EXECUTIVE SUMMARY

Once again, the global economy is threatened with being thrown off course—this time by the outbreak of war in the Middle East at the end of February 2026. Over the past year, headwinds from higher trade barriers and elevated uncertainty have been offset by tailwinds from technology-related investment; accommodative financial conditions, including a weaker US dollar; and fiscal and monetary policy support. The Middle East conflict presents a significant counterforce to these tailwinds through its impact on commodity markets, inflation expectations, and financial conditions.

Given the difficulty of underpinning in real time a consistent set of assumptions for projections, this *World Economic Outlook* (WEO) report presents a "reference forecast"—in lieu of the traditional baseline—predicated on the assumption that the war will have limited duration, intensity, and scope, such that the disruptions will fade by mid-2026, consistent with commodity futures prices as of March 10. However, given the fluidity of the situation, the report complements the global reference forecast with scenarios in which the conflict lasts longer or expands. The likelihood of these scenarios materializing rises progressively as hostilities and associated disruptions continue.

Under the reference forecast, global growth is projected to be 3.1 percent in 2026 and 3.2 percent in 2027, slower than its recent pace of about 3.4 percent in 2024–25, and to settle at about that rate in the medium term, slower than its historical (2000–19) average of 3.7 percent. The forecast for 2026 is revised downward by 0.2 percentage point and that for 2027 is unchanged, compared with those in the January 2026 WEO *Update*. Global headline inflation is expected to increase to 4.4 percent in 2026 and decline to 3.7 percent in 2027, marking upward revisions for both years.

Absent the war, global growth would have been revised upward. Indeed, forecasts based on preconflict assumptions would have shown a slight upward revision of 2026 growth relative to that forecasted in the January WEO *Update*, by 0.1 percentage point to 3.4 percent. Hence, the downward revision for 2026 largely reflects the disruptions from the conflict in the Middle East, partly offset by carryover from recent strong data and reduced tariff rates.

Crucially, there is a high degree of cross-country dispersion in the reference forecast. While the growth and inflation revisions seem relatively modest at the global level, the toll on the conflict region and more vulnerable economies elsewhere—in particular, commodity-importing emerging market and developing economies with preexisting fragilities—is much more pronounced. The downward revision to growth in emerging market and developing economies is 0.3 percentage point for 2026, relative to that in the January WEO *Update*, while the forecast is broadly unchanged for advanced economies.

Under an adverse scenario with larger and more persistent increases in energy prices, global growth would slow further to 2.5 percent in 2026, and inflation would reach 5.4 percent. Under a more severe scenario in which there is more damage to energy infrastructure in the conflict region, the impact would be even larger: Global growth would be cut to only about 2 percent in 2026, while headline inflation would be just above 6 percent by 2027. The impact on emerging market and developing economies would be almost twice that on advanced economies.

Downside risks dominate, even after the realization of a risk event—namely, an escalation of geopolitical tensions—frequently underscored in previous WEO reports. Geopolitical tensions could worsen even more than they already have—turning the situation into the largest energy crisis in modern times—or domestic political strains could erupt. Political stress factors can get entangled with shifts in trade and other international policies. Independently of geopolitical developments, trade-related disputes could flare up. As the Commodity Special Feature highlights, the critical role of rare earth elements in global supply chains constitutes a particular point of friction. A reevaluation of profit expectations regarding artificial intelligence (AI) or lowered expectations of viable markups stemming from more intense competition—even if productivity gains are realized—could lead to a decline in investment and trigger an abrupt correction in financial markets. Larger fiscal deficits and increasing public debt, starting from a position where fiscal buffers are already eroded, could put pressure on long-term interest rates and, in turn, on broader financial conditions. An erosion of institutions, including central bank independence and monetary policy credibility, could raise inflation expectations—especially at a time when headline inflation is increasing because of a shock in salient prices. On the upside, activity could be further lifted by AI-related investment and eventually transform into sustainable growth if faster AI adoption translates into strong productivity gains and increased business dynamism. Activity could also be supported by renewed momentum for structural reforms and by a sustained easing in trade tensions.

Navigating a profoundly changing economic and geopolitical landscape requires policies that are robust to alternative states of the world. As Chapter 2 shows, scaling up of defense spending prompted by a rise in geopolitical tensions could boost economic activity in the short term but also bring about inflationary pressures, weaken fiscal and external sustainability, and risk crowding out social spending, which could in turn ignite discontent and social unrest. As Chapter 3 demonstrates, where conflict erupts, acute macroeconomic trade-offs and scarring follow and last well beyond the immediate wartime shock.

A comprehensive policy package would combine measures that countries should take on their own and measures that countries should pragmatically work together to implement to enhance resilience and foster agility and adaptability. This first and foremost involves preserving price and financial stability, safeguarding fiscal sustainability, and implementing structural reforms without further delay. Central banks should remain vigilant and be prepared to act clearly and decisively in line with their mandates. They must guard against prolonged supply shocks destabilizing inflation expectations. Monetary policymakers should reserve the option to look through negative supply shocks—such as the current one—as long as inflation expectations remain well anchored and the monetary policy stance is already properly calibrated. Transparent communication and strong central bank independence are critical for credibility. Where an imminent risk of excessive or disorderly exchange rate movements emerges, temporary foreign exchange intervention and capital flow management measures may be warranted, provided they support appropriate monetary and fiscal policy stances. Financial supervisors should be prepared by ensuring robust prudential oversight, conducting scenario analysis, and maintaining adequate capital, liquidity, and reserve buffers. Where fiscal support is deemed to be necessary to protect the most vulnerable against extreme external shocks, it should be targeted, timely, temporary, and funded within current budget envelopes by reprioritizing spending, and if that is not possible, with the path to restoring fiscal balances clearly

communicated. To replenish buffers for future shocks, governments should—as appropriate for their country-specific circumstances—mobilize revenues, reprioritize expenditures, make spending more efficient, and manage windfalls prudently. A second priority is addressing domestic imbalances, especially when doing so also helps reduce excessive external imbalances. Actions aimed at removing domestic distortions—through fiscal, structural, and industrial policies—can simultaneously narrow external imbalances while enhancing global output. Trade restrictions play a limited role in correcting imbalances but can worsen output. Instead, countries should cooperate and take coordinated actions to restore stability in international economic relations. They should seek opportunities to enhance trade integration, supported by predictable, transparent, and well-communicated trade policy frameworks.

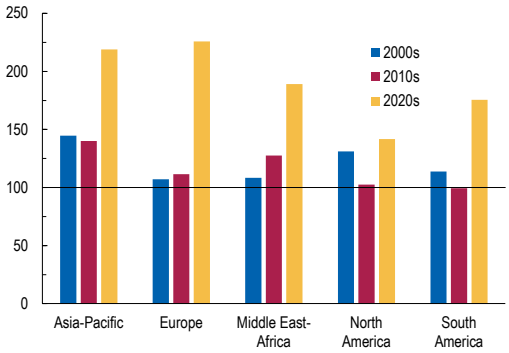
CHAPTER 1

GLOBAL PROSPECTS AND POLICIES

Global Economy Tested Again

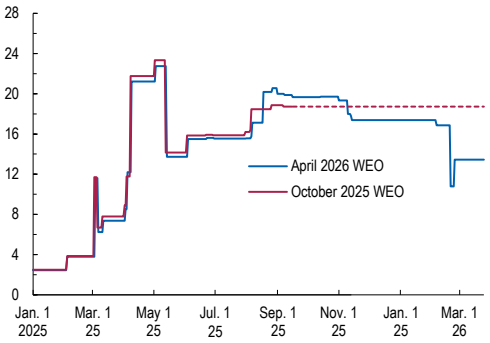
The global economy has, to date, withstood a series of shocks, yet another one—this time a military conflict engulfing the Middle East since the end of February—is testing this resilience. This is the latest culmination in a series of events that have been reshaping international relations and raising geopolitical tensions markedly across all regions in recent years (Figure 1.1). The conflict has already inflicted humanitarian costs, damaged critical infrastructure, and severely disrupted maritime and air traffic in the affected region. Economies around the world face repercussions through the direct impact of higher commodity prices, indirect second-order effects on inflation expectations—which tend to be especially sensitive to energy and food prices—and amplification effects coming from risk-off sentiment in financial markets. Commodity-importing emerging market and developing economies are at risk of being hit harder, with a depreciation of their currencies exacerbating the impact of higher energy and food prices. The global economic impact will crucially depend on the conflict's duration, intensity, and scope, which are inherently unpredictable.

Figure 1.1. Regional Geopolitical Risk
(Index, 1990s = 100)



Sources: Caldara and Iacoviello 2026; and IMF staff calculations.
Note: This figure presents the country-specific geopolitical risk index of Caldara and Iacoviello (2026), a news-based measure of adverse geopolitical events that covers 10 major newspapers in Canada, the United Kingdom, and the United States. The country-level data were downloaded from https://www.matteoiacoviello.com/gpr.htm and averaged at the regional and decadal levels and normalized to 100 for the 1990s.

Figure 1.2. US Effective Statutory Tariff Rate
(Percent)

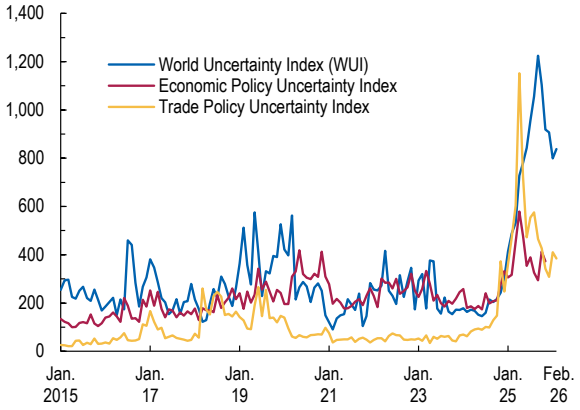


Sources: WTO-IMF Tariff Tracker; and IMF staff calculations.
Note: "Effective statutory tariff rate" is a weighted average of announced statutory rates using pretariff (hence, presubstitution) import weights. Calculations include only tariffs that are in effect at the time noted on the *x*-axis; measures that are not specified and implemented are not included. WEO = *World Economic Outlook*.

This latest shock comes less than a year since the shift in US trade policies, and the transition to a new international trade system is still ongoing. Following recent court rulings and executive actions, the overall US effective statutory tariff rate is about 5.3 percentage points below the level assumed in the October 2025 *World Economic Outlook* (WEO) (Figure 1.2), and changes in the cases of a few countries are more substantial. The current environment has incentivized a growing number of countries to finalize long-standing trade negotiations or start new partnerships to foster economic ties among themselves, such as the one between the European Union (EU) and MERCOSUR (the Southern Common Market).

Amid these developments, uncertainty, although lower than the peaks it reached in 2025, is still historically high (Figure 1.3). Several inflection points in the coming months may trigger spikes. First and foremost, the situation in the Middle East remains fluid. Odds of a range of outcomes—from ceasefire to serious escalation of hostilities—shift by the day. On the trade front, an extension, beyond their initial 150 days, of the Section 122 tariffs recently enacted by the US administration requires congressional approval, or similar tariffs would need to be imposed using other legal authorities. The United States–Mexico–Canada Agreement (USMCA) is set for a mandatory joint review at about the same time the extension comes due, in July 2026. Many of the US agreements with other trading partners so far provide only temporary relief and are set to expire by the end of 2026.

Figure 1.3. Global Uncertainty
(Index)



Sources: Ahir, Bloom, and Furceri 2022 (worlduncertaintyindex.com); Baker, Bloom, and Davis 2016 (policyuncertainty.com); and Caldara and others 2020 (matteoiacoviello.com/tpu.htm).
Note: The uncertainty measures are news- and media-outlets-based indices that quantify media attention to global news related to overall uncertainty (WUI), economic policy uncertainty, and trade policy uncertainty. WUI is divided by 100.

The global economy is facing this next test of resilience as signs of unevenness lie beneath the surface. Activity in the two largest economies, China and the United States, has been stronger than was expected in the October 2025 WEO. But this strength has been uneven. In the case of China, domestic activity—especially in the housing sector—lags behind exports. In the case of the United States, strong activity has been accompanied by low employment growth, amid declining labor force growth.

The unevenness raises downside risks to the outlook, adding to the risks posed by intensifying geopolitical tensions. Medium-term growth prospects remain lackluster, weighed down by geoeconomic fragmentation and structural challenges. That said, it may very well be that current tailwinds, including those from continued fiscal policy support, will last long enough to carry the global economy through the disruptions from the war and to a higher growth path paved by productivity gains from artificial intelligence (AI). Even if they do, however, it will still be crucial to have the right policies in place to make sure that technological transformation leads to broadly balanced growth within and across countries.

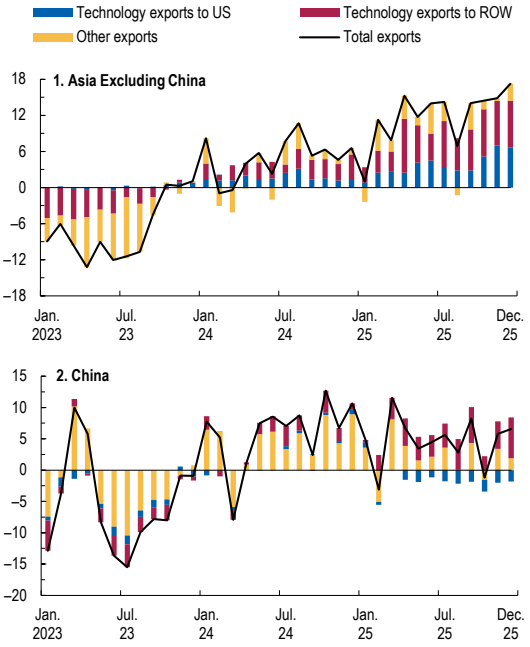
Recent Developments: Continued Resilience and Rising Fragility

Before the war, the global economy was performing better than expected, laying the groundwork for upward revisions to forecasts. In aggregate, global growth in the fourth quarter of 2025 increased to 3.9 percent on an annualized basis. In China, sequential growth accelerated (per IMF staff seasonal adjustment) to 6.1 percent as strong exports offset weak domestic demand. An increase in fiscal spending fueled stronger activity in Germany, helping growth in the euro area, excluding Ireland, accelerate to 1.5 percent. Growth in the United States slowed to 0.5 percent, lower than expected in the January 2026 WEO *Update*, as the government shutdown temporarily led to a sharp contraction in public expenditure. Expansion in US

technology-related spending remained strong in the fourth quarter, but its effect on GDP was offset by its high import share. Growth in Japan rebounded to 1.3 percent owing to stronger consumption and investment.

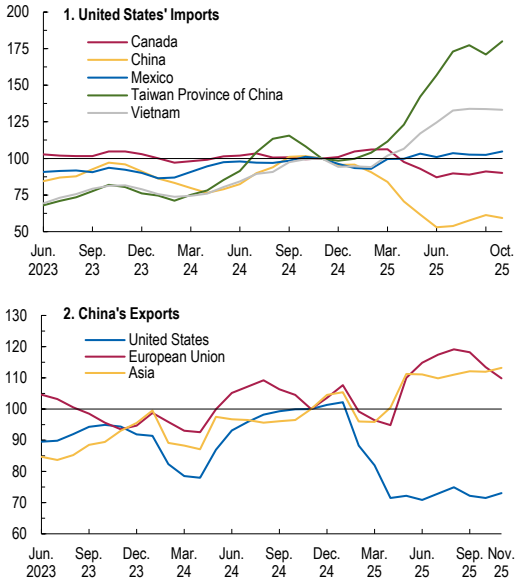
Global trade remained robust. Brisk expansion in technology-related exports offset slowing momentum in exports in other product categories (Figure 1.4). This benefited Asian economies in particular, as the main exporters of semiconductors and other equipment sought after by firms raced to invest in digital and AI-related technologies. The rewiring of global supply chains and trading relations continued (Figure 1.5). US imports from China dropped sharply; those from Canada also declined. These dips were offset by increases in imports from Taiwan Province of China, Vietnam, and, to a lesser extent, Mexico. On the other side of the equation, Chinese exports were reoriented from the United States to other Asian economies and, temporarily, to Europe. China's merchandise goods trade surplus hit a record $1.2 trillion (6 percent of GDP) in 2025.

Figure 1.4. Continued Brisk Growth in Tech-Related Trade Flows
(Percent, year over year)



Sources: Haver Analytics; International Trade Center, Trade Map; and IMF staff calculations.
Note: "Technology" exports include those classified under Harmonized System codes 8419, 8470–8473, and 85. "Asia" includes Cambodia, China, Indonesia, Japan, Korea, Malaysia, Singapore, Taiwan Province of China, Thailand, and Vietnam. Data for Vietnam include computers, electronic products, and parts; telephones, mobile phones, and parts; and insulated wires and cables. ROW = rest of the world.

Figure 1.5. Reorientation of Global Trade
(Index, 2024 = 100)



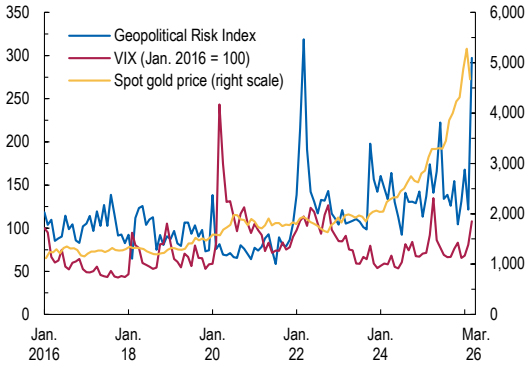
Sources: Antràs and Presbitero 2026; Trade Data Monitor; and IMF staff calculations.
Note: Three-month moving average of non–seasonally adjusted US dollar values, based on cross-border shipments data sourced from Trade Data Monitor. These data can differ from balance of payments data.

Global inflation has been largely steady. This stability masks some divergence, however. In the United States, above-target inflation persists, with core inflation for personal consumption expenditure maintaining a high year-over-year rate of 3.1 percent in January 2026. To date, evidence indicates that the direct incidence of tariffs has largely fallen on US importers and consumers (Amiti and others 2026; Gimbel 2026; Gopinath and Neiman 2026). In contrast, inflation fell sharply in Japan in January 2026 to below the 2 percent target for the first time since the second quarter of 2022, with the decline largely reflecting the provisional gasoline tax abolition.

Risk-off sentiment following the outbreak of the Middle East conflict has led to a moderate tightening of global financial conditions, but they remain accommodative from a historical point of view (see the April 2026 *Global Financial Stability Report*). Concerns about a resurgence of inflation have raised bond yields and driven

equity prices down. Emerging markets—especially commodity importers and those with preexisting vulnerabilities—have been affected the most. The US dollar has strengthened somewhat, reaffirming its safe haven status. Even so, market volatility has been relatively subdued (Figure 1.6). At the same time, geopolitical tensions and other factors have contributed to sharp swings in the gold price (see the Commodity Special Feature).

Figure 1.6. Global Geopolitical Risk
(Index; US dollars per ounce)



Sources: Caldara and Iacoviello 2022; Chicago Board Options Exchange (CBOE); London Stock Exchange Group, Datastream; and IMF staff calculations.
Note: This figure plots the monthly global geopolitical risk index of Caldara and Iacoviello (2022), a news-based measure of adverse geopolitical events that covers 10 major newspapers in Canada, the United Kingdom, and the United States. Data were downloaded from https://www.matteoiacoviello.com/gpr.htm on April 02, 2026. VIX = CBOE Volatility Index.

Fiscal policy remains too loose in many of the largest advanced economies and emerging markets (see the April 2026 *Fiscal Monitor*). The Middle East conflict is putting additional pressure on public finances, both via the direct effects of the conflict and as governments seek ways to protect the most vulnerable from the fallout in commodity markets and may be tempted to offer broad-based fiscal packages, while higher financing costs and weaker activity weigh on revenues. Countries with preexisting fuel subsidies face different fiscal dynamics than those with liberalized energy pricing, while those with links to the Middle East region through remittances confront additional pressure on household incomes and external balances. Monetary policy was becoming more divergent as common global drivers of inflation became less prominent, until the conflict delivered a global negative supply shock.

Growth and Disinflation, Interrupted

Absent the war, sources of recent resilience (Box 1.1) would have been expected to continue to hold global economic activity on a steady path in 2026. Near-term prospects have, however, worsened given the disruptions caused by the closure of the Strait of Hormuz and the attacks on production facilities. Medium-term prospects remain constrained by structural challenges.

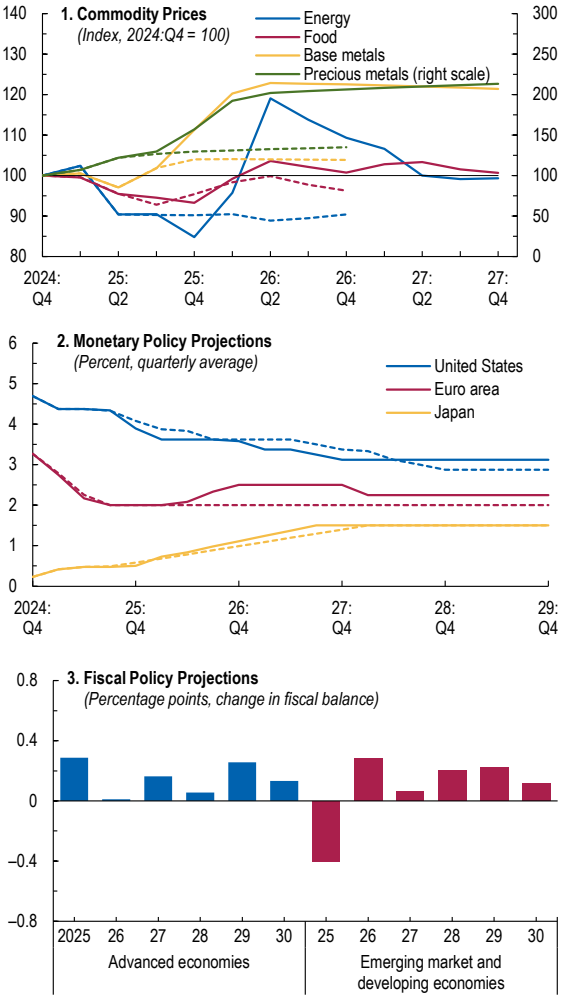
The bottom-up reference forecasts presented in this report are predicated on a relatively short-lived conflict. While more benign scenarios are highly desirable, given the extraordinarily high level of uncertainty, the reference forecasts are complemented with top-down model-based global growth projections under the assumption of a more prolonged and intense conflict. These scenarios become more likely over time as hostilities and related disruptions continue.

Global Assumptions

The reference forecasts incorporate the impact of the war, based on the assumption that the conflict will last for a few more weeks and a recovery will then gradually take hold, such that the disruptions fade and production and exports from the region normalize by mid-2026. This timeline is broadly captured in the projections for global commodity prices—consistent with futures pricing as of March 10—and interest rates (Figure 1.7). Fiscal and trade policies as they currently stand are assumed to remain in place through the forecast horizon. Uncertainty—encompassing trade and other economic policies as well as geopolitical developments—is assumed to remain elevated through 2027.

- *Commodity price projections:* Prices for energy commodities are expected to rise by 19 percent in 2026, as opposed to the small decline projected in the October 2025 WEO. Oil prices are expected to increase by 21.4 percent on account of disruptions to production and transportation in the Middle East, corresponding to the average petroleum spot price index averaging $82 per barrel. Natural gas prices are expected to be affected more than oil prices because of the technical complexity of restarting production and the comparatively lower level of reserves to fall back on. Food prices are expected to increase as well, more than projected in October 2025, on account of higher energy and fertilizer prices, disrupted shipping routes, and increased transport costs. Base and precious metal prices are projected to maintain the gains experienced in 2025.
- *Monetary policy projections:* Differentiation of monetary policies in major jurisdictions is expected to continue. In the United States, the federal funds rate is projected to be reduced gradually, reaching its terminal rate of about 3.1 percent by the end of 2027. The policy rate in the euro area is expected to increase by 50 basis points over the course of 2026. In Japan, the policy rate is projected to gradually rise, at a slightly steeper clip than thought in October 2025, toward a neutral setting of about 1.5 percent.

Figure 1.7. Global Assumptions



Source: IMF staff calculations.
Note: In panels 1 and 2, solid lines denote projections from the April 2026 *World Economic Outlook* (WEO) and dashed lines those from the October 2025 WEO. In panel 3, the fiscal balance used is the general government structural primary balance in percent of potential GDP. The structural primary balance is the cyclically adjusted primary balance excluding net interest payments and corrected for a broader range of noncyclical factors such as changes in asset and commodity prices.

- *Fiscal policy projections:* Fiscal policy in advanced economies, on average, is expected to be neutral in 2026 and tighten in the latter years of the forecast horizon, despite a widening of deficits in major jurisdictions. In the United States, the general government fiscal-balance-to-GDP ratio is expected to deteriorate by 0.7 percentage point in 2026 to 7½ percent, reflecting the impact of the One Big Beautiful Bill Act (OBBBA), partly offset by additional tariff revenues. The fiscal balance is projected to decline in the euro area, with Germany's deficit registering a widening of over 1 percentage point to 3.8 percent as infrastructure and defense spending ramp up. Japan is also projected to see its deficit widen by 1 percentage point of GDP in 2026, and its fiscal policy is expected to remain moderately expansionary

through 2030. Under current policies, US public debt is projected to continue to climb, from 124 percent of GDP in 2025 to 142 percent in 2031. In the euro area, the debt-to-GDP ratio also rises, but by less, from 87 percent in 2025 to 90 percent in 2031. Fiscal policy in emerging market and developing economies, on average, is projected to gradually tighten over the forecast horizon. In China, the deficit is expected to widen by 0.3 percentage point in 2026, before starting to narrow in the medium term. Still, public debt in emerging market and developing economies is projected to rise further, reaching 86 percent of GDP in 2031, from 74 percent in 2025.

- *Trade policy assumptions:* IMF staff projections remain based on real-time current trade policy; that is, they assume that policies as they stood at the end of March are permanent. This is so, even in regard to measures framed as temporary or pending—meaning that US Section 122 tariffs are assumed to be extended or reimposed under different statutes. The US effective statutory tariff rate underlying the projections is 13.5 percent, compared with 18.7 percent in the October 2025 forecast. The corresponding effective tariff rate imposed by the rest of the world on imports from the United States is unchanged at 3.5 percent.

Global Growth Forecast: Fragile with Large Dispersion

- Before the outbreak of the conflict, the bottom-up forecasts would have indicated a stable growth path (*"Preconflict WEO forecast"* in Figure 1.8). Global growth would have been 3.4 percent in 2026 and 3.2 percent in 2027, an upward revision of 0.1 percentage point for 2026 and unchanged for 2027 compared with the forecast in the January 2026 WEO *Update*.

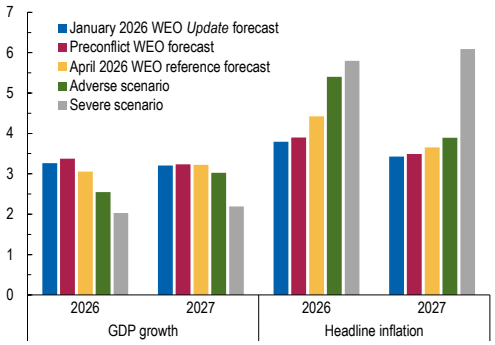
- Under the assumption in the *reference forecast* that the war turns out to be relatively short-lived, global growth is expected to slow down modestly. At 3.1 percent for 2026 and 3.2 percent for 2027, the forecasts mark a deceleration from the estimated 3.4 percent achieved in 2025 (Table 1.1). At market exchange rates, world output is projected to grow by 2.6 percent in both 2026 and 2027 (Table 1.2). The relatively modest downward revision to global growth in the reference forecast relative to the January 2026 WEO *Update* owes to continued tailwinds partially offsetting the negative shocks from the conflict, including lower tariffs, preexisting policy support, and carryover from stronger-than-expected outturns at the end of 2025 and the first quarter of 2026 in some cases. Compared with the preconflict WEO forecasts, growth in the near term is revised downward by 0.2 percentage point. This masks significant variation across countries, with lower-income commodity-importing economies being hit particularly hard through higher energy and food prices as well as foreign exchange depreciation (Figure 1.9). Cumulative growth over 2026–27 is revised downward by 0.5 percentage point for low-income net energy-importing economies relative to the January 2026 WEO *Update*, compared with a downward revision of 0.2 percentage point in energy-importing advanced economies and positive or neutral revisions for net energy-exporting economies.

- Should the conflict become more protracted than assumed in the reference forecast or the resumption of production and transport activities take longer than assumed because of possible scarring from closing of or damage to energy infrastructure, the impact on growth

would be larger. To illustrate the potential range of magnitudes, the report considers two top-down model-based downside scenarios: an adverse one and a severe one.

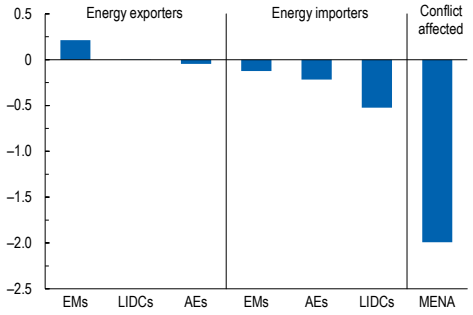
- In the *adverse scenario*, (1) Oil prices are assumed to increase by 80 percent starting in the second quarter of 2026 relative to the January 2026 WEO *Update* baseline, before falling back to about 20 percent above baseline in 2027, with the increase dissipating in 2028 (corresponding to an average petroleum spot price index of about $100 per barrel in 2026 and about $75 in 2027). Gas prices increase for Europe and Asia by 160 percent in the second quarter relative to baseline, before also mostly unwinding in 2027, and food commodity prices increase by 2.5 percent. (2) One-year-ahead inflation expectations increase by as much as 50 basis points by 2027 in advanced economies and as much as 90 basis points in emerging markets excluding China. Inflation expectations are unchanged in China, as current low inflation makes this less of a risk than for other countries. (3) A risk-off episode increases corporate premiums in advanced economies and China by 50 basis points, while emerging markets excluding China experience a 100 basis point increase as well as a 50 basis point increase in sovereign spreads. The tightening in financial conditions fades in 2027. Given the large impact on inflation expectations, the monetary policy response assigns less weight to output stabilization than usually assumed.

Figure 1.8. Global Growth and Inflation Forecasts
(Percent)



Source: IMF staff estimates.
Note: The three WEO forecasts are constructed bottom-up from individual country projections before and after the outbreak of the Middle East conflict. The two scenarios are model-based top-down estimates. The adverse scenario assumes that oil (gas) prices increase by 80 (160) percent starting in 2026:Q2, relative to the January 2026 WEO *Update*, with the increase mostly unwinding in 2027, one-year-ahead inflation expectations increase by 50 (90) basis points in advanced economies (emerging markets excluding China), and corporate premiums rise by 50 (100) basis points in advanced economies plus China (emerging markets excluding China), while sovereign spreads in emerging markets excluding China increase by 50 basis points, with the tightening in financial conditions fading in 2027. The severe scenario is calibrated to larger and more persistent shocks. First, oil (gas) prices are assumed to be 100 (200) percent higher than the January 2026 WEO *Update*, starting in 2026:Q2 and staying at that level in 2027, while food commodity prices increase by 5 (10) percent in 2026 (2027). Second, one-year-ahead inflation expectations increase by 100 (130) basis points in advanced economies (emerging markets excluding China) by 2027. Third, corporate risk premiums rise by 100 (200) basis points in advanced economies plus China (emerging markets excluding China) in 2026–27, while sovereign spreads increase by 100 basis points in emerging markets excluding China over the same period. WEO = *World Economic Outlook*.

Figure 1.9. GDP Growth Revisions in the Reference Forecast
(Percentage points)



Sources: World Bank, World Development Indicators; and IMF staff calculations.
Note: The figure presents cumulative GDP growth revisions for 2026–27 relative to January 2026 *World Economic Outlook Update*. Energy exporters and importers are defined using 2022 net energy imports as a share of energy use. Groups are aggregated using purchasing-power-parity weights. EMs and LIDCs exclude MENA. AEs = advanced economies; EMs = emerging markets; LIDCs = low-income developing countries; MENA = Middle East and North Africa.

- In the *severe scenario*, (1) The shock to commodity prices is more severe and persistent, with oil prices increasing by 100 percent starting in the second quarter of 2026, relative to the January 2026 WEO *Update* baseline, but also staying at that level in 2027, before dissipating in 2028 (corresponding to an average petroleum spot price index of about $110 per barrel in 2026 and about $125 in 2027). Gas prices for Europe and Asia increase by 200 percent over the same period, and food commodity prices increase by 5 percent in 2026 and 10 percent in 2027. (2) One-year-ahead inflation expectations ratchet up by as much as 100 basis points in advanced economies by 2027 and by as much as 130 basis points in emerging markets excluding China, also by 2027. (3) A significant risk-off episode pushes up corporate premiums in advanced economies and in China by 100 basis points in

2026, and they stay at that level in 2027, while emerging markets excluding China experience a widening in sovereign spreads of 100 basis points over the same period, along with an increase in corporate spreads of 200 basis points. As in the adverse scenario, the monetary policy response is geared toward containing inflationary pressures rather than stabilizing output.

- Under the *adverse scenario*, global growth would be reduced by 0.8 percentage point in 2026, dropping to 2.5 percent. There would also be a modest 0.2 percentage point impact on growth in 2027, bringing global growth to 3.0 percent. Inflation would be 1.5 percentage points higher at 5.4 percent in 2026, and 0.4 percentage point higher at 3.9 percent in 2027. Most of the impact on inflation and over half the impact on growth in 2026 come from higher energy prices. The more persistent effect on growth in 2027, however, is driven by the tightening in financial conditions and rise in inflation expectations, which implies a modest tightening in policy rates of 50 basis points in advanced economies by 2027 and a somewhat larger increase in emerging market economies.
- Under the *severe scenario*, the effects on global growth are substantial and longer lasting. Global growth would be reduced by 1.3 percentage points in 2026. This would mean a close call for a global recession (growth rate below 2 percent), which has happened only four times since 1980, with the latest two occasions corresponding to the global financial crisis and the COVID-19 pandemic. The effects on growth are also more persistent, with global growth reduced by 1.0 percentage point in 2027, to 2.2 percent. Inflation would be 190 basis points higher in 2026, reaching 5.8 percent, and 260 basis points higher in 2027, reaching 6.1 percent. The increase in oil and gas prices has not only a larger, but also a more persistent, impact on growth, subtracting 0.6 percentage point in 2026 and a further 0.5 percentage point in 2027. The amplification through inflation expectations and financial conditions would also be sizable, reducing growth by 0.7 percentage point in 2026 and 0.5 percentage point in 2027. This in part reflects a more aggressive monetary policy response. The federal funds rate would increase by 50 basis points in 2026 and 100 basis points in 2027, relative to baseline.
- In both scenarios, the impact on emerging markets would again be greater than that on advanced economies. In the *adverse scenario*, growth in 2026 is lower by 1.3 percentage points in emerging markets excluding China, relative to baseline, and by 0.6 percentage point in advanced economies. The *severe scenario* lowers growth in 2026 by 1.9 percentage points in emerging markets excluding China, almost twice the decline in advanced economies. This reflects a combination of a larger exposure to higher commodity prices and disruption to energy production, a larger increase in inflation expectations, and a more pronounced tightening in financial conditions.

Table 1.1. Overview of the *World Economic Outlook* Reference Forecast

(Percent change, unless noted otherwise)

		Projections		Difference from January 2026 WEO *Update* 1/		Difference from October 2025 WEO 1/	
	2025	2026	2027	2026	2027	2026	2027
World Output	**3.4**	**3.1**	**3.2**	**–0.2**	**0.0**	**0.0**	**0.0**
Advanced Economies	**1.9**	**1.8**	**1.7**	**0.0**	**0.0**	**0.2**	**0.0**
United States	2.1	2.3	2.1	–0.1	0.1	0.2	0.0
Euro Area	1.4	1.1	1.2	–0.2	–0.2	–0.1	–0.2
Germany	0.2	0.8	1.2	–0.3	–0.3	–0.1	–0.3
France	0.9	0.9	0.9	–0.1	–0.3	0.0	–0.3
Italy	0.5	0.5	0.5	–0.2	–0.2	–0.3	–0.1
Spain	2.8	2.1	1.8	–0.2	–0.1	0.1	0.1
Japan	1.2	0.7	0.6	0.0	0.0	0.1	0.0
United Kingdom	1.3	0.8	1.3	–0.5	–0.2	–0.5	–0.2
Canada	1.7	1.5	1.9	–0.1	0.0	0.0	0.0
Other Advanced Economies 2/	3.0	2.6	2.2	0.6	0.1	0.6	0.1
Emerging Market and Developing Economies	**4.4**	**3.9**	**4.2**	**–0.3**	**0.1**	**–0.1**	**0.0**
Emerging and Developing Asia	5.5	4.9	4.8	–0.1	0.0	0.2	0.0
China	5.0	4.4	4.0	–0.1	0.0	0.2	–0.2
India 3/	7.6	6.5	6.5	0.1	0.1	0.3	0.1
Emerging and Developing Europe	2.0	2.0	2.1	–0.3	–0.3	–0.2	–0.3
Russia	1.0	1.1	1.1	0.3	0.1	0.1	0.0
Latin America and the Caribbean	2.4	2.3	2.7	0.1	0.0	0.0	0.1
Brazil	2.3	1.9	2.0	0.3	–0.3	0.0	–0.2
Mexico	0.6	1.6	2.2	0.1	0.1	0.1	0.2
Middle East and Central Asia	3.6	1.9	4.6	–2.0	0.6	–1.9	0.8
Saudi Arabia	4.5	3.1	4.5	–1.4	0.9	–0.9	1.3
Sub-Saharan Africa	4.5	4.3	4.4	–0.3	–0.2	–0.1	–0.1
Nigeria	4.0	4.1	4.3	–0.3	0.2	–0.1	0.3
South Africa	1.1	1.0	1.3	–0.4	–0.2	–0.2	–0.2
Memorandum							
World Growth Based on Market Exchange Rates	2.9	2.6	2.6	–0.2	0.0	0.0	–0.1
European Union	1.6	1.3	1.4	–0.2	–0.2	–0.1	–0.2
ASEAN-5 4/	4.5	4.1	4.4	–0.1	0.0	0.0	0.1
Middle East and North Africa	3.2	1.1	4.8	–2.8	0.8	–2.6	1.1
Emerging Market and Middle-Income Economies	4.4	3.8	4.1	–0.3	0.0	–0.1	0.0
Low-Income Developing Countries	4.8	4.8	4.9	–0.3	–0.2	–0.2	–0.4
World Trade Volume (goods and services)	**5.1**	**2.8**	**3.8**	**0.2**	**0.7**	**0.5**	**0.7**
Imports							
Advanced Economies	4.7	2.6	3.1	0.8	0.8	1.3	0.9
Emerging Market and Developing Economies	5.7	2.7	4.9	–0.9	0.4	–1.3	0.2
Exports							
Advanced Economies	3.7	2.5	2.7	0.4	0.3	0.8	0.4
Emerging Market and Developing Economies	7.4	3.5	5.4	–0.1	1.2	0.2	1.3
Commodity Prices							
Oil 5/	–14.4	21.4	–7.6	29.9	–7.7	25.9	–7.4
Nonfuel (average based on world commodity import weights)	9.6	21.7	1.9	14.2	1.0	17.6	1.3
World Consumer Prices 6/	**4.1**	**4.4**	**3.7**	**0.6**	**0.3**	**0.7**	**0.3**
Advanced Economies 7/	2.5	2.8	2.2	0.6	0.1	0.6	0.1
Emerging Market and Developing Economies 6/	5.2	5.5	4.6	0.7	0.3	0.8	0.4

Table 1.1. Overview of the *World Economic Outlook* Reference Forecast (continued)

(Percent change, unless noted otherwise)

	Q4 over Q4 8/						
		Projections		Difference from January 2026 WEO *Update* 1/		Difference from October 2025 WEO 1/	
	2025	2026	2027	2026	2027	2026	2027
World Output	**3.3**	**2.9**	**3.5**	**–0.3**	**0.3**	**–0.4**	**...**
Advanced Economies	**1.9**	**1.5**	**1.9**	**–0.4**	**0.2**	**–0.3**	**...**
United States	2.0	2.2	2.1	0.1	0.0	0.2	...
Euro Area	1.2	1.2	1.5	–0.5	0.2	–0.6	...
Germany	0.4	0.7	1.3	–0.3	–0.2	–0.3	...
France	1.2	0.6	1.0	–0.3	–0.3	–0.4	...
Italy	0.8	–0.2	1.8	–0.9	1.1	–0.3	...
Spain	2.6	1.6	2.2	–0.4	0.3	–0.2	...
Japan	0.5	1.0	0.7	–0.5	0.3	–0.1	...
United Kingdom	1.0	1.0	1.9	–0.4	0.0	–0.4	...
Canada	0.7	2.3	1.5	0.0	0.0	0.0	...
Other Advanced Economies 2/	4.1	1.5	2.5	–1.3	...	–1.3	...
Emerging Market and Developing Economies	**4.4**	**4.0**	**4.6**	**–0.3**	**0.4**	**–0.4**	**...**
Emerging and Developing Asia	5.3	4.7	5.1	–0.3	0.3	–0.6	...
China	4.4	3.9	4.6	–0.6	0.5	–1.1	...
India 3/	7.5	7.1	6.5	0.6	0.0	0.9	...
Emerging and Developing Europe	1.9	1.8	2.2	–0.3	–0.2	–0.5	...
Russia	1.0	0.6	0.6	0.0	–0.5	0.1	...
Latin America and the Caribbean	2.1	2.9	2.3	0.1	–0.1	0.3	...
Brazil	2.0	2.6	1.9	0.3	–0.3	0.3	...
Mexico	1.8	1.5	2.4	–0.7	0.3	–0.2	...
Middle East and Central Asia	...	...	...	...	...	...	...
Saudi Arabia	5.0	3.1	4.5	–1.4	0.9	–0.9	...
Sub-Saharan Africa	...	...	...	...	...	...	...
Nigeria	3.9	3.8	4.5	–0.5	–2.0	–0.5	...
South Africa	1.5	0.7	1.5	–0.5	–0.2	–0.3	...
Memorandum							
World Growth Based on Market Exchange Rates	2.7	2.4	2.7	–0.3	0.1	–0.4	...
European Union	1.4	1.1	1.8	–0.4	0.2	–0.6	...
ASEAN-5 4/	4.9	3.7	4.7	–0.5	0.1	–0.8	...
Middle East and North Africa	...	...	...	...	...	...	...
Emerging Market and Middle-Income Economies	4.4	3.9	4.3	–0.3	0.2	–0.5	...
Low-Income Developing Countries	...	...	...	...	...	...	...
Commodity Prices (US dollars)							
Oil 5/	–15.1	29.2	–6.7	30.6	–7.6	31.4	...
Nonfuel (average based on world commodity import weights)	14.2	14.6	1.1	13.8	0.5	13.4	...
World Consumer Prices 6/	**3.5**	**3.9**	**3.0**	**0.8**	**0.0**	**0.9**	**...**
Advanced Economies 7/	2.5	2.9	2.0	0.8	–0.1	0.9	...
Emerging Market and Developing Economies 6/	4.2	4.6	3.7	0.7	0.1	0.9	...

Source: IMF staff estimates.

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing from February 10, 2026, to March 10, 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, January 2026 WEO *Update*, and October 2025 WEO forecasts.

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

3/ For India, data and forecasts are presented on a fiscal year basis, and GDP from 2022 onward is based on GDP at market prices with fiscal year 2022/23 as a base year.

4/ Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

5/ 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 $82.22 in 2026 and $75.97 in 2027.

6/ Excludes Venezuela. See the country-specific note for Venezuela in the "Country Notes" section of the Statistical Appendix.

7/ The assumed inflation rates for 2026 and 2027, respectively, are as follows: 2.6 percent and 2.2 percent for the euro area, 2.2 percent and 2.3 percent for Japan, and 3.2 percent and 2.1 percent for the United States.

8/ 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.

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

		Projections		Difference from January 2026 WEO *Update* 1/		Difference from October 2025 WEO 1/	
	2025	2026	2027	2026	2027	2026	2027
World Output	**2.9**	**2.6**	**2.6**	**–0.2**	**0.0**	**0.0**	**–0.1**
Advanced Economies	**1.9**	**1.8**	**1.7**	**–0.1**	**0.0**	**0.1**	**–0.1**
Emerging Market and Developing Economies	**4.3**	**3.7**	**3.9**	**–0.3**	**0.0**	**–0.1**	**0.0**
Emerging and Developing Asia	5.3	4.7	4.5	–0.1	0.0	0.2	–0.1
Emerging and Developing Europe	2.0	2.1	2.2	–0.3	–0.3	–0.2	–0.2
Latin America and the Caribbean	2.2	2.3	2.6	0.2	0.0	0.1	0.1
Middle East and Central Asia	3.8	1.6	4.8	–2.5	0.8	–2.4	0.9
Sub-Saharan Africa	4.3	4.1	4.2	–0.3	–0.2	–0.1	–0.1
Memorandum							
European Union	1.5	1.3	1.4	–0.2	–0.1	0.0	–0.1
Middle East and North Africa	3.5	1.0	4.9	–3.1	1.0	–2.9	1.1
Emerging Market and Middle-Income Economies	4.2	3.6	3.9	–0.3	0.1	–0.2	0.0
Low-Income Developing Countries	4.9	4.8	4.9	–0.3	–0.3	–0.2	–0.4

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, January 2026 WEO *Update*, and October 2025 WEO forecasts.

Growth Forecast for Advanced Economies

Under the reference forecast, growth in *advanced economies* is projected to be 1.8 percent in 2026 and 1.7 percent in 2027. The overall effect on growth in advanced economies of the conflict in the Middle East is modest, lowering growth by 0.2 percentage point in 2026 relative to the preconflict forecast, thanks to positive terms-of-trade effects in the United States and stronger growth momentum and offsetting government measures in Japan, with a large negative effect expected only in some net energy-importing economies, such as the euro area and the United Kingdom.

- In the *United States*, the economy is projected to expand by 2.3 percent in 2026, with growth supported by fiscal policy and the lagged impact of monetary policy rate cuts in 2025, even as the rise in trade barriers since April 2025 continues to weigh on the level of activity. This 0.1 percentage point downward revision relative to the January 2026 WEO *Update* reflects the balance of a small negative effect from the war—given the net-energy-exporter status of the United States—and offsets from a rebound in activity in the first quarter of 2026 compared with the fourth quarter of 2025 following the end of the 2025 federal government shutdown, stronger-than-previously-assumed productivity growth, and the associated carryover. While the International Emergency Economic Powers Act (IEEPA) ruling may reduce fiscal revenues raised by tariffs, the impact on the fiscal balance and activity is expected to be small and spread over the forecast horizon. Growth is projected to remain solid at 2.1 percent in 2027, with a near-term fiscal boost from tax incentives, including those for corporate investment under the OBBBA. Technology-driven momentum is expected to moderate but still provide some offset to lower immigration and moderating consumption. Strong productivity growth is projected to gradually fade and converge to historical norms.

- In the *euro area*, growth is expected to decline from 1.4 percent in 2025 to 1.1 percent in 2026 and to 1.2 percent in 2027. The forecast is revised downward by 0.2 percentage point in each year compared with the January 2026 WEO *Update*, with the effect of better-than-expected growth at the end of 2025 giving way to the negative impact of the Middle East conflict over time. The latter will add to the lingering effects of the persistent rise in energy prices since Russia's invasion of Ukraine, dragging on manufacturing, with additional pressure from the real appreciation of the euro relative to currencies of countries exporting similar products. The impact of the planned increase in defense spending for most countries is expected to materialize only in subsequent years, given commitments to reach target levels gradually by 2035 (see Chapter 2 for estimates of defense spending multipliers). In *Japan*, growth is projected to drop from 1.2 percent in 2025 to 0.7 percent in 2026 and to 0.6 percent in 2027. This marks an upward revision for 2026 relative to the October 2025 figure, reflecting the fiscal stimulus package announced by the new government last November, stronger domestic-demand-driven growth carryover from 2025, and government measures to limit the effects of higher energy prices, partly offset by weaker external demand and the Middle East conflict. In the *United Kingdom*, the war and a slower pace of monetary easing mean that growth is projected to decline from 1.3 percent in 2025 to 0.8 percent in 2026, a downward revision of 0.5 percentage point relative to the October 2025 forecast. Growth is projected to recover to 1.3 percent in 2027, slower than expected before the war as the impact of higher energy prices lingers. In *Canada*, growth is projected to slow from 1.7 percent in 2025 to 1.5 percent in 2026 before recovering to 1.9 percent in 2027. The softer near-term profile reflects weaker momentum at the end of 2025 and slower population growth, while earlier monetary easing and supportive fiscal policy help sustain domestic demand. This is broadly unchanged from the October 2025 WEO forecast, with the positive terms-of-trade shock of higher oil prices offsetting the other effects of the war in the Middle East.

