# 2024 INTERNATIONAL TRADE FORECASTS

## An Overview of World, U.S., California, Orange County and Southern California Exports

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# International Trade Forecasts

## An Overview of World, U.S., California, Orange County and Southern California Exports

**By**

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**California State University Fullerton**

## About Dr. Mira Farka and Dr. Adrian R. Fleissig

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## Woods Center for Economic Analysis and Forecasting

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The traditional vision of global interconnectedness is being replaced by a world of **cliques and walls**. Trade and business relations are further strengthened between countries in the same clique (or club) via the harmonization of regulatory systems, further integration, and trade ties. Walls are erected to do exactly the opposite, creating trade barriers and fewer trade relations amongst countries belonging to other clubs.

This report argues that this new world of "cliques and walls," while forfeiting some measure of efficiency, may deliver a more resilient and sustainable global interconnectedness, one that may be able to better withstand future economic and geopolitical shocks. Resiliency does come with costs, as some areas will experience unprecedented growth, while others will retrench.

- In **merchandise trade**, we argue that the emergent trend is one where global trade continues to rise, but in a reshuffled form with deeper inter-regional connections. Regional agreements — rather than global multilateral deals — will be the leading tool for more trade liberalization.
- **Foreign Direct Investments** will continue to struggle and take a step back from the rapid expansion of cross-border capital flows seen over the past four decades, especially as investment screening measures assume greater importance in national security matters.
- **Industrial policy** is making a strong comeback, with governments across the world actively subsidizing, supporting, and cultivating growth in strategically important sectors. This onslaught of protectionism will undoubtedly change global trade but not outright diminish it.
- Other trade areas will flourish with **trade in services, and data/digital flows** expected to set new record highs.
- **Supply chains** will reshuffle and reorient broadly in line with cliques and walls: more "friendshoring," "nearshoring," or "reshoring" and less far-flung supply chains that are vulnerable to economic and geopolitical risks.
- The **great decoupling between the U.S. and China** will continue, but this does not spell doom for world trade. On the contrary, the rest of the world will benefit from this break-up.
- Likewise, energy links between Russia and the EU will remain severed, but countries and firms will reorient and adapt.

In short, rather than mourning the loss of the old global system, here's to hoping that a more resilient and sustainable system rises from the ashes of hyper-globalization.

## DIVERGENT BUT RESILIENT: OUTLOOK FOR GLOBAL ECONOMY AND GLOBAL TRADE

2023 was a tough year for global trade. Merchandise exports shrank by an estimated 4.2% after growing by a staggering 26.5% in 2021 and by a healthy 11.8% in 2022. This marks the first decline in goods trade in the past two decades outside of a global recession. The softness in global trade stands in stark contrast with the performance of the global economy over the past year. High interest rates, an energy crunch in Europe, tremors of a potential banking crisis in the U.S., rising

geopolitical risks, and persistently high inflation prompted predictions of an economic collapse — made almost uniformly by economists at the start of 2023.

Those predictions proved embarrassingly wrong. Far from falling into the abyss of a recession, the world economy defied gravity and grew by nearly 3% in 2023, below the 3.6% pace of the past two decades, but growth, nonetheless. In some economies, growth was even stronger than in 2022: Japan grew nearly twice as fast in 2023 (1.9%) compared to the previous year. China's growth came at 5.2%, far above the paltry 3% posted in 2022, which was hamstrung by tight-fisted pandemic restrictions. But by far, the true outlier has been the U.S. economy. The strength and resiliency of the global economy last year can be safely attributed primarily to the astonishing performance of the U.S. economy.

We expect the global economy to avoid a recession over the next two years, but growth will slow over the horizon, in part because of continued headwinds: rising geopolitical risks, persistent inflation, and higher-than-expected interest rates. However, sources of strength will likely rotate over the next couple of years. While we expect the U.S. to continue to push growth forward in the short term as other economies languish, the opposite is expected in the longer term, with growth from the rest of the world compensating for the expected slowdown in the U.S. Growth in Europe should pick up, albeit slowly, as the ECB has more space to cut rates quickly and more aggressively than the Fed. The U.K. began the year on a stronger footing as growth picked up in January after the technical recession in the second half of last year. The Japanese economy will also pick up speed after ending 2023 on a sour note, as it appears to have finally escaped the clutches of deflation. The Chinese economy will continue to struggle, given its structural problems, but fiscal support should provide some help. To be sure, what is being advertised from Beijing so far falls short of what is needed to boost the economy. Nonetheless, we expect the central government to provide additional support during the year and monetary policy to continue to remain accommodative. Thus, the Chinese economy is likely to grow by around 4.5%, lower than the 5% target set by the government but higher than in 2022. Overall, we expect world GDP growth to come at 2.9% in 2024 and 2.7% in 2025. World merchandise exports are expected to grow by 4.2% in 2024 and by 3.2% in 2025.

**SOUTHERN CALIFORNIA MERCHANDISE EXPORTS**

According to 2023 data from the Census Bureau, the Los Angeles MSA (which includes both Los Angeles and Orange County), ranked third largest in terms of merchandise exports, trailing behind Houston MSA (1st ranked) and the New York MSA. Merchandise exports accounted for approximately 5.0% of the Los Angeles MSA's Gross Metropolitan Product and 5.4% of Orange County's Gross County Product.

In 2023, merchandise exports from the Los Angeles MSA are estimated to have experienced a decline of -2.3% to $59.6 billion (see Table 1). This places Los Angeles MSA's merchandise exports $1.5 billion below their 2019 pre-pandemic levels. Merchandise exports from Orange County are also estimated to have decreased by an even larger amount in 2023, dropping by 3.5% (to $16.3 billion).

For Orange County, merchandise exports are now slightly higher than the 2019 pre-pandemic levels. Merchandise exports from the Riverside-San Bernardino-Ontario MSA (commonly referred to as the Inland Empire) experienced a modest decrease of -0.9% in 2023 to $11.2 billion and are $1.5 billion higher than their 2019 pre-pandemic values.

The outlook for merchandise exports from Southern California is brighter than in the recent couple of years, though growth will be rather uneven over the forecast horizon. For example, we expect relatively stagnant growth in 2025, reflecting adjustments in the global economy, between two years of moderate growth. Projections indicate that merchandise exports for the Los Angeles MSA will increase by 4.9% in 2024, followed by 0.8% in 2025, and a more robust expansion of 5.7% in 2026. By 2026, merchandise exports for the Los Angeles MSA will reach $66.6 billion which is $5.6 billion above the 2019 pre-pandemic level. For Orange County, merchandise export growth rates are projected to be 5.4% in 2024, 1.6% in 2025, and a more robust 6.3% in 2026. Merchandise exports for Orange County are projected to reach $18.5 billion in 2026 which is $2.4 billion above the 2019 pre-pandemic level. Merchandise exports for the Inland Empire are forecasted to grow by 7.9% in 2024, by 2.3% in 2025, followed by another robust growth of 6.8% in 2026. By the end of 2026, Inland Empire merchandise exports are projected to reach $13.2 billion, a full 3.6 billion above the 2019 pre-pandemic level.

Despite projected positive growth over the forecast horizon, exports from the Los Angeles MSA and Orange County are expected to remain below their record-high levels of 2013 by the end of the three-year forecast horizon. Specifically, Orange County merchandise exports in 2026 are anticipated to be 28.4% below their record-highs, while the figure is less dramatic for the broader Los Angeles MSA exports where they are expected to fall short only 12.8%. In contrast, the Inland Empire is projected to achieve new record levels for each year over the forecast horizon.

**Table 1**
**Merchandise Exports**
**Orange County, Los Angeles-Long Beach-Anaheim MSA and the Inland Empire**
**(millions of dollars)**

| Year | OC Export Volume | OC Exports Growth Rate | LA-LB-SA Export Volume | LA-LB-SA Exports Growth Rate | Inland Empire Exports Volume | Inland Empire Exports Growth |
|---|---|---|---|---|---|---|
| 2023 | 16,296 | -3.5% | 59,562 | -2.3% | 11,230 | -0.9% |
| | | | **Forecast** | | | |
| 2024 | 17,173 | 5.4% | 62,472 | 4.9% | 12,117 | 7.9% |
| 2025 | 17,440 | 1.6% | 62,965 | 0.8% | 12,390 | 2.3% |
| 2026 | 18,540 | 6.3% | 66,572 | 5.7% | 13,238 | 6.8% |

***Source:*** *Woods Center, California State University Fullerton & International Trade Administration*

## A. GLOBALIZATION IN TRANSITION: A WORLD OF CLIQUES AND WALLS

"Reports of my death are greatly exaggerated," Mark Twain famously once quipped. One wonders whether the same is true for the much-reported demise of globalization, the system that enabled the free flow of goods, services, capital, data, and people over the past four decades. Reports are bleak wherever you look: global merchandise exports grew by an annual average pace of 10.8% in the period from 1995 to 2008 but expanded only by 3.3% from 2012-2022. Excluding the COVID-19 pandemic, the figures look a bit perkier, coming at a 4.4% clip per year, but even this is less than half the pace of the pre-financial crisis. Trade barriers are being erected everywhere: the number of trade concerns lodged with the World Trade Organization (WTO) has increased more than sevenfold, from 18 in 2015 to 130 in 2022. Today's Great Powers, the U.S. and China, are decoupling, governments have expanded both the scope and reach of investment screenings, and muscular industrial policies are being adopted across the world in the name of national security and economic competitiveness. Subsidies to support domestic industries deemed essential to technology and national security doubled from 5,212 in 2018 to 9,435 in 2022. The number of countervailing measures — a border tax against subsidized imports — rose from 2 in 2007 to 41 in 2021. More ominous is the stall in multilateral agreements: after 14 years of negotiations, the World Trade Organization (WTO) ended its Doha rounds (in 2015) without a major agreement. No attempts at large multilateral agreements have been made since then. Worse, the WTO's ability to resolve trade disputes is effectively shut down as the U.S. has blocked appointments to its appellate body since May 2016. It has now become painfully clear that the organization charged to oversee global trade is toiling to maintain its relevance.

With these trends, predictions about a new era of deglobalization are coming thick and fast, with some fretting that the world is on the cusp of an autarkic slide akin to the 1930s. According to the pessimists, the neoliberal world order that prevailed since the end of WWII has come to an end. As we have argued previously in these pages, our view is that these concerns are unduly alarmist and decidedly misguided. Yes, the era of hyper-globalization, which reigned from the mid-1990s until the start of the global financial crisis, has ended. But its end was neither completely unexpected nor entirely unwelcome, as globalization "the old-fashioned way" was going to eventually reckon with its own shortcomings. Shocks to the global economy (financial crisis, pandemic, geopolitical risks) accelerated trends that would have ultimately resurfaced anyway. Most importantly, the picture that emerges underneath the headline numbers is more nuanced and more heartening: far from falling into an abyss, trade, supply chains, and global interconnectedness are being transformed and

reimagined in new ways that — if properly implemented — would lead to a more meaningful, deeper, and more resilient integration.

The pullback from hyper-globalization has come in three distinct phases, with each stage highlighting the shortcomings of the existing system. The first phase, which began around 2016 and lasted until 2020, focused on long-standing issues related to globalization such as inequality, labor market disruptions, and unfair trade practices. These led to Brexit, the U.S.-China trade wars, and the failure of the Doha rounds. It was during this period that some of the more adverse aspects of the recent wave of globalization began to be assessed more critically. First came the realization that the decline in global inequality had come at the expense of a rise of within-country inequality. A billion people were lifted out of poverty over the past three decades in large part because of globalization, but these gains were decidedly lopsided: the richest 1% gained 38% of the wealth generated globally, yet the poorest 50% gained only 2% of this wealth. Second, labor market displacements were never properly addressed: Six million U.S. manufacturing jobs were lost between 2001 (when China joined the WTO) and 2010, two million of which were directly attributed to China's rising importance as the world's manufacturing hub. Third, the rapid rise of China in the world economy, particularly in global trade, would always present an ever-increasing challenge for the free-market world. As its heft in the world grew, China's sometimes underhanded trade practices (protectionism, subsidies, overcapacity, failure to protect intellectual property rights) became increasingly more brazen and obvious, contributing greatly to a shift towards more protectionism around the world.

The second phase of the retreat from globalization came during the pandemic, from 2020-2022. The shock was both demand-driven (as consumers across the world increased demand for goods during lockdowns) and supply-constrained (as factories managed production pandemic-related disruptions). Whereas the globalization model generally favors specialization based on gains from comparative advantage, vulnerabilities to supply chains during the pandemic forced firms to aim for more diversification across countries from multiple suppliers, prompting a shift and a rethink of the old model.

The third blow to globalization is related to geopolitical risks. Though the starting point is February 2022 with the onset of the Russia-Ukraine war, risks are much broader as they have ushered a return to a new cold war, with closer cooperation between countries with similar geopolitical/geoeconomic interests and fences/barriers against countries with which they compete strategically. The sanctions regime against Russia is a preeminent example of this fragmented new world, with some countries enthusiastically embracing the sanctions and others shunning them. Concerns about national security, especially in sectors related to technology and defense, have prompted greater scrutiny of foreign investments, protections for intellectual property rights, and outright export controls.

The fracturing of the consensus on globalization is ushering in a new system where the traditional vision of global interconnectedness is being replaced by a world of **cliques and walls** (or clubs and fences, in the words of *White & Case*). Trade and business relations are further

strengthened between countries in the same clique (or club) via the harmonization of regulatory systems, further integration, and trade ties. Walls are erected to do exactly the opposite, creating trade barriers and fewer trade relations amongst countries belonging to other clubs.

This report argues that this new world of "cliques and walls," while forfeiting some measure of efficiency, may deliver a more resilient and sustainable global interconnectedness, one that may be able to better withstand future economic and geopolitical shocks. Resiliency does come with costs, as some areas will experience unprecedented growth, while others will retrench. In **merchandise trade**, we argue that the emergent trend is one where global trade continues to rise, but in a reshuffled form with deeper inter-regional connections. Regional agreements — rather than global multilateral deals — will be the leading tool for more trade liberalization. **Foreign Direct Investments** will continue to struggle and take a step back from the rapid expansion of cross-border capital flows seen over the past four decades, especially as investment screening measures assume greater importance in national security matters. **Industrial policy** is making a strong comeback, with governments across the world actively subsidizing, supporting, and cultivating growth in strategically important sectors. This onslaught of protectionism will undoubtedly change global trade but not outright diminish it. Other trade areas will flourish with **trade in services, and data/digital flows** expected to set new record highs. **Supply chains** will reshuffle and reorient broadly in line with cliques and walls: more "friendshoring," "nearshoring," or "reshoring" and less far-flung supply chains that are vulnerable to economic and geopolitical risks. The great decoupling between the U.S. and China will continue, but this does not spell doom for world trade. On the contrary, the rest of the world will benefit from this break-up. Likewise, energy links between Russia and the EU will remain severed, but countries and firms will reorient and adapt. In short, rather than mourning the loss of the old global system, here's to hoping that a more resilient and sustainable system rises from the ashes of hyper-globalization.

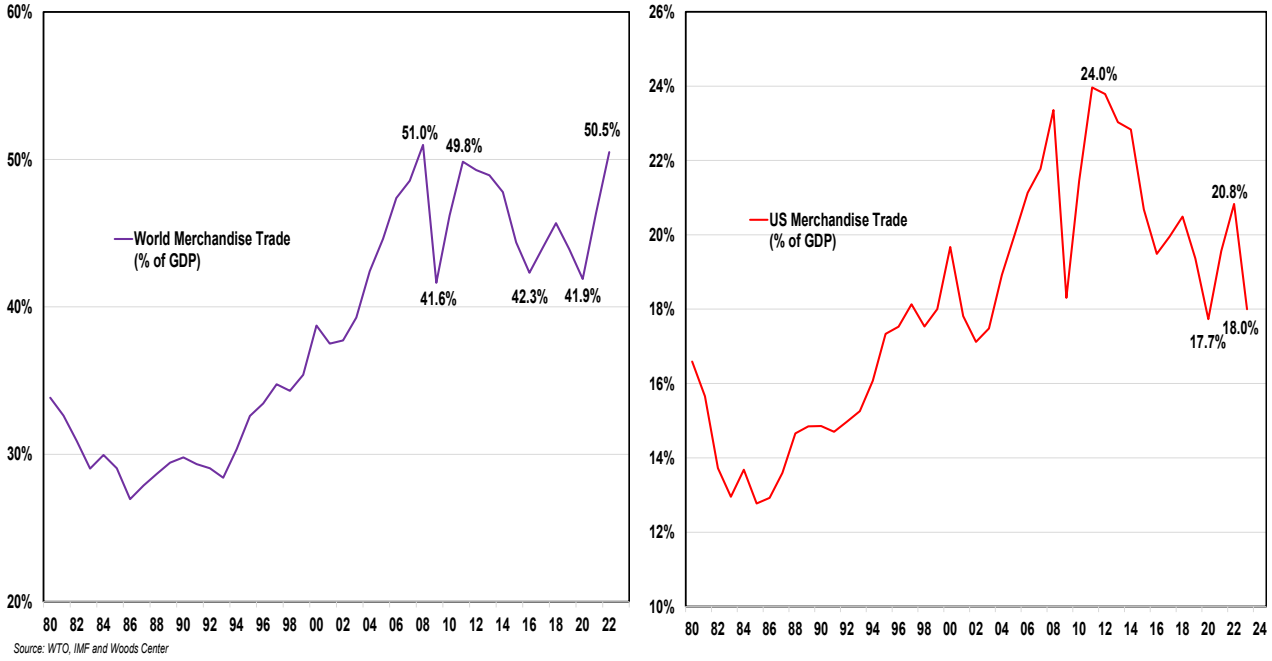
### A.1 Merchandise Trade: Transformed but Resilient

If one were to use a single word to describe global merchandise trade over the past decade and a half, it would have to be resiliency. After each shock, global trade rose at a torrid pace: by 21.7% in 2010 after the financial crisis, by 10% in 2017 and 2018, as the U.S.-China trade war ramped up, and by 26% in 2021 after the pandemic. In 2022, merchandise exports grew to $24.9 trillion, the highest in history, and even though trade slumped in 2023 due to slower global growth, our estimates show that it will have reached $25 trillion by the end of the year.

Despite this robust showing, an often-recurring concern in recent times is the magnitude of growth. World merchandise exports rose by 171% from 1995 to 2007 and a more meager 63% from 2010 to 2022. Indeed, global trade grew twice the pace of world GDP from 1997-2007 but only at a similar clip over the past decade and a half. The stall is more obvious when trade is expressed as a share of global GDP: After rising to a record high of 51% of global GDP in 2008, trade flows have stayed relatively flat since then with the latest number (in 2023) coming in only a hair below 2008

levels at 50.5% (Figure A1). The picture appears even less heartening for the U.S.: trade as percentage of GDP reached a high of 24% in 2011, as the economy began to recover from the pandemic, but it has been moribund ever since, accounting for only 18% of GDP in 2023.

