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Chapter 5

International Trade and Investment Flows

After a period of rapid globalization during the 1990s and early 2000s, global goods trade and financial flows showed signs of plateauing in the decade after the global financial crisis due to a combination of factors, including sluggish recoveries after the crisis and diminished opportunities to further disburse production across borders. Still, the global economy remains inextricably linked—even in the face of large economic shocks and rising geopolitical tensions—with the U.S. economy continuing to play a leading role. The United States is the world's second-largest trading country, with more than $7 trillion in combined goods and services exports and imports in 2022, and it remains both the largest source of and destination for foreign direct investment (USTR 2022a; OECD 2023a).

There are well-documented gains from trade and cross-border investment flows. The benefits of global integration include lower inflation, a greater variety of goods and services, more innovation, higher productivity, good jobs for American workers in exporting sectors, foreign direct investment in U.S. industries, and a higher likelihood of achieving our climate goals (Bernstein 2023). However, policymakers must continue to pay careful attention to negative effects associated with global integration and some trade policies. First and foremost, global integration can disproportionately affect certain groups of workers and communities through employment and earnings losses when facing rising import competition. These distributional effects are further complicated by differing commercial standards and practices, with some countries using unfair labor practices (e.g., forced or child labor) or environmentally-degrading manufacturing techniques that are not fully captured in prices and create an unfair and uneven global production

landscape that can distort and stymie competition. To mitigate the negative consequences of trade and investment flows for both workers and communities, international policies (e.g., trade agreements and economic frameworks) can seek to promote high-level standards (e.g., fair labor practices), and domestic policies (e.g., social safety nets and education or reskilling programs) can be adapted to focus needed resources on workers who are adversely affected by global integration.

By reorienting trade and foreign investment policy to center on workers, the Biden-Harris Administration's policy agenda continues to define and elevate the standards by which trade and foreign investment are conducted, and it serves as a mechanism for achieving broader economic goals. These goals include confronting unfair trade practices, elevating labor and environmental standards (USTR 2022b), and building cooperative and beneficial economic relationships with U.S. partner countries (CEA 2023a). For example, the Indo-Pacific Economic Framework is an innovative economic framework that promotes inclusive growth by advancing higher economic standards, building supply chain resiliency, facilitating and capturing the economic opportunities that relate to addressing climate change, fighting corruption, supporting efficient tax administration, and promoting high-standard labor commitments. Another example is the United States–Mexico–Canada Agreement's Rapid Response Labor Mechanism, which promotes the right of free association and collective bargaining rights by workers (USTR 2023a). Since 2021, this mechanism has been used to protect labor rights at multiple different facilities, and thus it has had an impact on thousands of workers in Mexico (U.S. Department of Labor 2023; USTR 2023a).

While the longer-term outlook for U.S. trade and investment flows remains uncertain, early signs of important shifts have begun materializing. Supply chains are being rewired in patterns consistent with near-shoring and friend-shoring. Trade in many services sectors has proved resilient to the effects of the COVID-19 pandemic and is growing. Foreign investors are contributing

to a historic ramping up of domestic manufacturing in critical sectors, including advanced technologies and clean energy. In particular, a disproportionate number of announced foreign investments in clean energy projects are being located in regions of the country that experienced more pronounced losses in manufacturing employment in the 1990s and early 2000s.

After describing the evolution of global integration over the past three decades, this chapter surveys signs that, though still robust, goods trade integration has slowed for many economies since the global financial crisis. It then explores how the U.S. trade and investment landscapes have changed in recent years, and it investigates the centrality of global value chains for understanding shifts in trade and investment that are consistent with near-shoring and friend-shoring. Finally, it discusses trade and foreign investment's costs and benefits for U.S. workers, consumers, and communities—highlighting how the Biden-Harris Administration's economic and trade frameworks and partnerships harness global integration's benefits while mitigating its costs.

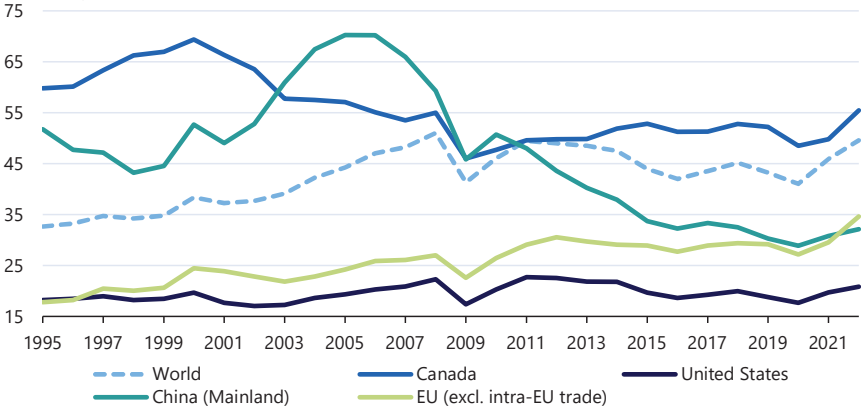
Long-Term Trends in Trade and Foreign Investment

The liberalization of goods trade and cross-border financial markets—a trend sometimes characterized as "hyperglobalization" (Rodrik 2011)—was a defining economic story of the 1990s and early 2000s.[1] However, it largely stagnated after the global financial crisis and, while 2021 and 2022 saw a rebound, global goods trade integration remained below its 2008 peak and may level off once again as goods consumption normalizes in the aftermath of the COVID-19 pandemic. The cessation of hyperglobalization has given

[1] Major liberalization episodes include the integration of former Soviet countries in the early 1990s with the rest of the global economy, the creation of the World Trade Organization in 1995, and China's accession to the World Trade Organization in 2001 (Aiyar et al. 2023).

Figure 5-1. Trade in Goods as a Percent of GDP, 1995–2022

Percentage of GDP



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Sources: International Monetary Fund; CEA calculations.

Note: Data were only available through 2022. EU trade excludes trade between EU countries, which includes all countries that were members as of 2022. The data for 1995 and 1996 are from the former Belgium-Luxembourg Economic Union.

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way to what some have termed "slowbalization" (*Economist* 2021; Nathan, Galbraith, and Grimberg 2022).[2]

Global Integration Slowed After the Global Financial Crisis, Following Earlier Decades of Rapid Growth

Global goods trade integration—the total value of goods exports and imports as a share of gross domestic product (GDP)—rose steadily, from 33 to 51 percent, between 1995 and 2008 (figure 5-1).[3] Figure 5-1 also shows that the extent and timing of the slowdown in goods trade integration differs across economies, and the future outlook remains considerably uncertain. China's decline in goods trade integration since 2006—an outsized 38-percentage-point drop—is the primary driver for the observed slowing in global goods trade integration, and reflects the country's shift away from importing intermediate inputs and in favor of domestic sources for its production

[2] There is a notable exception—trade in commercial services excluding travel and transportation (e.g., business services and telecommunications) grew much faster than goods between 1990 to 2023 and shows no sign of slowing (Baldwin 2022). This continuing rise in cross-border digital activity has been associated with the idea of "newbalization," indicating the changing nature of globalization with a slowdown in flows of tangible goods while intangible flows (e.g., of digital services and cross-border data) accelerate (Nathan, Galbraith, and Grimberg 2022). Meanwhile, measuring trade incorporating information on both freight and distance traveled compared with value shows an increasing trend in global trade, in part reflecting the growing importance of commodities like critical minerals (which weigh more than comparable manufactured products like toys) and can only be sourced from distant locations (Ganapati and Wong 2023; Zumbrun 2023).

[3] The economics literature describes the share of trade relative to GDP as trade openness.

processes (Constantinescu, Mattoo, and Ruta 2018). Canada's peak goods trade integration in 2000 likewise preceded many other economies' turning points. While the European Union (excluding intrabloc trade) also experienced a dip after the global financial crisis, unlike comparable economies, the slowdown in its goods trade integration has not been as marked and has not yet reached a discernible peak.[4]

The United States' trend line of overall goods trade integration differs from the other economies shown in figure 5-1 in two respects. First, during the steady increase of goods trade integration in the 1990s and early 2000s, U.S. trade integration remained well below the world average and that of most other major economies. Second, the United States' decline in goods trade integration since the global financial crisis has been far smaller than China's decline. Given that U.S. goods trade integration remains below global averages and that of peer economies, figure 5-1 suggests there may be additional scope to increase America's trade with the global economy. As this chapter discusses, the United States' goods trade integration has generated benefits for American workers and consumers, as well as for U.S. growth; however, it has also created important vulnerabilities. These trade-offs underline the strong role for policy to minimize adverse distributional consequences and maximize the benefits (e.g., supply chain resiliency and lower prices) from greater trade openness, as discussed in more depth later in this chapter.

The discussion above of trade in goods is just one dimension of global integration. Cross-border financial flows—which include flows in securities (e.g., stocks and bonds) and in foreign direct investment (FDI), referring to a firm or individual's investment in a commercial interest in another country—are another key mechanism of global integration (Loungani and Razin 2001; OECD 2024).[5] Unlike cross-border securities flows, which tend to be highly volatile, FDI typically signals longer-term and often more productive investment, and it can take the form of expanding or acquiring an existing foreign-owned company or starting a new enterprise in a foreign country.

Global FDI flows as a share of GDP have also exhibited signs of slowing across many economies since the global financial crisis (figure 5-2).[6]

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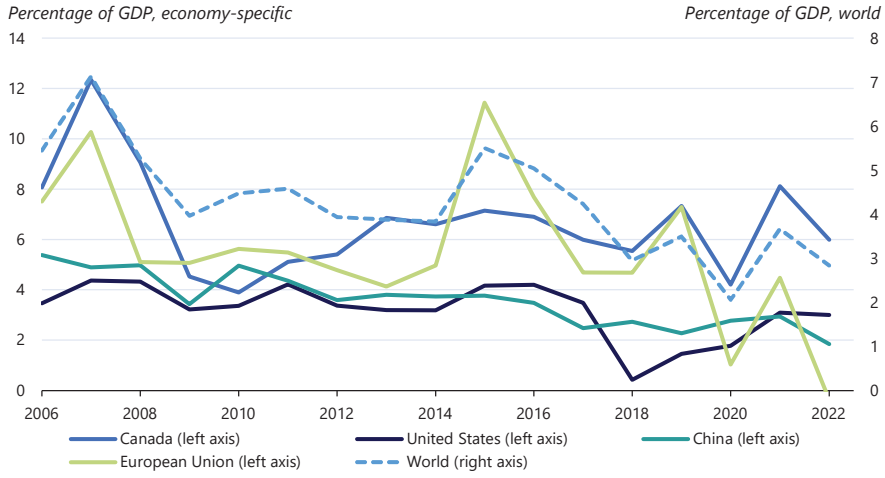
[4] Including intra-EU trade, the EU's global goods integration is far higher, at roughly 85 percent of GDP in 2022 (vs. 35 percent excluding intra-EU trade), given that almost 60 percent of total EU cross-border trade on average is between countries within the bloc.

[5] Another channel for global integration is immigration (the cross-border movement of people), which is beyond the scope of this chapter. Other forms of cross-border financial flows include remittances and financial transactions (e.g., development aid transfers).

[6] FDI flows are reported based on the geographic location of the investor, meaning that a foreign entity's investment in a U.S. firm counts as an inflow to the United States even if (on net) the entity removed more money from the country than it put into the country that year. In the event that transactions that decrease a foreign entity's investment in a U.S. firm outweigh transactions that increase the entity's investments, the FDI inflow would be recorded as negative to the United States.

Figure 5-2. Total Foreign Direct Investment Flows as a Percentage of GDP, 2006–22



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Sources: Organization for Economic Cooperation and Development; CEA calculations.

Note: This figure shows the sum of inflows and outflows of foreign direct investment relative to gross domestic product (GDP) for selected economies.

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While the United States has experienced a muted recovery since 2018, total FDI flows remain below levels seen immediately before the crisis. But as the lynchpin of the global financial system, the United States is still highly financially integrated with the global economy according to several metrics, including FDI (Bertaut, von Beschwitz, and Curcuru 2023; OECD 2023b).