Growth Forecast for Emerging Market and Developing Economies

In *emerging market and developing economies*, growth is expected to fall to 3.9 percent in 2026 and recover to 4.2 percent in 2027. The conflict in the Middle East has a varied impact on growth given differential exposure—through geographic proximity, financial flows, remittances, and energy dependencies. Overall, it has a larger net impact on growth in emerging market and developing economies compared with advanced economies, lowering growth in 2026 for the former group by 0.3 percentage point relative to the preconflict forecast.

- Growth in *emerging and developing Asia* is expected to decline from 5.5 percent in 2025 to 4.9 percent in 2026 and to 4.8 percent in 2027. Growth in *China* for 2026 is revised upward by 0.2 percentage point, relative to October (a 0.1 percentage point downward revision from January), to 4.4 percent, reflecting the lower US effective tariff rates on Chinese goods, and stimulus measures offset the negative impact of the shock induced by the Middle East conflict. The economy's growth rate is expected to decelerate to 4.0 percent in 2027 as structural headwinds—including those from a grinding slowdown in the housing sector, a declining labor force, decreasing returns on investment, and slower productivity growth—assert themselves. In *India*, growth for 2025 is revised upward by 1.0 percentage point relative to October, to 7.6 percent, reflecting the better-than-expected outturn in the second and

third quarters of the fiscal year and sustained strong momentum in the fourth quarter. For 2026, growth is revised upward moderately by 0.3 percentage point (0.1 percentage point relative to January) to 6.5 percent, led by positive contributions from the carryover of the strong 2025 outturn and the decline in additional US tariffs on Indian goods from 50 to 10 percent, which outweigh the adverse impact of the Middle East conflict. Growth is projected to stay at 6.5 percent in 2027. In several South and Southeast Asian economies, disruptions in the Middle East are expected to reduce tourism and remittance inflows, thereby weakening domestic demand. Growth in the *Philippines* is revised downward by 1.5 percentage points for 2026, relative to January, with the war shock compounding the negative base effects from a weaker-than-expected 2025 outturn related to a sharp decline in public investment and confidence.

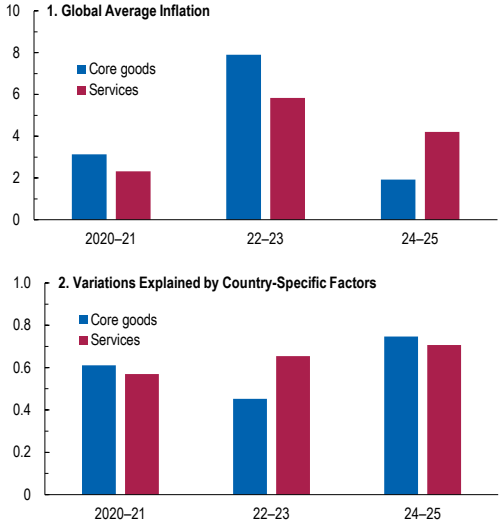
- In the *Middle East and Central Asia*, growth is projected to decline from 3.6 percent in 2025 to 1.9 percent in 2026 and recover to 4.6 percent in 2027 as the region experiences the most direct impact of the conflict and the expected subsequent rebound. For commodity exporters directly affected by the conflict, diminished production and exports imply a severe downward revision of GDP growth projections for 2026, depending on the degree of damage suffered in energy and transportation infrastructure as well as the dependence on the Strait of Hormuz and availability of alternative export routes. The contraction of GDP growth for 2026 is therefore more pronounced for *Bahrain*, *Iran*, *Iraq*, *Kuwait*, and *Qatar* and less significant for *Oman*, *Saudi Arabia*, and the *United Arab Emirates*. For all these economies, growth in 2027 is expected to rebound, based on the assumption that energy production and transportation are normalized over the next few months—an assumption that may need to be revised if the duration of the conflict extends and the degree of damage suffered gets reassessed. Growth in *Iran* in 2026 is revised downward by 7.2 percentage points, relative to January, to –6.1 percent, while that for 2027 is revised upward by 1.6 percentage points to 3.2 percent. In *Saudi Arabia*, the growth forecast for 2026 is revised downward by 1.4 percentage point relative to January, to 3.1 percent, and that for 2027 is revised upward by 0.9 percentage point, to 4.5 percent . For commodity importers in the Middle East and North Africa, the terms-of-trade shock from higher commodity prices contributes to a somewhat modest downward revision of growth projections in 2026 and 2027, with some differentiation as a result of varying exposures to imports of energy, energy derivatives, and food items, as well as different economic trajectories before the conflict erupted. In *Egypt*, growth is projected to slow to 4.2 percent in 2026 and recover to 4.8 percent in 2027, a cumulative downward revision of 1.1 percentage points. For Caucasus and Central Asia countries, the growth momentum experienced over the past few years is expected to continue, with aggregate GDP growth for the group revised upward in 2026 and 2027, by a cumulative 0.3 percentage point.
- Growth in *sub-Saharan Africa* is expected to be relatively stable at 4.3 percent in 2026 and 4.4 percent in 2027. This masks variation across countries, with some in the region—particularly oil-importing non-resource-intensive countries—adversely affected by the Middle East conflict. Key economies continue to benefit from past macroeconomic stabilization and reform efforts. In *Nigeria*, growth momentum is sustained at 4.1 percent in 2026, supported by improved macroeconomic stability and positive terms-of-trade effects, while higher goods

and transport costs are headwinds. Growth is expected to strengthen in 2027 to 4.3 percent as these headwinds ease. In *South Africa*, the disruptions from the Middle East conflict are projected to slow growth slightly to 1.0 percent in 2026. The economy is expected to bounce back in 2027, growing at 1.3 percent, supported by a gradual resumption of structural-reform-driven private investment as disruptions from the conflict subside. Growth in other countries in the region as a whole is expected to decline from 5.6 percent in 2025 to 5.2 percent in both 2026 and 2027, revised downward relative to January by a cumulative 0.6 percentage point.

- In *Latin America and the Caribbean*, growth is projected to remain broadly stable at 2.3 percent in 2026 and pick up to 2.7 percent in 2027. The impact from the conflict in the Middle East within the region is heterogeneous, with smaller economies affected more negatively. In *Brazil*, growth is projected to moderate to 1.9 percent in 2026, unchanged from October, and 2.0 percent in 2027. The war is expected to have a small net positive effect in 2026, as a result of the country being a net energy exporter, boosting growth by about 0.2 percentage point. In 2027, slowing global demand, higher input costs (including of fertilizers), and tighter financial conditions are expected to dominate, reducing growth by approximately 0.3 percentage point, compared with the projection in January. Adequate international reserves, low reliance on foreign-currency debt, large government cash buffers, and a flexible exchange rate are expected to help the country weather the shock. In *Mexico*, weaker growth in 2025 amid fiscal consolidation, restrictive monetary policy, and headwinds from trade tensions is expected to give way to a mild recovery, with the economy expanding at a rate of 1.6 percent in 2026 and 2.2 percent in 2027.

- In *emerging and developing Europe*, a sharp slowdown in 2025 to a growth rate of 2.0 percent is expected to reverse only slightly, with economies in the region expanding at an average rate of 2.0 percent in 2026 and 2.1 percent in 2027. In *Russia*, higher commodity prices are projected to drive the 0.3 percentage point upward revision of 2026 growth relative to January, to 1.1 percent, with the momentum continuing to register another 1.1 percent growth rate in 2027. In *Türkiye*, expected growth is revised downward by 0.8 percentage point for 2026 to 3.4 percent relative to the figure in the January 2026 WEO, as 2025 growth was weaker than expected and higher oil and gas prices weigh on activity.

Figure 1.10. Global Inflation
(Percent)



Sources: Haver Analytics; and IMF staff calculations.
Note: Panel 1 shows the average inflation across 27 countries for which data are available. All numbers are simple averages. Panel 2 shows the share of country-level inflation variation not explained by global inflation, proxied by the first principal component of inflation across 27 countries, computed in a rolling two-year window.

Inflation Forecast

Global inflation is projected to pause its decline, with headline inflation increasing from 4.1 percent in 2025 to 4.4 percent in 2026 before falling back to 3.7 percent in 2027. This is a 0.7 percentage point upward revision for 2026 from the figure in

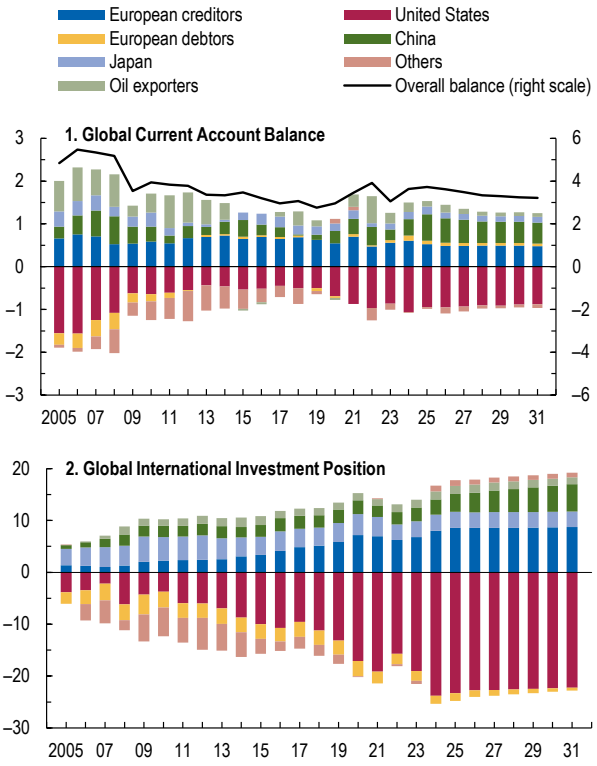
the October 2025 WEO, reflecting expected higher energy and food prices. There is divergence across countries, shaped by the stubborn dynamics in services inflation—which tends to have a larger domestic component—and the increasing share of inflation explained by country-specific factors (Figure 1.10). Gradual pass-through from higher tariffs and limited pass-through of higher energy prices along with gradually moderating services inflation amid a broadly balanced labor market mean that US core inflation is projected to return to the country's 2 percent target during 2027. Sustained strong productivity growth slowly converging back to historical norms will provide support for supply-driven disinflation. In the United Kingdom, inflation, which in 2025 increased partly because of one-off changes in regulated prices, is expected to pick up again temporarily toward 4 percent before returning to target by the end of 2027 as the effects of higher energy prices fade and a weakening labor market continues to exert downward pressure on wage growth. In Japan, inflation is expected to moderate in 2026, relative to the outturn in 2025, and converge toward the country's target by the end of 2027 as food and commodity prices ease. In the euro area, headline inflation is projected to increase temporarily to above 2 percent in 2026 and remain above target in 2027. Core inflation is expected to increase more modestly but stay above 2 percent until 2028. Inflation in China is projected to start rising from low levels, whereas inflation in India is expected to return to near target levels after subdued food prices drove a marked decline in 2025.

World Trade Outlook and Global Imbalances

World trade volume growth is expected to decline from 5.1 percent in 2025 to 2.8 percent in 2026 and increase to 3.8 percent in 2027. These dynamics reflect front-loading early on and the impact of tariffs mitigated by adjustments in trade linkages and production chains as time goes by. Exports of both goods and services are projected to decline in percent of world GDP over the forecast horizon, with the decline in services trade being much less pronounced. This reflects the stronger underlying trend growth and greater resilience to rising risks in services trade compared with that in goods trade (see Box 1.2).

Over the medium term, global imbalances are expected to decline only modestly. Expansionary fiscal packages in some economies with current account surpluses are expected to contribute to this cyclical decline (Figure 1.11). Countering this is a technology-driven business investment surge,

Figure 1.11. 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.

which is expected to continue to attract capital flows to the United States even as investment in technology moderates. 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 that boost domestic demand, together with sustained capital inflows driven by higher returns, would dominate and keep the US current account deficit wider than that observed during the decade preceding the COVID-19 pandemic (also see the discussion of scenario A in Box 1.3). Sustained large fiscal deficits in the United States and China's continued reliance on export-led growth and limited rebalancing to domestic consumption contribute to external imbalances in these two countries.

Medium-Term Outlook

Many countries are facing challenges in lifting medium-term growth prospects, compounded by geoeconomic fragmentation and rising geopolitical risks. Absent decisive policy actions or technological breakthroughs, growth forecasts over the five-year WEO horizon remain mediocre. The global economy is projected to expand at an average annual pace of 3.1 percent in 2028–31, a persistently lackluster performance compared with the prepandemic (2000–19) historical average of 3.7 percent. This pace of growth reflects primarily the slowdown in China's growth, but average annual growth is also expected to slow in several other major Asian economies, the Middle East and Central Asia, and sub-Saharan Africa, as well as in North America and Europe.

Policy-driven reversal of global economic integration and a more volatile international economic environment are expected to hurt the potential of the world economy through multiple interconnected channels (Aiyar and others 2023). First, the catalyst role that international trade played for cross-country income convergence—helping lift large numbers of people out of poverty in the developing world—is expected to be reduced. Second, many tangible benefits that international migration brought to source and destination countries alike are likely to decline with more limited migration flows. This would have particularly adverse implications for poverty reduction and macroeconomic stability in remittance-dependent countries. Third, capital flows, including foreign direct investment, may decrease as firms weigh the costs and benefits under greater uncertainty. All in all, increased barriers to movement of goods and services, investment, and people may reduce technological diffusion, the flow of ideas, and innovation. Estimates of long-term global GDP losses from trade fragmentation alone range between 0.3 percent and 7.0 percent after 10 years (Bolhuis, Chen, and Kett 2023). Crucially, some of these effects may take longer to manifest than the WEO horizon of five years.

Risks to the Outlook: Downside Dominates

Risks are firmly on the downside, with some adverse risks gaining prominence since the January 2026 WEO *Update,* most notably those related to a more protracted conflict in the Middle East. While recent momentum might prove to be stronger than projected if recent tailwinds such as AI-driven activity moderate less than envisioned or financial conditions remain accommodative, such support may also prove short-lived and is likely to be dominated by downside risks from the conflict in the Middle East. Medium-term risks are also more firmly on

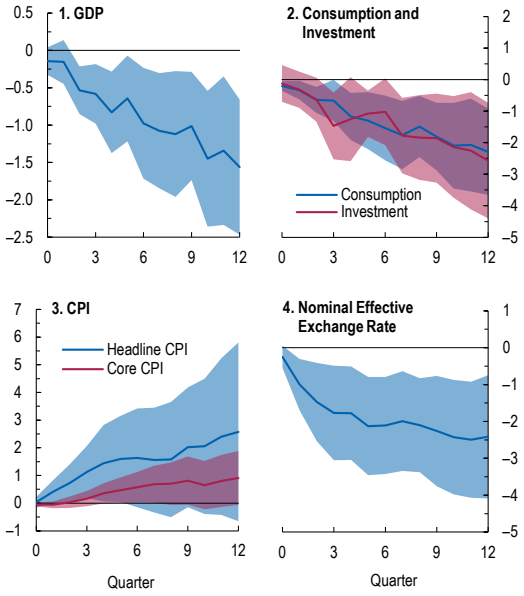
the downside, including a potential misallocation of resources resulting from AI exuberance or a continuation of policies that give rise to real, fiscal, and financial vulnerabilities, potentially amplified through financial market mechanisms.

Downside Risks

Further intensification of conflicts and eruption of domestic political tensions. The current war and geopolitical tensions could intensify further. The effects that are already being felt through volatile commodity prices, disrupted supply chains, and exchange rate depreciation could get worse. Food security could be threatened, with disruptions to fertilizer markets ahead of the planting season leading to substantial food price inflation. Erosion of real incomes and increasing poverty in commodity-importing countries could exacerbate those countries' external imbalances and put those with limited reserves at risk of balance of payments distress and social unrest. Political instability could ensue, with the economic toll of the ongoing conflicts imposing knock-on effects on preexisting domestic political tensions. Sub-Saharan economies may be especially susceptible to such dynamics. An increase in risk aversion or increased frictions in cross-border financial transactions could lead to capital flow reversals and abrupt asset price adjustments, particularly in emerging market economies with weaker policy frameworks as well as smaller fiscal and external buffers (Barrett and others 2021; April 2023 and April 2025 *Global Financial Stability Report*). Surges in military spending could boost economic activity in the short term, but, even when not followed by conflict and war, may distort resource allocation and involve nontrivial macroeconomic trade-offs (see Chapter 2). If conflict breaks out, direct losses—human casualties and destruction of physical capital—are likely to dominate other channels (see Chapter 3).

The severe scenario discussed earlier in the chapter indicates that a more pronounced conflict could result in a major energy crisis, with a significant effect on global output. More generally, the direct macroeconomic effects of country-specific geopolitical risk on the domestic economy can be sizable, even though episodes of elevated risk tend to be relatively short-lived, with a half-life of about two quarters. A one-standard-deviation increase in geopolitical risk is associated with a decline in real GDP of about 0.8 percent one year after the initial shock, with the decrease driven by weaker private consumption and investment (Figure 1.12). To give a sense of magnitude, the average geopolitical risk in Europe (calculated across all country-year observations) rose by about 1.2 standard deviations in 2022 following Russia's invasion of Ukraine and remained elevated at about 0.5 standard deviation in 2025. Roughly 10 percent of the estimated GDP impact can be attributed to the direct effect of higher

Figure 1.12. Estimated Impact of Geopolitical Risks
(Percent)



Sources: Caldara and others 2026; and IMF staff calculations.
Note: The analysis uses local projections, controlling for lagged country-specific geopolitical risk and changes in macroeconomic variables, as well as country and time fixed effects. Geopolitical risk is measured based on newspaper archives. See Caldara and others (2026) for details. The country-level data were downloaded from https://www.matteoiacoviello.com/gpr.htm. The lines denote point estimates, and the shaded areas denote 90 percent confidence intervals. CPI = consumer price index.

oil prices, implying that other transmission channels play a much larger role. Increased geopolitical risk is, on average, associated with a level of prices about 2.5 percent higher relative to that in the no-shock baseline three years after the shock. Core inflation rises as well, although more modestly, suggesting that the inflationary impact comes mostly through the impact on commodity prices, as a result of disruptions to global food and energy supply chains. The nominal exchange rate depreciates by about 1.8 percent one year after the shock, which could compound the upward price pressures.

Reevaluation of productivity gains from new technology. Should AI-driven profitability projections turn out to be overly optimistic, real investment in technology sectors could drop sharply. In addition, equity markets—particularly those with high concentrations in technology sectors—could be vulnerable to a sharp repricing (April 2026 *Global Financial Stability Report*). A stock market correction—on top of the adjustment that has already happened in the stock prices of some technology firms—might lead to a slowdown in private consumption growth through negative wealth effects. Spillovers would spread, directly through trade flows, to export-oriented economies specializing in technology products and through a reversal in capital flows and impacts on cross-border portfolio holdings. An associated tightening of global financial conditions would weigh on global activity more broadly (see scenario B in Box 1.3).

Disruption of the fragile balance of current trade policies. More countries could adopt a protectionist posture, in particular if trade diversion and rerouting become disruptive, breaking the pattern of limited retaliation followed so far. Additional tariffs would further weigh on global growth, while sector-specific tariffs—especially if imposed on upstream industries in supply chains—could create supply bottlenecks and have an outsize impact on economic activity and prices. Nontariff measures targeting critical inputs such as rare earth minerals might also disrupt global supply chains (see the Commodity Special Feature). The effects would be amplified if actions trigger retaliatory tariff and nontariff measures.

Repricing of borrowing costs triggered by fiscal vulnerabilities. Public debt is elevated in several major economies, especially those whose currencies and securities are important in international financial markets (see the April 2026 *Fiscal Monitor*). Fiscal sustainability worries in those economies—potentially triggered by the crystallization of other shocks—could not only put pressure on those economies' own borrowing costs but also tighten broader financial conditions and amplify financial market volatility (see scenario B in Box 1.3) and refinancing risk in some high-debt developing economies. Elections are often associated with fiscal slippage (Shi and Svensson 2006), which, as well as raising borrowing costs, risks

Figure 1.13. International Flows to LIDCs
(Billions of US dollars)

Sources: Organisation for Economic Co-operation and Development; World Bank, World Development Indicators; and IMF staff calculations.
Note: Net official development assistance (ODA) is weighted by and shown as percentages of gross national income. LIDCs = low-income developing countries; SSA = sub-Saharan Africa.

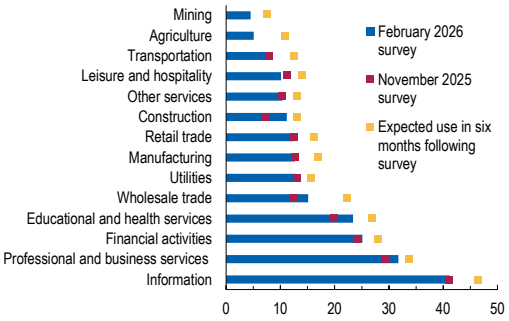
triggering boom-bust growth dynamics. For low-income countries, planned reductions in official development assistance (ODA) pose an additional challenge through, among other things, their effects on health, education, and social protection outcomes. Many recipients in sub-Saharan Africa experienced a gradual decline in ODA as a share of GDP after the global financial crisis. Over the same period, Chinese lending expanded significantly, reflecting multiple factors, yet it has weakened in recent years, with net transfers recently turning negative (Figure 1.13; see also Chapter 2 of the April 2026 *Regional Economic Outlook: Sub-Saharan Africa*).

Erosion of confidence in economic institutions. Intensification of political pressure on independent central banks and other policy institutions can erode hard-won public confidence in their ability to fulfill their mandates and lift inflation expectations (Chapter 2 of the October 2025 WEO). Reanchoring expectations—when it occurs—usually requires a prolonged period of tight monetary policy, with longer-term yields rising because of widening term premiums and higher inflation expectations, ultimately lowering economic growth. Countries may experience persistently higher funding costs and capital outflows if international investors divert investment toward assets that are perceived as safer or more stable.

Upside Risks

Sooner materialization of productivity gains from artificial intelligence. The reference forecast does not include direct effects of AI on productivity, with adoption rates for AI still modest in many sectors (Figure 1.14). But the recent surge in AI-related investment and acceleration in the adoption of AI could substantially increase productivity and boost medium-term growth sooner rather than later, as possibly foretold by the above-trend US productivity growth since 2020. This could lift global growth by as much as 0.3 percentage point in the near term and by 0.1–0.8 percentage point in the medium term (see Box 1.3 of the October 2025 WEO). The benefits could be shared across the economy, provided there are complementary policies to contain the potential impact on energy prices by relaxing power supply constraints, initiatives to scale up the necessary critical intermediate inputs, and labor market programs to manage workforce transitions. In low-income countries, realizing these benefits might require additional efforts to close gaps in energy and digital infrastructure and reduce the concentration of labor in sectors such as agriculture and mining, in which AI-driven productivity gains are likely to be limited.

Figure 1.14. Use of Artificial Intelligence by US firms by Sector
(Percent)



Sources: US Census Bureau, Business Trends and Outlook Survey; and IMF staff calculations.
Note: Sectors are aggregated using gross-value-added shares. Blue bars and red markers show responses to the survey question: "In the last six months, did this business use Artificial Intelligence (AI) in any of the following business functions?" The yellow markers show responses from the February 2026 survey to the question: "During the next six months, do you think this business will be using AI in any of its business functions?" Survey responses for Construction and Mining sectors were not available from the November 2025 survey.

Structural reforms as countries seize the moment. Current challenges and the possibility of transformational technology changes could open a window for structural reform efforts to gain momentum. Accelerated implementation of reforms that upskill the existing labor force, reduce barriers to labor mobility, streamline and rationalize business regulations, reduce internal trade barriers, enhance competition, and promote innovation would make it possible to lift the growth

potential of economies in a lasting manner while enhancing their resilience and capacity to adapt. Scenario C in Box 1.3 suggests that a package of reforms across major economies would lift near-term global growth by more than half a percentage point.

Progress in trade talks and enhanced policy predictability. Tangible progress in trade talks could lower tariffs and support global activity. It could also enhance policy predictability, allowing businesses to plan better and unlock investment plans. The gains to investment and activity could be even larger if cooperation extends beyond tariffs to services trade, foreign direct investment, and international taxation. In this context, efforts to develop or complete new regional trade agreements might help reduce trade costs and facilitate adjustment to recent policy changes, such as the EU's recent trade agreements with India and MERCOSUR. A broad reduction in US tariffs and reduction in uncertainty could lift global growth by 0.6 percentage point (see scenario C in Box 1.3). Incidentally, should US Section 122 tariffs fail to be extended and if no new tariffs are imposed under different statutes, the effective tariff rate would turn out to be lower than is assumed in the reference forecast.

Policies: Addressing the Current Shock, Preparing for the Next

The current hostilities in the Middle East pose immediate policy trade-offs: between fighting inflation and preserving growth and between supporting those affected by the rising cost of living and rebuilding fiscal buffers. Amid frequent global shocks, countries need to calibrate policies to ensure that they not only step up to the moment but also stand up to the next test. There are actions countries can take on their own, some of which can also help increase global stability. Then there are actions that require collective action to reinstate stability in international economic relations.

Getting One's Own House in Order

Preserving Price and Financial Stability

Responding to the commodity price shock. Central banks should be ready to act decisively in line with their mandates. Monetary policy should preserve price stability and be carefully attuned to spillovers from actual inflation to inflation expectations, especially over the medium- to long-term horizon. The transmission of the current war-infused shock to inflation will differ across countries, reflecting varying exposure to commodity markets and the region in which countries are located, the strength of the anchoring of inflation expectations, and the extent of exchange rate depreciation. With the memories of the postpandemic inflation surge still fresh, second-round effects could possibly be larger than they were in 2021–22. At the same time, tightening prematurely could be destabilizing, if financial conditions tighten further—as in the severe scenario presented earlier in the chapter—or consumer and business confidence declines. Reacting strongly to flexible commodity prices, when supply constraints are present only in the related sectors, brings down inflation fast but risks a recession later (Chapter 2 of the October 2024 WEO). Where monetary policy was already properly calibrated before the shock, policymakers may have the option to wait to discern the duration and impact of the shock, also considering that inflation expectations may have shifted by the time the persistence of the shock becomes clear. Where negative demand shocks emerge and activity falls below potential, a reduction in policy rates may be appropriate, but only if risks to price stability remain contained.

In non-inflation-targeting economies, such as those with fixed exchange rate regimes, policymakers may need to rely more heavily on other tools, such as fiscal policy, to manage shocks.

Communicating with impact. Clear, timely, and consistent central bank communication is essential at a time of heightened uncertainty and renewed fear of inflationary pressures. Central banks should articulate their commitment to their mandates, including the resolve not to allow inflation expectations to de-anchor and their determination to tighten policy if incoming data and the evolving balance of risks make it necessary.

Safeguarding independence and credibility. Central bank independence, both legal and operational, is crucial for monetary policy credibility. It helps anchor inflation expectations and protect against fiscal dominance. Credibility that has been built over decades was a crucial factor in bringing inflation down without substantial output losses during the postpandemic inflation surge. But that episode of prolonged above-target inflation has also left the policy credibility of some central banks blemished. That puts an additional premium on avoiding pressures to subordinate monetary policy to fiscal or financial considerations or political objectives. Central banks should be able to maintain a prolonged period of restrictive policy if necessary.

Maintaining a flexible but orderly exchange rate. Exchange rates should generally move flexibly in response to market forces to facilitate macroeconomic adjustment. With the conflict in the Middle East triggering volatility and threatening an abrupt tightening in global financial conditions, foreign exchange movements may become excessive or disorderly, amplifying the impact of higher commodity prices on inflation and financial stability. The IMF's Integrated Policy Framework provides guidance for tailoring country-specific policy responses in instances in which such risk is imminent. In select cases, temporary foreign exchange intervention or targeted capital flow management measures may be warranted, alongside appropriate monetary and fiscal policy stances.

Enhancing prudential oversight. Heightened uncertainty, rising geopolitical risks, and fragilities in asset valuations underscore the need for strong prudential oversight to protect financial stability. In the context of the Middle East conflict and its adverse effects on sovereign risk premiums, financial market volatility, and the stability of financial institutions, countries with significant exposure to the war should devote adequate resources to identifying, quantifying, and managing these risks. Policymakers should be ready to deploy contingency plans against a wide range of shocks and outcomes, including by conducting scenario analysis that contemplates different paths for the hostilities in the Middle East. Macroprudential policies and oversight of nonbank financial institutions should curb risk taking and fiscal-financial linkages. Preserving sufficient monetary and fiscal policy space and maintaining adequate liquidity, capital, and international reserve buffers remain essential.

Upholding Debt Sustainability

Protecting the vulnerable while staying disciplined. The increase in salient prices—such as those for energy and food—has renewed calls for supporting households and firms, as many countries did in the aftermath of Russia's invasion of Ukraine. Fiscal responses to the Middle East conflict should heed the lessons learned from that episode and ideally adhere to first principles of

limiting distortion of price signals and keeping a fiscal and monetary policy mix consistent with price stability. In principle, and under an exceptional set of conditions—that the commodity price shock is temporary, pass-through from headline inflation to core is strong, economic overheating is low, spillovers to global commodity markets are small, and there is available fiscal space—temporary fiscal measures in the form of subsidies, tax cuts, and price caps can help prevent the amplification of large cost-push shocks and smooth inflation. In practice, however, those conditions are difficult to ascertain in real time and, even when they are satisfied, such measures are often regressive, fiscally costly, and politically difficult to roll back. Hence, discretionary fiscal support should typically be avoided. If the cost-of-living squeeze is drastic and some support is unavoidable, as it could very well be if the severe scenario materializes, it should be timely, explicitly temporary, and channeled through tightly targeted transfers to the most vulnerable, with clear sunset clauses and identified offsets through reductions in nonpriority spending or through new revenue measures, particularly where fiscal space is limited. For economies experiencing increased fiscal room—for example, because of windfalls from recent swings in commodity prices—maintaining fiscal discipline is essential to ensure that the gains are used prudently and consistently within a coherent medium-term fiscal framework with debt sustainability at its core.

Replenishing buffers. Rebuilding fiscal buffers is crucial given high public debt levels, eroded fiscal space following a sequence of global shocks, uncertainty surrounding the outcome of the latest conflict, and pressing spending needs. Credible medium-term fiscal consolidation—supported by fiscal transparency and clear communication (April 2026 *Fiscal Monitor*)—should be grounded in realistic assessments of long-term spending pressures while maintaining a focus on growth-friendly adjustment (October 2025 *Fiscal Monitor*). Dependence on financial repression, monetary financing, or benign market sentiment would carry significant macrofinancial risks and should be avoided. Governments should strengthen revenues through base broadening and improved tax administration, enhance spending efficiency, and reorient expenditures toward high-multiplier areas such as infrastructure, skills development, and well-targeted social protection while crowding in private investment. Strong fiscal frameworks, credible fiscal rules, independent fiscal institutions, and prudent debt management practices are central to supporting these efforts. The mix of expenditure rationalization and revenue mobilization should be calibrated to country circumstances. High-debt countries, in particular, might need to limit state-financed services, better target social spending, and explicitly integrate interest payment risks into fiscal planning. In high-debt low-income countries facing refinancing and rollover risks, international cooperation, timely concessional financing, and debt resolution might be needed.

Promoting Medium-Term Growth

Mobilizing labor. Policymakers should seek to raise labor utilization and job creation, which would also help ease macroeconomic trade-offs and support fiscal sustainability. Labor market institutions should promote mobility and increase matching efficiency, supported by measures that help workers reallocate and stay skill-ready for a job market reshaped by AI. Portable benefits across jobs and contract types, together with affordable childcare and parental leave, can raise labor market participation—particularly among women—and smooth income risks during transitions. Pension and retirement systems should support participation and well-being among

older workers through flexibility and actuarially fair incentives, including voluntary part-time work and gradual retirement options (see Chapter 2 of the April 2025 WEO). Migration policies aligned with domestic skill shortages can help alleviate bottlenecks while safeguarding domestic workers (see Chapter 3 of the April 2025 WEO).

Implementing smarter regulation. Reduction of inefficient regulations and constraints through well-targeted and carefully sequenced deregulation can lift impediments to entrepreneurship, investment, and innovation. Efforts should focus on promoting competition, broadening access to finance, and increasing the efficiency of capital allocation to stimulate risk sharing and productivity growth (see Chapter 3 of the April 2024 WEO). These measures, however, must not come at the expense of prudential standards or macrofinancial stability, as premature or uncoordinated reforms could heighten vulnerabilities and trigger destabilizing boom-bust cycles.

Harnessing technological progress. Digitalization and AI can accelerate productivity growth and expand potential output. To fully capture the associated gains, complementary measures are needed, including investments in skills, energy, and digital infrastructure; competitive markets; and robust frameworks for data governance and cybersecurity (Gopinath 2023). Policies that encourage the diffusion and adoption of new technologies should accompany traditional support for research and development, while competition and product market reforms can facilitate the reallocation of resources toward more productive firms. Where trade or technological shocks are concentrated, targeted and time-bound adjustment assistance, including training, relocation support, and wage insurance, is preferable to open-ended protectionist measures.

Fostering energy transition. Adoption of renewable and energy-efficient systems can deliver multiple benefits, supporting economies in facing both the current challenges and longer-term ones. Actions to accelerate energy transition can help contain the impact on energy prices and enhance resilience to future shocks by improving energy security. They can also bring climate change mitigation goals within closer reach and prepare countries for increased risks from climate-change-related extreme weather events.

Addressing domestic imbalances. Taking actions to correct domestic imbalances helps lay a foundation for sustainable growth at home. Incidentally, it also helps on the external front by reducing global imbalances (see the 2025 *External Sector Report;* IMF 2026a). Hence, it is one of those rare cases in which policy actions can deliver on two fronts rather than impose trade-offs. In China, continued progress toward a more consumption-led growth model would help narrow external surpluses. Near-term fiscal support should focus on boosting household consumption and stabilizing the property sector, while medium-term sustainability will require addressing the overhang of local government debt. In the United States, credible fiscal consolidation would help moderate demand pressures and limit associated global spillovers. In the EU, further deepening of the single market, alongside growth-enhancing reforms to stimulate private investment, would support more resilient and sustainable growth.

Restoring Predictable International Economic Rules

Advancing efforts to resolve tensions and promote trade. Clear, transparent, and coherent trade policy frameworks are essential to reduce uncertainty, limit volatility, and anchor expectations. Pragmatic cooperation can be critical for containing adjustment costs and lowering distortive

barriers to trade and investment flows. This includes safeguarding key global commons and updating international rules to reflect structural shifts in the global economy—including a growing share of services—and to align with policies that bolster job growth, the green transition, or supply-chain resilience. Modernization of trade rules should be targeted and proportionate, focusing on clearly identified cross-border spillovers and respecting legitimate prudential objectives. Negotiations at bilateral, regional, and plurilateral levels should aim to reduce frictions, remain open to new participants, and avoid discriminatory provisions that raise barriers to third parties. They should also steer clear of distortive arrangements—such as purchase commitments and quantitative restrictions—that are unlikely to address external imbalances stemming from domestic saving and investment dynamics. Policymakers should also avoid export controls and barriers to cross-border trade that would exacerbate supply disruptions, including those associated with the war in the Middle East.

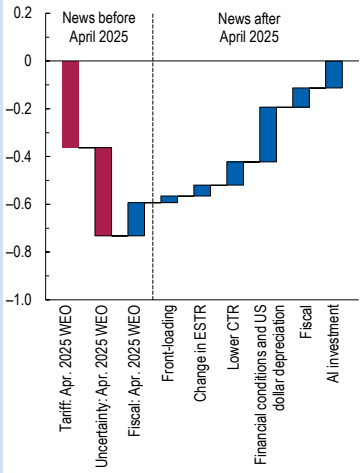
Promoting effective international cooperation. International cooperation will be essential in addressing both the immediate threats from the Middle East conflict and longer-term challenges. In countries facing refugee inflows, integration support should be adequately funded with strong international contributions rather than be left to host countries, which may not have the fiscal space to support it. Access to emergency liquidity, including that provided through IMF facilities, is a crucial backstop against international financial spillovers. For some countries at risk of debt distress, liquidity support will not suffice, and a timely and orderly debt resolution process is the best way to contain the economic fallout. Continued progress in operationalizing international sovereign debt resolution mechanisms—including the Group of Twenty (G20) Common Framework—and greater convergence of practices through the Global Sovereign Debt Roundtable can make necessary restructuring more predictable and less costly.

Box 1.1. Explaining the Resilience of Global Growth in 2025

Higher tariffs and policy uncertainty were projected to have a significant impact on global activity in 2025. In the April 2025 *World Economic Outlook* (WEO) reference forecast—the first WEO projections to incorporate these two factors—global growth was projected to slow by 0.5 percentage point to 2.8 percent in 2025. Eventually, global GDP growth was 3.4 percent in 2025, 0.6 percentage point stronger than expected.

The resilience of global growth reflects not only forecast errors and other unobserved variables, but also a combination of factors that included lower tariffs than announced in early April 2025 and tailwinds such as fiscal policy, financial conditions, and artificial intelligence (AI) investment. While the WEO global growth forecast is the outcome of a bottom-up exercise, simulations conducted using the IMF's Global Integrated Monetary and Fiscal (GIMF) model provide a top-down perspective on what mattered and by how much.

Figure 1.1.1. News in 2025 and World GDP Growth
(Percent)



Source: IMF staff calculations.
Note: AI = artificial intelligence; CTR = collected tariff rate; ESTR = effective statutory tariff rate; WEO = *World Economic Outlook*.

Headwinds as Projected in April 2025

The April 2025 WEO reference forecast was based on information available up to April 4, 2025. It incorporated a rise in the statutory US tariff rate to about 25 percent, alongside countermeasures from Canada and China. Trade policy uncertainty had also increased markedly, contributing to weaker investment incentives and tighter financial conditions. These were only partly offset by fiscal stimulus announced in China and Germany. Taken together, these factors reduced global growth by 0.6 percentage point in 2025, close to the downward revision in the April 2025 WEO (Figure 1.1.1).

Tailwinds since April 2025

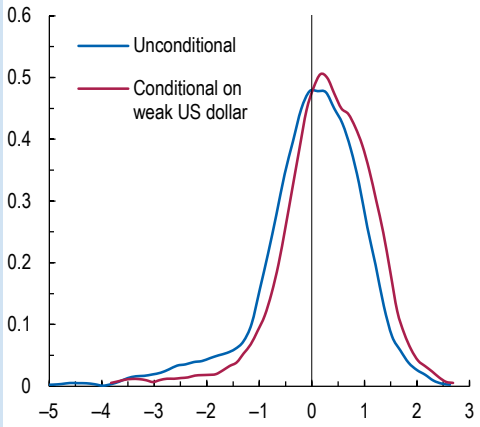
Reduced impact of tariffs. US firms and households *front-loading* foreign goods purchases in early 2025 in anticipation of higher tariffs and prices provided a small temporary boost to activity in some economies. The *effective statutory tariff rate was reduced* to about 18 percent by the end of the year, reflecting bilateral trade agreements and the introduction of exemptions. Countermeasures by trading partners were also scaled back. The actual *collected tariff rate* has been persistently below the effective statutory tariff rate (Gopinath and Neiman 2026) and was about half the announced rate in December 2025. While the gap may partly reflect shipment lags, which ought to dissipate, other factors such as greater use of preferential trade agreements and shifts in the composition of imports may prove more persistent and reflect the adaptability of the private sector.

The author of this box is Chris Jackson.

Box 1.1 (continued)

Accommodative financial conditions. Despite an initial tightening in April, financial conditions eased over the remainder of 2025: Equity prices rose while sovereign spreads narrowed in many emerging markets. This may have reflected some abatement of the uncertainty shock and improved risk sentiment, including that around AI. The US dollar depreciated by 6 percent between April 1 and the end of December, in contrast to the appreciation typically expected after a persistent increase in US tariffs. While the sources of this depreciation—including an increased risk premium on the US dollar and hedging demand—may have reflected medium-term risks, it provided near-term monetary policy space and strengthened balance sheets in emerging market and developing economies (Juselius, Wooldridge, and Xia 2025) and boosted competitiveness in economies with currencies pegged or closely linked to the US dollar. Historically, a weaker US dollar is associated with stronger GDP growth in emerging markets (Figure 1.1.2).

Figure 1.1.2. Correlation between US Dollar and Emerging Market Growth
(Density)



Sources: Bloomberg Finance L.P.; and IMF staff calculations.
Note: "Weak US dollar" is defined as a depreciation of at least 5 percent in Bloomberg's US dollar index (USDX) during 2020, with GDP growth measured as the one-year-ahead outcome following the depreciation. Both unconditional and conditional series are estimated over 1990–2025. The density functions are computed using the Epanechnikov kernel method.

Fiscal support. In addition to the major fiscal packages incorporated in the April 2025 WEO, the United States passed the One Big Beautiful Bill Act in July 2025, which also renewed expiring provisions in the 2017 Tax Cuts and Jobs Act, providing support to activity in 2025.

Investment in artificial intelligence. Technology investment, related to AI, added an estimated 0.5 percentage point to US GDP growth in 2025. The import-intensive nature of this investment implied large spillovers to some parts of the world, notably Asia. The estimates of the boost from AI since April 2025 do not include an impact on general productivity from the adoption of AI by other businesses.

Tallying the Net Effect

Together, these factors added an estimated 0.6 percentage point to global growth in 2025, close to the upward revision in the latest forecasts compared with those in the April 2025 WEO. About a quarter of the gain came from a lower-than-expected impact of tariffs, while the remainder came from other tailwinds. These factors offset the headwinds incorporated in the April 2025 WEO, with the total impact close to zero. This is somewhat below the upward revision of 0.2 percentage point to the growth forecast compared with that in the October 2024 WEO, suggesting that, alongside these factors (and the usual errors and other unobserved variables that typically explain the divergence of actual outcomes from forecasts), there may be other country-specific factors at play.

Box 1.1 (continued)

A Revival in US Productivity?

In the United States, acceleration in productivity growth since the pandemic is an additional factor that could explain the positive growth surprises. Growth in output per hour worked has shown strength both relative to that in other economies (Chapter 1 of the April 2025 WEO) and relative to its own history (Jefferson 2026), averaging 2.2 percent every year since 2020 compared with a 1.5 percent annual pace over the previous business cycle (2009–19).

While some of this strength may reflect one-off factors, other drivers may signal longer-lasting, structural shifts (Cline, Kahn, and Rich 2025). Investment in labor-saving technologies during pandemic-era labor shortages, as well as reallocation of labor across sectors and increased flexibility to work remotely, may have brought efficiency gains. The surge in new business formation during the pandemic may have changed the composition of businesses toward more innovative and more productive types and bolstered competition (Dao and Platzer 2024). Fiscal policy over the past few years has supported investment in infrastructure and increased tax incentives for private investment. Measurement challenges associated with a concept that is not directly observable aside, compositional issues such as removal of lower-wage workers from the workforce—along with temporary cyclical effects such as increased capacity utilization—could generate noise and significant revisions to past data (Fernald and Li 2024; Gimbel 2026). It may be too early, though, for the benefits of AI adoption to show up materially in the data. While AI adoption indeed correlates with faster productivity growth across sectors, it explains little of the aggregate gain in productivity (Çakır Melek and Miller 2026). AI may not be the major force behind stronger productivity growth yet—and is not part of the reference forecast—but may become so in the future as adoption of AI among sectors broadens.

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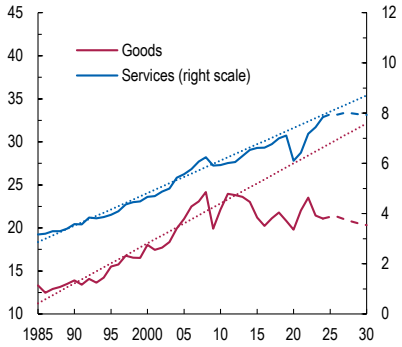
Box 1.2. Services Trade: An Emerging Engine for Global Growth

The growth of trade in services has outstripped that of trade in goods during recent decades. Between 1985 and 2024, services exports as a share of world GDP expanded by 150 percent, compared with 60 percent for exports of goods, defying the post-2008 "slowbalization" in goods trade (Figure 1.2.1). While goods still account for more than 70 percent of global trade, structural forces could push services trade higher in the years ahead.

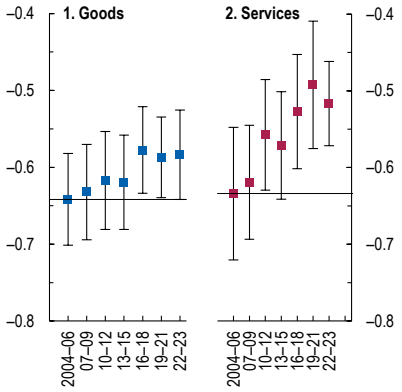
Figure 1.2.1. World Exports
(Percent of world GDP; dotted = pre-GFC trend; dashed = April 2026 WEO reference forecast)



Source: IMF staff calculations.
Note: Dotted lines represent respective linear trends based on 1985–2008 data prior to the global financial crisis (GFC). Dashed lines 2025 and on represent April 2026 WEO reference forecasts. WEO = *World Economic Outlook*.

For one, geography is becoming less of a barrier to services trade. Despite improvements in transportation technologies, distance remains a powerful force in shaping goods trade (Disdier and Head 2008). A simple gravity model—regressing bilateral trade on market size and distance—explains about 63 percent of the variation in goods trade patterns in 2019, a percentage comparable to that for the early 2000s. While services trade remains harder to measure than goods trade, evidence from a new research dataset tells a different story for services (Figure 1.2.2). In the early 2000s, a 1 percent increase in geographic distance was associated with a 0.63 percent decline in bilateral trade—the same as for goods. This had fallen to 0.52 percent in 2022–23.

Figure 1.2.2. Impact of Geographic Distance on Bilateral Trade
(Percent)



Sources: Centre d'Études Prospectives et d'Informations Internationales; and IMF staff calculations.
Note: Based on repeated cross-sectional estimations of a structural gravity model with standard controls and importer and exporter fixed effects. Horizontal lines reflect the values in 2004–06 for each panel. Whiskers reflect 95 percent confidence bands. "Geographic distance" is the weighted average distance between trade partners' most populous cities. See Li and others (2025) for details.

Two forces are driving this change. First, the composition of services trade has shifted dramatically. Transportation and travel once dominated—both tightly bound to the physical movement of goods and people—but their share fell from about 70 percent in 2000 to less than 40 percent in 2023. Most recent growth has come from "modern services"—primarily financial, information technology (IT), and business services in broadly equal measure. These modern services are less constrained by distance. Second, advancements in information and communications technology, accelerated by the pandemic, have made previously nontradable services tradable (Baldwin 2016). Digital platforms, cloud computing, and remote delivery have reduced the need for proximity of suppliers and consumers and fundamentally altered what can be supplied across borders.

Services trade has also proved resilient to rising geopolitical tensions. Geopolitical distance

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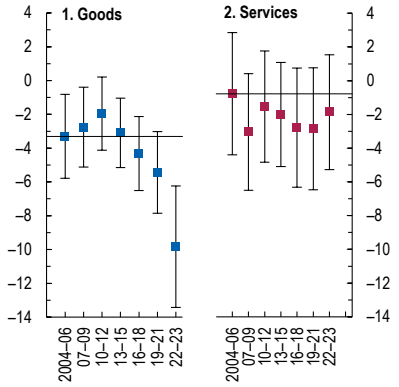
The authors of this box are Nan Li and Robert Zymek.

Box 1.2 (continued)

between countries—measured by the degree of their disagreement in UN General Assembly voting—adversely affects their bilateral goods trade intensity, and this effect has intensified since 2016 (Figure 1.2.3). There is no similar trend for services trade. While some modern services—most notably IT and intellectual property licensing—show some sensitivity to geopolitical alignment, aggregate services trade remains largely unaffected, possibly because it is harder to target services trade with traditional protection tools such as tariffs, quotas, and import bans.

Figure 1.2.3. Impact of Geopolitical Distance on Bilateral Trade
(Percent)



Sources: Centre d'Études Prospectives et d'Informations Internationales; and IMF staff calculations.
Note: Based on a panel estimation of a structural gravity model with standard controls; importer-time, exporter-time, and importer-exporter fixed effects; and a time-varying coefficient on geopolitical distance. Horizontal lines reflect the values in 2004–06 for each panel. Whiskers reflect 95 percent confidence bands. "Geopolitical distance" is measured as the ideal-point distance between trade partners. See Li and others (2025) for details.