**Figure A1**
**Stalled: Global Trade as Share of Global GDP Has Stayed Flat Since the Crisis**
**(merchandise trade, exports and imports, percent of GDP)**




The fear is that the stalling of global trade growth is a manifestation of deeper trends that are upending the existing order. Only 23 countries were the original signatories of the General Agreement on Tariffs and Trade (GATT), the precursor to the WTO; by now, that number has expanded considerably to 164 countries. From 1947 until the mid-1990s, there were eight rounds of tariff negotiations, which reduced tariffs substantially and deepened economic integration between countries. However, attempts for a new multilateral trade deal have failed: the Doha round collapsed after fourteen years because of intractable differences between advanced and developing economies. At the start of the talks (in 2001), advanced economies promised to deliver a trade deal that would benefit developing economies without requiring the latter to substantially reduce import barriers. But over the years, as it became obvious that countries like China were exporting far more than importing (and far more than originally envisioned), advanced economies started demanding deeper concessions such as discontinuation of subsidies and greater trade liberalization. Developing nations considered some of these demands unreasonable and harmful to their economies, which brought the talks to an end without delivering a multilateral agreement.

The last major multilateral trade negotiation was 27 years ago. Since then, progress has stalled. On the face of it, trade barriers are erected everywhere as national security concerns and

issues of economic competitiveness assume increasingly greater importance. Overall, the free flow of goods, capital, and the networks of cross-border commerce that connect economies across the world are increasingly viewed both as a source of prosperity but also vulnerability. With these dynamics, it is not surprising that governments across the globe have taken a more proactive interventionist stance in mitigating the risks of supply chain disruptions and ensuring greater resiliency. The number of newly imposed countervailing measures — in response to subsidized imports — has risen from an average of 4 per year in the period from 2004-2007 to 30 per year over the past four years (Figure A2). Industrial policy interventions have exploded: global industrial policy interventions rose from less than 70 in 2010 to over 1,500 in 2022 (Figure A3).

**Figure A2**
**Countervailing Policies**
**(number)**

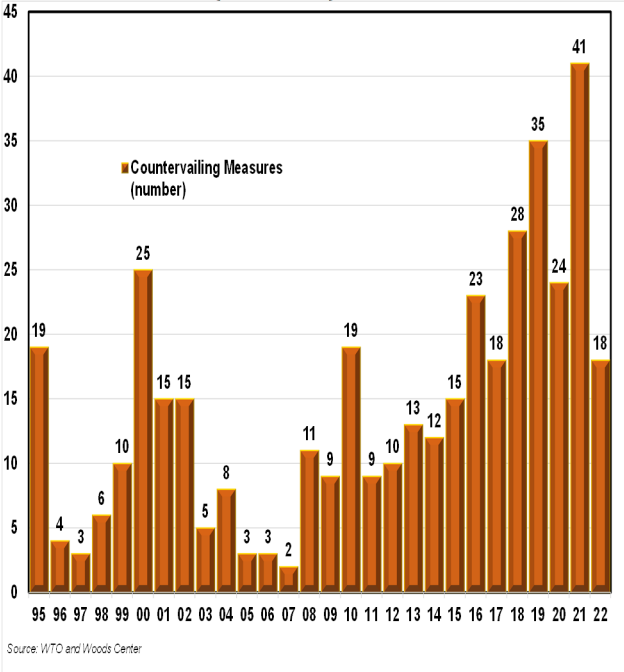
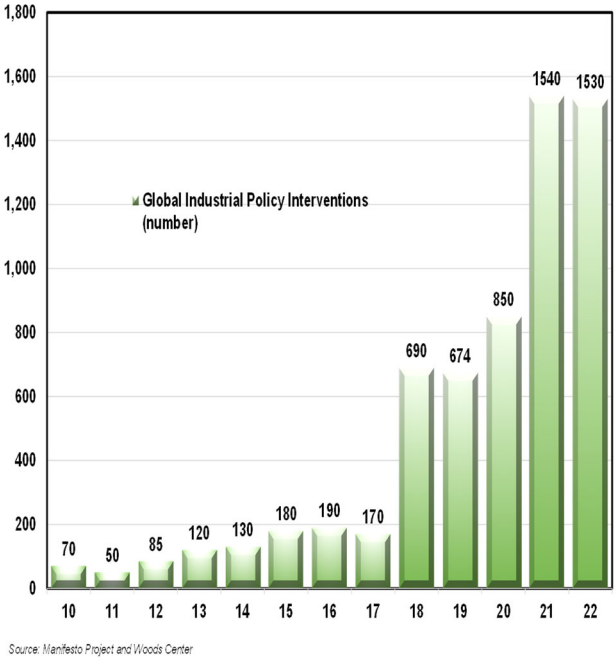
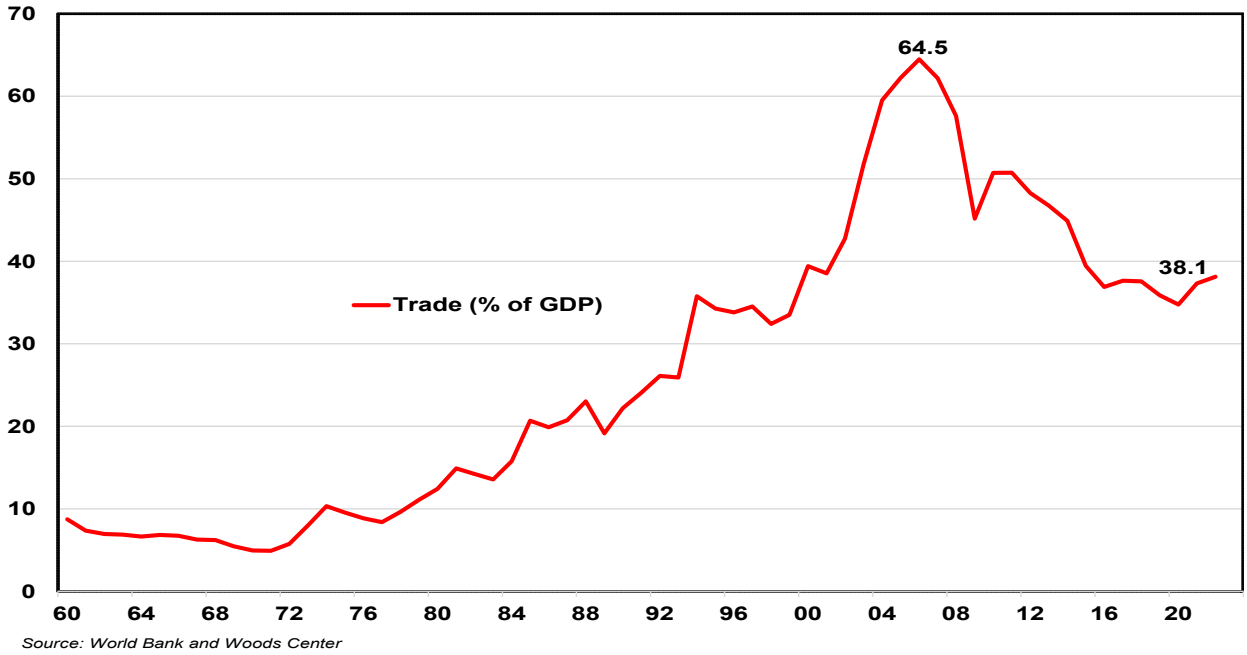



**Figure A3**
**Global Industrial Policies**
**(number)**




This has stoked fears that a complete reversal of globalization is in the offing. Our view is that these concerns are somewhat overblown. Rather than collapsing, global trade flows have simply not grown as fast over the past decade and a half as they did from the mid-1990s to 2007. There are many reasons for this, and most have nothing to do with the stalling of trade liberalization or political pressure to shift away from globalization. First, as the process of globalization matures, trade flows are bound to slow from the fast pace of the golden age. As developing countries are integrated into the global supply chains, they open their markets, boost production, and develop. But this process also means that they will eventually become more inwardly focused and boost domestic consumption. China is a prime example: as it gets wealthier, it has turned away from its outsized dependence on trade: its trade share of GDP has fallen sharply since 2006, from nearly 65% of GDP to a current 38% (Figure A4).

**Figure A4**
**China's Pivot: Trade as Share of GDP Has Declined as the Country Grows**
**(merchandise trade, exports and imports, percent of GDP)**




*Source: World Bank and Woods Center*

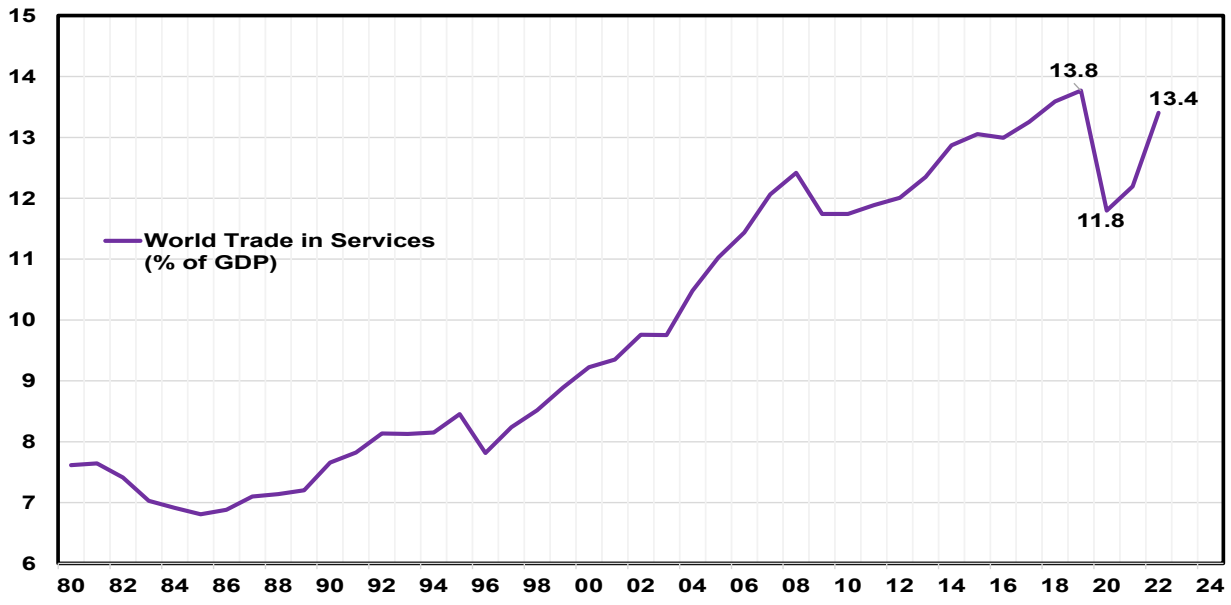
In fact, the story of "de-globalization" (as captured by the decline of trade as a share of global GDP) is, first and foremost, a reflection of these internal adjustments within China. Global trade as a percentage of GDP reached a peak in 2008, at the onset of the financial crisis. However, this appears to be a mere coincidence —reflecting primarily structural adjustments within the Chinese economy — rather than a feature of the crisis. For example, the peak in the trade share of GDP in the U.S. occurred in 2011, while in Japan it was in 2014. For the European Union, the trade share of GDP has yet to reach a peak. Clearly, China's adjustments away from export-led growth towards more inclusive domestic-driven growth is one of the main reasons why global trade as a share of GDP has stagnated over the past fifteen years.

The second reason is that the quest for hyper-efficiency, which propelled the era of hyper-globalization, may have run its course, or more precisely, may have run out of "low-hanging fruits." Foreign labor no longer has the same cost benefits it did a quarter of a century ago: Chinese factory wages rose by 400% from 2009-2020, far outpacing the 30% increase in the U.S. manufacturing sector. The initial expansion of global value chains (GVC) to countries positioned at the assembly line of GVC caused these economies to open up significantly to foreign markets because they imported many of the intermediate goods and exported the finished products, thus boosting global trade. In fact, "production unbundling" —the degree to which production can be unbundled in multiple stages, allowing specialization and comparative advantage — rapidly picked up at the early stage of modern globalization, further contributing to deeper integration across countries. But, as countries develop and grow, they end up sourcing many intermediate supplies internally, thus reducing the need for

multi-step cross-border trade in the production of goods. This results in "less trade" as products cross borders fewer times than in the initial stage of globalization.

The third reason for a pullback from hyper-globalization has to do with an organic compositional change within domestic sectors: as countries grow and develop, consumer demand and production tend to reorient from manufacturing towards the service sector. Because services tend to be more localized, they are generally less traded than goods. The good news is that trade in services should continue to increase, boosting overall trade growth. Indeed, trade in services as a percentage of GDP grew from 7.4% in 1980 to 13.4% in 2022 and is only a hair below pre-pandemic levels (Figure A5). Its resiliency is remarkable: Figure A5 shows a robust rebound from the pandemic slide. Nonetheless, trade in services is bound to grow less rapidly than trade in goods, given the more localized delivery of services and the relatively less open nature of production and consumption of services.

**Figure A5**
**Trade in Services Has Rebounded Strongly from the Pandemic**
**(world trade in services, percent of global GDP)**




*Source: World Bank and Woods Center*

While multilateral trade negotiations have stalled and WTO is struggling to maintain its relevance, regional trade deals have flourished: more than half of global trade now falls under a regional trade agreement. In 2000, 97 regional trade agreements were in force: that number more than tripled to 353 in 2022. Indeed, regional agreements are now the main tool for more international trade liberalization as countries form partnerships that extend beyond tariff reductions to include deeper collaborations in the form of regulatory harmonization and economic integration. In 2022, more than 30% of global trade fell under one or more of these deeper trade agreements. Of course,

the degree of "deep" trade integration varies from one regional agreement to another, and while not all deliver deeper integration, they generally tend to strengthen cooperation between countries with similar geostrategic objectives.

The **Regional Comprehensive Economic Partnership (RCEP),** which came into effect in January 2022, is the world's largest free trade agreement, covering around 30% of the global economy. It ties under a single free trade agreement the original members of the Association of South-East Asian Nations (ASEAN) and several other countries in the Asia-Pacific: Australia, China, Japan, New Zealand, and South Korea. Given its size and interconnectedness in global trade and supply chains, China will undoubtedly have an outsized impact (and reap substantial benefits from the agreement) as it is either the largest or second largest trading partner to each member country. The scope of the deal is less ambitious in terms of trade integration, but this is expected given that the signatories range from developed economies (Japan, Singapore) to developing nations (Myanmar, Laos). The agreement aims to lower tariffs on 90% of goods traded within the block, but over a 20-year period and even then, tariff reduction requires ratification by all 15 members. The RCEP covers market access and "most favored nation" status for certain trade in services, claiming that it will open trade in 65 percent of service sectors, but the regulatory framework for services so far appears to be rather shallow and patchy. The agreement does not address trade in a thorny sector — agriculture — and allows countries to maintain high import duties on "sensitive sectors."

The **Comprehensive and Progressive Agreement for Trans-Pacific Partnership** (CPTPP) is the "orphaned child" of the original TPP, from which the U.S. withdrew in 2017. Without the U.S., the remaining 11 countries (Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam) moved forward with a new agreement, a revised version of the original TPP. With the U.S. out of the pact, the new agreement has less robust intellectual property protections and fewer labor and environmental rules. Nonetheless, it is one of the regional trade agreements that produces deeper integration between countries. It immediately eliminates tariffs and reduces trade barriers for 98% of exports among its members (except for sensitive sectors), and it covers trade in a wide range of service subsectors. The CPTPP aims for greater regulatory harmonization and requires its members to make more significant changes to their own legal and regulatory regimes. China has applied to join the pact even though some of its own practices — state-run enterprises, mercantilist policies, and issues with intellectual property rights — run counter to some of the main principles of CPTPP.

The **African Continental Free Trade Area** (AfCFTA) was launched in 2018 and came into effect in May 2019, having been ratified by 43 African countries with 11 additional countries on its path to membership. In terms of the sheer number of participants, it is the largest free trade agreement in the world. The AfCFTA aims to tackle trade obstacles starting with the removal of tariffs on 90% of goods within five to ten years. It intends to liberalize trade within the continent: a mere 18% of Africa's trade is intra-regional, far less than Asia's (58%) and Europe's (68%). The agreement

is still in its infancy, as little trade has been carried out under its auspices. Additional rounds of talks are slated to expand to thornier issues such as investment, competition, and intellectual property.

There is one major looming absentee from all these regional trade negotiations: the U.S. (India is another one). While America continues to remain a leader in issues of international security, it has retrenched from the development of many regulatory systems and trade pacts that are shaping global interconnectedness today. This pullback began in 2010 and continues to this day across different administrations, reflecting a unified approach to global relations across both major political parties. Indeed, a rethink of America's commitment to international institutions has characterized the U.S. involvement abroad over the past decade and a half, with a sharper focus on protection against foreign threats (both strategic and economic), often leading to erections of barriers (walls) that range from trade policy to economic sanctions.

There are good reasons for such a rethink, chief among which is the realization that the type of globalization we have achieved thus far has failed to deliver on the promise of broad-based and inclusive growth: gains from trade have tended to be rather concentrated and relatively few efforts were made to disperse them more widely. Most importantly, trade integration has strengthened business relations between the West and undemocratic regimes in the Middle East, Russia, and China, bolstering autocratic regimes around the world. When China first joined the WTO, the hope was that as it integrated further into the global economy, it would liberalize and become more democratic. These hopes were ruthlessly quashed over the ensuing two decades. Russia's invasion of Ukraine is another reminder that dependence on anti-democratic regimes for critical resources such as energy, as was the case for the EU in the years leading up to the war, is a fatal error.