The slowing integration trends through 2020 have been widespread, making an impact on countries at diverse stages of development and often facing different economic shocks (figures 5-1 and 5-2). Both cyclical factors (high-frequency developments often associated with business cycles, e.g., temporary declines in demand) and secular factors (structural, slower-moving phenomena, e.g., technological change) help to explain these trends.

Cyclical factors include sluggish recoveries since the global financial crisis in advanced economies that have weighed on global aggregate demand, and the impact of the crisis on the financial and corporate sectors, which were compelled to address vulnerabilities in their balance sheets by deleveraging and rebuilding capital buffers (Aiyar et al. 2023). And just as some economies reached their pre-2008 unemployment levels roughly a decade later, a new set of cyclical shocks surfaced—including the COVID-19 pandemic and Russia's further invasion of Ukraine—each of which had an adverse impact on global financial conditions and complicated trade flows.

Secular factors include a slowdown in production fragmentation, or the unbundling of tasks across borders, also known as global value chains

(GVCs) (Timmer et al. 2016). Because multinationals play a central role in both trade integration and FDI (Qiang, Liu, and Steenbergen 2021), a reduction in the pace of GVC creation helps explain the stagnation shown by both measures. Other secular factors include China's slowdown in growth and decline in share of trade relative to GDP; in the 21st century, China's annual GDP growth rate reached a high in 2007, roughly coinciding with a peak in the country's trade integration, and has since been persistently lower. Ongoing geopolitical tensions and rising national security concerns have also resulted in an increase in trade sanctions, with the highest share of global trade affected by sanctions since at least 1950 (WTO 2023a).

The combination of factors described above are generating important shifts in the extent and intensity of interlinkages with cross-border supply chains—known as GVC participation—and sourcing. Two GVC participation measures signal these shifts, some of which began with the global financial crisis and have accelerated in recent years (WTO 2021). First, the extent of China's and the United States' use of imported inputs for the production of their exports has declined since the global financial crisis (see figure 5-3, panel A).[7]

Second, the United States' and European Union's shares of content in other countries' domestic final demand dropped across many of the selected economies between 2009 and 2019; in contrast, China's content in these countries' domestic final demand increased (figure 5-3, panel B).[8] For example, the share of U.S. value added in Mexico's domestic final demand fell by 4 percentage points between 2009 and 2019, and in contrast, China's share increased by 7 percentage points. And while the share of U.S. value added in India's domestic final demand increased by 1 percentage point between 2009 and 2019, China's share of value added increased by 6 percentage points over the same period. The shares of U.S. and European Union value added in China's domestic final demand remained unchanged over this period.

Putting the two sets of findings together suggests that U.S. exports had a lower value share of foreign-produced components in 2019 compared with 2009, while other countries became more dependent on China as a source of inputs in their domestic consumption. Lower cross-border connectedness may risk reducing the gains from trade and FDI for the U.S. economy.

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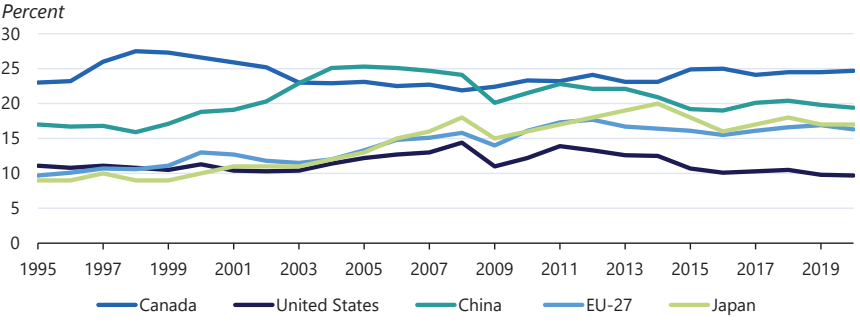
[7] The measure of foreign value-added content of overall exports is also called "backward GVC participation" (WTO 2022).

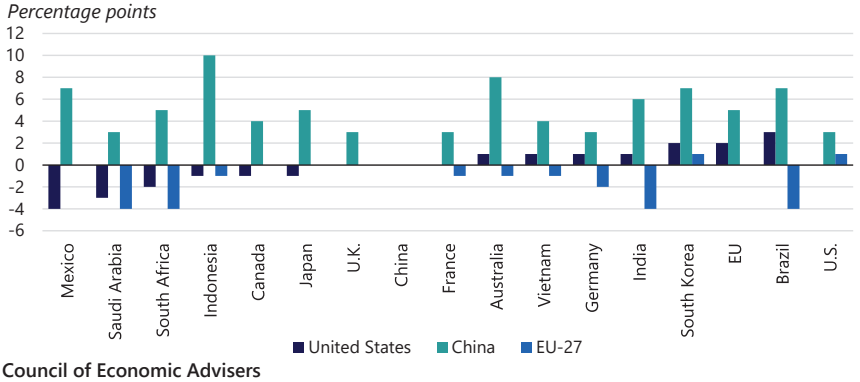
[8] The share of foreign value added in countries' domestic final demand reflects how much value added in goods and services purchased in other countries' domestic markets originates from abroad and shows a "domestic economy's relative connectedness to production in other countries and regions—independent of whether or not there are direct imports from foreign (upstream) industries" (OECD 2021). Indicators of forward GVC participation that measure domestic value added sent to other countries as a share of overall exports paint a more sanguine picture but do not offset the multitude of indicators pointing to a generalized slowdown in GVC participation (OECD 2023c).

Figure 5-3. Indicators of Global Value Chain Participation

A. Foreign Content in Countries' Exports as a Share of Total Exports, 1995–2020



B. Change in Share of Foreign Value Added in Domestic Final Demand, 2009–19



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Sources: Organization for Economic Cooperation and Development; CEA calculations.

Note: In panel A, the underlying indicator represents the import content of a country's gross exports and is a measure of global value chain integration. In panel B, the underlying indicator represents the amount of foreign value added (from the United States, China, and the EU-27, respectively) reflected in domestic final goods or services demand in various countries as a share of total foreign value added in countries' domestic final demand; the figure shows changes in the share from 2009 to 2019.

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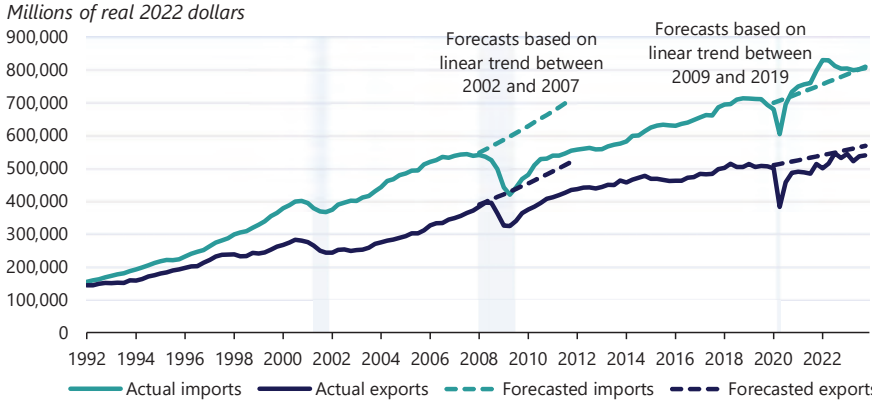
The complexity of the current international environment for global trade and FDI flows points to considerable uncertainty for the future outlook. Despite supply chain pressures during the COVID-19 pandemic, U.S. goods trade proved resilient and supply chains had begun to normalize (CEA 2023b); U.S. consumption also remained strong in 2023 (see chapter 2 of this *Report*). Together with policy actions that are also promoting shifts in supply chains, these factors may boost global integration. But at the same time, the ongoing pandemic recovery may be masking the impact of secular headwinds, and still-developing shifts in supply chains may introduce new obstacles (e.g., higher costs) to greater integration.

Figure 5-4. Real Quarterly Trade in Goods, Actual versus Forecasted, 1992–2023

Millions of real 2022 dollars



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Sources: Bureau of Economic Analysis; CEA calculations.

Note: Actuals were deflated to 2022 dollars using import/export price indexes. Post-2007:Q4 forecast based on linear trend in each series from 2002:Q1 to 2007:Q4; post-2019:Q4 forecast based on linear trend in each series from 2009:Q3 to 2019:Q4. Trade data are on a balance of payments basis. Gray bars indicate recessions.

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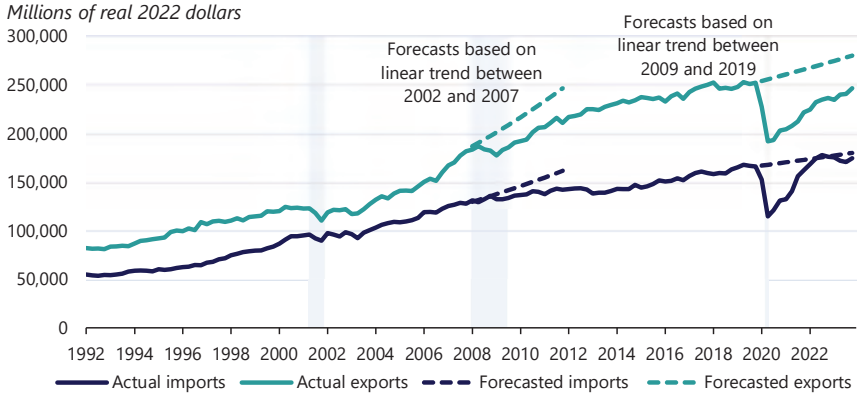
U.S. Trade Growth Tracks Global Trends: Signs of a Recent Slowdown and Recovery

U.S. trade growth has broadly tracked global trade growth over the past three decades (WTO 2023b). Between 1993 and 2023, U.S. trade in goods and services grew at an average annual rate of 4.4 percent, which was faster than the average annual rate of 2.4 percent growth for the U.S. economy.[9]

As with broader economic activity, U.S. trade flows are often broken out into two major categories: goods trade and services trade. Goods trade includes the importing or exporting of tangible products (e.g., automobiles and cell phones), while services trade includes the importing or exporting of intangible products (e.g., tourism and insurance). Demand for goods and services is driven by different forces, as exemplified by pandemic-induced shutdowns and work-from-home mandates that led to increased demand for household goods and a sharp decline in demand for such services as dining-in restaurants and international travel (CEA 2023a). Historically, services trade has been less sensitive than goods trade to macroeconomic shocks. Real trade flows underscore this point. Figures 5-4 and 5-5 compare actual trade flows (in goods and services, respectively) with alternative paths, forecasting continued growth at pre–global financial crisis linear trend rates after the start of the crisis and at 2009–19 linear trend rates after the start of the pandemic. The negative demand shock during and after the crisis depressed

[9] The real GDP growth rate for 2023 was calculated as the simple average of the annualized real growth rate over the period 2023:Q1–2023:Q3.

Figure 5-5. Real Quarterly Trade in Services, Actual versus Forecasted, 1992–2023



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Sources: Bureau of Economic Analysis; CEA calculations.

Note: Actuals were deflated to 2022 dollars using import/export price indexes. Post-2007:Q4 forecast based on linear trend in each series from 2002:Q1 to 2007:Q4; post-2019:Q4 forecast based on linear trend in each series from 2009:Q3 to 2019:Q4. Trade data are on a balance of payments basis. Gray bars indicate recessions.