The untapped potential is particularly large for emerging markets. Although services have accounted for two-thirds of GDP growth in these economies over the past three decades, this growth has been domestic rather than export led (Kose and Ohnsorge 2024). The structure of global trade networks illustrates this pattern. While goods trade is dominated by the world's largest economies—the United States, China, Germany, and Japan—with strong geographic clustering, services trade is more concentrated among advanced economies. The United States remains central, but smaller advanced economies such as Ireland and The Netherlands play a larger role than would be expected given their economic size. Meanwhile, emerging markets that are major players in goods trade, such as China, occupy a much smaller position in services trade. This presents both an opportunity and a challenge: Economic size and geography matter less, providing an opening for smaller, distant economies, yet despite some recent growth, many emerging markets remain peripheral to global services flows (Li and others 2025).

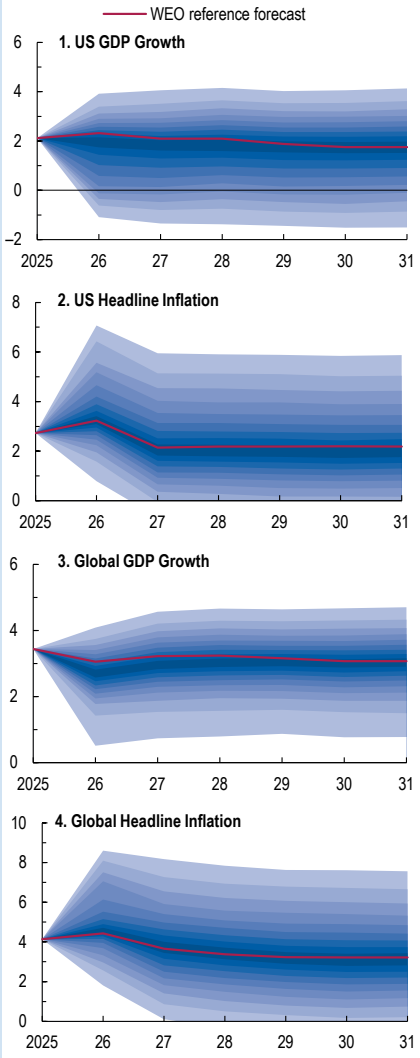
The potential gains from services trade can be substantial. Services exporters are more productive and pay higher wages than nonexporters, offering better jobs (Breinlich and Criscuolo 2011). Firms that export both goods and services outperform those focusing on goods alone (Ariu, Mayneris, and Parenti 2020; Berlingieri, Marcolin, and Ornelas 2025), suggesting that services exports can reinforce manufacturing development. Digital transformation creates leapfrogging opportunities by reducing reliance on traditional physical infrastructure.

Realizing these benefits requires addressing trade barriers. Unlike goods trade, in which tariffs are a major obstacle, services trade faces a range of barriers relating to infrastructure, skills, and behind-the-border regulatory barriers: restrictions on foreign ownership, licensing requirements, local-presence requirements, and regulatory standards. These regulatory barriers can be eased through multilateral efforts or deeper bilateral and regional integration frameworks. Complementary investments in digital infrastructure, skills development, and regulatory quality can help countries better capture the gains from expanding services trade.

Box 1.3. Risk Assessment Surrounding the Reference Forecast

This box uses the IMF's Group of Twenty (G20) model to derive confidence bands around the *World Economic Outlook* (WEO) reference forecast and the IMF's Global Integrated Monetary and Fiscal (GIMF) model to assess the impact of plausible shocks and policies that are not included in the current reference forecast. Three scenarios are considered: (A) a deepening of the divergent forces currently shaping the outlook; (B) a reversal of the ongoing boom related to artificial intelligence (AI), coupled with a global risk-off episode; and (C) a reform scenario. Scenario A is neutral for activity over the WEO horizon but deepens global imbalances; scenario B is negative for activity but reduces imbalances; and scenario C is positive for activity and reduces imbalances. These scenarios are distinct from and complement the commodity shock scenario presented in the chapter text.

Figure 1.3.1. Forecast Uncertainty around Global Growth and Inflation Projections
(Percent)



Source: IMF staff estimates.
Note: Each shade of blue represents a 5 percentage point probability interval. WEO = *World Economic Outlook*.

Confidence Bands

The G20 model is used to generate distributions around the reference forecast by drawing on shocks recovered from the historical data (Andrle and Hunt 2020). By oversampling years with negative shocks to growth, the distribution is tilted to align with the growth-at-risk assessment presented in the April 2026 *Global Financial Stability Report;* prominence has been given in this exercise to historical oil price episodes of the 1970s.

Panels 1 and 2 in Figure 1.3.1 show the resulting distributions for US growth and headline inflation. The probability that a recession will occur in 2026—corresponding to an annual growth rate below 1 percent, consistent with a relatively mild recession like that in 2001 and starting in the second quarter—is assessed at about 35 percent, somewhat higher than the recession probability estimated in the October 2025 WEO (at 30 percent). The probability that 2026 US headline inflation will rise above 4 percent is considerably higher, about 33 percent, compared with 17 percent in October 2025.

The authors of this box are Jared Bebee, Benjamin Carton, Chris Jackson, Gene Kindberg-Hanlon, Dirk Muir, Rafael Portillo, Pedro Rodriguez, Philippe Wingender, and Rachel Zhang.

Box 1.3 (continued)

Panels 3 and 4 in Figure 1.3.1 show the distributions for global growth and headline inflation. While additional quarterly data should have reduced forecast uncertainty relative to the October assessment, the probability that global growth in 2026 will fall below 2 percent has not changed and remains elevated at 25 percent, reflecting increased risks to activity in the remainder of the year. The probability that 2026 global headline inflation will rise above 5 percent is considerably higher at 38 percent (25 percent). In summary, downside risks to growth and upside risks to inflation have increased relative to October 2025.

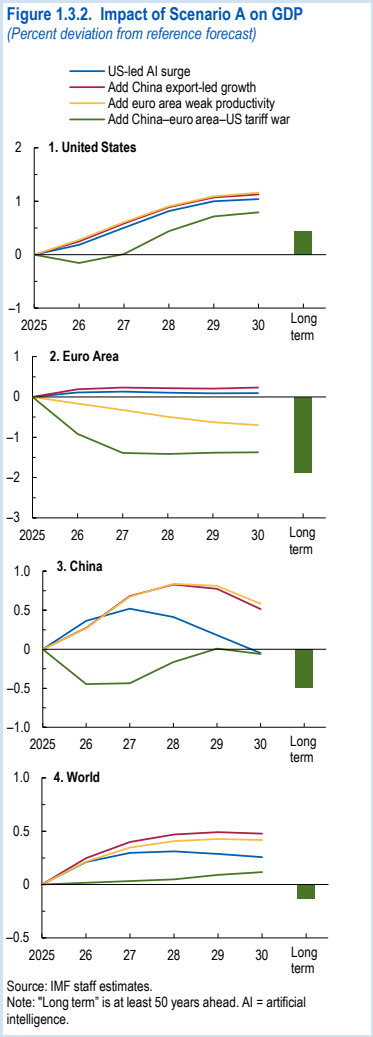


Figure 1.3.2. Impact of Scenario A on GDP
(Percent deviation from reference forecast)

Source: IMF staff estimates.
Note: "Long term" is at least 50 years ahead. AI = artificial intelligence.

Scenarios

The scenarios assume that monetary policy responds endogenously, with floating exchange rates in most regions. In scenarios A and B, China's currency adjustment is limited. In scenario C, the renminbi adjusts flexibly. Automatic stabilizers operate on the fiscal side. Layers whose names are identified with an asterisk in the following discussion are similar to layers considered in either April or October 2025.

Scenario A: The Divide Widens

Adoption of AI in the United States deepens, triggering an additional surge in US business investment to capture higher-than-expected productivity from AI technologies. The surge is concentrated in computing and in infrastructure. Investment rises 5 percent above the reference forecast by 2030 and stays 2 percent higher beyond that. Because many AI-related capital goods are sourced from emerging Asia, the import intensity of US investment increases.

The *unbalanced nature of economic activity in China* becomes more pronounced. The scenario considers a stylized policy mix that incentivizes industrial production but hampers consumption. Subsidies for employment in the tradables sector gradually increase by 4 percent of GDP over the WEO horizon, relative to the reference forecast, offset by lower transfers to households. Subsidies result in a gradual loss of productivity in the tradables sector (0.5 percent).

*Lower productivity in Europe** gets entrenched. Starting in 2026, total factor productivity growth in the euro area picks up less than expected and is 0.1 percentage point lower per year over five years, relative to the reference forecast. Investment-specific productivity growth declines by 0.05 percentage point per year over the same period. Productivity growth returns to the level in the reference forecast after 2030, but the effect on productivity is permanent.

Box 1.3 (continued)

Lackluster growth prospects result in a persistent increase in the private saving rate, by 1 percentage point by 2030.

The above layers trigger a *ratcheting up in tariffs* among China, the euro area, and the United States. Starting in mid-2026, these three regions permanently impose additional tariffs of 20 percentage points on all trade among them.

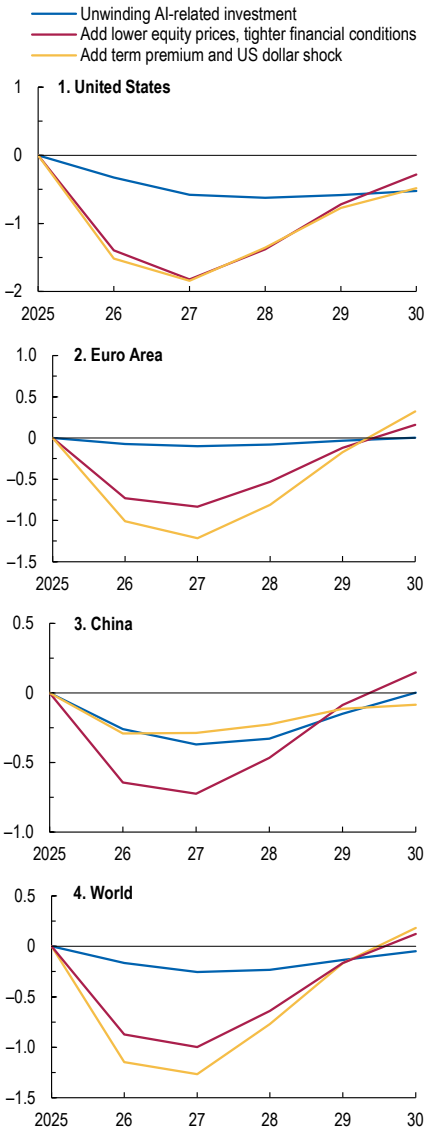
Scenario B: AI Disappoints, Risk Off Ensues

A reappraisal of expected productivity gains from AI leads to a sharp *decline in real investment in the technology sector*. The decline is concentrated in the United States. The fall in total investment, of 3 percent in 2026 relative to the reference forecast, unwinds the recent run-up in technology-related investment. The direct decline in investment elsewhere is more limited, but as in scenario A, the import intensity of investment is higher than usual.

The scenario also includes a layer of *lower asset prices and tighter financial conditions*. Equity prices in the United States fall by 20 percent in 2026, about half the size of the correction after the dot-com bubble burst in the early 2000s. Equities outside the United States fall by 15 percent, given lower exposure to the technology sector. The correction triggers a broader tightening in financial conditions and a loss of risk appetite. Corporate risk premiums temporarily rise 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.

The 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. Finally, the concentration of the shock in the United States manifests as *less appetite for US assets* and puts downward pressure on the US dollar. These shocks are assumed to fade over the WEO horizon.

Figure 1.3.3. Impact of Scenario B on GDP
(Percent deviation from reference forecast)



Source: IMF staff estimates.
Note: AI = artificial intelligence.

Box 1.3 (continued)

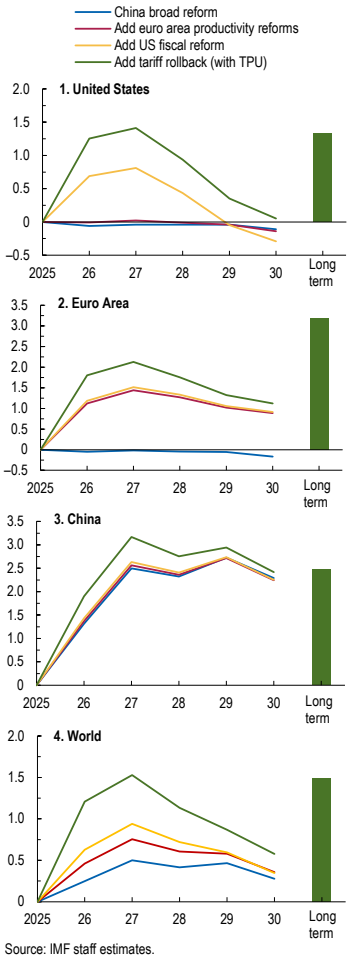
Scenario C: Reforms Reset Economies

In *China*, the reset involves a short-term fiscal expansion of about 0.5 percent of GDP, including higher social spending that elicits a reduction in the saving rate and measures to support residential investment, followed by a gradual consolidation. Industrial policy support is cut in half and coupled with efforts to increase business dynamism, boosting productivity (IMF 2026b).

In the *euro area,** public investment increases relative to the reference forecast. It reaches 1 percent of GDP by 2027, stays at that level until 2030, and remains permanently higher by 0.4 percent after that. Over the WEO horizon, about two-thirds of the surge in spending is financed by higher deficits. From 2030 onward, there is a reallocation of existing spending, such that debt ratios gradually return to their level in the reference forecast. Further progress toward the Capital Market Union results in a permanent reduction in corporate financing costs of 25 basis points.

The *United States** embarks on fiscal reforms to reduce inefficiencies from poorly targeted tax expenditures, shifts from labor to consumption taxes, and contains health care costs. Government consumption is also permanently reduced. Increases in fiscal sustainability lead to a reduction in the term premium of 50 basis points starting in 2026. The overall fiscal deficit gradually decreases by 1 percent of GDP after five years.

Figure 1.3.4. Impact of Scenario C on GDP
(Percent deviation from reference forecast)



Source: IMF staff estimates.
Note: "Long term" is at least 50 years ahead. TPU = trade policy uncertainty.

*Trade policies** also reset. Tariffs imposed since January 2025 are permanently removed, reducing effective tariff rates on US imports by about 10 percentage points relative to the reference forecast. Trading partners also remove tariffs on US exports, with US exports to China seeing a decrease in effective tariff rates of about 10 percentage points. Greater predictability in trade arrangements reduces uncertainty relative to the reference forecast. The reduction is about the absolute size of the spike observed in 2018–19 in the global economic policy uncertainty measure in Davis (2016).

Impact on the World Economy

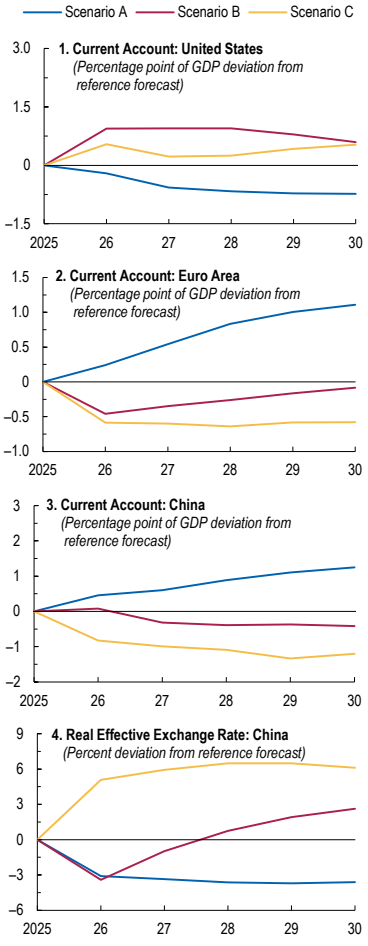
Figures 1.3.2, 1.3.3, and 1.3.4 present the effects, for scenarios A, B, and C, on the level of GDP during 2026–30 for China, the United States, the euro area, and the world. Figure 1.3.5 shows the effects of the scenarios on the current account balances of the three regions and on China's real effective exchange rate.

Box 1.3 (continued)

Scenario A

The *AI-driven surge* is moderately expansionary for the United States. GDP increases by 0.2 percent relative to the reference forecast in 2026 (0.5 percent in 2027). US investment increases by 2–4 percent in 2026–27, but a large part of the impulse goes to imports (2–3 percent). Higher absorption widens the US current account deficit; the dollar depreciates in real and nominal terms (about 3 percent). US inflation rises modestly, by 10–20 basis points. The increase in the federal funds rate is therefore small, less than 25 basis points by 2027. International spillovers are positive, with global output rising by 0.3 percent in 2026–27. Emerging Asia, as the direct recipient of much of the surge in US imports, experiences an increase in output of 0.3–0.4 percent. China also benefits in the short term, through supply chain linkages with the rest of Asia and because the management of the exchange rate with respect to the dollar implies that the renminbi depreciates in real terms.

Figure 1.3.5. Impact of Scenarios on Current Accounts and Exchange Rates in the United States, China, and the Euro Area



Source: IMF staff estimates.

Unbalanced activity in China translates into modest GDP gains, 0.5 percent by 2030, relative to the reference forecast. The policy mix widens imbalances in the tradables sector and the economy more broadly, as it reduces production costs but also constrains domestic demand. Export prices gradually fall, contributing to a decrease in China's terms of trade of 5 percent by 2030. Inflation declines, by 40 basis points by 2028, and the renminbi depreciates in real terms. Real exports increase, reaching 5.5 percent above the reference forecast by 2030, while imports decrease by 3 percent. The boost to activity is limited by the (small) decline in productivity and by subdued domestic demand. The latter is also reflected in an increase in the private saving rate, by 1 percent of GDP. China's current account surplus increases by a similar amount (from this layer alone). Spillovers to other regions are slightly positive but very small. Some manufacturing sectors outside China are negatively affected, while others benefit from cheaper intermediate goods. Investment in the rest of the world benefits from a small reduction in global real interest rates (less than 10 basis points).

Lower productivity in Europe reduces the region's GDP by 1 percent by 2030. Investment and consumption decline by 1.5 and 3 percent, respectively, over the same period. The impact on inflation and monetary policy is limited since demand falls in lockstep with potential. The euro area's current account surplus increases by 0.7 percent of GDP. International spillovers are limited.

Box 1.3 (continued)

The *tariff ratcheting* layer reduces global activity but does not affect imbalances. The impact on activity is largest for China and the euro area, about 0.75 percent in 2026; US GDP declines by 0.4 percent. Regions not directly tariffed benefit in the short term through trade diversion, but the medium- to long-term impact is uniformly negative across countries. Effects also build over time through lower capital accumulation. Tariffs reduce global output by 0.2 percent in 2026 and 0.7 percent in the long term. The impact on current accounts is negligible. Inflation in tariffed countries increases by 10–20 basis points in 2026–27, but disinflationary pressures dominate after 2027 and are most evident in China.

The *combined effect* from the scenario is clearly negative for the euro area, mildly negative for China, and mildly positive for the United States. While the impact on global activity is broadly neutral, the impact on imbalances is large. Current account surpluses in the euro area and China widen further. The United States experiences an equally large increase in its current account deficit.

Scenario B

The *AI correction* causes a decrease in US investment of 3–4 percent in 2026–27. Greater import intensity mitigates the direct impact on the United States somewhat, with GDP decreasing by 0.3 percent in 2026 and 0.6 percent in 2027, relative to the reference forecast. Activity in Asia (China, Japan, and emerging Asia) decreases by 0.2–0.4 percent of GDP, and global output decreases by 0.2–0.3 percent, in 2026–27.

The *correction in asset prices and tightening in financial conditions* amplify the shock. Wealth effects from lower asset prices lead to a decrease in US consumption of 1 percent of GDP in 2026. Effects on consumption in other countries are substantial, between 0.5–0.7 percent. The hit to investment is amplified by lower asset prices and higher corporate spreads. Global investment declines by about 1.5 percent, with the United States and emerging markets experiencing larger declines. This layer subtracts 0.6–0.7 percent from global output in 2026–27.

Additional *spillovers to sovereign bond markets and US asset demand* are shown together in Figure 1.3.3 but have different effects across countries. Higher term premiums subtract 0.3 percent from global GDP in 2026. Lower demand for US assets is instead globally neutral. It leads to a depreciation of the US dollar by 6 percent in nominal effective terms, supporting external demand for US exports but also adding to the tightening in US financial conditions. The positive effect of net exports slightly dominates for US GDP. China benefits from the depreciation of the US dollar through the management of its exchange rate. Other regions experience a decrease in GDP from lower external demand.

The *combined effect* from the scenario is a large decrease in US GDP, of 1.5 percent in 2026, relative to the reference forecast. Activity in the euro area declines by 1 percent, while the impact on China is milder (0.3 percent). Global activity is 1.2 percent lower. US inflation and policy rates are lower than those in the reference forecast, notwithstanding the depreciation of the US dollar. Finally, global imbalances are reduced over the WEO horizon. As the US

Box 1.3 (continued)

experiences a larger shock than other regions, and demand for US assets decreases, the US current account balance increases (its deficit decreases) by about 1 percent of GDP. The current account surpluses in China and the euro area decrease; in China, the immediate impact is mitigated by the temporary real depreciation of the renminbi (Figure 1.3.3).

Scenario C

The *reforms in China* lower the private saving rate by 2 percent, boosting private consumption; help rekindle residential investment over 2026–28; and raise long-term productivity and potential output by close to 2 percent. China's GDP increases by 1–2 percent over the WEO horizon, with domestic demand providing a boost to inflation (0.7 percent during 2027–30). The current account surplus decreases by 1.5 percent of GDP from this layer alone. A permanently lower saving rate reduces China's demand for foreign assets and, under exchange rate flexibility, accounts for the real appreciation of the renminbi in the scenario (Figure 1.3.5).

Euro area reforms raise GDP by 1–1.4 percent in 2026–27. Inflation increases by close to 30 basis points over the WEO horizon, with the policy rate increasing by 60 basis points over the same period. The buildup in public capital raises productivity and potential output. Spillovers to other regions are positive but small, and the region's current account surplus decreases.

US fiscal reforms reduce US public debt by 25 percent of GDP over the long term, increasing fiscal sustainability. The combination of growth-friendly measures and lower premiums lifts GDP by 0.7 percent in 2026–27. Inflation net of tax effects is slightly higher, as are policy rates. Lower fiscal deficits contribute to a decrease in the US current account balance.

Tariff rollback and reduced uncertainty raise global GDP by 0.6 percent in 2026, with effects broadly similar across countries. The *combined effect* of scenario C is an increase in global output of 1.2 percent by 2026 (1.5 percent in the long term) and a reduction in global imbalances.

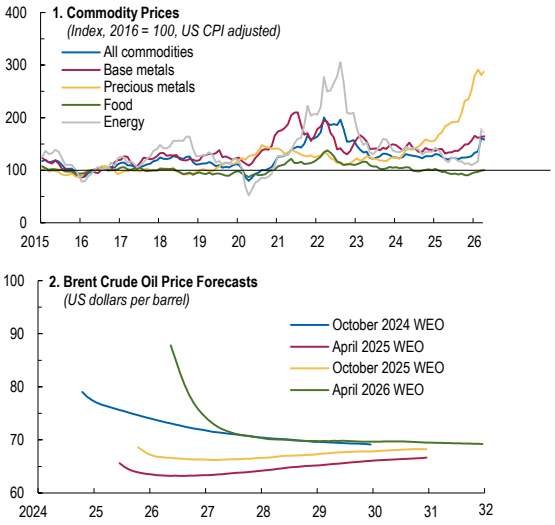
Commodity Special Feature: Market Developments and the Economics of Rare Earths

Compared with the October 2025 World Economic Outlook (WEO), the projections for commodity prices have been revised sharply upward. The military conflict in the Middle East has upended the outlook for energy and food as higher oil and gas prices increase the cost of fuels, petrochemicals, and fertilizers. Uncertainty surrounding the outlook for commodity prices remains very high, with risks tilted to the upside. A longer conflict than assumed in the WEO reference forecast would delay and substantially complicate the restoration of oil and gas production and exports to preconflict levels. At the same time, gold and other precious metal prices have retreated from their preconflict peaks. Despite elevated geopolitical uncertainty, retail investor profit taking—amid upward revisions to interest rate expectations and a stronger dollar—has reversed the near-parabolic gains recorded in the first two months of the year. Supply disruptions have driven base metal prices higher in markets already strained by strong demand and limited supply. Food prices have also increased as cereal prices have rebounded from historical lows, mainly as a result of growing weather concerns in large producing regions. Should the conflict linger on, higher transport and fertilizer prices, together with higher demand for biofuel feedstocks, could drive food prices higher. This Special Feature also examines the global implications of shortages in rare earth element markets, showing that such shortages could impose sizable GDP losses on importing countries. Avoiding trade tensions and restrictions remains the first-best outcome to promote a steady supply; de-risking supply chains through targeted industrial policies is fiscally costly, although less so if pursued simultaneously by various importers.

Commodity Market Developments

Oil prices increased 57.6 percent between August 2025 and March 2026 to $105.8 per barrel as a result of the military conflict in the Middle East. Oil prices spiked in March as oil shipments through the Strait of Hormuz—a critical choke point with few alternatives for rerouting—stopped, curtailing about 8.5 million barrels per day (mb/d) of crude oil exports. Usually, about 20 mb/d of oil, equivalent to 20 percent of daily global oil consumption, flow daily through the strait, of which 15 mb/d is crude oil. Major oil-producing facilities were also shut down as a precaution or as storage ran out or was damaged. Global strategic and commercial inventories, standing at a five-year high of 8 billion barrels, offer only a partial buffer.

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 1, latest actual CPI value is applied to forecasts, represented by the dashed portions of the graph lines. In panel 2, expiration dates are on the *x*-axis. CPI = consumer price index; WEO = *World Economic Outlook*.

The contributors to this Special Feature are Christian Bogmans (co-lead), Patricia Gomez-Gonzalez, Jorge Miranda Pinto, Jean-Marc Natal (team lead), and Andrea Paloschi, with research assistance from Francis Cuadros Bloch, Maximiliano Jerez Osses, and Joseph Moussa. The Special Feature is based on Bogmans, Cuadros Bloch, and others (forthcoming) and Bogmans, Jerez-Osses, and others (forthcoming).

After reaching a peak of $119 on March 10, Brent prices retreated following first communication by the US administration that it expected the conflict to be short-lived and then the announcement of a ceasefire. The situation remains fluid and uncertainty is high. The futures curve is in steep backwardation (higher spot prices than futures prices), indicating supply disruptions and elevated geopolitical risk (Figure 1.SF.1, panel 2). If the conflict drags on, prospects of quickly restoring maritime transit and energy production to prewar levels diminish, with obvious ripple effects on refined product prices.

Middle East supply disruptions put upward pressure on European and Asian natural gas prices. Title Transfer Facility (TTF) trading hub prices in Europe rose by 61 percent between August 2025 and March 2026, peaking at $17.7 per million British thermal units (MMBtu). Asian liquefied natural gas (LNG) prices surged to $20.8 per MMBtu—an 80.6 percent increase since August 2025—as more than three-quarters of global LNG shipments through the strait (a fifth of global seaborne LNG) are destined for Asia. Prospects for a quick recovery of gas production and exports after the conflict have dimmed dramatically following strikes on the Iranian South Pars gas field, which prompted retaliatory strikes on Persian Gulf energy facilities, including Qatar's Ras Laffan gas field on March 18. At the same time, US Henry Hub prices rose by only 4.9 percent to $3 per MMBtu, as US LNG exporters are close to capacity, limiting the diversion of domestic gas production to LNG plants. Futures markets for TTF are in steady backwardation, reaching $7.5 per MMBtu through 2031, thanks to an expected doubling of US export capacities by 2027. Henry Hub futures prices are expected to hover around $3.5 per MMBtu through 2031.

Retail traders unwound part of their bets on rising prices for precious metals, while supply disruptions put upward pressure on base metal prices. The IMF's metals price index jumped 36.6 percent between August 2025 and March 2026. Prices for precious metals led the surge, with gold up 44.4 percent and reaching record prices exceeding $5,000 per ounce as investors sought safe haven assets amid rising geopolitical uncertainty and persistent concerns about the dollar. These dynamics pushed demand for exchange-traded funds (ETFs) for gold to record highs, alongside still-robust central bank purchases. Since the onset of the conflict, however, broad-based profit taking across precious metals—amid upward revisions to interest rate expectations and a stronger dollar—has triggered a sharp correction, bringing gold prices back to their levels at the start of the year. At the same time, supply disruptions have led the increase in the price of base metals. Copper prices surged 29.5 percent following mining accidents in Chile and Indonesia, while aluminum increased 29.8 percent following the shutdown of smelters in Iceland, Mozambique, and the Middle East (which accounts for roughly 9 percent of global aluminum production). Futures markets for base metals suggest further price increases in 2026, indicating resilient demand amid still-fragile supply.

Rising food prices outweighed falling beverage prices, lifting the IMF's food and beverages price index by 4.7 percent between August 2025 and March 2026. Beverage prices plunged by 24.8 percent, led by a 57.4 percent drop in cocoa prices as favorable weather in West Africa boosted supply and inventories while global demand softened. Coffee prices fell by 9.9 percent following a record Brazilian harvest and improving supply conditions in Vietnam. In contrast to beverage prices, food prices are expected to increase by 6.0 percent in 2026. Cereal prices rebounded from historical lows in

the first quarter of 2026 owing to growing weather concerns in key producing regions, while futures prices suggest that higher fuel prices are expected to boost demand for biofuel feedstocks such as soybean oil. Should the conflict linger on, higher transport and gas-derived fertilizer prices, together with higher demand for biofuel feedstocks, could drive food prices much higher—particularly those for cereals.

The Economics of Rare Earths: Global Impact of Shortages and Industrial Policy

Motivation

Since 2020, successive waves of trade restrictions imposed by all major economic blocs have harmed international cooperation and growth. In April 2025, shortly after the US imposed sizable tariffs on most of its trading partners, China—the world's top producer of rare earth elements (REEs)—introduced export licensing requirements for seven REEs and REE-based permanent magnets, causing temporary but serious supply disruptions for manufacturers worldwide.

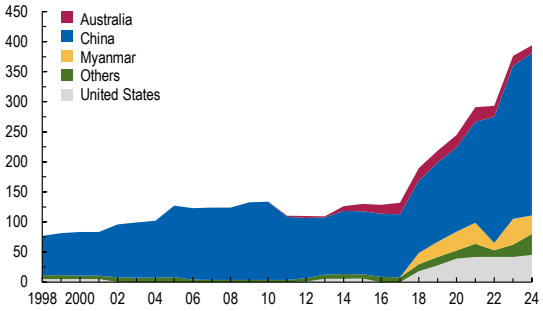
Like other hard-to-substitute inputs in high-technology manufacturing, produced through geographically concentrated supply chains, REE supply chains are structurally vulnerable. Tensions around these critical inputs have heightened economic security concerns and accelerated efforts to reshore and diversify imports of REE production.

As manufacturing regains strategic importance, understanding the economics of rare earths has become increasingly urgent. This Special Feature addresses two questions: (1) *What would be the macroeconomic impact of a major REE supply disruption across sectors and countries*? and (2) *What would it cost to sufficiently de-risk the REE supply chain over the next decade?*

Foundations: Rare Earths Market Structure

REEs are a group of 17 chemically similar metals, typically divided into two categories based on atomic weight: *light rare earth elements* (LREEs) and *heavy rare earth elements* (HREEs), substantially less abundant in the earth's crust than LREEs. REEs possess unique chemical and physical properties—including exceptional magnetism and catalytic enhancement—that make them valuable inputs across electronic, magnetic, optical, and catalytic applications. They are used in small quantities and are essential for automotive manufacturing (especially electric vehicles), renewable energy, oil refineries, defense systems, semiconductors, and consumer electronics. Arguably the single most important application for rare earths is *permanent magnets*—invented in 1983 by General Motors—in which as many as four REEs are combined with iron and boron to create a highly magnetic alloy that maintains its properties at elevated temperatures. These

Figure 1.SF.2. Rare Earth Mining by Country 1998–2024
(Thousands of metric tons per year, in TREO equivalents)



Sources: Nassar and others 2023; National Minerals Information Center, US Geological Survey, "Rare Earths Statistics and Information"; US Geological Survey; and IMF staff calculations.
Note: TREO = total rare earth oxide.

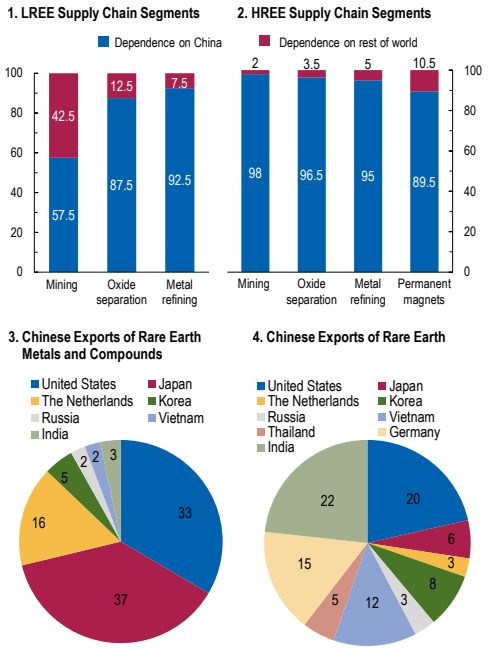
permanent magnets convert electricity into motion (or vice versa), making them central to both the clean energy transition and advanced manufacturing.

REEs constitute a relatively small commodity market, with rare earth oxides (REOs) valued at about $6 billion and permanent magnets at approximately $25 billion in 2024 (Market Data Forecast 2025). As such, the economics of rare earths are increasingly driven by just 4 of the 17 elements: the LREEs neodymium and praseodymium and the HREEs terbium and dysprosium. These "magnet-4" elements jointly comprise 96 percent of the total REO[1] market value despite representing only 23 percent of REO production by weight.[2]

The rare earth supply chain involves multiple specialized stages: mining, concentration, separation of chemically similar elements through solvent-based extraction, and refining to metals or alloys. The resulting metals or alloys then serve as inputs for downstream manufacturers, including permanent magnet producers. The separation stage is particularly technically demanding, requiring hundreds of sequential processing steps, and it is also a pollution-intensive process. Establishing new capacity for *separation* and *refining*—the main stages of REE processing—requires billions in capital investment, years of regulatory approval, and specialized technical expertise, making rapid diversification of processing capacity extremely difficult.

Technical expertise acquired over decades, established infrastructure, differences in environmental and labor regulations, and subsidies made China the dominant world producer of REEs during the 2000s. Today, China's dominance varies significantly by rare earth type and supply chain stage. In regard to LREEs, diversification in mining reduced China's share of global output from 97 percent at its peak in 2010 to 58 percent in 2024 (Figure 1.SF.2), but China maintains 88 percent of the world's oxide separation capacity and 93 percent of its metal refining. With respect to HREEs, China retains a near monopoly across the entire global supply chain: 98 percent of mining (including mining out of Myanmar; Figure 1.SF.3, panel 2), 97 percent of oxide separation, 95 percent of metal refining, and 90

Figure 1.SF.3. Average Import Dependence on China by Rare Earth Supply Chain Segment
(Percent)



Sources: Bedford 2025; World Bank, World Integrated Trade Solution (WITS); and IMF staff calculations.
Note: Data for panels 1 and 2 are based 2023–24 production, synthesized in Bedford (2025). Data for panels 3 and 4 are from 2024 from WITS. HREE = heavy rare earth element; LREE = light rare earth element.

[1] "Total REO" represents the sum of all individual rare earth oxides (REOs) contained in mined material. It provides a consistent measure for comparing rare earth output across mines, deposits, and countries.

[2] This extreme value concentration reflects both strong demand for permanent magnets—the largest and fastest-growing application, consuming 83 percent of the value of all REOs—and the natural composition of rare earth deposits, which yield lower-demand elements like lanthanum and cerium in far greater proportions than the higher-demand magnet elements neodymium, praseodymium, terbium, and dysprosium.

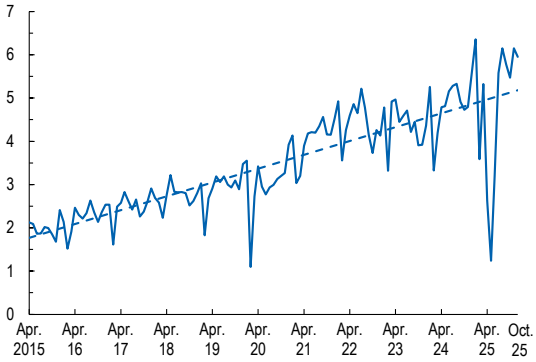
percent of permanent magnet production (Bedford 2025).[3]

This concentration creates potential *choke points* in the supply chain.[4] While the geographic concentration in HREE mining constitutes an important potential choke point, the *separation* and *refining* stages constitute the most binding bottlenecks, as nearly all rare earth concentrates, regardless of origin, flow through Chinese processing facilities. Permanent magnet manufacturing represents yet another stage in the supply chain in which China holds a dominant market share (90 percent). However, this segment faces lower barriers to capacity expansion: Multiple established magnet producers already operate in Japan, the United States, and Europe, though typically at a smaller scale than in China (Figure 1.SF.3).[5] In many applications REEs are not truly irreplaceable: Substitutes often exist but come with penalties in terms of efficiency, weight, size, or cost. Research suggests that the possibilities of substituting for HREEs are significantly weaker than those of substituting for the average element, with HREEs scoring 78 out of 100 on a substitutability index (on which 100 indicates no adequate substitute exists), compared with 57 for non-REEs (Graedel and others 2015). While certain rare earths have no substitutes, others may be partially replaced by inferior alternatives given enough time and resources.

Macroeconomic Impact of Supply Disruptions

Following a special licensing requirement introduced by China—mainly for HREEs and related products, including permanent magnets—on April 4, 2025, there was a sharp global slowdown in permanent magnet exports between April and June. Exports of these magnets had fallen about 70 percent year over year as of May 2025, indicating a system-wide disruption that extended beyond formally controlled products, but proved short-lived, with monthly Chinese export volumes quickly returning to their positive trend and displaying double-digit year-over-year growth rates (Figure 1.SF.4). In October 2025, China announced further tightening of its REE licensing requirements, which were later suspended in November under a China-US agreement. In January 2026, China restricted HREE exports to Japan. Despite these developments, strong REE export growth continued in

Figure 1.SF.4. China's Exports of Rare Earth Permanent Magnets and Rare Earth Magnet Components Intended for Permanent Magnet Production
(Thousands of metric tons; dashed = trend)



Sources: General Administration of Customs of the People's Republic of China (GACC); Hong Kong Trade Development Council, China Customs Statistics; and IMF staff calculations.
Note: Data are from the series "CN: Export: HS 8: Permanent Magnets or Articles Going to Be Permanent Magnets, of Rare-Earth Metals," Code HS 850511.

[3] By industry convention, Myanmar's heavy rare earth element (HREE) mining output is often consolidated with China's, reflecting the integration of the two countries' rare earth sectors through upstream investment and downstream processing links.

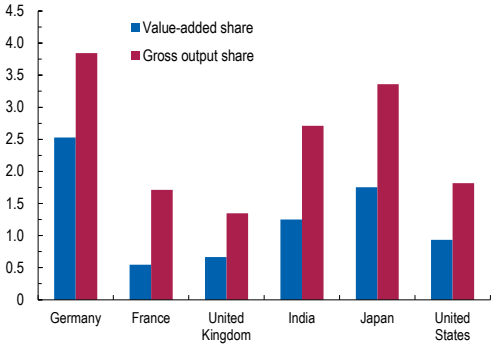
[4] A choke point emerges when three conditions align: extreme geographic concentration in a single country, potential for disruption, and barriers to rapid diversification.

[5] With China's consumption of REEs, which amounts to 50–60 percent of its production, taken into account, China's market domination is somewhat less apparent. This is especially the case in regard to light rare earth element (LREE) mining, of which China absorbs most of its production at home. For all other supply chain stages, however, dependence on China remains high (74–96 percent of total imports are sourced in China). See Online Annex 1.1, Part I. All online annexes are available at www.imf.org/en/Publications/WEO.

January and February 2026. Policymakers in import-dependent countries grew increasingly concerned about the macroeconomic consequences of potential supply disruptions. Notwithstanding REEs' relatively small market size, their use unlocks trillions of dollars in downstream value creation across sectors globally.

IMF staff analysis of US Geological Survey data shows that rare earths are used as inputs in 34 of the 405 sectors of the US economy (Nassar and others 2025). These sectors jointly added $233 billion in goods and services value in 2017, equivalent to 0.8 percent of nominal GDP. The estimated share of value added dependent on rare earths is similarly substantial in other advanced economies and major emerging markets: France (0.4 percent), Germany (2.5 percent), India (1.3 percent), Japan (1.7 percent), and the United Kingdom (0.6 percent). These estimates show that REE exposure varies substantially across countries, with the variance driven by differences in sectoral composition and the relative importance of REE-intensive industries such as automotive manufacturing, renewable energy, and electronics manufacturing (Figure 1.SF.5).

Figure 1.SF.5. Value Added and Gross Output at Risk
(Percent of goods and services using rare earth elements as inputs)



Sources: Organisation for Economic Co-operation and Development (OECD), Input-Output Tables; Nassar and others 2025; and IMF staff calculations.
Note: Calculations are based on Nassar and others (2025), which provides industry-specific measures of gross output dependence on rare earths at the Bureau of Economic Analysis 405 × 405 detailed input-output level. These dependence measures are first mapped onto the US input-output structure and then translated to the OECD industry classification input-output with 50 sectors from 2017. Using the OECD input-output framework, country-specific shares of rare-earth-dependent consumption are derived for each OECD-level industry across countries. The value-added share is computed as the value added attributable to rare-earth-dependent activities divided by total GDP. The gross output share is defined as an economy's gross output dependent on rare earths

This "value added at risk" (VAAR) measure provides a useful first-pass estimate of possible GDP losses from a hypothetical prolonged and severe REE supply disruption. The VAAR measure also reveals the macroeconomic importance of rare earth permanent magnets: In the United States, they drive about 70 percent of VAAR.

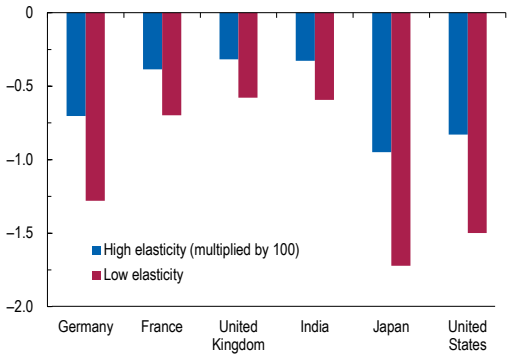
But the VAAR measure omits important adjustment mechanisms. It likely *overstates* losses by assuming that REEs and magnets cannot be substituted for at all but also *understates* losses by abstracting from cascading input-output (I-O) effects. To quantify potential GDP losses from REE supply disruptions, it is essential to account for both substitutability of other things for REEs and intersectoral linkages between industries directly affected by REE shortages and those that depend on them. For example, if permanent magnets were to become unavailable, electric-vehicle production would be disrupted, with knock-on effects that could ultimately raise transportation costs and ripple through the production of other goods and services. The impact would be larger in industries in which there are no available substitutes for REEs.

To that effect, this Special Feature develops and calibrates a small open economy model with network linkages (Silva and others 2024, extended to incorporate imported REE supply constraints; see Online Annex 1.1, Part II, for more details). The model analyzes an REE supply shock affecting REE-using sectors—including indirectly through I-O linkages—with

implications for prices, real wages, and net foreign assets.[6] The calibration relies on an REE-augmented I-O table based on US Geological Survey data and is applied to a set of major REE-dependent economies. For each country, the analysis considers a persistent 80 percent reduction in all rare earth inputs—oxides, metals, compounds, and magnets—consistent with the average single-supplier import concentration of each of the advanced economies.

Model simulations show how the magnitude of the supply disruption strongly depends on substitution possibilities. When firms have limited scope to replace rare earths, which is the base case for short horizons of less than a year (Nassar and others 2025), GDP losses may exceed those predicted by the VAAR measure (Figure 1.SF.6). Network amplification means that GDP declines by 1.5 percent in the United States, a number almost twice as large as the VAAR measure. By contrast, GDP declines by about 1.2 percent in Germany (with a VAAR measure score of 2.5 percent). This difference reflects the stronger forward linkages of US REE-intensive sectors relative to those in Germany, particularly those in motor vehicles, electrical equipment, and computers and electronics. When the substitution elasticity is set higher, reflecting greater opportunities for producers to adjust (typically for horizons longer than five years, similar to those in Alfaro and others 2025), estimated GDP losses are negligible, averaging only 0.006 percent.[7]

Figure 1.SF.6. Output Losses by Country from a Major REE Disruption
(Percent of GDP)



Sources: Organisation for Economic Co-operation and Development; and IMF staff calculations.
Note: The scenarios are based on an 80 percent supply disruption affecting 80 percent of imported goods, specifically rare earths and magnets. The high-elasticity scenario uses a substitution elasticity of 0.8 between the imported goods and their varieties as in Alfaro and others (2025), while the low-elasticity scenario uses an elasticity of 0.015. REE = rare earth element.

Coping with Risks of Supply Disruptions

In response to high REE supply concentration, countries and firms are adopting a variety of adaptation strategies. *Stockpiling* provides a short-term buffer against disruptions and may deter coercion, but it does not address underlying structural dependence and may be constrained in practice. *Recycling* holds longer-term promise, but in a rapidly expanding market, it cannot yet serve as a primary supply source. Likewise, the superior performance of permanent magnets makes *large-scale substitution* unlikely in the near term. In this context, *reshoring* and *import diversification* have emerged as the main medium-term responses, despite uncertain viability given the long development timelines for these measures, coordination challenges, and potential shortages of skilled labor.

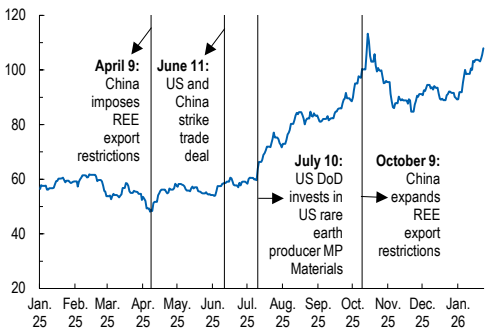
Following China's introduction of REE export licensing requirements in April 2025, advanced economies accelerated the implementation of industrial policies to reduce reliance on China-centric supply chains. Efforts in this area have focused on three approaches. First, price floors

[6] The model features domestic general equilibrium adjustment, assuming a common shock across countries, and limits exports to commodity sectors. REE-intensive sectors, such as motor vehicles, are thus assumed to be fully domestic.

[7] Alfaro and others (2025) estimate industry-specific substitution elasticities between REEs and labor using cross-industry responses to the 2010 REE shock observed over the postshock period 2011–18. Their estimates range from 0.8 to 1.4, reflecting medium-term, innovation-inclusive adjustment.

and offtake agreements have been concluded aiming to provide investment certainty in volatile markets, as many REE projects are not commercially viable at current neodymium prices (about $55 per kilogram; see Online Annex Figure 1.1.1). For example, a July 2025 agreement between the US government and US rare earth producer MP Materials included a price protection mechanism akin to a floor for key REE products, and price floors more broadly featured prominently in discussions at high-level Group of Seven (G7) critical minerals meetings. Second, governments have provided direct financial support—through equity stakes, loans, and grants—to supply capital and signal long-term commitment.[8] Third, agreements—signed in October 2025 between the United States and Australia, Japan, Malaysia, and Thailand—alongside the G7 Critical Minerals Action Plan promote joint financing and coordinated procurement, mobilizing an estimated $6.4 billion in public and private funding to de-risk REE supply chains. These measures have been effective in improving the financial prospects of publicly listed firms in the industry (Figure 1.SF.7).

Figure 1.SF.7. Aggregate Stock Market Value of Publicly Listed Firms in the Rare Earth Industry
(Billions of US dollars)



Sources: S&P Global; S&P Capital IQ Pro; and IMF staff calculations.
Note: Firms are identified using Capital IQ based on keyword searches for rare-earth-related terms in business and long business descriptions. The sample is restricted to operating, publicly listed companies with primary locations outside China. This initial screen yields 315 firms. Each firm is manually reviewed to retain only those with active involvement in rare earth extraction, processing, or project development. Firms with only peripheral references to rare earths are excluded, resulting in a final sample of 89 companies. DoD = US Department of Defense; REE = rare earth element; S&P = Standard and Poor's.