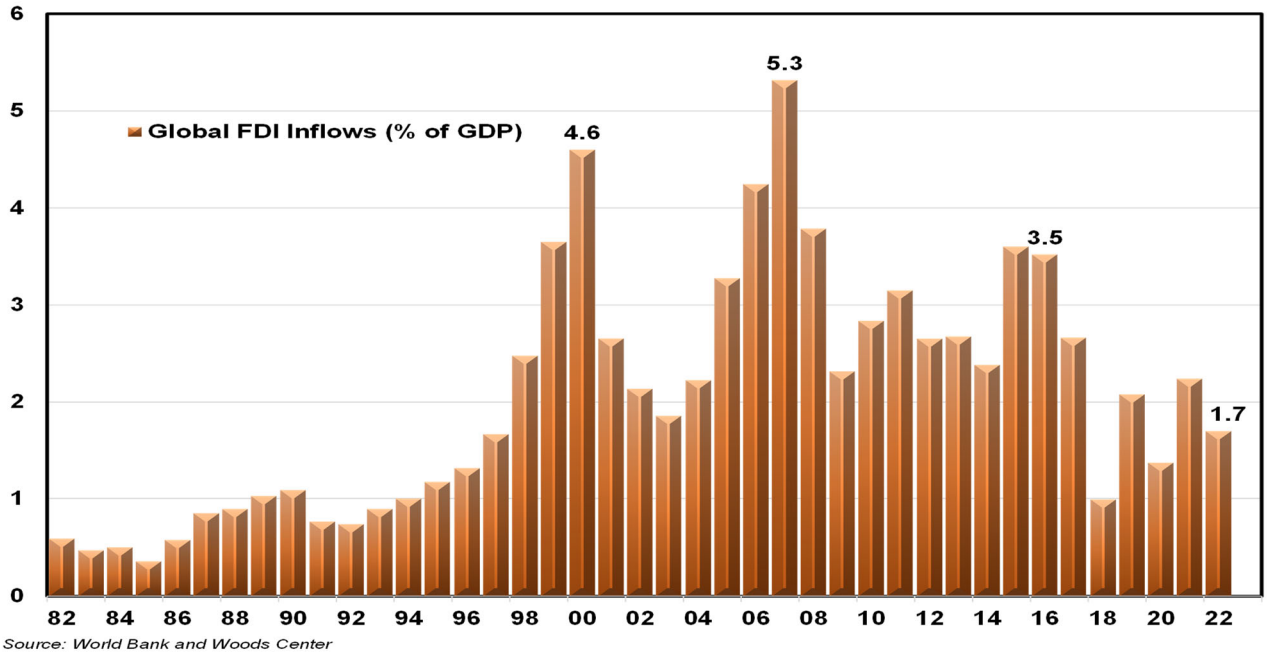
Having said that, early signs are emerging that the U.S. is beginning to re-engage in this new world of cliques and walls. A new cooperation between the U.S. and EU — the U.S./EU Trade and Technology Council— was established with the sole purpose of creating a deeper harmonization of the regulatory landscape between the U.S. and Europe. The I2-U2 group, championed by the U.S., brings together America, India, Israel, and the UAE to undertake new joint investments in several sectors, such as energy, food security, water, transportation, and space. The U.S. and G-7-led partnership for Global Investment and Infrastructure seeks to counterbalance China's Belt and Road initiative. America has also spearheaded the **Indo-Pacific Economic Framework** (IPEF), seeking to realign trade relationships in the Indo-Pacific. The IPEF is distinctively not a trade agreement: Congressional approval is needed for new trade deals, and it appears that Congress these days has little appetite for new trade agreements. But it does represent a broader cooperation among the U.S. and Indo-Pacific countries along four pillars: cooperation on green energy and climate change, increased resiliency in supply chains, fighting tax evasion and money laundering, and boosting trade, especially digital trade. Progress has been made along the first three pillars. A signed agreement to cooperate more on supply chain integration was announced in November 2023, with an agreement in principle to fight corruption and cooperate on climate change. However, the last pillar — trade — suffered a setback when the U.S. declined to agree on even a partial deal on enforceable trade rules.

The new world emerging after the pullback from the era of hyper-globalization is one of cliques and walls. The U.S. is seeking to re-engage in the new framework, redefining some cliques and building additional walls to preserve sectors vital to national security and boost economic competitiveness. The one-world club built after WWII and expanded over the past few decades is splintering, or at a minimum, is being replaced by a set of more stringent, exclusive regional clubs, where integration and economic cooperation run deeper through regulatory harmonization and legal systems that are more closely aligned. We expect the U.S. leadership role to reassert itself in some of these clubs, leading to a deeper economic interconnectedness but also erecting a few walls/fences across which economic cooperation slows significantly.

## A.2 Fragmented: FDI Flows in a World of Cliques and Walls

The emergence of a new order along geopolitical and geoeconomic fault lines is nowhere more evident than in Foreign Direct Investment (FDI) flows. Unlike trade, FDI flows have struggled significantly since the global financial crisis. As a share of global GDP, FDI inflows reached a peak of 5.3% in 2007, right before the onset of the financial crisis, but declined precipitously since then, accounting for a paltry 1.7% of GDP in 2022 (Figure A6). FDI inflows actually fell in 2022, from $2.2 trillion in 2021 to $1.74 trillion. Both figures are far below the record $3.1 trillion set in 2007.

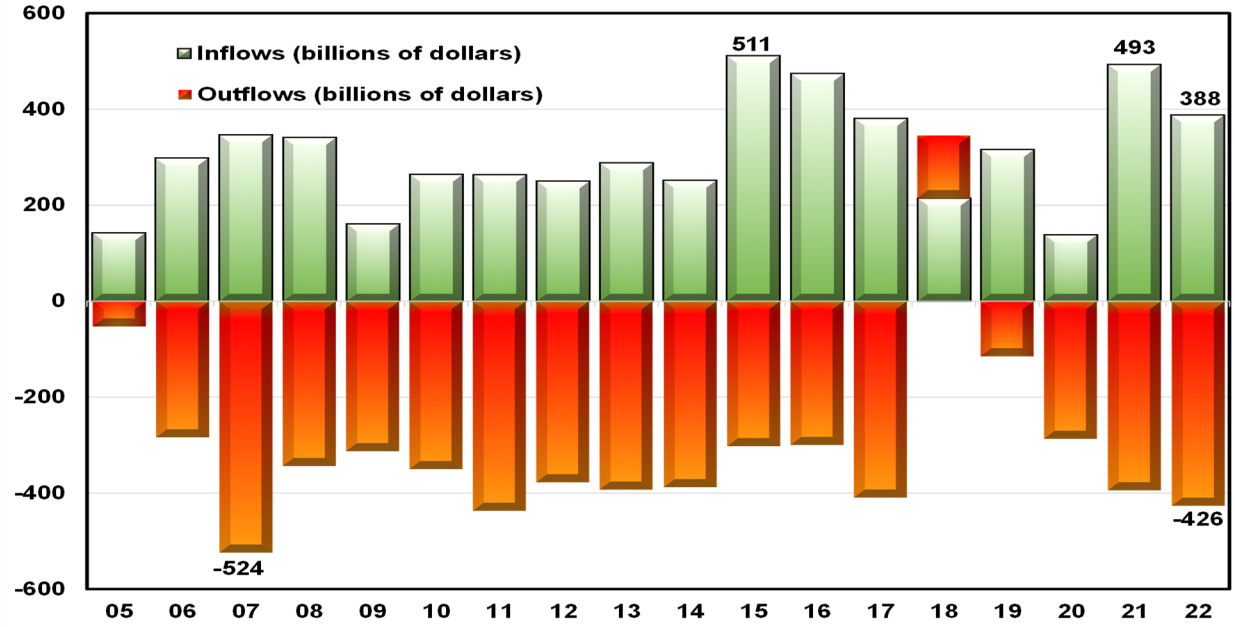
**Figure A6**
**On a Downtrend: FDI Flows Have Declined**
**(FDI inflows, percent of global GDP)**




Source: World Bank and Woods Center

A similar picture emerges in the U.S., where FDI flows appear to have also experienced a pullback. FDI inflows have risen steadily over the past two decades, reaching $511 billion in 2015, but the pace has slowed since then (Figure A7). In 2022 (latest available data), FDI inflows rose by a more meager $388 billion. U.S. direct investments abroad have also topped off: they rose to more than $500 billion in 2007, before the onset of the global financial crisis, but have since been more anemic. These figures appear more worrisome when expressed as a share of GDP: U.S. FDI outflows as a percent of GDP have been cut by more than half, from around 3.6% in 2007 to 1.6% in 2022.

**Figure A7**
**U.S. FDI Inflows Have Stagnated**
**(billions of dollars)**



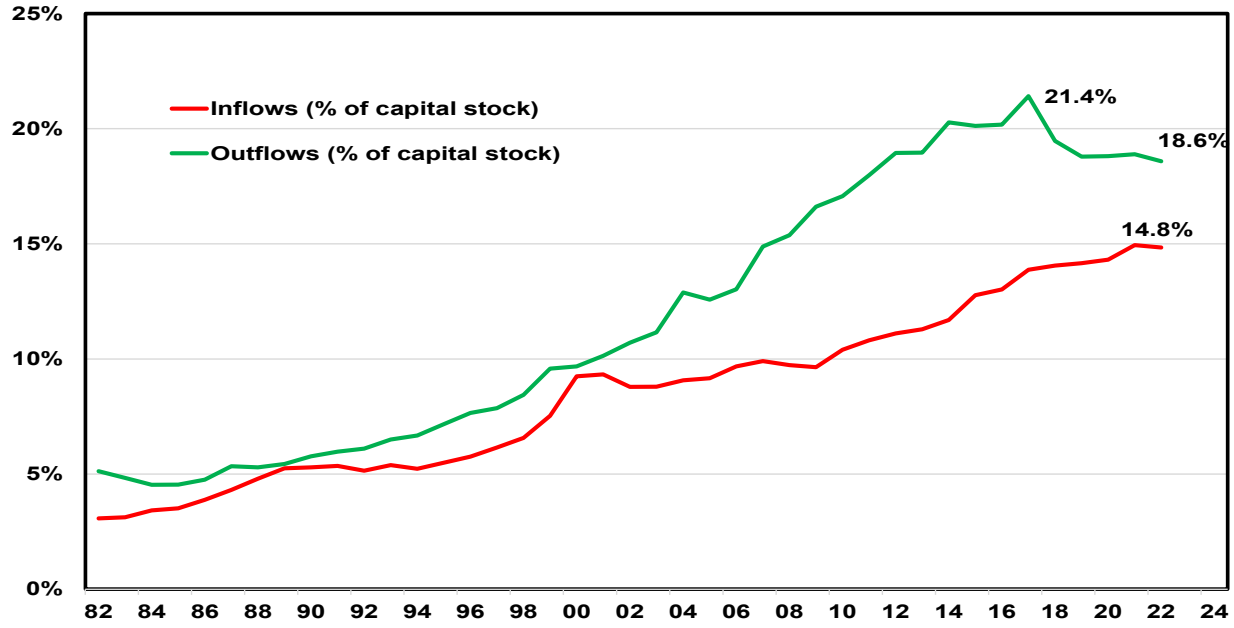

*Source: World Bank and Woods Center*

The stock of U.S. capital held abroad has risen steadily over the past few decades, from a mere $200 billion in 1982 to $6.6 trillion in 2022. As a share of total capital stock, U.S. FDIs abroad rose dramatically — from 5% in 1982 to 21.4% in 2017 (Figure A8). However, the ratio has receded in recent years, falling to 18.6% in 2022. U.S. companies are electing to hold less capital abroad relative to a few years ago, which likely reflects broader trends related to onshoring efforts and a re-mapping of supply chains. FDI inflows into the U.S. have fared better, as the clear upward trend in Figure A8 shows, but even here, the pace of capital formation has slowed: from 2010-2017, FDI inflows grew by a healthy 8.5% annual clip. That figure has declined to 5.4% over the past five years.

At the heart of the pullback in FDI flows is the increase in regulatory barriers to the cross-border movement of capital, a move that started at the end of the financial crisis but has ramped up considerably since then. Governments across the world, but especially in advanced economies, have taken a more heavy-handed approach to capital flows, erecting regulatory fences against countries

perceived to present a national security threat. In 2015, around 15 countries had a regulatory regime in place to screen foreign investments. By 2022, 49 countries did. UNCTAD, a UN agency charged with tracking investment policies across the world, recorded a historically high number of new measures restricting foreign investments in the last three years. The number of capital controls jumped from 10 in 2021 to 208 in 2022, while the number of restrictions for Foreign Direct Investments rose from 20 to 26. A full 63% of global FDI flows were subject to a screening regime in 2022, up from 52% in 2020.

**Figure A8**
**U.S. FDI Outflows Have Shrunk as Percent of Capital Stock**
**(percent of capital stock)**




*Source: World Bank and Woods Center*

Countries like the U.S. and Germany have significantly expanded the scope and reach of their investment reviews to cover a wide range of sectors. The UK has likewise expanded its original 2002 Enterprise Act, which allowed a limited screening of foreign investment, into a National Security Act (in 2022), which enhances the reach and scope of government reviews. In 2021, the EU operationalized its EU Foreign Direct Investment Screening Mechanisms, which establishes a broad set of criteria for investment screening of member countries. Countries like Denmark and Switzerland, which have no established regulatory framework for FDI inflows, are rushing to implement them. In the U.S., the government scrutinizes both inbound capital flows and outbound ones, prohibiting U.S. citizens from investing in Chinese companies in sectors deemed sensitive to national security. The range of sectors has expanded to include not only those directly related to national security (defense, telecom, energy) but also other sectors deemed vital to the economy and economic competitiveness, such as health, AI, quantum technology, and data-centric sectors.

The new shift towards an expanded government role in cross-country capital flows has taken many forms. First, there is an expansion on the range of sectors that are being scrutinized: the UK has

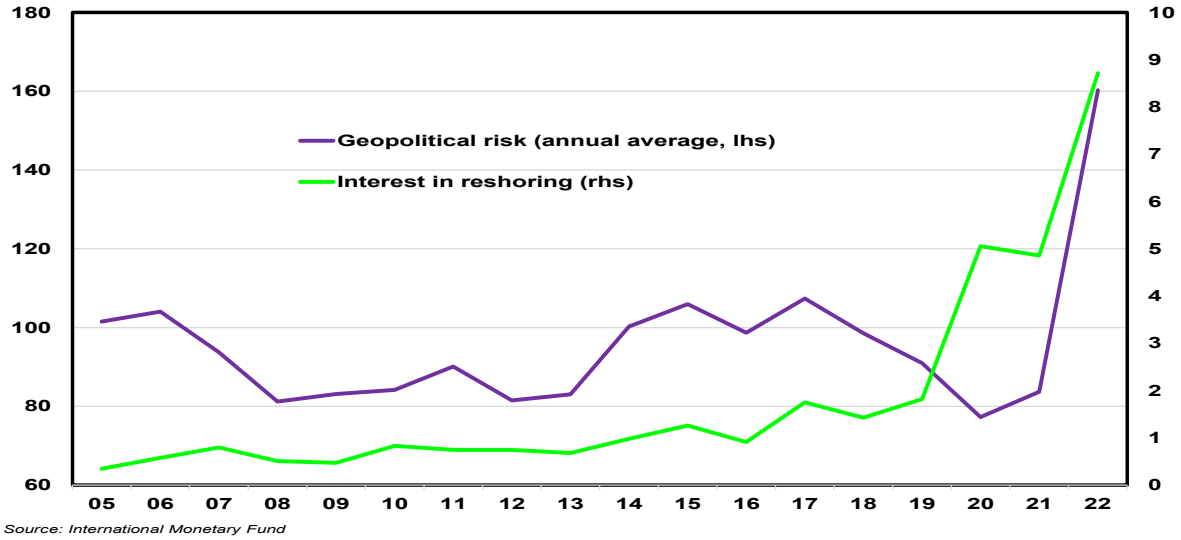
identified 17 "sensitive" sectors; the EU emphasizes the impact of new capital flows on "health infrastructure and supply of critical inputs"; the U.S. considers the impact on the local economy, competition, and the environment. Second, the scope of government review is expanded beyond "sensitive" sectors, allowing for ex-post scrutiny of foreign investments even for transactions that are non-sensitive but that are deemed to be "of interest" to national security. Third, there is an increased focus on China for both inbound and outbound FDI flows. The U.S. considers not only China-specific FDI flows but also scrutinizes third-party investments with potential ties to China. The UK has blocked several high-profile Chinese investments into the country, the most notably Huawei's bid to supply its 5G network. Over the past two years, all blocked publicly available transactions in Germany and Australia involved a Chinese investor.

The U.S. has long maintained an Entity List, a list of companies that must apply for permission to purchase various goods with potential military or national security uses. The number of unique China-based companies on the list has exploded from 130 in 2018 to 532 in 2022. In fact, China accounts for more than a quarter of the 2000+ firms on the Entity List. In an effort to restrict investments in semiconductor production in China, the CHIPS Act bars companies that receive subsidies from investing in chip manufacturing in China.

As expected, increased scrutiny on investments has led to more reviews, barriers, and more blocked deals. In 2018, only 78 transactions were reviewed in Germany; that number exploded to 306 in 2021. In the U.S., the Committee on Foreign Investment in the United States (CFIUS) opened 489 investigations from 2018-2021, nearly double the number recorded from 2012-2016. The CSIUS has also become more active in blocking transactions outright: from 2016-2021, 5 transactions were referred to the U.S. president and blocked, a fivefold increase compared to only one transaction from 2011-2015.

Not surprisingly, this increased scrutiny has skewed FDI flows to align more closely along geopolitical and strategic lines, as well as friend-shoring or near-shoring far-flung supply chains. As countries take more concrete steps to strengthen domestic manufacturing in strategic sectors, more FDI fragmentation is expected to take place. A recent IMF study found a staggering increase in the usage of the terms "friend-shoring" and "near-shoring" on earnings calls, which coincides with a rise in geopolitical risk (Figure A9).