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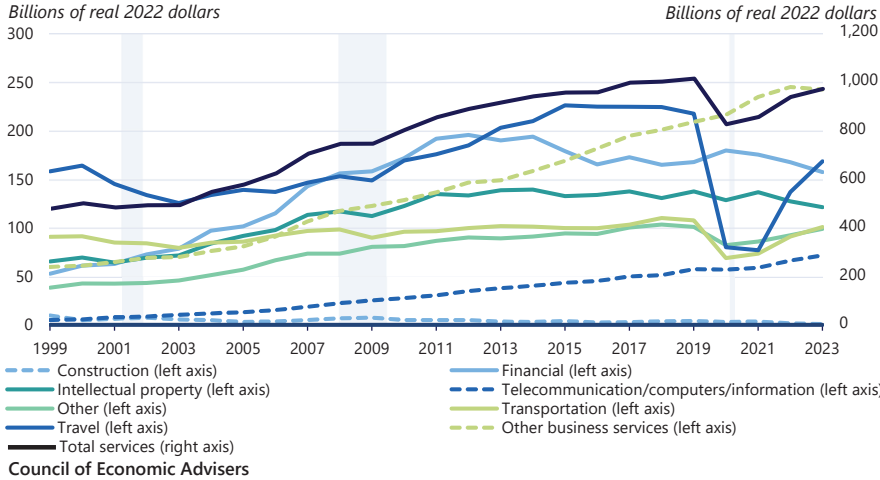
both goods and services trade flows; however, the impact was more muted for services trade flows. The slowdown in U.S. goods trade growth (particularly in goods imports) was therefore a key driver of the plateauing in overall U.S. trade flows after the crisis.

Unlike during the global financial crisis, trade in both goods and services collapsed in 2020 due to mobility restrictions motivated by public health precautions that drove supply chain disruptions and brought global travel to a sudden halt (OECD 2022; IMF 2022). After the pandemic, goods trade flows recovered rapidly, especially for U.S. imports, which soon rose above the trend forecasted before the pandemic and returned to this trend in late 2023. U.S. goods exports recovered more slowly, but are near their forecasted trend. These recovery paths offer reason for cautious optimism that in 2024, both goods exports and imports will remain in line with their trends before the pandemic (figure 5-4).

The outlook for services—namely, services exports—is more uncertain (for a definition of services, see BEA 2023a). Services imports (including American travel abroad) recovered to their growth trend before the pandemic by early 2022 but slowed in the early part of 2023 and are near their long-term trend (figure 5-5). Services exports have not yet returned to their long-term trend. However, there are reasons for optimism. Services exports exhibited positive growth throughout 2023 and, on a monthly basis, reached a historic high in November 2023 (U.S. Census Bureau 2023). And services export sectors—including the financial sector, telecommunications, computer and information services, and intellectual property (e.g., patent and

Figure 5-6. U.S. Services Exports by Broad Product Categories, 1999–2023



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Sources: Bureau of Economic Analysis; CEA calculations.

Note: Dashed lines indicate types of services that did not experience declines during recessions. "Other" includes maintenance and repairs, insurance, personal/cultural/recreational services, and government goods and services. Trade data are on a balance of payments basis. Gray bars indicate recessions.

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trademark licensing), and other business services (including services related to research and development, computer and data processing, engineering, and services that cover management of construction projects)—were largely unaffected by the pandemic (figure 5-6). This is important because these collectively represent high-value-added activities in which the United States continues to maintain a comparative advantage (Baccini, Osgood, and Weymouth 2019).

Within services, telecommunications, computer and information services, and other business services have grown steadily and were especially resilient during the three recessions between 1999 and 2023. Two factors explain this resiliency. First, services trade is often governed by long-term contracts that are not easily changed without long lag times. Second, services trade represents an extreme form of highly agile, "just in time" production: inventories do not present obstacles in the event of a shock, and resources can be redirected quickly toward other goals (Miroudot 2022).

Travel (foreign spending on travel to the United States) and transportation (revenues from airplanes and ocean carriers for transporting freight and passengers) exports accounted for most of the pandemic-era drop; travel has yet to recover to its level before the pandemic. Travel advisories and health restrictions exacerbated these weaknesses, suggesting that lifting these

restrictions can play a role in helping travel exports recover at a faster pace.[10] Transportation exports are closely linked to the exporting of merchandise freight (BEA 2018), and goods exports recovered more slowly than goods imports—dragging the recovery of transportation services exports after the pandemic. Transportation services exports also include revenue from transporting passengers and are, as a result, closely linked to commercial and business travel. While both sectors are improving as travel restrictions loosen, business travel has recovered more slowly, with large businesses having to cut back on travel—motivated in part by an interest in reducing carbon emissions (Georgiadis et al. 2023).

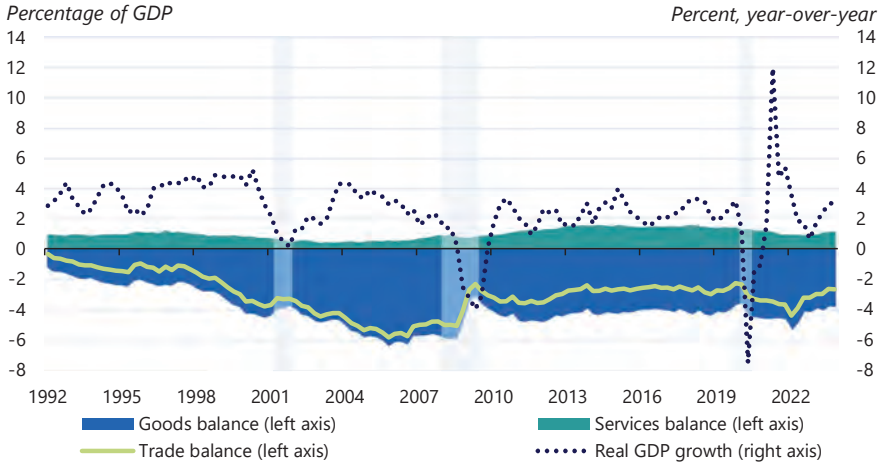
The United States' sluggish trade growth in 2023 mirrors global developments. From a cyclical perspective, the slowdown in U.S. goods imports may be partly attributable to the postpandemic normalization toward services consumption (including nontradable services like restaurants and tradable services like travel), away from goods consumption (U.S. Department of the Treasury 2023; CEA 2023a, chap. 2). Higher U.S. interest rates and associated borrowing costs are also likely to affect goods imports negatively, since durable goods such as cars, home furnishings, and capital goods are often purchased using borrowed funds (Romei 2023). Both goods and services exports are negatively affected by slower growth in foreign markets like Europe and China and by higher interest rates, which together are leading to lower external demand for U.S. exports. From a secular perspective, the slowdown in trade could also reflect longer-term factors, including compositional changes in GVCs. The near-term outlook for overall U.S. trade growth remains uncertain, in light of the many factors at play.

U.S. Trade Deficits Are Driven by Aggregate Saving and Investment Patterns

A country's overall trade balance is the difference in value between its imports and exports. A country that imports more than it exports runs a trade deficit, while a country that exports more than it imports runs a trade surplus. The United States is a net exporter of services and a net importer of goods. Because the magnitude of its goods deficit far outweighs that of its services surplus, overall, the United States has run a trade deficit since the early 1990s (figure 5-7). In 2022, the annual value of the U.S. goods trade deficit reached an all-time high and expanded as a percentage of GDP, and

[10] For example, while flights between the United States and China—a major source of U.S. tourist arrivals—were slated to increase from 48 a week to 70 a week beginning in November 2023, these figures remain well below the 340 flights a week that connected the countries before the pandemic (Bloomberg 2023). Still, developments suggest continued expansion in services exports as pandemic-era travel policies ease further; e.g., China lifted its ban on group travel to the United States in August 2023, which will allow large-scale tour groups to once again visit the United States (Cheng 2023).

Figure 5-7. U.S. Trade Balances and Real Growth, 1992–2023



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Sources: Bureau of Economic Analysis; CEA calculations.

Note: Trade data are on a balance of payments (BOP) basis. Real GDP is seasonally adjusted at an annualized rate. Gray bars indicate recessions.

the U.S. services trade surplus contracted as a percentage of GDP. These trends started to reverse more recently, with the 2023 U.S. annual trade deficit contracting by nearly 19 percent compared with 2022.

Trade deficits can elicit negative attention if the presumption is that the GDP accounting identity (where negative net exports—exports minus imports—are subtracted from GDP) describes the totality of the relationship between trade and growth. Trade deficits are also sometimes associated with import competition, which has historically generated concentrated employment losses for certain groups of workers. However, the connections between trade deficits, economic growth, and employment are closely tied to broader macroeconomic conditions. For example, when an economy is operating at full employment, a rising trade deficit can be a pressure-release valve, providing needed supplies of imported goods and services that help prevent overheating (Baker 2014). Moreover, imports complement domestic spending on American goods and services, so that their negative accounting impact on GDP is partially offset by the domestic value added generated,

Box 5-1. Trade Balances and Capital Flows—Fundamental Drivers

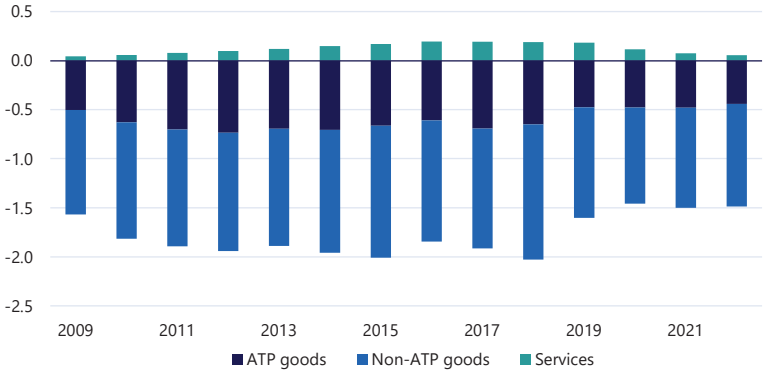
Overall trade balances. The fundamental drivers of a country's overall trade balance are its relative saving and investment rates—both public and private (Ghosh and Ramakrishnan 2024). Countries with lower domestic saving than domestic investment (likely as a result of low domestic saving rates, high domestic investment rates due to attractive economic opportunities, or a combination of the two) tend to run trade deficits and accompanying current account deficits (where the current account balance is defined as the trade balance plus net foreign investment income plus net transfer payments from foreign income sources like worker remittances and foreign aid). The trade balance typically accounts for the bulk of the current account balance and is highly correlated with it, so, for expositional simplicity, we focus on the trade balance. Trade deficits are necessarily matched by capital and financial account surpluses (the net inflows of foreign lending necessary to finance the trade deficit)—as is the case with the United States.

There are several schools of thought on what drives the United States' trade deficit. One emphasizes a supply-side view, where much of the onus for the United States' capital and financial account surplus and trade deficit can be placed on other countries' *excess supply of savings* or foreign saving gluts (Bernanke 2005; Pettis 2017; Klein and Pettis 2020). Under this framing, the United States absorbs disproportionately large inflows of capital from countries where saving rates are relatively high. This can occur due to both government policies (e.g., large foreign reserve acquisitions, exchange rate management to influence currency values, and suppression of consumption to boost internal savings) and myriad other factors (including weak social safety nets or demographics) (Devadas and Loayza 2018). When saving is too high relative to investment, this can result in weak demand for imports and capital outflows to other countries, potentially causing distortive financial bubbles in recipient countries (McBride and Chatzky 2019). By emphasizing foreign influences on domestic trade balances, this view downplays the impact of domestic saving and investment. Under this model, excess saving flowing from one country to another would tend to lower the receiving country's interest rate and appreciate its currency, leading to lower saving, higher investment, and a larger trade deficit.

A second school of thought emphasizes a demand-side view (e.g., Knight and Scacciavillani 1998). According to this theory, countries can have *excess demand for saving* due to their outsized productive investment opportunities compared with available domestic saving. Needed inflows are imported via net sales of assets to foreigners (e.g., sales of Treasuries and securities and FDI inflows). These large net capital inflows allow for a level of consumption and investment that

Figure 5-i. U.S.–China Trade Deficit, 2009–22

Trade balance as a percentage of GDP



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Sources: Census Bureau; CEA calculations.

Note: ATP = advanced technology products. Trade data are on a balance of payments basis.

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could not otherwise occur; with access to these foreign countries' excess savings, domestic households, firms, and government all benefit by incurring lower borrowing costs. Over time, such investments can yield strong returns and higher productivity—allowing them to service their accumulated debts and potentially generating trade surpluses (Obstfeld and Rogoff 1996).

