in the near term by preventing an overshooting in headline inflation and containing second-round effects when inflation expectations are poorly anchored. However, much of the benefit accrues to households that need little support, requiring a substantial fiscal effort to contain the effect on consumers. Depending on the nature of the shock, the instrument used, and the type of economy, achieving a comparable degree of protection for vulnerable households through price-suppressing measures can require between 3 and 22 times the fiscal resources as targeted income support. For low-income households, the short-term welfare gains from lower prices generally fail to offset the medium-term costs associated with higher public debt and subsequent fiscal adjustment. Producer subsidies are particularly inefficient, because part of their benefit leaks abroad through lower export prices for downstream industries.

Moreover, the efficiency of price interventions declines significantly if many countries deploy them simultaneously, as reduced demand adjustment puts further upward pressure on global commodity prices, underscoring the potential gains from greater international coordination in responding to global shocks that trigger cost-of-living crises. In practice, once introduced, subsidies are politically difficult to remove, aggravating the fiscal burden and price distortions associated with the policy interventions (Amaglobeli and others 2026), and they can create fiscal vulnerabilities that go beyond their up-front budgetary cost.

When fiscal space is limited, the cost-effectiveness of targeted income support becomes even more important. Model simulations suggest that targeted transfers can still provide adequate protection to vulnerable households when low-income developing countries are unable to issue debt and must finance support through higher domestic revenue. By contrast, allocating the same fiscal resources to consumer subsidies yields few or no welfare gains.

The results in this chapter have clear implications for the design and sequencing of measures when intervention is deemed necessary to protect vulnerable households (see also Amaglobeli and others 2022). When faced with a large supply shock that raises food or energy prices significantly, policymakers should seek to preserve price signals to encourage the demand adjustment needed to restore market balance. Assistance, when warranted, should be temporary and delivered primarily through income-support measures directed at the most vulnerable households, ideally using existing social protection systems that can be scaled up rapidly.

Because broad-based measures are considerably more costly than targeted support, they should be reserved for exceptional circumstances, when shocks become particularly severe and disruptive, and only when fiscal space permits. For instance, when food security concerns and risks of social unrest are acute, identifying vulnerable households is difficult, and capacity constraints make the use of targeted support unfeasible or excessively costly, support may need to extend beyond the poorest households and rely on broader tools (Gourinchas and others 2026). Even then, support should remain as targeted as possible and calibrated to the temporary component of a particular price increase rather than to permanently higher prices. Moreover, the generosity of assistance should remain anchored to the average impact of the shock on lower-income households. When price measures are deemed unavoidable, they should be narrowly focused on the goods and services consumed disproportionately by vulnerable households and designed to preserve as much of the underlying price signals as possible. In all cases, interventions should be temporary and accompanied by well-communicated sunset clauses.

In a more shock-prone world, where cost-of-living crises may become both more frequent and more widespread, the results in this chapter underscore the growing importance of investing in the fiscal infrastructure needed to deliver targeted support. Stronger social protection systems can increase the effectiveness of crisis responses, reduce reliance on costly and poorly targeted emergency measures, and preserve the fiscal space needed to respond to future crises.

Box 2.1. Cost-of-Living Crises, Rents, and Monetary Policy

Within the broader category of housing costs, the chapter focuses on energy-related expenditures—such as electricity, gas, and other utility bills—which are particularly prone to abrupt price surges during cost-of-living crises. This box instead examines the behavior of rents during episodes of such crises, the interaction of rents with monetary policy, and their distributional implications across households.

During cost-of-living crises, rents increase on average by 1 percentage point: 1.5 percentage points less than the overall consumer price index (CPI) basket (Figure 2.1.1, panel 1). However, the increase in rents occurs only when crisis episodes are accompanied by an increase in policy rates. This is consistent with evidence that higher interest rates can hinder transitions into first-time homeownership, generating a rental demand shock that can push rent prices upward in the short term (Dias and Duarte 2019, 2022; Abramson, De Llanos, and Han 2025; De Stefani 2025). In countries where rents and owner-equivalent imputed rents are a large component of the CPI basket (Figure 2.1.1, panel 2), this channel can work against the disinflationary effects of monetary tightening following the onset of cost-of-living crises.

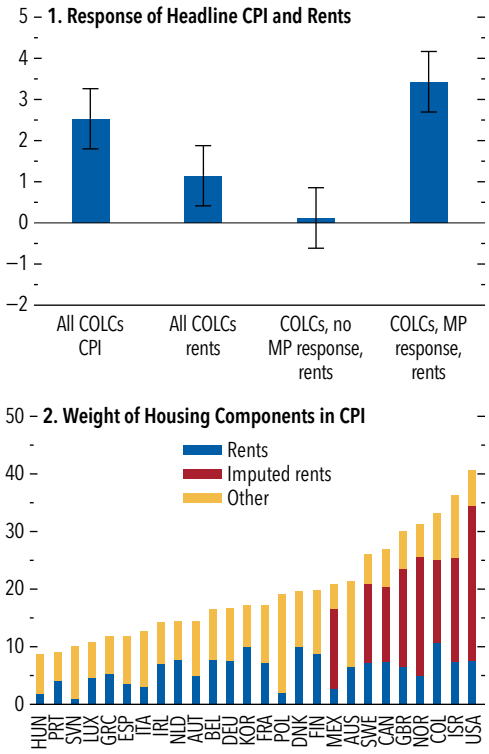
The dynamics of rents during cost-of-living crises—and the dependence of rents on central banks' responses—also have regressive distributional implications, since renters tend to fall into the lower income quintiles (Figure 2.1.2, panel 1). Homeowners—particularly in countries where fixed-rate mortgages prevail—are largely shielded from rising shelter costs induced by monetary tightening. Renters instead face the pass-through of rental costs, exacerbated by the large weight of rents in their consumption basket (Figure 2.1.2, panel 1). Indeed, during 2021–24, renters experienced higher total inflation relative to homeowners in the same income bracket (Figure 2.1.2, panel 2). Although relevant from a distributional standpoint, these implications remain, of course, outside the mandate of an inflation-targeting central bank, whose primary objective is to anchor aggregate price stability and expectations.

The authors of this box are Alessia De Stefani and Giovanni Sciacovelli.

Box 2.1 *(continued)*

Figure 2.1.1. Response of Rents during Cost-of-Living Crises

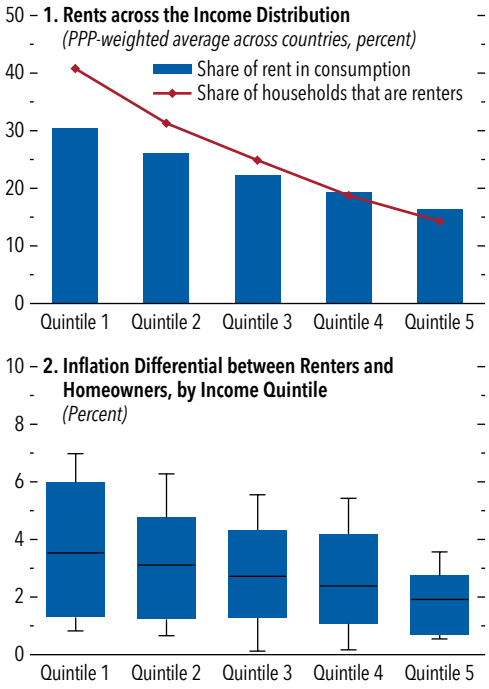
(Percent)



Sources: Eurostat; Haver Analytics; IMF, *World Economic Outlook*; and IMF staff calculations.

Note: Panel 1 shows cumulative responses eight quarters after the onset of a cost-of-living crisis based on a local-projection framework estimated over 2001–22. Cost-of-living crises are identified from the change in food, transportation, and fuel costs and exclude housing costs. The monetary policy (MP) response is a dummy taking value 1 if policy rates increase in the quarter following the onset of a crisis and 0 otherwise. Controls include three lags of changes in the dependent variable, house prices and GDP, and country fixed effects. Whiskers represent 90 percent confidence intervals based on standard errors clustered at the quarter level. Panel 2 plots the average weight of rents, owner-equivalent imputed rents, and other housing costs (for example, utilities) in CPI across the same set of countries included in the regression analysis reported in panel 1. Data labels in the figure use International Organization for Standardization (ISO) country codes. COLCs = cost-of-living crises; CPI = consumer price index; MP = monetary policy.

Figure 2.1.2. Distributional Implications of Rents during Cost-of-Living Crises



Sources: Eurostat, Household Budget Surveys; Luxembourg Income Study Database; and IMF staff calculations.

Note: Panel 1 shows rents as a share of total household consumption for renters and the share of renters, by income quintile and averaged across countries (using 2026 PPP GDP weights). Panel 2 shows the difference in overall inflation experienced by renters and homeowners over 2021–24, by income quintile. Owner-equivalent imputed rents are excluded from the calculation. Boxes represent the interquartile ranges; horizontal lines in the middle of the boxes represent the medians; whiskers represent the 10th and 90th percentiles, respectively. The sample includes Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Germany, Greece, Finland, France, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, the Slovak Republic, Slovenia, and Spain. PPP = purchasing power parity.

References

Abramson, Boaz, Pablo De Llanos, and Lu Han. 2025. "Monetary Policy and Rents." Working Paper, Columbia Business School, Columbia University, New York.

Amaglobeli, David, Simon Black, Oya Celasun, and Frederik Toscani. 2026. "Europe's Second Energy Shock: Avoiding the Mistakes of 2022." *Intereconomics* 61 (3): 189–90.

Amaglobeli, David, Mengfei Gu, Emine Hanedar, Gee Hee Hong, and Céline Thévenot. 2023. "Policy Responses to High Energy and Food Prices." IMF Working Paper 23/074, International Monetary Fund, Washington, DC.

Amaglobeli, David, Emine Hanedar, Gee Hee Hong, and Céline Thévenot. 2022. "Fiscal Policy for Mitigating the Social Impact of High Energy and Food Prices." IMF Note 22/001, International Monetary Fund, Washington, DC.

Argente, David, and Munseob Lee. 2021. "Cost of Living Inequality during the Great Recession." *Journal of the European Economic Association* 19 (2): 913–52.

Ari, Anil, Philipp Engler, Manasa Patman, and Laura Valderrama. 2023. "Energy Support for Firms in Europe: Best Practice Considerations and Recent Experience." IMF Working Paper 23/197, International Monetary Fund, Washington, DC.

Arregui, Nicolas, Oya Celasun, Dora M. Iakova, Aiko Mineshima, Victor Mylonas, Frederik G. Toscani, Yu Ching Wong, Li Zeng, and Jing Zhou. 2022. "Targeted, Implementable, and Practical Energy Relief Measures for Households in Europe." IMF Working Paper 22/262, International Monetary Fund, Washington, DC.

Auclert, Adrien, Hugo Monnery, Matthew Rognlie, and Ludwig Straub. 2024. "Managing an Energy Shock: Fiscal and Monetary Policy." In *Heterogeneity in Macroeconomics: Implications for Monetary Policy*, edited by Sofía Bauducco, Andrés Fernández, and Giovanni L. Violante, 39–108. Santiago: Central Bank of Chile.

Bénassy-Quéré, Agnès. 2024. "The Policy Mix in a World of Supply Shocks." Speech delivered at the University of Bordeaux, Talence, France, October 3.

Borio, Claudio, Piti Disyatat, Dora Xia, and Egon Zakrajšek. 2021. "Monetary Policy, Relative Prices and Inflation Control: Flexibility Born out of Success." *BIS Quarterly Review* (September): 15–29.

Bracco, Jessica, Luciana Galeano, Pedro Juarros, Daniel Riera-Crichton, and Guillermo Vuletin. 2026. "Social Transfer Multipliers in Developed and Emerging Countries: The Role of Hand-to-Mouth Consumers." *World Bank Economic Review*, July 17.

Cardoso, Miguel, Clodomiro Ferreira, José Miguel Leiva, Galo Nuño, Álvaro Ortiz, and Tomasa Rodrigo. 2022. "The Heterogeneous Impact of Inflation on Households' Balance Sheets." Working Paper 176, Red Nacional de Investigadores en Economía (RedNIE).

Coibion, Olivier, and Yuriy Gorodnichenko. 2015. "Is the Phillips Curve Alive and Well after All? Inflation Expectations and the Missing Disinflation." *American Economic Journal: Macroeconomics* 7 (1): 197–232.

D'Acunto, Francesco, Ulrike Malmendier, Juan Ospina, and Michael Weber. 2021. "Exposure to Grocery Prices and Inflation Expectations." *Journal of Political Economy* 129 (5): 1615–39.

Dabla-Norris, Era, Christian Mumssen, Rodrigo Valdés, and Daria Zakharova. 2026. "The Energy Shock Is Testing Government Budgets." *IMF Blog*, June 18. https://www.imf.org/en/blogs/articles/2026/06/18/the-energy-shock-is-testing-government-budgets.

Dao, Mai, Allan Dizioli, Chris Jackson, Pierre-Olivier Gourinchas, and Daniel Leigh. 2023. "Unconventional Fiscal Policy in Times of High Inflation." IMF Working Paper 23/178, International Monetary Fund, Washington, DC.

De Stefani, Alessia. 2025. "Missing Home-Buyers and Rent Inflation: The Role of Interest Rates and Mortgage Underwriting Standards." IMF Working Paper 25/90, International Monetary Fund, Washington, DC.

Del Canto, Felipe, John Grigsby, Eric Qian, and Conor Walsh. 2025. "Are Inflationary Shocks Regressive? A Feasible Set Approach." *Quarterly Journal of Economics* 140 (4): 2685–747.

Dias, Daniel A., and João B. Duarte. 2019. "Monetary Policy, Housing Rents, and Inflation Dynamics." *Journal of Applied Econometrics* 34 (5): 673–87.

Dias, Daniel A., and João B. Duarte. 2022. "Monetary Policy and Homeownership: Empirical Evidence, Theory, and Policy Implications." International Finance Discussion Paper 1344, Board of Governors of the Federal Reserve System, Washington, DC.

Erceg, Christopher J., Marcin Kolasa, Jesper Lindé, and Andrea Pescatori. 2024. "Can Energy Subsidies Help Slay Inflation?" IMF Working Paper 24/81, International Monetary Fund, Washington, DC.

European Parliament (EP). 2023. "Special Eurobarometer EB042EP: EP Autumn 2022 Survey: Parlemeter." Dataset. http://data.europa.eu/88u/dataset/S2932_98_1_EB042EP_ENG.

Georgieva, Kristalina. 2022. "The IMF's Role in a More Shock-Prone World." Speech delivered at the Plenary Meeting of the 2022 IMF–World Bank Annual Meetings, Washington, DC, October 14.

Gopinath, Gita. 2024. "Navigating Fragmentation, Conflict, and Large Shocks." Remarks delivered at the National Bank of Ukraine–Narodowy Bank Polski Annual Research Conference, Kyiv, Ukraine, June 21.

Gourinchas, Pierre-Olivier, Borja Gracia, Delphine Prady, and Rodrigo Valdés. 2026. "Responding to the Energy and Food Price Shock: Getting the Policy Details Right." *IMF Blog*, May 20.

Hossain, Naomi, and Jeffrey Hallock. 2022. "Food, Energy and Cost of Living Protests, 2022." Friedrich-Ebert-Stiftung, New York.

Humpage, Owen F. 2008. "Rising Relative Prices or Inflation: Why Knowing the Difference Matters." *Economic Commentary*, June 1, Federal Reserve Bank of Cleveland.

Inchauste, Gabriela, and David G. Victor, eds. 2017. *The Political Economy of Energy Subsidy Reform*. Directions in Development: Public Sector Governance. Washington, DC: World Bank.

International Monetary Fund (IMF). 2024. "Macroeconomic Developments and Prospects for Low-Income Countries—2024." IMF Policy Paper 24/011, Washington, DC. https://doi.org/10.5089/9798400272400.007.

Ipsos. 2026. "What Worries the World?" April report, New York. https://resources.ipsos.com/rs/297-CXJ-795/images/What-Worries-the-World-april-2026.pdf.

Jaravel, Xavier. 2021. "Inflation Inequality: Measurement, Causes, and Policy Implications." *Annual Review of Economics* 13: 599–629.

Jaravel, Xavier. 2026. "Distributional Consumer Price Indices." https://www.xavierjaravel.com/_files/ugd/bacd2d_40a5d2231f0847e1a2e20f6ca4031c7d.pdf.