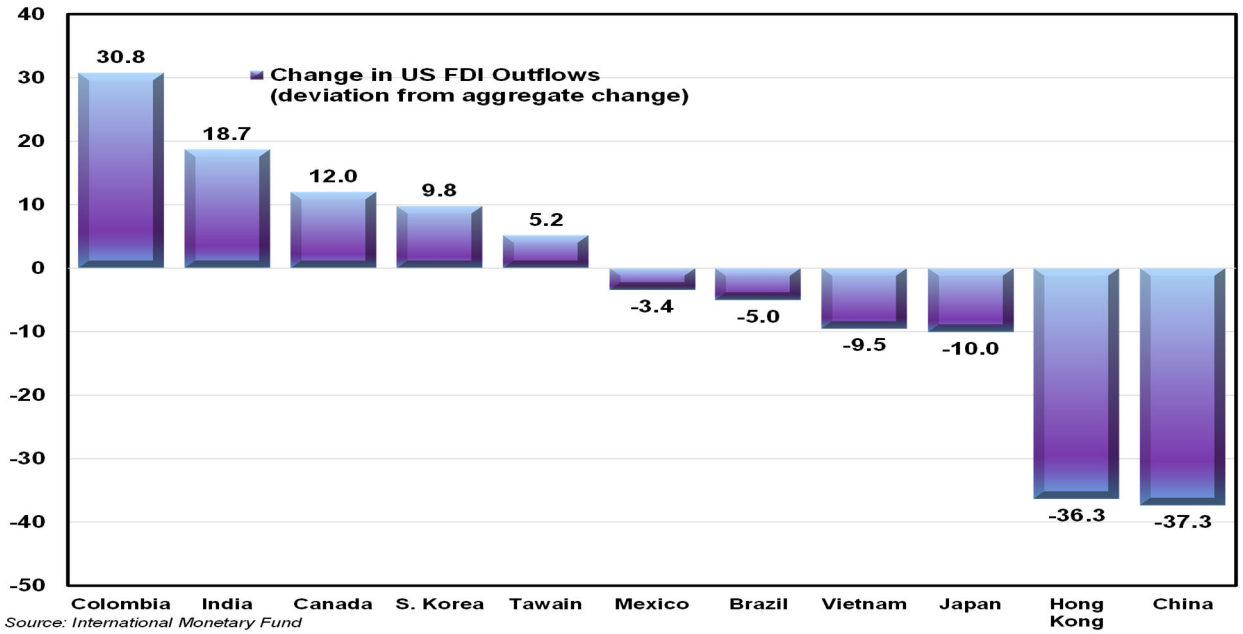
**Figure A9**
**FDI Fragmentation is Occurring in Line with Geopolitical Fragmentation**
**(geopolitical risks and interest in reshoring, indices)**




*Source: International Monetary Fund*

Micro-level data on new (greenfield) FDI from fDi Markets, which provides coverage on over 300,000 transactions, show an even more stark acceleration of FDI fragmentation along geopolitical lines. For example, overall outward U.S. FDI flows dropped by -24% from the second quarter of 2020 to the fourth quarter of 2022 compared to the 2015-2020 period. Nonetheless, the pain was not evenly distributed as U.S. FDI flows to Canada and South Korea rose while those to China fell (Figure A10).

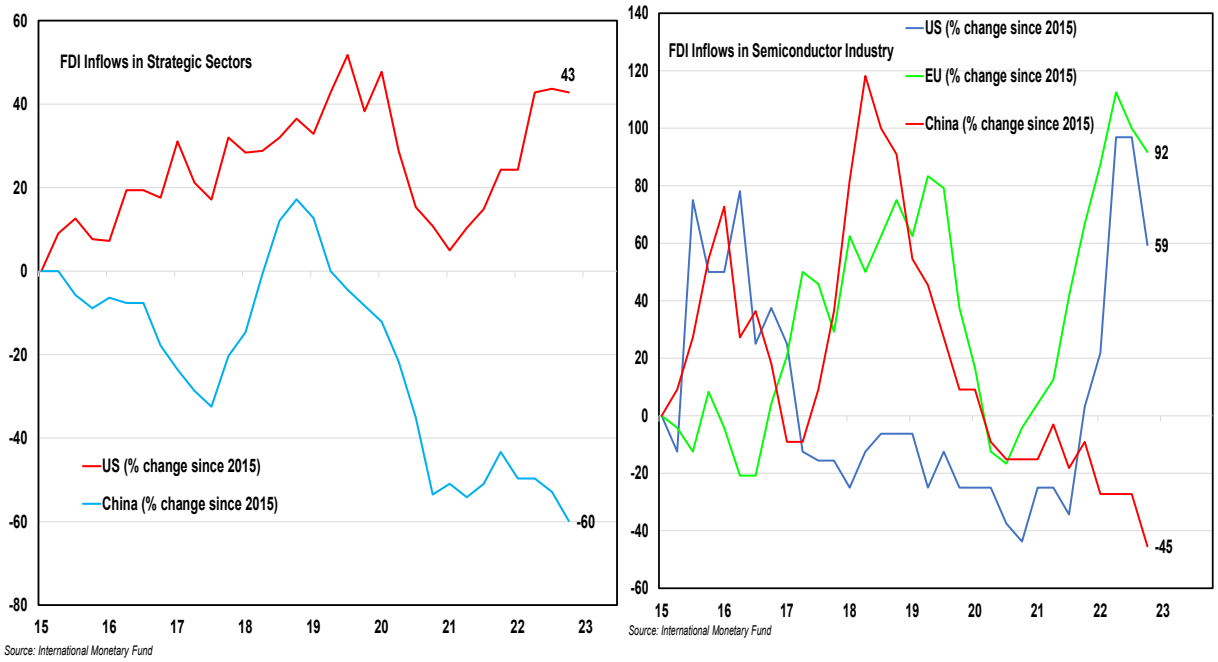
**Figure A10**
**U.S. FDI Flows Are Increasingly Directed Towards More "Friendly" Countries**
**(percentage point deviation from aggregate change)**




*Source: International Monetary Fund*

We expect the trend of FDI fragmentation along cliques and walls — increasing investments within blocks while blocking FDI flows from less friendly countries — to continue, as the quest to strengthen domestic security and maintain technological advantage will not only persist but ramp up. The fragmentation will be particularly acute in strategic sectors (such as semiconductors). This is already happening: the market share of China's FDI inflows in strategic sectors has dropped by 60% since 2015, whereas FDI flows to the U.S. have risen by 43% over this period (Figure A11). In particular, FDI inflows for the semiconductor industry have picked up robustly both in the U.S. (up nearly 60%) and the EU (up 92%) but have fallen by 45% in China. The diversification away from China, especially in strategic sectors, will continue to prevail and, we believe, will intensify over the next few years.

**Figure A11**
**FDI Inflows in Strategic Sectors: More Resilient for U.S. and EU, less for China**
**(percent change from 2015)**

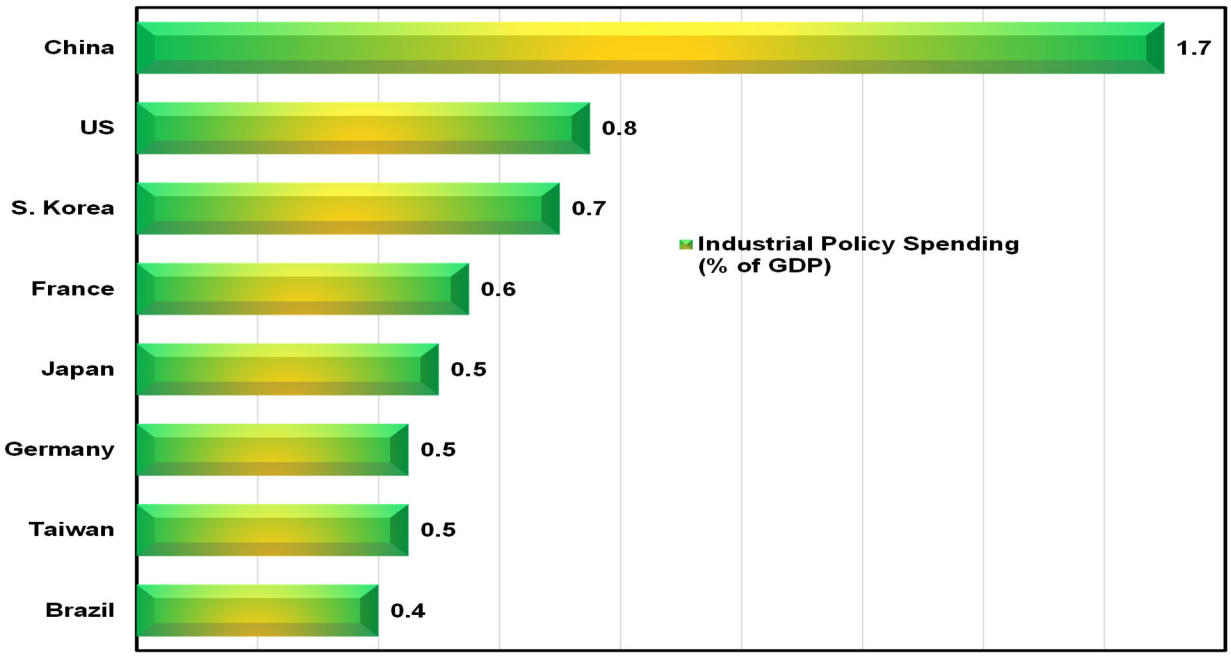



## A.3 The Comeback Kid: Industrial Policy on the Rise

Industrial policy, once shunned and taboo, is making a strong comeback across the globe. The revival of state activism is another venue through which the world of cliques and walls is reasserting itself. It is driven by deep and profound forces: China's spectacular growth brought forth in part by a muscular industrial policy; the sense that competitiveness and advantage in key industries are slipping away from advanced economies; the need to secure supply chains and make them more resilient; growing geopolitical tensions; and the fact that industrial policy tends to become contagious and pervasive. The conversation in policy circles these days, both in Washington and Brussels, is not whether industrial policy should be pursued but how to lean on it more effectively.

The U.S. has been at the forefront of efforts to revive industrial policy. Thanks to three gigantic bills, it plans to spend lavishly on green transition, climate change, infrastructure, semiconductors, AI, and other advanced manufacturing areas. At $1.2 trillion, the bipartisan infrastructure law passed in November 2021 assigns more than $20 billion for new clean-energy technologies and $8 billion for electric charging stations. The CHIPS act promises $52 billion in semiconductor investments and an additional $220 billion in other advanced fields, bringing the overall tally to $280 billion. The Inflation Reduction Act earmarked $391 billion to combat climate change, including investments in renewable energy. However, because tax credits are not capped, more consumers and manufacturers will benefit from the law, increasing its cost to a staggering $1.2 trillion, three times its original estimate (*Goldman Sachs*). All told provisions on climate change alone would tally up to $500 billion over the next five years, accounting for around 0.7% of U.S. GDP and surpassing spending by countries long known to be enthusiastic practitioners of industrial policy (such as France and Japan) (Figure A12). This is still far less than China, where government spending on infrastructure comes to about 1.7% of GDP and where government subsidies make up as much as 5% of the share of companies' profits (up from 3% in 2012), but the trend has unmistakably shifted towards a more statist vision and more muscular government involvement.

**Figure A12**
**Industrial Policy is Making a Forceful Comeback**
**(spending as percent of GDP)**

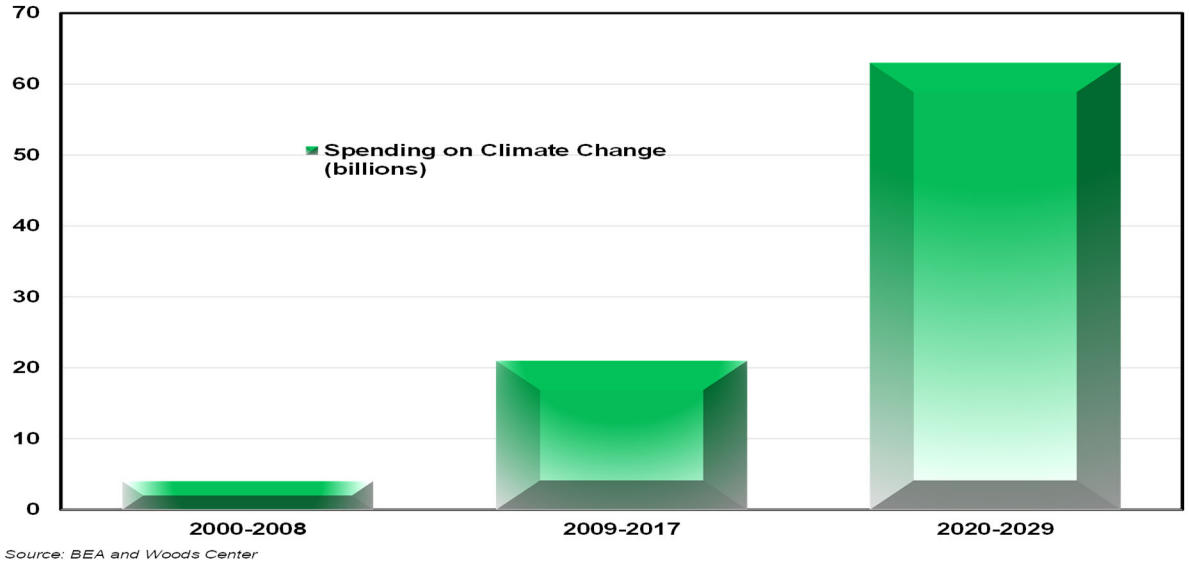



The U.S. is not alone. The European Union has begun to revive its own industrial policy, launching and promoting the "Important Projects of Common European Interest" (IPCEI), which allows member states to subsidize EU companies. The IPCEI is thriving in some sectors such as

batteries, hydrogen, microelectronics, etc., lavishly spending billions of euros on public and private funding to build and maintain European leadership in these areas. The European Chips Act earmarks 43 billion euros to develop the EU's strength in semiconductor supply chains. It is also considering its own version of the IRA. Japan is also enthusiastically embracing industrial policy, increasing its budget for science and technology by a whopping $10 billion in an attempt to incentivize domestic manufacturing, especially for the production of semiconductors (for which it is shelling out $4.6 billion). 57 Japanese companies will receive subsidies of around $500 million to relocate and produce at home. India is offering $26 billion in incentives to lure back firms into the country. All told, subsidies among G7 members rose from 0.6% of GDP in 2016 to a staggering 2% in 2022.

The biggest beneficiaries of this enthusiastic embrace of industrial policy on a global scale have been green technology companies and the semiconductor sector. Take green energy first: in the U.S. alone, spending has tripled from around $20 billion per year from 2009-2017 to a projected $62 billion from 2020-2029 (Figure A13). The splurge on green projects could go as high as $100 billion per year over the next five years if one were to consider broader investments in infrastructure. States are also getting in the game: Georgia recently provided a $1.5 billion package of financial incentives to Rivian, a California-based startup firm producing electric trucks and SUVs, and $1.8 billion to Hyundai for an electric vehicle plant. Elsewhere in the world, plans for green subsidies are equally ambitious. The European Commission is committed to provide $270 billion to clean-tech companies. It is also planning to bring forward the date for the block's target to double its installed solar capacity from 2030 to 2025. Japan wants to put $150 billion worth of subsidies towards its Green Transformation policy. The overall spending on green technology projects around the world over the next few years is likely to reach a jaw-dropping $1.3 trillion, according to the International Energy Agency.

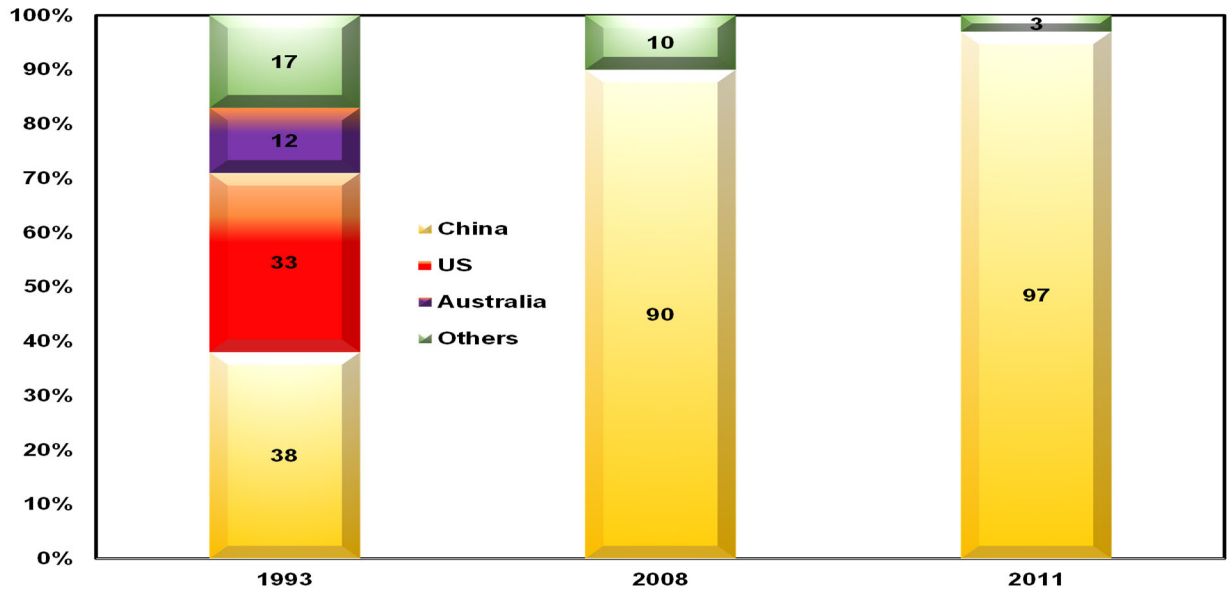
**Figure A13**
**Climate Bonanza: U.S. Spending on Climate Change Has Tripled**
**(billions of dollars)**



A golden era has also dawned for the semiconductor sector. As of 2023, subsidies for the sector amounted to more than 60% of annual revenues of the industry. The U.S. has committed $53 billion; the EU has earmarked $180 billion of its COVID-19 recovery funds towards digital innovation, especially in chip production. The Indian government is footing half the bill for a chipmaking plant; South Korea is offering generous tax breaks for new semiconductor factories. Japan is reviving its own advanced semiconductor manufacturing sector, investing $500 million in a joint venture with eight other domestic firms in the formation of Rapidus, a new chipmaking company. In the U.S. alone, more than 40 new semiconductor projects have been announced since 2021 worth around $200 billion spread across 16 states. Intel is building a chip plant in Ohio, Micron in New York, and the Taiwanese Semiconductor Manufacturing Company (TSMC) is planning to build two in Arizona (and two in Japan).

More efforts are also being made to diversify the sourcing of rare earth materials, which are instrumental in the production of high-tech electronics from TVs, cell phones, rechargeable batteries, wind turbines, medical devices, computer memory, fighter jets, and laser-guided missiles. China has a chokehold on the production and mining of many rare earth minerals: in 1993, only 38% of the world production of rare minerals was in China, with 33% in the U.S. and 12% in Australia. By 2008, China accounted for more than 90% of the world's production of rare earth minerals, a figure that had risen to 97% by 2011 (Figure A14). This year, China is expected to produce 98% of the world's supply of spherical graphite used in battery anodes. It also has a chokehold on a number of critical industries, accounting for 80% of raw materials and manufacturing of solar panels.

**Figure A14**
**China's Chokehold on Critical Rare Earth Materials Has Increased**
**(percent of world production)**



This was not an accident: China has invested heavily over the years in technologies to mine and process rare earth materials. However, other countries are now beginning to respond. Significant amounts of rare earth materials exist in other parts of the world: the U.S., Canada, Australia, India, and the deep seabed have large untapped reserves. Sixteen of the seventeen rare earths are in the U.S., in a west Texas site. Until 2017, no rare earth minerals were mined in America. However, since then, the Department of Defense has supported several projects for mining and processing, opening the Elk Creek Mine in Nebraska, Bear Lodge Mine in Wyoming, Round Top in Texas, and the Mountain Pass Mine in Southern California. All told, in five short years, the U.S. has managed to ramp up mining of critical raw materials and is currently producing 12% of the global supply of unprocessed rare earths. The U.S. is also planning to invest in processing facilities in Texas and California.