Of course, together with other explanations—for example, Caballero, Farhi, and Gourinchas (2017) on safe asset shortages—the excess savings and excess demand views may all play a role and interact in ways that can be problematic in some cases, particularly if excess foreign funding supports excess demand that fuels unproductive, distortionary investment. An oft-cited example is the U.S. housing bubble of the early 2000s, when excess foreign saving helped inflate a real estate bubble that crashed with devastating and lasting consequences (Jørgensen 2023).

Bilateral trade balances. A country's overall deficit is the sum of its bilateral balances, of which some generally will be negative and some positive. While the overall balance reflects the macroeconomic factors that determine saving and investment, bilateral imbalances can reflect a comparative advantage—with systematic heterogeneity across different goods and services (IMF 2019). As an example, figure 5-i divides the U.S.-China deficit into services and two broad product-group categories: advanced technology product (ATP) goods and non-ATP goods. ATP goods include products that embody advanced technologies in biotechnology, life science, opto-electronics, information and communications,

electronics, flexible manufacturing, advanced materials, aerospace, weapons, and nuclear technology (Abbott et al. 1989). Two-thirds of the ratio between the goods trade deficit and GDP is driven by trade in non-ATP goods, and the United States has a long-standing, albeit small, surplus with China in services—highlighting the role of comparative advantage in determining the U.S.-China bilateral deficit, with the United States showing relative advantage in technology-intensive production technologies and services sectors compared with China. China has a comparative advantage in non-ATP goods.

along with downward pressure on inflation.[11] Trade, including via higher imports, can also boost the productivity of importing firms and the broader economy by supporting higher growth (CEA 2015a). Data support this view; the U.S. trade deficit tends to be countercyclical and is largest during periods of strong GDP growth because the same drivers of increased domestic demand (including savings and investment rates) also tend to fuel increased import demand (CEA 2015b). Box 5-1 discusses these fundamental drivers and the trade-offs from running large deficits, including how excessive foreign savings flowing into a country can fuel unproductive, distortionary investments over time (Bernanke 2005).

The United States Leads in Global FDI Flows

The United States is the largest source of and destination for FDI flows globally.[12] Over 20 percent of both U.S. FDI inflows and outflows in 2022 were targeted at cross-border manufacturing investments (OECD 2023b; BEA 2023b). In addition to providing another source of financing for domestic investments, FDI tends to increase wages and productivity in target firms (Hale and Xu 2016) and can also generate positive spillovers

[11] The COVID-19 pandemic offers an instructive anecdote. Imports surged during lockdowns, allowing consumption of goods to increase and help buoy the recovery (Higgins and Klitgaard 2021). A large share of final expenditures on imported goods is generated domestically, as shown by Hale et al. (2019): "Nearly half of the amount we spend on imported goods stays in the United States to pay for the local component of the retail price of these goods. . . . Almost half of the total expenditures on imports is embedded in the production of U.S. goods and services that use imported intermediate inputs. Taking all of these factors into account, import content in total [personal consumption expenditures] was just over 10% in 2017. The high share of local content means that imports generate a number of transportation and retail jobs that might or might not be as numerous if these goods were produced in the United States."

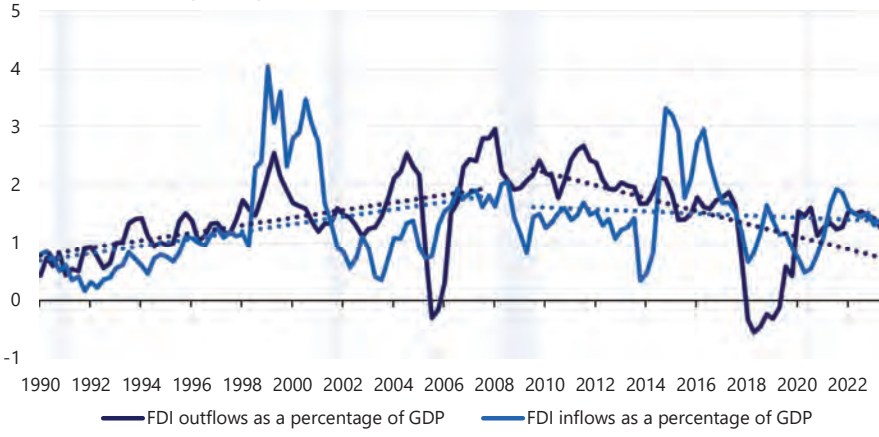
[12] Global comparison based on data from the first half of 2023 (OECD 2023b).

across U.S. firms within an industry (Keller and Yeaple 2009).[13] Reflecting long-standing trends, the large majority of U.S. FDI flows are either destined for or originate from the country's closest trading partners. For example, in 2022, Canada and countries in Europe accounted for 79 percent of inward U.S. FDI flows and 65 percent of outward U.S. FDI flows (BEA 2023c).

FDI flows are less volatile across time than cross-border securities flows, but they still tend to fluctuate (Lipsey 2000). In order to smooth out some of the volatility, figure 5-8 shows the three-quarter moving average of quarterly U.S. FDI-to-GDP inflows and outflows, as well as linear trend lines for each series before and after the global financial crisis. The smoothed series still shows sizable fluctuations in FDI flows, often dur-

Figure 5-8. U.S. FDI Flows as a Percentage of GDP, 1990:Q1–2023:Q2

Three-quarter moving average (percent)



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Sources: Bureau of Economic Analysis; CEA calculations.

Note: FDI = foreign direct investment. The moving average is centered on each quarter. Gray bars indicate recessions. Linear trend lines (dotted lines) are based on periods before and after the global financial crisis.

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ing nonrecessionary periods, which reflect the acyclicity of FDI flows in

[13] FDI often correlates with the arrival not only of technological advances but also other intangible assets, including novel managerial approaches and production processes, technical know-how, and lessons from learning-by-doing in a cross-border setting (Branstetter 2006). FDI can also promote trade through creating new cross-border commercial connections, and FDI's effects on productivity can result in increased domestic and global competitiveness for a firm and its peers. But absorptive capacity, including an educated workforce and sufficient research and development investment, is needed for a country to reap the benefits of FDI (Blomström, Kokko, and Mucchielli 2003). Evidence from the United States signals that horizontal productivity spillovers across firms in an industry tend to be strongest in high-tech industries and for firms most distant from the productivity frontier. These effects accounted for between 8 to 19 percent of U.S. manufacturing productivity growth during the late 1980s and early 1990s (Keller and Yeaple 2009).

advanced markets (BIS 2017). Explanations for such fluctuations are often unique to each episode and flow type. For example, the decline in U.S. FDI outflows in 2018 has been attributed to a dramatic reduction in reinvested earnings (retained profits) abroad due to a regulatory change in the tax treatment of offshore profits.[14] During that same year, a large portion of the decline in U.S. FDI inflows was attributed to the reincorporation of a single technology solutions provider—Broadcom; changes to the ownership structure reclassified the firm's U.S. affiliate as a U.S.-headquartered company, making its associated transactions no longer cross-border (Tabova 2020).

Taking a longer view, U.S. FDI outflows have broadly been on a downward path since the global financial crisis due to many of the same cyclical and secular headwinds that have had an impact on trade flows (see the linear trends shown in figure 5-8) (UNCTAD 2023). Since 2022, they have largely leveled off as a share of GDP. FDI inflows as a share of GDP fell 19 percent from 2021 to 2022—more than double the median post–global financial crisis year-on-year declines but smaller than the large declines in the early 2000s and mid-2010s.[15] The 2022 drop was primarily driven by a fall in cross-border mergers and acquisitions, as tighter global financial conditions and uncertainty in financial markets caused borrowing costs to increase (UNCTAD 2023).

Aggregate flows mask the different types of foreign investment transactions, including those that expand an economy's production capacity through new facilities or expanded existing facilities. Capacity-expanding FDI flows into manufacturing have, for instance, partially offset aggregate weak FDI trends, both globally and in the United States.[16]

The United States was the largest destination for capacity-expanding FDI in 2022 (UNCTAD 2023). FDI expenditures in new U.S. establishments and expansions of existing facilities were concentrated in manufacturing, which represented almost two-thirds of total new FDI first-year expenditures in 2022 (BEA 2023d).[17] This concentration of new FDI investments in

[14] As noted by Tabova (2020), "For most of the period prior to 2018, reinvested earnings accounted for the majority of [flows of U.S. direct investment abroad, USDIA]. The drop in USDIA in 2018 is driven by the drop in reinvested earnings as a result of the 2017 [Tax Cuts and Jobs Act] that eliminated the tax incentive to keep earnings abroad and led to U.S. companies repatriating a large part of their accumulated earnings abroad."

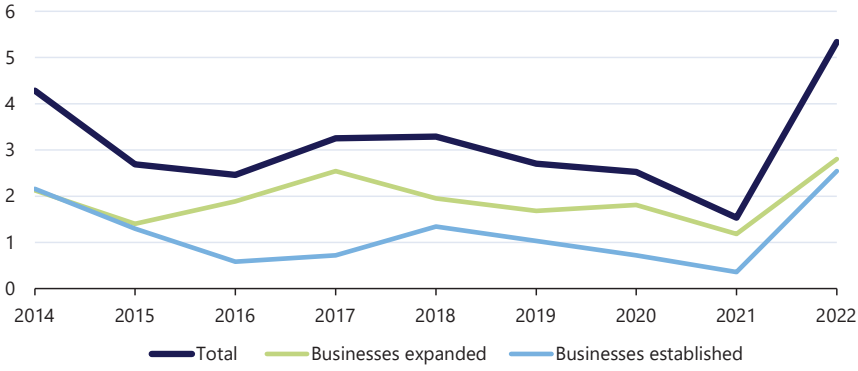
[15] After the global financial crisis, and measuring year-on-year percentage changes at a quarterly frequency, FDI outflows to GDP declined at a median rate of –2.3 percent and FDI inflows to GDP declined at a rate of –7.9 percent.

[16] According to UNCTAD (2023), capacity-expanding FDI announcements grew by 64 percent year on year, to $1.2 trillion globally in 2022, rising by 37 percent in advanced markets and more than doubling in developing countries.

[17] The Bureau of Economic Analysis's (2023d) survey of new FDI in the United States identifies capacity-expanding transactions that create new U.S. establishments and the building of new physical facilities by existing U.S. affiliates of foreign-owned firms, as well as other transactions from foreign investors for new acquisitions of U.S. businesses.

Figure 5-9. Real FDI in U.S. Manufacturing New Establishments and Expansions, 2014–22

Billions of 2022 dollars



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Sources: Bureau of Economic Analysis; Bureau of Labor Statistics; CEA calculations.
Note: Series were deflated using the Producer Price Index: Total Manufacturing (2022 = 100). New FDI refers to transactions that create new U.S. establishments and the building of new facilities by existing U.S. affiliates of foreign-owned firms. First-year expenditures include expenditures in the year in which the transaction occured.
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manufacturing deviates from earlier years; the manufacturing sector's average share of capacity-expanding FDI spending from 2014 to 2021 was less than one-third. FDI flows in new U.S. manufacturing production capacity increased 247 percent from 2021 to 2022, reaching $5.3 billion and reversing a multiyear downward trend that began in 2019 (figure 5-9).[18]

These new foreign investments in manufacturing projects in the United States are concentrated in strategically important sectors, including advanced technologies and clean energy; foreign investments in computer and electronic products (including semiconductor manufacturing) were among the largest, at $1.8 billion of capacity-expanding FDI flows in 2022 (BEA 2023d).[19] There has also been a sizable number of announced FDI

[18] In 2022, expenditures outperformed the average from before the pandemic (2014–19) by a factor of 1.7.

[19] Looking at more speculative planned investment expenditures, the increase in capacity-expanding FDI in the computer and electronics sector is striking, rising from $17 *million* in 2021 to $54 *billion* in 2022 in real terms and representing roughly two-thirds of 2022's planned capacity-expanding manufacturing FDI.