Jo, Yoon Joo, and Ben Klopack. 2025. "Fueling Expectations: The Causal Impact of Gas Prices on Inflation Expectations." *Journal of Monetary Economics* 153: 103797.

Känzig, Diego R. 2021. "The Macroeconomic Effects of Oil Supply News: Evidence from OPEC Announcements." *American Economic Review* 111 (4): 1092–125.

Kpodar, Kangni, and Boya Liu. 2022. "The Distributional Implications of the Impact of Fuel Price Increases on Inflation." *Energy Economics* 108: 105909.

Lemoine, Matthieu, Anna Petronevich, and Anastasia Zhutova. 2024. "Bouclier tarifaire sur les prix de l'énergie en France: quel bilan?" [Energy Tariff Shield in France: What Is the Outcome?] *Bulletin de la Banque de France* 253 (4).

Lokshin, Michael, Zurab Sajaia, and Iván Torre. 2025. "Who Suffers the Most from the Cost of Living Crisis?" *Review of Income and Wealth* 71 (1): e70009.

Organisation for Economic Co-operation and Development (OECD). 2023. "Worries about Affording Essentials in a High-Inflation Environment." OECD Policy Brief, Paris.

Ozhan, Galip Kemal, Nick Sander, Sebastian Wende, and Sihwan Yang. 2026. "Monetary Policy under Network-Level Bottlenecks." Unpublished, International Monetary Fund, Washington, DC.

Pallotti, Filippo, Gonzalo Paz-Pardo, Jiri Slacalek, Oreste Tristani, and Giovanni L. Violante. 2024. "Who Bears the Costs of Inflation? Euro Area Households and the 2021–2023 Shock." *Journal of Monetary Economics* 148 (Suppl., November): 103671.

Passadore, Juan, Giovanni Sciacovelli, Filiz Unsal, and Carlos van Hombeeck. 2025. "External Shocks and Monetary Policy Trade-Offs in Low-Income Countries." IMF Working Paper 25/204, International Monetary Fund, Washington, DC.

Sgaravatti, Giovanni, Simone Tagliapietra, Cecilia Trasi, and Georg Zachmann. 2023. "National Policies to Shield Consumers from Rising Energy Prices." Dataset, June 26. https://www.bruegel.org/dataset/national-policies-shield-consumers-rising-energy-prices.

CHAPTER 3

INTANGIBLE YET REAL: SPILLOVERS FROM CORPORATE INCOME TAXATION

The globalization of production, the rise of multinational corporations, and the growing importance of intangible assets have transformed the landscape of corporate income taxation. Governments have competed to attract capital, which has become increasingly mobile across borders, through lower corporate income tax rates and tax incentives, while domestic and international reforms have sought to curb profit shifting and protect tax bases. This chapter shows that tax competition remains a defining feature of the global economy, but its nature is changing. Tax competition has moderated on some dimensions following major anti-avoidance reforms, although competitive pressures remain, notably among economies at similar stages of development. Differences in corporate income taxation continue to generate cross-border spillovers, as multinational corporations relocate profits and investment across countries to minimize their tax liabilities, but anti-avoidance efforts are increasingly realigning them. Although corporate income tax cuts can expand productive capacity domestically and abroad, the global effects depend on the extent to which capital relocation can be offset and how governments adjust their budgets. Debt-financed tax cuts can raise global interest rates and crowd out investment abroad, whereas tax cuts financed by lower public investment can undermine domestic productivity and potential output over time. Stronger anti-avoidance frameworks, however, can support output while protecting tax revenues, helping ease trade-offs, particularly in emerging market and developing economies that rely more heavily on corporate income tax revenues.

Introduction

Globalization and digitalization—with the secular shift toward investment in intangible assets—have driven a steady rise in the international mobility of capital in recent decades. Greater global financial integration has led cross-border investment to nearly quadruple since the 2000s. Multinational corporations (MNCs) now account for more than 20 percent of global GDP and approximately 15 percent of global corporate profits (Figure 3.1, panel 1).

At the same time, the pace of digitalization has meant that intangible assets—such as copyrights, databases, patents, processes, software, and trademarks—are now major determinants of firm value and drivers of corporate profit, along with the continued shift from production to services (Figure 3.1, panel 2). And these intangible assets have provided greater scope for MNCs to relocate profits and activity across borders—tax base shifting—to exploit corporate income tax rate differentials between countries and benefit from tax incentives, creating a disconnect between profits and activity.

In response, governments have reduced corporate income tax rates and increased the generosity of tax provisions, including tax incentives, to attract highly mobile capital. However, this has also narrowed the corporate income tax base. Over time, these government actions have been associated with a decline in the tax burden—the share of tax liabilities in taxable income—on capital relative to labor globally (Figure 3.1, panel 3). Yet the taxation of corporate income poses unique challenges to governments as they seek to strike a balance between (1) minimizing tax-induced distortions to encourage domestic investment and prevent capital flight and (2) revenue mobilization, which is particularly important for emerging market and developing economies, given limited fiscal space and the sizable share of corporate income tax revenues in total domestic revenues.

In this context, with fiscal space narrowing and spending needs remaining elevated in many economies, governments are increasingly seeking durable sources of revenue while avoiding measures that could undermine investment, productivity, and growth. As a result, understanding the trade-offs and cross-border implications of corporate income tax policy is more important than ever. This chapter aims to examine the size and

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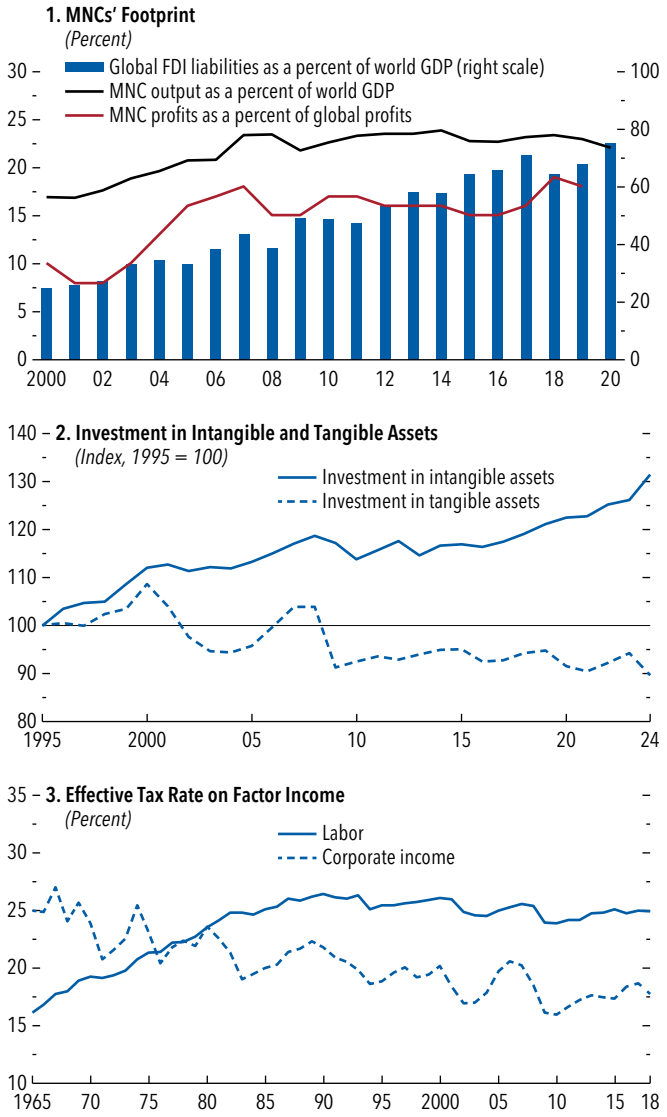
Figure 3.1. Globalization and Digitalization Trends



Sources: Tørsløv, Wier, and Zucman 2022; World Intellectual Property Organization (WIPO)-Luiss Business School Global INTAN-Invest Database, June 2024; and IMF staff calculations.

Note: FDI = foreign direct investment; MNC = multinational corporation.

nature of cross-border spillovers arising both from governments' strategic responses and firms' reallocation of investment and profits across countries and how they have changed. The analysis is structured around the following questions:

- How has the global corporate income tax landscape evolved?
- How large are the spillovers from tax competition and base shifting, and how do these spillovers differ across countries and over time?
- How have recent tax reforms—including measures aimed at curbing tax avoidance—impacted firms' profit shifting and real investment decisions?
- How do spillovers vary under alternative scenarios of tax competition and different ways of financing corporate income tax cuts in the short and long term?

The chapter complements existing work on assessing tax competition that has quantified the revenue implications of firms' behavioral responses and the implications of corporate income taxation for foreign direct investment (FDI) (IMF 2014; IMF 2016; Crivelli, de Mooij, and Keen 2016; IMF 2019; IMF 2023). By disentangling spillovers from strategic tax competition—when governments respond to one another's tax policies when setting their own—and base shifting, the analysis sheds light on their macroeconomic effects and how they vary across countries and over time. The chapter also analyzes how the growing importance of intangible assets and stronger anti-avoidance rules impact firm behavior. Finally, it provides a novel perspective on spillovers by examining how the strategic behavior of governments and MNCs shapes the international transmission of corporate income tax policies in a general equilibrium setting.

Three main findings emerge:

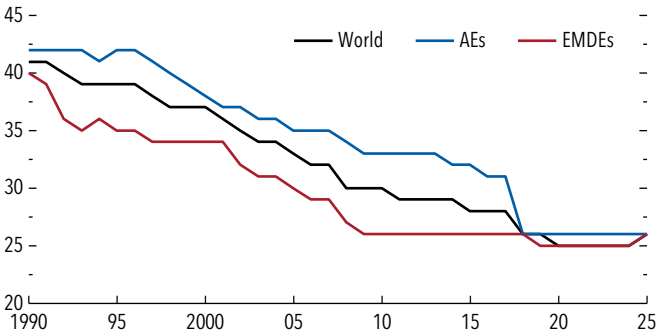
- *First, tax competition remains important, but its form appears to be changing.* Governments continue to respond strategically to one another's corporate income tax policies: a 1 percentage point reduction in the average peer country's statutory corporate income tax rate is associated with a 0.4 percentage point cut in the home country's rate. Competition also tends to be stronger among economies at similar stages of development. However, strategic interactions have weakened since the major anti-avoidance reforms of the 2010s, particularly in regard to statutory tax rates, while tax incentives and other targeted provisions have become increasingly important.
- *Second, corporate income tax policies generate cross-border spillovers through profit shifting, investment reallocation, and knowledge-transfer channels.* A 1 percentage point increase in a country's corporate income tax rate relative to rates elsewhere is associated with a cumulative decline in FDI inflows of about 0.5 percent of GDP over three years. At the firm level, the location of new

investment has become considerably more sensitive to tax differentials since 2017. At the same time, anti-avoidance efforts have weakened the link between tax differentials and profit shifting, while increasing the sensitivity of real investment decisions to tax rates. As a result, profits and real economic activity could become more closely aligned, even as tax differentials continue to influence where MNCs invest.

- *Third, the effects of corporate income tax competition involve important trade-offs.* Lower corporate income tax rates can stimulate investment, innovation, and productive capacity but may also reduce revenue. Overall, the domestic and spillover effects depend on how revenue losses are financed and on the strength of anti-avoidance frameworks. Debt-financed tax cuts can generate negative spillovers in the short term by raising global interest rates and crowding out investment elsewhere. Domestically, tax cuts that come at the cost of public investment can adversely impact output in the long term, but implementing stronger anti-avoidance measures can ease some of the trade-offs, particularly for emerging market and developing economies.

The chapter is structured as follows. First, it provides a short primer on key spillover channels from tax competition and documents how corporate income tax policies have evolved over time and how MNCs may have adjusted. Second, it analyzes the short-term spillovers associated with domestic tax policy changes using empirical and model-based approaches. Third, the analysis is extended to consider governments' strategic interactions, evaluating how the tax policy setting in one country is shaped by tax policy changes elsewhere and how tax differentials affect cross-border investment. Fourth, it focuses on MNCs' decisions—how tax differentials influence where they book profits, where they locate new investment, and how much they invest, given their global production networks. It also examines how these decisions have been affected by anti-avoidance efforts and the shift toward intangible assets. Finally, the chapter uses model-based simulations to examine the long-term spillovers from tax competition and stronger anti-avoidance policies, with particular attention to the trade-offs facing emerging market and developing economies.

Figure 3.2. Statutory Corporate Income Tax Rates over Time
(Percent)



Sources: Tax Policy Center; and IMF staff calculations.

Note: The figure shows the 10-year purchasing-power-parity GDP-weighted average. AEs = advanced economies; EMDEs = emerging market and developing economies.

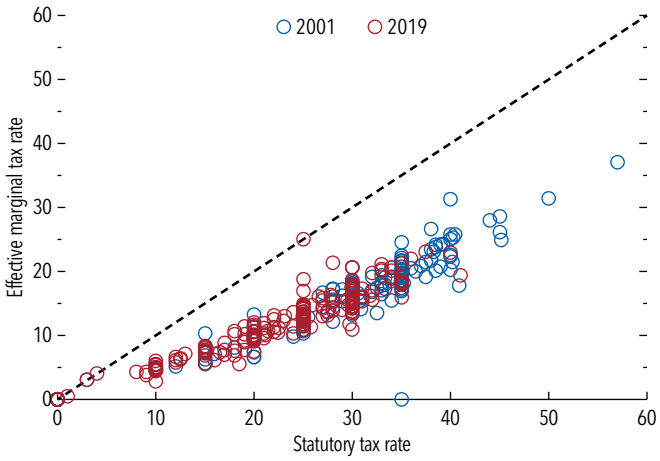
A Primer on Spillovers from Corporate Income Tax Policy Changes

Tax competition and base shifting can reduce global efficiency. At the domestic level, they can weaken revenue collection, distort the allocation of capital across the private and public sectors, and create opportunities to reclassify labor income as corporate income—and thereby undermine the ability of the corporate income tax to backstop the personal income tax by limiting opportunities for individuals to shift income into lower-taxed corporations (Wilson 1986; IMF and others 2015). At the global level, they can cause capital and profits to move toward low-tax jurisdictions rather than toward locations where returns are highest (Alfaro, Kalemli-Özcan, and Volosovych 2008; Gourinchas and Jeanne 2013).

Strategic Corporate Income Tax Policymaking by Governments

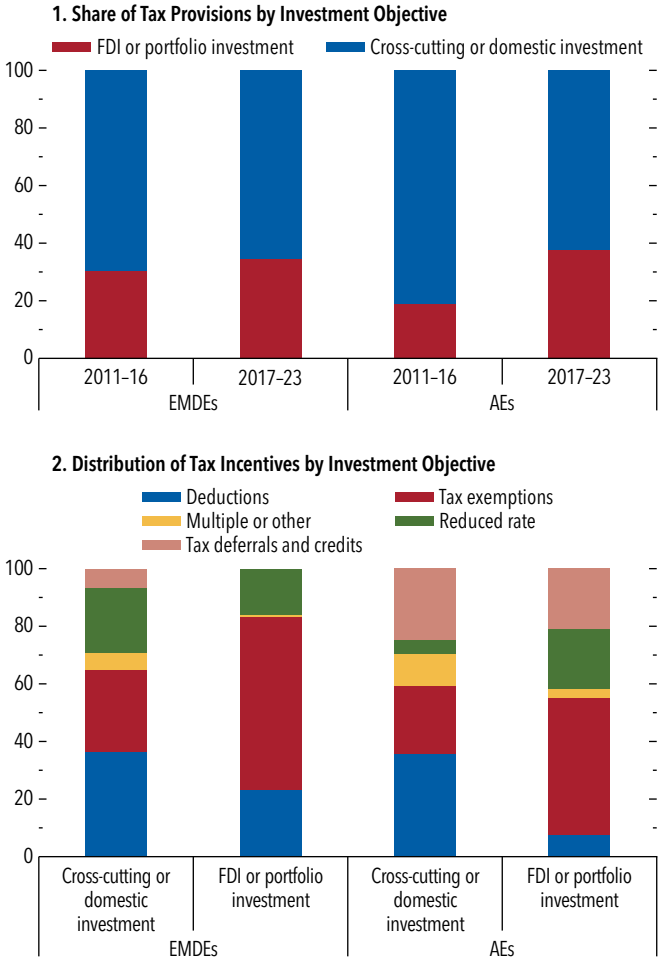
Corporate income tax systems extend beyond headline statutory tax rates to include base-related provisions and safeguards designed to limit tax avoidance. Governments deploy these instruments to compete with one another to attract corporate profits and investment, with important macroeconomic effects. In particular, governments lower statutory corporate income tax rates in response to rate choices elsewhere, driving a race to the bottom, which appears to have stabilized in recent years (Figure 3.2). Rate-based instruments also include profit-based tax incentives,

Figure 3.3. Statutory versus Effective Corporate Income Tax Rates, 2001 and 2019
(Percent)



Sources: International Tax Institutions Database; and IMF staff calculations.