Will this reincarnation of industrial policy bear fruit? Industrial policy is, of course, not a novel concept, and throughout the course of history, countries have applied it with various degrees of success. Agriculture and aircraft have long been subsidized. Post-war Japan developed a robust semiconductor industry thanks in large part to heavy investments by the government in the sector. Early in its industrial development, South Korea heavily subsidized exports by offering credit subsidies for firms in order to meet their export targets. Later, it focused on heavy chemical industries, explicitly targeting capital-intensive industries. In the U.S., NASA helped draw capital into innovative technologies, pursuing R&D work into infant/nascent technologies that may otherwise not have taken a firm hold. At some point in the mid-1960s, government support for the program reached as high as 0.8% of GDP. The Defense Advanced Research Projects Agency (DARPA), an arm of the Pentagon, has helped develop universal technologies such as GPS and the internet.

But the historical record of industrial policy is, at best, mixed. History is replete with examples when it not only failed spectacularly but did so at extraordinary costs. Lavish government subsidies failed to secure investments from Foxconn, an electronics manufacturer, in Wisconsin in 2017. In 2012, Solyndra, a government-supported solar company, went bankrupt despite generous government loans. Japan is a cautionary tale that, while industrial policy may ramp up growth, it may also create low-growth scenarios that last for decades if the government is unable to adapt to secular trends and respond to economic shifts. China is another example: the overinvestment in infrastructure and the property sector boosted by lavish government support has delivered empty apartment complexes, ghost towns, roads to nowhere, and airports with no traffic.

It is no surprise then, that economists tend to be less enamored with industrial policy than politicians. Industrial policy, the argument goes, is fraught with inefficiencies and is vulnerable to both rent-seeking and regulatory capture. It is also unclear why governments — rather than, say, the private sector — would be best suited to pick winners and losers, when the track record of doing so is rather shoddy. Policies sometimes end up propping zombie firms which are an outright drain on resources. It may lead to overproduction and misallocation of capital. In some cases, the temptation is too big to pursue aims that are either only tangentially related or outright incompatible with each other, which in the end dooms the policy itself.

Our view on industrial policy is less dogmatic and more pragmatic. Industrial policy may work if its implementation sticks closely to a few key principles. First, rather than an unbridled enthusiasm, the approach to adopting it should be cautious, temperate, and restrained. "I like industrial policy advisors how I like my generals," Larry Summers, a former U.S. Treasury Secretary, once quipped. "The best generals are the ones who hate war but are willing to fight. What I worry about is that people who do industrial policy love doing industrial policy." Second, it should involve a hefty dose of fortitude, especially in allowing non-productive investments to fail. "Successful industrial policy is not about picking winners," says Rodrick, a Harvard economist, "it's about letting the losers go. Some of the worst cases of industrial policy are when you keep putting good money after bad." Third, there must be discipline and restraint in resisting the urge to over-allocate capital, which tends to result in over-capacity and over-production. Fourth, the regulatory overreach should be as light as possible. Fifth, and most importantly, the policy must have a clear focus on delivering measurable, concrete results rather than being all things to everyone.

The current industrial policy pursued by the U.S. has a few worthy goals: it aims at diversifying, shoring up, and fortifying supply chains. It wants to reduce the overreliance of critical sectors for national security on geopolitically vulnerable countries (Taiwan and South Korea for semiconductors) and potentially hostile nations (China). But it also wants to spur manufacturing, curb climate change, provide high-paying manufacturing jobs, and revitalize swaths of America left behind. That is a tall order. The policy will likely fail along a number of dimensions should all these aims be pursued simultaneously.

Doing industrial policy right means also being agile and less encumbered by regulatory overreach. The TSCM plans for building the first microchip plant in Arizona have been pushed back by one year and plans for a second factory are on hold for a variety of reasons, ranging from a labor dispute, labor shortages, slow disbursement of subsidies from the CHIPS act, negotiations over the share of U.S. government profits, and cumbersome environmental reviews. A survey of 200 semiconductor firms conducted by the Bureau for Industry and Security found that 64% of participants list environmental rules among their biggest regulatory issues, far more than the 21% which named export controls as their biggest worry and 18% that pointed to local zoning laws.

Inefficiencies will likely crop up, not in the least, because all the other advanced economies are lavishing support on the same things: semiconductors, AI, clean energy, and quantum computing. Obviously, it makes little sense for everyone to specialize in solar energy or wind industry. Yet, given the current trends, we will likely end up with duplicate sectors across the world. And production will not be allocated to the least costly supplier. According to TSMC, manufacturing costs of semiconductor chips in America are around 55% higher than in Taiwan, yet the U.S. is spending lavishly to build its chip plants. It is unquestionable that some over-production will occur. According to the French Institute of International Relations, global support for the semiconductor industry can easily reach $721 billion in 2025. Concerns abound that the period of lean chip inventories, which

characterized the post-COVID world, will be supplanted by a period of excessive glut, placing further strains on an industry notorious for its boom/bust cycles.

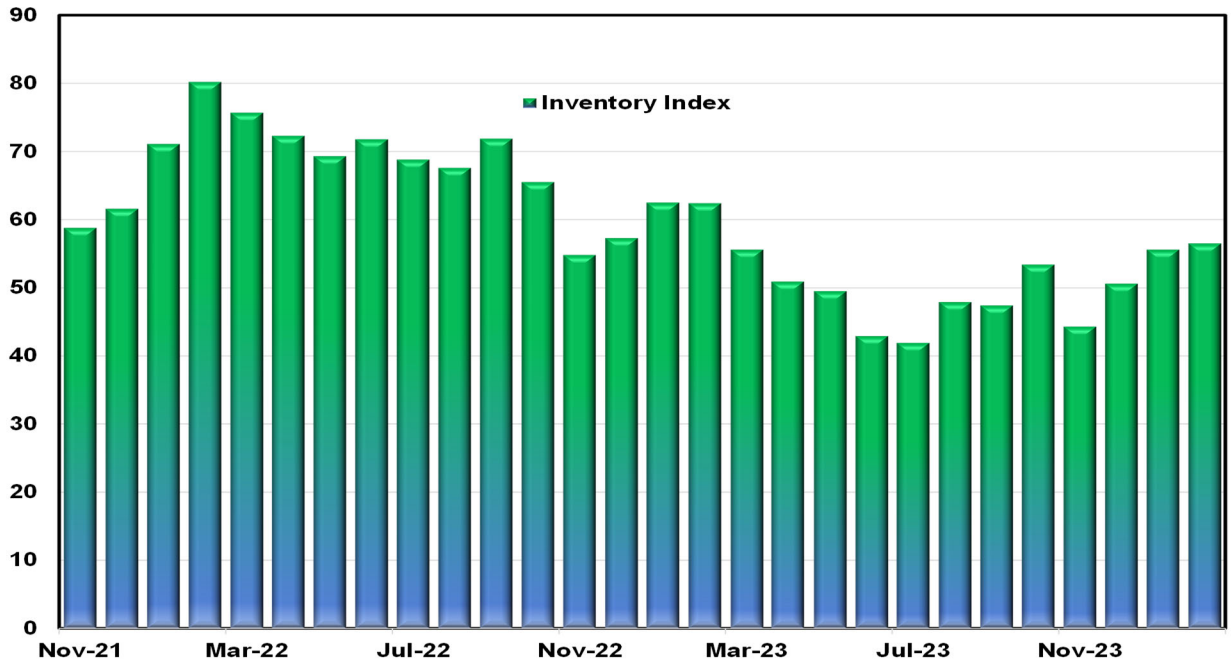
For a narrow slice of critical sectors, the steep cost is worth it. In its pursuit of industrial policy, America's goal should be the security and resiliency of supply chains, not the development of a national autarky of supply. American industrial policy has been most successful when objectives are clearly defined (e.g., developing a COVID vaccine) rather than engineering social and economic trends. Most importantly, it has succeeded in the realm of research and development in supporting innovations for risky endeavors that the private sector may shy away from. If focused on narrow objectives and a light regulatory touch, the current industrial policy has a chance to succeed. Let's hope it does!

### A.4 You Will Never Break the Chain: Global Supply Chains

Two seismic shocks — the pandemic and rising geopolitical tensions — have had a profound impact on global supply chains. Both were a stark reminder that supply chains were more fragile than originally thought, leading many companies to consider resiliency in business operations in addition to efficiency. The reconfiguration of global supply chains has taken many forms, from diversification to nearshoring/regionalization/reshoring/friendshoring, reducing the length of supply chains, restocking inventories, dual sourcing, and longer-term contracts. Most companies are strategizing for the long haul, sacrificing some short-term profitability for longer-term increased resilience.

One simple way to boost the resiliency and robustness of global supply chains is to build more inventory, replacing the old model of "just-in-time" (where inventory buffers last around two weeks) with "just in case." Since the pandemic, companies have done exactly that, increasing their share of precautionary inventories from 6% of world GDP in 2019 to 9% by 2022. On average, companies held 10.1 weeks of inventory in 2022, higher than the 8.1 weeks in 2021. Nonetheless, inventory restocking is not the most cost-effective way to shore up supply chains: with interest rates in most economies at a two-decade high, the cost of working capital tied up in excess inventories can add up. Indeed, as global supply chains continued to normalize, some pullback from the "just in case" model is beginning to materialize: In February 2024, the Logistics Managers' Survey, which measures the number of inventories held by U.S. firms, showed a decline of 9% compared to previous year's values (and is down by nearly 30% compared to cycle peaks set in February 2022) (Figure A15).

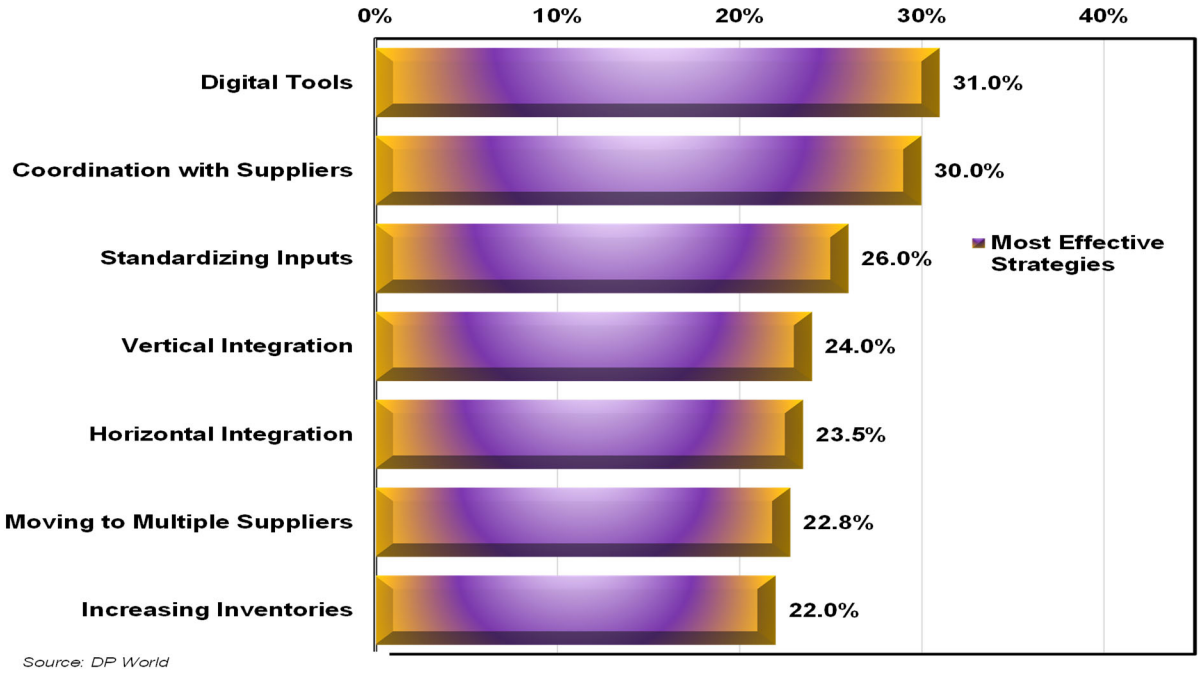
**Figure A15**
**Destocking: The Stock of Inventories is High but Less than in 2021**
**(index level)**




Another way to shore up potentially vulnerable supply chains is by changing the methods of production either by standardizing inputs or by vertical integration. General Motors has reduced the number of semiconductors used in its cars from 60 to three unique types that can be used for multiple purposes. Vertical integration is another way to cope with unwanted supply chain disruptions: Car companies are reshaping their business plans to mimic more closely the Tesla model where the company controls everything from nickel mining to design. The U.S. computer sector is now 50% more vertically integrated than in the mid-2000s.

However, the two most effective ways of increasing supply chain resiliency are: a) increasing the use of digital tools for inventory management and b) increasing coordination with suppliers. In a recent survey of 3,000 executives of large companies, published by DP World — a multinational logistics company based in the UAE — 31% of respondents cited the use of digital tools as the most effective way to manage inventories and fortify supply chains, while 30% cited coordination with suppliers (Figure A16). Horizontal (outsourcing more supply chain responsibilities) and vertical integration (insourcing more supply chain responsibilities) were the fourth and fifth most effective ways for reconfiguring supply chains. Increasing inventories was deemed as the least effective way.

**Figure A16**
**The Most Effective Strategies for Supply Chain Resiliency**
**(percent of respondents)**




*Source: DP World*

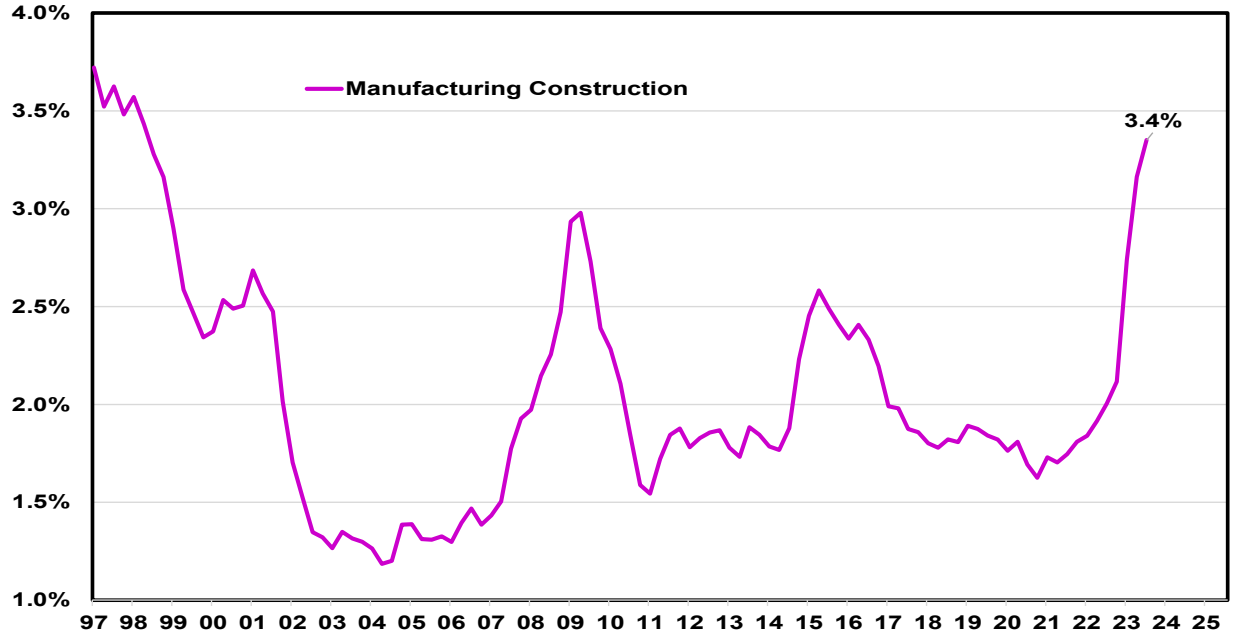
The rise in geopolitical tensions has demanded another rethink on the configuration of global supply chains, reinforcing the cliques and walls narrative. Since the start of this year, trade has been threatened by disruptions at two of the world's crucial trade corridors — the Panama Canal and the Suez Canal. A historic drought has forced restrictions at the Panama Canal, which means limited capacity and long wait times. Shipping operators looking to divert supply lines along the Suez Canal are facing yet another challenge in the Red Sea as Houthi rebels have escalated attacks on commercial ships. As of this writing, overall traffic through the Panama Canal is down 45%, while the decline through the Suez Canal is a more staggering 57%.

As we discuss below, global trade and supply chains, in particular, are being reconfigured in response to two main geopolitical shocks. The first is the rupture between the U.S. and China, which is realigning and shifting supply chains on a global scale. Companies are relocating production away from China towards Mexico, Vietnam, and India, which are emerging as the biggest beneficiaries of this reshuffle. European and Asian firms are moving operations to North America to be closer to the consumer base, with some Chinese companies also following suit in order to avoid tariffs. Apple is shifting smartphone production from China to India; Mattel, a toymaker, is expanding its operations in Mexico; Taiwan's electronics assemblers have cut their share of assets in China from 50% to 35% since 2017 as clients such as Apple demand diversification. Intra-Asia routes between Vietnam, Cambodia, and the Philippines are particularly busy as production moves from one stage of the manufacturing stage to the next.

Helped by generous subsidies, Western firms are trying to reduce their Chinese exposure by reshoring or friendshoring supply chains. In America, investment in manufacturing construction is the highest since the mid-1990s (Figure A17). Diversification of supplies has become key to ensuring resiliency in production: A survey of global executives by McKinsey Global Institute reveals that a full 81% of supply chain leaders are now sourcing raw materials from two suppliers rather than depending on one, an increase from the 58% that did so the previous year (Figure A18). 42% are regionalizing supply chains (up from 22% in 2021), and 30% are nearshoring (up from 17% in 2021). In a survey conducted by Citibank, 56% of companies said they have adopted or are considering a "China Plus One" strategy, which entails moving certain sole-sourced China procurement and production operations to other countries.