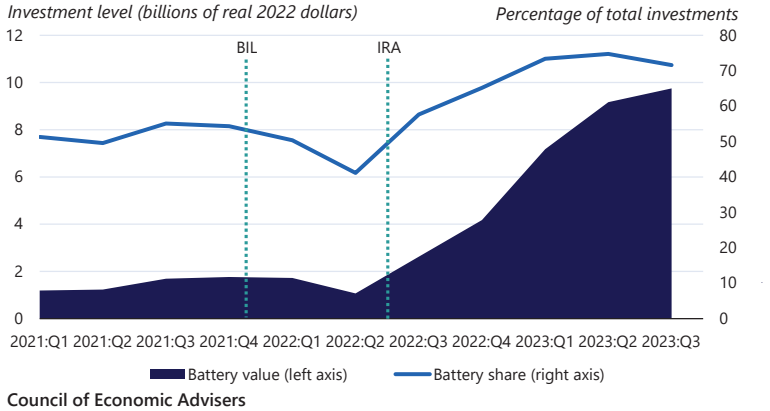
Box 5-2. The U.S. High-Capacity Battery Supply Chain and the Complementary Role of Domestic and Trade Policies

Battery supply chains in the United States illustrate the importance of international trade partnerships in complementing domestic legislation to achieve clean energy goals. The high-capacity battery supply chain is characterized by five main value chains: (1) raw material production, (2) material refinement and processing, (3) material manufacturing and cell fabrication, (4) battery pack and end-use product manufacturing, and (5) battery end of life and recycling (White House 2021b).

The 2022 Inflation Reduction Act (IRA) offers critical support to clean energy industries, particularly the high-capacity battery value chain for electric vehicles and energy storage. The Advanced Manufacturing Production Tax Credit (45X) and Advanced Energy Project Investment Tax Credit (48C) can allay almost a third of capital investment faced by battery manufacturers (Mehdi and Morenhout 2023). In 2023, under the Bipartisan Infrastructure Law (BIL), the Department of Energy allocated $1.9 billion to build and expand commercial-scale facilities to extract and process battery materials (e.g., lithium and graphite) and produce components (U.S. Department of Energy 2023).

Provision of tax credits under the IRA and public funding under BIL are designed to "crowd in" private sector investments (Boushey 2023). Between July 1, 2022, and June 30, 2023, the U.S. economy received a total of $213 billion in new investments in the clean energy

Figure 5-ii. Battery Investments as a Share of Total Actual Manufacturing Investments, 2021–23



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Sources: Clean Investment Monitor; CEA calculations.

Note: BIL = Bipartisan Infastructure Law; IRA = Inflation Reduction Act.

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Table 5-i. Percentage of Imports to the United States in the High-Capacity Battery Supply Chain by Top Partner Countries

Year	China (percent)	South Korea (percent)	Japan (percent)	Canada (percent)
2021	25.3	11.6	16.1	18.6
2022	33.9	14.7	14.2	12.4
2023	37.4	17.8	13.6	10.2

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Sources: Trade Data Monitor; CEA calculations.
Note: This table displays the percentage share of imported products in the high-capacity battery supply chain from the top four partner countries. The "battery supply chain" is defined by the set of 10-digit HS codes identified as inputs and lithium-ion batteries and parts by the Department of Commerce (2023). The top-four country ranking is based on 2022 import values.
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Table 5-ii. Percentage of Imports by Raw Materials and Lithium-Ion Battery Parts by Top Sources, 2021–23

Imports	China (percent)	South Korea (percent)	Japan (percent)	Canada (percent)
Raw Materials	8.0%	33.8%	47.1%	98.1%
Lithium-Ion Batteries and Parts	92.0%	66.2%	52.9%	1.9%

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Sources: Trade Data Monitor; CEA calculations.
Note: This table displays the percentage share of imported products in the high-capacity battery supply chain from the top four partner countries. The "battery supply chain" is defined by the set of 10-digit HS codes identified as inputs and lithium-ion batteries and parts by the Department of Commerce (2023). The top-four country ranking is based on 2022 import values.
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Table 5-iii. Ford Motor Company's Investment Announcements in High-Capacity Battery Materials, 2022–23

Materials Being Supplied	Material Supplier (Country)	Arrangement
Nickel	Vale (Indonesia) and Zhejiang Huayou Cobalt (China);	Joint venture
	BHP Nickel West (Australia)	Agreement
Lithium	Ioneer (United States);	Agreement
	Lake Resources (Argentina)	Agreement

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Source: Reuters.
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sector, representing a 37 percent increase from the prior year (Bermel et al. 2023). Within manufacturing, actual investments in batteries accounted for the largest share—72 percent—of total manufacturing investments in 2023:Q3 (figure 5-ii).

The most critical metals for producing lithium-ion batteries are lithium, cobalt, nickel, manganese, and graphite (Tracy 2022). Access to these metals and related battery materials is fundamental to building a flourishing U.S. battery supply chain. Globally, China controls most of the market for mining and processing of critical battery materials (International Energy Agency 2022). China's share of imports to the United States of products in the battery supply chain has been steadily increasing since 2021 (table 5-i).

Among the top source countries, most battery supply chain imports from China and South Korea are of lithium-ion batteries and parts, most battery supply chain imports from Canada are of raw materials, and

battery supply chain imports from Japan are more evenly distributed between battery components and raw materials (table 5-ii). Company announcements also provide tangible insights into planned domestic and international investments to secure battery raw materials from miners and refiners (table 5-iii). For example, Ford Motor Company has recently entered into various arrangements to secure battery raw materials, as table 5-iii shows.

In the long run, a suite of bilateral agreements and frameworks to promote climate goals between the United States and partner countries are expected to pave the way to achieve diversification of sources for critical minerals. The U.S.-Japan Critical Minerals Agreement enables the countries to develop and strengthen critical minerals supply chains using best practices in labor and environmental standards (USTR 2023f); the Australia–United States Climate, Critical Minerals, and Clean Energy Transformation Compact is designed to coordinate on several issues vital to clean energy and critical minerals supply chains (White House 2023a); and the Minerals Security Partnership, with 13 countries, targets financial and diplomatic support for projects along the minerals supply chain (U.S. Department of State n.d.)

investments in clean energy in recent years (Bermel et al. 2023).[20] While these projects are in earlier stages of planning or implementation than the FDI projects discussed above, and therefore are more speculative, foreign investors nevertheless account for one-third of all clean energy announcements. Of $154 billion in announcements over the period 2021:Q1–2023:Q2, $51 billion in announcements stems from companies with headquarters abroad. South Korean and Japanese firms account for some of the largest announcements in clean energy (including electric vehicles and batteries), while Canadian firms plan to invest in critical minerals projects. Box 5-2 highlights the complementary roles of international and domestic policies in promoting a more resilient battery supply chain, including through FDI investments.

[20] This is based on the Clean Investment Monitor (2024), a joint project of Rhodium Group and the Massachusetts Institute for Technology's Center for Energy and Environmental Policy Research. The data set includes detailed metadata for manufacturing, utility-scale energy, and industrial facilities. All included facilities have investments during the time horizon 2021:Q1–2023:Q2. Investments fall into one of four camps: announced (excluding announcements of "intent," without specifying a particular location and committing resources); under construction or postconstruction but not yet operating; operating or offline but planned to return to operation; and canceled, retired, or offline, with no plans to return to operation. Joint ventures, investments in utilities, and canceled investments were dropped.

The near-term outlook for FDI inflows remains uncertain. While the Biden-Harris Administration's industrial strategy is attracting foreign investment in capacity-expanding manufacturing projects in strategic sectors like clean energy and advanced technology, inflationary pressures in partner countries have led to higher interest rates and tightening global financial conditions (IMF 2023). Global economic conditions will continue shaping the flows of cross-border mergers and acquisitions—a major component of FDI flows.

The Rise of Global Value Chains and Early Signs of Reallocation

Global value chains are essential for understanding several important trends: How trade and FDI have changed since the 1990s, the recent attention on promoting supply chain resilience through greater supplier diversification, and multinational corporations' central role in concentrating production. GVCs allow for the production of a single good to take place across several countries, and for firms to specialize in the assembly of specific intermediate goods according to their comparative advantage (World Bank 2020). In 2009, for example, a Boeing plant in Everett, Washington, assembled Boeing's 787 Dreamliner from parts sourced from around the world: The wings were sourced from Japan, the horizontal stabilizers from Italy, the wingtips from South Korea, and the engines from the United Kingdom (Shenhar et al. 2016). Each country added value to the production of the aircraft along the chain.

Two key developments allowed GVCs to gain such prominence in global trade: the wave of trade liberalization (including decreases in tariff rates), which was led by the United States and other major economies in the 1990s and early 2000s (Brainard 2001; Aiyar and Ilyina 2023); and the reduced costs of coordinating across distant locations, which were driven by the information and communications technology revolution (Baldwin 2016). Lower communication costs also facilitated the transfer of knowledge both within and across firm boundaries, and allowed firms to locate production facilities away from their headquarters—even across national borders (Fort 2017). Firms have taken advantage of these changes—and also of advances in transportation technologies—to unbundle their production processes into tasks performed at different locations, leveraging varying factor costs to achieve greater efficiencies.[21]

[21] However, benefits of offshoring in lower production costs may be offset by higher coordination costs (Grossman and Rossi-Hansberg 2008). For example, the Boeing Company cited complexities coordinating across its global supply chain for delays in developing the 787 Dreamliner (Peterson 2011).

Multinational firms—themselves fueled by the information and communications revolution—have been particularly adept at taking advantage of cross-border input cost differentials. By establishing foreign affiliates through FDI, these firms can mediate trade with both foreign subsidiaries (within-firm trade) and unaffiliated firms (arm's-length trade) within GVCs (OECD 2018). Multinational firms accounted for, respectively, 65 percent and 60 percent of U.S. goods exports and imports on average between 1997 and 2017 (Kamal, McCloskey, and Ouyang 2022).[22] And within-firm trade accounts for a large share of multinationals' total trade flows: In 2022, one-third (33.7 percent) of U.S. exports and almost half (46.6 percent) of U.S. imports by value were between multinational parent firms and their affiliates or related parties (U.S. Census Bureau 2022).[23] The growth of trade within multinational firms (i.e., flows between parents and affiliates) underscores the highly fragmented nature of production.[24]

Global supply chains' prevalence in U.S. production can also be observed in the high share of intermediate goods or imported input trade in the United States (figure 5-10).[25] Industrial supplies (e.g., lumber and steelmaking materials) and capital goods (e.g., drilling equipment)—typically, inputs into final goods—are highly positively correlated with GVC trade and accounted on average for over half of imports between 1992 and 2022 (Hummels, Ishii, and Yi 2001; Baldwin and López-González 2014). The import share of industrial materials grew more than that of any other product group between 1992 through the onset of the global financial crisis in 2008, showcasing how multinationals' FDI and the establishment of GVC linkages can support greater trade flows.

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[22] Multinationals are major contributors to the U.S. economy, especially in the manufacturing sector, accounting for 70 percent of all domestic manufacturing employment, more than 50 percent of all nonresidential capital expenditures, and more than 80 percent of all the industrial research and development performed in the United States that underpins innovative output (Foley, Hines, and Wessel 2021, chap. 1).