Figure 3.4. Tax Rate and Base Policies
(Percent)



Sources: Global Tax Expenditures Database; and IMF staff calculations.
Note: AEs = advanced economies; EMDEs = emerging market and developing economies; FDI = foreign direct investment.

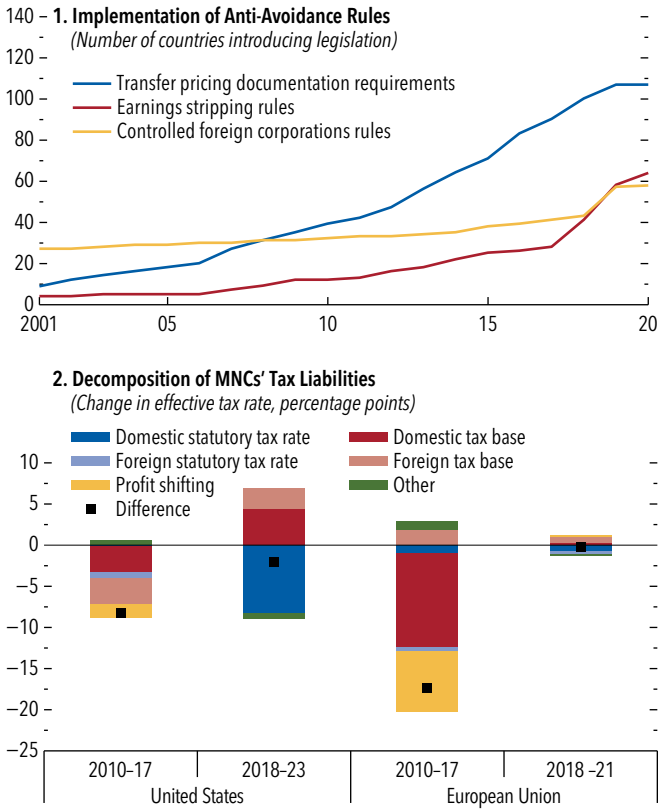
such as tax holidays—prevalent across emerging market and developing economies—and patent box regimes that are used by advanced economies to attract intangible assets and provide preferential tax treatment for income derived from patents and other intellectual property (IMF and others 2015). Over time, the nature of tax competition appears to have changed, with a shift from rate cutting toward profit-based incentives (see Box 3.1). Governments may also compete through base-narrowing measures. Generous cost-based incentives—such as investment tax credits, accelerated depreciation, and enhanced allowances for research and development (R&D)—reduce the user cost of capital and can attract investment. Governments appear to have introduced increasingly generous base-narrowing measures to attract capital, as effective rates are lower than statutory rates, and the difference has increased over time in many countries (Figure 3.3).[1]

Governments can also use tax incentives that target specific sectors or firms to incentivize activity and attract capital. The design of investment incentives has become more targeted, with a growing share of provisions aimed at attracting FDI and portfolio flows (Figure 3.4, panel 1). This trend is evident across both advanced economies and emerging market and developing economies and low-income countries. In practice, profit-based incentives—such as exemptions and preferential tax rates—are widely used to attract international investment. At the same time, emerging market and developing economies and low-income countries rely more heavily on such instruments than advanced economies in competing for mobile capital (Figure 3.4, panel 2).

However, since 2013, the international corporate income tax landscape has undergone significant reform, starting with the 15-point Action Plan from the Organisation for Economic Co-operation and Development (OECD)/Group of Twenty (G20) Base Erosion and Profit Shifting (BEPS) initiative, followed by guidance in 2015 on anti-avoidance measures that target specific profit-shifting channels and strengthen the link between profits and underlying economic

[1]These rates capture economy-wide base policies that affect the depreciation of assets as well as interest deductibility.

Figure 3.5. Anti-Avoidance Rules and the Taxation of Multinational Corporations



Sources: Bureau of Economic Analysis (BEA) Database; International Tax Institutions Database; Orbis; and IMF staff calculations.

Note: Panel 2 shows backward-looking effective tax rates. Negative (positive) values indicate a contribution to reducing (increasing) MNCs' effective tax rates. Period labels refer to cumulative year-on-year changes over the indicated interval. For example, 2010–17 cumulates all annual changes from 2009–10 to 2016–17. MNCs = multinational corporations.

activity (see Box 3.2). Reforms have included controlled foreign corporation rules, strengthened transfer pricing regulations, and interest limitation rules. Countries have discretion over whether, when, and how to implement these measures, and although many of them pre-date the BEPS initiative, their adoption has since broadened, although somewhat unevenly (Figure 3.5). Soon after adoption of these measures, the United States enacted the Tax Cuts and Jobs Act (TCJA) in 2017, which lowered the statutory rate, moved the country to a more territorial taxation system, and included provisions to curb base erosion and profit shifting and influence the location of mobile income—notably Global Intangible Low-Taxed Income (GILTI, a minimum tax on foreign earnings), Base Erosion Anti-Abuse Tax (BEAT, targeting cross-border deductions), and Foreign-Derived Intangible Income (FDII, providing preferential treatment for export-related intangible income).[2] By introducing minimum taxation of foreign income, the TCJA contributed to a compression of the global distribution of effective tax rates, likely reinforcing broader trends toward convergence in corporate income tax burdens.

Strategic Base Shifting by Multinational Corporations

In turn, MNCs respond to the resulting international corporate income tax system by exploiting cross-country tax differentials when choosing where to book profits, locate investment (extensive margin), and expand investment (intensive margin).[3]

Strategies employed by MNCs include transferring ownership of intangible assets to a subsidiary in a low-tax jurisdiction and paying royalties (*location of intangibles*); adjusting intrafirm prices, with affiliates in higher-tax countries underpricing sales (or overpricing purchases), especially when hard-to-value intangible assets are involved (*transfer pricing*); using intra-group borrowing arrangements whereby high-tax affiliates make tax-deductible interest payments to low-tax affiliates (*debt shifting*).[4] These practices can substantially reduce effective tax burdens on corporations without corresponding changes in real activity.

The increasing importance of intangible capital has amplified these dynamics. Firms can decouple the location of profits from the location of underlying economic activity more easily with intangible assets than with tangible assets. This is because intangible assets are highly mobile and nonrival, such that they can be used

[2]A territorial system of taxation is one in which a country taxes only the domestic income of resident firms, generally exempting most foreign source income earned by their subsidiaries abroad. Under such a system, profits are taxed primarily in the jurisdiction where they are generated, rather than in the parent company's home country. This contrasts with worldwide systems, which tax global income but often allow credits for foreign taxes paid.

[3]A firm's tax liability reflects both statutory tax rates and tax base provisions. While statutory rates are particularly relevant for profit-shifting incentives, they provide an incomplete measure of investment incentives because they abstract from features of tax systems such as depreciation allowances, investment tax credits, and loss-offset rules. Forward-looking effective tax rates account for these features and are therefore better suited to assessing investment incentives. Effective marginal tax rates affect decisions about the scale of investment by measuring the tax wedge on a marginal project, while effective average tax rates affect discrete investment choices by measuring the share of economic profits absorbed by taxation.

[4]While outside the scope of this chapter, debt shifting can generate tax-induced bias toward debt financing, potentially increasing financial stability risks and altering spillovers (see, for example, Fuest, Hebous, and Riedel 2011).

simultaneously across multiple locations (see Box 3.1). At the same time, policy changes—particularly the tightening of anti-avoidance rules— have altered firms' responses. When profit-shifting opportunities are curtailed, tangible investment decisions become more sensitive to tax differentials, suggesting MNCs' profit-booking and economic activity decisions are becoming increasingly realigned (see Box 3.3).

Recent evidence based on decomposing effective tax rates of MNCs underscores this evolving interaction between tax policy and firms' behavior.[5] For a given MNC, changes in backward-looking effective tax rates—computed *ex post* from reported profits and taxes paid by MNCs—can be attributed to both tax policy shifts and profit-shifting responses. The former capture changes in statutory rates and tax base provisions, while the latter reflect reallocations of reported profits across jurisdictions with tax policies held constant. These patterns have been particularly evident in the United States following the TCJA, which led to a marked adjustment in effective tax burdens (Figure 3.5, panel 2). Estimates also suggest that profit shifting has weakened since 2017, exerting somewhat less downward pressure on MNCs' effective tax rates, consistent with the important tax initiatives described earlier, including those that strengthen efforts to curb profit shifting.

General Equilibrium Effects

An important focus of this chapter is to go beyond the direct effects on investment and profit allocation and explore how corporate income tax cuts can influence macroeconomic outcomes through broader general equilibrium channels.

By raising after-tax returns, lower corporate income tax rates can stimulate private investment and expand productive capacity domestically.[6] The overall effect, however, depends on how the associated revenue loss is financed. Since tax revenues affect the allocation of resources between private and public spending, tax cuts can increase private demand and investment while reducing the resources available for public expenditure in the short to medium term. However, in the long term, if revenue losses are offset through lower public investment, the resulting decline in public capital can weaken productivity and offset the output gains from higher private investment.

Corporate income tax cuts also affect activity beyond national borders. By encouraging both domestic and cross-border investment, lower tax rates can expand the global capital stock, facilitating technology diffusion and knowledge transfers that raise productivity across countries. The resulting gains may be particularly pronounced in economies with strong absorptive capacity or large productive sectors (Gross, Klein, and Makris 2022; Maebayashi and Morimoto 2024). The horizon of analysis is important when assessing the spillover effects of corporate income tax reforms. In the short term, tax cuts can generate positive demand spillovers through stronger imports and external demand. These effects depend on fiscal financing. Debt-financed tax cuts can raise global interest rates, partially offsetting the positive demand effects on trading partners—these demand-side and financial channel effects underpinning the macroeconomic response are explored here using the IMF Global Integrated Monetary and Fiscal model.[7] In addition, because firms can adjust their physical capital stock only gradually, these short-term dynamics may differ from the eventual long-term effects. Over the long term, the net impact on recipient countries depends on whether gains from stronger global capital accumulation and knowledge diffusion outweigh any adverse effects arising from the relocation of investment and tax bases to the tax-cutting economy—these effects are explored using a spatial model.

Taken together, the interaction of strategic tax competition—where MNCs choose to locate economic activity and profits—and general equilibrium effects implies that domestic corporate income tax policy changes have consequences well beyond national borders.

Macroeconomic Spillovers from Corporate Income Tax Policies

This section assesses how domestic corporate income tax policies in major advanced economies impact

[5]See Online Annex 3.1 for methodological details of the decomposition, which follows Garcia-Bernardo, Janský, and Tørsløv (2022). All online annexes are available at www.imf.org/en/Publications/WEO.

[6]See Chapter 2 of the October 2026 *Fiscal Monitor*, which finds that reducing tax-induced distortions to marginal investment can encourage investment by lowering the cost of capital. The chapter emphasizes that these gains need not rely on broad rate cuts or lower public spending but can instead be achieved through revenue-neutral reforms that improve cost recovery while preserving the taxation of economic rents.

[7]Domestic corporate income tax changes can also propagate globally through adjustments in prices, for example, through the appreciation of real exchange rates.

economic outcomes abroad in the short term. It then illustrates the relevant propagation channels through a dynamic general equilibrium model.

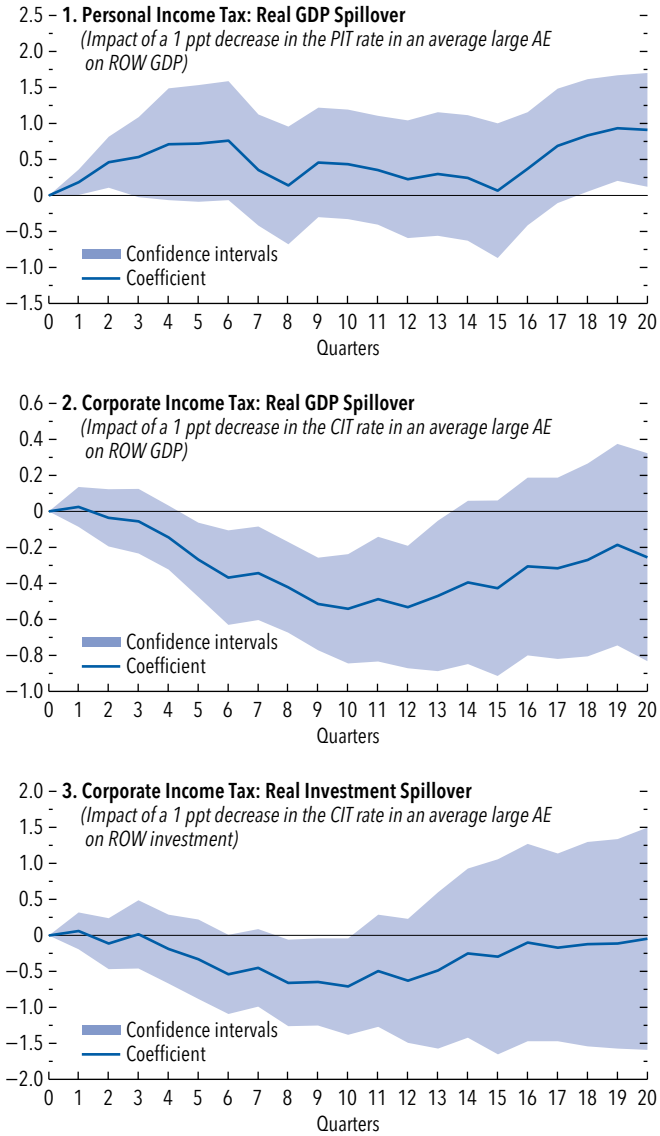
Output Spillovers from Domestic Tax Cuts

The analysis starts by estimating how corporate income tax cuts in major economies affect output abroad.[8] The estimates use narrative-based tax shocks—policy changes that are less likely to reflect the normal business cycle. Corporate income tax cuts differ from personal income tax cuts because they operate through additional channels. Both types of tax cuts can boost domestic demand and imports, which helps trading partners. But corporate income tax changes in one economy can also pull investment and profits away from other economies or raise global financing costs. By contrast, personal income tax cuts tend to work more through higher labor supply and consumption, generating positive spillovers through trade with less upward pressure on global interest rates. The overall effect on the rest of the world is therefore an empirical question.

The evidence points to a clear contrast. Corporate income tax cuts in major economies are associated with lower output and investment abroad. Output in the rest of the world falls by as much as 0.5 percent two years after a corporate income tax cut. Personal income tax cuts, by contrast, tend to generate positive external effects, with output elsewhere rising by about 0.5 percent within a year and continuing to increase thereafter, although the response is not statistically significant (Figure 3.6, panels 1 and 2). This helps reconcile earlier evidence that tax spillovers are often small on average: Positive spillovers from personal income tax cuts may offset negative spillovers from corporate income tax cuts, even though the two work through different channels (Beetsma and others 2006; IMF 2016).

Corporate income tax cuts differ from personal income tax cuts because capital is more mobile than labor. When a major economy cuts its corporate income tax rate, MNCs may redirect investment toward that economy and away from others. Corporate income tax cuts also raise after-tax returns and can trigger a strong domestic investment response. The resulting increase in demand for capital can push up real interest rates, which are transmitted through

Figure 3.6. Spillovers from Domestic Tax Cuts: Empirical Estimates
(Percent)



Sources: Cloyne 2013; Cloyne, Dimsdale, and Hürtgen 2025; Hayo and Uhl 2014; and IMF staff calculations.

Note: Panels show the cumulative associated impact on real GDP and real investment in the rest of the world of a 1 percentage point (ppt) decrease in the rate of average PIT or the average CIT rate for Germany, the United Kingdom, and the United States, instrumented by narrative shocks. Shaded areas denote 90 percent confidence intervals. AE = advanced economy; CIT = corporate income tax; PIT = personal income tax; ROW = rest of the world.

[8]The analysis follows Mertens and Ravn (2014) to orthogonalize the personal income tax and corporate income tax shock series and focuses on three major economies: Germany, the United Kingdom, and the United States. Further details on the construction of the corporate income tax and personal income tax shocks and the methodology for doing so are provided in Online Annex 3.2. The results are largely driven by corporate income tax changes in the United States, with those from Germany and the United Kingdom showing effects that are qualitatively similar but not statistically significant.

global financial markets and crowd out investment abroad when the implementing jurisdiction is large (Figure 3.6, panel 3).