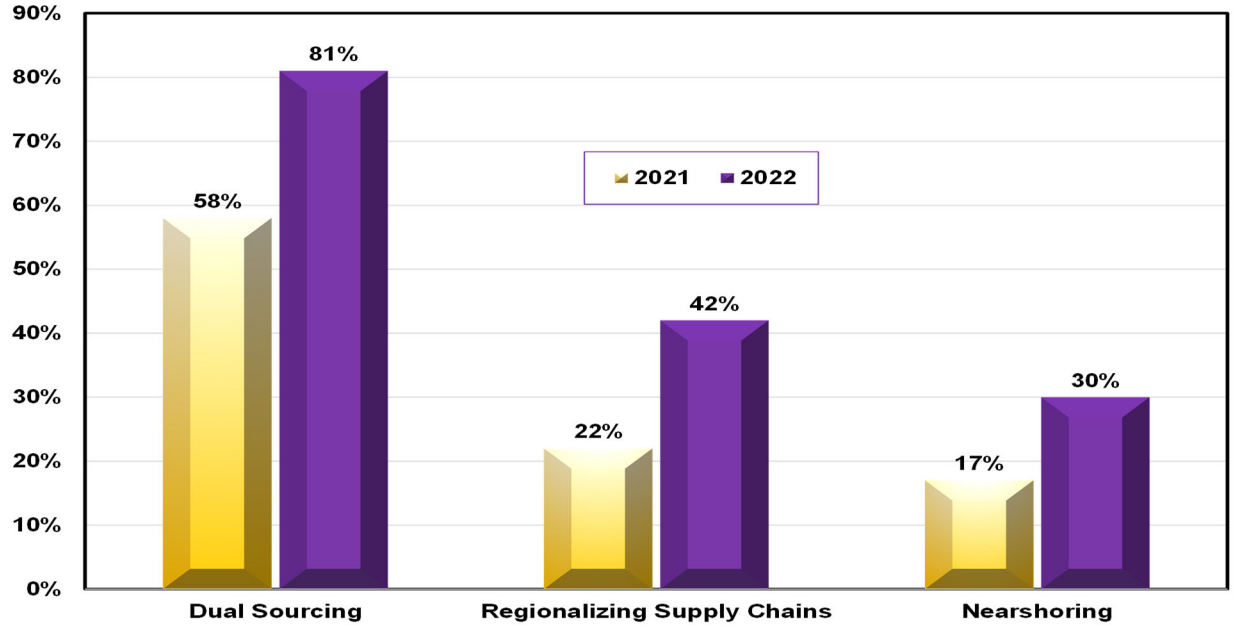
The second geopolitical shock is the rupture between Russia and the West. This has reoriented energy supply lines in the EU away from Russia towards friendlier countries. The U.S. has been a large beneficiary of this tilt. Nonetheless, as we argue below, Russia's exports have grown rapidly over this period, as a raft of countries (such as India, China, and Brazil) have become Russia's main destination for oil and gas.

**Figure A17**
**Through the Roof: U.S. Manufacturing Construction is the Highest in Two Decades**
**(real investment in manufacturing construction, percent of investment)**




*Source: BEA and Woods Center*

**Figure A18**
**Supply Chains Are Shifting**
**(percent of respondents)**




*Source: McKinsey Survey and Woods Center*

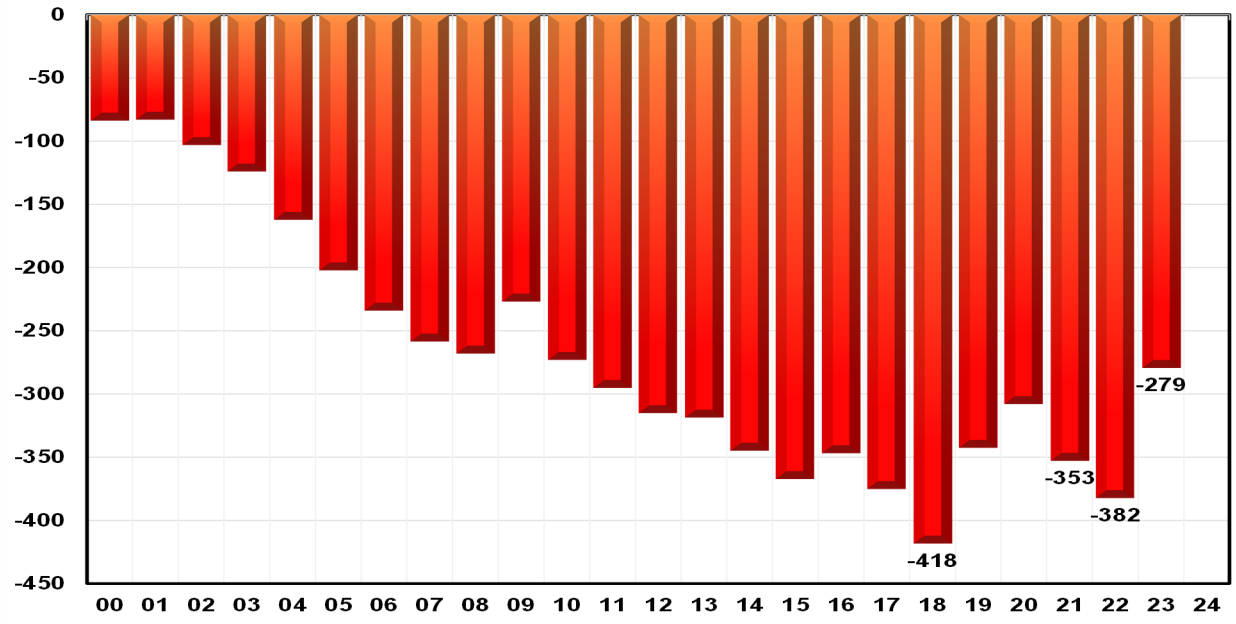
### A.4.1 The Great Decoupling? U.S. and China

On the face of it, the most glaring outcome of the new order of globalization — where cliques and walls replace unfettered trade — is an unmistakable rupture between the U.S. and China. For the first time in more than two decades, Mexico has replaced China as the top exporter to America. U.S. exports to China in 2023 shrunk from $154 billion in 2022 (a record high) to $147 billion. However, imports slumped by more than $100 billion from $536 billion to $427 billion. The trade deficit shrunk to $280 billion, the lowest since 2010, and a full $200 billion below the 2018 levels right before the trade war (Figure A19). The numbers are even more jarring when looking at relative terms: The share of U.S. imports from China (as a percent of total imports) currently stands at 13.8%, far below the 21.4% peak reached in 2017 (Figure A20). Likewise, the share of U.S. exports to China has fallen from a peak of 8.7% in 2020 to a current 7.3%.

Prior to these latest developments, trade between the two countries held up relatively well in the face of the trade war and the global pandemic. U.S. exports to China were on an uptrend from 2020-2022 and grew by a staggering 17% in 2020 (due in large part to the Phase I deal between the Chinese government and the Trump administration) and by 21.6% in 2021 (as the pandemic receded). Likewise, imports from China slumped by 3% in 2020 (during the pandemic) but recovered quickly in 2021, growing by 16%. The fragmentation between the two countries began to appear only in the last couple of years: U.S. imports of Chinese goods grew only by 6.3% in 2022 and fell by a jaw-dropping 20% in 2023. U.S. exports to China grew by a paltry 1.7% in 2022 and dropped by 4% in

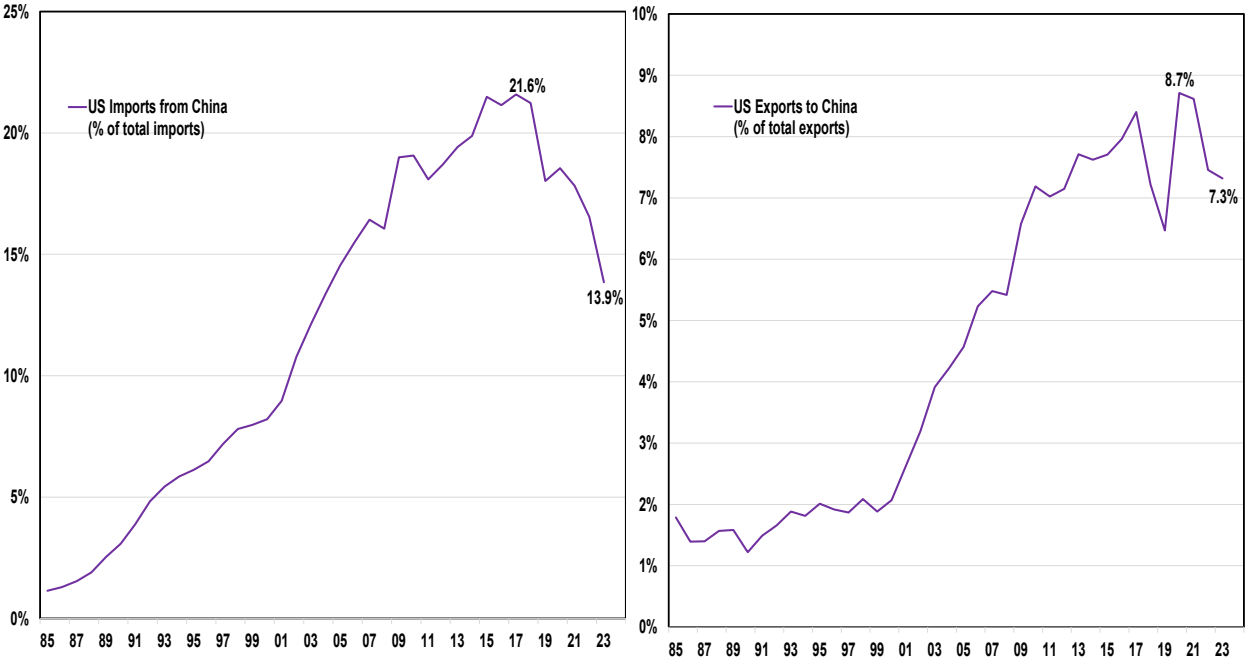
2023. Slow growth in China accounts for some of the decline, but there is no denying that the two countries are drifting apart.

**Figure A19**
**Trade Deficit with China is the Lowest Since 2010**
**(billions of dollars)**




Source: BEA and Woods Center

**Figure A20**
**On a Downtrend: Topline Data Show a Decoupling between U.S. and China**
**(imports and exports, percent of total)**

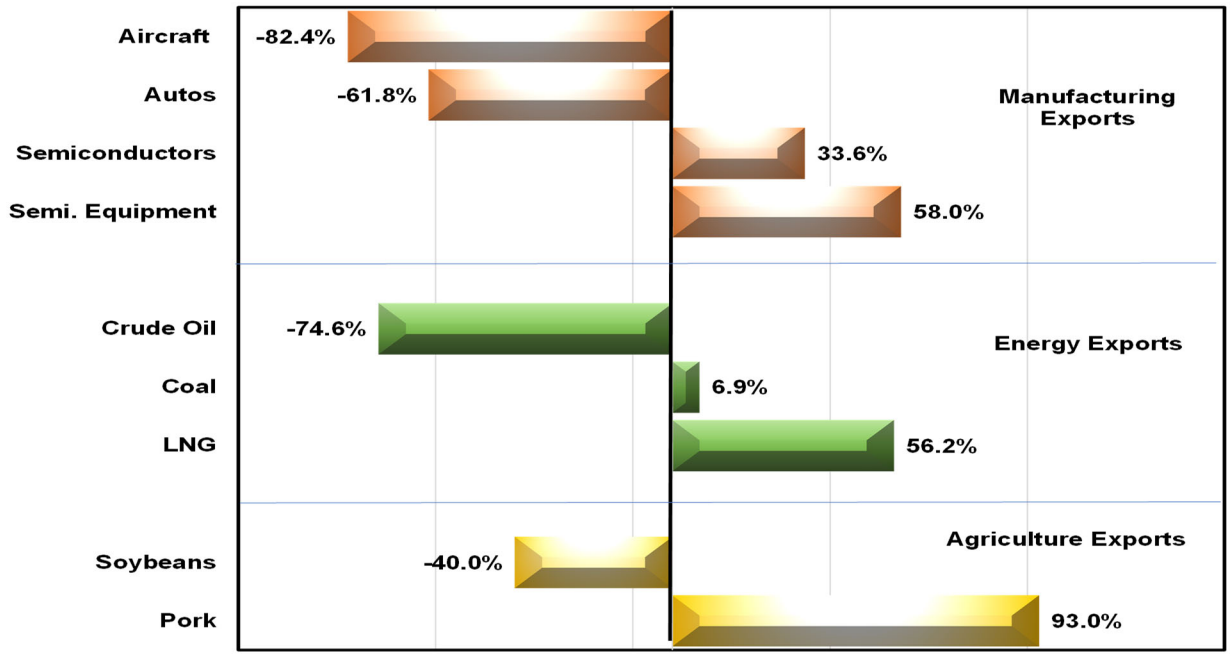


The latest data reveals that each country is strategically trying to diversify away from the other in the fear that trade flows may become weaponized should geopolitical tensions escalate further. With these dynamics, the U.S.-China trade truce of 2020, which culminated in the Phase One agreement, has fallen far short of its promises. In it, China pledged to increase its imports from the United States by $200 billion over the next two years. The target fell short by nearly 24% in 2021 and 22% in 2022.

U.S. manufacturing exports to China fared the worst, falling roughly by 40% below target in 2021 and 2022. Transportation, in particular, fared especially badly: aircraft exports were 82% below target, while auto and truck exports were nearly 62% below the agreed threshold (Figure A21). However, not all exports fell short of their target: semiconductor exports exceeded legal commitments by 33% and semiconductor equipment by a staggering 58%.

A similar picture emerges in the energy sector: while crude oil exports in 2021 fell far short of the target (by 75%), U.S. gas exports to China exceeded the target threshold by 56%, and coal exports by 7%. Agricultural exports were also below the specified targets in the Phase One agreement, but the shortfall was less pronounced than in other sectors: only by 18% in 2020 and by 16% in 2021. The largest agricultural export, soybeans, fared the worst as China bought only 65% of soybeans it committed to under the agreement. In contrast, U.S. exports of other commodities exceeded the threshold: corn exports were $5.1 billion, far above the $0.3 billion specified in the agreement, and pork exports were double the original commitments ($0.9 vs $0.5 billion committed).

**Figure A21**
**U.S. Exports to China: Difference from 2021 Commitments under Phase One Agreement (percent change from 2021 commitment)**

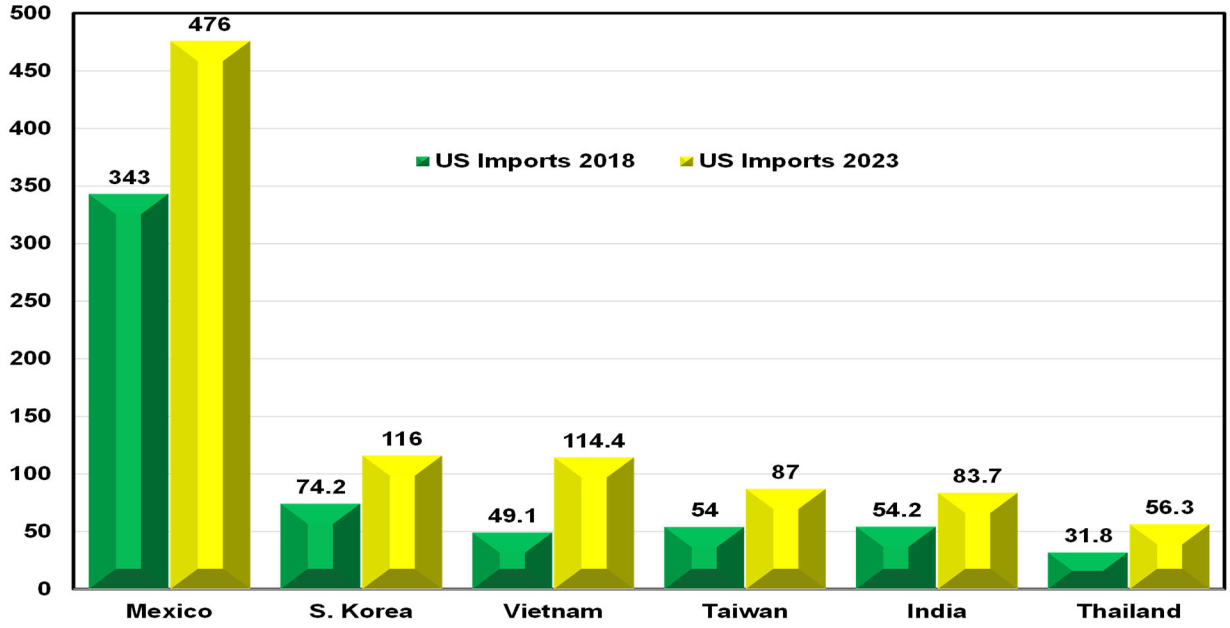


Though the topline numbers suggest a much deeper break between the two countries, a closer look at the data reveals a more nuanced picture. While the U.S. and China have certainly moved apart, this is not an abrupt breakup or a clean decoupling but rather a de-risking where each country attempts to reduce economic vulnerabilities with the least possible damage to trade and supply chains. As we argued in our last report, the breakup is more stark in products that are subject to high tariff rates, with no evidence of decoupling in sectors with no tariffs. Specifically, roughly two-thirds of U.S. imports from China — over $300 billion — are subject to tariffs. From these, products in Lists 1, 2, and 3 are subject to a steep 25% tariff rate, and products in List 4A are subject to a much smaller 7.5% tariff rate. Around one-third of imports from China are tariff-free. The decoupling has occurred precisely as one would expect: Imports of products on Lists 1, 2, and 3 — with 25% tariff rates — have fallen by 24% compared to 2018 levels (before the imposition of tariffs), while those on lists 4A (subject to a 7.5% tariff rate) have fallen only by 1.1%. Instead, the U.S. is merely importing these goods from the rest of the world: imports from the rest of the world for items on Lists 1, 2, and 3 rose by 40% compared to 2018 levels, while those on List 4A are up by 52%. In contrast, U.S. imports of Chinese goods with no tariffs have grown by a jaw-dropping 42% since 2018, higher than the 38% growth recorded from the rest of the world.

In fact, trade links between America and China, instead of being completely severed, are being reoriented and reorganized in more complicated and tangled forms. This means that headline trade figures unduly overstate the extent of decoupling between the two countries. To dodge American tariffs, Chinese firms are relocating their production to countries with which the U.S. has trade agreements, such as Mexico and South Korea. Foxconn, the world's largest contract manufacturer, is opening plants in India, Mexico, Thailand, and Vietnam, but in many cases, inputs are originally sourced in China.