Quantifying the Impact of Industrial Policies to De-risk Rare Earth Supply Chains

Because reshoring is costly, policymakers should balance *efficiency losses* from reshoring in normal times against *expected disruption losses* in times of crisis. Optimal de-risking is better viewed as an insurance policy in which the cost of the premium to be paid in normal times (efficiency losses) should be commensurate with the damage expected in crisis times (disruption losses).[9] Given these considerations, policymakers usually emphasize de-risking rather than decoupling. It should be noted that similar considerations also play a role for other goods and commodities, including energy, food, fertilizers, and semiconductors.

To analyze alternative industrial policies, a calibrated dynamic trade model of the global rare earths market has been developed for this Special Feature. The model features producers in different countries that invest in both extraction and processing capacity to produce raw and processed REEs. The model calibration draws on detailed market, industry, and geological data (see Online Annex 1.1, Part III, for details).

The model is used to assess the effects of two industrial policies—*investment subsidies* and *price floors*—applied to oxide separation (the most crucial processing stage) under two hypothetical

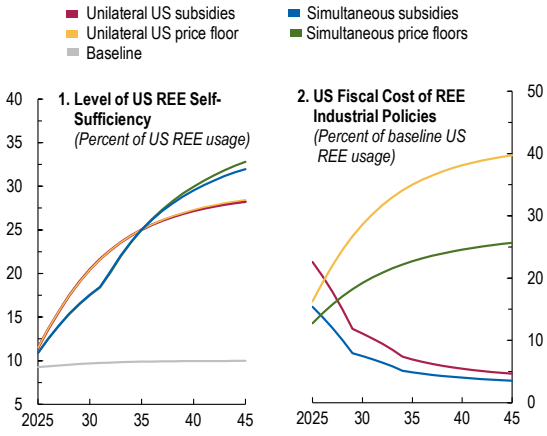
[8] The July 2025 MP Materials deal included substantial equity and loan components, and the January 2026 agreement between the US Department of Commerce and USA Rare Earth similarly combines government equity, below-market lending, and direct federal funding (grants) to support domestic capacity expansion.

[9] Moreover, security benefits may exhibit diminishing returns, with the first 10–20 percent increase in self-sufficiency delivering the largest reduction in vulnerability. This means that modest self-sufficiency rates can substantially reduce vulnerability to supply disruptions at minimal efficiency costs (Clayton, Maggiori, and Schreger 2024).

implementation scenarios: either *unilaterally*—in the example here by US-based producers—or through *simultaneous* action among all importer countries.[10] To illustrate the economic trade-offs, policy instruments are calibrated to achieve *25 percent self-sufficiency in rare earth processing by 2035 in the US*.[11] This is 15 percentage points higher than the comparable figure in the baseline (with unchanged policies) and in line with International Energy Agency projections (IEA 2025).[12] The same benchmark is used in the case of *simultaneous* action in order to highlight the fiscal cost implications of de-risking by various countries instead of unilaterally.

The analysis allows a certain number of conclusions to be drawn (Figure 1.SF.8). First, sizable interventions would be needed to attain the 25 percent self-sufficiency target; for example, in the unilateral scenario, the investment subsidy must cover 77.2 percent of total investment costs for the US to reach 25 percent self-sufficiency by 2035. The required policy intervention is also sizable under a price floor: 2.4 times the period market price for the unilateral scenario. These large policy interventions reflect the relative efficiency of Chinese producers but also point to important price effects. Because there are already large capacities in both mining and refining of REEs, boosting production in a well-supplied market depresses prices and profits, which reduces private investment incentives and, all else equal, requires more generous government interventions to induce development of additional capacity.

Figure 1.SF.8. Effectiveness and Fiscal Cost of Alternative Industrial Policies to Achieve 25 Percent REE Self-Sufficiency in the US



Source: IMF staff calculations.
Note: Investment subsidy to US refiners only implemented with a 77.2 percent subsidy; investment subsidy to refiners outside China only implemented with a 77.8 percent subsidy; price floor subsidy to US refiners only implemented with a price floor 2.42 times the period market price; price floor subsidy to refiners outside China implemented with a price floor 2.2 times the period market price. Baseline scenario assumes 4.7 percent global demand growth in 2025–29, 1.42 percent global demand growth in 2030–34. REE = rare earth element.

Second, investment subsidies are typically more fiscally efficient than price floors when evaluated in present-value terms. This reflects the fact that investment subsidies are targeted at new capacity, whereas price floors also generate windfall gains for incumbent producers by supporting existing production. As a result, for a given self-sufficiency target, the net present value of subsidy payments is lower than that of price floor interventions. To achieve the 25 percent target under the unilateral scenario, US fiscal costs associated with the investment subsidy over the first decade amount to 141 percent of the annual US market size—equivalent to about $1.19 billion ($0.81 billion).[13] At the same time, investment subsidies are more costly in the short term (Figure 1.SF.8, panel 2) than price floors as they front-load fiscal outlays, with

[10] Price floors are currently being discussed among Group of Seven policymakers, while investment subsidies proxy for a broad class of capital expenditure support measures used in practice, including grants and below-market lending.

[11] US self-sufficiency is defined here as the share of domestic rare earth consumption supplied either by domestic production or by imports from countries other than China (through friend-shoring).

[12] See Online Annex 1.1, Part III, for an analysis of a more ambitious 50 percent self-sufficiency target.

[13] Global REEs' market size is about $6 billion. The US share is 14 percent, so roughly $0.81 billion.

costs declining in the long term once investment is largely limited to replacing depreciated capital.

Third, *simultaneous* action reduces the fiscal cost of achieving a given self-sufficiency target. For example, when all importing economies incentivize investment in refining, US self-sufficiency is achieved through a less concentrated buildup of capacity, as part of the fiscal cost is outsourced to the incentivizing economies. Under *simultaneous* action, those economies can also leverage the higher US efficiency in REE processing and experience substantial gains in self-sufficiency, at comparatively lower fiscal costs.[14]

Conclusion

This Special Feature shows that large disruptions to REE supplies could substantially reduce GDP in many economies, particularly in the short term when substitution options are limited. Avoiding trade tensions and restrictions remains the first-best outcome to promote steady REE supply. Model-based analysis suggests that de-risking supply chains through targeted industrial policies is fiscally costly. Costs are lower if de-risking is pursued by various importers simultaneously and if policy instruments directly target the expansion of new production capacity. IMF research also suggests that industrial policies should be used cautiously (Baquie and others 2025). Beyond industrial policy, governments can promote complementary structural reforms that would lower barriers to entry into REE markets through simpler mining permits, investment in the specialized skills the sector requires—from separation chemistry to metallurgy—and competitive allocation of subsidies.

[14] See Bogmans, Cuadros Bloch, and others (forthcoming) for more analysis.

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**	**5.4**	**4.3**	**1.6**	**1.3**	**1.4**	...	...	...
Advanced Europe	**1.5**	**1.2**	**1.3**	**2.3**	**2.6**	**2.2**	**2.3**	**1.9**	**2.0**	**5.9**	**6.0**	**5.8**
Euro Area 4/, 5/	1.4	1.1	1.2	2.1	2.6	2.2	1.6	1.3	1.5	6.3	6.2	6.1
Germany	0.2	0.8	1.2	2.3	2.7	2.3	4.4	3.9	3.8	3.8	3.9	3.5
France	0.9	0.9	0.9	0.9	1.8	1.7	–0.4	–0.3	–0.2	7.6	7.9	7.9
Italy	0.5	0.5	0.5	1.6	2.6	2.4	1.2	0.6	1.1	6.1	6.0	6.1
Spain	2.8	2.1	1.8	2.7	3.0	2.3	2.9	2.2	1.9	10.5	9.8	9.8
The Netherlands	1.9	1.2	1.4	3.0	2.7	2.4	8.8	8.8	8.7	3.9	4.1	4.2
Belgium	1.0	0.7	1.1	3.0	2.8	2.2	–2.1	–2.0	–1.9	6.2	6.2	6.1
Ireland	12.3	2.5	2.4	2.1	3.1	2.4	8.2	8.1	8.1	4.7	4.8	4.8
Austria	0.6	0.7	1.0	3.6	2.5	2.6	1.0	0.4	0.7	5.7	5.7	5.6
Portugal	1.9	1.9	1.8	2.2	3.1	2.3	1.2	0.5	0.7	6.0	5.9	5.9
Greece	2.1	1.8	1.7	2.9	3.5	2.7	–5.7	–6.4	–5.7	8.9	7.4	7.1
Finland	0.2	1.0	1.5	1.8	2.5	2.2	1.3	0.1	0.4	9.7	9.6	9.1
Bulgaria	3.1	2.8	2.5	3.5	3.8	3.7	–5.9	–4.0	–3.2	3.6	3.4	3.3
Slovak Republic	0.8	0.6	1.6	4.2	4.2	3.3	–3.6	–3.0	–1.7	5.4	5.8	5.7
Croatia	3.2	2.6	2.6	4.4	4.4	2.7	–3.2	–3.8	–3.3	4.5	4.6	4.6
Lithuania	2.9	2.9	2.2	3.4	4.0	2.7	1.3	0.2	1.0	6.9	6.5	6.3
Slovenia	1.1	2.0	2.1	2.5	2.9	2.1	3.5	3.2	2.8	3.9	3.9	3.9
Luxembourg	0.6	1.6	1.7	2.5	2.1	2.2	4.7	4.5	4.7	6.0	5.9	6.1
Latvia	2.1	2.2	2.4	3.8	3.0	2.7	–3.4	–3.6	–3.6	6.9	6.7	6.5
Estonia	0.6	1.4	1.9	4.8	3.8	3.0	–0.2	–1.1	–2.0	7.4	7.3	7.0
Cyprus	3.8	3.0	3.0	0.8	2.6	1.6	–8.1	–9.3	–10.3	4.4	4.6	4.7
Malta	4.0	3.7	3.8	2.4	2.5	2.4	5.7	5.8	5.2	3.0	3.0	3.0
United Kingdom	1.3	0.8	1.3	3.4	3.2	2.4	–3.1	–3.4	–3.1	4.9	5.6	5.3
Switzerland	1.3	1.3	1.3	0.2	0.5	0.5	7.1	6.8	7.1	2.8	3.0	2.9
Sweden	1.5	2.0	1.9	2.6	1.5	1.8	6.1	5.3	4.7	8.9	8.6	8.0
Czech Republic	2.5	2.2	2.2	2.5	2.4	2.2	0.7	–1.5	–1.3	2.9	3.0	2.9
Norway	1.1	1.5	1.3	3.0	3.3	2.6	14.1	14.3	13.6	4.5	4.2	4.2
Denmark	2.9	2.0	1.6	1.8	2.0	2.2	12.5	12.3	11.5	2.9	2.9	2.9
Iceland	1.3	1.9	2.1	4.1	4.8	2.8	–3.6	–0.7	–0.1	4.4	4.2	4.3
Liechtenstein	0.0	–0.4	0.4	0.2	0.5	0.7	13.4	12.7	12.7	3.5	3.9	3.8
Andorra	3.9	2.1	1.8	2.4	3.0	2.3	15.9	16.0	16.0	1.1	1.1	1.1
San Marino	1.5	1.3	1.2	2.3	2.8	2.6	17.1	17.1	16.9	4.5	4.4	4.4
Emerging and Developing Europe 6/	**2.0**	**2.0**	**2.1**	**13.5**	**10.5**	**8.2**	**–1.2**	**–1.2**	**–1.3**	...	...	...
Russia	1.0	1.1	1.1	8.7	5.6	4.3	1.6	2.9	2.3	2.2	2.4	2.6
Türkiye	3.6	3.4	3.5	34.9	28.6	21.4	–1.9	–2.8	–2.5	8.3	8.3	8.7
Poland	3.6	3.3	2.4	3.6	3.3	3.3	–0.7	–1.1	–0.9	3.1	3.4	3.4
Romania	0.7	0.7	2.5	7.3	7.8	3.9	–8.0	–6.8	–6.2	6.1	6.0	5.9
Ukraine 7/	1.8	2.0	3.5	12.7	6.1	7.7	–15.0	–18.9	–16.6	11.6	10.2	12.0
Hungary	0.4	1.7	2.0	4.4	3.8	3.5	1.3	–0.4	0.4	4.3	4.2	4.0
Belarus	1.3	1.2	1.0	6.6	6.4	6.2	–2.6	–2.7	–3.4	2.9	2.9	2.9
Serbia	2.0	2.8	3.5	3.9	5.2	4.9	–4.9	–5.7	–4.4	8.7	8.8	8.7

Source: IMF staff estimates.
Note: Data for some countries are based on fiscal years. Please refer to Table F in the 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 Tables A6 and A7 in the 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/ Includes Albania, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro, and North Macedonia.
7/ See the country-specific note for Ukraine in the "Country Notes" section of the 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**	**4.4**	**4.2**	**1.4**	**2.6**	**2.4**	**3.5**	**3.0**	**2.9**	…	…	…
Advanced Asia	**2.5**	**2.0**	**1.6**	**2.5**	**2.4**	**2.2**	**5.9**	**5.3**	**5.3**	**2.9**	**2.9**	**2.9**
Japan	1.2	0.7	0.6	3.2	2.2	2.3	4.8	3.8	3.9	2.5	2.5	2.5
Korea	1.0	1.9	2.1	2.1	2.5	1.9	6.6	5.6	5.4	2.8	2.8	2.9
Australia	2.0	2.0	1.7	2.9	4.0	3.2	–2.6	–2.3	–2.2	4.2	4.2	4.3
Taiwan Province of China	8.7	5.2	3.0	1.7	1.5	1.6	17.4	18.1	18.0	3.4	3.4	3.4
Singapore	5.0	3.5	2.7	0.9	2.3	1.9	16.7	16.6	16.5	2.0	2.0	2.0
Hong Kong SAR	3.5	2.4	2.4	1.4	2.1	1.8	12.2	12.6	12.3	3.6	3.3	3.2
New Zealand	0.2	2.1	2.4	2.8	3.1	2.3	–3.7	–4.0	–3.8	5.3	5.4	5.0
Macao SAR	4.7	3.0	3.1	0.3	1.8	1.9	35.7	35.0	34.2	1.7	1.7	1.7
Emerging and Developing Asia	**5.5**	**4.9**	**4.8**	**1.1**	**2.6**	**2.5**	**2.7**	**2.2**	**2.0**	…	…	…
China	5.0	4.4	4.0	0.0	1.2	1.5	3.7	3.5	3.3	5.1	5.1	5.1
India 4/	7.6	6.5	6.5	2.1	4.7	4.0	–0.9	–2.0	–1.6	4.9	4.9	4.9
Indonesia	5.1	5.0	5.1	1.9	3.0	2.6	–0.1	–1.1	–0.9	4.9	4.9	4.8
Thailand	2.4	1.5	2.1	–0.1	0.9	1.0	3.1	0.7	1.4	1.0	1.0	1.0
Vietnam	8.0	7.1	6.7	3.3	4.9	4.6	6.7	5.3	4.4	2.2	2.1	2.2
Malaysia	5.2	4.7	4.3	1.4	1.9	2.0	1.6	1.4	1.6	3.0	3.0	3.0
Philippines	4.4	4.1	5.8	1.7	4.3	3.2	–3.3	–4.4	–3.5	4.2	4.7	4.6
Other Emerging and Developing Asia 5/	**3.4**	**4.2**	**4.0**	**8.5**	**8.4**	**6.4**	**0.9**	**–0.3**	**–1.1**	…	…	…
Memorandum												
ASEAN-5 6/	4.5	4.1	4.4	1.4	2.6	2.3	3.0	2.2	2.4	…	…	…
Emerging Asia 7/	5.6	5.0	4.8	0.8	2.4	2.3	2.7	2.2	2.1	…	…	…

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Table F in the 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 Tables A6 and A7 in the Statistical Appendix.

2/ Percent of GDP.

3/ Percent. National definitions of unemployment may differ.

4/ See the country-specific note for India in the "Country Notes" section of the Statistical Appendix.

5/ Other Emerging and Developing Asia comprises Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Fiji, Kiribati, Lao P.D.R., Maldives, the Marshall Islands, Micronesia, Mongolia, Myanmar, Nauru, Nepal, Palau, Papua New Guinea, Samoa, the Solomon Islands, Sri Lanka, Timor-Leste, Tonga, Tuvalu, and Vanuatu.

6/ Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

7/ 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	**1.9**	**2.2**	**2.1**	**2.8**	**3.2**	**2.3**	**–3.3**	**–3.3**	**–3.2**	**…**	**…**	**…**
United States	2.1	2.3	2.1	2.7	3.2	2.1	–3.6	–3.7	–3.6	4.3	4.4	4.2
Mexico	0.6	1.6	2.2	3.8	3.9	3.4	–0.4	–0.4	–0.5	2.6	2.7	2.8
Canada	1.7	1.5	1.9	2.1	2.5	2.1	–0.9	–0.2	–0.3	6.9	6.5	6.3
Puerto Rico 4/	–0.8	–0.1	1.0	1.4	2.1	2.4	…	…	…	6.4	6.0	5.8
South America 5/	**2.7**	**2.3**	**2.5**	**9.7**	**8.2**	**5.6**	**–1.7**	**–1.3**	**–1.4**	**…**	**…**	**…**
Brazil	2.3	1.9	2.0	5.0	4.0	3.4	–3.0	–2.7	–2.4	6.0	6.8	7.4
Argentina	4.4	3.5	4.0	41.9	30.4	15.7	–1.1	–0.8	–0.6	7.4	7.2	6.9
Colombia	2.6	2.3	2.5	5.1	5.9	5.2	–2.4	–2.5	–2.6	8.0	9.0	10.0
Chile	2.3	2.4	2.6	4.2	2.9	3.3	–2.3	–0.8	–1.8	8.5	8.1	7.6
Peru	3.4	2.8	2.8	1.5	2.5	1.8	3.1	3.4	2.5	5.9	6.3	6.3
Ecuador	3.7	2.5	2.5	0.7	2.9	1.6	5.8	5.2	4.6	3.1	3.1	3.1
Venezuela	1.5	4.0	6.0	252.0	387.4	94.4	2.6	7.1	4.8	…	…	…
Bolivia	–1.2	–3.3	…	19.5	20.7	…	–1.9	1.2	…	3.3	4.5	…
Paraguay	6.0	4.2	3.5	4.1	3.3	3.5	–3.5	–3.0	–2.1	5.2	5.2	5.2
Uruguay	1.8	1.8	2.6	4.7	4.0	4.5	–0.5	–0.8	–0.9	7.5	8.0	8.0
Central America 6/	**3.7**	**3.7**	**4.0**	**1.8**	**2.8**	**3.4**	**1.0**	**–0.3**	**–0.6**	**…**	**…**	**…**
Caribbean 7/	**6.2**	**5.7**	**8.6**	**5.9**	**6.1**	**6.1**	**–0.4**	**0.6**	**–0.5**	**…**	**…**	**…**
Memorandum												
Latin America and the Caribbean 8/	2.4	2.3	2.7	7.6	6.7	4.9	–1.2	–0.9	–1.1	…	…	…
Eastern Caribbean Currency Union 9/	2.8	2.4	2.3	1.4	2.2	2.1	–10.6	–10.4	–9.1	…	…	…

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Table F in the 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 Tables A6 and A7 in the 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 and Venezuela in the "Country Notes" section of the Statistical Appendix.

6/ Central America refers to CAPDR (Central America, Panama, and the Dominican Republic) and comprises Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

7/ The Caribbean comprises Antigua and Barbuda, Aruba, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

8/ 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 Statistical Appendix.

9/ 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	**3.6**	**1.9**	**4.6**	**11.2**	**11.9**	**9.1**	**0.7**	**1.1**	**0.4**	**…**	**…**	**…**
Oil Exporters 4/	**3.1**	**0.5**	**4.6**	**10.7**	**13.4**	**9.2**	**2.4**	**2.8**	**2.2**	**…**	**…**	**…**
Saudi Arabia	4.5	3.1	4.5	2.0	2.3	2.1	–3.0	–1.6	–3.0	…	…	…
Iran	–1.5	–6.1	3.2	50.9	68.9	39.6	0.6	–1.8	–0.2	8.0	9.2	9.0
United Arab Emirates	5.8	3.1	5.3	1.3	2.5	2.0	15.3	11.4	11.4	…	…	…
Kazakhstan	6.5	4.6	4.4	11.4	10.7	10.1	–3.9	–1.0	–2.0	4.6	4.6	4.5
Algeria	3.8	3.8	2.9	1.4	2.9	3.0	–7.7	–1.2	–2.5	…	…	…
Iraq	–0.4	–6.8	11.3	0.3	3.0	3.3	–1.7	–5.3	0.2	…	…	…
Qatar	2.8	–8.6	8.6	0.6	3.9	2.5	14.5	11.0	9.9	…	…	…
Kuwait	3.5	–0.6	2.8	2.4	2.8	2.5	23.3	26.0	21.8	…	…	…
Azerbaijan	1.4	2.2	2.5	5.6	6.0	5.1	5.5	9.7	5.4	5.3	5.3	5.2
Oman	2.4	3.5	3.4	1.0	1.7	1.9	1.3	7.5	5.6	…	…	…
Turkmenistan	3.6	2.6	2.0	2.7	3.9	4.7	3.3	3.7	1.6	…	…	…
Bahrain	3.1	–0.5	4.5	–0.1	2.4	1.2	5.9	3.9	4.8	…	…	…
Oil Importers 5/ 6/	**4.4**	**4.1**	**4.5**	**12.1**	**9.8**	**8.9**	**–3.8**	**–3.3**	**–4.0**	**…**	**…**	**…**
Egypt	4.4	4.2	4.8	20.4	13.2	11.1	–4.2	–4.2	–4.6	7.3	7.4	7.1
Pakistan 7/	3.1	3.6	3.5	4.5	7.2	8.4	0.5	–0.4	–0.9	7.1	6.9	6.5
Morocco	4.9	4.9	4.5	0.8	1.3	1.6	–2.1	–3.1	–2.9	13.0	12.2	11.3
Uzbekistan	7.7	6.5	5.9	8.8	7.0	5.6	–3.9	–1.3	–3.4	4.8	4.3	3.8
Tunisia	2.5	2.1	1.6	5.3	6.5	7.2	–2.8	–4.2	–5.8	15.2	…	…
Sudan 7/	3.2	0.7	8.1	100.2	75.1	44.6	–8.1	–4.5	–10.3	60.6	61.3	59.3
Jordan	2.7	2.7	3.1	1.8	2.3	2.2	–5.6	–6.2	–5.1	21.3	21.3	21.3
Georgia	7.5	5.3	5.0	3.9	4.4	3.0	–2.6	–5.0	–4.5	13.9	13.9	13.9
Armenia	7.2	5.3	5.5	3.3	3.6	3.4	–6.7	–6.0	–5.2	13.0	12.8	12.7
Tajikistan	8.4	6.0	4.8	3.4	4.0	4.7	16.6	6.3	2.5	…	…	…
Kyrgyz Republic	11.1	6.1	6.1	8.2	10.6	10.0	–23.4	–7.1	–6.1	4.0	4.0	4.0
Mauritania	4.2	4.4	4.5	1.6	4.1	4.1	–5.8	–6.5	–6.4	…	…	…
West Bank and Gaza 7/	…	…	…	10.5	…	…	…	…	…	…	…	…
Memorandum												
Caucasus and Central Asia	6.2	4.8	4.5	8.4	8.0	7.2	–2.2	0.0	–1.6	…	…	…
Middle East, North Africa, Afghanistan, and Pakistan 6/	3.2	1.4	4.6	11.7	12.6	9.4	1.1	1.2	0.7	…	…	…
Middle East and North Africa	3.2	1.1	4.8	12.9	13.5	9.6	1.4	1.4	0.9	…	…	…
Israel 8/	2.9	3.5	4.4	3.0	2.3	2.1	1.5	1.9	2.3	3.0	3.2	3.3

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Table F in the 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 Tables A6 and A7 in the Statistical Appendix.

2/ Percent of GDP.

3/ Percent. National definitions of unemployment may differ.

4/ Includes Libya.

5/ Includes Djibouti, Lebanon, Somalia, and Yemen. See the country-specific note for Lebanon and Yemen in the "Country Notes" section of the Statistical Appendix.

6/ Excludes Afghanistan and Syria because of a lack of adequate data. See the country-specific notes in the "Country Notes" section of the Statistical Appendix.

7/ See the country-specific notes for Sudan and West Bank and Gaza in the "Country Notes" section of the Statistical Appendix.

8/ Israel, which is not a member of the economic region, is shown for reasons of geography but is not included in the regional aggregates.

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**	**4.3**	**4.4**	**12.5**	**8.8**	**8.8**	**–0.9**	**–0.6**	**–1.1**	**…**	**…**	**…**
Oil Exporters 4/	**4.0**	**3.7**	**4.0**	**21.3**	**14.6**	**14.5**	**2.6**	**3.8**	**1.8**	**…**	**…**	**…**
Nigeria 5/	4.0	4.1	4.3	23.0	16.0	15.9	5.1	5.8	3.1	…	…	…
Angola	3.1	2.3	2.6	20.2	12.9	12.8	0.4	2.2	1.0	…	…	…
Gabon	2.5	2.7	2.8	2.0	2.5	2.4	–3.1	–4.3	–5.5	…	…	…
Chad	5.6	5.2	4.9	–2.6	0.5	3.9	0.2	0.8	0.3	…	…	…
Equatorial Guinea	–6.4	–2.7	–1.3	2.8	3.2	2.9	–3.0	–1.6	–2.4	…	…	…
Middle-Income Countries 6/	**3.5**	**3.2**	**3.4**	**4.5**	**4.3**	**4.3**	**–0.7**	**–1.0**	**–1.4**	**…**	**…**	**…**
South Africa	1.1	1.0	1.3	3.2	3.9	3.4	–0.5	–0.9	–1.4	32.4	32.5	32.4
Kenya	4.9	4.5	4.7	4.1	5.9	5.9	–2.7	–4.1	–3.7	…	…	…
Ghana	6.0	4.8	4.9	14.2	5.8	7.8	7.9	10.1	9.5	…	…	…
Côte d'Ivoire	6.5	6.2	6.3	0.1	1.8	2.0	–1.1	–1.1	–3.1	…	…	…
Cameroon	3.1	3.3	3.8	3.4	3.5	3.2	–3.8	–5.1	–5.8	…	…	…
Senegal	7.9	2.2	2.3	1.4	2.5	2.2	–5.6	–6.2	–5.8	…	…	…
Zambia	3.8	4.3	4.7	13.9	9.0	8.0	–3.5	0.9	1.9	…	…	…
Low-Income Countries 7/	**6.5**	**6.6**	**6.4**	**11.1**	**6.6**	**6.8**	**–3.9**	**–3.9**	**–2.9**	**…**	**…**	**…**
Ethiopia	9.2	9.2	7.9	13.2	11.8	10.7	–0.9	–2.4	–1.9	…	…	…
Tanzania	5.9	5.9	6.1	3.3	4.0	4.3	–2.4	–2.3	–2.1	…	…	…
Democratic Republic of the Congo	5.7	5.9	5.4	7.4	3.3	6.4	–3.7	–2.0	–1.6	…	…	…
Uganda	6.7	7.5	8.2	3.6	4.0	4.9	–6.2	–3.9	–2.7	…	…	…
Mali	4.9	5.5	5.7	2.3	2.2	2.0	–0.8	–1.5	1.6	…	…	…
Burkina Faso	5.0	4.9	4.8	–0.5	1.5	2.1	6.7	8.6	8.4	…	…	…

Source: IMF staff estimates.

Note: Data for some countries are based on fiscal years. Please refer to Table F in the 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 Tables A6 and A7 in the Statistical Appendix.

2/ Percent of GDP.

3/ Percent. National definitions of unemployment may differ.

4/ Includes Republic of Congo and South Sudan.

5/ See the country-specific note for Nigeria in the "Country Notes" section of the Statistical Appendix

6/ Includes Benin, Botswana, Cabo Verde, the Comoros, Eswatini, Lesotho, Mauritius, Namibia, São Tomé and Príncipe, and Seychelles.

7/ Includes Burundi, the Central African Republic, Eritrea, The Gambia, Guinea, Guinea-Bissau, Liberia, Madagascar, Malawi, Mozambique, Niger, Rwanda, Sierra Leone, Togo, and Zimbabwe.

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**	**2.4**	**2.5**	**2.7**	**2.3**
Advanced Economies	**0.8**	**1.9**	**1.5**	**–4.4**	**6.0**	**2.5**	**0.9**	**1.2**	**1.6**	**1.6**	**1.5**
United States	0.8	2.4	2.1	–2.9	5.8	2.0	2.1	1.9	1.5	2.0	1.8
Euro Area 1/	0.4	1.6	1.4	–6.3	6.5	3.4	–0.1	0.6	1.1	0.9	1.0
Germany	1.1	1.0	0.9	–4.0	4.1	1.1	–1.8	–0.8	0.2	0.8	1.2
France	0.3	1.3	1.7	–7.9	6.4	2.2	1.1	0.8	0.6	0.6	0.6
Italy	–0.8	1.0	0.6	–8.6	9.7	5.2	1.0	0.8	0.6	0.6	0.6
Spain	0.1	1.8	1.1	–11.1	6.5	5.0	1.3	2.5	1.4	0.9	0.8
Japan	0.6	1.0	–0.1	–4.0	3.9	1.7	1.2	0.2	1.7	1.2	1.2
United Kingdom	0.5	1.1	0.7	–10.2	8.2	4.1	–1.0	0.0	1.0	0.3	0.9
Canada	0.5	1.3	0.4	–6.1	5.3	2.9	–0.8	–0.9	0.6	1.6	1.8
Other Advanced Economies 2/	1.7	2.1	1.3	–2.1	6.0	2.0	0.6	1.8	2.6	2.2	1.8
Emerging Market and Developing Economies	**3.3**	**3.3**	**2.5**	**–3.2**	**5.9**	**3.2**	**3.4**	**3.4**	**3.4**	**3.4**	**3.1**
Emerging and Developing Asia	6.1	5.6	4.5	–1.3	7.1	4.1	5.0	4.9	5.0	4.4	4.3
China	7.7	6.4	5.7	2.2	8.5	3.2	5.5	5.1	5.2	4.6	4.3
India 3/	5.3	5.3	2.8	–6.7	8.8	6.8	6.3	6.1	6.7	5.6	5.6
Emerging and Developing Europe	1.8	3.4	2.4	–1.9	7.6	1.7	3.8	4.3	2.4	2.4	2.1
Russia	1.0	2.6	2.1	–2.5	6.3	–1.3	4.2	5.4	1.6	1.5	1.3
Latin America and the Caribbean	0.8	0.2	–0.9	–8.0	6.7	3.6	1.5	1.6	1.6	1.6	2.0
Brazil	0.8	1.1	0.6	–3.9	4.3	2.6	2.8	3.0	1.9	1.6	1.6
Mexico	0.3	1.0	–1.3	–9.1	5.4	2.9	2.2	0.5	–0.3	0.9	1.4
Middle East and Central Asia	1.1	0.8	0.3	–4.4	3.0	4.2	0.5	0.8	1.8	4.4	2.8
Saudi Arabia	0.5	5.9	2.1	–8.3	9.2	7.2	–4.0	–2.0	2.5	1.1	2.4
Sub-Saharan Africa	1.5	0.5	0.3	–5.7	1.4	1.9	1.3	1.5	1.9	1.8	1.9
Nigeria 3/	2.1	–0.4	0.0	–8.3	–1.0	2.2	1.2	1.9	1.9	1.9	2.2
South Africa	0.2	0.1	–1.2	–7.4	3.9	1.0	–0.4	–0.7	–0.1	–0.3	–0.1
Memorandum											
European Union	0.7	2.1	1.8	–5.7	6.7	3.4	0.0	0.9	1.4	1.2	1.3
ASEAN-5 4/	3.5	3.8	3.2	–5.5	3.4	4.6	3.1	3.9	3.6	3.2	3.5
Middle East and North Africa	0.7	0.3	–0.1	–4.6	3.1	4.5	0.5	0.3	1.6	–0.8	2.9
Emerging Market and Middle-Income Economies	3.6	3.7	2.7	–2.9	6.6	3.5	3.8	3.8	3.7	3.1	3.4
Low-Income Developing Countries	2.7	2.2	2.2	–3.8	1.4	2.7	1.8	1.8	2.5	4.3	2.7

Source: IMF staff estimates.

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

1/ Data are calculated as the sum of 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 Statistical Appendix.

4/ ASEAN-5 comprises Indonesia, Malaysia, the Philippines, Singapore, Thailand.

References

Ahir, Hites, Nicholas Bloom, and Davide Furceri. 2022. "The World Uncertainty Index." NBER Working Paper 29763, National Bureau of Economic Research, Cambridge, MA.

Aiyar, Shekhar, Jiaqian Chen, Christian H. Ebeke, Roberto Garcia-Saltos, Tryggvi Gudmundsson, Anna Ilyina, Alvar Kangur, and others. 2023. "Geoeconomic Fragmentation and the Future of Multilateralism." IMF Staff Discussion Note 23/001, International Monetary Fund, Washington, DC.

Alfaro, Laura, Harald Fadinger, Jan Schymik, and Gede Virananda. 2025. "Trade and Industrial Policy in Supply Chains: Directed Technological Change in Rare Earths." NBER Working Paper 33877, National Bureau of Economic Research, Cambridge, MA. https://doi.org/10.3386/w33877.

Amiti, Mary, Chris Flanagan, Sebastian Heise, and David E. Weinstein. 2026. "Who Is Paying for the 2025 U.S. Tariffs?" *Liberty Street Economics*, February 12. https://doi.org/10.59576/lse.20260212.

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

Antràs, Pol, and Andrea F. Presbitero. 2026. "The Remains of the Trade: The US-China Trade War and Its Aftermath." Unpublished. https://antras.scholars.harvard.edu/sites/g/files/omnuum5876/files/2026-03/PAAPAlUla_1.pdf.

Ariu, Andrea, Florian Mayneris, and Mathieu Parenti. 2020. "One Way to the Top: How Services Boost the Demand for Goods." *Journal of International Economics* 123 (March): 103278.

Baker, Scott R., Nicholas Bloom, and Steven J. Davis. 2016. "Measuring Economic Policy Uncertainty." *Quarterly Journal of Economics* 131 (4): 1593–636.

Baldwin, Richard. 2016. *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Harvard University Press.

Baquie, Sandra, Yueling Huang, Florence Jaumotte, Jaden Kim, Rafael Machado Parente, and Samuel Pienknagura. 2025. "Industrial Policies: Handle with Care." IMF Staff Discussion Note 25/002, International Monetary Fund, Washington, DC.

Barrett, Philip, Sophia Chen, Mali Chivakul, and Deniz O. Igan. 2021. "Pricing Protest: The Response of Financial Markets to Social Unrest." IMF Working Paper 21/079, International Monetary Fund, Washington, DC.

Bedford, Jason. 2025. "Rare Earths and Industry: Why Dependence on China Endures." East Asian Institute Background Brief 1843, East Asian Institute, National University of Singapore.

Berlingieri, Giuseppe, Luca Marcolin, and Emanuel Ornelas. 2025. "Service Offshoring and Export Experience." *Economic Journal* 135 (August): 1980–2016.

Bogmans, Christian, Francis Cuadros Bloch, Jean-Marc Natal, and Andrea Paloschi. Forthcoming. "Industrial Policy and Supply Chain Bottlenecks in Commodity Markets: Evidence from Rare Earth Elements." IMF Working Paper, International Monetary Fund, Washington, DC.

Bogmans, Christian, Maximiliano Jerez-Osses, Jorge Miranda-Pinto, and Jean-Marc Natal. Forthcoming. "Macroeconomic Effects of Rare Earth Supply Chain Disruptions." IMF Working Paper, International Monetary Fund, Washington, DC.

Bolhuis, Marijn A., Jiaqin Chen, and Benjamin R. Kett. 2023. "Fragmentation in Global Trade: Accounting for Commodities." IMF Working Paper 23/073, International Monetary Fund, Washington, DC.

Breinlich, Holger, and Chiara Criscuolo. 2011. "International Trade in Services: A Portrait of Importers and Exporters." *Journal of International Economics* 84 (2): 188–206.

Çakır Melek, Nida, and Sydney Miller. 2026. "A New U.S. Productivity Chapter? What Industry Data Say about AI." *Economic Bulletin*, February 11. https://www.kansascityfed.org/research/economic-bulletin/a-new-us-productivity-chapter-what-industry-data-say-about-ai/.

Caldara, Dario, Matteo Iacoviello, Patrick Molligo, Andrea Prestipino, and Andrea Ruffo. 2020. "The Economic Effects of Trade Policy Uncertainty." *Journal of Monetary Economics* 109 (January): 38–59.

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

Caldara, Dario, Sarah Conlisk, Matteo Iacoviello, and Maddie Penn. 2026. "Do Geopolitical Risks Raise or Lower Inflation?" *Journal of International Economics* 159 (January): 104188.

Clayton, Christopher, Matteo Maggiori, and Jesse Schreger. 2024. "A Theory of Economic Coercion and Fragmentation." NBER Working Paper 33309, National Bureau of Economic Research, Cambridge, MA.

Cline, Alexander, James A. Kahn, and Robert W. Rich. 2025. "Is High Productivity Growth Returning?" Economic Commentary 2025-01, Federal Reserve Bank of Cleveland, Cleveland, OH. https://doi.org/10.26509/frbc-ec-202501.

Dao, Mai, and Josef Platzer. 2024. "Post-pandemic Productivity Dynamics in the United States." IMF Working Paper 24/124, International Monetary Fund, Washington, DC.

Davis, Steven J. 2016. "An Index of Global Economic Policy Uncertainty." NBER Working Paper 22740, National Bureau of Economic Research, Cambridge, MA.

Disdier, Anne-Célia, and Keith Head. 2008. "The Puzzling Persistence of the Distance Effect on Bilateral Trade." *Review of Economics and Statistics* 90 (1): 37–48.

Fernald, John G., and Huiyu Li. 2024. "Productivity during and since the Pandemic." FRBSF Economic Letter 2024-31, Federal Reserve Bank of San Francisco, San Francisco, CA.

Gimbel, Martha. 2026. "An AI Productivity Boom? Don't Count Your (Productivity Data) Chickens." *State of the Economy*, February 19. https://budgetlab.yale.edu/research/ai-productivity-boom-dont-count-your-productivity-data-chickens.

Gopinath, Gita. 2023. "Harnessing AI for Global Good." *Finance & Development* 60 (4): 70–72.

Gopinath, Gita, and Brent Neiman. 2026. "The Incidence of Tariffs: Rates and Reality." NBER Working Paper 34620, National Bureau of Economic Research, Cambridge, MA. https://doi.org/10.3386/w34620.

Graedel, Thomas E., E. M. Harper, Nedal T. Nassar, and Barbara K. Reck. 2015. "On the Materials Basis of Modern Society." *Proceedings of the National Academy of Sciences* 112 (20): 6295–300.

International Energy Agency (IEA). 2025. *Global Critical Minerals Outlook 2025*. Paris: IEA. https://www.iea.org/reports/global-critical-minerals-outlook-2025.

International Monetary Fund (IMF). 2026a. "Understanding Global Imbalances." IMF Policy Paper, Washington, DC.

International Monetary Fund (IMF). 2026b. "People's Republic of China: 2025 Article IV Consultation—Press Release; Staff Report; and Statement by the Executive Director for the People's Republic of China." IMF Country Report 26/044, International Monetary Fund, Washington, DC.

Jefferson, Philip N. 2026. "Economic Outlook and Supply-Side (Dis)Inflation Dynamics." Speech delivered at the Brookings Institution, Washington, DC, February 6. https://www.federalreserve.gov/newsevents/speech/jefferson20260206a.htm.

Juselius, Mikael, Philip Wooldridge, and Dora Xia. 2025. "Financial Channel Implications of a Weaker Dollar for Emerging Market Economies." BIS Bulletin 114, Bank for International Settlements, Basel. https://www.bis.org/publ/bisbull114.pdf.

Kose, M. Ayhan, and Franziska Ohnsorge, eds. 2024. *Falling Long-Term Growth Prospects*. Washington, DC: World Bank Publications.

Li, Nan, Sergii Meleshchuk, Qiuyan Yin, Dennis Zhao, and Robert Zymek. 2025. "Bilateral Trade in Services: Insights from a New Research Dataset." IMF Working Paper 25/163, International Monetary Fund, Washington, DC.

Market Data Forecast. 2025. "Permanent Magnets Market Size, Share, Trends & Growth Forecast Report." Hyderabad, India. https://www.marketdataforecast.com/market-reports/permanent-magnets-market.

Nassar, Nedal T., Graham W. Lederer, Abraham J. Padilla, Joseph Gambogi, Daniel J. Cordier, Jamie L. Brainard, Joseph D. Lessard, and Ryan Charab. 2023. "Rock-to-Metal Ratios of the Rare Earth Elements." *Journal of Cleaner Production* 405 (June 15): 136958.

Nassar, Nedal T., David Pineault, Sydney M. Allen, Dalton M. McCaffrey, Abraham J. Padilla, Jamie L. Brainard, Mani Bayani, and others. 2025. "Methodology and Technical Input for the 2025 U.S. List of Critical Minerals—Assessing the Potential Effects of Mineral Commodity

Supply Chain Disruptions on the U.S. Economy." Open-File Report 2025-1047, US Geological Survey, Reston, VA. https://doi.org/10.3133/ofr20251047.

Shi, Min, and Jakob Svensson. 2006. "Political Budget Cycles: Do They Differ across Countries and Why?" *Journal of Public Economics* 90 (8–9): 1367–89.

Silva, Alvaro, Petre Caraiani, Jorge Miranda-Pinto, and Juan Olaya-Agudelo. 2024. "Commodity Prices and Production Networks in Small Open Economies." *Journal of Economic Dynamics and Control* 168 (November): 104968.

CHAPTER 2

DEFENSE SPENDING: MACROECONOMIC CONSEQUENCES AND TRADE-OFFS

Defense spending is increasing rapidly. Over the past five years, about half of the world's countries have increased their military budgets, and arms sales by the world's largest defense firms have doubled in real terms over two decades. As geopolitical tensions intensify, these trends are set to continue. Drawing on a dataset covering 164 countries since 1946, this chapter finds that large defense spending booms have become more frequent, especially in emerging market and developing economies. In a typical boom, which lasts more than two-and-a-half years, defense outlays increase by about 2.7 percentage points of GDP, with roughly two-thirds financed through higher deficits. While the resulting defense buildups can boost economic activity in the short term—lifting consumption and investment, particularly in defense-related sectors—they also temporarily increase inflation and create significant medium-term challenges. On average, fiscal deficits worsen by about 2.6 percentage points of GDP, and public debt increases by about 7 percentage points within three years of the start of a buildup, while external balances deteriorate as demand is geared toward imported equipment. Wartime booms are especially costly, with public debt jumping by about 14 percentage points of GDP and social spending falling in real terms. Defense spending multipliers are close to 1, on average, but vary widely depending on how spending is sustained, financed, and allocated and how much equipment is imported. While a defense buildup that is mostly deficit financed and allocates most of the spending to consumption maximizes short-term demand effects, it also risks overheating the economy and requires close coordination with monetary policy. A buildup that makes public investment a priority and fosters more integrated markets for military equipment production could support long-term productivity growth.

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Introduction

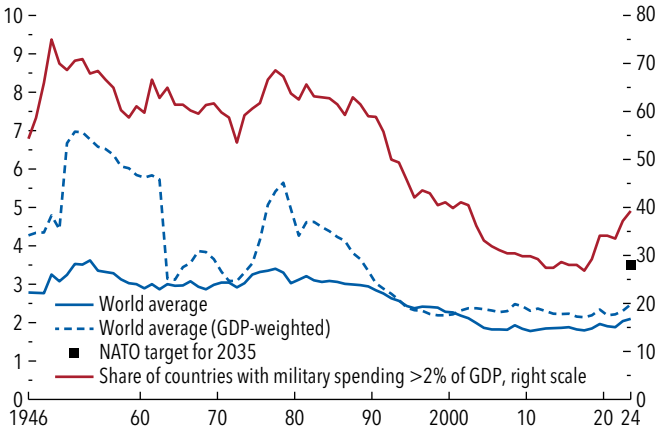
With the end of the Cold War, the number of conflicts[1] declined globally and governments worldwide reduced the share of public resources allocated to defense spending and military buildup. Geopolitical tensions started resurfacing in the mid-2010s (see Chapter 1), and the number of conflicts has increased substantially since then, as discussed in Chapter 3. This shift has prompted countries to recalibrate their defense spending priorities. As a result, over 2020–24, 50 percent of countries worldwide increased their defense spending budgets and, as of 2024, almost 40 percent allocated more than 2 percent of GDP to defense spending, compared with 27 percent in 2018 (Figure 2.1).[2] According to the Stockholm International Peace Research Institute (SIPRI) Arms Industry Database, arms sales by the world's largest 100 arms firms have doubled in real terms over the past two decades. These numbers are set to increase, as North Atlantic Treaty Organization (NATO) members committed in June 2025 to raise their annual defense and security-related spending to 5 percent of GDP by 2035, more than double the previous 2 percent guideline.[3] The actual and projected buildup of defense spending entails important macroeconomic trade-offs, especially in an environment of elevated and increasing public debt and growing spending pressures,

[1]For simplicity, the terms "war" and "conflict" are used interchangeably throughout the chapter.

[2]Defense spending comprises all government expenditures devoted to the maintenance, development, and deployment of military forces. Following the definition of the Stockholm International Peace Research Institute (SIPRI), defense spending includes personnel costs, operations and maintenance, procurement of arms and equipment, military research and development (R&D), and military infrastructure.

[3]The North Atlantic Treaty Organization (NATO) is a military alliance founded in the aftermath of World War II, currently including 32 member countries (30 in Europe as well as Canada and the United States). It serves as a system of collective security whereby member states agree to mutual defense in response to an attack by any nonmember country. In June 2025, NATO members committed to investing 3.5 percent of GDP annually on core defense requirements and up to 1.5 percent of GDP to security-related spending to protect critical infrastructure, defend networks, ensure civil preparedness and resilience, innovate, and strengthen the defense industrial base.

Figure 2.1. Defense Spending on the Rise
(Percent of GDP, left scale; percent, right scale)



Sources: Gethin 2024; Stockholm International Peace Research Institute Military Expenditure Database; World Human Capital Expenditure Database; and IMF staff calculations.

Note: NATO = North Atlantic Treaty Organization.

as governments worldwide are already facing increasing demand to invest in infrastructure, public services, and economic security, while also needing to scale up spending on the green transition as well as health care and pensions to meet the needs of aging societies (Acalin and others 2025; Eble and others 2025).

This chapter studies the macroeconomic consequences of ramping up defense spending, considering potential intertemporal trade-offs, in which a country's economy runs hot in the short term but faces increased risks to medium-term macroeconomic stability, as well as weakening economic resilience, reflected in higher government deficits, cuts to social spending, and worsening external balances. Increasing defense spending can also help countries reach other objectives, such as strengthening defense resilience and serving as a deterrent.[4] The chapter, however, does not aim to quantify countries' defense resilience, which is related to national security objectives and, hence, beyond the scope of the chapter's analysis.

A large literature examines the macroeconomic effects of defense spending, initially motivated by its usefulness as a source of plausibly exogenous variation in government expenditure, since major defense buildups are often driven by geopolitical events—such as wars, security threats, or strategic realignments—rather than by contemporaneous domestic economic conditions (Barro 1981; Ramey and Shapiro 1998). Early contributions, largely focused on the United States, exploited historical military buildups and narrative evidence to isolate government spending shocks from the business cycle, establishing benchmark estimates of output and employment responses (Hall 2009; Barro and Redlick 2011; Ramey 2011; Nakamura and Steinsson 2014; Ramey and Zubairy 2018). More recently, renewed geopolitical tensions have spurred work on European economies (Ben Zeev, Pappa, and Scola Gagliardi 2025; García-Serrador, Sarasa-Flores, and Ulloa 2025; Ilzetzki 2025; Alloza and others 2026; Furceri and others 2026) as well as on emerging market and developing economies (Miyamoto, Nguyen, and Sheremirov 2019; Sheremirov and Spirovska 2022), typically using data from the late 1980s onward. While this literature documents important differences across countries, most studies remain narrowly focused on short-term multipliers, which measure the response of real GDP to changes in defense spending, or immediate budgetary implications of military outlays (Marzian and Trebesch 2025),[5] leaving important gaps in understanding the broader macroeconomic consequences of defense spending buildups.

To fill these gaps, this chapter provides a bird's-eye view of defense spending in a large sample of countries since World War II. In particular, the chapter addresses the following questions:

- *What do defense spending booms (that is, episodes of large defense spending buildup) look like?* How frequent have such booms been? How do they differ in frequency, size, and duration during wartime and peacetime and between advanced economies and emerging market and developing economies? And how are they financed?
- *What are the key macroeconomic trade-offs of increasing defense spending?* How do defense spending booms affect macroeconomic dynamics? Do the buildups associated with these booms overheat the economy in the short term? And do they lead to a deterioration of fiscal balances through higher government deficit and debt, as well as a widening

[4]Defense resilience refers to the ability to withstand and recover from attacks, encompassing military capability as well as civil preparedness. Recent literature shows deterrence effects are modest. Increases in defense spending lead to a small and persistent decline in conflict over the long term, with no effect on short-term conflict risk (Benmelech and Monteiro 2025).