Global Transmission of Domestic Tax Cuts in the Short Term: Model-Based Illustration of Channels

How do corporate income tax cuts propagate domestically and internationally? The IMF's Global Integrated Monetary and Fiscal model is used in this subsection to illustrate how corporate income tax cuts may affect domestic and foreign activity through trade, capital reallocation, and financial channels under alternative financing assumptions in the short term. Within the model, spillover effects are amplified when tax cuts are debt financed, because higher public borrowing raises global real interest rates, further crowding out investment abroad. By contrast, budget-neutral tax cuts generate more muted spillover effects.

Domestic Dynamics after a Tax Cut

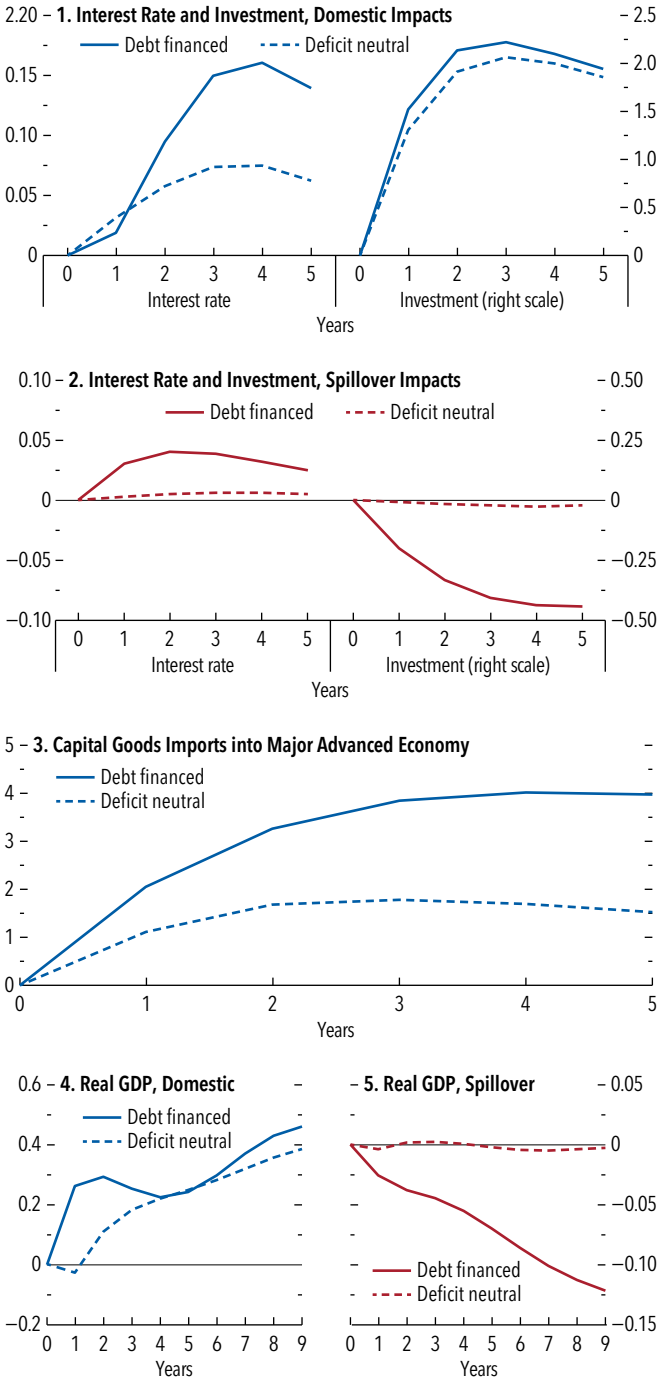
A reduction in the corporate income tax rate—simulated as a 3 percentage point cut—raises the after-tax return to capital in the implementing jurisdiction.[9] Firms respond immediately by expanding capital, and the resulting pickup in investment spending lifts domestic demand and draws resources toward the location where the marginal product of capital has risen. However, productive capacity is unable to expand one-to-one—as new capital takes time to build and firms face adjustment costs—and demand rises faster than capacity, putting upward pressure on the real interest rate (Figure 3.7, panel 1).

These dynamics are amplified if the corporate income tax cut is debt financed, as increased public borrowing adds to upward pressure on real interest rates. If the tax cut is not offset by lower spending or higher taxes elsewhere, public borrowing rises. At the same time, firms want to invest more. With both the public and private sectors demanding more funds, real interest rates rise to bring saving and investment into balance.[10] The model simulations do not account for

[9]See Online Annex 3.3 for further details on the model simulations. Deficit-neutral simulations reduce government transfers to offset the budgetary effects of the corporate income tax cut.

[10]This result hinges on the non-Ricardian nature of households in the Global Integrated Monetary and Fiscal model. If households were Ricardian, household saving would rise one-to-one in response to government dissaving.

Figure 3.7. Domestic and Spillover Effects from Domestic Corporate Income Tax Cuts: Model Simulations
(Percent, deviation from baseline)



Source: IMF staff calculations.

Note: Responses to a 3 percentage point permanent fall in the corporate income tax rate of a major advanced economy. Effects abroad are GDP-weighted impacts outside of the large advanced economy that initiates the corporate income tax rate cut.

the potential amplification channel of higher sovereign risk premiums when tax cuts are deficit financed in economies with already-elevated debt levels.

International Transmission: Investment Reallocation, Higher Global Rates, and Trade Spillovers

With globally integrated financial markets, a domestic tax cut affects the rest of the world through more than one channel. As a result of higher after-tax returns, the tax-cutting jurisdiction attracts investment and capital goods, reallocating capital away from jurisdictions where tax policies are unchanged. In the short term, this reallocation can weigh on investment and output abroad, even as stronger import demand from the tax-cutting economy provides a partly offsetting trade channel. In the model, when the tax cut is debt financed, the rise in borrowing further increases the global demand for funds, putting upward pressure on the world real interest rate.

In such a scenario, as global rates rise, domestic and foreign firms face higher financing costs, which weaken investment everywhere, even in jurisdictions where tax policies are unchanged (Figure 3.7, panels 2 and 3). Consequently, investment abroad is crowded out, and output falls elsewhere (Figure 3.7, panel 5).

In the short term, spillovers are much smaller where rate cuts are deficit neutral—that is, financed by lower government spending or higher taxes. In that case, public borrowing rises less, capacity constraints are less binding, and interest rate hikes are suppressed both at home and abroad (Figure 3.7, panel 2).

Spillovers from Tax Competition and Base Shifting

Having established how changes to domestic tax policies can induce cross-border spillovers, the next step is to examine the implications of strategic interactions between governments.

Strategic Tax Competition

While the downward trend in corporate income tax rates is indicative of tax competition, it does not by itself confirm strategic behavior. Other confounding economic, political, and institutional factors, such as common intellectual trends or a shift toward a more business-friendly environment (in Heimberger 2021, for example) can all produce similar patterns. Therefore, a canonical peer effects model is used to estimate governments' reaction functions to corporate income tax policies abroad. Domestic tax policy decisions respond to, and can move with, tax policy changes in peer countries, their exogenous characteristics, and unobserved common shocks.[11] At a basic level, countries are influenced by their geographic neighbors, a relationship that partly captures similarities in economic, institutional, and political characteristics.[12]

The results indicate clear strategic complementarity. A 1 percentage point reduction in the average peer country's statutory corporate income tax rate is associated with a 0.4 percentage point cut in the implementing jurisdiction's statutory tax rate (Figure 3.8, panel 1).[13] The results are strongest among countries that are comparable in size and level of development or that international investors view as close substitutes (Figure 3.8, panel 3). Estimates for effective tax rates also suggest strategic complementarity, implying that competition operates through base-narrowing policies as well, although with weaker responses than if statutory corporate income tax rates are changed.

The intensity of strategic tax competition has eased following the period of significant reform efforts to address tax avoidance during 2013–17, primarily in statutory rates (Figure 3.8, panel 2).[14] While the reduction in tax competition is not statistically significant for effective tax rates, the use of other tax

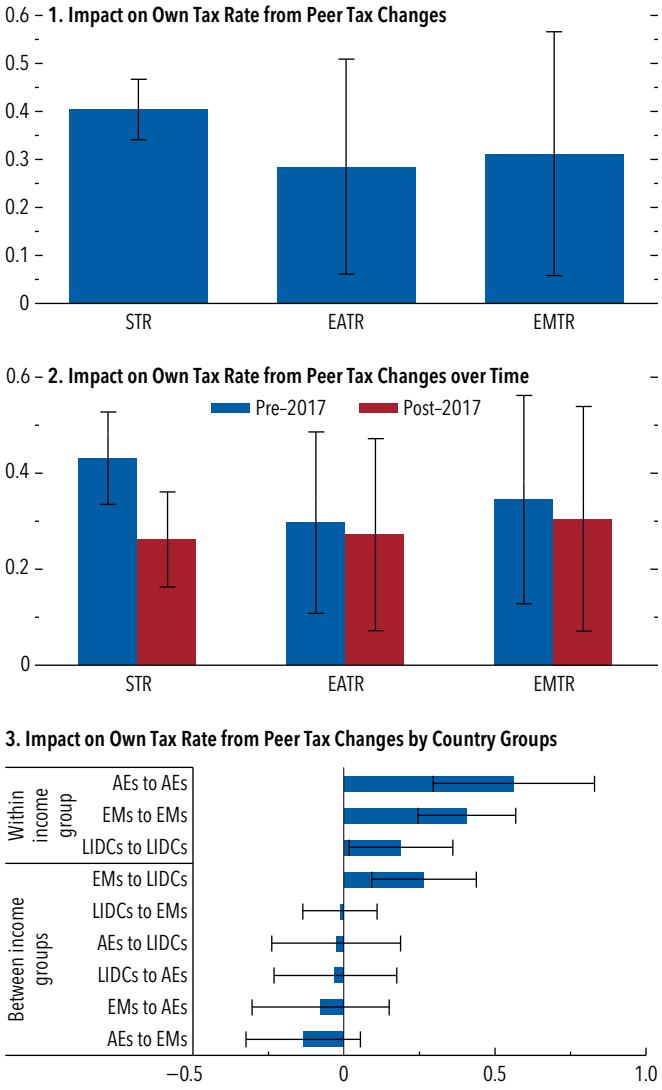
[11]Online Annex 3.4 discusses the identification of strategic tax competition, which is complicated by the inherent simultaneity and endogeneity in tax policy decisions, when a country's own policies and those implemented by peers are influenced by common unobservables in the peer group. In addition, the choice of weights used to define the peer group can also induce further sources of endogeneity. To mitigate this, the identification strategy employed here exploits changes to the political system of peers (such as time since election and share of opposition in parliament) while controlling for own-country political changes. The identifying assumption is thus that political shocks to peers determine their tax policy choices—for instance, the desire to change tax rates at the start of a new government's term—but do not directly affect other countries' tax policy (Manski 1993; Bramoullé, Djebbari, and Fortin 2009).

[12]To identify which country peers can be more influential, peer weights are also constructed based on similarity in receiving foreign direct investment (FDI) inflows, obtained from a gravity model of international capital flows (Naitram 2022).

[13]The average effect is slightly lower than that in other studies, which could reflect, among other things, the inclusion of recent years in the sample, when international tax reforms aimed at limiting base erosion and reducing harmful tax competition gained momentum.

[14]Other cutoff dates were tested, and changes were found to be more significant around 2017.

Figure 3.8. Spillovers from Tax Competition
(Percentage point change in response to a 1 percentage point tax cut by peers)



Sources: International Tax Institutions Database; and IMF staff calculations.

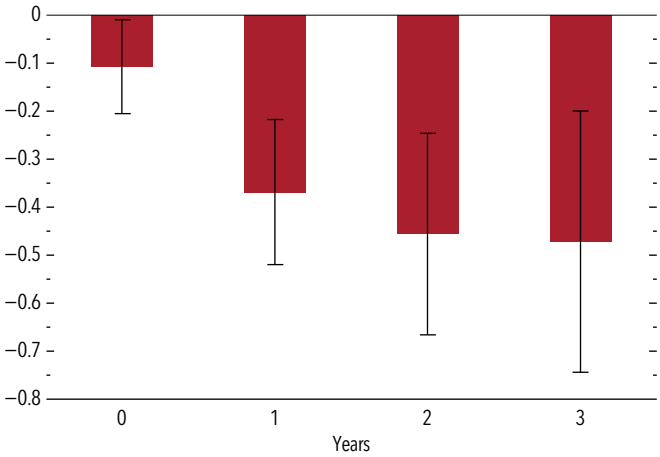
Note: Whiskers are Driscoll-Kraay standard errors, robust to heteroscedasticity, serial correlation, and spatial correlation. AEs = advanced economies; EATR = effective average tax rate; EMTR = effective marginal tax rate; EMs = emerging markets; LIDCs = low-income developing countries; STR = statutory tax rate.

provisions—such as profit-based incentives to promote innovation—has continued to increase in recent years, suggesting that the nature of tax competition has changed.

Base Shifting amid Tax Competition

The impacts of tax competition on base shifting at the macroeconomic level are explored in this subsection by assessing how corporate income tax rate differentials between host and source countries can alter the allocation of FDI flows across countries.[15] The results suggest that wider tax differentials reduce FDI inflows: A 1 percentage point increase in the corporate income tax rate relative to rates in other countries is associated with a cumulative decline in FDI inflows of about 0.5 percent of GDP over three years (Figure 3.9). The magnitude is consistent with evidence on the sensitivity of investment to corporate income tax rates and confirms that base shifting is a significant outward spillover channel.

Figure 3.9. Base Spillovers: FDI Sensitivity to Tax Differentials
(Cumulative impact of a 1 percentage point increase in the bilateral tax differential on host country-level FDI flows, percent of GDP)



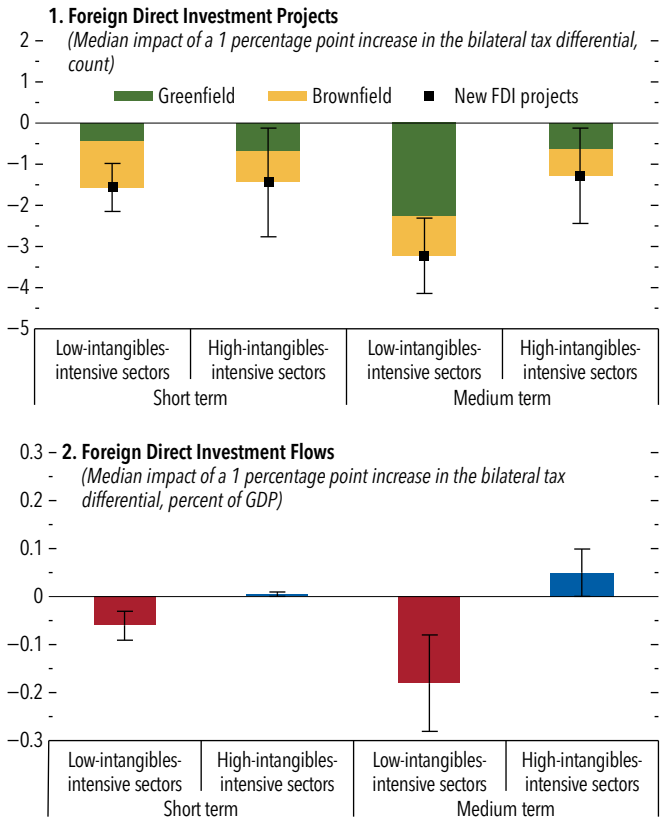
Sources: International Tax Institutions Database; and IMF staff calculations.

Note: FDI = foreign direct investment.

Data at the country-industry level are used to disentangle FDI responses that could arise from changes both at the extensive margin (the number of new FDI projects) and at the intensive margin (the level of investment). Furthermore, the role of intangibles can be examined by assessing differences in the intensiveness of their use among sectors. Firms in high-intangibles-intensive sectors—for example, information and communications technology (ICT) services—have greater scope to combine real investment decisions with profit-shifting strategies. Therefore, when the

[15]Potential endogeneity—as tax policy often reacts to economic conditions and to attract FDI—is addressed by using the exogenous variation derived from the political cycles of peer countries, controlling for the strategic tax competition interactions estimated in the previous section with the control function approach.