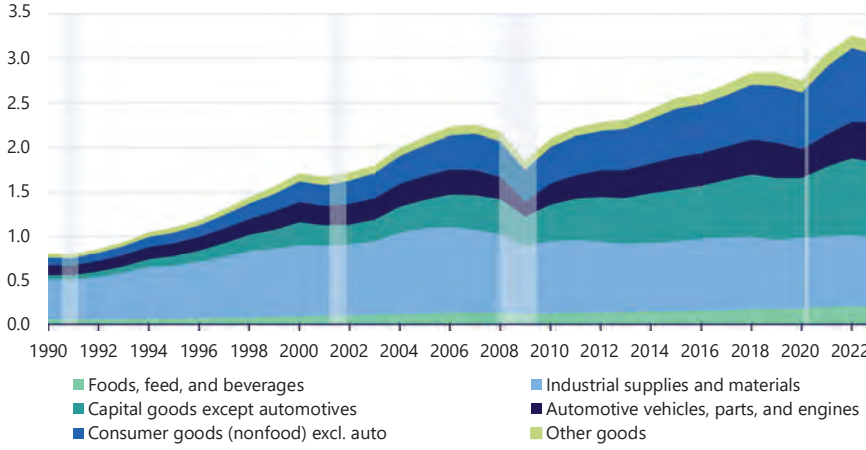
[23] "Exports: Title 15 of USC Chapter 9, Section 301" of the Foreign Trade Regulations defines a related party transaction as one "involving trade between a U.S. principal party in interest and an ultimate consignee where either party owns directly or indirectly 10 percent or more of the other party." "Imports: Title 19 of USC Chapter 4, Section 1401a (g)(1)" of the Tariff Act of 1930 defines related persons as including "any person directly or indirectly owning, controlling, or holding with power to vote, 5 percent or more of the outstanding voting stock or shares of any organization and such organization." (See https://www.ecfr.gov/current/title-19/chapter-I/part-152.)

[24] Two-way, related-party trade—where the multinational parent or affiliate sends partially finished goods for processing, after which they are shipped back—is one possible indication of production fragmentation. Other arrangements, however, including those in which the affiliate ships finished goods to the parent without any shipments from the parent—or vice versa—are also possible (Ramondo, Rappoport, and Ruhl 2016).

[25] End use is a commodity classification system that identifies merchandise based on principal use rather than the physical characteristics of the merchandise (U.S. Census Bureau 2012). A complete list is available at census.gov/foreign-trade/reference/codes/enduse/imeumstr.txt. The Bureau of Economic Analysis developed the concept of end use demand for balance of payments purposes.

Figure 5-10. U.S. Goods Imports by End Use, 1990–2023

Trillions of 2022 dollars



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Sources: Census Bureau; Bureau of Economic Analysis; CEA calculations.

Note: Trade data are on a Census basis. Deflated using industry-specific import price indexes. Gray bars indicate recessions.

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The fact that GVC participation appears to have slowed since the global financial crisis is also reflected in the intermediate trade data. The imported share of U.S. industrial supplies and materials declined from 43 percent in 2008 to 25 percent in 2022—a decline inextricably linked to stagnation in post–global financial crisis trade flows (figure 5-10). Decreased cross-border investment, due to an extended deleveraging process, translated into less investment in establishing new GVC linkages. And while the economics literature shows that higher FDI flows are associated with stronger "backward," or upstream, GVC linkages (Fernandes, Kee, and Winkler 2020), there are still positive signs of the United States' participation in downstream or forward value chains. According to the Organization for Economic Cooperation and Development's (OECD 2023c) measure of U.S. domestic value added in foreign countries' exports, the United States' forward value-added contributions as a share of foreign countries' gross exports increased from 24 percent in 2008 to 27 percent in 2020. Together with other indicators, these patterns indicate a slowdown in GVC participation but not a wholesale retreat.

Early Evidence of Supplier Reallocation in 2023

While GVCs offer many benefits, successive economic shocks in recent years, including those caused by the COVID-19 pandemic and Russia's further invasion of Ukraine, illustrate their vulnerability. Supply chain bottlenecks can generate substantial economic disruptions, especially when

firms concentrate reliance on a single producer (Baldwin and Freeman 2022; CEA 2022, chap. 6). And in the past three decades, the manufacturing of intermediate goods has become highly geographically concentrated. In 1995, China was the top industrial input supplier to about 5 percent of U.S. manufacturing sectors; by 2018, that share had climbed to over 60 percent (Baldwin, Freeman, and Theodorakopoulos 2023).

Concentration of suppliers can lead to effects that can be felt both domestically and abroad. The recent global semiconductor shortage, for instance, exacerbated a nearly 30 percent decline in U.S. motor vehicle assemblies between January and September 2021, and the average American auto worker lost more than 2 work hours per week as a result—tantamount to a 6 percent weekly pay cut (Bernstein 2023). Meanwhile, pandemic-related supply chain disruptions exacerbated higher prices in the United States (Santacreu and LaBelle 2022) and had negative effects on real GDP (Bonadio et al. 2020). Along with increased onshoring, diversification to include multiple locations and suppliers, especially for critical nodes in supply chains, can increase the resilience of the production chain and minimize exposure to economic and security risks (Iakovou and White 2020; Shih 2020; IMF 2022).[26]

Some early evidence suggests that this sort of supplier diversification is already under way in the United States. While the European Union, Mexico, Canada, and China remain the United States' top trading partners for both exports and imports, the composition of U.S. trade vis-à-vis each of these partners has shifted (figure 5-11). Between 2017 and 2023, China's share of U.S. imports declined by almost 8 percentage points, from 21.6 percent to 13.9 percent. By the beginning of 2023, Mexico had become the United States' top trading partner—having increased its share of U.S. imports by 2 percentage points since 2017—and U.S. import shares from South Korea, Canada, Germany, and Vietnam have also increased.

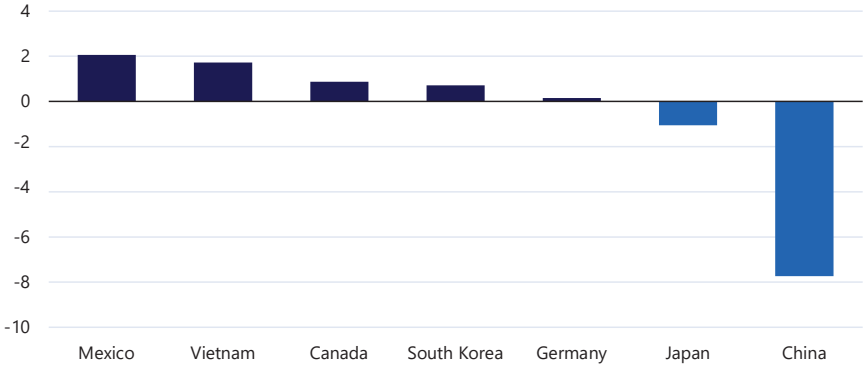
With respect to advanced technology products (ATP)—which include semiconductors—the share of U.S. imports from China has decreased by almost 14 percentage points (figure 5-12).[27] Vietnam experienced the largest increase in ATP import shares, followed by Taiwan, Ireland, and Germany.

[26] Diversification through onshoring should similarly guard against concentrated reliance on a small set of domestic suppliers. For example, the United States relies almost exclusively on domestic sources for its infant formula. When a domestic U.S. infant formula facility was temporarily closed in 2022, domestic supply declined dramatically. Policymakers navigated this crisis by taking various actions to facilitate formula imports by a factor of 17 (WTO 2023a). Nonetheless, supplier diversification may not achieve supply chain resiliency if shocks are global and are correlated across locations (Goldberg and Reed 2023).

[27] ATP include products that embody advanced technologies in biotechnology, life science, opto-electronics, information and communications, electronics, flexible manufacturing, advanced materials, aerospace, weapons, and nuclear technology (Abbott et al. 1989).

Figure 5-11. Percentage Change in U.S. Import Share, by Country, 2017–23

Change in import share (percentage points)



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Sources: Trade Data Monitor; CEA calculations.

Note: These changes were calculated using nominal import values between 2017 and 2023. These countries were selected based on having the highest import shares in 2023 and largest changes in import shares between 2017 and 2023.

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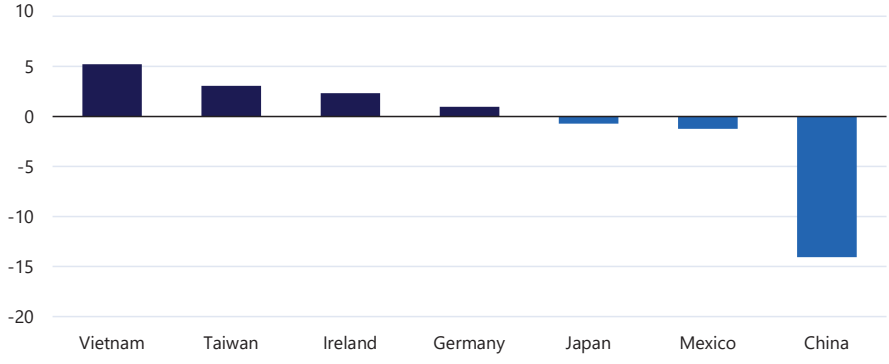
Figure 5-12. Percentage Change in U.S. Import Share of Advanced Technology Products, by Country, 2017–23

Change in import share (percentage points)



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Sources: Trade Data Monitor; CEA calculations.

Note: Advanced Technology Products (ATP) definition from U.S. Census Bureau. Calculated using nominal ATP import values between 2017 and 2023. These countries were selected based on having the highest ATP import shares in 2023 and largest changes in ATP import shares between 2017 and 2023.

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These compositional changes took place both in response to U.S. trade policy and longer-term factors in China, including rising unit labor costs (Yang, Zhu, and Ren 2023) and declining FDI (Bloomberg 2023). Mexico's and Canada's gains in overall U.S. market share are consistent with patterns of near-shoring, while the other countries gaining share are also trusted partners—consistent with notions of friend-shoring. The marked increase in Vietnam's share of ATP imports, for instance, is consistent with

the U.S.-Vietnam Comprehensive Strategic Partnership's goals, including to promote resiliency in semiconductor supply chains (White House 2023b). These reallocations have also broadly been larger in industries that faced higher U.S. import tariffs on goods sourced from China (Freund et al. 2023).

Recent shifts should however be interpreted with caution, for several reasons. First, reallocation may result in increasing costs in the form of higher import prices from alternative locations, at least in the short term. Since 2017, U.S. import prices from Vietnam, Mexico, South Korea, Taiwan, and Singapore have increased in sectors that faced a decline in the U.S. share of imports from China (Alfaro and Chor 2023). Second, while diversification in import sources is under way, U.S. supply chains still remain closely, albeit indirectly, linked with China. Countries that have gained the most U.S. market share between 2017 and 2022 are also deeply engaged in supply chains with China (Freund et al. 2023).[28] These ongoing engagements suggest that global value chains have lengthened to include several Asian economies, particularly when linking China and the United States (Qiu, Shin, and Zhang 2023). Some of these dynamics may reflect underlying fundamentals (including rising labor costs and policy uncertainty), but they may also reflect a higher likelihood of increased transshipments and circumvention of U.S. trade restrictions (Hancock 2023).

The Costs and Benefits of Global Integration for Workers, Consumers, and Communities

Classical trade models highlight how trade can improve aggregate economic efficiency but also lead to a redistribution of income across factors of production in a manner that can increase inequality. Aggregate welfare gains arise from comparative advantage, specialization, and trade across countries based on advantaged goods and services. In any given country, increased specialization leads to a relative increase in labor demand and wages for workers in advantaged sectors over those in less-advantaged sectors.[29] Foreign direct investment, including through multinationals, can also shape wage inequality through higher relative demand for more specialized labor—including demand for college-educated workers or labor demand that evidences a skill bias (Feenstra and Hanson 1997; Hale and Xu 2016). In short, the presence of unambiguous overall welfare gains from

[28] The members of the Indo-Pacific Economic Framework received about one-third of their imports from and sent about a fifth of their exports to China in 2021 (Dahlman and Lovely 2023). This framework includes these countries: Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, South Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, and Vietnam.

[29] The factor-based Heckscher-Ohlin model provides one example. However, other models, like the Specific Factors model, also generate winners and losers among workers based on factors of production that are specific (or fixed) to export or import sectors.

global integration does not imply that everyone will benefit from these gains equally—some workers will explicitly lose. Therefore, trade and investment policies should facilitate maximizing the benefits of robust trade and foreign investment flows while concurrently mitigating integration's negative effects, in conjunction with domestic redistribution policies.