[5]A related literature, discussed in Chapter 3, studies the economic toll of war.

of the current account? Do defense spending booms imply a reorientation of government spending that crowds out other outlays, including social spending?
- *How large are defense spending multipliers?* Do they vary with country characteristics and the design of the stimulus—such as its duration, the import content of defense outlays and their allocation between current and capital spending—and to what extent are they affected by the response of monetary and fiscal policy? How large are spillovers to third countries? What are the potential general equilibrium effects of ramping up defense spending?

To answer these questions, the chapter compiles a comprehensive dataset on yearly defense spending and macroeconomic variables for 164 countries since 1946. It first discusses the channels through which higher defense spending percolates through the economy, how it differs from other forms of fiscal stimulus, and the trade-offs that it generates. Next, it defines defense spending booms as periods when the two-year moving average of defense spending increases by at least 1 percentage point of GDP, lasting for as long as defense spending does not decline as a share of GDP. It characterizes booms by their length, size, and financing and discusses a rich set of stylized facts to highlight key short-term macroeconomic trade-offs and medium-term vulnerabilities arising from ramping up defense spending. In the second part of the chapter, the focus shifts to the macroeconomic effects of defense spending. The chapter contributes to the debate surrounding defense spending multipliers through novel estimates based on a large sample of countries and through model simulations. Both approaches consider how defense multipliers may depend on country characteristics, the design of the associated buildups, and monetary and fiscal policy responses.

Based on this dataset and approaches, the chapter's main findings are as follows:
- *Defense spending booms have become more frequent, involve significant resources relative to an economy's overall capacity, and are mostly debt financed.* They have increased since the mid-2010s and are more common in emerging market and developing economies. Booms raise defense spending by about 2.7 percentage points of GDP and last for more than two-and-a-half years, on average. About two-thirds of the additional spending is financed through higher budget deficits, especially in the case of temporary booms, with a more modest contribution from revenue mobilization and spending reprioritization.
- *On the one hand, ramping up defense spending propagates through the economy as a sector-specific demand shock and can also raise medium-term growth through capital accumulation and productivity gains.* In the short term, defense spending boosts private consumption and investment, through positive *demand-side* effects, especially in defense-related sectors, leading to higher output and prices. Firm-level analysis supports the presence of a strong demand channel benefiting firms in the defense sector, but also shows that booms associated with rising public debt reduce private investment as firms' financing constraints become more binding. In addition, bottlenecks in sectoral reallocation can mitigate the boost in demand. On the *supply side*, booms are followed by a higher capital stock and an increase in total factor productivity over the long term.
- *On the other hand, scaling up defense spending can weaken fiscal and external sustainability and risk crowding out social spending.* The average defense spending boom is followed by an increase in the fiscal deficit of about 2.6 percentage points of GDP and an increase in the public-debt-to-GDP ratio of about 7 percentage points three years after the boom's onset. Such dynamics create trade-offs that manifest themselves through time and can put fiscal sustainability under strain, particularly in countries with limited fiscal space. While the average defense spending boom does not lead to a contraction in social spending, when higher defense outlays are financed primarily through spending reprioritization, the *guns versus butter* trade-off emerges, and spending on social protection, health, and education is substantially reduced. The fiscal costs are particularly salient in wartime, when public debt jumps by 14 percentage points of GDP and social spending is reduced in real terms, regardless of how the defense spending is financed. On the external side, stronger demand is partly directed at importing foreign goods, especially in countries importing military equipment, worsening the current account balance.
- *The multiplier of defense spending is close to 1, but it varies with the degree of import leakages, the financing mix, the allocation between current and capital spending, the persistence of the defense spending buildup, and the policy response.* Estimates of defense spending multipliers are characterized by substantial uncertainty, which reflects a wide variety of experiences

across countries and over time, with endogeneity concerns that tend to bias the estimates. When these concerns are attenuated, the average multiplier is close to 1 and aligns with model-based simulations. Defense spending multipliers are smaller in countries that rely heavily on arms imports, reflecting demand leakages abroad, and when the boom is temporary. By contrast, multipliers are larger when defense increases are deficit financed—as the immediate demand impulse is not offset by contemporaneous fiscal tightening elsewhere in the budget—and concentrated in current spending, such as that for personnel and operational outlays, which tend to have a larger short-term impact on activity. Similar results hold in model-based scenarios. Simulations further illustrate that monetary accommodation can raise the multiplier, though at the cost of higher inflation and a worsening current account deficit, while the immediate offsetting of fiscal measures can contain these pressures but dampen output effects. A coordinated plan for defense spending aimed at promoting joint procurement within regional blocs and at reducing the import content of defense outlays could lead to larger output effects and contain external imbalances.

Based on these findings, and subject to the caveat that the macroeconomic effects of past defense spending booms should be interpreted with caution—as today's defense buildups differ in conflict modalities, technology intensity, concentration of production hubs, and regional spending synchronization—the chapter offers these policy recommendations for navigating trade-offs when ramping up defense spending:

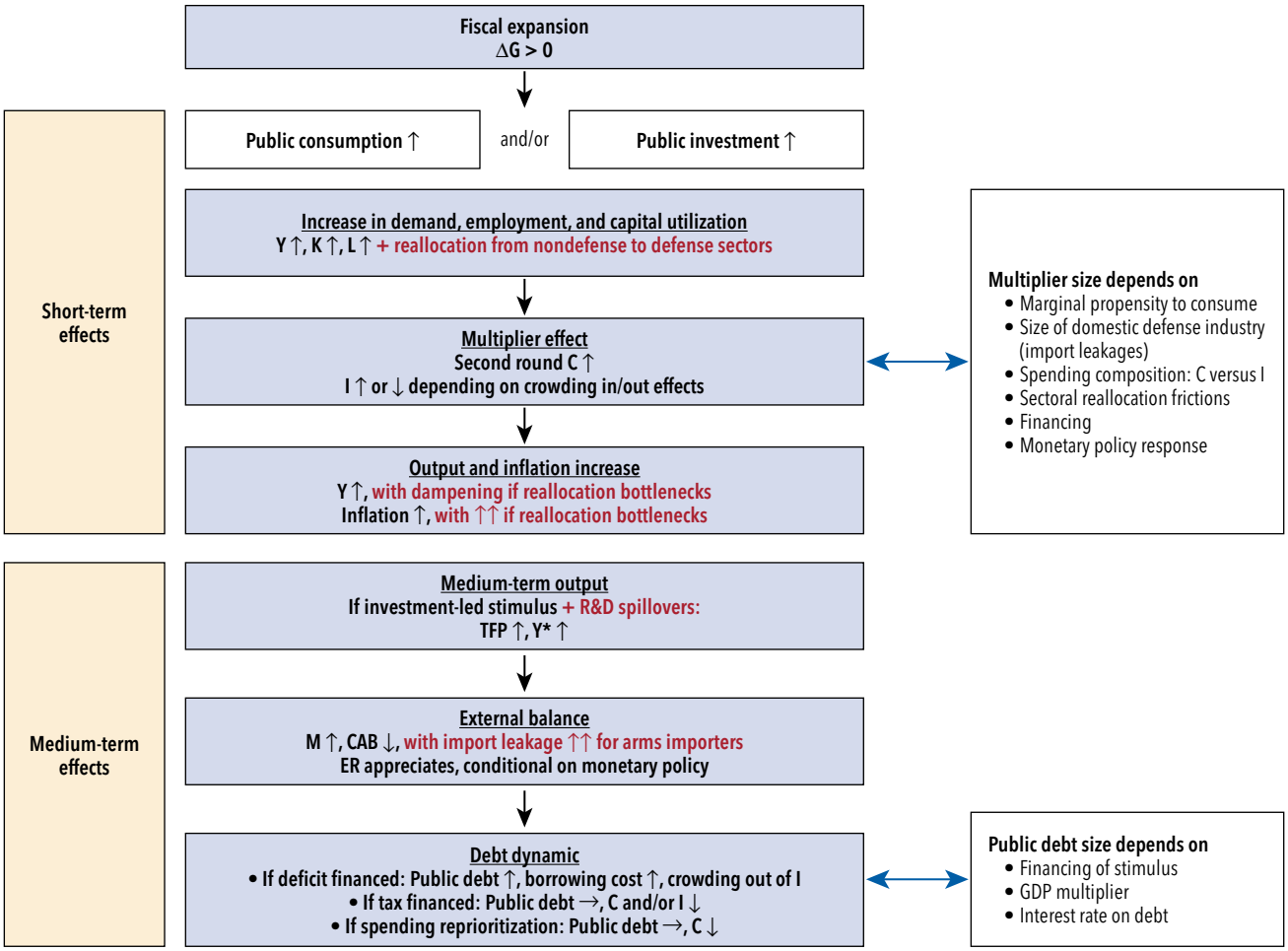
- *Countries should consider that aggregate output effects of defense spending are likely to be modest and depend on structural characteristics and policy choices.* Countries seeking to strengthen defense capabilities may face trade-offs in the short term. While a deficit-financed stimulus maximizes the demand effect, a larger allocation to current spending, possibly directed at military personnel, could further boost employment and domestic demand effects, but at the cost of overheating the economy. In this case, close coordination with monetary policy is critical to temper inflationary pressures. By contrast, a large share spent on equipment—especially if imported—will reduce inflationary pressures, but also demand effects, while worsening the current account balance, unless stronger domestic productive capacity lowers import leakages. In the long run, however, defense capital spending, especially if directed at outlays for research and development (R&D) without crowding out other nondefense productive investment, can promote innovation and growth.
- *As scaling up defense spending is likely to place pressure on both fiscal and external balances, policies should be directed at preserving fiscal and external sustainability.* Over time, higher deficits and debt can narrow fiscal space and undermine fiscal sustainability, especially in wartime, while larger import bills may weaken external positions, limiting policymakers' room to respond to future shocks. In this context, choices about how defense spending is financed and allocated become critical. Absent complementary measures, sustained defense buildups, particularly during wartime, risk crowding out other public priorities—most notably social spending—either through explicit budgetary reallocation or through gradual erosion in real terms. These considerations highlight the importance of embedding decisions about defense spending within a medium-term fiscal and macroeconomic framework that preserves fiscal sustainability, mitigates external vulnerabilities, and safeguards social and growth-enhancing expenditures.

The Macroeconomics of Defense Spending: A Primer

The expansion of defense spending acts as a sector-specific positive demand shock to the economy, but can create positive or negative supply-side effects through sectoral reallocation and changes in relative prices (Figure 2.2). Recent empirical evidence suggests that, at least in the short term, military spending stimulates output through positive demand effects (Ilzetzki 2025) and can put upward pressure on prices (Ben Zeev and Pappa 2017). As is the case for other forms of fiscal stimulus, its macroeconomic consequences—especially the reaction of private consumption and investment—depend on the current status of the economy, the monetary policy reaction, the allocation of defense spending between government consumption and investment, and its financing mix. But unlike other forms of fiscal stimulus, a defense buildup has distinctive features that shape its transmission to the economy (Figure 2.2, red text):

- First, it entails a large *reallocation of resources from nondefense- to defense-oriented sectors* as defense

Figure 2.2. Defense Spending: Transmission Channels



Source: IMF staff compilation.

Note: Red text highlights relevant channels for defense spending. ΔG indicates change in government spending. ↑↑ implies a substantial increase. C = consumption; CAB = current account balance; ER = exchange rate; G = government spending; I = investment; K = capital; L = labor; M = imports; R&D = research and development; TFP = total factor productivity; Y = output; Y* = potential output.

outlays are highly concentrated in a narrow set of industries—such as aerospace and transport equipment, electronics and instruments, machinery, and specialty materials (Nekarda and Ramey 2011)—and often take the form of procurement contracts rather than broad public sector payrolls or transfers. As a result, a defense buildup functions as a sector-specific demand shock that often triggers costly reallocations of capital and labor across sectors, rather than a uniform expansion in aggregate demand (Ramey and Shapiro 1998).

- Second, *a larger share of defense spending is typically allocated to government consumption* (military personnel, services, and supplies) *than to investment* (military equipment and infrastructure). In fact, for 35 NATO and European Union member countries for which data are available, current spending accounts for about 80 percent of total government defense spending (Becker and others 2025). However, the capital share—including procurement and R&D—has been comparatively larger in countries such as the United States, reflecting programs administered by the Defense Advanced Research Projects Agency. Moreover, during periods of defense buildup, public investment can account for a substantial portion of the increase in defense outlays (Box 2.1). This compositional bias carries important macroeconomic implications. Relative

to public investment, defense-related government consumption tends to generate weaker and less-persistent effects for potential output, as it does not directly expand productive capacity.[6] Instead, it operates primarily through demand and income channels, increasing wages and employment in defense-related activities.

- Finally, defense spending entails *a significant risk of demand leakages through imports*, reflecting the high degree of concentration in global arms production and the fact that many countries are net importers of military equipment. Indeed, nearly half of total arms revenue among the world's top 100 arms-producing firms is generated in the United States, while Europe accounts for about 14 percent and China 12 percent.[7] As a result, most countries import a large share of their military equipment, with this ratio as high as 80 percent for European Union member countries (Draghi 2024). This pattern has important macroeconomic implications: When defense spending is directed toward imported equipment, as it is, for example, in Denmark (Danmarks Nationalbank 2025) or Poland (Box 2.1), a substantial share of the associated demand stimulus accrues to foreign producers rather than to domestic value added, dampening the response of domestic output and employment to the spending while contributing to a deterioration in the external balance.

As highlighted in Figure 2.2, defense spending operates in the short term as a targeted government demand shock, increasing both activity and utilization rates of capital and labor in defense-intensive sectors. In parallel, the output boost generated by ramping up spending could be accompanied by an increase in inflation, with stronger potential inflationary effects if the economy is close to potential, labor markets are tight, capital reallocation frictions arise, or key inputs become scarce as resources are shifted to defense-oriented sectors (Antonova, Luetticke, and Mueller 2025; Heerma van Voss and others 2026). The output effect can also be amplified in the case of a permanent defense spending shock, with potentially larger labor supply and investment responses (Baxter and King 1993; Barro and Redlick 2011). Crucially, sectoral adjustment costs associated with reallocating factors toward defense production can dampen the output response and short-term multiplier and crowd out private consumption and interest-sensitive investment, as seen during the Korean and Vietnam war buildups in the United States (Ramey and Shapiro 1998, 2001; Phelan and Trejos 2000).

The net effect of defense spending on output will also depend on its composition:

- A larger share of government spending directed at consumption, especially compensation for military personnel and when targeted to sectors in which households are less wealthy and have a higher marginal propensity to consume, can crowd in private consumption through higher labor demand and wages (Fisher and Peters 2010). As a result, government consumption multipliers could be larger than those coming from investment spending (Boehm 2020), especially in the short term, as capital spending is often subject to import leakages and implementation lags, and yields returns over a longer horizon (Alloza and others 2026).
- At the same time, evidence suggests that investment-driven buildups can have positive and persistent effects on output by boosting innovation, entrepreneurship, and private investment through public spending on R&D (Gross and Sampat 2023; Antolin-Diaz and Surico 2025; Moretti, Steinwender, and Van Reenen 2025). However, supply effects can also be negative through crowding-out effects, reallocating spending away from productive physical and human capital to defense, and through distortions leading to an inefficient allocation of resources that can lower productivity (Deger and Smith 1983; Knight, Loayza, and Villanueva 1996).

The choice of how to finance a defense spending buildup—whether through taxes, spending reprioritization, or borrowing—has important macroeconomic implications and entails distinct trade-offs (Ohanian 1997). Tax-financed defense spending tends to crowd out private consumption, dampening the expansionary effects on output and inflation, although inflationary pressures may still arise from relative scarcity and sectoral bottlenecks. When booms are financed through spending reprioritization, private consumption may also be affected, as lower transfers and reduced provision of public services weigh on household disposable income.

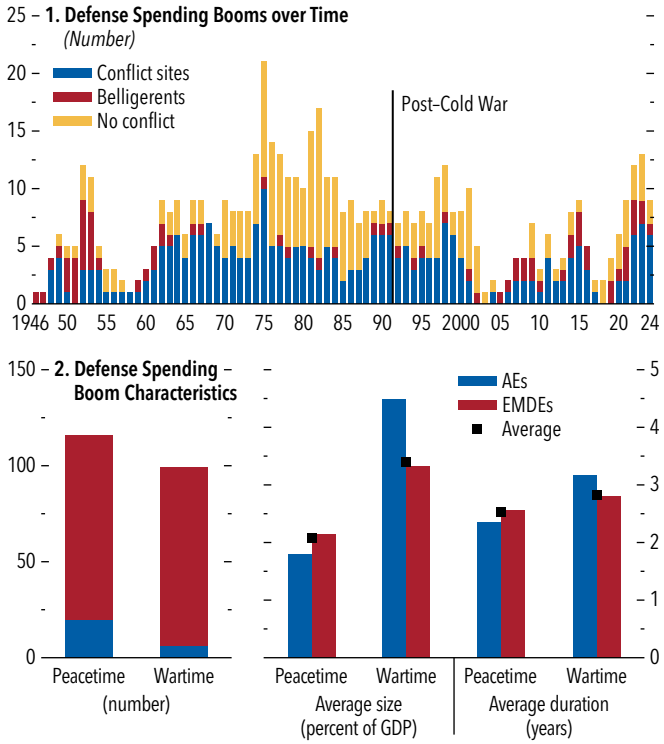
[6]Not only consumption, but also public investment in the defense sector (such as the purchase of military equipment), can yield lower productivity relative to other types of public investment (such as infrastructure).

[7]Europe's share increases to 22 percent when the United Kingdom in included. Data are from the SIPRI Arms Industry Database.

Deficit-financed buildups, by contrast, generally produce larger short-term demand effects, as immediate crowding out is weaker. However, forward-looking households may reduce current consumption in anticipation of future tax increases, particularly if higher defense spending is expected to persist, thereby lowering the effective fiscal multiplier. In addition, sustained reliance on debt financing raises intergenerational trade-offs and can increase vulnerabilities over the medium term. Higher borrowing costs, especially in countries with limited fiscal space, could dampen private investment and partially offset the expansionary effects of higher public spending. These considerations suggest that permanent defense buildups require durable financing arrangements, such as higher revenues or lasting changes in spending composition, to limit medium-term vulnerabilities. Taken together, these considerations underscore that the macroeconomic impact of defense spending depends not only on its scale and the financing mix, but also on expectations regarding its duration and permanence.[8]

Defense spending buildups can also generate important cross-border spillovers. As demand for military goods and advanced technologies rises, countries typically increase imports from major arms exporters or technologically advanced economies. These leakages generate positive spillovers to foreign producers that absorb the additional external demand. Such effects tend to be larger in countries without a substantial domestic defense industrial base.

Figure 2.3. Defense Spending Booms



Source: IMF staff calculations.

Note: The figure shows episodes of defense spending booms, defined as periods during which the two-year moving average of defense spending increases by at least 1 percentage point of GDP, lasting for as long as defense spending does not decline as a share of GDP. Wartime (peacetime) booms are defined based on whether (or not) an on-site conflict emerges one year before or within three years following the defense spending boom onset. AEs = advanced economies; EMDEs = emerging market and developing economies.

Defense Spending Booms

Definition and Characteristics

Episodes of defense spending expansion have been frequent and, after slowing in the early 2000s, have picked up again (Figure 2.3, panel 1). The chapter defines a defense spending boom as a period when the two-year moving average of a country's defense spending increases by at least 1 percentage point of GDP, with the boom lasting for as long as defense spending does not decline as a share of GDP.[9] According to this definition, there have been 215 defense spending booms since 1946 across 164 countries, mostly concentrated in the late 1970s and in the 1980s. Defense spending booms that immediately follow a conflict or culminate in an on-site conflict (taking place within a country's borders) within three years are classified as "wartime" booms, which account for about half of the booms. All others—denoted "peacetime" booms—are further classified as "belligerent" (if they are associated

[8]The financing mix and its effects likely differ across countries. Advanced economies generally have more room to smooth temporary defense spending increases through borrowing, whereas more limited fiscal space and higher risk premiums in emerging markets increase the likelihood of crowding out and sharper trade-offs between defense objectives and macroeconomic stability.

[9]This definition is close in spirit to how the literature identifies large fiscal expansions and contractions based on sustained changes in spending and taxes (Alesina and Perotti 1995). Lacking a widely used definition of defense spending booms, the chapter tests the robustness of its main findings using two alternative definitions, based on (1) a less-restrictive threshold set at 0.5 percentage point of GDP and (2) the measure proposed by Marzian and Trebesch (2025). See Online Annex 2.2 for details. All online annexes are available at www.imf.org/en/Publications/WEO.

with belligerent conflicts, occurring abroad) or "no conflict" (if no conflict is experienced on-site nor elsewhere). Booms are also evenly split between those that lead to a temporary or a permanent increase in defense spending, depending on whether the ratio of defense spending to GDP returns to its initial level 10 years after the boom's onset.

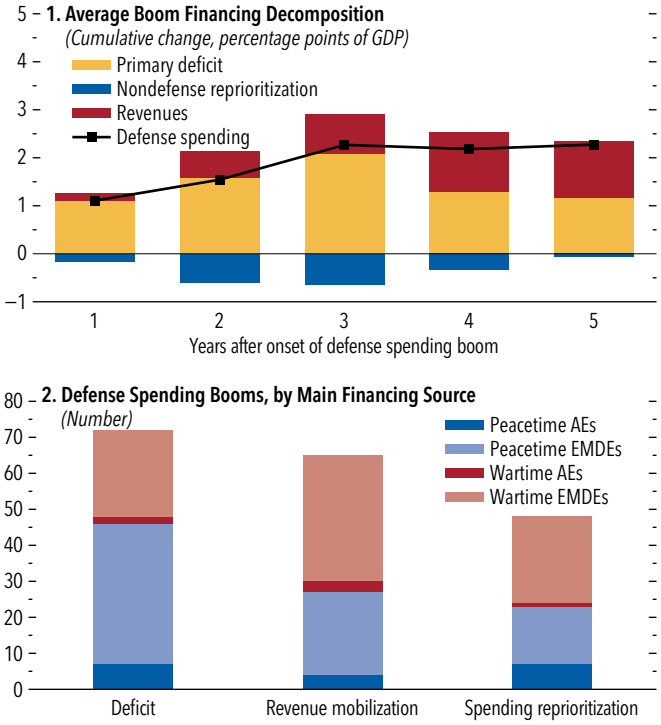
Defense spending booms are predominantly concentrated in emerging market and developing economies (88 percent) and are especially common in the Middle East and in Africa, regions historically more susceptible to conflicts (see Chapter 3). Chapter 2 of the April 2019 *Regional Economic Outlook: Sub-Saharan Africa* also shows that conflicts in the region tend to lead to substantial increases in military expenditures. Similar results have been uncovered with regard to terrorist attacks in African countries, with spillover effects to neighboring countries' defense spending (Boly and Kéré 2026).

Episodes of defense scaling up in advanced economies are less frequent (about 11 percent of booms have happened in European countries), but they tend to be larger and last longer than in other countries. This is especially the case during wartime, consistent with the spikes in US defense spending during the Korean War and World War II (Ramey 2011) and the decline in defense spending following the end of the Cold War (Sandler and George 2016). While the average boom lasts more than two-and-a-half years and accounts for an increase in defense spending of about 2.7 percentage points of GDP, booms in advanced economies during conflicts last, on average, three-and-a-half years and amount to about 4.5 percentage points of GDP (Figure 2.3, panel 2). In the post–Cold War period, defense spending booms have become slightly shorter and smaller in size. Also, size is broadly similar across booms linked to a temporary or permanent increase in defense spending, with the latter 0.7 percentage point of GDP greater than temporary booms.

Financing Defense Spending

Defense spending booms are front-loaded and financed primarily through higher deficits, with revenue mobilization playing a secondary role and spending reprioritization occurring only gradually. On average, most defense outlays take place in the first year of a boom, and nearly all additional spending is completed within three years of the boom's onset (Figure 2.4, panel 1). The initial buildup is financed largely through widening budget deficits, which increase by about 1.1 percentage points of GDP in the first year and reach roughly 2 percentage points cumulatively by year 3, implying sizable fiscal costs. Revenue mobilization contributes more modestly, accounting for about 0.2 percentage point of GDP in the first year and 1.2 percentage points overall. By contrast, spending reprioritization plays a limited role early on and becomes prominent only in later years, suggesting that governments initially rely on borrowing but increasingly turn to reallocating expenditures as borrowing costs rise or fiscal constraints tighten. After year 3, deficits begin to narrow, marking a reversal of the initial financing pattern. These findings are consistent with recent evidence over a longer horizon for a sample of 20 advanced economies (Marzian and Trebesch 2025). Consistent with theory, the average

Figure 2.4. Financing Defense Spending Booms



Source: IMF staff calculations.

Note: In panel 1, the black line denotes the cumulative increase in defense spending in percentage points of GDP. The horizontal axis measures the duration of the defense spending booms, in years. For each year, this increase is decomposed into its financing sources. "Nondefense reprioritization" is computed as the residual in this equation: *Change in Deficit = Change in Defense Spending + Change in Nondefense Spending − Change in Revenues.* In panel 2, wartime (peacetime) booms are defined based on whether (or not) an on-site conflict emerges one year before or within three years following the corresponding defense spending boom onset. AEs = advanced economies; EMDEs = emerging market and developing economies.

temporary boom is entirely deficit financed in the first three years, while higher revenues account for about half of the three-year increase in military spending during permanent booms.

While this average pattern masks substantial heterogeneity across episodes, the deficit remains the dominant source of financing overall, accounting for 39 percent of booms, especially during peacetime, when it is the dominant financing source for almost half of the booms. At the same time, revenue mobilization emerges as the primary financing channel in 35 percent of cases, while spending reprioritization is the primary conduit in 26 percent of cases, highlighting meaningful variation in how countries fund defense expansions (Figure 2.4, panel 2).

Strengthening Defense Capabilities

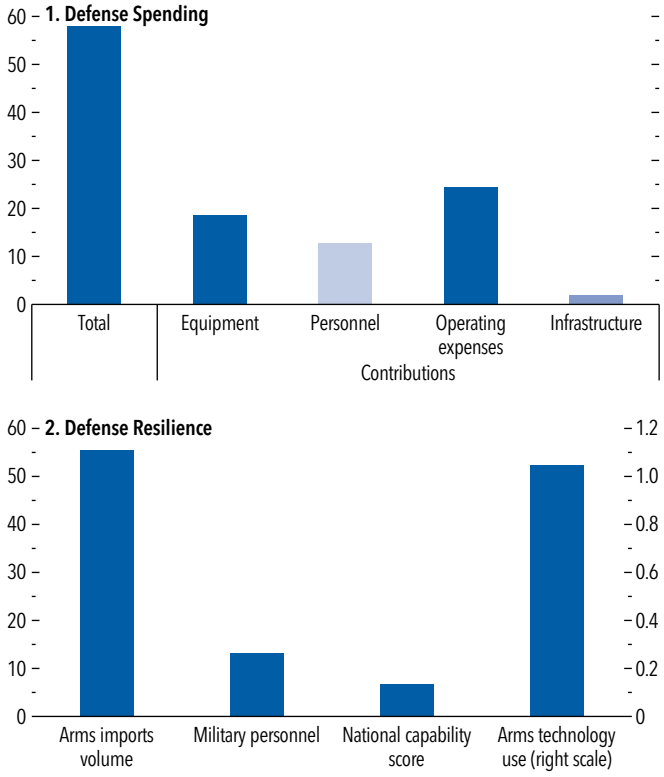
Defense spending booms translate into large and persistent expansions in military investment, personnel, and capabilities. On average, real defense outlays increase by about 60 percent within three years of the onset of a boom—an amount equivalent to almost 2 percent of GDP—reflecting a sizable buildup of resources devoted to military equipment, alongside higher spending on personnel and operating expenses (Figure 2.5, panel 1).

These outlays are associated with a strengthening of defense capabilities, as reflected in a 7 percent rise in the Composite Index of National Capability, a broad measure of national power that incorporates defense spending, personnel, energy use, industrial capacity, and population (Kadera and Sorokin 2004). The buildup is accompanied by a sharp increase in arms imports—reaching 55 percent over three years—which can weigh on external balances, and by a roughly 13 percent increase in personnel, potentially generating second-round demand effects (Figure 2.5, panel 2). At the same time, countries expand their adoption of advanced military technologies, including artillery, armored vehicles, aircraft, and helicopters, as reflected in a higher share of available arms technologies in use.

Macroeconomic Consequences of Defense Spending: Empirical Evidence

Credible identification of the macroeconomic effects of defense spending requires isolating changes that are both unanticipated and plausibly unrelated to contemporaneous business cycle conditions.

Figure 2.5. Strengthening Defense Capabilities
(Percent change, three years ahead)



Source: IMF staff calculations.

Note: The figure plots three-year-ahead local projection estimates of cumulative responses to defense spending booms. Darker-colored bars denote coefficients that are statistically significant at the 10 percent level. In panel 1, the real defense spending decomposition focuses on a sample of 31 member countries of the North Atlantic Treaty Organization (NATO); data are not available for Iceland. Panel 2 uses a sample of 78 countries for "Arms imports volume," 146 for "Military personnel," 157 for "National capability score," and 158 for "Arms technology use."

In practice, this is challenging to do, particularly in cross-country settings, as defense outlays may respond endogenously to domestic economic conditions, fiscal space, or security developments—for example, following revenue windfalls, during economic downturns, or in response to rising domestic and geopolitical risks. As a result, observed changes in defense spending can also be driven by output or fiscal dynamics, complicating causal interpretation.

Defense spending correlates positively with lagged GDP growth and government revenues. To the extent that higher revenues and stronger growth relax fiscal constraints and enable greater military outlays, this procyclicality may bias upward the estimated macroeconomic effects of defense spending. By contrast, defense spending is also positively associated with

conflicts. Because wars generate large economic costs, as documented in Chapter 3, failing to account for this simultaneity would bias the estimated effects downward. Similarly, if defense spending increases are triggered by adverse geopolitical developments—such as an increase in geopolitical risk—and these developments independently depress economic activity (Caldara and Iacoviello 2022), the estimated macroeconomic consequences of defense spending would again be biased downward.[10]

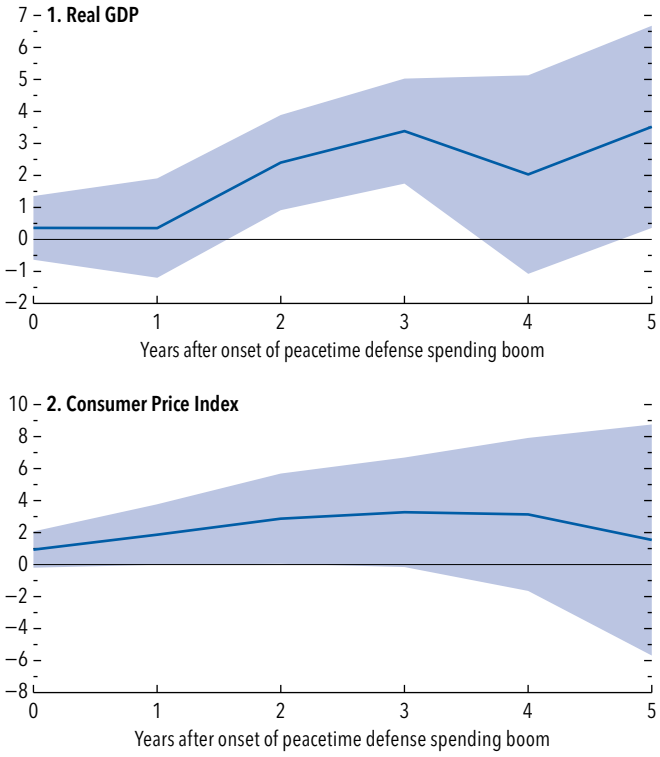
Some endogeneity concerns can be attenuated by considering defense spending booms in peacetime that—unlike regular changes in defense spending—are not predictable based on real GDP growth, government revenue dynamics, or recession indicators, and by excluding fragile and conflict-affected states and commodity exporters, to avoid confounding effects arising from long-term conflict scarring (see Chapter 3) and commodity price cycles. This section of the chapter first examines the macroeconomic implications of defense spending booms, with a focus on peacetime episodes, before turning to the estimation of defense spending multipliers.

Macroeconomic Dynamics after Defense Spending Booms

To understand how the economy reacts to a sharp increase in defense spending, this section uses panel local projections (Jordà 2005) to study macroeconomic dynamics following defense spending booms. It starts by analyzing the evolution of output, its components, and prices. Next, to shed light on the underlying channels through which defense spending can shape aggregate output, the macroeconomic evidence is complemented with firm-level analysis to test the relative importance for corporate investment of a positive demand shock stemming from additional defense spending versus the crowding-out effect from higher public debt. Last, the section considers all booms to illustrate their fiscal implications, potential crowding out of nondefense spending (the *guns versus butter* trade-off), and their effects on external imbalances. While results must be interpreted with caution because of the endogeneity of spending booms, especially those during wars, exploiting the richness of the data and the large variation in the intensity and length of booms across periods of war and peace can provide a more informative discussion of the trade-offs generated by the buildup of defense spending (Marzian and Trebesch 2025).

Defense spending booms in peacetime are followed by a sizable increase in real GDP and by a short-lived rise in inflation. Following a boom, a country's real output is more than 3 percent higher than in periods when the country is not experiencing a boom, with the increase materializing about two years after the boom's onset and persisting over the medium term (Figure 2.6, panel 1). Given that the average size of booms in peacetime is about 2.7 percentage points of GDP, this pattern is consistent with a multiplier of defense spending close to 1. The average increase in GDP is driven by booms that are linked to a permanent increase in defense spending. In these episodes, real GDP increases by more than 5 percent over five years (see Online Annex 2.3). Consumer prices also increase by almost 3.6 percent on average relative to nonboom periods, but this inflationary effect is temporary and fades over the medium term (Figure 2.6, panel 2).

Figure 2.6. Output and Prices after Peacetime Booms
(Percent change)

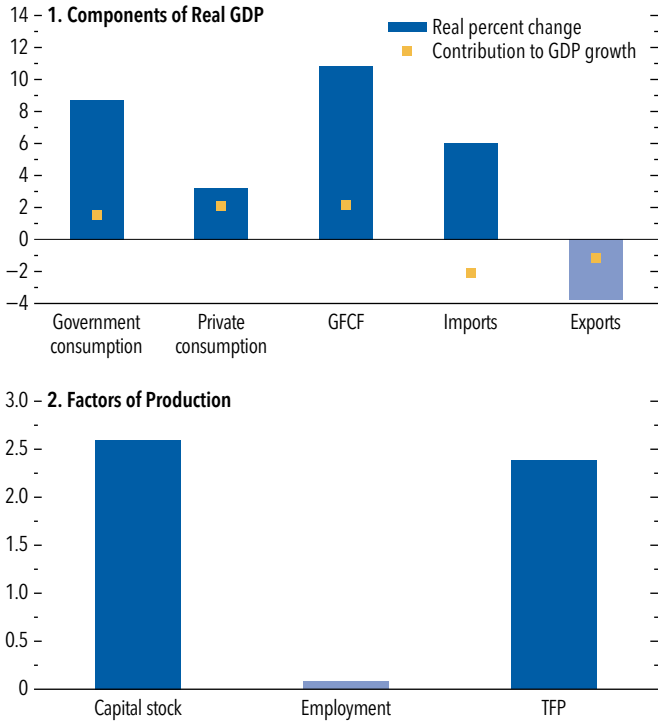


Source: IMF staff calculations.

Note: The panels plot local projection estimates of cumulative responses to peacetime defense spending booms. Fragile and conflict-affected states, as well as commodity-exporting emerging market and developing economies, are excluded from the sample. The sample period spans 1946–2024. Solid lines denote point estimates, and shaded areas denote 90 percent confidence intervals.

[10]See Online Annex 2.2 for a more extensive discussion, additional results, and robustness tests.

Figure 2.7. Transmission Channels of Defense Spending Booms
(Percent, three years ahead)



Source: IMF staff calculations.

Note: The panels plot the three-year-ahead coefficients from local projection estimates of cumulative responses to peacetime defense spending booms. Fragile and conflict-affected states, as well as commodity-exporting emerging market and developing economies, are excluded from the sample. The sample period spans 1946–2024. Darker-colored bars denote coefficients that are statistically significant at the 10 percent level. GFCF = gross fixed capital formation; TFP = total factor productivity.

The output response is driven by higher domestic absorption, reflecting increases in government consumption alongside crowding in of private consumption and investment, with broadly similar contributions to GDP growth across components. Consistent with a large share of the stimulus being allocated to personnel and operating expenses, government consumption rises by about 9 percent within three years (Figure 2.7, panel 1). Private consumption also increases—by roughly 3 percent—likely supported by wider fiscal deficits and direct demand effects through higher labor demand in defense-related sectors. Total investment shows a comparable positive response, reflecting both higher public investment in defense equipment and infrastructure and increased private investment, particularly in defense-related industries. Turning to the external sector, stimulus-driven demand leads to wider external imbalances, as both the current account and trade balance deteriorate. Imports accelerate—reflecting leakages from defense spending and stronger demand for foreign goods—while exports remain broadly unchanged. Moving to the key factors of production (Figure 2.7, panel 2), defense spending booms are associated with a subsequent increase in the stock of capital, in line with the documented boost to investment, and an increase in total factor productivity, which may be explained by changes in capacity utilization (Basu 1996) and learning by necessity, as firms adapt to surging demand by improving productivity when facing capacity constraints (Ilzetzki 2024).[11]

Firm-Level Evidence on Defense Spending and Private Investment

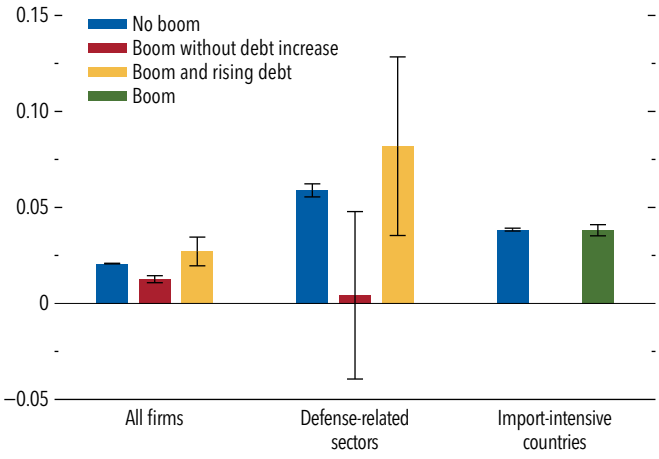
While aggregate investment increases in response to higher defense spending, at the firm level the response can differ, reflecting the balance between a demand channel—supporting investment, particularly in defense-intensive sectors—and a potential crowding-out effect, as increasing public debt can tighten firms' financing constraints (Huang, Pagano, and Panizza 2020). To disentangle these channels, the chapter estimates the sensitivity of investment to cash flows—a standard indicator of the presence of credit constraints (Fazzari, Hubbard, and Petersen 1988)—around defense spending booms, distinguishing between episodes associated with increasing public debt and those that are budget neutral. The analysis draws on data for more than 4.6 million private nonfinancial firms across 41 countries between 1995 and 2023.[12]

Firm investment becomes less sensitive to internal funds during defense spending booms, consistent with a positive effect on demand that relaxes financing constraints and supports aggregate investment. By contrast, when booms coincide with higher public debt, financing conditions tighten and crowd out firm investment, as shown by a higher sensitivity

[11]This interpretation is consistent with the effect on total factor productivity losing its statistical significance once capacity utilization is controlled for. However, defense spending booms are followed by greater total factor productivity over longer horizons, consistent with evidence showing that the R&D component of defense spending can boost innovation and crowd in private R&D spending (Antolin Díaz and Surico 2025; Moretti, Steinwender, and Van Reenen 2025). See Online Annex 2.3.

[12]This approach also mitigates concerns about the endogeneity of defense spending booms, as it controls for unobserved shocks at the sector and country level, such as changes in demand, that drive firm investment decisions. See Online Annex 2.4 for a detailed discussion of the data (sourced from Orbis), the methodology, and the full set of results.

Figure 2.8. Firm Investment after Booms
(Regression coefficients)



Source: IMF staff calculations.

Note: The figure reports coefficients measuring the sensitivity of investment to cash flows, estimated from a regression controlling for past investment and sales (all expressed as percent of assets). The blue bars correspond to the sensitivity for firms in countries without defense spending booms. The red bars measure the sensitivity for firms in countries during periods of boom not associated with debt increases, and the yellow bars measure that sensitivity during periods of boom associated with debt increases. Import-intensive countries are defined as those for which arms imports are above the cross-country average. The sample includes 41 countries between 1995 and 2023. Bars denote point estimates, and whiskers denote 90 percent confidence intervals. See Online Annex 2.4 for further details.

of investment to cash flow.[13] As expected, demand effects are strongest in defense-related sectors, in which the sensitivity of investment to cash flow falls to zero during budget-neutral booms, suggesting that government demand fully offsets financing frictions. Conversely, in countries with high import content of defense goods, where spending largely leaks abroad, the demand channel is muted, and investment sensitivities during booms remain unchanged relative to those in normal periods (Figure 2.8).

Fiscal Costs of Defense Spending Booms

Defense spending booms generally lead to a deterioration in countries' fiscal positions. Consistent with the evidence discussed earlier about booms being financed predominantly by government borrowing and with recent findings by Marzian and Trebesch (2025), within three years after a boom's onset, the government deficit widens by about 2.6 percentage points of GDP and the public-debt-to-GDP ratio increases by almost 7 percentage points more than that of countries not ramping up defense spending (Figure 2.9, panel 1).

Fiscal costs are not limited to rising debt and risks to fiscal sustainability; booms can also crowd out nondefense primary spending. Whereas in the full sample of defense spending booms there is no clear evidence of crowding out, in line with the findings of Marzian and Trebesch (2025) on a smaller sample of advanced economies, there is a clear policy trade-off between higher defense outlays and other public spending priorities when booms are financed predominantly through spending reprioritization. Spending reprioritization implies cuts in the budget, with nondefense primary spending declining by more than 20 percent in real terms (about 2 percent of GDP) in the three years following a boom. The decrease in social spending amounts to about 1 percentage point of GDP and spans multiple categories of spending, including social protection, health, and education (Figure 2.9, panel 2).[14] Taken together, these findings underscore the importance for policymakers of carefully considering financing choices when scaling up defense spending, as reliance on spending reprioritization, while potentially appropriate when a surge is permanent, can entail meaningful distributional and social consequences over the medium term.

The fiscal implications of ramping up defense spending differ markedly depending on whether booms are associated with on-site conflicts. Wartime booms are followed by a sharp increase in public debt and a contraction in real social spending. In contrast, peacetime booms benefit from positive output effects (Figure 2.6, panel 1) and are not followed by an increase in debt-to-GDP ratios or by crowding out of social spending, on average (Figure 2.9, panel 3).

Estimating Defense Spending Multipliers

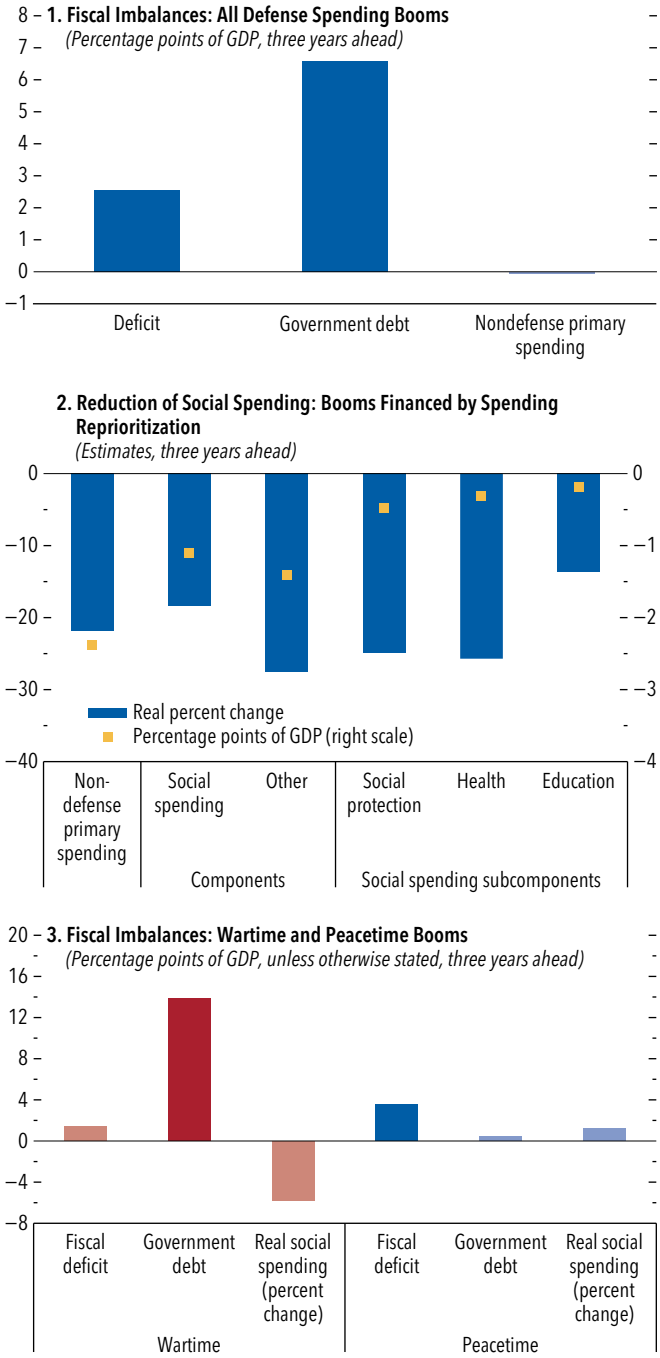
To provide a comprehensive view of the output response to defense spending outside boom episodes, this subsection estimates defense spending multipliers for a large sample of countries, excluding fragile and conflict-affected states.

Two exercises directed at attenuating the potential endogeneity of defense spending yield multipliers

[13]The crowding out in response to higher debt may be consistent with a larger output response to deficit-financed defense spending booms, because of general equilibrium effects.

[14]The decline in social spending is smaller, at about 7 percent in real terms, for advanced economies. See Online Annex 2.2.

Figure 2.9. Fiscal Consequences of Defense Spending Booms



Source: IMF staff calculations.

Note: The panels plot the three-year-ahead coefficients from local projection estimates of cumulative responses to defense spending booms. Wartime (peacetime) booms are defined based on whether (or not) an on-site conflict emerges one year before or within three years following a defense spending boom onset. The sample period spans 1946–2024. Darker-colored bars denote coefficients that are statistically significant at the 10 percent level.

generally closer to 1.[15] First, narrative methods are used to identify a subset of defense spending booms that are driven by external geopolitical events or by alliance-related decisions that are largely unrelated to local macro-fiscal conditions and domestic security concerns.[16] Using *narrative* defense spending booms as an instrument for defense spending leads to multipliers that are estimated at about 1 (Figure 2.10, panels 1 and 2), consistent with earlier estimates ranging between 0.6 and 1.2 for defense spending and centered on 1 for government spending.[17] Second, restricting the sample to members of defense alliances (NATO and the Islamic Military Counter Terrorism Coalition) has the advantage that their defense spending is not anticipated by macroeconomic conditions, such as GDP growth and government revenue (see Online Annex 2.2), as their defense decisions are often shaped by forces outside their domestic political and economic systems (Sheremirov and Spirovska 2022). In this case, the resulting estimates are not always statistically significant but still close to 1 (Figure 2.10, panels 3 and 4).[18]

While the positive association between defense spending and prior GDP growth or revenue windfalls may lead to upward-biased point estimates, estimating defense spending multipliers on a large cross-country sample provides more granular evidence on the factors shaping the output response to defense spending.