Figure 3.10. Response of Sectoral Foreign Direct Investment to Changes in Tax Differentials

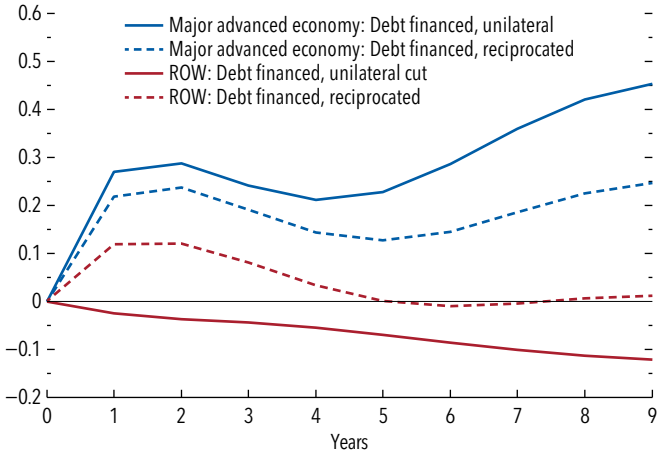


Sources: Multinational Revenue, Employment, and Investment Database; and IMF staff calculations.

Note: High-intangibles-intensive sectors include information and communications technology, legal services, and management services. In panel 1, the dependent variable is the total number of new FDI projects in the host country. In panel 2, the dependent variable is the cumulative change in the ratio of assets to initial GDP. Estimates exclude domestic investment projects. Whiskers denote 90 percent confidence intervals. FDI = foreign direct investment.

effective average tax rate in one country increases to 1 percentage point above those of neighboring countries, the country has 1.5 fewer new greenfield projects than its neighbors in the short term. Over the medium term, the elasticity can be as high as 4 for firms in low-intangibles-intensive sectors, which may have more limited profit-shifting opportunities (Figure 3.10, panel 1). The results also suggest that the adjustment to tax differentials is more prominent for greenfield investments, where firms have more discretion over location choices than in the acquisition of existing firms (Hebous, Ruf, and Weichenrieder 2011). Estimates at the intensive margin are qualitatively consistent with results at the extensive margin (Figure 3.10, panel 2).

Figure 3.11. Output Effects from Tax Competition
(Deviation from baseline, percent)



Source: IMF staff calculations.

Note: A major advanced economy reduces the corporate income tax rate by 3 percentage points, and ROW responds with a 1.2 percentage point cut. Unilateral cut refers to only the major advanced economy reducing its corporate income tax rate; in the reciprocated case, ROW responds. ROW = rest of the world.

How Does Tax Competition Alter Transmission Abroad?

Model-based simulations using the IMF's Global Integrated Monetary and Fiscal model can once again be used to show how cross-border spillovers from corporate income tax policies change in the presence of tax competition. Using the estimated response elasticity obtained earlier for tax competition, the rest of the world is assumed to lower the effective corporate income tax rate by 1.2 percentage points in response to the 3 percentage point cut by the major economy. When all tax cuts are debt financed, and because of the additional boost to demand in the reciprocating economies, real interest rates increase in all countries. This reduces the increase in GDP in the major rate-cutting economy, relative to the earlier unilateral case (Figure 3.11, solid versus dashed blue line).

Notably, because interest rates are higher in all economies than in the unreciprocated case, the increase in GDP in the economy initiating the corporate income tax cut is smaller than in the unilateral case. Effectively, tax competition leads to a crowding out of the investment response in all economies. For the rest of the world, the output effect reflects two offsetting forces. On one hand, the original tax cut generates negative spillovers by drawing investment toward the initiating economy (solid red line). On the other hand, these

effects are offset by the rest of the world's tax cuts in response (dashed red line). Tax competition therefore alters both the distribution and magnitude of gains. It reduces the investment and output benefits accruing to the original tax-cutting economy and leaves all economies facing higher interest rates.

Response of Multinational Corporations along Different Margins

Base shifting by MNCs encompasses responses to the international tax landscape along multiple decision margins—including the location and scale of investment or the shifting of profits to lower-tax jurisdictions.[16] The intensiveness of production in intangibles within countries and industries could also determine how different firms decide to allocate investment across the various margins.

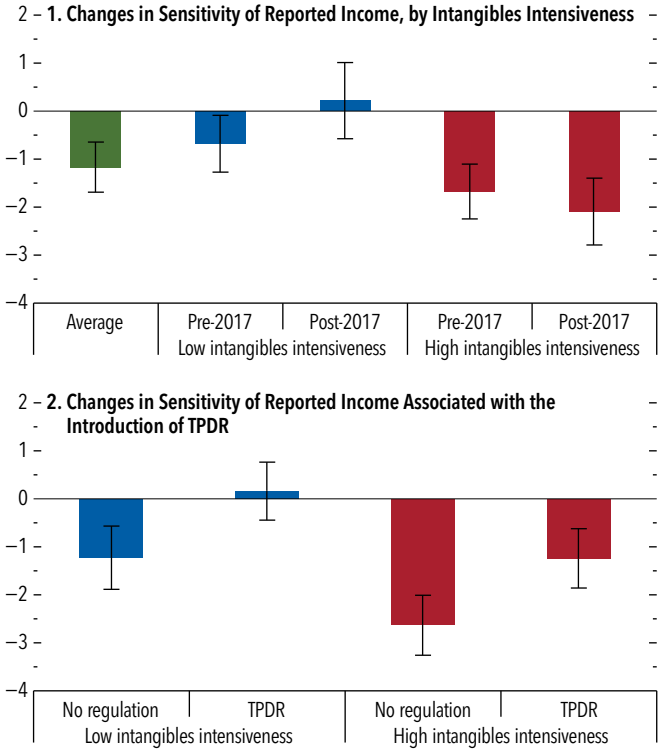
Profit-Shifting Activity

Firm-level evidence shows that reported profits respond strongly to cross-country tax differentials. Following Beer and Loeprick (2015) and Beer, de Mooij, and Liu (2020), the chapter relates affiliates' pretax profitability to the tax rates they face relative to the rates faced by others in the same MNC group.[17] The analysis also accounts for responses along the extensive margin, including cases in which affiliates in high-tax jurisdictions report zero or negative profits.

The results suggest that a 1 percentage point increase in a country's statutory rate relative to other locations where an MNC operates is associated with a decline in profits booked in that country of roughly 1 percent to 1½ percent (Figure 3.12, panel 1). However, this average effect masks substantial heterogeneity linked to intangibles intensiveness: The sensitivity of reported profits to tax differentials is 2.5 times higher for high-intangibles-intensive firms before 2017. Over time the sensitivity has fallen only for low-intangibles-intensive firms, with no evidence of any change for high-intangibles-intensive firms. One possible explanation is that the ongoing rise of intangible assets

Figure 3.12. Sensitivity of Reported Income to Tax Differentials

(Percent change in reported profits after a 1 percentage point increase relative to MNC affiliates in other locations)



Sources: Orbis; and IMF staff calculations.

Note: Sample corresponds to foreign affiliates of multinational corporations over the 2010–20 period, with headquarters in over 40 countries and subsidiaries in over 100 countries. Profits measure is based on earnings before interest and taxes. The increase in tax differential is measured relative to the asset-weighted average of corporate income tax rates within the multinational corporation group. An affiliate is defined as "high-intangibles intensive" when the ratio of intangible fixed assets to total fixed assets of its global ultimate owner exceeds 50 percent on average. Whiskers denote 90 percent confidence intervals. MNC = multinational corporation; TPDR = transfer pricing documentation requirements.

continues to facilitate profit shifting, partly offsetting the decline in tax competition.[18]

Anti-avoidance measures can also matter. The responsiveness of reported profits to tax differentials is lower for MNCs headquartered in countries that have adopted transfer pricing documentation requirements, consistent with the idea that administrative capacity and documentation requirements raise the cost of transfer pricing strategies (Figure 3.12, panel 2). Therefore, anti-avoidance measures can dampen

[16]Statutory rates primarily affect profit-shifting incentives, whereas forward-looking effective tax rates combine rates and base provisions to capture investment incentives. Effective marginal tax rates affect the scale of investment, while effective average tax rates influence discrete location and project choices. For highly profitable projects, effective average tax rates converge toward statutory tax rates.

[17]See Online Annex 3.5 for methodological details.

[18]At the global level, evidence of the evolution of profit shifting is mixed (see, for example, Wier and Zucman 2022 and Delis and others 2025).

profit-shifting incentives, although the effectiveness of such measures varies across firms and is closely tied to production structures and the mobility of the underlying tax base.

Real Investment Decisions

If policy changes increasingly constrain profit-shifting opportunities, MNCs may adjust along other margins, notably the location and scale of investment. The analysis therefore now turns to firms' real investment decisions, distinguishing between the extensive margin—where firms choose to locate new investment—and the intensive margin: how much they invest once a location has been selected.[19]

Where to Locate Tangible Investment: The Extensive Margin

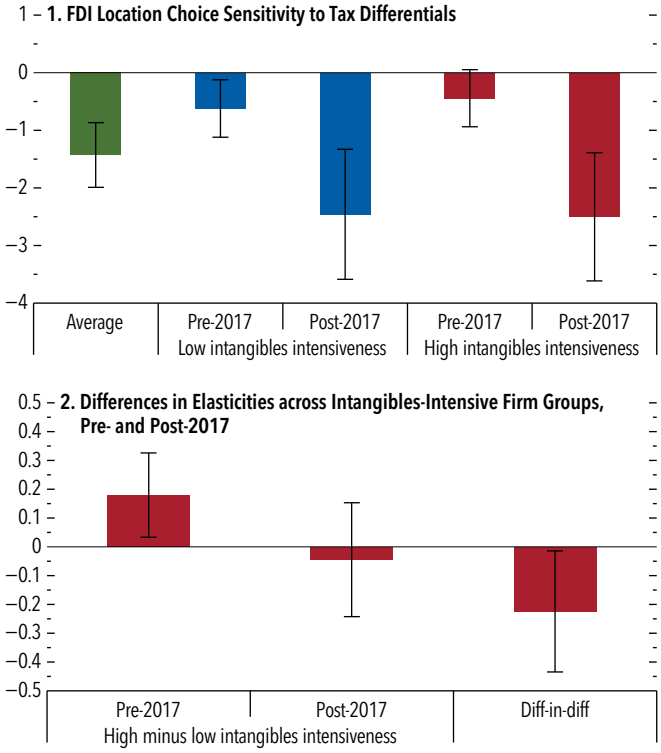
To study the choice of where firms locate new investment, the chapter uses project-level greenfield FDI data and estimates how the probability of choosing a particular host country for new investment responds to effective average tax rate differentials between the home country and potential host countries.[20] The estimates imply that the choice of location for FDI has become more sensitive to tax differentials since 2017. The average tax elasticity is approximately −1.4, such that a 10 percent increase in a country's tax rate reduces the likelihood of its being chosen as a destination for FDI by about 14 percent. The increase in sensitivity following 2017—from about ½ before 2017 to about 2 thereafter—is consistent with firms' paying closer attention to tax differentials when making real investment decisions because anticipated anti-avoidance measures make *ex post* profit shifting more difficult (Figure 3.13, panel 1).

[19]See Online Annexes 3.6 and 3.7 for the empirical specification related to estimating firms' extensive and intensive margins and cross-country tax differentials.

[20]In this exercise, the primary objective is to estimate the average responsiveness of investment to tax differentials and how it has changed over time and in the presence of anti-avoidance measures. The role of intangibles intensiveness is therefore assessed through changes in tax sensitivity rather than through a full sample split, which is found to yield less pronounced heterogeneity than for location decisions. The analysis employs a conditional multinomial logit regression framework based on project-level data on greenfield FDI (see Online Annex 3.6). MNCs are assumed to maximize expected profits, driven by local economic fundamentals (GDP, openness, population) and the effective average tax rate differential. This differential is interacted with a post–Tax Cuts and Jobs Act dummy and firm-level intangible intensiveness to capture heterogeneity in profit-shifting capacity.

Figure 3.13. Sensitivity of Investment Location to Tax Differentials

(Percent change in probability of new projects related to a 1 percentage point tax differential)



Sources: Orbis Crossborder Investment; and IMF staff calculations.

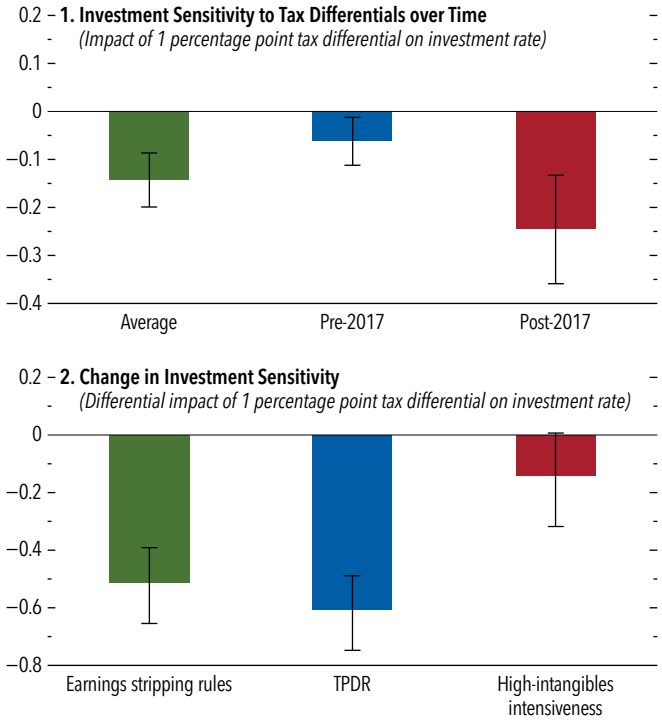
Note: The results are obtained from a conditional multinomial logit model with 25 potential choices of location for a greenfield investment (G20 economies, five low-tax jurisdictions, and a residual group). The variable of interest is the effective average tax rate differential. An affiliate is defined as "high-intangibles intensive" when the ratio of intangible fixed assets to total fixed assets of its global ultimate owner exceeds 50 percent on average. Whiskers denote 90 percent confidence intervals, based on standard errors clustered at the firm level. Diff-in-diff = difference-in-differences.

The shift is especially revealing when firms are split according to their intangibles intensiveness. Before 2017, firms with a higher share of intangible assets were less sensitive to effective average tax rate differentials, likely because they had more scope to shift profits after investing. After 2017, both high- and low-intangibles-intensive firms became more tax-sensitive, and the gap between them largely disappeared (Figure 3.13, panel 2). This convergence suggests that anti-avoidance measures made location choice more uniform by reducing the advantage of being able to shift profits later.

How Much to Invest: The Intensive Margin

Next, to analyze how much MNCs choose to invest in a particular location—the intensive margin—this

Figure 3.14. Sensitivity of Investment Scale to Tax Differentials and Anti-Avoidance Efforts
(Percentage point)



Sources: Orbis; and IMF staff calculations.

Note: Sample corresponds to foreign affiliates of multinational corporations over the 2010–20 period, with headquarters in over 40 countries and subsidiaries in over 100 countries. The dependent variable is the investment rate. The main explanatory variable is tax differential in sector-specific effective marginal tax rate (EMTR) in the destination country relative to the asset-weighted group average EMTR across all subsidiaries of the multinational corporation group. An affiliate is defined as "high-intangibles intensive" when the ratio of intangible fixed assets to total fixed assets of its global ultimate owner exceeds 50 percent on average. Whiskers denote 90 percent confidence intervals. TPDR = transfer pricing documentation requirements.

subsection estimates the relationship between firms' investment rate across existing affiliates and the sector-specific effective marginal tax rate differential between home and host countries. Findings indicate that a 1 percentage point increase in the effective marginal tax rate differential reduces the investment rate in that country by about 0.17 percentage point (Figure 3.14, panel 1).[21] The sensitivity roughly doubles after 2017, suggesting that as profit-shifting opportunities diminished, MNCs responded by (re)allocating tangible capital. The increase is larger for MNCs headquartered in countries that introduced anti-avoidance measures, especially transfer pricing documentation requirements and earnings stripping rules (Figure 3.14, panel 2).

Profits and Investment Realigning?

The broader implication of these findings is that policies aimed at curbing profit shifting may not only strengthen the link between profits and real investment but may also make real investment more responsive to tax differentials. Therefore, tax competition does not vanish; it changes form.