Global Integration and Inequality

The evidence for the impact of increased U.S. trade and foreign investment flows on inequality reveals a complex set of patterns. Shifts in U.S. labor demand based on increased specialization and the associated diversification of production processes (e.g., via offshoring) have generated distributional consequences, particularly for domestic manufacturing employment. Between 1993 and 2011, total nonfarm employment increased by roughly 21 million workers; however, manufacturing employment declined by almost 30 percent, or 5 million workers (BLS 2023a, 2023b). To understand the decline in manufacturing employment, two primary factors have been examined empirically: The trade-based view identifies import competition leading to labor-intensive industries moving abroad, while the technology-based view identifies innovations in production techniques—including automation—that reduced or changed the nature of labor demand (e.g., shifting from demand for production workers to college-educated service workers). Disentangling the potential explanations requires overcoming acute empirical challenges, since these forces are often complementary and reinforce one another (Fort, Pierce, and Schott 2018). While the literature suggests that both factors played a role (e.g., Galle and Lorentzen 2021), this subsection highlights causal results from the trade-based explanation.

Part of the steep decline in U.S. manufacturing employment since 2000 has been linked to the sharp rise in Chinese import competition—a dynamic referred to as the "China shock" (Autor, Dorn, and Hanson 2013).[30] While there remains an active debate on the share of U.S. manufacturing job losses that can be ascribed to increased Chinese imports, there is a broader

[30] Close to a fifth (16 percent) of the decline in manufacturing employment between 2000 and 2007 has been attributed to the rise in import competition from China (Caliendo, Dvorkin, and Parro 2019). Firms that reorganized activities away from the production of machinery, electronics, or transportation equipment and toward wholesale, professional services (including research and development), and management drove almost a third of the negative manufacturing employment decline between 1990 and 2015 (Bloom et al. 2019). Several factors have been analyzed to understand the surge in U.S. imports from China during this period, including the United States granting China permanent normal trade relations in 2000, China's accession to the World Trade Organization in 2001, reduced trade and investment policy uncertainty associated with these policy actions, and China's own trade and domestic reforms (e.g., tariff reductions and privatizations) (Lincicome and Anand 2023).

consensus on its unequal distributional employment implications.[31] The shock grew during the 2000s and plateaued in 2010; however, its adverse local employment effects persisted through the next decade (Autor, Dorn, and Hanson 2021). Critically, the decline in manufacturing employment was not evenly distributed across workers or space. On one hand, losses were concentrated in geographic areas that were more reliant on import-competing industries and where workers had lower levels of formal educational attainment—especially the South and Midwest (Autor, Dorn, and Hanson 2013). On the other hand, regions with higher levels of formal educational attainment experienced employment gains during this period—largely localized in services sectors (Bloom et al. 2019).[32] These dynamics comport with long-term shifts that occurred within U.S. manufacturing firms: greater outsourcing via participation in GVCs and increased automation that led to a reorientation away from physical production processes toward the provision of intellectual services (e.g., research and development, design, and logistical services) (Fort, Pierce, and Schott 2018).

Import competition from China was also accompanied by a substantial fall in U.S. consumer prices, with disproportionate benefits accruing to low- and middle-income households because they have higher shares of tradable goods like food and apparel in their consumption baskets (Fajgelbaum and Khandelwal 2016; Russ, Shambaugh, and Furman 2017). Causal estimates suggest that a 1-percentage-point increase in Chinese import penetration led to a decline in consumer price inflation of 1 to 2 percentage points—largely reflecting indirect pro-competitive cost effects, where greater foreign competition induces domestic firms to lower markups and thus further drives down prices (Jaravel and Sager 2019).[33] Considering the modeled impact of increased Chinese import penetration across U.S. geographic regions, Galle, Rodríguez-Clare, and Yi (2023) find that almost 90 percent of the U.S. population saw an increase in purchasing power, with those regions that saw

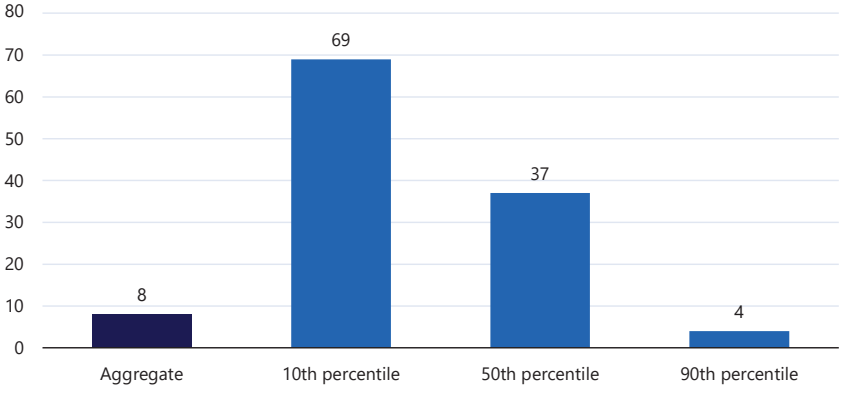
[31] For examples of studies that find smaller effects of the China shock on U.S. manufacturing employment than Autor, Dorn, and Hanson (2013), see Jakubik and Stolzenburg (2020) and De Chaisemartin and Lei (2023). Studies that also incorporate downstream supply chain effects in addition to direct competition effects have found positive local employment effects of the China shock (Wang et al. 2018); Antràs, Fort, and Tintelnot (2017) find that firms that increased their use of Chinese imported intermediates also simultaneously increased their sourcing of domestic inputs and increased their production.

[32] Formal educational attainment is defined as the percentage of the total population with a college degree in 1990, using the Decennial Census. Manufacturing workers who transitioned to the services sectors associated with lower educational attainment (e.g., retail) have been found to have experienced nominal earnings declines (Pierce, Schott, and Tello-Trillo 2023).

[33] These results have been corroborated in the broader trade literature (e.g., Bai and Stumpner 2019; Amiti et al. 2020).

Figure 5-13. Pro-Poor Bias in Gains from Trade in the United States (Percent Welfare Gain)

Absolute welfare changes relative to autarky



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Source: Fajgelbaum and Khandelwal (2016, table V).

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purchasing power losses being spatially correlated with regions that also saw a loss in manufacturing employment from the China shock.[34]

The results, showing that trade with China has benefited most Americans' purchasing power, are consistent with a larger body of evidence on the benefits from trade with all countries—again, with disproportionate benefits accruing to lower-income households.[35] For example, the average U.S. household has been shown to gain 8 percent in purchasing power from trade compared with a counterfactual autarky (Fajgelbaum and Khandelwal 2016).[36] However, the lowest-income U.S. households gain the most, at 69 percent (figure 5-13).

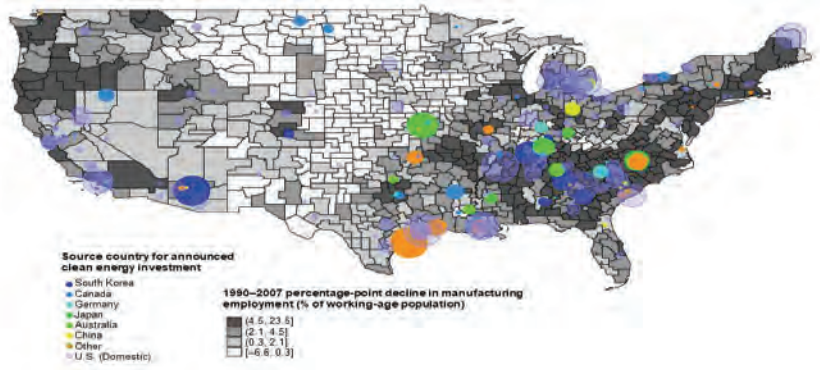
Recent trends in foreign direct investment may contribute to boosting manufacturing activity and reducing inequality, including for communities disproportionately affected by the China shock. Figure 5-14 maps historical manufacturing employment changes across commuting zones over the period 1990–2007. Areas that incurred higher job losses are indicated in darker shades of gray. The bubbles are sized to correspond to the magnitude of announced clean energy projects since 2021 and are colored to indicate the investor's headquarters country. Areas that experienced larger historical

[34] The authors find that the worst-affected areas experienced average losses as large as four times the average overall gain in purchasing power.

[35] There is also a literature documenting welfare increases due to greater access to varieties of goods through trade (e.g., Broda and Weinstein 2006; Melitz and Trefler 2012).

[36] The authors develop a general equilibrium model that considers the distributional effects of international trade on the cost of living (the expenditure channel). Distributional effects through workers' earnings (the earnings channel) are not explicitly modeled to enable a focus on unequal gains through the expenditure channel only.

Figure 5-14. FDI in Clean Energy Projects between 2021:Q1 and 2023:Q2, by Investor Headquarter Country, and Decline in Manufacturing Employment between 1990 and 2007 (Percentage of Working-Age Population)



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Sources: Clean Investment Monitor; Autor, Dorn, and Hanson (2013); CEA calculations.
Note: Darker gray regions represent areas that incurred higher historical job losses. Bubbles—representing announced clean energy projects between 2021:Q1 to 2023:Q2—are sized according to the magnitude of the project and colored to indicate the country in which investors' headquarters are located. Regions are defined as commuting zones (USDA).
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losses in manufacturing employment have attracted a higher concentration (both in number and size) of announced clean energy FDI projects.

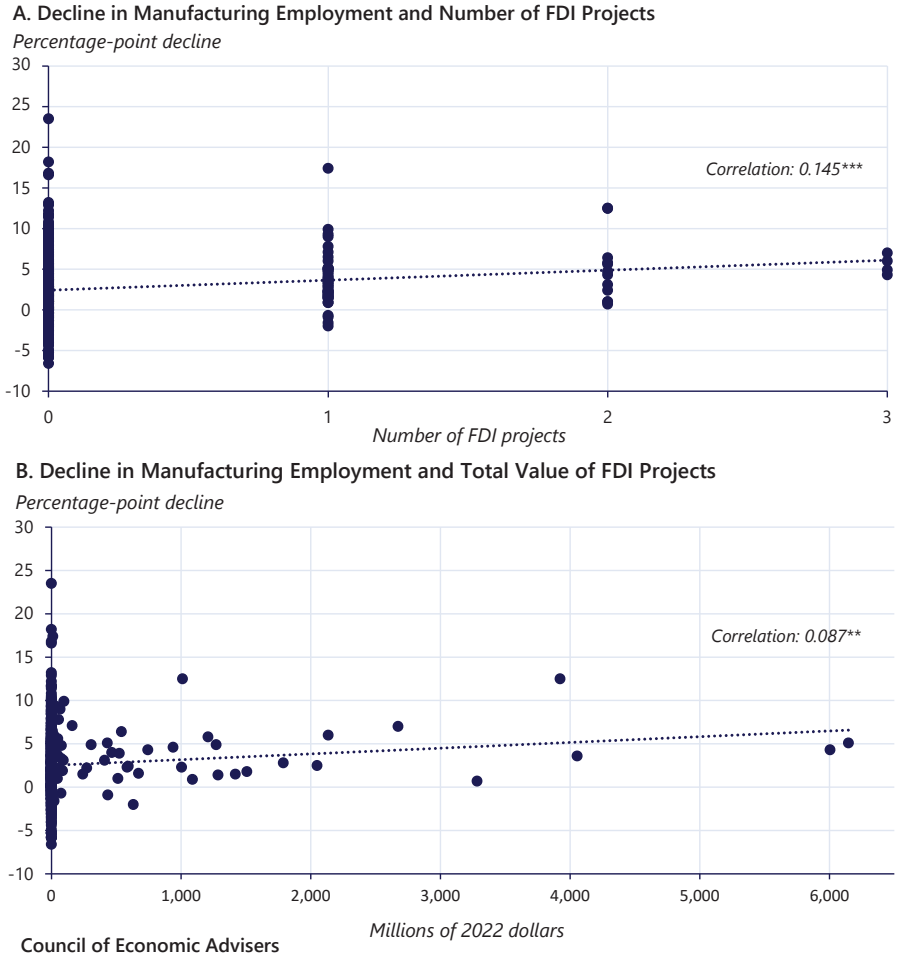
Figure 5-15 illustrates the statistically significant correlations between commuting zones with larger historical manufacturing employment losses and the number and value of clean energy FDI projects announced since 2021. These relationships hold when the data set is expanded to include all announced clean energy projects, suggesting that domestic clean energy projects are likewise disproportionately locating in vulnerable communities, which is consistent with early evidence from Van Nostrand and Ashenfarb (2023).[37] The key drivers of location choice and whether these investments will improve labor market and socioeconomic outcomes in these geographies remain high-priority topics for future research.