In line with the existing literature, defense spending multipliers are larger when the defense buildup is permanent (as sustained demand encourages capital formation), for arms exporters (likely because of lower leakage of defense spending through imports), and when defense spending is financed mostly by deficits

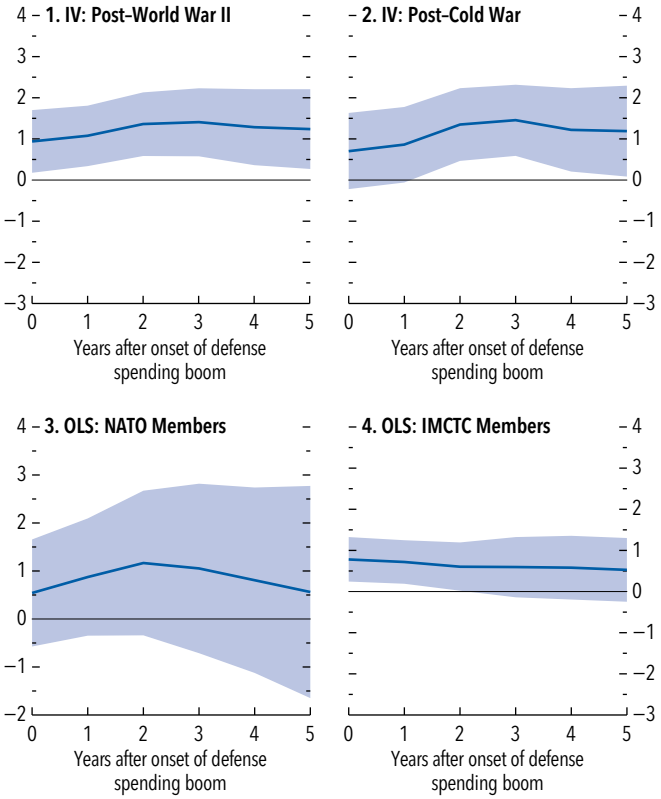
[15]While these exercises rely on changes in defense spending that are not predicted by lagged economic conditions, they can still be endogenous to current and expected conditions, as well as to other macroeconomic shocks, such as geopolitical risks.

[16]These *narrative* episodes are uncorrelated with lagged economic conditions such as GDP growth, government revenues, commodity cycles, and recessions. See Online Annex 2.2 for details.

[17]Reported multipliers vary widely in the literature—ranging from less than 1 (Barro and Redlick 2011) to about 2 or more (Fisher and Peters 2010; Antolin Díaz and Surico 2025; Furceri and others 2026), reflecting differences in samples, time periods, country characteristics, and empirical approaches. See Online Annex Table 2.5.5 for a literature review of defense spending multipliers.

[18]NATO comprises 24 advanced economies and 8 emerging market and developing economies, whereas the Islamic Military Counter Terrorism Coalition (IMCTC) comprises 41 emerging market and developing economies. Restricting the sample to members of these alliances comes at the cost of limiting the possibility of generalizing results to other contexts.

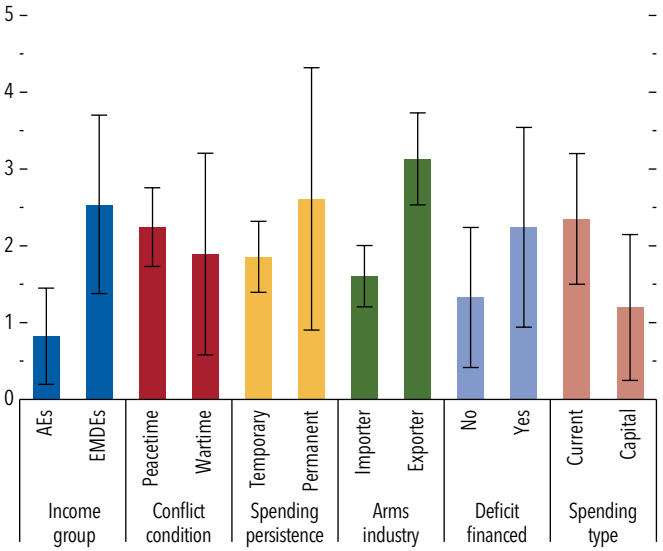
Figure 2.10. Defense Spending Multipliers
(Cumulative multipliers)



Source: IMF staff calculations.

Note: The panels plot local projection estimates of cumulative responses of output to defense spending. Fragile and conflict-affected states are excluded from the sample. The sample period spans 1946–2024 in panel 1 and 1991–2024 in panels 2, 3, and 4. In panels 1–2, multipliers are estimated using narrative defense spending booms as an instrument for defense spending. Solid lines denote point estimates, and shaded areas denote 90 percent confidence intervals. See Online Annex 2.5 for details. IMCTC = Islamic Military Counter Terrorism Coalition; IV = instrumental variable; NATO = North Atlantic Treaty Organization; OLS = ordinary least squares.

Figure 2.11. Differences in Defense Spending Multipliers
(Cumulative multipliers, three years ahead)



Source: IMF staff calculations.

Note: The figure shows nonlinearities in the size of three-year-ahead cumulative multipliers by income group, conflict status, boom persistence, size of defense industry, sources of financing, and spending composition. "Wartime" ("Peacetime") is defined based on whether (or not) an on-site conflict has occurred in the past year or occurs within three years ahead. "Importer" ("exporter") refers to economies in which the average share of arms exports in their arms trade is below (above) the median for the sample. "Deficit financed" is defined based on whether the annual change in a country's defense spending is driven mostly by a change in its deficit (rather than by changes in its revenues or nondefense spending). "Current" spending comprises personnel and operating expenses, whereas "Capital" spending comprises spending on equipment and infrastructure. A change in defense spending in year *t* is defined as "Permanent" if the direction of the change in the ratio of defense spending to GDP in that year is sustained over the subsequent 10 years and as "Temporary" otherwise. Bars denote point estimates, and whiskers denote 90 percent confidence intervals. AEs = advanced economies; EMDEs = emerging market and developing economies.

rather than through revenue mobilization or spending reprioritization (Figure 2.11). In addition, spending composition matters, with larger multipliers estimated for current spending items (personnel and operating expenses) than for capital spending (equipment and infrastructure), possibly from a high marginal propensity to consume for current spending and high average import content for capital spending.[19] Defense spending multipliers are also larger in countries with fixed exchange regimes, where monetary policy accommodates the fiscal expansion (Ilzetzki, Mendoza, and Végh 2013), and with higher public investment efficiency, consistent with the findings discussed in the October 2025 *Fiscal Monitor* (see Online Annex 2.3). Ramping up defense spending can also generate spillovers to trade partners. Consistent with increasing trade integration and advanced economies being the main exporters of arms and military equipment, an increase in defense spending, starting in the 1990s, is associated with higher output in advanced economies, while there are no significant spillovers to emerging markets nor before the end of the Cold War (Box 2.2).

[19]The difference between capital and current spending multipliers, however, is not statistically significant, given the large confidence bands for capital spending multipliers.

Macroeconomic Consequences of Defense Spending: Model Simulations

Modeling Assumptions

To quantify the general equilibrium implications of a buildup of defense spending under different scenarios, the chapter uses the IMF's Flexible System of Global Models, an annual multiregion dynamic stochastic

general equilibrium model that combines both microfounded and reduced-form formulations of various economic sectors (Andrle and others 2015).[20] Compared with the empirical analysis, the model simulations impose structural discipline on macroeconomic relationships, incorporate policy reactions, and enable counterfactual simulations to illustrate both short-term and long-term effects from increasing defense spending under different scenarios. The baseline scenario is calibrated considering the planned increase in defense spending across a representative group of European Union member countries, as of October 2025, measured as a deviation from spending levels before Russia's invasion of Ukraine. On average, the ramping up of defense spending in Europe is sizable and is projected to reach 1 percent of GDP in 2026 and increase to 1.3 percent by 2030 (Figure 2.12, panel 1). The level of spending is assumed to remain constant as a share of GDP until 2035 and then to decline linearly to 75 percent of the 2030 level by 2050.[21] Defense spending is assumed to be allocated 80 percent to consumption and 20 percent to investment, in line with data on military spending subcomponents for European Union member countries (European Commission 2025). Part of government spending is allocated to foreign goods, and the baseline scenario assumes that the import content amounts to 20 percent for government spending, with the investment component having a much higher import content, including toward the United States, in line with its dominance in the arms industry. The buildup of defense spending is assumed to be fully debt financed through 2028. After that, offsetting measures are gradually introduced and fully implemented by 2033, when all spending is budget neutral.

Modeling Scenarios

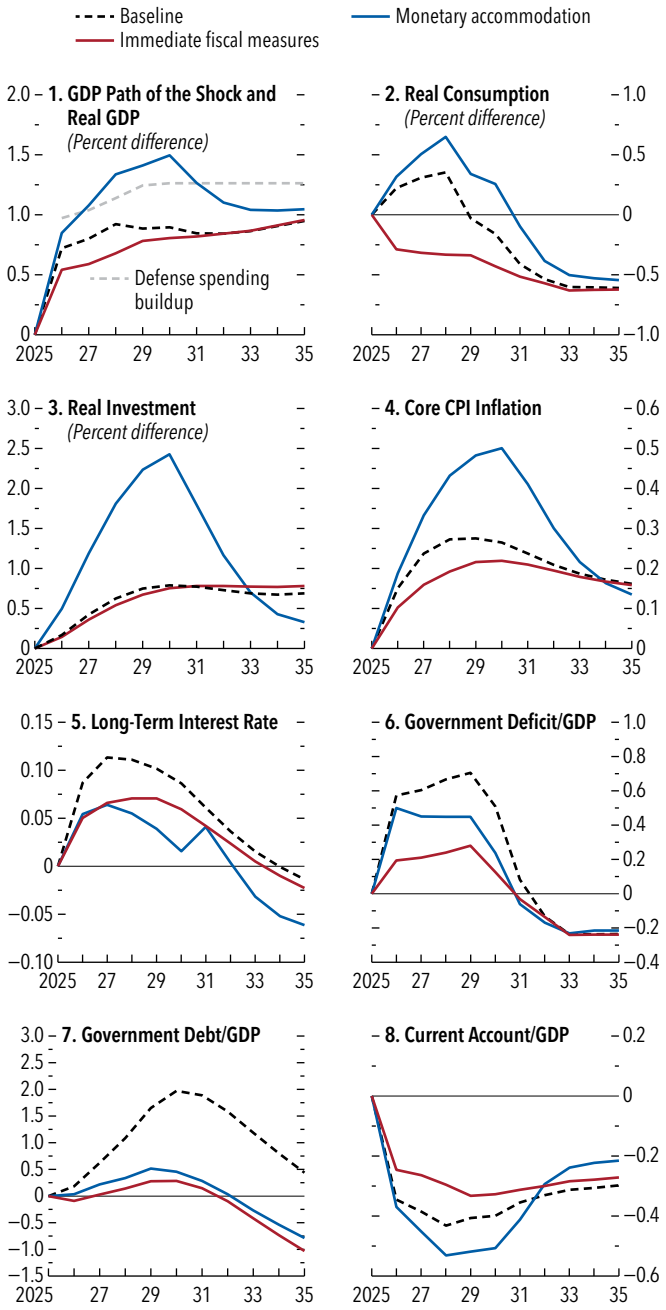
Under the baseline scenario, real GDP for European countries is projected to increase by 0.7 percentage point in 2026 and by 0.9 percentage point by 2028, after which it broadly stabilizes (Figure 2.12, panel 1). The persistent effect on output comes partly from the

[20]The analysis uses the model's euro area module, which includes a bloc for each of the 11 major euro area countries plus 13 other blocs, covering major world economies as stand-alone blocs (China, India, Japan, Sweden, Switzerland, United Kingdom, United States) and six other regions. While the defense spending buildup is calibrated to the European experience, the scenario results can be generalized to other contexts. See Online Annex 2.6 for details.

[21]Starting the simulation in 2026 implies that the defense spending buildup is treated as an unanticipated shock at that date, leading to a potential upward bias of short-term growth effects.

Figure 2.12. Defense Spending: Baseline and Alternative Scenarios

(Percentage point difference, unless noted otherwise)



Source: IMF staff calculations.

Note: The figure presents model simulations calibrated to a defense spending shock in the European Union, as plotted in panel 1. The monetary accommodation scenario (blue lines) assumes that the central bank does not react following a standard interest rate rule. The immediate fiscal measures scenario (red lines) assumes that offsetting measures are implemented immediately rather than gradually to make the defense spending shock budget neutral. CPI = consumer price index.

public investment component of the stimulus, which raises productivity in the long term and crowds in private investment. Given the size of the fiscal shock, this implies a medium-term fiscal multiplier slightly below unity (at about 0.8), within the range of recent estimates produced by the European Central Bank using different dynamic stochastic general equilibrium models (Bokan and others 2025). Inflation peaks at about 28 basis points in 2029 and then starts a gradual decline, although it remains permanently 0.16 percentage point higher than it would have been without the stimulus (Figure 2.12, panel 4). The policy rate increases as monetary policy reacts to higher inflation. Long-term interest rates also rise, and the exchange rate appreciates. The loss of external competitiveness, together with the assumption that part of the defense stimulus is directed at importing military equipment from abroad, leads to a worsening of the current account deficit that peaks at 0.4 percent of GDP in 2028 and then stabilizes at 0.3 percent of GDP. As the baseline assumes that initially the defense spending is fully debt financed, the deficit increases through 2029, when the offsetting measures start to kick in, bringing the deficit back down rapidly (Figure 2.12, panel 6). However, the change in the financing mix that reduces government transfers crowds out private consumption and contributes to reducing the fiscal multiplier. Over the long term, thanks to the improvement in GDP, the budget balance improves by about 0.2 percent of GDP. Public debt follows a similar hump-shaped path, increasing by almost 2 percentage points of GDP by 2030 and then declining toward its baseline (Figure 2.12, panel 7).

Four alternative scenarios capture the key macroeconomic trade-offs and the policy options for countries that are building up defense spending. In the first scenario, the model is used to show the effect of the same spending shock under different monetary policy reactions (Figure 2.12, blue lines). When monetary policy accommodates the shock, rather than raising rates in response to higher growth and inflationary pressures, the demand effect is larger, as shown by higher private consumption, stronger investment, and a higher path for real GDP compared with those in the baseline. As a result, the model yields a larger multiplier, which is now above 1 over the medium term. But core inflation spikes by half a percentage point and the current account deteriorates by 0.5 percentage points of GDP—notwithstanding a depreciation of the exchange rate—because of strong income effects.

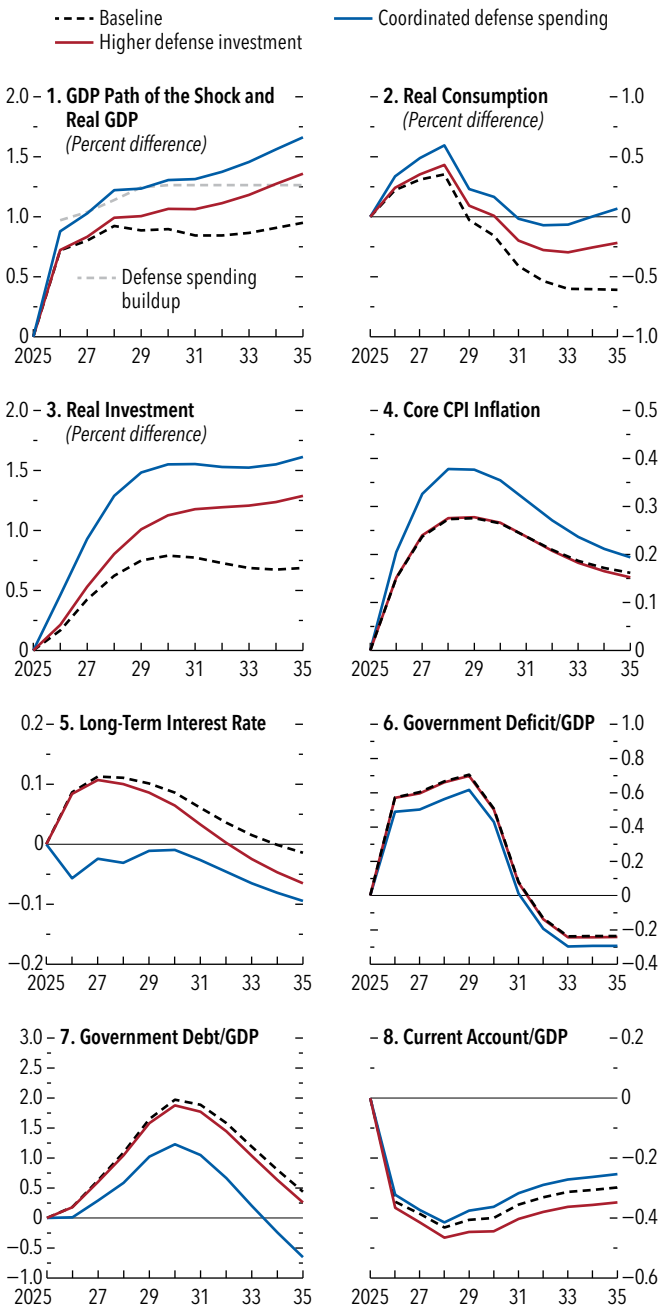
In the second scenario, fiscal policy is assumed to react faster and the offsetting measures are implemented immediately, to minimize the public debt buildup (Figure 2.12, red lines). In this case, the deficit is contained and the dynamics are more favorable, but the effectiveness of the stimulus is weaker, and the multiplier falls to about 0.7.[22]

The third scenario aligns with the recent experience of countries such as Poland (Box 2.1) and considers the long-term implications of allocating a larger share (40 percent) of government defense spending to investment (Figure 2.13, red lines). By raising the public capital stock and boosting productivity in the long term, public investment crowds in private investment and stimulates labor demand, leading to larger long-term output effects, consistent with evidence that defense R&D can generate long-term innovation and productivity gains through knowledge spillovers (Moretti, Steinwender, and Van Reenen 2025).

The final scenario is explicitly targeted at modeling the benefits of a coordinated program for defense spending and financing (Figure 2.13, blue lines). The scenario *jointly* lowers the assumption on the import content of the spending shock; reduces exogenous risk premiums by 20 basis points for as long as the spending is fully debt financed; and raises the productivity of public investment by 20 percent compared with that in the baseline, to reflect productivity gains coming from economies of scale, greater specialization, and faster diffusion of learning and innovation across a larger integrated market (Hartley 2008; Letta 2024). This scenario is in line with current proposals such as that of Hildebrand, Rey, and Schularick (2026) and the Security Action for Europe, a €150 billion loan facility for common procurement aiming to boost the European defense industry, reduce its fragmentation, and prioritize European suppliers. Under this scenario, real investment and, to a smaller extent, real consumption increase in the short term compared with their levels in the baseline, leading to a larger output boost, implying a short-term multiplier close to 1. Productivity gains resulting from reduced fragmentation support long-term growth. The coordinated defense spending

[22]Additional analysis shows the longer-term benefits of a larger allocation of the stimulus to capital spending (up to 40 percent, close to the share in the United States), as real investment keeps increasing over the projection horizon, sustaining output growth (see Online Annex 2.6). This is relevant also in the European context, in which there is a large variation in the investment share, from very low levels to up to 50 percent (European Commission 2025).

Figure 2.13. Higher Investment Spending and Coordinated Defense Spending
(Percentage point difference, unless noted otherwise)



Source: IMF staff calculations.

Note: The figure presents the model simulations calibrated to a defense spending shock in the European Union, as plotted in panel 1. The higher defense investment scenario (red lines) assumes a larger share (40 percent rather than 20 percent) of government defense spending allocated to investment. The coordinated defense spending scenario (blue lines) assumes a lower import content of the spending shock, a 20 basis point reduction in the risk premiums, and a 20 percent increase in the productivity of public investment. CPI = consumer price index.

buildup leads to a smaller increase in public debt, but also to higher inflation.[23] Because of reduced import leakages, in the medium term the current account improves regardless of the offsetting effect caused by stronger demand.

Conclusions and Policy Recommendations

After decades of declining global defense spending, rising geopolitical risks and more frequent military conflicts are pushing countries toward an inflection point, with several ramping up defense spending. As this reversal is happening at a time of already elevated spending pressures, policymakers face salient trade-offs when spending more on defense.

The macroeconomic impact of the current defense buildup could differ from that of past episodes, as defense outlays are increasingly capital and R&D intensive and are occurring in economies that are more integrated and more indebted. However, empirical and model-based results can help explain how defense buildups propagate through the economy.

A unique analysis of a sample of 164 countries since the end of World War II shows that governments have frequently engaged in sizable spending booms, mostly financed through borrowing. Operating as a sector-specific demand shock, defense buildups during peacetime raise output and prices in the short term, especially when the increase in defense spending is permanent, and they can also raise medium-term growth through higher capital stock and possibly productivity gains. Firm-level evidence shows that spending booms can have larger demand effects on defense-related sectors, boosting investment, but they can also crowd out private investment when associated with debt buildups.

Defense spending booms often weaken fiscal and external balances. Booms occurring in wartime are followed by sharp increases in public debt and large reductions in social spending, the standard *guns versus*

[23]An opposite scenario considers a one-off increase in risk premiums by 50 basis points to model the possible implications of rising spreads in response to higher spending, especially in countries with limited fiscal space, lacking any coordination. The scenario shows a more muted output and price response and a larger increase in public debt. A sustained increase in sovereign yields, particularly where defense expansions are perceived as fiscally unsustainable, could create macrofinancial vulnerabilities by weakening domestic financial institutions and amplifying stress in sovereign bond markets (see Chapter 2 of the April 2022 *Global Financial Stability Report* and Chapter 3 of the October 2025 *Global Financial Stability Report*).

butter trade-off. In contrast, peacetime booms tend to raise output without worsening debt or crowding out social spending. On the external side, stronger imports, the result of increased demand and in part of the purchase of foreign military equipment, worsen the current account.

Model-based simulations help quantify the general equilibrium effects of defense spending buildup. In the baseline scenario, the model predicts moderate output gains, consistent with the average multiplier estimated at about 1. Inflation goes up modestly and temporarily, monetary policy tightens in response, and the current account deteriorates as imports (including those of military equipment) increase. Public debt increases in the first years of the buildup but gradually stabilizes as offsetting fiscal measures are implemented. The policy reaction matters. When monetary policy accommodates the shock, the demand effect is stronger and the multiplier is larger. But this comes at the cost of higher inflation and a widening of the current account. When fiscal policy tightens to limit the accumulation of public debt, the effect of the stimulus is weaker and the multiplier is smaller.

The chapter's findings underscore the importance of policy design and structural features in shaping defense spending's macroeconomic outcomes. Policymakers should consider the following options:

- *Integrating defense buildup within credible medium-term fiscal frameworks.* As defense booms are typically front-loaded and tend to be debt financed, countries should embed spending plans in medium-term fiscal frameworks to safeguard fiscal sustainability. Since wartime booms are associated with larger debt increases and social spending cuts, as shown in Chapter 3, governments should prepare contingency plans for conflict-related buildups, including mechanisms for protecting the vulnerable and preserving essential services. These considerations are more salient for fragile and conflict-affected states that lack domestic defense industries and have limited potential to raise revenue and weak fiscal frameworks (IMF 2022).
- *Carefully managing macroeconomic conditions to prevent overheating and friction costs.* Defense buildups raise prices and utilization rates, especially when the economy is near capacity. Coordination with monetary authorities is essential to avoid inflationary pressures while maintaining space for productive private investment. When feasible, smoothing the pace of buildup can help mitigate bottlenecks, especially if large reallocations across sectors are expected.
- *Considering that defense spending composition matters for short-term stimulus and long-term productivity gains.* Current spending produces larger short-term multipliers, whereas capital spending, if it is directed at R&D outlays and does not crowd out nondefense productive investment, can support productivity over the longer term. While the mix is dictated mostly by security needs, countries should internalize macroeconomic constraints and recognize that scaling up defense investment typically requires a large up-front commitment and sustained spending, making it fiscally more demanding than increases in current outlays.

Box 2.1. Scaling Up Defense Spending: The Case of Poland

Poland has the highest spending on defense, as a share of GDP, among member countries of the North Atlantic Treaty Organization (NATO). After donating significant portions of its standing arsenal to Ukraine in 2022, Poland moved quickly to rebuild and modernize its military. Between 2021 and 2025, defense spending increased from 2.2 percent to an estimated 4.5 percent of GDP, in cash terms (Figure 2.1.1, panel 1). At $46.7 billion, Poland now has the fifth-largest defense outlay in Europe. This box highlights the key features of the scaling up of defense spending in Poland and discusses its macroeconomic implications.

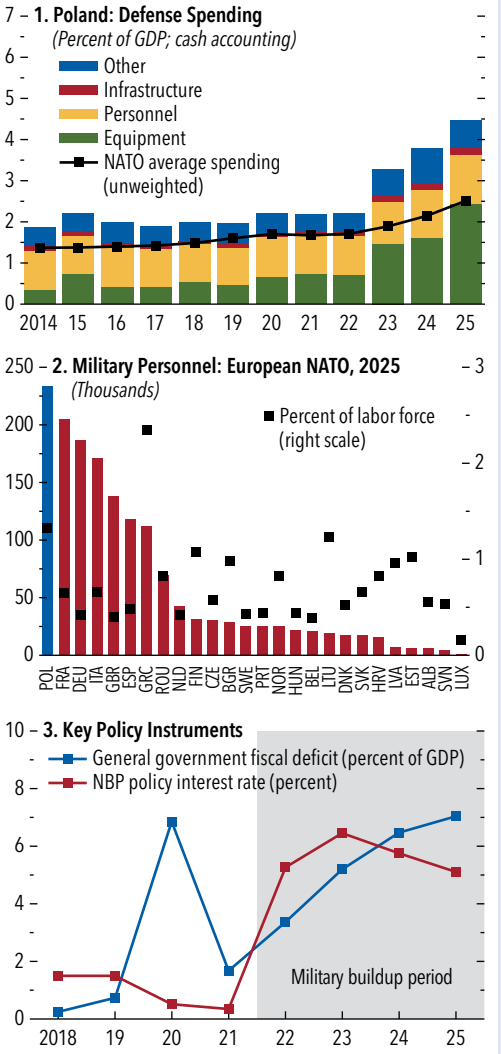
The increase in defense spending was driven by investment in equipment. Equipment spending rose from 0.7 percent to 2.4 percent of GDP and now accounts for more than half of total defense outlays, the highest share in NATO. Given the lack of domestic capacity, this surge was met largely through imports (accounting for 80 percent of total capital spending, according to private estimates), particularly from Korea and the United States. However, several government initiatives aimed to increase domestic production to support resilience and growth.

Poland also scaled up military personnel from 116,200 in 2020 to 233,800 in 2025, without conscription, relying instead on expanding recruitment and raising salaries, with personnel outlays rising from 0.9 percent to 1.2 percent of GDP between 2021 and 2025. As a result, Poland now has the first-largest standing military in the European Union (Figure 2.1.1, panel 2).

Thus far, the macroeconomic impact of Poland's military buildup has been muted. Between 2021 and 2025, Poland increased total public spending in accrual terms by 6.5 percent of GDP, of which defense accounted for about 2 percentage points. Given initially low public debt (at 48 percent of GDP in 2022) and ready access to financing, the spending increase was financed almost entirely by increases in the deficit. While the broader fiscal expansion did contribute to economic growth, the impact of the defense spending increase alone was likely modest, because the spending was highly import intensive. At the same time, to the degree that looser fiscal policy did contribute to higher domestic demand, it likely resulted in a tighter monetary policy path than would have been seen without such spending increases (Figure 2.1.1, panel 3).

The authors of this box are Kareem Ismail, Krzysztof Krogulski, Moheb Malak, Robert Sierhej, and Can Ugur.

Figure 2.1.1. Scaling Up Defense Spending: The Case of Poland



Sources: Haver Analytics; IMF, *World Economic Outlook*; National Bank of Poland (NBP); North Atlantic Treaty Organization (NATO); Statistics Poland; and IMF staff calculations.

Note: In panel 1, 2024 and 2025 data are estimates. "Other" includes operations and maintenance expenditure, other research and development expenditure, and unallocated expenditure. Personnel figures are not fully comparable across countries because of differences in definitions and coverage of active personnel, reserves, and auxiliary forces. In panel 2, data for France and the United Kingdom refer to 2024. Data labels in the figure use International Organization for Standardization (ISO) country codes.

Box 2.2. Spillovers from Defense Spending

Defense outlays are often large, persistent, and characterized by complex cross-border supply chains. As a result, their macroeconomic effects can spill over to other countries, either through direct imports of defense-related goods and services or indirect imports arising from increased aggregate demand. To understand the size and nature of these spillovers, this box constructs country-specific foreign defense expenditure measures based on a trade-weighted aggregation of partner countries' defense expenditure. These measures provide the basis for quantifying the international transmission of defense spending shocks (Auerbach and Gorodnichenko 2013; Furceri and others 2026). By capturing the extent to which higher defense spending abroad translates into increased import demand, higher values of these measures would imply higher output in exporting countries.

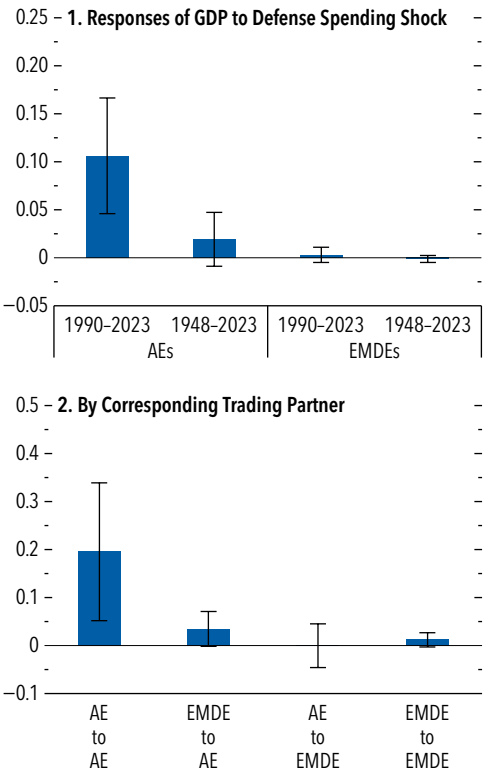
Estimates from local projections on the sample used to estimate the defense spending multipliers in the chapter show that spillovers to advanced economies are statistically significant in the post-1990 period (Figure 2.2.1, panel 1), while they are smaller and not statistically significant in the full sample (1948–2023). By contrast, there is no evidence of spillovers to emerging market and developing economies. These results are consistent with the larger share of advanced economies in global exports and international arms trade. They also reflect the deeper trade integration, more interconnected supply chains, and greater cross-border participation in defense-related production in the post–Cold War period, all factors that amplify international spillovers.

Reflecting the dense and highly integrated trade networks among advanced economies, most spillovers originate from trade linkages among these economies, and boost GDP by about 0.2 percent in response to a defense spending shock by 1 percent of trading partners' GDP. Spillovers are even larger for common trade areas, such as the European Union (Furceri and others 2026). Spillovers from emerging market and developing economies' defense spending are, in contrast, close to zero (Figure 2.2.1, panel 2).

The authors of this box are Pedro Juarros and Anh Dinh Minh Nguyen.

Figure 2.2.1. Spillovers from Defense Spending

(Percent)



Source: IMF staff calculations.

Note: Panel 1 shows responses of trading partners to a positive defense spending shock of 1 percent. Panel 2 shows responses to a positive defense spending shock of 1 percent of GDP in trading partners over the 1990–2023 sample. The responses are rescaled by the average export share of countries in the group over the associated sample. The panel shows the greatest response in the five-year horizon since the occurrence of the shock. Bars denote point estimates, and whiskers indicate 90 percent confidence intervals. "AE to AE" refers to spillovers from defense spending in AE trading partners to AEs; "EMDE to AE" refers to spillovers from defense spending in EMDE trading partners to AEs; "AE to EMDE" refers to spillovers from defense spending in AE trading partners to EMDEs; "EMDE to EMDE" refers to spillovers from defense spending in EMDE trading partners to EMDEs. AE = advanced economy; EMDE = emerging market and developing economy.

References

Acalin, J., V. Alonso, C. Arroyo, R. Lam, L. Martinez, A. D. M. Nguyen, F. Roch, and others. 2025. "Fiscal Guardrails against High Debt and Looming Spending Pressures." IMF Staff Discussion Note 25/004, International Monetary Fund, Washington, DC.

Alesina, A., and R. Perotti. 1995. "Fiscal Expansions and Adjustments in OECD Countries." *Economic Policy* 10 (21): 205–48.

Alloza, M., R. Domínguez-Díaz, P. Durá, and I. Varotto. 2026. "The Macroeconomic Effects of Defense Expenditure: Evidence from Spain." Working Paper, Bank of Spain, Madrid.

Andrle, M., P. Blagrave, P. Espaillat, K. Honjo, B. Hunt, M. Kortelainen, R. Lalonde, and others. 2015. "The Flexible System of Global Models—FSGM." IMF Working Paper 15/64, International Monetary Fund, Washington, DC.

Antolin-Diaz, J., and P. Surico. 2025. "The Long-Run Effects of Government Spending." *American Economic Review* 115 (7): 2376–413.

Antonova, A., R. Luetticke, and G. J. Mueller. 2025. "The Military Multiplier." CEPR Discussion Paper 20220, Centre for Economic Policy Research, London.

Auerbach, A. J., and Y. Gorodnichenko. 2013. "Output Spillovers from Fiscal Policy." *American Economic Review* 103 (3): 141–46.

Barro, R. J. 1981. "Output Effects of Government Purchases." *Journal of Political Economy* 89: 1086–121.

Barro, R. J., and C. J. Redlick. 2011. "Macroeconomic Effects from Government Purchases and Taxes." *Quarterly Journal of Economics* 126 (1): 51–102.

Basu, S. 1996. "Procyclical Productivity: Increasing Returns or Cyclical Utilization?" *Quarterly Journal of Economics* 111 (3): 719–51.

Baxter, M., and R. G. King. 1993. "Fiscal Policy in General Equilibrium." *American Economic Review* 83 (3): 315–34.

Becker, J., S. Benson, J. P. Dunne, and E. Malesky. 2025. "Disaggregated Defense Spending: Introduction to Data." *Journal of Peace Research* 62 (3): 772–88.

Ben Zeev, N., and E. Pappa. 2017. "Chronicle of a War Foretold: The Macroeconomic Effects of Anticipated Defence Spending Shocks." *Economic Journal* 127 (603): 1568–97.

Ben Zeev, N., E. Pappa, and E. Scola Gagliardi. 2025. "The Offensive Power of Defense News in Europe." CEPR Discussion Paper 20637, Centre for Economic Policy Research, London.

Benmelech, E., and J. Monteiro. 2025. "Military Spending and War." NBER Working Paper 34123, National Bureau of Economic Research, Cambridge, MA.

Boehm, C. E. 2020. "Government Consumption and Investment: Does the Composition of Purchases Affect the Multiplier?" *Journal of Monetary Economics* 115: 80–93.

Bokan, N., P. Jacquinot, M. Lalik, G. Muller, R. Priftis, and R. Rigato. 2025. "Macroeconomic Impacts of Higher Defence Spending: A Model-Based Assessment." Economic Bulletin 6, European Central Bank, Frankfurt.

Boly, A., and E. Kéré. 2026. "Terrorism and Military Expenditure in Africa: An Analysis of Spillover Effects." *Journal of African Economies* 35 (1): ejaf007.

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

Danmarks Nationalbank. 2025. "Higher Defence Spending May Increase Capacity Pressures Moderately." Danmarks Nationalbank Analysis 19, Danmarks Nationalbank, Copenhagen.

Deger, S., and R. Smith. 1983. "Military Expenditure and Growth in Less Developed Countries." *Journal of Conflict Resolution* 27 (2): 335–53.

Draghi, M. 2024. "The Future of European Competitiveness: Part A—A Competitiveness Strategy for Europe." European Commission, Brussels.

Eble, S., A. Pitt, I. Bunda, O. E. Adilbish, N. Budina, G. H. Hong, M. T. Malak, and others. 2025. "Long-Term Spending Pressures in Europe." IMF Departmental Paper 2025/002, International Monetary Fund, Washington, DC.

European Commission. 2025. "The Economic Impact of Higher Defence Spending." Institutional Paper 318, European Commission, Brussels.

Fazzari, S. M., G. Hubbard, and B. C. Petersen. 1988. "Financing Constraints and Corporate Investment." *Brookings Papers on Economic Activity* 1988 (1): 141–206.

Fisher, J. D. M., and R. Peters. 2010. "Using Stock Returns to Identify Government Spending Shocks." *Economic Journal* 120 (544): 414–36.

Furceri, D., P. Juarros, S. Mishra, A. D. M. Nguyen, A. S. Pessoa, and A. Sollaci. 2026. "Macroeconomic Impacts of EU Defense Spending." IMF Working Paper 26/53, International Monetary Fund, Washington, DC.

García-Serrador, A., D. Sarasa-Flores, and C. Ulloa. 2025. "Buy Guns or Buy Roses? EU Defence Spending Fiscal Multipliers." BBVA Research 25-06, Banco Bilbao Vizcaya Argentaria, Madrid.

Gethin, A. 2024. "Revisiting Global Poverty Reduction: Public Services and the World Distribution of Income, 1980–2022." Unpublished. https://amory-gethin.fr/research.html.

Gross, D. P., and B. N. Sampat. 2023. "America, Jump-Started: World War II R&D and the Takeoff of the US Innovation System." *American Economic Review* 113 (12): 3323–56.

Hall, R. 2009. "By How Much Does GDP Rise If the Government Buys More Output?" *Brookings Papers on Economic Activity* 40 (Fall): 183–249.

Hartley, K. 2008. "Collaboration and European Defence Industrial Policy." *Defence and Peace Economics* 19 (4): 303–15.

Heerma van Voss, B., D. de Leeuw, F. Marotta, C. Mehlbaum, A. Smadu, I. Stanga, and S. Wöhrmüller. 2026 "The Economic Consequences of Defence Spending." De Nederlandsche Bank, Amsterdam.

Hildebrand, P., H. Rey, and M. Schularick. 2026. "A Proposal on European Defence Governance and Financing." Kiel Policy Brief 199, Kiel Institute for the World Economy, Kiel, Germany.

Huang, Y., M. Pagano, and U. Panizza. 2020. "Local Crowding-Out in China." *Journal of Finance* 75: 2855–98.

Ilzetzki, E. 2024. "Learning by Necessity: Government Demand, Capacity Constraints, and Productivity Growth." *American Economic Review* 114 (8): 2436–71.

Ilzetzki, E. 2025. "Guns and Growth: The Economic Consequences of Defense Buildups." Kiel Report 2, Kiel Institute for the World Economy, Kiel, Germany.

Ilzetzki, E., E. G. Mendoza, and C. A. Végh. 2013. "How Big (Small?) Are Fiscal Multipliers?" *Journal of Monetary Economics* 60: 239–54.

International Monetary Fund (IMF). 2022. "IMF Strategy for Fragile and Conflict-Affected States (FCS)." International Monetary Fund, Washington DC.

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

Kadera, K., and G. Sorokin. 2004. "Measuring National Power." *International Interactions* 30 (3): 211–30.

Knight, M., N. Loayza, and D. Villanueva. 1996. "The Peace Dividend: Military Spending Cuts and Economic Growth." *IMF Staff Papers* 43 (1): 1–37.

Letta, E. 2024. "Much More Than a Market." Jaques Delors Institute, Paris.

Marzian, J., and C. Trebesch. 2025. "Guns and Butter: The Fiscal Consequences of Rearmament and War." Kiel Working Paper 2310, Kiel Institute for the World Economy, Kiel, Germany.

Miyamoto, W., T. L. Nguyen, and V. Sheremirov. 2019. "The Effects of Government Spending on Real Exchange Rates: Evidence from Military Spending Panel Data." *Journal of International Economics* 116: 144–57.

Moretti, E., C. Steinwender, and J. Van Reenen. 2025. "The Intellectual Spoils of War? Defense R&D, Productivity, and International Spillovers." *Review of Economics and Statistics* 107 (1): 14–27.

Nakamura, E., and J. Steinsson. 2014. "Fiscal Stimulus in a Monetary Union: Evidence from US Regions." *American Economic Review* 104 (3): 753–92.

Nekarda, C. J., and V. A. Ramey. 2011. "Industry Evidence on the Effects of Government Spending." *American Economic Journal: Macroeconomics* 3 (1): 36–59.

Ohanian, L. E. 1997. "The Macroeconomic Effects of War Finance in the United States: World War II and the Korean War." *American Economic Review* 87 (1): 23–40.

Phelan, C., and A. Trejos. 2000. "The Aggregate Effects of Sectoral Reallocations." *Journal of Monetary Economics* 45 (2): 249–68.

Ramey, V. A. 2011. "Identifying Government Spending Shocks: It's All in the Timing." *Quarterly Journal of Economics* 126 (1): 1–50.

Ramey, V. A., and M. D. Shapiro. 1998. "Costly Capital Reallocation and the Effects of Government Spending." *Carnegie-Rochester Conference Series on Public Policy* 48: 145–94.

Ramey, V. A., and M. D. Shapiro. 2001. "Displaced Capital: A Study of Aerospace Plant Closings." *Journal of Political Economy* 109 (5): 958–92.

Ramey, V. A., and S. Zubairy. 2018. "Government Spending Multipliers in Good Times and in Bad: Evidence from US Historical Data." *Journal of Political Economy* 126 (2): 850–901.

Sandler, T., and J. George. 2016. "Military Expenditure Trends for 1960–2014 and What They Reveal." *Global Policy* 7 (2): 174–84.

Sheremirov, V., and S. Spirovska. 2022. "Fiscal Multipliers in Advanced and Developing Countries: Evidence from Military Spending." *Journal of Public Economics* 208: 104631.

CHAPTER 3

THE MACROECONOMICS OF CONFLICTS AND RECOVERY

Wars have long been a feature of the global landscape. Armed conflict can bring profound macroeconomic consequences beyond its devastating human toll, including loss of life and forced displacement. This chapter leverages global data on post–World War II conflicts and draws on empirical analyses, case studies, and model-based simulations to assess the macroeconomic implications of wars. The analysis shows that conflicts generate large and persistent output losses in economies where the fighting occurs and nonnegligible spillovers to other countries. These losses exceed those associated with financial crises or severe natural disasters and give rise to acute macroeconomic tradeoffs across monetary, fiscal, and external sectors, alongside long-lasting scars. Economic recoveries from war are slow and uneven and depend critically on the durability of peace. When peace is sustained, output rebounds but often remains modest relative to wartime losses. By contrast, in fragile postconflict settings in which conflict relapses, recoveries frequently stall. The modest recoveries are led primarily by labor, while capital accumulation and productivity remain subdued. Empirical evidence and case studies highlight the central role of early macroeconomic stabilization, decisive debt restructuring, and international support, including aid and capacity development, in restoring confidence and creating space for postconflict recovery. Efforts toward recovery are most effective when complemented by domestic reforms to rebuild institutions and state capacity, promote inclusion and security, and mitigate human capital losses. Model-based analysis further suggests that comprehensive and well-coordinated policy packages outperform piecemeal approaches. Policies that jointly reduce uncertainty and rebuild capital stock generate positive externalities, reinforcing expectations, thereby encouraging capital inflows and facilitating the return of displaced populations. Overall, the chapter underscores that although postconflict recovery is inherently challenging and context-specific, sustained peace, credible stabilization, and coordinated policy action are essential to achieving stronger and more durable recoveries.

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Introduction

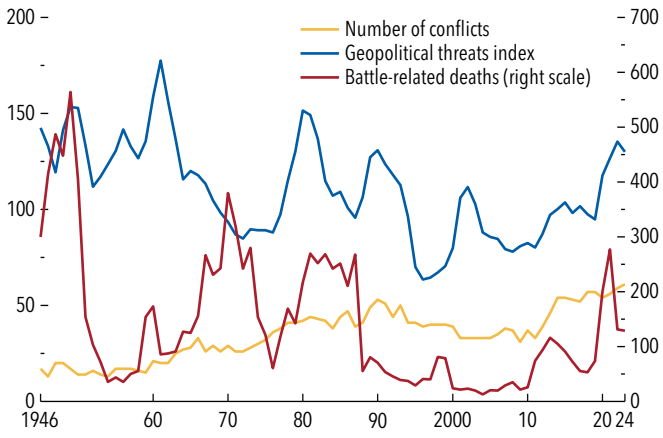
Wars have long been a feature of the global landscape. After decades of relative calm following the end of the Cold War, the number of active wars has surged to levels not seen since the end of World War II (WWII; see Figure 3.1). This is not a distant statistic. In 2024, more than 35 countries, about half classified as fragile and conflict-affected states, experienced conflict in their own territory. That same year, roughly 45 percent of the world's population lived in countries affected by conflict, ranging from localized border skirmishes to major wars. And since 2010 alone, conflicts have claimed more than 1.9 million lives worldwide.[1] The outlook offers little reassurance. Measures of geopolitical threats continue to rise, pointing to heightened risks of conflict, and defense spending is projected to increase sharply (see Chapter 2).

Beyond their immediate human costs, wars can carry profound macroeconomic consequences. During wars, production and trade can be disrupted, institutions weakened, and lasting damage inflicted on economies' productive capacity. When hostilities cease, the recovery period presents both opportunities and challenges. Governments may face the urgent task of stabilizing the economy, rebuilding infrastructure and institutions, and fostering social cohesion—each essential to securing durable peace and sustaining recovery.

A growing literature examines the macroeconomics of wars. Earlier seminal contributions focus on civil wars (Collier 1999; Collier and Hoeffler 2007; Blattman and Miguel 2010). More recent studies, either centered on the post–Cold War period (Chapter 2 of the April 2019 *Regional Economic*

[1]For simplicity, the terms "war" and "conflict" are used interchangeably throughout the chapter. "Conflicts" in this chapter are defined as episodes involving armed force between parties that result in at least 25 battle-related deaths within a single calendar year, as is standard in the conflict literature. Distinctions are made to differentiate conflicts by type, intensity, and duration.

Figure 3.1. Conflicts and Geopolitical Threats
(Number; index, 2019 = 100, left scale; thousands of deaths, right scale)



Sources: Caldara and Iacoviello 2022; PRIO Battle Deaths Dataset version 3.1; UCDP Georeferenced Event Dataset (GED) version 25.1; UCDP/PRIO Armed Conflict Dataset version 25.1; and IMF staff calculations.

Note: The figure shows the number of conflicts involving the government of at least one state, based on the UCDP/PRIO dataset. The geopolitical threats index captures threats related to war, peace, military buildups, nuclear risks, and terror, and is shown as a three-year moving average. Battle-related deaths are drawn from the PRIO dataset for 1946–88 and from the GED for 1989–2024. PRIO = Peace Research Institute Oslo; UCDP = Uppsala Conflict Data Program.

Outlook: Sub-Saharan Africa; Chapter 2 of the April 2024 *Regional Economic Outlook: Middle East and Central Asia*; Chapter 2 of the October 2025 *Regional Economic Outlook: Middle East and Central Asia*) or adopting a global historical perspective (Chupilkin and Kóczán 2022; Benmelech and Monteiro 2025; Federle and others 2026), document the large economic costs of conflicts. However, less attention has been paid to how wartime economies typically function, the distinct macroeconomic dynamics during and after conflict, and the provision of systematic historical evidence on the policies that support postconflict recovery. To fill these gaps, this chapter first leverages large language models to construct comprehensive global coverage of the geographic location of post-WWII conflicts. Second, it adopts a macroeconomic perspective to document how wartime economies typically operate, highlighting the key macroeconomic trade-offs they face and the policy responses used to manage wartime pressures. Third, it provides systematic evidence of postconflict recovery dynamics and the policies associated with stronger recoveries. Specifically, the chapter addresses the following questions:

- *Historical overview of conflicts:* How have different types of conflicts evolved worldwide since the end of WWII? What are their characteristics in terms of intensity, duration, and geographic distribution?
- *Macroeconomic dynamics during wars:* What are the short- to long-term effects of wars on output? Through which channels do these effects operate, and what are the implications for the broader economy in conflict-site countries? What are the scarring effects on production capacity and individuals? What are the output spillovers to other countries?
- *Macroeconomic dynamics after wars end:* How do economies recover after wars? How do they achieve macroeconomic stabilization? To what extent do complementary domestic policies and international support shape postconflict recovery?