Tax Competition and Anti-Avoidance: Long-Term Implications for Emerging Market and Developing Economy Revenue and Growth

Domestic tax reforms—in particular, reducing corporate income tax rates and strengthening anti-avoidance efforts—have both revenue and investment-location effects, which may entail trade-offs even in the long term. For instance, a tax cut reduces domestic revenues mechanically, if the tax rate does not fall enough to attract profits from abroad or boost domestic activity. In contrast, anti-avoidance measures—which raise the costs for firms to shift profits out of the country—can limit policy trade-offs and increase the taxable base without undermining revenues.

At the same time, lower corporate income taxation can incentivize MNCs to move investment and profits to rate-cutting jurisdictions, potentially generating spillovers to activity in other economies. However, corporate income tax cuts also raise after-tax returns, thus boosting global investment by MNCs, especially those that rely heavily on nonrival intangible capital, which can be used simultaneously by all entities within the MNC group. As a result, the net spillover effect depends on the interaction between investment reallocation and expansion.

A spatial general equilibrium model of multinational production and intangible capital is used to assess how these channels shape the long-term impacts of tax competition, building on Dyrda, Hong, and Steinberg (2024).[22] The model includes six regions: a major

[21]While estimated in an international context, this finding indicates that, for economies with existing affiliates of a particular MNC, a lower effective marginal tax rate relative to other jurisdictions is associated with new investment. This aligns with the results of Chapter 2 of the October 2026 *Fiscal Monitor*, which concludes that eliminating tax-induced increases in the cost of capital can support marginal investment.

[22]See Online Annex 3.8 for details on the model, calibrated parameters, and robustness.

advanced economy, other advanced economies, a major emerging market economy, other G20 emerging market economies, "productive" low-tax jurisdictions, and "unproductive" low-tax jurisdictions.[23] Firms choose where to export, where to invest, how much intangible capital to accumulate, and whether to shift profits by locating mispriced intangible assets in low-tax jurisdictions. In the model, a corporate income tax cut in a particular jurisdiction affects output through four main channels. First, it narrows the tax differential between high- and low-tax jurisdictions, reducing incentives to "waste" resources on profit shifting and freeing resources for productive uses, such as R&D (*efficiency gains*). Second, it attracts both FDI and profits from MNCs headquartered in other jurisdictions and can encourage domestic MNCs to reshore production (*base shifting*).[24] Third, by raising after-tax returns, it can stimulate intangible investment that supports output wherever the MNC group operates (*knowledge transfers*).[25] Finally, a key channel is the shortfall in government revenues generated by the tax cut; in the model, a share of corporate income tax revenues finances productive public capital, such that reductions in revenues slow the accumulation of public capital, lowering productivity and output over the long term (*lower public capital*), notably where infrastructure and social spending needs are large or the initial corporate income tax rate is very low.[26]

Tax Competition

The simulation discussed in this subsection considers tax competition at the global level: sequential reductions in statutory corporate income tax rates across all regions, with advanced economies moving first. A major advanced economy cuts its corporate income tax rate by 3 percentage points, and other advanced economies cut their rates by 1.2 percentage points in response. Emerging market economies—a major emerging market economy and other emerging market economies—lower their corporate income tax rates by 1.2 percentage points.

The direct corporate income tax revenue effects are both sizable and consistent with recent empirical literature (blue bars in Figure 3.15, panel 1).[27] The effects are broadly proportional to the magnitude of the cut. In the major advanced economy, the overall effect on corporate income tax revenues (black squares in Figure 3.15, panel 1) entails a decline of just over 9 percent, which when applied to a corporate income tax base of about 1½ percent of GDP implies a fiscal cost of roughly 0.1 percent to 0.2 percent of GDP. In other advanced economies, where the rate reduction is smaller (1.2 percentage points from a 25 percent baseline) and corporate income tax revenues represent a somewhat larger share of GDP, collections fall by about 4 percent. The losses reflect both the mechanical effect of lower rates and a partial offset from weaker profit-shifting incentives, given the narrower gap between statutory rates. Corporate income tax revenues in emerging market economies also decline by about 4 percent.

Profits booked in low-tax jurisdictions decline by over 20 percent for the major advanced economy and by about 10 percent for other advanced economies, reflecting the narrower tax differentials relative to low-tax jurisdictions, notably for the former (blue bars in Figure 3.15, panel 2). When other emerging market economies engage in tax competition, they also narrow the gap between their corporate income tax rates and those in low-tax jurisdictions, leading to a decline in shifted profits of less than 10 percent (red bars in Figure 3.15, panel 2).

The output effects reflect the interaction of several offsetting forces. The *direct (domestic) effect* of lower tax rates is ambiguous. On one hand, the tax cut reduces government revenues considerably, which is assumed to constrain productive public investment. As a result, the long-term stock of public capital falls, lowering productivity and potential output. These adverse effects can be particularly pronounced when initial corporate income tax rates are already low or when infrastructure and social spending needs are

[23]The model is calibrated to match bilateral trade flows, FDI positions, MNC size in each region, and regional estimates of profits shifted to low-tax jurisdictions.

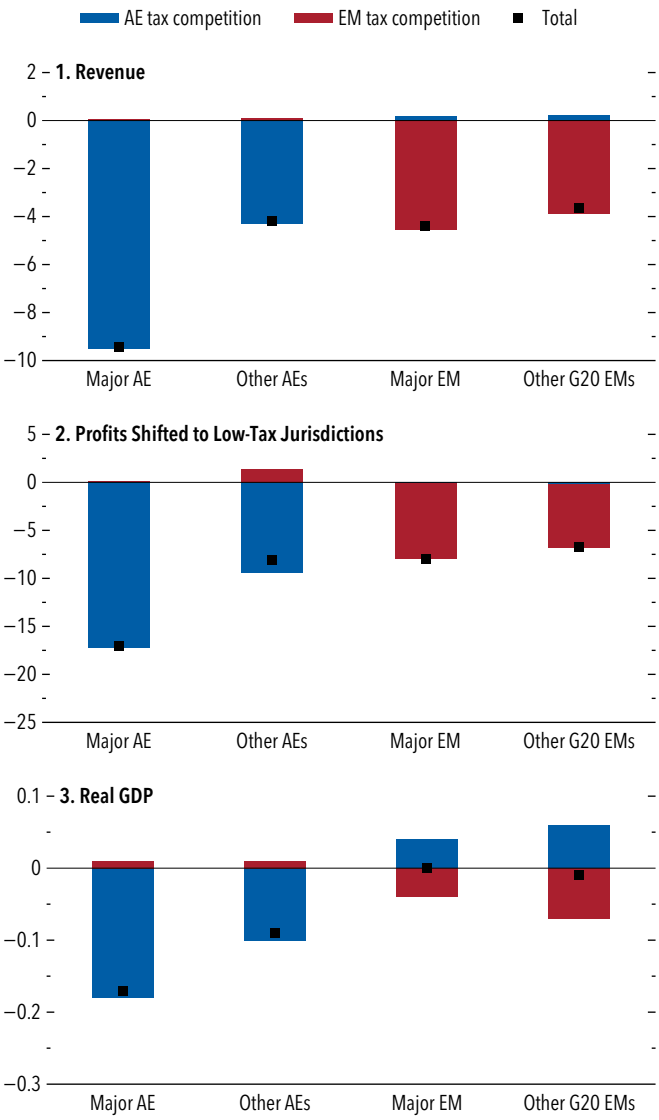
[24]Increased activity in the tax-cutting jurisdiction raises labor demand and wages in that jurisdiction. For jurisdictions not cutting taxes, however, the corporate income tax base can be eroded, even if their statutory rates do not change.

[25]This type of knowledge transfer does not entail spillovers to firms outside the MNC, given the excludability of intangibles. For this spillover channel, the analysis therefore presents a lower bound.

[26]The long-term simulations impose budget neutrality. Alternative assumptions regarding fiscal adjustment—such as reductions in current spending—could yield different domestic output responses in the long term, with the magnitudes dependent on the productivity and incidence of the category of spending subject to reduction.

[27]These effects are consistent with recent empirical literature, including Auerbach (2018), Barro and Furman (2018), Chodorow-Reich, Zidar, and Zwick (2024), Clausing (2024), and Gale, Hoopes, and Pomerleau (2024).

Figure 3.15. Macroeconomic Effects of Tax Competition
(Percent change, deviation from baseline)



Source: IMF staff calculations.

Note: "AE tax competition" assumes a reduction in a major AE's corporate income tax rate of 3 percentage points and a reduction in the corporate income tax rate of "Other AEs" of 1.2 percentage points. "EM tax competition" assumes a reduction in the corporate income tax rates of emerging market economies by 1.2 percentage points. AE = advanced economy; EM = emerging market economy; G20 = Group of Twenty.

substantial.[28] On the other hand, lower taxes stimulate R&D and intangible investment. While MNCs have weaker incentives to invest in intangibles as a means to shift profits—driven by a reduction in the profit-shifting premium—the effects are more than offset in general equilibrium. Higher after-tax returns on domestically taxed profits raise intangible investment, and firms that previously shifted profits reallocate resources from tax planning to productive activities. The *spillover effect*—which captures the output effects from tax cuts elsewhere—is similarly mixed. Positive spillovers arise from the cross-border diffusion of intangible capital and innovation because of its nonrival nature. However, these gains can be offset by erosion of the tax base, through investment shifting.

Net output effects are negative across the major economies (black squares in Figure 3.15, panel 3), amounting to 0.2 percent in the major advanced economy and about 0.1 percent in other advanced economies.[29] Among emerging market economies, the overall output effect is negligible, but economies that do not engage in tax competition stand to benefit from net positive spillovers from R&D and knowledge transfers (blue bars in Figure 3.15, panel 3). If only advanced economies engage in tax competition—while emerging market economies do not—the output effect for emerging markets is positive but modest, amounting to 1 basis point (red bars in Figure 3.15, panel 3).[30]

Anti-Avoidance Measures

Emerging market economies that strengthen anti-avoidance measures to minimize profit shifting to low-tax jurisdictions can expand their tax bases even if their statutory rates are unchanged.[31] For emerging

[28]See Online Annex 3.8 for sensitivity analyses exploring alternative initial corporate income tax rates and a model without public investment needs.

[29]The larger effect in the major advanced economy reflects the larger reduction in its corporate income tax rate. If, in contrast, all advanced economies cut tax rates by 3 percentage points, the associated output effects are nonetheless similar. See Online Annex 3.8.

[30]This result is consistent with the steady state of the IMF's Global Integrated Monetary and Fiscal model, in which the initial increase in interest rates following a debt-financed tax cut has dissipated and stronger productive capacity boosts long-term output in all economies.

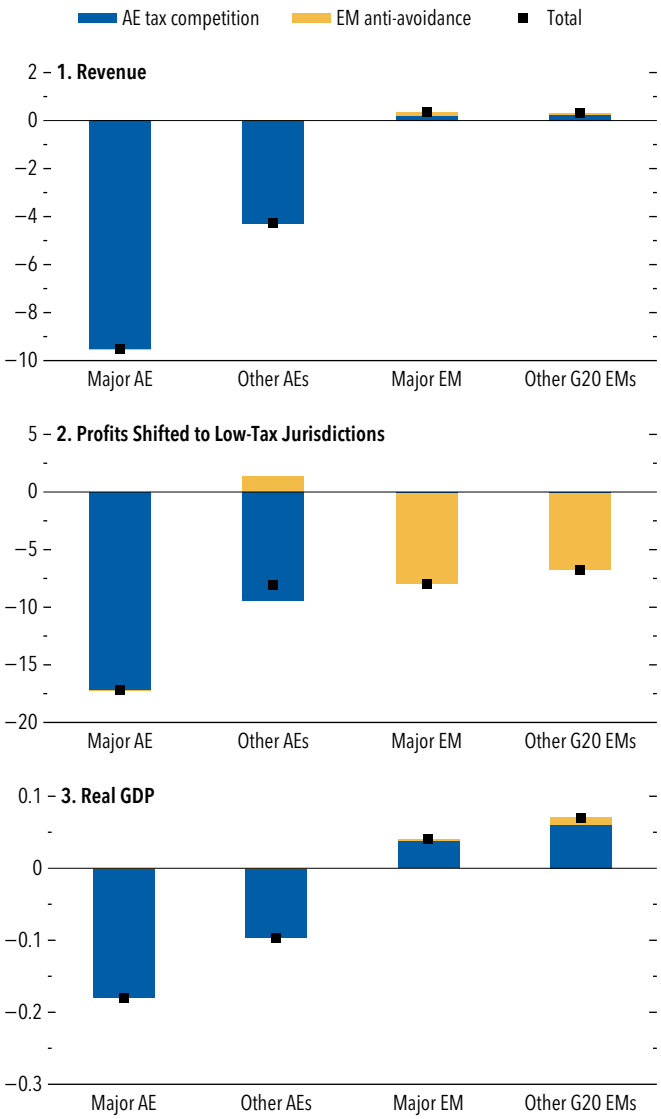
[31]Many emerging market economies have strengthened their anti-avoidance measures since the early 2010s. For example, controlled foreign corporation rules were introduced by Chile in 2016 and Colombia in 2017; Brazil, Mexico, South Africa, and Türkiye already had such rules in place. Regarding transfer pricing documentation requirements, examples of emerging market economies that have recently legislated such measures include South Africa in 2016 and Saudi Arabia in 2019. Argentina, Brazil, and India have had them in place since the early 2000s. Examples of economies where earnings stripping rules have been adopted include South Africa in 2015, Argentina in 2018, Vietnam in 2018, Malaysia in 2019, and Mexico in 2020. In sub-Saharan Africa, some commodity exporters that rely on foreign companies operating their mining operations—for example, Guinea, Mali, and Tanzania—have recently strengthened their anti-avoidance frameworks (Albertin and others 2021).

market economies with significant revenue needs, lower corporate income tax receipts would constrain public investment in infrastructure, education, institutions, and administrative capacity. Such constraints could weaken productivity, offsetting output gains that derive from lower tax distortions.

For advanced economies that engage in strategic corporate income tax rate cutting, revenues fall as in the global tax competition simulation (black squares in Figure 3.16, panel 1). However, for emerging market economies, revenues increase by about 0.3 percentage point, because their corporate income tax rates remain unchanged and their tax bases are better protected. Profits shifted to low-tax jurisdictions fall by an estimated 10 percent for emerging market economies, an outcome similar to that in the previous simulation (yellow bars in Figure 3.16).

The net output effects for emerging market economies are modest but positive—at about 0.04 percent—driven largely by knowledge transfers within MNC groups and small but positive effects of stronger enforcement, both of which preserve fiscal capacity for public investment (black squares in Figure 3.16, panel 3). These forces can more than offset the adverse investment-shifting spillover effects generated by the tax-cutting countries.

Figure 3.16. Macroeconomic Effects of Tax Competition and Enhanced Enforcement
(Percent change, deviation from baseline)



Source: IMF staff calculations.

Note: "AE tax competition" assumes a reduction in a major AE's corporate income tax rate of 3 percentage points and a reduction in the corporate income tax rate of "Other AEs" of 1.2 percentage points. "EM anti-avoidance" assumes profit-shifting costs increase by approximately 10 percent. AE = advanced economy; EM = emerging market economy; G20 = Group of Twenty.

Conclusion

The international tax landscape has changed significantly over the past decade, reflecting the growing importance of intangible assets and major domestic and international tax reforms to curb profit shifting. The chapter takes stock of how these forces have reshaped tax competition and finds that, while they have altered how governments and MNCs respond to corporate income taxation, they have not eliminated strategic interactions or cross-border spillovers. Two broad conclusions emerge:

Strategic tax competition remains strongest among economies at similar stages of development, although tax competition appears to have moderated in regard to headline corporate income tax rates following major reforms in the 2010s.

The channels through which tax differentials affect MNCs are evolving. Anti-avoidance reforms have reduced the sensitivity of profit shifting to tax differentials, while increasing the tax sensitivity of real investment decisions. As a result, profits and real economic activity are potentially becoming more closely aligned.

With the locus of tax competition potentially shifting from profits to real investment and productive activity, the chapter also highlights how policy trade-offs have become increasingly important. Lower corporate income taxation can support investment in productive capacity, but it can also reduce revenues, reshape the location of economic activity elsewhere, and influence the tax policies of other governments.

Model-based simulations highlight that spillovers from corporate income tax cuts reflect a balance among investment gains, fiscal effects, and policy responses in other countries. Debt-financed tax cuts in large economies can produce negative spillovers in the short term through crowding out of investment, particularly if tax competition induces similar tax cuts elsewhere. In the long term, tax cuts can generate positive spillovers through cross-border knowledge transfers, but domestic outcomes may weaken if public investment is curtailed or if other economies respond with tax rate cuts of their own. Conversely, stronger anti-avoidance measures can help reduce profit shifting, preserve revenues lost through profit shifting, and hence support output, particularly in emerging market and developing economies.