Trading Firms and Job Creation

GVCs have created strong interconnections between exporting and importing—which are often performed by the same firms. Among goods traders, averaged over the period 1992–2021, firms that both export and import goods account for a plurality of total U.S. private sector employment (36 percent), followed by firms that only export goods (8 percent) and firms that only import goods (6 percent) (figure 5-16). The majority of employment at goods traders is by large firms (defined as those employing 500 or more

[37] For all projects (both FDI and domestic), the correlations between the number and value of projects with historical manufacturing employment declines are both significant at the 1 percent level.

Figure 5-15. Correlations Between Historical Declines in Manufacturing Employment between 1990 and 2007 and the Total Number and Value of Recently Announced Clean Energy Projects between 2021:Q1 and 2023:Q2



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Sources: Autor, Dorn, and Hanson (2013); Clean Investment Monitor; CEA calculations.

Note: The decline in manufacturing employment from 1990 to 2007 is calculated as a percentage of the working-age population for 722 commuting zones. Projects are classified as foreign direct investment (FDI) if the associated company headquarters could be traced to a foreign country. Only projects announced between 2021:Q1 and 2023:Q2 are included. Stars denote statistical significance at the 5 percent (**) and 1 percent (***) levels or lower.

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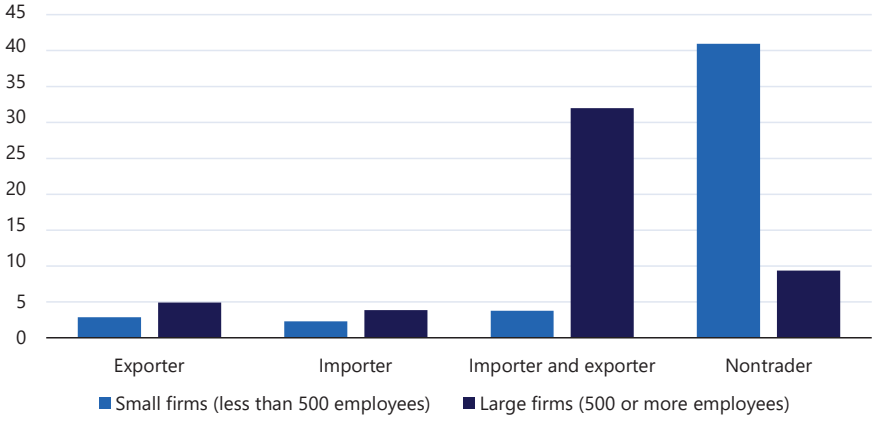
workers); in contrast, the majority of employment at nontraders is by small firms (those employing fewer than 500 workers). Nevertheless, small firms directly engaged in the goods trade account for almost 10 percent of national employment.

About 1.3 million small firms were estimated to be exporting goods in 2021—with the potential for almost an equal number of additional small

Figure 5-16. Goods Trader and Employment by Firm Size, 1992–2021 Average

Percentage of employment



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Sources: Census Bureau; CEA calculations.

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businesses to begin exporting based on the tradability of the industries in which they operate (U.S. Small Business Administration 2023a, 2023b). Increased opportunities to export may accrue disproportionately to smaller regions in the United States. While large metropolitan areas (including New York City and Los Angeles) account for large volumes of U.S. exports, the most export-intensive regions (with the highest shares of exports to regional GDP) include relatively less populous cities like Wichita, Detroit, Youngstown, and Houston (Parilla and Muro 2017).

Goods traders' contribution to net job creation has grown over recent years: During the 2001–7 period, goods traders accounted for only 10 percent of total net job creation; but between 2008 and 2019, that figure rose to 60 percent. Overall, goods traders were responsible for almost 40 percent of net job creation in the U.S. economy between 1992 and 2019 (Handley, Kamal, and Ouyang 2021).[38] These statistics underscore the changing nature of the U.S. production landscape, where both exports and imports support domestic jobs.[39]

[38] Handley, Kamal, and Ouyang (2021) document that vast majority of goods-traders' contribution to net job creation is driven by the opening of new establishments, particularly, in services-providing sectors like wholesale, retail, business and professional services. These patterns hint at the complementarity between manufacturing and services activities as well as the sectoral diversity in job creation tied to trade participation.

[39] See Fort (2023) for an in-depth discussion of U.S. firms' organization of goods production across firm and country boundaries.

Mitigating the Challenges of Global Integration

The classical Ricardian trade model—that the concept of comparative advantage allows all countries to access goods produced by the most efficient and lowest-cost producers, increase their aggregate consumption, and ultimately benefit from trade, even if a single country produces all goods more efficiently in absolute terms—is based on several assumptions that may not hold in the real world (Ricardo 1817). One such assumption is that workers are frictionlessly mobile between sectors. When the costs of transitioning to sectors where a country has a relative cost advantage are high, domestic producers in import-competing sectors lose out—as do their workers—even if overall consumption rises. Meanwhile, the classical Ricardian model conceives of comparative advantage only with respect to monetary costs. American workers and consumers may place a high value on the consumption of foreign goods that adhere to high environmental and labor standards, but adherence to such standards is not well captured by cost signals. To make trade fair and beneficial for all, trade and foreign investment policies need to explicitly consider distributional, environmental, and labor rights in their design.

The Biden-Harris Administration's approach to trade and investment partnerships centers on promoting middle-class prosperity, reducing inequality, addressing climate risks, and advancing fair competition (USTR 2023b). It aims to raise labor standards, adopt sustainable environmental practices, bolster supply chain resilience, and minimize national security risks through more U.S.-based production in certain sectors while concurrently supporting ongoing robust trade and investment flows with U.S. partners. This approach encompasses a combination of economic frameworks and regional partnerships:

- *United States–Mexico–Canada Agreement* (USMCA) *Rapid Response Labor Mechanism:* The USMCA modernized the North American Free Trade Agreement and includes new labor obligations, such as the innovative rapid response mechanism, which provides for expedited enforcement of workers' rights of free association and collective bargaining at the facility level (USTR 2023a). Since 2021, the United States has invoked the mechanism 18 times to seek Mexico's review at 17 different facilities.[40] As a result, the United States has achieved improved outcomes for thousands of Mexican workers—millions of dollars have been paid to workers, more workers are represented by independent unions, there have been more free and fair union elections, and unions have successfully negotiated for higher wages and improved policies at facilities.[41] These developments are

[40] We thank USTR colleagues for sharing the rapid response mechanism's statistics that are current through December 20, 2023.

[41] Based on review of all USMCA cases (U.S. Department of Labor 2023).

consistent with studies finding that labor-related cooperation provisions specific to trade union rights in the context of preferential trade agreements improve compliance with requirements for enforcing collective labor rights (Sari, Raess, and Kucera 2016).

- *Indo-Pacific Economic Framework* (IPEF): This is an economic framework between the United States and 13 member countries: Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, South Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, and Vietnam (USTR n.d.–a). IPEF comprises four pillars: trade, supply chains, a clean economy (including clean energy, decarbonization, and infrastructure), and a fair economy (including tax and anticorruption). The trade pillar aims to enhance resilience, sustainability, and inclusivity through a variety of provisions, including high-standard labor and environment commitments (USTR n.d.–b). The supply chains pillar aims to build resilient supply chains through multiple initiatives, including the development of criteria for critical sectors, the promotion of supply chain diversification, and establishing channels for information sharing and crisis response mechanisms (U.S. Department of Commerce 2022). The clean economy pillar aims to further the climate goals articulated under the Paris Agreement through a variety of cooperative actions, including sharing best practices on the commercialization and deployment of clean energy technologies and mobilizing private sector investment in emission-reducing projects (U.S. Department of Commerce 2023a). The fair economy pillar aims to strengthen domestic legal frameworks to accelerate progress on various international standards related to reducing corruption and bribery and promoting efficient tax administration (U.S. Department of Commerce 2023b). Collectively, these pillars promote inclusive growth by advancing higher economic standards, building supply chain resiliency, addressing climate change, fighting corruption, and promoting high-standard labor commitments.
- *U.S.-Taiwan Initiative on 21st-Century Trade:* The first agreement under this trade initiative covers areas of customs administration and trade facilitation aimed at reducing red tape for U.S. exporters. These include good regulatory practices and domestic services regulation, such as streamlining licenses for firms seeking to operate abroad and promoting fair competition opportunities. Anticorruption provisions address issues including money laundering, and denial of entry for foreign public officials who have committed specified corruption offenses. They also promote cross-border trade and investment, information sharing, and exchanging best practices in finance and other areas for small and medium-sized enterprises (USTR 2023c). A second round of negotiations commenced in August 2023, focusing on agriculture, labor, and the environment (USTR 2023d).
- *U.S.-Kenya Strategic Trade and Investment Partnership* (STIP): STIP is an initiative to pursue high-standard commitments in selected areas

(including agriculture, anticorruption, digital trade, the environment and climate change action, regulatory practices, endorsing workers' rights and protections, and trade facilitation and customs procedures, among other focus areas) intended to increase investment; promote sustainable and inclusive economic growth; benefit workers, consumers, and businesses (including small and medium-sized enterprises); and promote African regional economic integration (USTR 2022c, 2023e).

- *Regional partnerships:* The Administration has focused on building closer partnerships with regions across continents. Two examples, spanning Europe and Africa, are highlighted here:

  —*U.S.-EU Trade and Technology Council:* This council includes two working groups focused on securing supply chains and addressing global trade challenges (White House 2021a). One group, which focuses on secure supply chains, aims to advance resilience and security in supply chains and create coordination mechanisms to avoid disruptions (U.S. Department of Commerce 2023c). The other group, which focuses on global trade challenges, aims to address issues of nonmarket economic policies and practices, promote the development of emerging technologies by avoiding new and unnecessary product and service barriers, promote and protect labor rights, and address other trade and environment issues (USTR 2021).

  —*African Growth and Opportunity Act* (AGOA): AGOA is a unilateral U.S. trade preference program that provides duty-free access to the U.S. market for certain exports from countries in Sub-Saharan Africa that meet AGOA's eligibility criteria. Thirty-two countries currently qualify in 2024 (USTR n.d.–c). Eligibility encourages countries to make continual progress on economic benchmarks (e.g., having a market-based economy); political benchmarks (e.g., the rule of law, political pluralism, and anticorruption efforts); poverty reduction (e.g., via job creation in exporting sectors); and the protection of labor rights (e.g., prohibitions against child labor and protections of the rights to organize and bargain collectively). Countries must also not engage in gross violations of internationally recognized human rights or activities that undermine U.S. national security or provide support for acts of international terrorism (USTR 2022d).

Conclusion

The decades-long trend of steady increases in global trade and foreign direct investment plateaued after the global financial crisis. Nonetheless, the United States remains the world's second-largest trader after China, and the largest country with respect to FDI flows. U.S. trade and foreign investment patterns in 2022 and 2023 reflect a combination of cyclical and secular factors, in addition to the Biden-Harris Administration's policy agenda—all of which are interacting in novel ways to show signs of positive developments

(including an increase in U.S. supply chain resilience and increasing FDI inflows into the U.S. manufacturing sector), along with reasons for caution (including services exports remaining below trends before the pandemic).

While the future outlook for U.S. trade and investment flows remains uncertain, the Administration is continuing to pursue a worker-centered trade agenda by reviewing trade policies for their impact on, and consequences for, American workers. This policy approach also aims to harness the benefits of trade while reversing the jobs and earnings displacements that beset too many American communities for decades. These ongoing actions are helping to rebuild these communities, not by walling off international trade but by leveraging its benefits while managing its costs for American workers.