U.S. imports from China have indeed fallen by 20% compared to 2018 (when tariffs were first imposed), but other countries have filled the void. U.S. imports from Vietnam skyrocketed by 132%, rising from $49.1 billion in 2018 to $114 billion in 2023. Imports from Taiwan nearly doubled (from $54 billion in 2018 to $87 billion in 2023); those from Thailand rose by nearly 77% over this period (from $31.8 billion to $56.3 billion). Imports from India reached $83.7 billion in 2023, up from $54.2 billion in 2018. Mexico dethroned China as the largest exporter to the U.S., with the value of U.S. imports reaching $476 billion in 2023, up from $343 billion in 2018 (Figure A22).

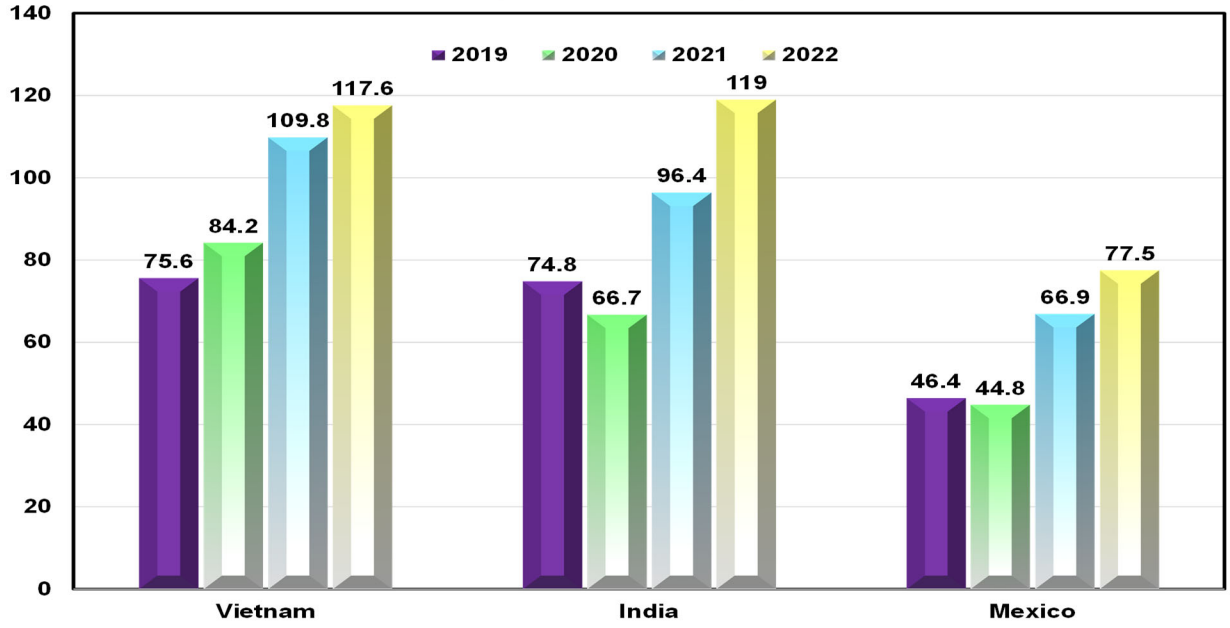
**Figure A22**
**Friendshoring: U.S. Imports from "Friendly" Countries Have Risen**
**(billions of dollars)**




The problem is that even as direct trade between the U.S. and China shrinks, that between U.S. allies and China has risen, suggesting that some of these countries are now serving as packaging and final goods production of what are essentially Chinese goods. For example, between 2017 and 2022, U.S. imports of laptop computers from Vietnam rose by the same amount as Vietnamese imports of laptop parts from China, suggesting the U.S. is still consuming Chinese goods that are being repackaged elsewhere. Chinese exports to Mexico have risen from $46.4 billion in 2019 to $77.5 billion in 2022 (a full 67%); exports to India have risen by 59% over this period, and exports to Vietnam by 55% (Figure A23).

The fundamental obstacle to decoupling is that China continues to occupy an immensely important role in world production, making it hard to achieve a clean break. Its economy is hard-wired to manufacture more than it consumes, having to export surplus productions. As the Chinese economy is having to grapple with its own domestic concerns — a collapse in property investments and troubles with local government debt — the Chinese government has placed an even larger focus on manufacturing, even though a large number of firms are unprofitable. Breaking up is hard to do in practice, which means that rather than a clean break, the U.S. and China will continue to carry out this complicated dance of "de-risking" and soft "de-coupling" for years to come.

**Figure A23**
**Chinese Exports to U.S.-Friendly Countries Have Skyrocketed**
**(billions of dollars)**



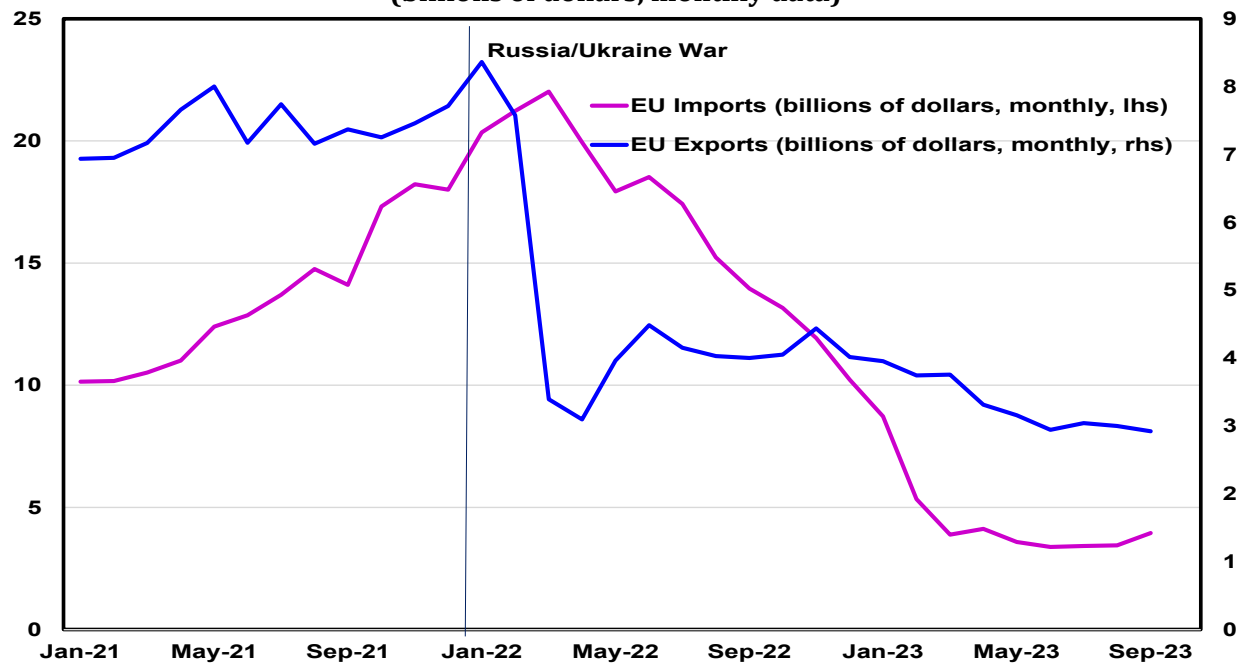

### A.4.2 Geoeconomic Fragmentation: Russia and the West

A cleaner break along geopolitical fault lines, which has more forcefully split countries across the globe along cliques and walls, is the rupture between Russia and the West. Since Russia invaded Ukraine in February 2022, the West has imposed more than 16,500 sanctions on Russia and thousands of firms and individuals. Half of Russia's $580bn of currency reserves lies frozen abroad, and most of its big banks are cut off from the global payments system. Around 70% of the assets of Russian banks are also frozen. Russian ships and flights are banned from many ports and airports. Russian firms are barred from buying inputs from engines to chips. Russian oligarchs and Russian officials have faced travel bans and asset freezes. Export controls have denied Russia access to high-tech gadgets used in military and high-tech sectors, ranging from microchips to cutting-edge machinery. Many companies have fled the country — from McDonald's to Nike, Apple, Visa, and Mastercard — though perhaps the most significant is the exit of BP, Shell, and Equinor from their Russian oil ventures. A new raft of sanctions was imposed recently tied to the death of the opposition leader Alexei Navalny, focusing on people and firms connected to Russia's weapons manufacturing, finance, and import sectors. While the legal mechanisms of sanctions leveled on Russia are not new, their application is unprecedented in two ways. First, it marks the first time such broad sanctions have targeted a major world economy in the post-war era. Second, the sanctions are far broader and much more inclusive than what has been the case in the past.

As expected, trade relations between Russia and the West have deteriorated, amounting to what is essentially an embargo by the West. EU imports of Russian goods (mostly energy) have collapsed from a high of around €20 billion a month to around €4 billion (Figure A24). EU exports to

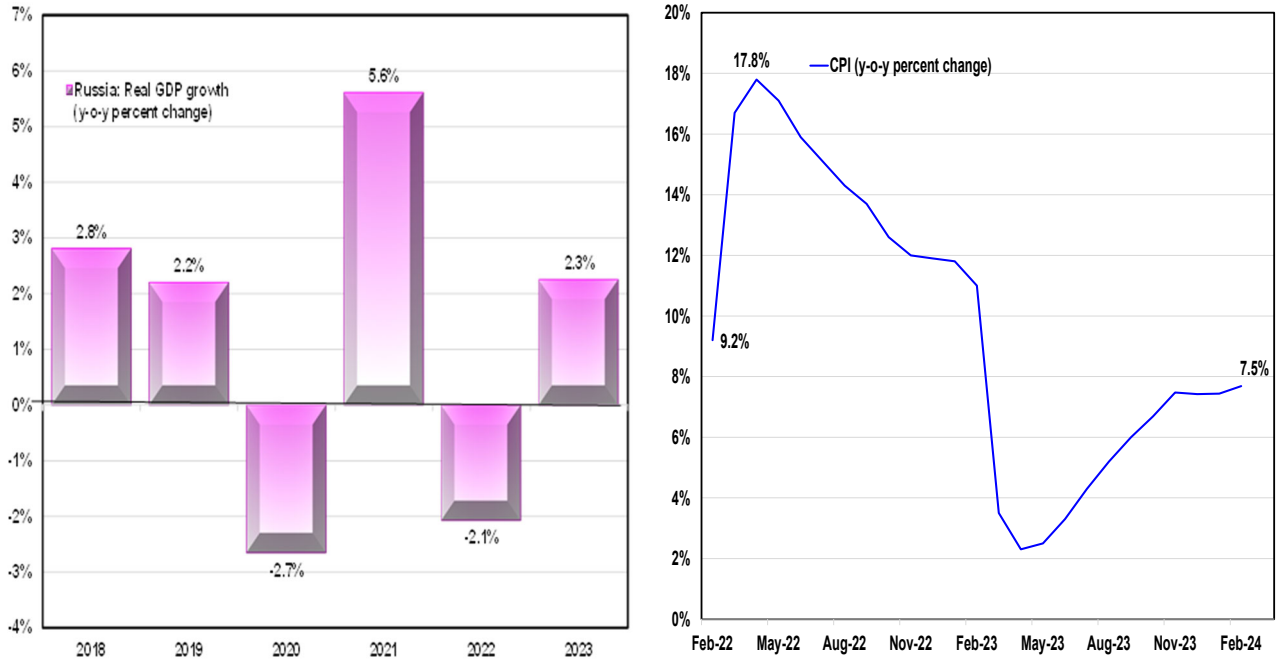
Russia have also fallen from €8 billion a month prior to the war to less than €3 billion. The divestment from Russian imports occurred more slowly, as the EU first tapered and then stopped Russian energy imports. U.S. oil imports from Russia, small to begin with, dropped to zero immediately after the commencement of war.

**Figure A24**
**EU Trade with Russia Has Collapsed**
**(billions of dollars, monthly data)**




Despite these draconian measures, Russia's economy has proven exceptionally resilient. The economy fell into a shallow recession in 2022, with real GDP shrinking by 2%, but growth rebounded to 2.3% in 2023, outstripping the performance of some major economies, including the Eurozone's (Figure A25). A financial collapse, widely predicted in the spring of 2022, never came to pass. The ruble lost 40% of its value in the aftermath of sanctions, but it has fully recovered, and then some, currently standing above its pre-war value. A run in the banks resulting in the withdrawal of $31 billion in March of 2022 has been stemmed, and customers have returned much of their cash back into their accounts. The stock market initially lost half its value but has recovered a chunk since. Unemployment remains at a record low, and there is little evidence of corporate distress, with the rate of business closures recently falling to its lowest in eight years. Even a bout of inflation, which was the latest concern for the Russian economy, seems to have subsided, with inflation stabilizing around 7.5% in the most recent data.

**Figure A25**
**Russia's Economy is Holding Tight**
**(real GDP and inflation, annualized rates)**



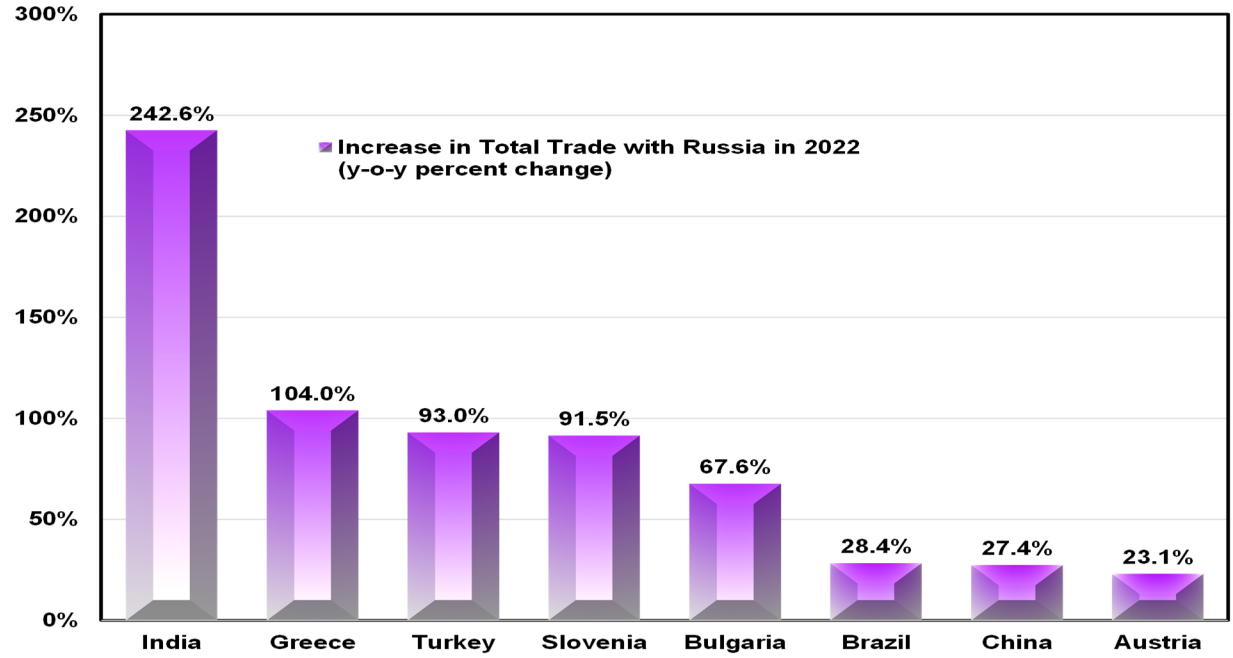

There are a number of reasons why Russia's economy has proven so resilient. First, to support war efforts, the Kremlin spent lavishly: fiscal support rose by 8% in real terms last year. Government outlays over the past two years far outstripped the support during the pandemic. And some buffers are not new but have been cultivated over the past decade as Russia sought to carve out an economy less dependent on the West since it annexed Crimea. Past fiscal support has created cushions for both corporations and households, which helped them cope with war disruptions and higher inflation. Credit should also go to the Russian Central Bank, which has steered the economy through difficult times with a steady hand: interest rates rose dramatically on the eve of the invasion to support the ruble and quash inflation. Those efforts are now paying off.

Perhaps most importantly, Russia has been quite successful at evading sanctions, in large part because the West has been unable to secure cooperation from all countries, at least not on a sustained basis. In 2023, Russia became the largest oil supplier to China, surpassing Saudi Arabia for the first time. The volume of Russian crude shipped to China jumped 24% in 2023 to 107 million metric tons compared to 2022. China and India accounted for 90% of Russia's crude oil exports last year. And while initially, Russia was forced to offer energy exports to other countries at deep discounts, as trade relationships deepened, the discounts became less generous. Discounts to China have fallen from 10% in 2022 to 5% currently. This has further boosted revenues and profits of Russia's oil and gas sector and, by extension, has fattened Russia's government coffers.

But it is not just energy: other countries have also purchased Russia's exports of other raw materials while providing Russia with much needed imports. Overall trade with China soared by 63% since the start of the war to more than $240 billion in 2023, according to Chinese custom data. Trade with India has quadrupled since 2021, reaching $65 billion. Russia's trade with both countries has now surpassed its trade with the EU pre-war, which stood at $282 billion in 2021.

It's not just China and India that have empowered Russia to skirt sanctions: a large number of countries —120, to be precise —are what you would consider neutral or "non-aligned": they have neither embraced Western sanctions, nor are they subject to any sanctions themselves. Mexico, Indonesia, Turkey, and the UAE are now importing far more from Russia than before the war. In some instances, oil exporters are importing cheap oil from Russia (which is capped at $60 per barrel) for domestic consumption, while at the same time exporting their own more expensive market-priced oil. In 2022, trade between India and Russia rose by almost 250% compared to a year earlier, but so did trade between Russia and a number of U.S. allies: trade with Greece, Turkey and Slovenia nearly doubled. By comparison, the nearly 28% increase with China appears puny (Figure A26).