Overall, the chapter suggests that the consequences of corporate income taxation cannot be understood solely through their domestic effects. The evolving balance among tax competition, investment incentives, profit shifting, anti-avoidance efforts, and potentially greater competition for real investment will remain a key determinant of economic and fiscal outcomes across economies.

Box 3.1. The Interplay between Tax Incentives and International Tax Rules

Tax incentives are an important instrument of international tax competition, influencing where multinational corporations (MNCs) place real investment and report profits. They grant preferential treatment to specific taxpayers or activities to promote targeted policy objectives. Although one country may use tax incentives to attract tax base from elsewhere, such measures may prompt other countries to offer more generous incentives in response, which can lead to substantial revenue losses and only limited gains in global investment. Poorly targeted incentives can be especially costly for countries with narrow tax bases and high development spending needs (Schneider and others 2025). Recognizing both the benefits and risks of tax incentives, the Platform for Collaboration on Tax (2025) outlines six guiding principles for the use of such incentives:

- **Justification.** An incentive may be justified only if net social benefits can reasonably be expected, for reasons that are publicly articulated. It must produce broad social gains that exceed costs, including forgone revenue and market distortions.
- **Design.** Ensure effective targeting of the source of social benefits, while minimizing distortions and fiscal costs, including through cost-based incentives, which are generally more effective and efficient at increasing investment than profit-based incentives (IMF and others 2015).
- **Legislation.** Embed the corresponding provisions into law in a transparent and robust manner, including by minimizing discretion and with the necessary governance safeguards.
- **Implementation.** Ensure (voluntary) compliance and effective monitoring of outcomes.
- **Evaluation.** Regularly assess whether the benefits generated by the measure offset the cost; publish tax expenditures periodically.
- **International considerations.** Recognize interactions with international initiatives and spillovers through strategic tax competition.

Changes in international tax rules and tax incentives have reshaped tax competition over time:

- *Ring-fencing constrained* (2000s). In 1998, the Organisation for Economic Co-operation and Development's harmful-tax-practices initiative identified ring-fencing—whereby mobile, foreign-facing income is subject to favorable tax treatment, while insulating the domestic base by excluding resident taxpayers from accessing the same benefits—as potentially harmful. Restricting ring-fencing can, however, prompt countries to shift toward lower economy-wide corporate income tax rates, extending competition from a narrow mobile base to the broader corporate income tax base (Keen 2001).
- *Substance required* (2010s). Action 5 of the Base Erosion and Profit Shifting (BEPS) Action Plan requires preferential regimes, including patent boxes, to be linked to substantial activity (Box 3.2). Although this requirement constrains regimes that attract primarily paper profits, it may have also shifted competition toward real activity (Hebous 2021). The consequences could be broader: Competition for paper profits mainly affects where taxable profits are reported, whereas competition tied to substance can also affect the location of investment and production.
- *Incentives reshaped* (early 2020s). The global minimum tax can trigger top-up taxes if the effective tax rate of an MNC group in that jurisdiction falls below 15 percent, reducing the effectiveness of incentives. But the rules do not treat all incentives equally: The global minimum tax makes rate cuts and tax holidays less effective, so countries may increasingly compete for investment using cost-based incentives that are less exposed to top-up taxes, such as qualifying refundable tax credits. The "substance-based income exclusion" linked to payroll and tangible assets further strengthens the link to real activity by reducing the top-up tax *base*.
- *Substance-based incentives strengthened* (mid-2020s). The January 2026 Side-by-Side Package introduced a more favorable treatment of substance-based incentives through the Substance-Based Tax Incentive Safe Harbour, further shifting tax competition from paper profits toward real economic activity (Box 3.2).

Overall, changes in international rules have reshaped tax competition toward incentives linked to economic substance, creating a trade-off. While these developments may improve the targeting of tax incentives and curb profit shifting through shell or "mailbox" companies, they may intensify competition for real investment, employment, and production.

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Box 3.2. Key Developments in International Corporate Income Taxation

	Approaches to International Taxation	Explanation and Selected Examples
Prior to 2010s	*Primary focus on reducing international double taxation.*	Almost 3,000 bilateral double tax treaties were in force as of 2010–based on Organisation for Economic Co-operation and Development (OECD) and United Nations (UN) model conventions that established international concepts and norms[1] to minimize double taxation of cross-border trade and facilitate investment. Over time, the system facilitated corporate income tax avoidance–including base erosion and profit shifting (BEPS) from higher-tax jurisdictions–as digitalization increased the importance of intangible assets. BEPS issues affected both advanced economies and emerging market and developing economies, with the latter more susceptible given greater reliance on corporate income tax revenue and more limited administrative capacity.
Early 2010s	*Development of tax integrity and anti-avoidance rules that focus on addressing weaknesses in established international concepts and norms to limit profit shifting and safeguard domestic tax bases from harmful tax practices related to mobile investments, including intangible assets.*	At the request of the Group of Twenty (G20), the OECD produced a report on BEPS in February 2013. This was followed by the BEPS Action Plan in July 2013, which set out 15 Actions to be taken forward by the OECD, with final reports for each Action published in October 2015. Four of these Actions (5, 6, 13, and 14) were categorized as "minimum standards," whose implementation by all relevant jurisdictions was needed to avoid negative spillovers. These standards focus on: • Countering harmful tax practices (Action 5), requiring economic substance before benefiting from preferential tax regimes. • Preventing tax treaty abuse (Action 6). • Country-by-country (CbC) reporting (Action 13). • Tax dispute resolution (Action 14). The remaining BEPS actions (nonminimum standards) focused on, for example: • Controlled foreign corporation (CFC) regimes–*benefiting capital exporters*–to combat deferral of foreign-accumulated low-taxed passive income (Action 3). • Interest limitation rules (ILRs)–*benefiting capital importers*–to combat the use of debt arrangements to minimize tax liabilities of multinational corporations (Action 4). • Improving transfer pricing through the arm's length principle–*benefiting higher-tax jurisdictions*–to achieve better alignment of profit allocation with value creation (Actions 8–10). In June 2016, the OECD/G20 Inclusive Framework (IF) on BEPS was formed and, as of 2026, consists of 148 members. Its role is to review and monitor the implementation of the 15 BEPS Actions and provide an equal footing for advanced economies and emerging market and developing economies in shaping standards on BEPS-related issues.
Mid-2010s	*Beginning of implementation of BEPS actions by OECD/G20 Inclusive Framework members to strengthen the international tax system.*	From 2025 to 2026, progress implementing the four BEPS minimum standards is as follows: • Action 5: The OECD Forum on Harmful Tax Practices has reviewed almost 350 preferential regimes. • Action 6: More than 95 percent of tax treaties entered into by IF members are expected to comply with the minimum standard. • Action 13: 120 IF members have adopted CbC legislation. • Action 14: More than 500 tax treaties have been modified to include Mutual Agreement Procedure provisions. Progress implementing BEPS nonminimum standards is as follows: • Action 3: 57 jurisdictions have adopted CFC rules. • Action 4: 89 IF members have adopted ILRs. • Actions 8–10: 117 IF members have incorporated the arm's length principle into law; 102 use the OECD's Transfer Pricing Guidelines; and 38 (47) have been working to adopt or have adopted the approach for hard-to-value intangibles (low-value-adding intragroup services).

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[1] Existing international concepts and norms include taxing residents on worldwide income (residence principle), although some countries adopt territorial tax systems, taxing only domestic-source income. Nonresidents are taxed on their domestic source income (source principle), subject to a foreign firm's establishing a sufficient physical presence (permanent establishment) before it can be taxed on its business profits derived from the local market. Further, residence country taxation of foreign income is typically deferred until repatriation, unless controlled foreign corporation (CFC)–or minimum tax–rules apply to combat deferral.

Box 3.2 *(continued)*

	Approaches to International Taxation	Explanation and Selected Examples
Mid-to-Late 2010s	*Unilateral approaches to resolve gaps in international taxation given concerns that international norms remained susceptible to base erosion and profit (and substance) shifting, as substantial residual profits–commonly associated with intangible assets–remained subject to low levels of taxation.*	Increased adoption of unilateral reforms to tax a greater portion of offshore residual profits. Examples include: • The United Kingdom (2015)[2] and Australia (2017) introduced *diverted profits taxes* to better align with anti-avoidance instruments given deterrent effects. • In 2016, the European Union adopted its own *Anti-Tax Avoidance Directive* (ATAD), with mandatory measures to achieve a minimum level of EU-wide (harmonized) anti-avoidance legislation that go beyond the four BEPS minimum standards.[3] ATAD comprises five core anti-abuse rules: (1) interest limitation rule (discussed earlier); (2) CFC rule (discussed earlier); (3) exit taxation rule–to combat avoidance of corporate income tax when relocating assets; (4) hybrid mismatch rules–to prevent exploiting national mismatches to avoid taxation; and (5) general anti-abuse rule–to counter tax avoidance when other rules do not apply. • The US (2017) *Tax Cuts and Jobs Act* (TCJA) introduced three notable international tax provisions: (1) the Global Intangible Low-Taxed Income (GILTI), a residence-based minimum tax on outbound investment from the United States designed to minimize the relocation of intangible assets to low-tax jurisdictions; (2) the Base Erosion Anti-Abuse Tax (BEAT), a residence-based minimum tax on inbound investment designed to protect the US corporate income tax base; and (3) Foreign-Derived Intangible Income (FDII), which gives preferential tax treatment to some export-related activities and encourages the (re)location of intangible assets to the United States.[4] The TCJA also entailed a transition to a territorial system (including that through FDII) but with worldwide elements (GILTI) and base protection measures (BEAT). • During 2016–20, several European countries and a few emerging market and developing economies introduced *digital services taxes* (DSTs), taxing the gross revenues of certain digital activities, to increase revenues derived from domestic markets, regardless of physical presence.
2020s to now	*International tax cooperation seeking to reconcile domestic agendas, with greater emphasis on reform of established international concepts and norms to combat tax competition and address the low taxation of excess profits.*	In 2021, the IF reached agreement on a two-pillar approach: • *Pillar One (agreement subsequently stalled)*–aimed at addressing the challenges of increasingly digitalized economies. A portion of the profits of large multinational corporations (MNCs) would have been allocated to market jurisdictions (based on sales). The pillar included an agreement to repeal DSTs and disallow the allocation of profits to countries that retain or introduce DSTs. • *Pillar Two (implementation is ongoing)*–designed to ensure an effective global minimum tax (GMT) rate of 15 percent on the excess profits of large MNCs, allowing countries to levy top-up taxes on profits that are taxed at a rate below that minimum. More than 50 countries have implemented one or more of the GMT rules. In 2025, the United States adopted H.R. 1–commonly referred to as the *One Big Beautiful Bill Act*–which modified key elements of the TCJA. Among other changes, it increased the effective tax rates on net CFC tested income (formerly GILTI) and foreign-derived deduction eligible income (formerly FDII), bringing them closer to the global minimum tax rate while expanding the availability of foreign tax credits.[5] In 2026, a *side-by-side agreement* was reached by 147 IF members, exempting US MNCs from most GMT rules–given TCJA commonalities–and treating substance-based tax incentives more favorably.

[2] The UK repealed its diverted profits tax in 2026 and replaced it with a corporation tax charge on unassessed transfer pricing profits.
[3] Council Directive (EU) 2016/1164, as amended by Council Directive (EU) 2017/952.
[4] The 2017 Tax Cuts and Jobs Act reform was designed to combat US MNCs' deferral of US tax on their foreign earnings, leading to the initial BEPS project. This reform also coincided with a large domestic corporate income tax rate cut (from 35 percent to 21 percent).
[5] Before 2025, the Inflation Reduction Act (2022) introduced the US corporate alternative minimum tax–another important base protection measure.

Box 3.3. The Geography of Innovation Income

The tax treatment of intellectual property has become a key determinant of where income derived from research and development (R&D) and innovation-related activities ("innovation income") is reported. A new data set on cross-border patent ownership changes from 1995 to 2020 reveals that patents transferred to low-tax jurisdictions rose sharply during the 2000s, even though these destinations account for a small share of global production and innovation activity (Figure 3.3.1, panel 1). This suggests a growing separation between legal ownership and the location of underlying innovative activity.

Because the owner of a patent generally records the associated stream of royalty income, reallocating patent ownership can shift taxable income without moving the underlying research, production, or sales activity. Therefore, much as with patent transfers, the share of global royalty income reported in low-tax jurisdictions has increased since the 2000s (Figure 3.3.1, panel 2).

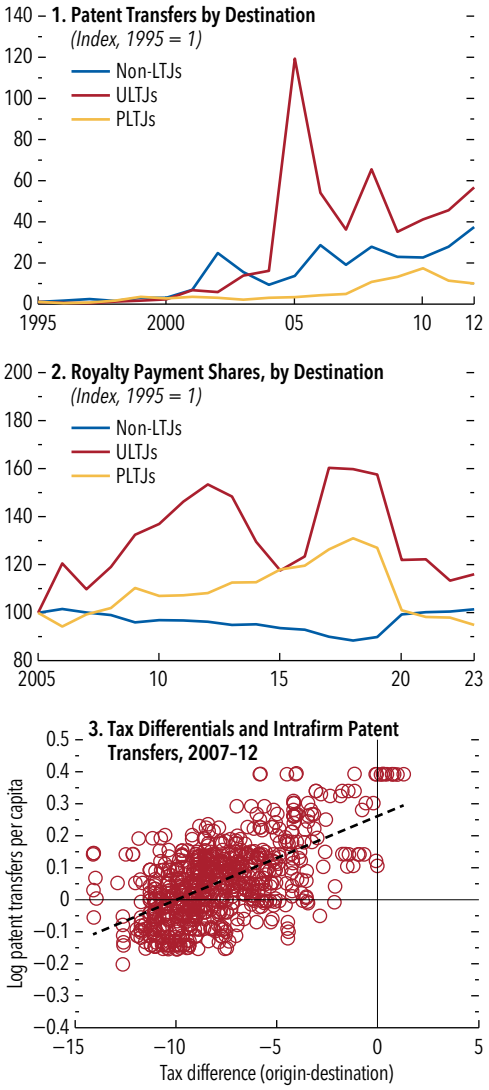
Evidence from a gravity model of cross-border patent ownership transfers suggests that larger tax differentials are associated with more patent transfers from higher-tax to lower-tax jurisdictions, especially within multinational corporations (MNCs) (LaBelle, Martin, and Santacreu 2026). This relationship has changed over time, however, with the highest sensitivity estimated during 2007–12. Over this period, a 1 percentage point tax differential is associated with 8.5 percent more patent transfers to lower-tax jurisdictions, and the estimate increases to 14.8 percent for intrafirm transfers (Figure 3.3.1, panel 3).

After 2013, the relationship between bilateral patent transfers and tax differentials is no longer statistically significant. This attenuation coincides with major international tax reforms aimed at limiting profit shifting (Box 3.2), although it may also reflect a shift toward less transparent arrangements—including cost-sharing arrangements, multistep ownership structures, and intellectual property–related service contracts—that are more difficult to observe in patent transaction data. Model-based counterfactuals also highlight the importance of tax differentials. If tax differentials narrow, the incentives to reallocate patent ownership for tax purposes weaken, leaving the domestic royalty tax base relatively intact.

These results suggest, therefore, that tax planning through patent ownership changes is evident, but the implications for R&D and innovation are more nuanced. Tax rates primarily affect where innovation

The author of this box is Ana Maria Santacreu.

Figure 3.3.1. Patent Transfers and Royalty Shares



Sources: LaBelle, Martin, and Santacreu 2026; and IMF staff calculations.

Note: Economies are grouped into unproductive LTJs (ULTJs), productive LTJs (PLTJs), and non-LTJs, following Tørsløv, Wier, and Zucman (2023). PLTJs in the royalty-income analysis comprise Belgium, Ireland, Luxembourg, Singapore, Switzerland, and The Netherlands. ULTJs include offshore financial centers such as Bermuda and the Cayman Islands. Non-LTJs are the remaining economies in the sample. For panel 3, each point summarizes bilateral intrafirm patent transfers for an origin-destination pair during 2007–12, plotted against the tax differential between the two economies. Positive values on the horizontal axis indicate that the destination has a lower tax rate than the origin economy. The upward-sloping fitted line shows that intrafirm patent transfers are larger when the destination offers a greater tax advantage. LTJs = low-tax jurisdictions.