The chapter draws on a range of empirical analyses, case studies, and model-based simulations to reach the following conclusions:

- *The number of conflicts worldwide has increased markedly in recent years, reaching historically high levels in the past decade.* This increase is driven primarily by conflicts within states such as civil wars. By contrast, conflicts between states have remained relatively infrequent, although their incidence has edged up in recent years. Most conflicts have been of minor intensity and relatively short duration. They are also unevenly distributed geographically, with the Middle East and sub-Saharan Africa accounting for a substantial share of global conflicts.
- *Conflicts generate large, persistent output losses in conflict-site economies and spillovers to other countries.* For the average conflict-site economy, output falls sharply at the conflict's onset, reaching cumulative losses of about 7 percent over a five-year period. Model-based analysis points to output losses of about the same magnitude. Output losses from conflicts persist even after a decade and typically exceed those associated with financial crises or severe natural disasters. Beyond conflict sites, neighboring countries and trading partners also experience modest but nonnegligible output losses in the short term, which gradually dissipate as economic adjustment and policy responses in their economies mitigate initial disruptions.
- *Conflicts trigger acute macroeconomic trade-offs and long-lasting scarring that extend well beyond immediate wartime shocks.* Output losses reflect sustained contractions in private consumption and investment as household incomes fall and uncertainty increases, alongside a reorientation of government spending toward military uses. Governments' fiscal positions deteriorate as their ability to raise revenue weakens and tax administration capacity erodes. Exports

decline more substantially than imports, leading to a temporary deterioration in the trade balance. At the same time, war-driven uncertainty fuels capital outflows, leading wartime governments to introduce capital controls and rely on countercyclical financing flows to fund trade deficits. War dynamics further contribute to sustained exchange rate depreciation, reserve losses, and inflationary pressures, highlighting the role of external sector dynamics in amplifying wartime macroeconomic challenges. War also leaves long-lasting scars, with declines in capital stock, employment, and productivity persisting for years after conflict onset, alongside the loss of lives, displacements, and adverse long-term health and cognitive outcomes for individuals.

- *Economic recoveries from conflicts are typically slow and uneven, but critically depend on peace.* When conflicts end and the ensuing peace proves to be sustained, output rebounds but remains modest relative to wartime losses and varies widely across countries. Recoveries are driven primarily by labor dynamics, while capital accumulation and productivity remain subdued amid lingering uncertainty and binding financial constraints. By contrast, in many postconflict cases, peace proves fragile, and relapse into conflict undermines recovery prospects. In such cases, output fails to recover. Policies that strengthen state capacity to deliver essential services and increase the opportunity cost of conflict can help reduce the risk of states falling into a conflict trap.
- *Macroeconomic stabilization, debt restructuring, and international support play a central role in postconflict recovery.* Evidence from empirical analyses and case studies indicates that successful recoveries are typically underpinned by early and decisive debt restructuring, which helps restore fiscal sustainability and creates space for macroeconomic stabilization following sustained peace. Countries that reduce uncertainty through macroeconomic stabilization—anchored in low and stable inflation and a stable real effective exchange rate—combined with timely financing and international support, including capacity development and aid, experience stronger recoveries. Case studies show that stabilization is achieved through a combination of rapid restoration of supply, credible nominal anchors, and fiscal adjustment, often backed by IMF-supported programs. In episodes characterized by large aid inflows, risks of exchange rate appreciation or Dutch disease are generally mitigated, and this mitigation is partly the result of effective coordination between fiscal and monetary authorities in managing aid surges.
- *Strong recovery also depends on complementary domestic reform efforts.* Stabilization and international support need to be accompanied by reforms to rebuild institutions and state capacity, promote inclusion, and mitigate persistent human capital losses, while helping consolidate peace. Concrete measures include strengthening anti-corruption frameworks, rebuilding judicial and public investment institutions, creating fiscal space for nonmilitary and social spending, and facilitating the reintegration of former combatants into society.
- *A faster recovery requires a coordinated and comprehensive policy approach, with priority given to reducing uncertainty and rebuilding the capital stock.* Model-based analysis suggests that comprehensive policy packages—centered on lowering uncertainty and rebuilding capital—deliver stronger recoveries than piecemeal approaches, reflecting positive externalities, complementarities across policies, and economic agents' expectations about the future. For example, reducing uncertainty alongside capital rebuilding can trigger reinforcing dynamics through expectations, capital inflows, wages, and return migration.

The chapter's findings and implications for postconflict recovery are subject to three important caveats. First, since conflict environments are inherently heterogeneous—reflecting differences in conflict drivers, economic legacies, and institutional and statistical capacity—effective policy design requires careful country-specific diagnosis. Second, recovery outcomes depend critically on political economy factors, including power-sharing arrangements, security guarantees, and civic rights (Mueller and Rauh 2024; Rohner 2025). These factors, often difficult to quantify, lie beyond the scope of the chapter's analysis but can shape the feasibility and effectiveness of recovery policies. Third, peace may remain fragile in some cases and the risk of relapse can constrain recovery dynamics. In such cases, relapse into conflict may itself be endogenous to economic policies, underscoring the importance of keeping conflict prevention in mind when designing macroeconomic policies (Chami, Espinoza, and Montiel 2021; Mueller and Rauh 2022; Mueller and others 2024). Subject to these caveats, the chapter's broad policy lessons remain informative for countries emerging from conflict, helping to support stronger and more durable recoveries.

Macroeconomics of Conflict and Recovery: A Primer

Wars affect conflict-site economies through multiple, reinforcing channels on both the supply and the demand sides, with far-reaching implications for fiscal, monetary, and external sector outcomes.

On the *supply side*, wars destroy productive capacity through damage to physical capital and reductions in labor supply from casualties and displacement. Part of the remaining scarce productive capacity may also be reallocated from civilian to military uses. This negative supply shock generally puts upward pressure on inflation (Keynes 1940). Wars further reduce the efficiency with which capital and labor are employed. For instance, damage to infrastructure disrupts transportation, energy, and communications networks, increasing production costs, while disruptions to schooling, loss of work experience, and deteriorating health outcomes weaken human capital accumulation and productivity (Gorodnichenko, Kudlyak, and Şahin 2022). On the *demand side*, private consumption and investment typically decline as incomes fall and uncertainty increases. Household income losses, if seen as temporary, may lead to dissaving, with economic effects similar to those from capital stock destruction (Collier 1999). Public expenditure may also be diverted from growth-enhancing uses toward military spending. Together, these dynamics contribute to a contraction in domestic production and generate output losses.

The same forces can also place substantial pressure on public finances as well as on the external and monetary sectors. Governments' ability to raise tax revenue weakens as economic activity contracts and tax administration capacity deteriorates, whereas spending pressures may increase owing to military outlays, humanitarian needs, and essential infrastructure repair. Fiscal financing constraints are often binding, particularly when access to capital markets is limited or nonexistent, and as markets price in conflict-related risk premiums (Rexer, Kapstein, and Rivera 2022). In response to mounting fiscal strains, wartime governments may resort to monetary financing, the accumulation of arrears, or, in extreme cases, debt default—putting further upward pressure on inflation. On the external side, export capacity may be impaired by disruptions to domestic production and trade relocation, as importers shift preferences away from exporters located in conflict zones (Korn and Stemmler 2025). These dynamics can contribute to foreign exchange shortages that—together with weaker domestic demand—constrain imports and, in some cases, lead to import rationing in favor of military and essential goods. In addition, external financing conditions typically tighten amid uncertainty-driven capital outflows, which governments may attempt to contain through capital controls (Gobat and Kostial 2016). As a result, wartime economies often rely on a narrow set of external financing sources, including countercyclical inflows such as remittances and aid. Taken together, fiscal pressures, external imbalances, and supply disruptions can interact in a feedback loop, placing considerable strain on exchange rates—thereby leading to depreciation in flexible regimes or devaluation in fixed regimes, with further upward pressure on inflation—as well as on reserve buffers. Wartime authorities may attempt to contain domestic inflation and pressures on the external sector through policy rate hikes.

Macroeconomic performance in the aftermath of war and in the transition to lasting peace is shaped by the extent of production capacity destruction, institutional erosion, and policy choices made during recovery. On the *supply side*, neoclassical growth models predict a gradual return of the capital stock toward its steady state once hostilities cease, implying that investment is elevated during the early recovery phase. This process can have positive spillovers to wages and employment, encouraging the return of displaced workers, supporting labor supply, and fostering the recovery. In practice, however, economic recovery may be slow (see, for example, Chen, Loayza, and Reynal-Querol 2008; Mueller, Piemontese, and Tapsoba 2017). For instance, persistent political and economic uncertainty despite peace can continue to depress expected returns on investment, sustain capital outflows, and constrain both investment and labor supply. On the *demand side*, consumption typically recovers as incomes stabilize. Government spending, however, may be constrained by postwar fiscal vulnerabilities. Macroeconomic stabilization—aimed at containing inflation and avoiding excessive exchange rate appreciation—is critical to sustaining recovery, alongside debt restructuring to restore fiscal sustainability and complementary reforms to rebuild institutions. External support in the form of aid and capacity development is also vital to alleviate financing constraints and strengthen state capacity.

With these considerations in mind, the rest of the chapter examines how wartime and postwar dynamics play out in the data, drawing on global evidence since the end of WWII. The policy discussions focus on drawing lessons to support postconflict recovery.

Macroeconomic Dynamics during Conflicts

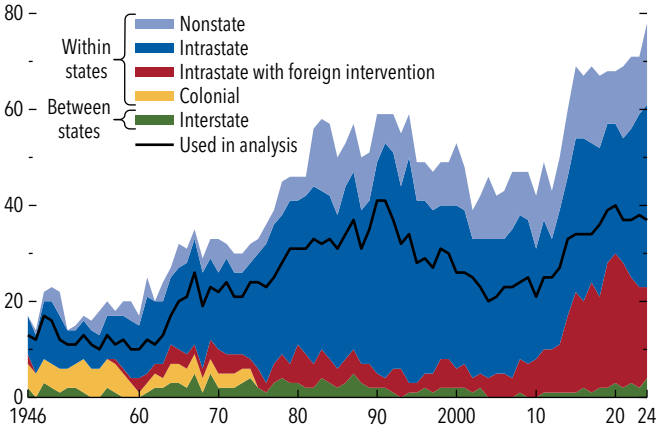
Definitions and Key Facts

This chapter relies on existing datasets together with a newly constructed database to provide comprehensive coverage of the geographic locations of conflicts during 1946–2024. The database is constructed by leveraging large language models to enhance the geographic coding of conflict events and using text analysis of annual reports from the United Nations Security Council.[2] Based on the database, countries' exposure to conflict is further classified into three groups, following Federle and others (2026). *Conflict-site economies* are countries experiencing military action on their own territory. *Belligerent economies* are parties to a conflict, but their territory is not the conflict site. *Third countries* are countries that are not parties to the conflict but are indirectly exposed through a common land border with a conflict site or through trade linkages. Conflicts in conflict-site economies are further categorized along three dimensions. First, the *type of actor* involved can differ: Conflicts can be between states (recent ones include conflicts between Sudan and South Sudan, Ethiopia and Eritrea, India and Pakistan, and Iran and Israel), or they can be within states (including, for instance, civil wars, colonial wars, and nonstate conflicts). Second, their *intensity* can be minor (defined as those involving 25–999 battle-related deaths) or major (those with 1,000 or more battle-related deaths). Third, the *duration* of conflicts can be short (two years or less) or long (more than two years).

A notable observation regarding post-WWII conflicts is that the majority have involved within-state actors (Figure 3.2). By contrast, conflicts between states have been relatively infrequent and broadly stable in incidence over time. Given the chapter's focus on macroeconomic dynamics, the analysis further excludes events unlikely to generate economy-wide effects—such as isolated skirmishes, terrorist attacks, or fragmented violence with low casualty counts—based on a systematic coding of individual events. Accordingly, the rest of the chapter focuses on a subset of conflicts more likely to affect macroeconomic outcomes. These conflicts are illustrated by the black line in Figure 3.2.

Several observations emerge from the refined database. Disaggregating conflict episodes by intensity shows that the sustained rise in conflicts has been driven by an increase in minor conflicts since the early 1960s, a period that broadly coincides with the emergence of many newly independent states (Figure 3.3). By contrast, the incidence of major conflicts has remained broadly stable over time, although the frequency of such conflicts has increased in recent years. Further evidence indicates that within-state conflicts account for the majority of both minor and major episodes, whereas between-state conflicts tend to be predominantly major. Conflict duration also varies with intensity: Historically, minor conflicts are typically shorter lived, whereas major conflicts tend to be more protracted, especially in commodity-exporting countries. Conflicts are unevenly distributed across regions. Asia and the Pacific; the Middle East, North Africa, Afghanistan, and Pakistan; and sub-Saharan Africa have consistently accounted for most conflict episodes, with the latter two regions alone representing a substantial share of global conflicts.

Figure 3.2. Global Post-World War II Conflicts
(Number of conflicts)



Sources: UCDP/PRIO Armed Conflict Dataset version 25.1; and IMF staff calculations.

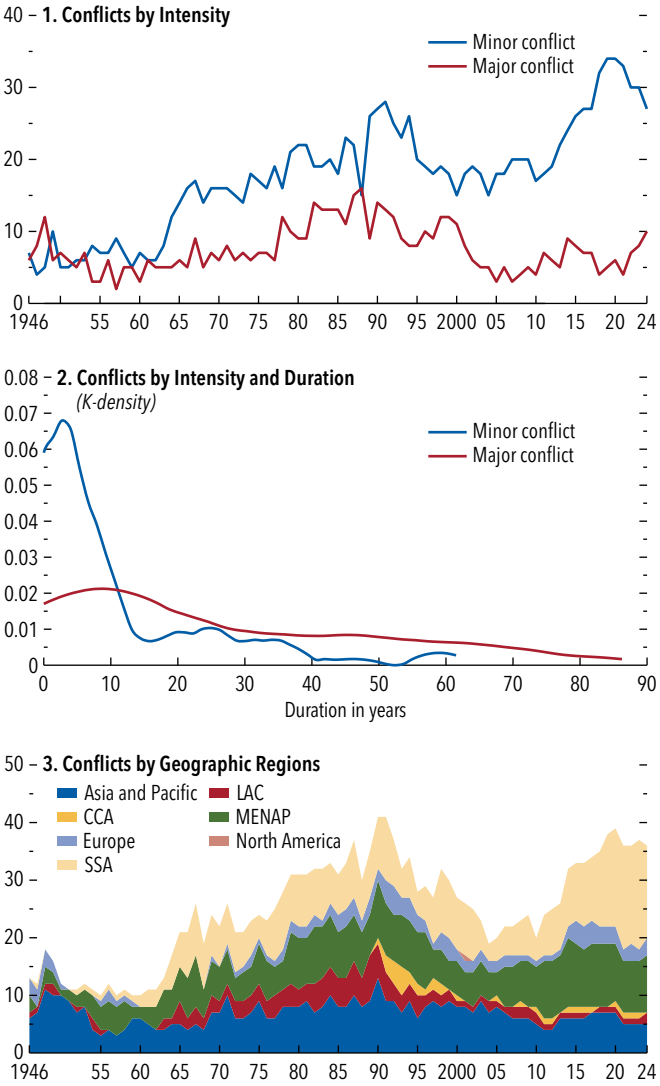
Note: The figure shows the number of active conflicts per year, aggregated by conflict type. Nonstate conflicts involve organized nongovernment actors and are identified based on the IMF staff's construction using text analysis of annual reports from the United Nations Security Council. The black line indicates the subset of conflicts of focus in the chapter's analysis: those deemed more likely to affect macroeconomic outcomes based on a systematic reading and coding of individual events. See Online Annex 3.1 for details on the data construction. PRIO = Peace Research Institute Oslo; UCDP = Uppsala Conflict Data Program.

Macroeconomic Effects

This subsection quantifies the macroeconomic effects of conflicts, focusing on the average effect in an average conflict-site economy, as well as spillovers to

[2]See Online Annex 3.1 for further details on data sources, the large language model–based data construction, and definitions of variables. All online annexes are available at www.imf.org/en/Publications/WEO.

Figure 3.3. Characteristics of Post-World War II Conflicts
(Number of conflicts, unless noted otherwise)



Sources: UCDP/PRIO Armed Conflict Dataset version 25.1; and IMF staff calculations.

Note: The panels show the distribution of conflicts by intensity, duration, and geographic region, based on the subset of conflicts emphasized in the chapter's analysis: those deemed more likely to affect macroeconomic outcomes following a systematic reading and coding of individual events. A conflict is classified as major if in any year battle-related deaths exceed 1,000, and as minor otherwise. In panel 2, the k-density, analogously to a histogram, shows the distribution of major and minor conflict duration in years. See Online Annex 3.1 for details on the data construction. CCA = Caucasus and Central Asia; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; PRIO = Peace Research Institute Oslo; SSA = Sub-Saharan Africa; UCDP = Uppsala Conflict Data Program.

belligerent and third economies. Two complementary approaches are used. The first is a cross-country empirical analysis that employs local projections difference-in-differences (LP-DiD) methodology (Dube and others 2025). The framework traces the evolution of outcome variables following conflict onset by comparing affected countries with a control group of countries not experiencing conflict.[3] Second, an empirical analysis using data from surveys of individuals aged 50 and older is used to assess the long-term scarring effects of conflict on health outcomes.

The cross-country results indicate that conflicts impose large and persistent economic costs on conflict-site economies, with losses that deepen over time (Figure 3.4). On average, output in conflict-site economies declines sharply at conflict onset, by approximately 3 percent, and continues to decline in subsequent years, reaching cumulative losses of about 7 percent within five years. Losses are evident across all sectors and persist even after a decade (see Online Annex 3.2). Estimated output costs from conflicts exceed those typically associated with financial crises—including banking, currency, and debt crises—and those induced by severe natural disasters.[4] Adverse effects are robust across various conflict characteristics, although losses are somewhat greater for major, shorter, and within-state conflicts.[5] That said, even lower-intensity conflicts are associated with statistically significant declines in output at onset that are comparable in magnitude to losses induced by currency crises.

The economic costs of conflicts extend beyond conflict-site economies. Focusing on major conflicts, point estimates for belligerent economies are negative on average but not statistically significant, potentially reflecting relative protection from the most destructive channels of conflicts and offsetting effects from higher military spending (Figure 3.5).[6] Third countries

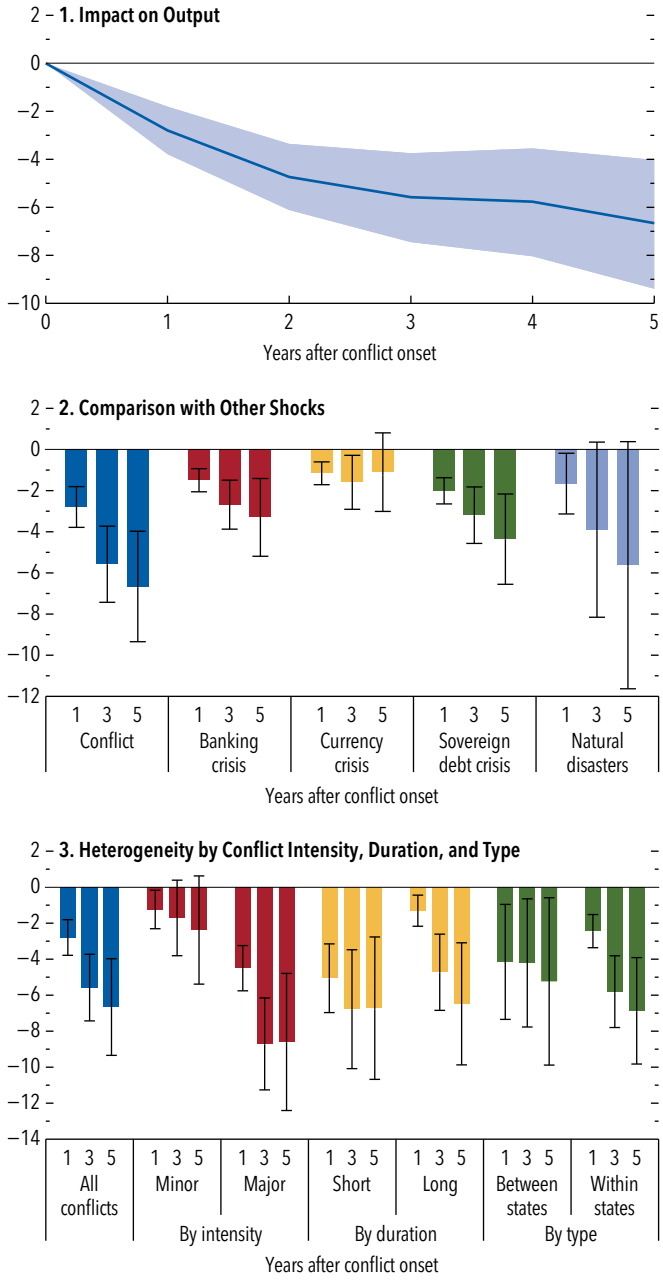
[3]The identification strategy relies on the assumption that conflict onset is exogenous to contemporaneous business cycle conditions. Robustness checks based on a narrative classification of the primary motives underlying each conflict indicate that economic dynamics for conflicts not triggered by economic reasons do not differ systematically from those for other conflicts (see Online Annex 3.2). Online Annex 3.2 also reports robustness checks to alternative sample restrictions, clean control definitions, and conflict measures based on battle-related deaths.

[4]Estimates for financial crises and severe natural disasters based on the chapter's LP-DiD framework may not be directly comparable with those obtained using other methodologies. Nonetheless, the magnitudes reported here are broadly in line with some findings in the literature. See Kuvshinov and Zimmermann (2019) for sovereign defaults; Devereux and Dwyer (2016) for banking crises; Hong and Tornell (2005) for currency crises; Cavallo and others (2013) for natural disasters; and Cerra and Saxena (2008) and Mueller (2012) for comparisons between civil wars and banking and currency crises. Economic costs of conflicts may also depend on war outcomes (see Federle and others 2026).

[5]The greater losses associated with shorter conflicts likely reflect the fact that these conflicts are more destructive at the outset, whereas in longer conflicts, economies may gradually adapt to prolonged conflict conditions.

[6]Additional evidence indeed reveals that government spending tends to increase in belligerent economies following conflict onset. And as shown in Chapter 2, such spending expansions are associated with positive output effects.

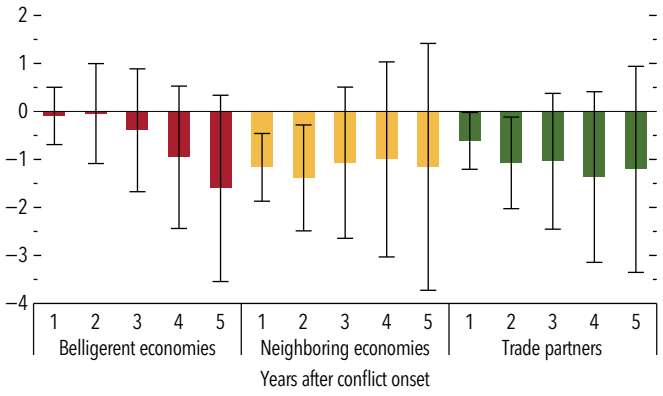
Figure 3.4. Economic Costs of Conflicts
(Percent)



Source: IMF staff calculations.

Note: The panels report local projections difference-in-differences (LP-DiD) estimates of the effects of conflicts (and other shocks, in panel 2) on output cumulatively up to five years (shown on the horizontal axes in each panel) after conflict onset. In panel 1, the line denotes point estimates, and the shaded area denotes 90 percent confidence intervals. In panels 2 and 3, bars denote point estimates, and whiskers indicate 90 percent confidence intervals. See Online Annex 3.2 for details.

Figure 3.5. Output Cost Spillovers from Major Conflicts
(Percent)



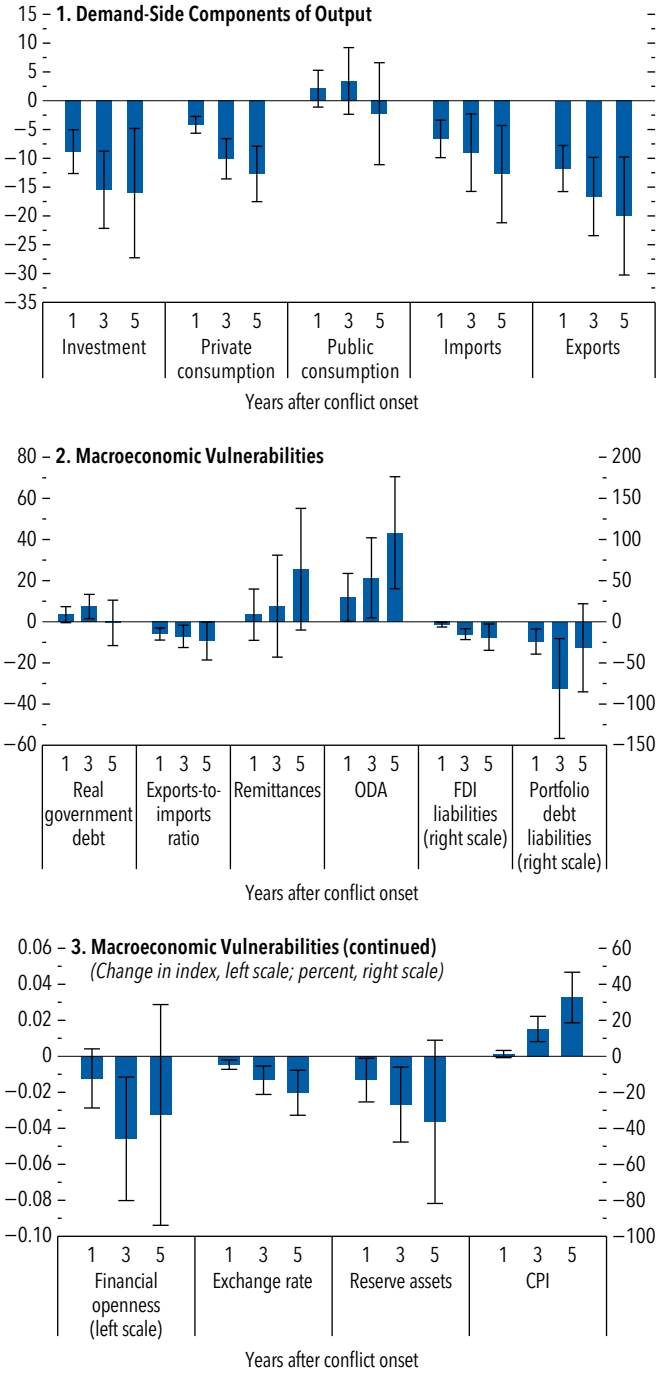
Source: IMF staff calculations.

Note: The figure shows local projections difference-in-differences (LP-DiD) estimates of the spillover effects of major conflicts on output in belligerent economies and third countries (neighbors and trading partners) up to five years (shown on the horizontal axis) after conflict onset. Trade partners are defined as countries whose share of imports from conflict-site economies exceeds the 90th percentile of the distribution. Bars denote point estimates, and whiskers indicate 90 percent confidence intervals. See Online Annex 3.2 for details.

experience negative output effects of about 1 percent or less during the first two years following conflict onset, with losses gradually dissipating thereafter, likely as trade routes adjust, firms reorient supply chains, and policy responses help absorb initial shocks (Qureshi 2013). Although these spillovers are considerably smaller than the large and sustained output losses borne by conflict-site economies, they underscore that major conflicts impose nontrivial economic costs well beyond the countries where hostilities occur.

Estimates also point to significant macroeconomic trade-offs in conflict-site economies, consistent with the transmission channels outlined earlier in the chapter. Output declines reflect sustained contractions in both investment and private consumption, whereas government consumption remains broadly stable (Figure 3.6, panel 1). The muted response of government consumption reflects a compositional shift toward defense spending, consistent with evidence of military outlays rising at the onset of conflict (Online Annex 3.2). Nonetheless, fiscal positions weaken, with public debt increasing in the initial years of conflict (Figure 3.6, panel 2). In the external sector, imports contract sharply, but exports decline even more substantially, resulting in a deterioration of the trade ratio. Consistent with these dynamics, further evidence shows that the trade balance relative to prewar GDP widens, though this widening is confined to the first four years of a conflict, pointing to import compression in subsequent years to accommodate reserve scarcity. Heightened uncertainty also triggers capital outflows, with both foreign direct investment and portfolio flows declining, constraining wartime governments to relying on aid and, in some cases, remittances to finance trade

Figure 3.6. Macroeconomic Trade-Offs of Major Conflicts
(Percent, unless noted otherwise)



Source: IMF staff calculations.

Note: The figure reports local projections difference-in-differences (LP-DiD) estimates of the effects of major conflicts in conflict-site economies on a set of macroeconomic variables up to five years (shown on the horizontal axis) after conflict onset. Bars denote point estimates, and whiskers indicate 90 percent confidence intervals. See Online Annex 3.2 for details. CPI = consumer price index; FDI = foreign direct investment; ODA = official development assistance.

deficits.[7] Government further responds by introducing capital controls (Figure 3.6, panel 3). Despite these measures, war dynamics contribute to sustained exchange rate depreciation (or devaluation), reserve losses, and inflationary pressures. Prices, for instance, rise steadily, with the increase reaching approximately 35 percent five years after conflict onset, to which monetary authorities respond by increasing the short-term nominal policy rate.[8]

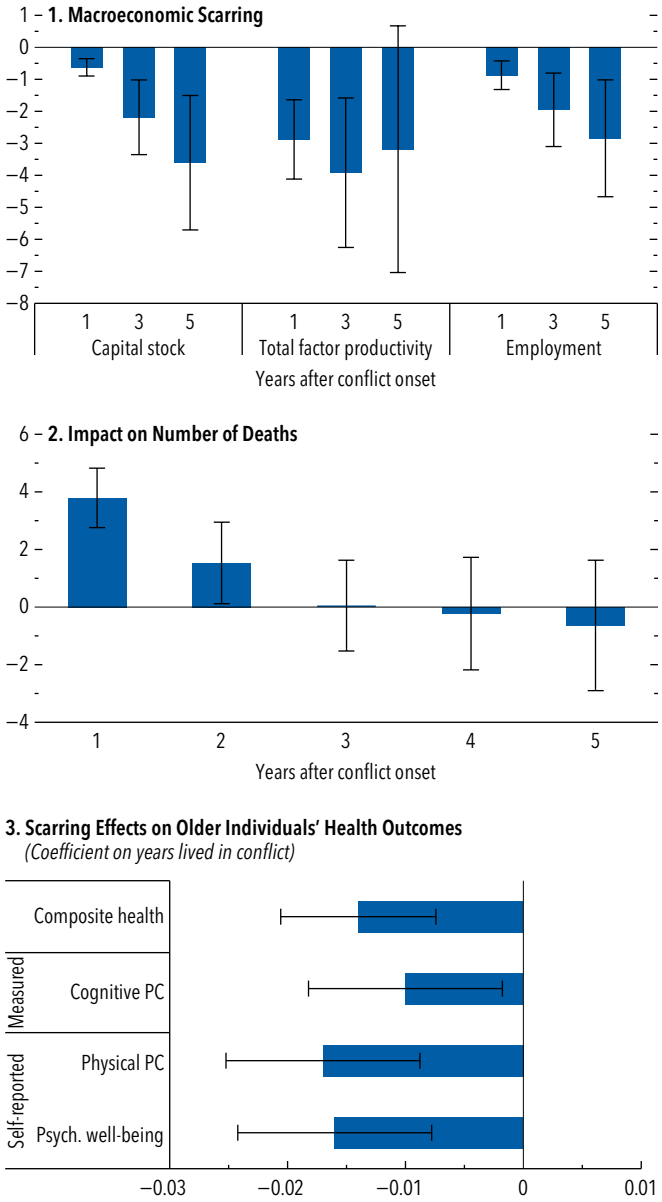
Box 3.1 illustrates how these trade-offs played out in Ukraine following Russia's 2022 invasion. It shows that the war triggered a dramatic collapse of Ukraine's economy. Initial efforts to contain the war shock required extraordinary fiscal, monetary, and financial measures, including budget reprioritization toward defense spending, monetary financing, capital controls, and temporary tax and prudential regulatory adjustments. Developments in Russia also highlight wartime dynamics: Initial resilience, supported by a favorable terms-of-trade shock and a rapid shift to a war footing, gave way to rising inflation, binding labor and capacity constraints, and sharp monetary tightening, with growth slowing markedly by late 2024 (Dabrowski 2025; Hilgenstock and Ribakova 2025).

Major conflicts also generate scarring effects on both the macroeconomy and individuals. At the macroeconomic level, capital stock, employment, and productivity experience significant declines: Conflicts are associated with approximately 4 percent lower capital stock and 3 percent lower employment in conflict-site economies five years after conflict onset (Figure 3.7, panel 1). Total factor productivity also declines in initial years, with wide confidence bands around point estimates in the medium term, indicating substantial cross-country variation. Beyond these macroeconomic scars, conflict is associated with a marked increase in human deaths, especially in the first few years (Figure 3.7, panel 2), as well as sizable forced displacement (Boxes 3.1 and 3.3). Surviving individuals exposed to wartime also experience adverse long-term health consequences. Individual-level data

[7]Concomitantly, gross national savings decline by more than investment, consistent with the accounting identity governing domestic investment and domestic and foreign savings, and uncertainty related to economic and political developments increases (see Online Annex 3.2).

[8]Online Annex Table 3.2.3 documents additional wartime trade-offs, with fiscal authorities cutting social spending to accommodate deteriorating fiscal positions. Not surprisingly, institutional quality deteriorates and informality increases. Existing evidence also shows that wars can have sizable effects on asset prices, sovereign risk premiums, and financial contagion (Chapter 2 of the April 2025 *Global Financial Stability Report*).

Figure 3.7. Scarring Effects of Major Conflicts
(Percent, unless noted otherwise)



Source: IMF staff calculations.

Note: Panel 1 reports local projections difference-in-differences (LP-DiD) estimates of the effect of major conflicts on production factors up to five years (shown on the horizontal axis) after conflict onset. Panel 2 shows the effect of major conflicts on mortality using the same approach. Panel 3 reports coefficients from ordinary least squares regressions of standardized health indicators (mean 0, standard deviation 1) on the number of years an individual lived in conflict. "Cognitive PC" is the principal component of verbal fluency, orientation, memory, and basic numeracy. "Physical PC" is the principal component of activities of daily living (ADLs), instrumental ADLs, pain frequency, and hearing ability. "Psych. well-being" is psychological well-being. "Composite health" averages all health measures. Bars denote point estimates, and whiskers indicate 90 percent confidence intervals. See Online Annexes 3.2 and 3.3 for details.

from a sample of 41 countries indicate that individuals who experience war during their lifetime are likely to age in worse health (Figure 3.7, panel 3). War exposure reduces composite health measures, as well as measured cognitive abilities and self-reported physical abilities and mental health. These results are consistent with generational effects of war documented in previous studies, including adverse impacts on education, fertility, and health outcomes (see Rohner 2025 for a review).

Taken together, these findings show that major conflicts generate large macroeconomic costs and difficult trade-offs for conflict-site economies, while transmitting negative spillovers to other countries. The costs of major conflict extend well beyond short-term macroeconomic disruption, with enduring consequences for both economic potential and human well-being. This raises the broader question of how economies stabilize and recover once conflict ends—a question examined in the next section.

Macroeconomic Dynamics after Conflicts

This section examines the macroeconomic dynamics following conflict termination in conflict-site economies. It adopts three complementary analytical approaches—combining cross-country, micro-level, and model-based analyses—to assess how economies stabilize and recover in the aftermath of war.

First, at the macroeconomic level, the LP-DiD framework is used to estimate the postconflict dynamics of key macroeconomic outcomes, focusing on output, inflation, and the main components of a country's production function: capital, employment, and productivity.[9] This approach characterizes average postconflict trajectories; it does not, however, identify the conditions associated with successful output recovery. To address this question, complementary cross-country analysis and case studies focus on recovery episodes to examine the policy correlates of stronger recoveries.[10] Second, to complement the country-level analysis on the role of policies during recovery, help address

[9]A conflict is defined as "terminated" when battle-related deaths fall below the chapter's baseline threshold of 25 deaths per calendar year and remain below that level for at least five consecutive years. The LP-DiD analysis traces the evolution of macroeconomic outcomes over the first five years of postconflict peace relative to those during the same period in a control group of countries not experiencing conflict, with observations for countries exposed to conflict excluded. The chapter further distinguishes between "nonfragile" postconflict episodes, in which peace lasts at least five years, and "fragile" episodes, in which conflict restarts within five years. Robustness checks using a 10-year window to define "nonfragile" and "fragile" postconflict recoveries yield broadly similar results.

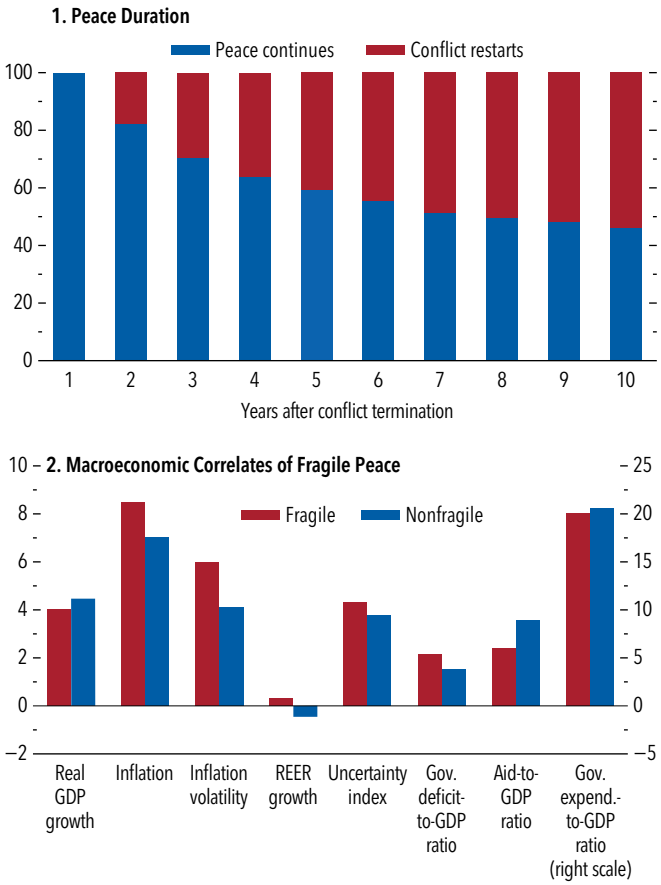
[10]In both sets of analyses, the identification strategy again assumes that conflict termination is exogenous to contemporaneous business cycle conditions; accordingly, the estimates should be interpreted as correlations. In addition, countries' initial conditions or policies undertaken during conflict may also shape subsequent postconflict macroeconomic dynamics.

identification challenges, and better understand transmission mechanisms, micro-level analyses focus on the role of aid and governance reforms, using data at the project and subnational levels, and firm dynamics. At the project level, the analysis uses a global dataset of aid-financed development projects approved between 1956 and 2017 and evaluated through 2019 to examine whether projects implemented during post-conflict peace episodes were more successful than those implemented at other times, and how outcomes vary. At the subnational level, newly constructed geocoded aid data provide spatial evidence on the role of aid and local governance in supporting postconflict recovery at the district level. At the firm level, the analysis assesses how firms' capital, labor, and productivity evolve in the aftermath of conflict, accounting for heterogeneous recovery patterns across sectors and firm characteristics. Finally, the chapter turns to model-based simulations to assess the role of policies in a general equilibrium setting, using an open-economy model with a realistic demographic structure.

Macro-Level Evidence

Several findings emerge from the cross-country analysis. First, in many postconflict cases, peace proves fragile: In about 40 percent of post-WWII postconflict episodes, countries relapse into conflict within five years (Figure 3.8, panel 1).[11] Beyond this horizon, peace becomes somewhat more durable. A simple ex post comparison between macroeconomic outcomes in countries that relapse into conflict within five years and those in countries that do not shows that, in the former, internal stability—proxied by growth and the level and volatility of inflation—tends to be weaker, real exchange rates tend to appreciate, fiscal deficits and uncertainty are higher, and aid is lower, but public expenditure is also typically lower (Figure 3.8, panel 2). These stylized facts point to important complementarities between maintaining peace and sound economic policies. They also suggest that, during postconflict periods, efforts to improve countries' fiscal positions should not come at the expense of cuts to productive expenditure. These patterns are broadly consistent with a large body of literature showing that stronger economic conditions, sounder fiscal positions, and sustained international engagement can bolster state capacity to deliver essential services, increase the opportunity cost of conflict, and reduce the risk of falling into a conflict trap (Rohner and Thoenig 2021; Mueller and others 2024; Moscona 2025; Rohner 2025; Miksjuk and others 2026).[12]

Figure 3.8. Peace Duration and Macroeconomic Correlates of Fragile Peace
(Percent)



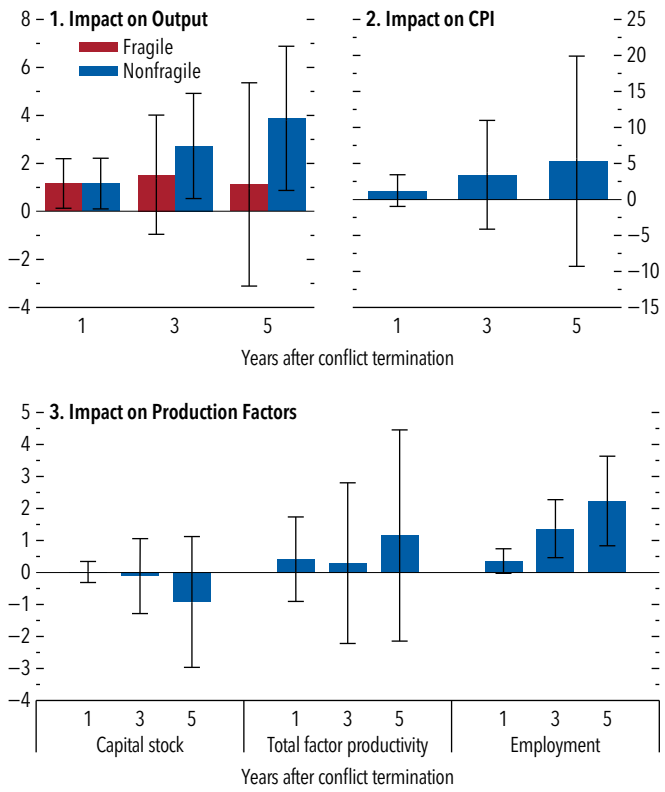
Source: IMF staff calculations.

Note: Panel 1 shows the share of postconflict episodes in which economies remain at peace or relapse into conflict over a 10-year horizon during the period 1946–2015, with the first year of peace normalized to 100 percent. Panel 2 reports the sample average of key macroeconomic variables in fragile and nonfragile episodes. Fragile episodes refer to conflict terminations followed by a relapse into conflict within five years, whereas nonfragile episodes are those in which peace persists for at least five years. Gov. expend. = government expenditure; REER = real effective exchange rate.

[11]Relapse risk is higher for within-state conflicts than for between-state conflicts, likely reflecting differences in the credibility of peace agreements and the strength of enforcement mechanisms.

[12]The literature on aid and conflict, however, has been marked by considerable debate, with two broad perspectives. One view argues that foreign aid expands governments' access to financial resources, potentially increasing rents and incentives for rebel activity (Nunn and Qian 2014). The alternative view posits that aid relaxes governments' budget constraints, fosters their ability to provide public goods, and can therefore reduce the risk of conflict (Grossman 1991; De Ree and Nillesen 2009). Recent evidence exploiting quasi-random variation in the assignment of World Bank project leaders with differing levels of managerial ability finds that stronger project management reduces conflict in aid-receiving subnational regions, highlighting the role of aid effectiveness in lowering the likelihood of violence (Moscona 2025).

Figure 3.9. Macroeconomic Dynamics after Conflicts
(Percent)



Source: IMF staff calculations.

Note: The panels report local projections difference-in-differences (LP-DiD) estimates of the effects of conflict termination on selected macroeconomic outcomes in postconflict-site economies up to five years after termination. Conflict termination is defined as battle-related deaths falling below the chapter's baseline threshold of 25 per calendar year and remaining below that level for at least five consecutive years. Fragile denotes conflict terminations followed by a relapse within five years, whereas nonfragile cases are those in which peace persists for at least five years. Bars denote point estimates, and whiskers indicate 90 percent confidence intervals. See Online Annex 3.4 for details. CPI = consumer price index.

Second, recovery is conditional on peace. When peace is fragile, output does not recover, indicating that conflict relapse sharply undermines recovery prospects (Figure 3.9, panel 1). By contrast, when peace is sustained, output rebounds, but recovery is slow and uneven across countries. Output rises gradually, reaching about 3.9 percent five years after conflict ends, with only about half of the observed output loss recovered five years after conflict onset.[13] Uncertainty around this estimate is substantial, with wide confidence intervals at longer horizons, highlighting pronounced cross-country heterogeneity in recovery paths. The modest output rebound may be accompanied by increasing prices (Figure 3.9, panel 2), suggesting that demand recovers faster than supply, although the effect is not statistically distinguishable from zero.

Third, supply-side dynamics help explain the slow and uneven output recovery following sustained peace (Figure 3.9, panel 3). On average, postconflict recoveries in capital stock and productivity do not differ significantly from those observed in countries that have not experienced conflict. This muted response likely reflects lingering uncertainty, which makes investors more cautious.[14] It may also reflect binding postconflict financing constraints faced by domestic firms, a mechanism that is explored in more detail later in the chapter using firm-level data. By contrast, labor input recovers more rapidly, as workers are reallocated from military to civilian activities and refugees gradually return (Box 3.3 provides further analysis of refugee flows following conflict onset and termination).[15] These patterns suggest that post-WWII postconflict output rebounds typically have been driven by labor dynamics, while persistent shortfalls in capital accumulation and productivity have weighed on the recovery.

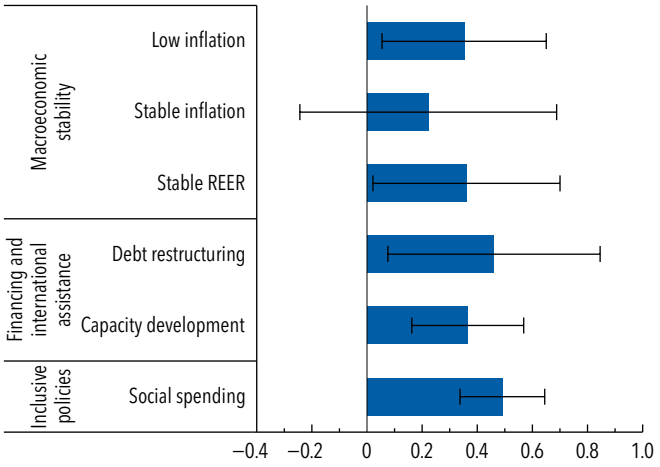
Given the subdued and uneven nature of postconflict recovery, an important question is whether economic policies can foster stronger recoveries. To answer this question, the analysis examines the extent to which policy variables are correlated with the distribution of growth outcomes during each of the first five years of postconflict recovery. Specifically, the analysis considers a set of policy outcome variables—capturing macroeconomic stability, financing and international assistance, and inclusive policies—and relates these variables to the percentile distribution of growth within each time horizon. The results indicate that sound policies are associated with better recovery outcomes (Figure 3.10). Countries that achieve macroeconomic stabilization—that is, low and stable inflation and a stable real effective exchange rate—experience stronger recovery performance. Similarly, financing and international assistance also matter: Postconflict debt restructuring and greater engagement in capacity development are both positively

[13]In level terms, the recovery is more modest because it starts from a substantially lower output base at the onset of recovery. When disaggregated by conflict type, recoveries are more subdued following within-state conflicts than after between-state conflicts. Recoveries also tend to stall in commodity-exporting countries, underscoring the importance of diversifying away from overreliance on resource extraction.

[14]Online Annex Table 3.4.1 shows that uncertainty does not decline significantly during postconflict episodes.

[15]Even though labor starts to recover after conflicts, the process can be protracted, with persistent structural challenges, such as high unemployment and underemployment, continuing well into the postconflict period (Stewart 2015).

Figure 3.10. Correlates of Postconflict Recovery
(Coefficients)



Source: IMF staff calculations.