Box 3.3 *(continued)*

income is reported rather than where innovation is created. Santacreu (2026) shows how differences in corporate income taxation shape cross-border royalty payments and technology flows. Reducing profit shifting can raise the effective tax burden on mobile intangible income, thus discouraging R&D investments. However, income booked in low-tax jurisdictions is not necessarily reinvested where it is reported nor in further innovation. Stronger base protection can thus help realign MNCs' profit and innovation activity location choices, but the net effect on innovation will depend on whether MNCs use shifted profits to finance productive R&D or simply to reduce their tax liabilities.

References

Albertin, Giorgia, Boriana Yontcheva, Dan Devlin, Hilary Devine, Marc Gerard, Irena Jankulov Suljagic, Vimal Thakoor, and Sebastian Beer. 2021. "Tax Avoidance in Sub-Saharan Africa's Mining Sector." IMF Departmental Paper 2021/022, International Monetary Fund, Washington, DC.

Alfaro, Laura, Sebnem Kalemli-Özcan, and Vadym Volosovych. 2008. "Why Doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation." *Review of Economics and Statistics* 90 (2): 347–68.

Auerbach, Alan J. 2018. "Measuring the Effects of Corporate Tax Cuts." *Journal of Economic Perspectives* 32 (4): 97–120.

Barro, Robert J., and Jason Furman. 2018. "Macroeconomic Effects of the 2017 Tax Reform." *Brookings Papers on Economic Activity* 2018 (Spring): 257–313.

Beer, Sebastian, Ruud A. de Mooij, and Li Liu. 2020. "International Corporate Tax Avoidance: A Review of the Channels, Magnitudes, and Blind Spots." *Journal of Economic Surveys* 34 (3): 660–88.

Beer, Sebastian, and Jan Loeprick. 2015. "Profit Shifting: Drivers of Transfer (Mis)Pricing and the Potential of Countermeasures." *International Tax and Public Finance* 22 (3): 426–51.

Beetsma, Roel, Massimo Giuliodori, Franc Klaassen, and Volker Wieland. 2006. "Trade Spill-Overs of Fiscal Policy in the European Union: A Panel Analysis." *Economic Policy* 21 (48): 639, 641–87.

Bramoullé, Yann, Habiba Djebbari, and Bernard Fortin. 2009. "Identification of Peer Effects through Social Networks." *Journal of Econometrics* 150 (1): 41–55.

Chodorow-Reich, Gabriel, Owen Zidar, and Eric Zwick. 2024. "Lessons from the Biggest Business Tax Cut in US History." *Journal of Economic Perspectives* 38 (3): 61–88.

Clausing, Kimberly A. 2024. "US International Corporate Taxation after the Tax Cuts and Jobs Act." *Journal of Economic Perspectives* 38 (3): 89–112.

Cloyne, James. 2013. "Discretionary Tax Changes and the Macroeconomy: New Narrative Evidence from the United Kingdom." *American Economic Review* 103 (4): 1507–28.

Cloyne, James, Nicholas Dimsdale, and Patrick Hürtgen. 2025. "Are Tax Cuts Contractionary at the Zero Lower Bound? Evidence from a Century of Data." *Journal of Political Economy* 133 (2): 568–603.

Crivelli, Ernesto, Ruud A. de Mooij, and Michael Keen. 2016. "Base Erosion, Profit Shifting and Developing Countries." *FinanzArchiv/Public Finance Analysis* 72: 268–301.

Delis, Fotis, Manthos D. Delis, Sotirios Kokas, Luc Laeven, and Steven Ongena. 2025. "The Pricing of Profit Shifting." Swiss Finance Institute Research Paper 25-62, Swiss Finance Institute, Zürich.

Dyrda, Sebastian, Guangbin Hong, and Joseph B. Steinberg. 2024. "A Macroeconomic Perspective on Taxing Multinational Enterprises." *Journal of International Economics* 152: 104022.

Fuest, Clemens, Shafik Hebous, and Nadine Riedel. 2011. "International Debt Shifting and Multinational Firms in Developing Economies." *Economics Letters* 113 (2): 135–38.

Gale, William G., Jeffrey L. Hoopes, and Kyle Pomerleau. 2024. "Sweeping Changes and an Uncertain Legacy: The Tax Cuts and Jobs Act of 2017." *Journal of Economic Perspectives* 38 (3): 3–32.

Garcia-Bernardo, Javier, Petr Janský, and Thomas Tørsløv. 2022. "Decomposing Multinational Corporations' Declining Effective Tax Rates." *IMF Economic Review* 70: 338–81.

Gourinchas, Pierre-Olivier, and Olivier Jeanne. 2013. "Capital Flows to Developing Countries: The Allocation Puzzle." *Review of Economic Studies* 80 (4): 1484–515.

Gross, Till, Paul Klein, and Miltiadis Makris. 2022. "Dynamic Capital Tax Competition under the Source Principle." *American Economic Journal: Macroeconomics* 14 (3): 365–410.

Hayo, Bernd, and Matthias Uhl. 2014. "The Macroeconomic Effects of Legislated Tax Changes in Germany." *Oxford Economic Papers* 66 (2): 397–418.

Hebous, Shafik. 2021. "Has Tax Competition Become Less Harmful?" In *Corporate Income Taxes under Pressure: Why Reform Is Needed and How It Could Be Designed*, edited by Ruud A. de Mooij, Alexander D. Klemm, and Victoria J. Perry, 87–105. Washington: International Monetary Fund.

Hebous, Shafik, Martin Ruf, and Alfons J. Weichenrieder. 2011. "The Effects of Taxation on the Location Decision of Multinational Firms: M&A versus Greenfield Investments." *National Tax Journal* 64 (3): 817–38.

Heimberger, Philipp. 2021. "Corporate Tax Competition: A Meta-analysis." *European Journal of Political Economy* 69: 102002.

International Monetary Fund (IMF). 2014. "Spillovers in International Corporate Taxation." IMF Policy Paper, Washington, DC.

International Monetary Fund (IMF). 2016. "Tax Policy, Leverage and Macroeconomic Stability." IMF Policy Paper 2016/070, Washington, DC.

International Monetary Fund (IMF). 2019. "Corporate Taxation in the Global Economy." IMF Policy Paper 2019/007, Washington, DC.

International Monetary Fund (IMF). 2023. "International Corporate Tax Reform." IMF Policy Paper 2023/001, Washington, DC.

International Monetary Fund (IMF), Organisation for Economic Co-operation and Development, United Nations, and World Bank. 2015. "Options for Low Income Countries' Effective and Efficient Use of Tax Incentives for Investment: Report to the G20 Development Working Group by the International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank." International Monetary Fund, Washington, DC.

Keen, Michael. 2001. "Preferential Regimes Can Make Tax Competition Less Harmful." *National Tax Journal* 54 (4): 757–62.

LaBelle, Jesse, Fernando M. Martin, and Ana Maria Santacreu. 2026. "Taxation and the Global Allocation of Intangibles." Federal Reserve Bank of St. Louis Working Paper 2025-025, Federal Reserve Bank of St. Louis, St. Louis, MO.

Maebayashi, Noritaka, and Keiichi Morimoto. 2024. "Global Corporate Income Tax Competition, Knowledge Spillover, and Growth." *European Economic Review* 164: 104723.

Manski, Charles F. 1993. "Identification Problems in the Social Sciences." *Sociological Methodology* 23: 1–56.

Mertens, Karel, and Morten O. Ravn. 2014. "A Reconciliation of SVAR and Narrative Estimates of Tax Multipliers." *Journal of Monetary Economics* 68: S1–S19.

Naitram, Simon. 2022. "How Big Are Strategic Spillovers from Corporate Tax Competition?" *Economic Inquiry* 60 (2): 847–69.

Platform for Collaboration on Tax (PCT). 2025. "Tax Incentives Principles (TIPS)." PCT, Washington, DC.

Santacreu, Ana Maria. 2026. "International Technology Licensing, Intellectual Property Rights, and Tax Havens." *Review of Economics and Statistics* 108 (1): 210–24.

Schneider, Todd, Sandhya Garimella, Li Liu, Simon Naitram, Can Sever, Felix Simione, Irena Jankulov Suljagic, and Qianqian Zhang. 2025. "Tax Expenditures in Sub-Saharan Africa." IMF Departmental Paper 2025/006, Washington, DC.

Tørsløv, Thomas, Ludvig S. Wier, and Gabriel Zucman. 2023. "The Missing Profits of Nations." *Review of Economic Studies* 90 (3): 1499–534.

Wier, Ludvig S., and Gabriel Zucman. 2022. "Global Profit Shifting, 1975–2019." Working Paper 30673, National Bureau of Economic Research, Cambridge, MA.

Wilson, John D. 1986. "A Theory of Interregional Tax Competition." *Journal of Urban Economics* 19 (3): 296–315.

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IMF EXECUTIVE BOARD DISCUSSION OF THE OUTLOOK, OCTOBER 2026

The following remarks were made by the Chair at the conclusion of the Executive Board's discussion of the Fiscal Monitor, Global Financial Stability Report, *and* World Economic Outlook *on September 28, 2026.*

Executive Directors broadly agreed with staff's assessment of the global economic outlook, risks, and policy priorities. They concurred that the global economy is again proving resilient despite repeated shocks, even as the interaction of geopolitics and technology has produced a split global economy. Favorable terms of trade and technology-related exports and investment provide a cushion to energy exporters outside the conflict region and economies with strong participation in the technology upturn. At the same time, energy-importing economies with limited exposure to the technology value chain, including many low-income and vulnerable countries, face stronger headwinds, underscoring the importance of continued Fund support. Looking ahead, uncertainties surrounding the sustainability of the margins of adjustment that have supported resilience underscore the need to address underlying vulnerabilities and rebuild buffers.

Directors broadly concurred that risks to the outlook remain skewed to the downside. They stressed that prolongation of wars could revive inflationary pressures, worsen fiscal and external balances, and weigh on growth, with additional disruptions to infrastructure, cyberattacks, or extreme weather events potentially amplifying the energy shock, and any renewed trade tensions adding to inflationary pressures. A reassessment of AI-related prospects could sharply reduce investment, trigger equity market corrections, and tighten financial conditions, with global spillovers. Directors also noted that resurgent inflation or fiscal concerns could trigger a sharp rise in sovereign bond yields and spark broader market turmoil given the foundational importance of sovereign bonds. Cyber threats constitute a growing systemic risk as financial services become more digital and interconnected. These downside risks could be amplified by structural vulnerabilities in the financial sector—including elevated leverage and growing liquidity mismatches, especially among nonbank financial institutions—leading to systemic risks. Directors generally acknowledged the upside risks, including continued momentum in the technology cycle, faster-than-assumed productivity gains from AI, more predictable trade policies, and more resilient energy sources and supply chains.

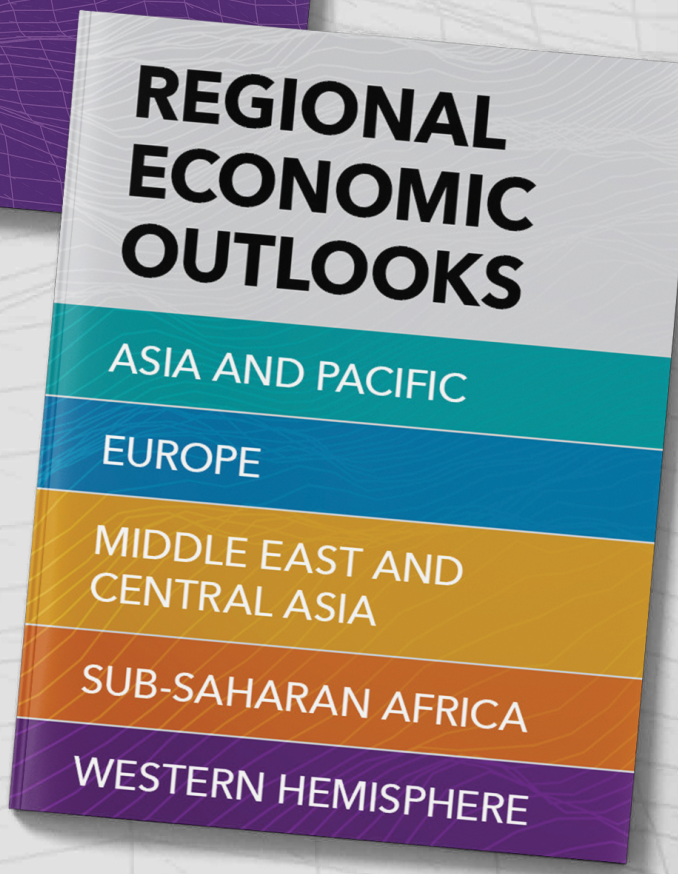
Directors called for a renewed focus on rebuilding fiscal space amid more limited room to maneuver due to elevated debt levels, rising borrowing costs, and mounting demands on public budgets, while emphasizing the importance of tailoring policy responses to country circumstances. They stressed that fiscal policy should be designed in a way not to complicate the task of monetary policy and that, where support for the most vulnerable is necessary, it should be transparent, temporary, and targeted, with budgetary offsets specified upfront, especially where fiscal space is constrained. Directors noted that, in a shock-prone world, the capacity to deliver targeted support is crucial, and called for strengthening delivery mechanisms that can be scaled rapidly when shocks hit, supported as needed by Fund technical assistance. Directors underscored that credible medium-term consolidation should rest on well-specified plans, including durable revenue measures, greater spending efficiency, and prudent debt management, supported by institutional improvements. They concurred that better tax design can support growth, and encouraged reforms to reduce distortions in the cost of capital and to recalibrate marginal rates on labor income, so as to lift investment and employment while safeguarding revenue.

Directors reaffirmed the importance of preserving price and financial stability. They generally stressed that central banks should remain agile and firmly

focused on their mandates, with a few Directors cautioning that monetary policy should not overreact to inflationary pressures from fiscal policies or energy shocks. Directors agreed that the inflationary effects of geopolitical and technological developments vary across countries, calling for differentiated monetary policy responses. For energy importers, higher energy prices present a stagflationary challenge. Monetary policy can look through the shock only if it is temporary and second-round effects remain contained. These conditions are less likely to hold when inflation is already above target and broader price pressures are expected to remain elevated, warranting a bias toward tightening. For energy exporters outside the conflict region, the positive terms-of-trade shock pushes income and aggregate demand up, potentially making a tightening appropriate. In economies integrated into the technology value chain, the case for tightening gets stronger, especially if inflation is already above target and broader price pressures are expected to remain elevated. Directors emphasized that clear communication and strong central bank independence are crucial for credibility.

Directors stressed the importance of maintaining orderly adjustment and financial stability in the face of large shocks, with exchange rate flexibility as the first line of defense, complemented where warranted with measures consistent with the Integrated Policy Framework. They concurred that policy priorities to mitigate financial stability risks include placing debt on a sustainable path, strengthening bond market infrastructure and liquidity backstops, containing leverage in AI-related exposures, and ensuring cyber resilience, with a focus on the continuity of critical services. On detailed fiscal policy recommendations to rebuild buffers, many Directors stressed the need for evenhandedness across all country groups. Directors agreed that to mitigate structural vulnerabilities in the financial sector, authorities should ensure timely and consistent implementation of internationally-agreed standards, and also closely monitor vulnerabilities arising from the increasingly important role of nonbank financial institutions. They welcomed the analysis of hedge funds and tokenization highlighting the importance of balancing innovation and market efficiency with financial resilience.

Directors highlighted the importance of reigniting structural reforms to ease macroeconomic trade-offs and lift medium-term growth potential. Priorities include measures to enhance business dynamism and foster energy security through diversified energy sources, with some Directors highlighting the importance of investment across all energy sources. A number of Directors also called for further strengthening the Fund's climate-related work. Directors stressed that the gains from AI and digitalization will be larger if supported by investment in human capital and infrastructure, as well as robust governance for data protection, cybersecurity, competition, and responsible use. Directors reaffirmed the importance of correcting domestic imbalances to support global adjustment. A few Directors called for deeper analysis of non-market policies and practices, while a few others emphasized the importance of distinguishing between policies that distort markets, including sanctions and trade restrictions, and those intended to address market failures. Directors concurred that commonly agreed international economic rules—with clear, transparent, predictable, and mutually beneficial trade policy frameworks—are essential to reduce uncertainty and limit fragmentation. They emphasized that international cooperation is essential in a shock-prone world, including to manage spillovers from commodity market pressures, refugee flows, and debt vulnerabilities.



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