Note: The figure shows policy correlates of the distribution of growth outcomes over the first five years of postconflict recovery. The dependent variable is the percentile of the growth distribution at each horizon (t = 1–5 years). Regressions control for postconflict episode and horizon fixed effects. "Low inflation," "stable inflation," and "stable REER" are indicator variables equal to 1 if the respective measure falls below the sample mean, based on inflation levels, inflation volatility, and REER volatility. "Debt restructuring" equals 1 if a restructuring occurs. "Capacity development" is measured by the log number of participants in IMF training. Bars denote point estimates, and whiskers indicate 90 percent confidence intervals. See Online Annex 3.5 for details. REER = real effective exchange rate.

correlated with stronger recoveries. Inclusive policies also play a role, as increases in social spending are associated with more robust postconflict growth.[16]

Case studies from selected rapid recoveries further illustrate how stronger recovery has been paired with stabilization efforts and international assistance. The chapter considers six specific conflict cases: Bosnia and Herzegovina (1992–95), Cambodia (1989–98), Côte d'Ivoire (2010–11), Nepal (1996–2006), Rwanda (1990–2001), and Sri Lanka (1983–2009); see Online Annex Table 3.5.2 for more details. Average annual output growth during the first five postconflict years was strong in these countries, varying between 4.5 percent (in Nepal) and 24.5 percent (in Bosnia and Herzegovina). In these cases, macroeconomic stabilization was key: The level and volatility of inflation were brought down significantly—by double digits in Cambodia—and excessive exchange rate appreciation was largely avoided, in many cases despite strong aid flows that would typically generate exchange rate appreciation (known in the literature as "aid-related Dutch disease"), with adverse effects on the competitiveness of the export sector (IMF 2005). It should be noted, however, that maintaining a stable real exchange rate in the postconflict period may not be universally appropriate. In some cases, domestic currencies may be significantly undervalued in real terms relative to levels consistent with longer-term fundamentals, implying that a real appreciation toward equilibrium should be expected. In Côte d'Ivoire and Rwanda, rapid restoration of supply, credible nominal anchors, and fiscal adjustment were key to macroeconomic stabilization (Box 3.2). In most cases, aid-related Dutch disease was mitigated either through absorb-and-spend strategies, in which monetary authorities accommodated higher import demand needed for reconstruction and the government increased its nonaid fiscal deficit, or through absorption without spending, in which foreign exchange inflows were absorbed without a corresponding fiscal expansion.[17] These experiences underscore the importance of coordination between fiscal and monetary authorities in managing aid surges when they arise. In all cases except Nepal, debt restructuring, yielding sizable debt reductions, occurred in the first five years to help restore fiscal sustainability, and IMF-supported programs reinforced authorities' stabilization efforts.[18] International assistance through aid flows, along with remittances in some cases, was particularly sizable to support recovery, especially in Bosnia and Herzegovina and Rwanda, where aid inflows averaged about 20 percent of GDP per year during the first five years of recovery. This role of aid is explored further later in the chapter.

Stabilization efforts and international assistance were also supported by complementary major domestic

[16]Two important policy dimensions are intentionally omitted from this cross-country analysis because of identification challenges: international support through aid, and domestic institutions. The role of these dimensions is examined later in the chapter.

[17]In accounting terms, an absorb-and-spend strategy implies increases in both a country's nonaid current account deficit and its nonaid overall fiscal deficit. This typically reflects situations in which the country's government increases investment in imported goods and aid finances the associated increase in net imports, with the aid supply of foreign currency netted out (Hussain, Berg, and Aiyar 2009). Even when aid is spent on domestically produced goods, higher aggregate demand may still spill over into imports. By contrast, absorption without spending is more common when debt reduction is a priority and unsterilized liquidity injections can pose risks to rebuilding macroeconomic stability.

[18]Many of the countries studied benefited from comprehensive debt relief under the Heavily Indebted Poor Countries Initiative. In addition, restructuring with external private creditors in Bosnia and Herzegovina resulted in a cumulative reduction of about 70 percent in the nominal value of the country's outstanding debt.

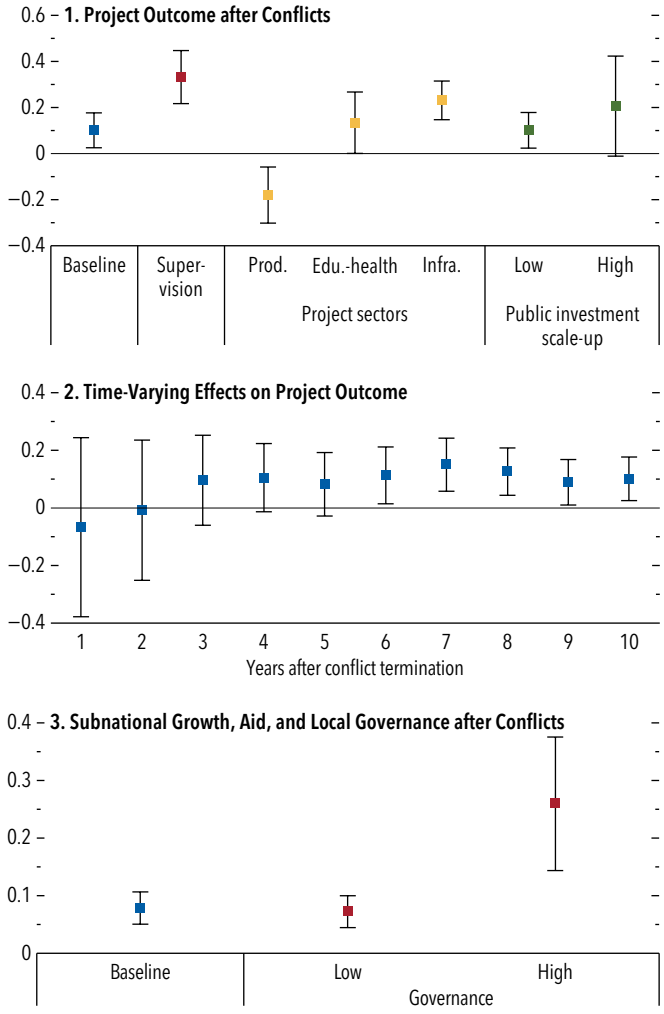
institutional reforms. In Côte d'Ivoire, Rwanda, and Sri Lanka, significant improvements in governance were achieved, with governance scores increasing by 40–60 percent. In Rwanda, commitment to institution building and anti-corruption reforms restored trust and the legitimacy of public institutions: Initiatives included implementing a zero-tolerance policy regarding corruption, establishing an efficient and transparent justice system, and adopting a credible public investment strategy (Box 3.2). Similar efforts were made in other areas by most countries examined, including efforts to reduce the state's direct ownership of productive assets and improve capacity to collect, analyze, and disseminate high-quality data. These two important areas are often disrupted during conflict but are critical to achieving competitive conditions for the private sector and guiding data-driven policies during recovery. Across recovery cases, peace dividends were also evident: Military spending decreased significantly, creating fiscal space for nonmilitary expenditures and the expansion of social spending to foster inclusion. In some cases, peacekeeping missions (Bosnia and Herzegovina, Côte d'Ivoire) and broader peacebuilding efforts, including justice and political provisions, complemented institutional reforms. In Rwanda, for instance, these included the reintegration of former combatants into society and government.

Overall, although no two countries' postconflict paths may be identical, the macro-level evidence points to common lessons: Credible macroeconomic stabilization, debt restructuring, external support, and strong domestic policy efforts are central to successful postconflict recovery. The next subsection complements the analysis by drawing on micro-level data to examine the role of aid and domestic institutions and shed light on firm-level dynamics during recovery.

Micro-Level Evidence

Micro-level evidence from project and subnational analyses indicates that aid-funded development projects can support postconflict recovery, but their effectiveness depends critically on context and implementation quality (Figure 3.11).[19] On average, projects implemented during postconflict peace episodes perform better than those implemented in countries that have not experienced conflict, a result that suggests postconflict situations represent a window of opportunity given the scarcity of resources and rebuilding needs (Chauvet, Collier, and

Figure 3.11. Role of Aid and Local Governance
(Regression estimates, coefficients)



Source: IMF staff calculations.

Note: Panels 1 and 2 show the effect of postconflict peace on project outcomes, measured on a 1–6 Likert scale, using a difference-in-differences approach. Panel 3 shows the marginal postconflict effect, conditional on aid, on nighttime light intensity for administrative regions at the second subnational levels (ADM2). Data on project outcomes are drawn from Honig, Lall, and Parks (2023); subnational project data from Bomprezzi and others (2024); nighttime light intensity data from Li and others (2020); and subnational governance data from Crombach and Smits (2024). Markers denote point estimates; whiskers show 90 percent confidence intervals. See Online Annexes 3.6 and 3.7 for details. Edu.-health = education and health; Infra. = infrastructure; Prod. = productive sectors.

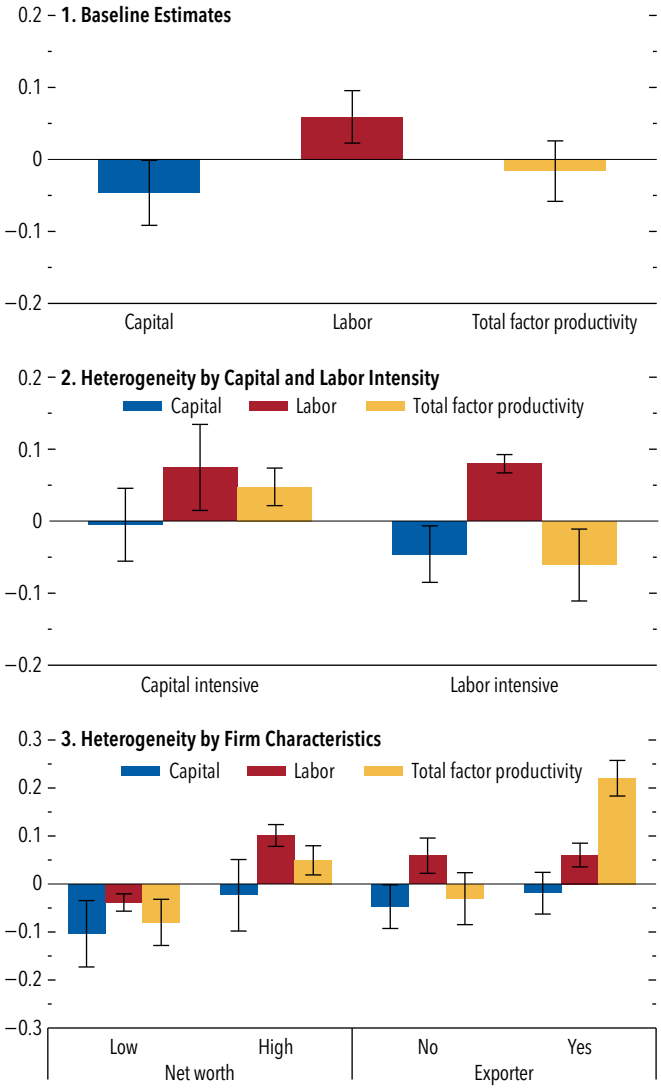
[19]A large literature examines aid effectiveness and offers mixed findings (see, for instance, Doucouliagos and Paldam 2009). The analysis presented here complements this literature by focusing on aid effectiveness in postconflict settings, in which financing constraints are particularly binding, and by exploiting novel project-level and subnational data. See Online Annexes 3.6 and 3.7 for methodological details.

Duponchel 2010).[20] Effectiveness, however, varies. Project success is more likely when supervision quality is high and for projects in education, health, and infrastructure. Projects targeting the private sector on average tend to perform poorly, with the poor performance likely reflecting lingering uncertainty, suggesting such projects may require enhanced supervision and careful sequencing. Project effectiveness is also high when implementation occurs outside periods of rapid public investment scale-up: When projects are implemented during large investment surges, estimated effects remain positive but are less precisely measured, pointing to the role of absorptive capacity constraints in shaping diverse outcomes (Presbitero 2016). The timing of projects with respect to the end of conflicts also matters: Performance improves gradually as peace lasts. The pattern suggests that, during the first few years after a conflict ends, the absorptive capacity of aid projects may not be greater than in normal times, but it then increases significantly (see also Chauvet, Collier, and Duponchel 2010). Subnational evidence further shows that aid in postconflict settings is positively associated with local economic recovery, but the recovery conditional on aid is significantly higher when domestic efforts lead to major improvements in governance (see also Burnside and Dollar 2000). When governance remains weak, both the gains from aid and the pace of the unconditional recovery itself are more muted.

Firm-level evidence provides further insight into the subdued recovery of capital and productivity following conflict termination, with substantial heterogeneity across sectors and firms (Figure 3.12). On average, surviving firms expand employment modestly after conflict ends, but capital stocks remain weak and productivity shows limited improvement. This pattern points to substitution toward labor amid difficulties in rebuilding capital, reflecting persistent uncertainty and likely financial constraints. Adjustment dynamics vary across sectors and firm characteristics. Firms in capital-intensive sectors, those that are exporters, and those with stronger balance sheets record gains in both employment and productivity, consistent with adaptive use of existing capital, high marginal returns to incremental capital, and better access to external markets. By contrast, firms in labor-intensive sectors and nonexporters primarily expand employment, with capital stocks remaining well below preconflict levels. Financially constrained firms face especially persistent capital shortfalls. These results point to a recovery

[20]It is plausible that projects implemented in postconflict settings would have lower expectations to begin with, compared with those for projects implemented in countries at peace. Project outcome data may also suffer from potential subjective rating bias. To mitigate these concerns, the analysis includes a rich set of fixed effects—at the country, year, donor, sector-approval year, and sector-evaluation year levels—to address unobserved confounders related to local conditions. The results are robust to focusing exclusively on investment projects.

Figure 3.12. Firm Dynamics after Conflicts
(Percentage change)



Source: IMF staff calculations.

Note: The panels show ordinary least squares estimates of the effects of postconflict peace on firm dynamics. The dependent variables are firm-level capital, labor, and total factor productivity (TFP, measured as quantity-based TFP, or TFPQ), all in logarithms. The key explanatory variable is a postconflict peace dummy equal to 1 during the five years following a conflict episode within a 20-kilometer radius of a firm's location. Depending on the specification, regressions control for firm age, size, leverage, and export status, and include firm, country-year, and sector-year fixed effects. Firm-level data come from Orbis. Bars denote point estimates, and whiskers show 90 percent confidence intervals. See Online Annex 3.8 for details.

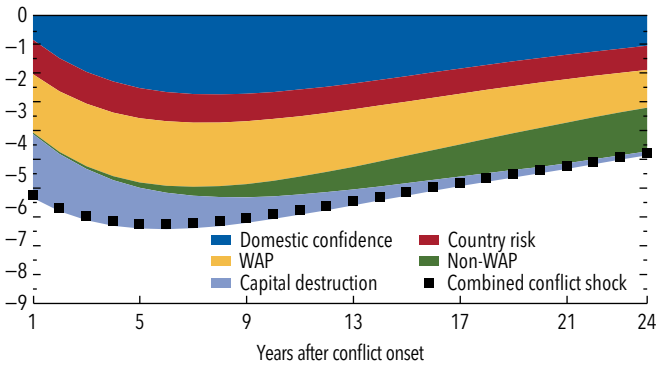
driven by stronger firms through partial factor reallocation, whereas weaker but potentially viable firms can experience persistent capital scarring, highlighting the importance of policies that relax credit constraints and support capital rebuilding in the aftermath of conflict.

Model-Based Evidence

The chapter uses an extension of an open-economy overlapping-generations model (Auclert and others 2024) with frictional international capital markets to calibrate the effects of conflict shocks and assess the general equilibrium implications of different postconflict recovery scenarios. The model is calibrated to an average low-income country (see Online Annex 3.9 for details). Consistent with this chapter's empirical findings, conflicts affect the economy through several key propagation channels, and aggregate magnitudes are aligned with the empirical evidence:

- *Human losses.* Shocks from human losses capture the persistent adverse effects of conflict on human capital accumulation and population dynamics, including casualties, forced displacement, long-lasting health impacts, and reduced fertility. Incorporating the channels through which these shocks operate allows the model to assess the macroeconomic implications of reintegrating displaced populations during the recovery phase. Whereas demographic shocks to the working-age population tend to exert pronounced but transitory effects on economic activity, conflict-related disruptions can inflict persistent scarring on younger cohorts, with implications for long-term growth trajectories (Figure 3.13).
- *Physical capital destruction.* Conflict can inflict severe localized losses on physical capital. Model simulations indicate that capital destruction accounts for a sizable share of the early output decline. Yet, without additional shocks to investment, such as heightened uncertainty or financial constraints, as documented in the empirical analysis and discussed later in the chapter, the capital destruction channel alone tends to fade over time, as the higher marginal product of capital stimulates investment.[21]
- *Country risk premiums and uncertainty.* Investment often remains depressed in postconflict economies, particularly in developing economies that rely on foreign capital—including foreign direct investment—to finance investment and face elevated perceptions of economic and political risk (Le and Zak 2006; Rexer, Kapstein, and Rivera 2022). In addition, domestic households grow reluctant to invest amid economic policy uncertainty (Di Maio and Sunde 2025), fears of conflict relapses, or expropriation risk (Collier and Gunning 1995; Brochet, Mueller, and Rauh 2025). Model simulations reveal how the resulting two-pronged confidence channel accounts for capital flight at conflict onset, pushing interest rates higher, followed by a prolonged investment slump.[22] The recovery phase presents its own challenges: Absent stabilization, foreign investors respond inelastically, constraining capital inflows needed to finance reconstruction. This sluggish investor response prolongs the adjustment period and delays the return to precrisis investment levels. Frictions in capital markets play a contrasting role, as more-open economies are more vulnerable to capital flight at conflict onset but tend to rebound faster once confidence is restored.

Figure 3.13. Contribution to Changes in Output after Conflict Shock
(Deviation from baseline scenario, percentage points)



Source: IMF staff calculations.

Note: The figure shows model-based simulations of the effects of conflict on output at different horizons (in years, shown on the horizontal axis). Shaded areas denote deviations from the baseline when an economy is hit by each shock–country risk, human losses, and capital destruction–either in isolation or jointly (as reflected by the combined shock). The representative economy is calibrated to match average output growth, debt-to-GDP, and tax-to-GDP ratios of low-income countries. See Online Annex 3.9 for details. WAP = working-age population.

[21]Examples of countries undergoing rapid reconstruction of physical capital after large destruction include Germany, Japan, and Vietnam (Davis and Weinstein 2002; Brakman, Garretsen, and Schramm 2004).

[22]In the model, higher country risk premiums dampen capital inflows, consistent with Gourinchas and Rey (2014). The degree of financial openness in a country governs the responsiveness of foreign demand for domestic assets. Damaged financial sectors can also play an important role in hindering investments and capital allocation in postconflict settings (Addison and others 2005).

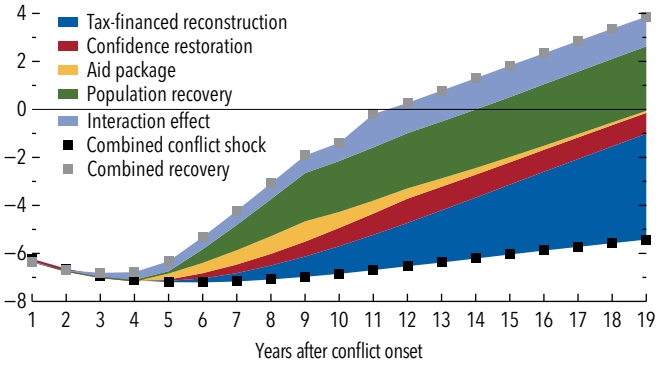
How can policies help restore economic activity and rebuild productive capacity after conflict? Model simulations consider four policy layers: restoring macroeconomic stability, mobilizing financing, rebuilding state capacity through increases in public investment efficiency, and addressing protracted losses to human capital. A set of alternative scenarios is used to assess the general equilibrium effects of such policies.

- *Macroeconomic stabilization.* Well-coordinated domestic economic policies, including those implemented under IMF-supported programs, anchored in credible and sustained peace can be critical for restoring confidence and laying the foundations for recovery, both as a direct outcome of the policies and through a signaling effect. A key obstacle to a rapid rebound is elevated perceived country risk, which lowers the effective rate of return on investment in a country. Empirical evidence suggests that macroeconomic stabilization achieved under IMF-supported programs can help reduce country risk premiums (Gehring and Lang 2020). The first scenario assumes that the wedges generated by the two-pronged confidence shocks associated with conflict gradually converge to their preconflict levels over eight years.
- *Financing.* Financing postconflict reconstruction typically requires a combination of domestic revenue mobilization (that is, efforts to increase government revenues through improved tax policy and administration), borrowing, and expenditure reallocation. Recovery outcomes depend critically on the composition of this financing mix. In practice, many conflict-affected economies are constrained by extremely tight fiscal space, with tax revenues averaging about 15 percent of GDP, and often lack market access, limiting their ability to borrow. In such a context, concessional financing can play a key role in supporting recovery alongside domestic revenue efforts. Motivated by evidence from the case studies, a second alternative scenario assumes domestic efforts to gradually increase the tax-to-GDP ratio by 3 percentage points over 15 years, combined with additional donor aid averaging about 0.5 percent of GDP per year during the first 5 years of postconflict recovery.
- *Increasing public investment efficiency.* Countries differ markedly in their capacity to translate public investment outlays into effective public infrastructure, such as schools and roads. Simulations using a measure proposed in the October 2025 *Fiscal Monitor* show that increasing public investment efficiency to the median level for emerging market and developing economies magnifies the impact of a tax-funded recovery plan. In practice, many fragile and conflict-affected countries have benefited from capacity development efforts that helped strengthen public investment management and increase its efficiency over time (Gores and Suc 2024). In a third alternative scenario, public investment efficiency increases by 10 percentage points relative to the average level reported in the October 2025 *Fiscal Monitor*, boosting the output return of tax-funded recovery by about 1.4 percentage points, consistent with the estimates published in October.
- *Policies to alleviate protracted losses of human capital.* Policies that encourage return migration can support economic recovery, as returning populations bring back human capital and help spur demand for domestic assets. Policy conditions in refugees' countries of origin play an important role in shaping return decisions (Box 3.3). Increased housing availability, enhanced security, better access to basic services—including water, education, and health care—and policies that support labor market reintegration are all positively associated with return intentions. In a fourth alternative scenario, displaced populations are assumed to return gradually over a four-year period.

Model simulations show that combining policies from these four policy layers can support recovery (Figure 3.14). Taken in isolation, however, individual policies are less efficient at fully offsetting conflict-related output losses, indicating that a comprehensive policy approach is preferable to a piecemeal one. The results further illustrate that a coordinated and comprehensive policy package that puts a priority on reductions in uncertainty and rebuilding of capital stock accelerates recovery beyond what would be achieved by the sum of the individual policies in the package, reflecting positive externalities and complementarities across policies, as well as improved expectations.[23] For example, policies that jointly reduce uncertainty and rebuild capital can improve economic agents' expectations about the future, relax borrowing

[23]The presence of positive complementarities across policies is not universal, because policy interactions can exhibit threshold effects: For instance, scaling up public investment reduces sovereign risk when public investment quality is high but increases risk when quality is low (Adarov and Panizza 2026). This suggests that the effectiveness of coordinated policy packages may depend critically on institutional capacity and implementation quality.

Figure 3.14. Output Dividends from Recovery Policies
(Deviation from combined shock, percentage points)



Source: IMF staff calculations.

Note: The figure shows model-based simulations of the effect of recovery policies on output up to 19 years (shown on the horizontal axis) after conflict onset. "Combined recovery" denotes the joint effect of the recovery policies. "Interaction effect" reflects the output gains from policy externalities, complementarities across policies, and improved expectations. "Tax-financed reconstruction" raises public spending by 3 percentage points over 15 years. "Aid package" amounts to 0.5 percent of GDP over five years. "Confidence restoration" fully undoes the confidence shocks. "Population recovery" assumes a gradual return of refugees. See Online Annex 3.9 for details.

constraints, and, as such, facilitate greater capital inflows, raise wages, and further encourage the return of displaced workers and refugees; this virtuous cycle is more powerful the more open an economy is.[24]

Summary and Policy Recommendations

Following a period of relative calm after the Cold War ended, the number of conflicts worldwide has increased in recent years, reaching levels not seen since WWII. Beyond their devastating human toll this chapter shows, wars impose large and persistent economic costs. Output losses in conflict-site economies are deep and long-lasting, exceeding those typically associated with financial crises or severe natural disasters. Wars also generate acute macroeconomic trade-offs—through fiscal strains, external imbalances, and inflationary pressures—and leave durable scars on a country's macroeconomy and individuals. These economic consequences are not confined within borders: Neighboring countries and trading partners of conflict-site economies also bear nonnegligible spillovers, underscoring the international costs of conflict.

[24]Gorodnichenko and Obstfeld (2026) similarly propose a rebuilding strategy that leverages a virtuous cycle involving capital deepening, repatriation of war refugees, and productivity improvement in the case of Ukraine.

When conflict ends and gives way to a durable peace, economic recovery is possible, but it is neither automatic nor rapid. On average, output rebounds, yet the pace of recovery remains modest relative to wartime losses and varies widely across countries. Postwar recoveries since the end of WWII have been driven primarily by labor dynamics, as workers shift back to civilian activities and refugees gradually return. By contrast, capital accumulation and productivity often remain subdued, reflecting lingering uncertainty and persistent financing constraints. However, when peace proves fragile and conflict reemerges, economic activity typically fails to recover, highlighting the central role of sustained peace in restoring growth.

Policy choices play a decisive role in shaping postconflict outcomes. Recoveries tend to be stronger when early and decisive debt restructuring is combined with macroeconomic stabilization, anchored in low and stable inflation and a stable exchange rate—and supported by timely international assistance, including capacity development and aid. In many successful cases, stabilization has been achieved through rapid restoration of supply, credible nominal anchors, and fiscal adjustment, often under IMF-supported programs. In episodes characterized by large aid inflows, effective coordination between fiscal and monetary authorities has proved particularly important for managing aid surges without undermining macroeconomic stability. These stabilization efforts have been most effective when complemented by domestic reforms to rebuild state capacity and improve governance, for instance, to restore administrative capacity to collect taxes or strengthen anti-corruption measures. Successful recoveries have also been accompanied by a peace dividend, in which reductions in military spending created fiscal space for nonmilitary and social expenditures, alongside policies to address human capital losses, including measures to support refugees' return and integration.

Moreover, successful recoveries hinge on a comprehensive policy package, with a primary focus on reducing uncertainty and rebuilding the capital stock during the early period of the recoveries because of policy complementarities and expectations about the future. Taken together, the chapter's findings underscore that macroeconomic stabilization, sizable debt restructuring, international support, and complementary domestic reforms are mutually reinforcing pillars of durable postconflict recovery, but their effectiveness ultimately depends on the durability of peace.

Box 3.1. Wartime Economic Management in Ukraine

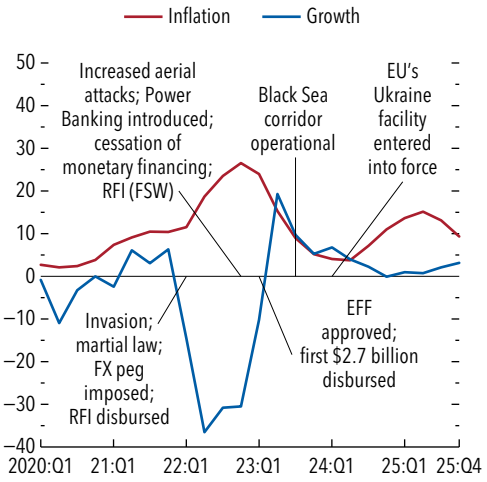
This box focuses on Ukraine's economic crisis management and subsequent stabilization following Russia's invasion on February 24, 2022. The invasion triggered a dramatic collapse of Ukraine's economy, with output plunging by more than one-third in the second quarter of that year (Figure 3.1.1). Widespread combat, infrastructure destruction, trade disruptions, and large-scale emigration created acute demand-supply imbalances, fueling inflation and widening the country's trade deficit. Martial law was introduced upon the invasion, with immediate priorities to mobilize military-age men, maintain public order and core state functions, and reinforce public confidence. Sound prewar fundamentals and policymaking institutions—strengthened over time through reforms, including those under IMF-supported programs—enabled a swift policy response to preserve macroeconomic stability in two phases.

Phase 1 (2022): Economic Crisis Management. In this phase, public spending was rapidly redirected toward defense while social spending was protected. Acute financing needs were bridged with temporary monetary financing, IMF emergency financing, European Union (EU) macrofinancial assistance, and in-kind defense support, alongside debt-service standstills, creating critical fiscal space. To preserve reserves and stabilize expectations, the National Bank of Ukraine (NBU) introduced sweeping foreign exchange controls on outflows and pegged the exchange rate, subsequently devaluing the currency in July following a 1,500-basis-point policy rate hike. Business continuity was preserved through rapid digitalization and blackout-resilient banking solutions (Power Banking). Despite large-scale attacks on energy infrastructure, swift repairs—supported by external aid—and the adoption of backup generators sustained economic activity.

Phase 2 (2023 onward): Stabilization and Growth. With a four-year IMF Extended Fund Facility (EFF) program in place beginning in March 2023 and $130 billion in external financing secured for the program period, policymakers moved in this phase from crisis management to stabilization. Fiscal policy became more orderly, underpinned by nondefense budget discipline and domestic revenue mobilization, including the reversal of some initial wartime tax relief, strengthened tax and customs administration, and selective tax increases. Monetary financing was fully phased out. The NBU transitioned to a managed exchange rate, adopting a conditions-based strategy to phase out foreign exchange controls. In addition to extended standstills, a comprehensive debt-restructuring strategy was developed. As front lines stabilized, growth resumed, with the second quarter of 2023 registering 19.3 percent growth year over year, driven by household and firm wartime adaptation, revived exports, and an improving labor market as net internal forced displacement eased. Inflation also eased amid the cessation of monetary financing, receding supply shocks, and a favorable harvest.

Ukraine's crisis preparedness, shaped by managing wartime conditions after the 2014 annexation of Crimea, and sound initial conditions were critical for crisis management. Stabilization hinged on the authorities' commitment to an ambitious reform framework supported by the EFF and large-scale concessional financing, including the EU's Ukraine Facility, as well as in-kind support. The reform agenda, covering revenue mobilization, public financial management, governance and anti-corruption measures, and financial sector infrastructure, has helped lay the foundation for a postwar economy.

Figure 3.1.1. Real GDP Growth and Inflation
(Percent, year over year)



Source: IMF staff calculations.

Note: EFF = IMF Extended Fund Facility; EU = European Union; FSW = IMF Food Shock Window; FX = foreign exchange; RFI = IMF Rapid Financing Instrument.

The authors of this box are Sidra Rehman and Andrea Manera.

Box 3.2. Dealing with Postconflict Stabilization: Lessons from African Experiences

This box uses the 1994 genocide against the Tutsi in *Rwanda* and the 2010–11 postelectoral crisis in *Côte d'Ivoire* to highlight that early macroeconomic stabilization, international support, credible institutional reforms, and domestic revenue mobilization were key to durable recovery in both of these cases.

Both countries experienced deep initial disruptions but stabilized quickly and returned to strong postconflict growth. *Rwanda* experienced an abrupt and near-total collapse of state capacity. Violence was widespread, forced displacement was massive, and economic activity virtually ceased. *Côte d'Ivoire*'s crisis was shorter and more geographically contained. Nevertheless, it was severe enough to disrupt production, public administration, and investor confidence. At the end of the genocide in 1994, *Rwanda*'s real GDP contracted by 42 percent, inflation surged to 42 percent, and public debt increased to 171 percent of GDP, from 60 percent of GDP in 1993. Five years later, economic growth recovered to about 3 percent and accelerated to between 6 percent and 9 percent annually in the following years, while inflation returned to 2 percent, and public debt declined to 78 percent of GDP. In *Côte d'Ivoire*, output contracted by about 5 percent during the crisis, whereas inflation rose from 1.2 percent in 2010 to 4.9 percent in 2011 before returning to an average of about 1.4 percent three years later. The real effective exchange rate remained stable, and public debt increased from 46 percent in 2009 to about 50 percent of GDP in 2011. Within five years, economic growth accelerated to about 7 percent, and public debt declined to 31 percent of GDP.

In both cases, recovery was anchored by the rapid restoration of supply, credible nominal anchors, and substantial external support. In *Rwanda*, inflation declined as donor-financed imports alleviated shortages and agricultural production recovered. For *Côte d'Ivoire*, membership in the West African Economic and Monetary Union provided a strong and credible nominal anchor, facilitating rapid price stabilization. Fiscal imbalances were initially addressed through emergency grants and strict expenditure controls, followed by comprehensive debt relief, through the Heavily Indebted Poor Countries Initiative program in *Rwanda* and through arrears clearance combined with that program and the Multilateral Debt Relief Initiative in *Côte d'Ivoire*, creating fiscal space for reconstruction and social spending. IMF-supported programs in both countries underpinned macroeconomic stabilization and fiscal adjustment, catalyzing donor confidence and sustained external financing. In *Rwanda*, net inflows of official development assistance surged to about 95 percent of gross national income in 1994 and remained elevated—at 15–20 percent of gross national income—while private capital inflows were modest, with foreign direct investment increasing gradually from near zero to 2–3.5 percent of GDP by 2007. Dutch disease pressures were contained because aid financed a large share of essential imports, and the country's post-1995 flexible exchange rate regime absorbed external shocks.

Domestic resource mobilization was critical. *Rwanda* broadened its tax base, established the Rwanda Revenue Authority, and introduced a value-added tax. *Côte d'Ivoire* increased tax compliance and digitalized revenue collection. Following those reforms, the tax-to-GDP ratio increased from 9 percent to 13 percent in *Rwanda* and from 10 percent to 13 percent in *Côte d'Ivoire*. Political will and credibility were also key. *Rwanda*'s well-aligned group of policymakers and commitment to institution building and anti-corruption measures helped rebuild trust and public sector legitimacy. Key initiatives included a zero-tolerance policy regarding corruption, strengthening the justice system, adopting a credible public investment strategy, and reintegrating former combatants into society and government (Hill, Khadan, and Selcuk 2025; October 2025 *Regional Economic Outlook: Middle East and Central Asia*, Chapter 2). *Côte d'Ivoire*'s rapid normalization and program-backed reforms supported investment and growth.

The authors of this box are Patrick-Nelson Essiane and Maria Gelrud.

Box 3.3. Policies for Refugees' Return and Integration

Armed conflicts generate severe human costs. In addition to casualties and injuries, millions of people are forced to flee their homes during conflicts. In 2024, about 25 million refugees—roughly 80 percent of the global refugee population—originated from active conflict-site economies.[1] But refugee return is not automatic once the conflict ends. As shown in the chapter, policies that foster postconflict return migration can help recovery, as returnees bring back human capital and spur domestic demand. This box examines refugee movements during and after conflicts and draws policy lessons for easing return.

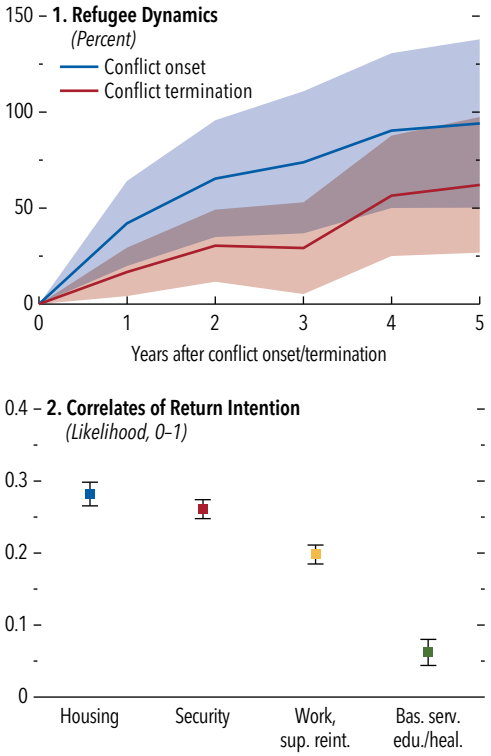
Cross-country data point to sizable and persistent refugee outflows following conflict onset (Figure 3.3.1, panel 1) (see also Mueller, Piemontese, and Tapsoba 2017; Chapter 2 of the April 2024 *Regional Economic Outlook: Middle East and Central Asia*; and Chapter 2 of the October 2025 *Regional Economic Outlook: Middle East and Central Asia*). Five years after the onset of a major conflict, cumulative refugee outflows from the conflict-site economy are about 95 percent higher than in the year preceding the conflict. When conflicts end and sustained peace takes hold, refugee returns to their country of origin gradually increase, reaching about 60 percent five years after conflict termination. A comparison of postconflict inflows with earlier outflows suggests, however, that return is often incomplete even after several years of peace.

Recent intention surveys by the United Nations High Commissioner for Refugees covering about 17,000 refugees from Nigeria, South Sudan, and Ukraine help explain the drivers of return intentions, which, conditional on the end of conflict, vary across socioeconomic characteristics. Older individuals, refugees in host countries neighboring their country of origin, and those with close family members in their country of origin report higher likelihoods of return. By contrast, refugees who are employed in host countries tend to express lower levels of return intentions.

Policy conditions in refugees' country of origin also shape return decisions. Increased housing availability, enhanced security, better access to basic services—including water, education, and health care—and policies supporting labor market reintegration are positively associated with return intentions (Figure 3.3.1, panel 2). A decomposition analysis suggests that policy-related factors explain about 54 percent of refugees' stated intentions to return to their countries of origin, whereas individual socioeconomic characteristics account for about 20 percent.

Thus, policies that promote postconflict security, expand housing availability, facilitate reintegration into labor markets, and rebuild basic services are critical for encouraging return and supporting durable recovery in postconflict economies.

Figure 3.3.1. Refugee Flows during and after Conflict, and Return Intentions



Sources: United Nations High Commissioner for Refugees (UNHCR) Intention Surveys for refugees from Nigeria (September 2021), South Sudan (November 2021), and Ukraine (August 2024); and IMF staff calculations.

Note: Panel 1 shows local projections difference-in-differences estimates of refugee stocks following conflict onset and (with an opposite sign) termination (similar patterns are observed using data on refugee flows and returnees). Panel 2's regression controls for socioeconomic characteristics and fixed effects for country of origin, country (or region) of asylum, and legal status. Lines and markers denote point estimates; shaded areas and whiskers show 90 percent confidence intervals. Bas. serv. edu./heal. = basic services, education, and health; Work, sup. reint. = work and support for reintegration.

The authors of this box are Hippolyte Balima and Evgenia Weaver.

[1]Calculations are based on data on refugees from the United Nations High Commissioner for Refugees and the chapter's conflict data.

References

Adarov, Amat, and Ugo Panizza. 2026. "Public Investment Quality and Sovereign Risk." *Journal of International Money and Finance* 161: 103503.

Addison, Tony, Alemayehu Geda, Philippe Le Billon, and S Mansoob Murshed. 2005. "Reconstructing and Reforming the Financial System in Conflict and 'Post-Conflict' Economies." *Journal of Development Studies* 41 (4): 703–18.

Auclert, Adrien, Hannes Malmberg, Frederic Martenet, and Matthew Rognlie. 2024. "Demographics, Wealth, and Global Imbalances in the Twenty-First Century." NBER Working Paper 29161, National Bureau of Economic Research, Cambridge, MA.

Benmelech, Efraim, and João Monteiro. 2025. "The Economic Consequences of War." NBER Working Paper 34389, National Bureau of Economic Research, Cambridge, MA.

Blattman, Christopher, and Edward Miguel. 2010. "Civil War." *Journal of Economic Literature* 48 (1): 3–57.

Bomprezzi, Pietro, Axel Dreher, Andreas Fuchs, Teresa Hailer, Andreas Kammerlander, Lennart Kaplan, Silvia Marchesi, and others. 2024. "Wedded to Prosperity? Informal Influence and Regional Favoritism." CESifo Working Paper 10969, Center for Economic Studies and ifo Institute, Munich.

Brakman, Steven, Harry Garretsen, and Marc Schramm. 2004. "The Strategic Bombing of German Cities during World War II and Its Impact on City Growth." *Journal of Economic Geography* 4 (2): 201–18.

Brochet, Sophie, Hannes Mueller, and Christopher Rauh. 2025. "Uncovering Economic Policy Uncertainty during Conflict." Cambridge Working Papers in Economics 2551, Faculty of Economics, University of Cambridge, Cambridge, UK.

Burnside, Craig, and David Dollar. 2000. "Aid, Policies, and Growth." *American Economic Review* 90 (4): 847–68.

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

Cavallo, Eduardo, Sebastian Galiani, Ilan Noy, and Juan Pantano. 2013. "Catastrophic Natural Disasters and Economic Growth." *Review of Economics and Statistics* 95 (5): 1549–61.

Cerra, Valerie, and Sweta Chaman Saxena. 2008. "Growth Dynamics: The Myth of Economic Recovery." *American Economic Review* 98 (1): 439–57.

Chami, Ralph, Raphael Espinoza, and Peter Montiel, eds. 2021. *Macroeconomic Policy in Fragile States*. Oxford, UK: Oxford University Press.

Chauvet, Lisa, Paul Collier, and Marguerite Duponchel. 2010. "What Explains Aid Project Success in Post-Conflict Situations?" World Bank Working Paper 5418, World Bank, Washington, DC.

Chen, Siyan, Norman V. Loayza, and Marta Reynal-Querol. 2008. "The Aftermath of Civil War." *World Bank Economic Review* 22 (1): 63–85.

Chupilkin, Maxim, and Zsóka Kóczán. 2022. "The Economic Consequences of War: Estimates Using Synthetic Controls." EBRD Working Paper 271, European Bank for Reconstruction and Development, London.

Collier, Paul. 1999. "On the Economic Consequences of Civil War." *Oxford Economic Papers* 51 (1): 168–83.

Collier, Paul, and Jan Willem Gunning. 1995. "War, Peace and Private Portfolios." *World Development* 23 (2): 233–41.

Collier, Paul, and Anke Hoeffler. 2007. "Civil War." In *Handbook of Defense Economics*, vol. 2, edited by Keith Hartley and Todd Sandler, 711–39. Amsterdam: Elsevier.

Crombach, Lamar, and Jeroen Smits. 2024. "The Subnational Corruption Database: Grand and Petty Corruption in 1,473 Regions of 178 Countries, 1995–2022." *Scientific Data* 11 (1): art. 686.

Dabrowski, Marek. 2025. "How Resilient Is Russia's Economy after Four Years of War?" Working Paper 32/2025, Bruegel, Brussels.

Davis, Donald, and David Weinstein. 2002. "Bones, Bombs, and Break Points: The Geography of Economic Activity." *American Economic Review* 92 (5): 1269–89.

De Ree, Joppe, and Eleonora Nillesen. 2009. "Aiding Violence or Peace? The Impact of Foreign Aid on the Risk of Civil Conflict in Sub-Saharan Africa." *Journal of Development Economics* 88 (2): 301–13.

Devereux, John, and Gerald Dwyer. 2016. "What Determines Output Losses after Banking Crises?" *Journal of International Money and Finance* 69: 69–94.

Di Maio, Michele, and Uwe Sunde. 2025. "Conflict and Investment: A Review across Health, Fertility, Education, and Economic Activity." *Economic Policy* 40 (124): 973–1013.

Doucouliagos, Chris, and Martin Paldam. 2009. "The Aid Effectiveness Literature: The Sad Results of 40 Years of Research." *Journal of Economic Surveys* 23 (3): 433–61.

Dube, Arindrajit, Daniele Girardi, Òscar Jordà, and Alan M. Taylor. 2025. "A Local Projections Approach to Difference-in-Differences." *Journal of Applied Econometrics* 40 (7): 741–58.

Federle, Jonathan, André Meier, Gernot J. Müller, Willi Mutschler, and Moritz Schularick. 2026. "The Price of War." *American Economic Review* 116: 791–827.

Gehring, Kai, and Valentin Lang. 2020. "Stigma or Cushion? IMF Programs and Sovereign Creditworthiness." *Journal of Development Economics* 146: 102507.

Gobat, Jeanne, and Kristina Kostial. 2016. "Syria's Conflict Economy." IMF Working Paper 16/123, International Monetary Fund, Washington, DC.

Gores, Laura A., and Gwenaelle Suc. 2024. "Togo: Public Investment Management Assessment—PIMA and Climate PIMA." High-Level Summary Technical Assistance Report 2024/054, International Monetary Fund, Washington, DC.

Gorodnichenko, Yuriy, Marianna Kudlyak, and Ayşegül Şahin. 2022. "The Effect of the War on Human Capital in Ukraine and the Path for Rebuilding." IZA Policy Paper 185, Institute of Labor Economics, Bonn, Germany.

Gorodnichenko, Yuriy, and Maurice Obstfeld. 2026. "You Only Live Twice: Financial Inflows and Growth in a Westward-Facing Ukraine." PIIE Working Paper 26-1, Peterson Institute for International Economics, Washington, DC.

Gourinchas, Pierre-Olivier, and Hélène Rey. 2014. "External Adjustment, Global Imbalances, Valuation Effects." In *Handbook of International Economics* 1 (4): 585–645.

Grossman, Herschell. 1991. "A General Equilibrium Model of Insurrections." *American Economic Review* 81 (4): 912–21.

Hilgenstock, Benjamin, and Elina Ribakova. 2025. "Russia's Wartime Economic Boom Wanes as Recession Risks Rise." PIIE Charts, July 24, 2025. https://www.piie.com/research/piie-charts/2025/russias-wartime-economic-boom-wanes-recession-risks-rise.

Hill, Samuel, Jeetendra Khadan, and Peter Selcuk. 2025. "Fragile and Conflict-Affected Situations: Intertwined Crises, Multiple Vulnerabilities." Policy Research Working Paper 11210, World Bank, Washington, DC.

Hong, Kiseok, and Aaron Tornell. 2005. "Recovery from a Currency Crisis: Some Stylized Facts." *Journal of Development Economics* 76 (1): 71–96.

Honig, Dan, Ranjit Lall, and Bradley C. Parks. 2023. "When Does Transparency Improve Institutional Performance? Evidence from 20,000 Projects in 183 Countries." *American Journal of Political Science* 67 (4): 1096–116.

Hussain, Mumtaz, Andrew Berg, and Shekhar Aiyar. 2009. "The Macroeconomic Management of Increased Aid: Policy Lessons from Recent Experience." *Review of Development Economics* 13 (3): 491–509.

International Monetary Fund (IMF). 2005. "The Macroeconomics of Managing Increased Aid Inflows: Experiences of Low-Income Countries and Policy Implications." International Monetary Fund, Washington, DC.

Keynes, John Maynard. 1940. *How to Pay for the War*. London: Macmillan and Co. Limited.

Korn, Tobias, and Henry Stemmler. 2025. "The Persistence of Trade Relocation from Civil Conflict." *Journal of Development Economics* 172: 103376.

Kuvshinov, Dmitry, and Kaspar Zimmermann. 2019. "Sovereigns Going Bust: Estimating the Cost of Default." *European Economic Review* 119 (8): 1–21.

Le, Quan Vu, and Paul J. Zak. 2006. "Political Risk and Capital Flight." *Journal of International Money and Finance* 25 (2): 308–29.

Li, Xuecao, Yuyu Zhou, Min Zhao, and Xia Zhao. 2020. "A Harmonized Global Nighttime Light Dataset 1992–2018." *Scientific Data* 7 (1): 168.

Miksjuk, Alexei, Paul M. Bisca, Jocelyn Boussard, John-Paul Fanning, Romina Kazandjian, Yipei Zhang, Lavinia Zhao, and others. 2026. "Macroeconomic Challenges of Fragility and Policies for Stability and Growth." IMF Departmental Paper 26/003, International Monetary Fund, Washington, DC.

Moscona, Jacob. 2025. "The Management of Aid and Conflict in Africa." *American Economic Journal: Economic Policy* 17 (4): 228–59.

Mueller, Hannes. 2012. "Growth Dynamics: The Myth of Economic Recovery: Comment." *American Economic Review* 102 (7): 3774–77.

Mueller, Hannes, Lavinia Piemontese, and Augustin Tapsoba. 2017. "Recovery from Conflict: Lessons of Success." World Bank Policy Research Working Paper 7970, Washington DC.

Mueller, Hannes, and Christopher Rauh. 2022. "The Hard Problem of Prediction for Conflict Prevention." *Journal of the European Economic Association* 20 (6): 2440–67.

Mueller, Hannes, and Christopher Rauh. 2024. "Building Bridges to Peace: A Quantitative Evaluation of Power-Sharing Agreements." *Economic Policy* 39 (118): 411–67.

Mueller, Hannes, Christopher Rauh, Benjamin R. Seimon, and Raphael A. Espinoza. 2024. "The Urgency of Conflict Prevention—A Macroeconomic Perspective." IMF Working Paper 24/256, International Monetary Fund, Washington DC.

Nunn, Nathan, and Nancy Qian. 2014. "US Food Aid and Civil Conflict." *American Economic Review* 104 (6): 1630–66.

Presbitero, Andrea. 2016. "Too Much and Too Fast? Public Investment Scaling-Up and Absorptive Capacity." *Journal of Development Economics* 120: 17–31.

Qureshi, Mahvash Saeed. 2013. "Trade and Thy Neighbor's War." *Journal of Development Economics* 105 (C): 178–95.

Rexer, Jonah M., Ethan B. Kapstein, and Andrés F. Rivera. 2022. "Pricing Conflict Risk: Evidence from Sovereign Bonds." ESOC Working Paper 33, Empirical Studies of Conflict, Princeton University, Princeton, NJ.

Rohner, Dominic. 2025. "Armed Conflict: Causes, Consequences, Policies." CEPR Discussion Paper 20491, Centre for Economic and Policy Research, London.

Rohner, Dominic, and Mathias Thoenig. 2021. "The Elusive Peace Dividend of Development Policy: From War Traps to Macro Complementarities." *Annual Review of Economics* 13 (1): 111–31.

Stewart, Frances. 2015. "Employment in Conflict and Post-Conflict Situations." Think Piece, Human Development Report Office, United Nations Development Programme, New York.