**Figure A26**
**Russia's Trade with US Allies Has Increased Significantly**
**(y-o-y percent change)**

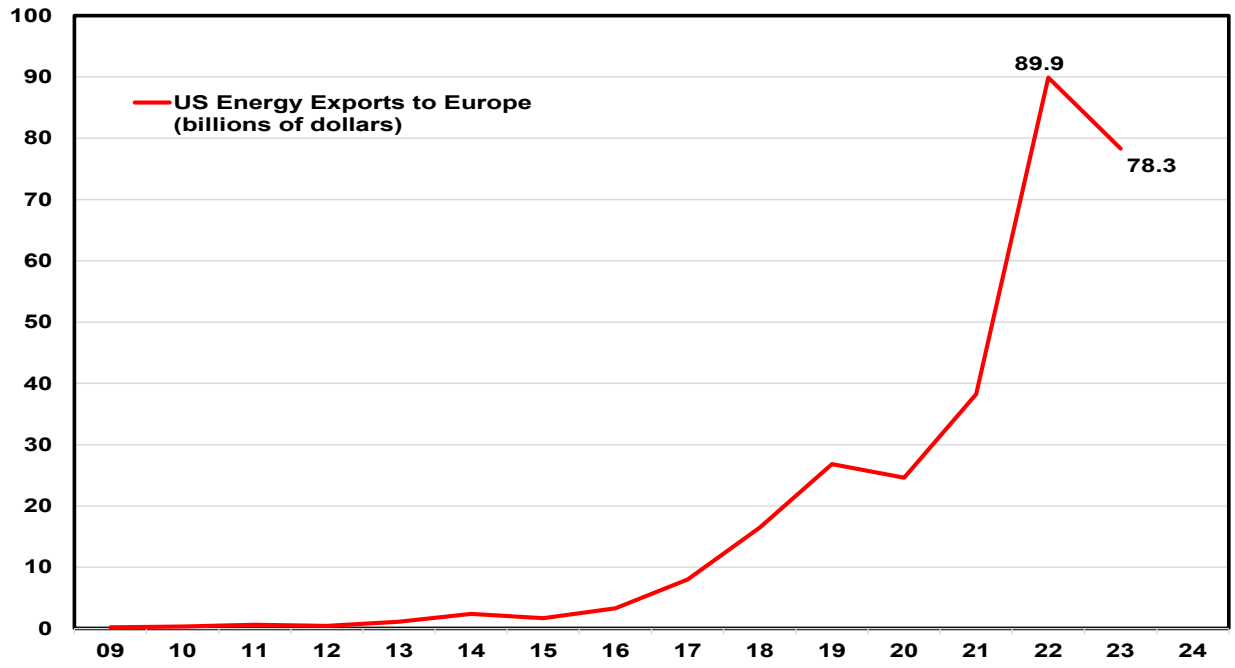



Trade with other countries has also helped Russia evade sanctions on imports of goods such as high-tech chips and weapons that should have been beyond its reach. Half of the military equipment that ended up in Russia last year contained Western tech. Through third parties, Russia imported an estimated $1 billion worth of high-tech semiconductors designed in the West that it should not have received. Some transactions are settled in rubles or yuan-based payment systems as Russia and China attempt to set up dollar/euro alternatives. The UAE and Russia are coordinating to

set up a ruble-based payment regulated from Dubai. The yuan is increasingly being used to facilitate trade between China and countries participating in its Belt and Roads Initiative, chiefly Argentina, Pakistan, and Nigeria. The move away from the dollar sounds ominous, but reality is less fearful: the number of global transactions currently being settled in dollars and euros is about the same as before the war in Ukraine.

All this points towards a decoupling of the West from Russia and an intensification of trade ties between Russia and other countries, most prominently China and India. This reinforces geopolitical fault lines and establishes more firmly the division of the world economies along cliques and walls. The U.S. has benefited somewhat from this realignment: its oil and gas exports to Europe rose from virtually zero one decade ago to a staggering $90 billion in 2022 and $78 billion in 2023 (Figure A27). The decline in value in 2023 reflects an overall decline in energy prices rather than a fall in volume. Of the total oil and gas exports the U.S. sent abroad in 2023, 42% went to Europe. Indeed, America was the largest supplier of liquefied natural gas (LNG) to Europe over the past three years, accounting for nearly half of LNG imports. Given that the current trade reorientation along geoeconomic and geopolitical faultlines is likely to endure, we expect US energy exports to Europe to continue to rise over the next few years.

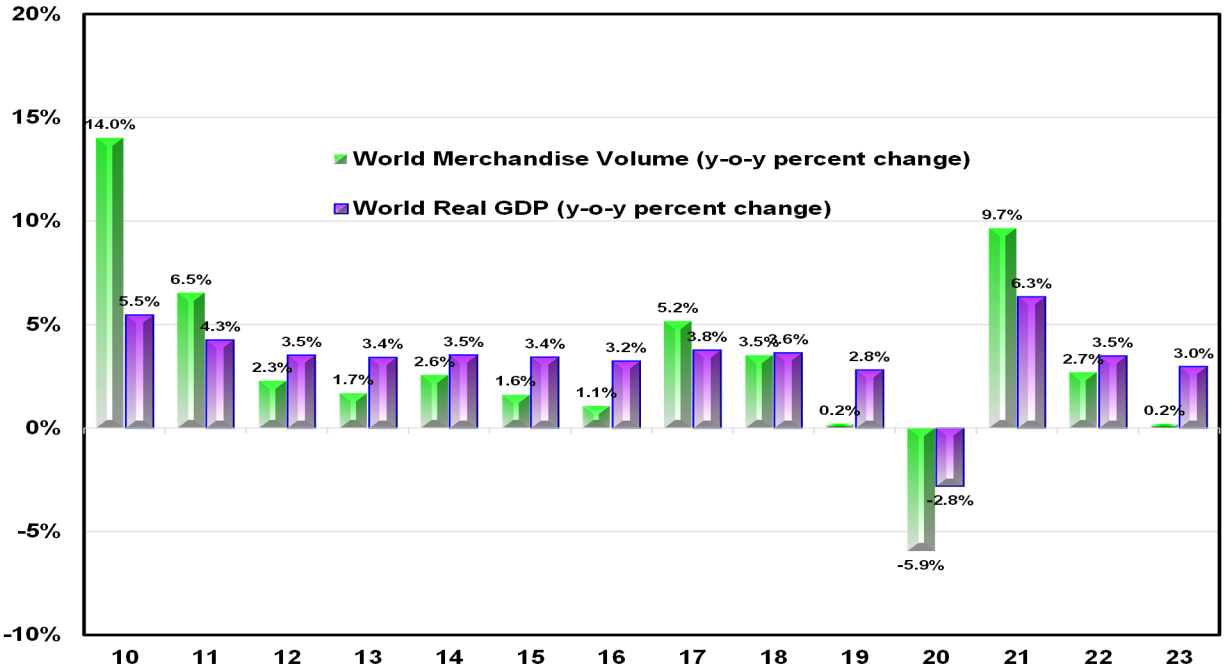
**Figure A27**
**The U.S. Has Replaced Russia as the Largest Energy Exporter to Europe**
**(billions of dollars)**



## B. RESILIENT BUT DIVERGENT: OUTLOOK FOR GLOBAL ECONOMY AND WORLD TRADE

2023 was a tough year for global trade. Merchandise exports shrank by an estimated 4.2% after growing by a staggering 26.5% in 2021 and by a more subdued 11.8% in 2022. This marks the first decline in goods trade in the past two decades outside of a global recession. Trade volumes (which strip away price fluctuations) paint a slightly rosier picture, though barely: they have remained essentially flat, growing by an estimated 0.2% in 2023 — the slowest in 50 years outside a global recession. This marks the second year in a row that trade has grown at a slower pace than global real GDP, even as the latter is estimated to have also slowed: from a 6.3% pace in 2021 to 3.5% in 2022, to slightly below 3% in 2023 (Figure B1).

**Figure B1**
**Global Trade Has Faltered Even as the Global Economy Remains Resilient**
**(y-o-y percent change)**

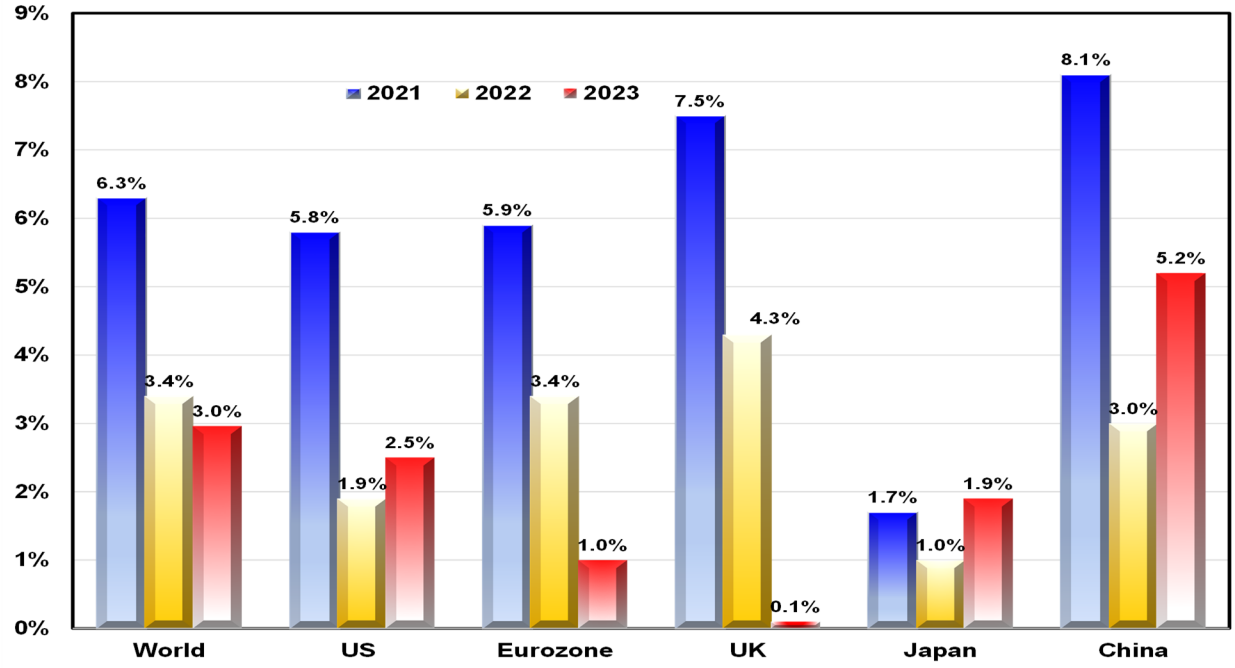



The slowdown in trade began in the last quarter of 2022, as the effects of tighter monetary policy, higher inflation, the withdrawal of pandemic fiscal support, and a property crisis in China took their toll on global trade. At the onset of 2023, the hope was that the end of pandemic restrictions in China, falling energy prices, and the normalization of supply chains would deliver another year of robust global trade. Those hopes were not materialized as China's economic performance fell far short of expectations, and increased geopolitical risks transformed and rerouted supply chains.

The softness in global trade stands in stark contrast with the performance of the global economy over the past year. High interest rates, an energy crunch in Europe, tremors of a potential banking crisis in the U.S., rising geopolitical risks, and persistently high inflation prompted predictions of an economic collapse — made almost uniformly by economists at the start of 2023.

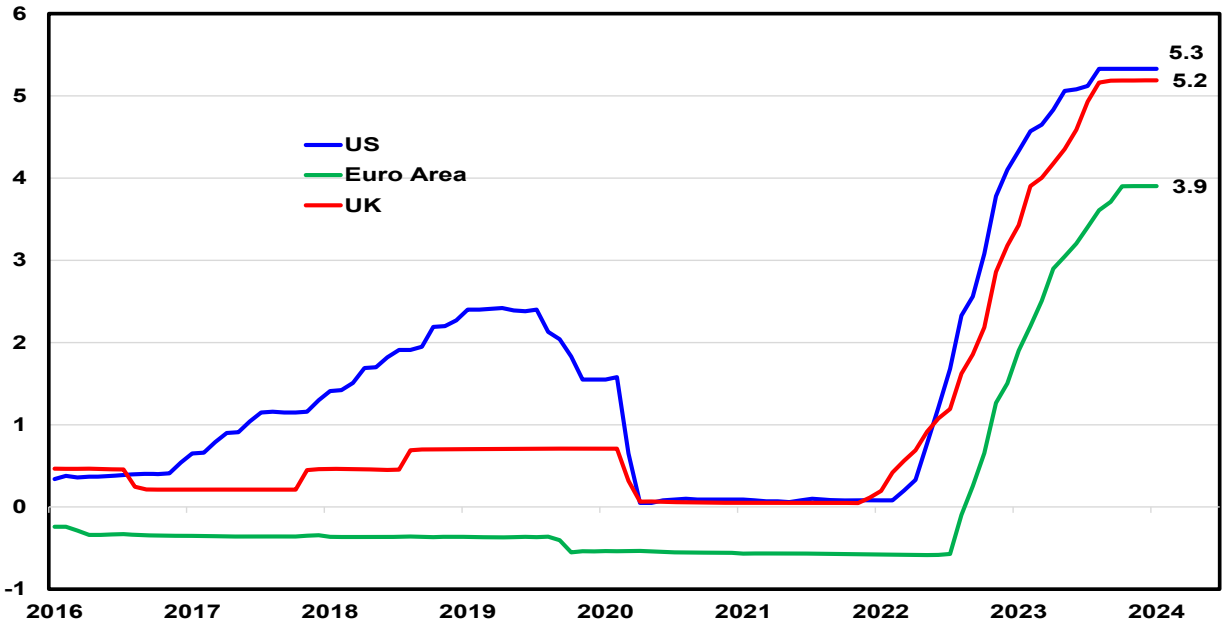
Those predictions have proved embarrassingly wrong. Far from falling into the abyss of a recession, the world economy defied gravity and grew by nearly 3% in 2023, below the 3.6% pace of the past two decades, but growth, nonetheless (Figure B2). In some economies, growth was even stronger than in 2022: Japan grew nearly twice as fast in 2023 (1.9%) compared to the previous year. China's growth came at 5.2%, far above the paltry 3% posted in 2022, which was hamstrung by tight-fisted pandemic restrictions. The U.S. posted a robust 2.5% growth in 2023, far above the more anemic 1.9% rate of 2022.

**Figure B2**
**Global Growth: Resilient but Divergent**
**(y-o-y percent change)**



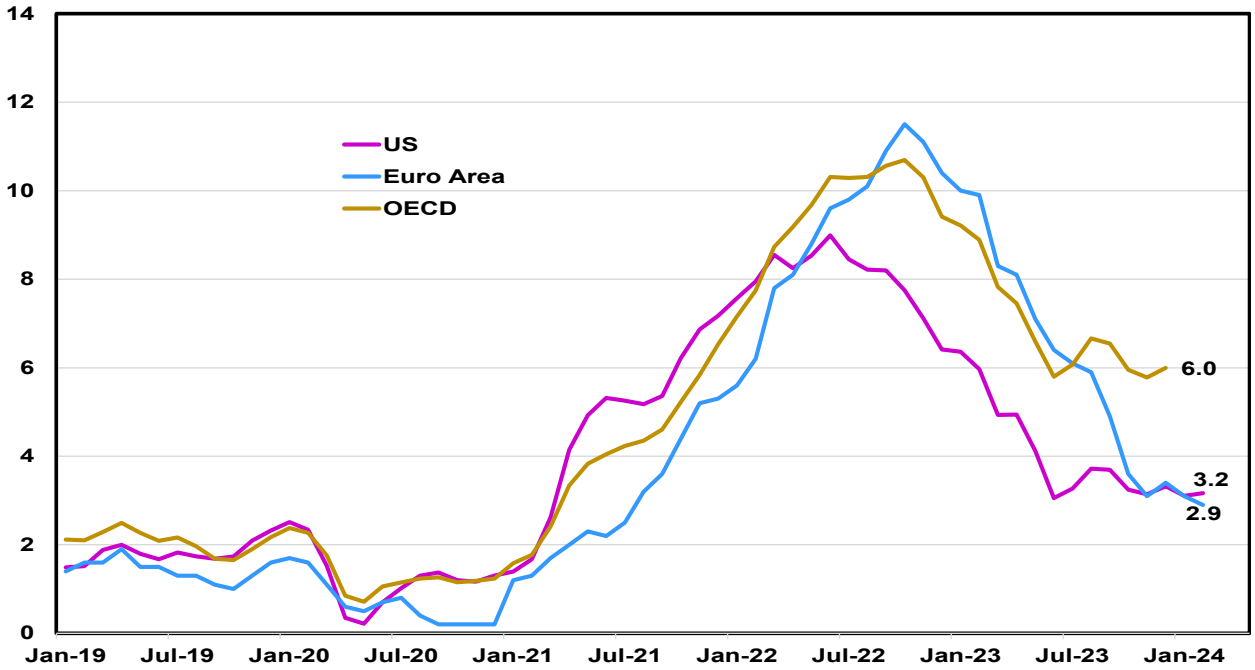

The resiliency of the global economy is even more surprising in the face of relentless interest rate hikes as central banks across the world combat soaring inflation. In a span of 18 months, beginning in March 2022 and ending in July 2023, the Federal Reserve hiked rates by a jaw-dropping 525 basis point, the most aggressive rate hiking cycle in over four decades (Figure B3). The ECB began its tightening cycle a few months after the Fed, in July 2022. Since then, it raised its policy rate by 450 basis points, pausing in October 2023. The Bank of England's rate hike cycle began in December 2021 and ended in August 2023. It raised its main policy rate by 525 basis points during this period. All three central banks have signaled that the rate hiking cycle is now complete. Not only that, but rate cuts are being openly discussed, with the Fed penciling in a total of 75 basis points cut for this year.

**Figure B3**
**Policy Rates at Decades High**
**(policy rates, percent)**




There are reasons for this dovish tone from the central banks. Inflation, once raging seemingly out of control, has cooled down dramatically in the OECD countries, falling from 10.7% in October 2022 — the highest since 1974 — to a current 6% (Figure B4). Progress can be seen everywhere: Eurozone inflation reached a peak of 11.5% at the end of 2022 but has fallen precipitously since then to a current 3.4%. The U.S., which was a bit more fortuitous than Europe because its energy sources were not interrupted by geopolitical conflict, performed even better, with inflation falling from 9.1% (the highest since 1982) to a current 3.2%. Even Great Britain, where inflation has proven a bit harder to combat, has moved in the right direction, with the rate falling from 9.6% (October 2022) to 4.2%. The current disinflationary trend is not entirely surprising: high interest rates have undoubtedly contributed to it. But perhaps most important are other factors, such as the unsnarling of supply chains as the world recovered from the pandemic and the fall in energy prices as the initial Russia/Ukraine war shock wore off and countries adapted. Moreover, as locked-down workers rejoined the labor force, labor supply rose, easing wage and inflationary pressures. The withdrawal of pandemic-related fiscal support has also helped. In other words, inflationary pressures gave way to disinflationary forces, stemming the rise in prices even as global growth rebounded.

**Figure B4**
**Lots of Progress on Inflation**
**(CPI, y-o-y percent change)**




Miraculously, unlike in many of the previous hiking cycles, the taming of inflation has happened without mass casualties. Despite the many ill omens, the single most important indicator of the health of the economy — the labor market — has performed spectacularly well, both in the U.S. and abroad. Unemployment rates remain low across the board; employment levels have fully recovered and are now significantly above pre-pandemic levels. Employment in the OECD countries is a full 3.5% larger when compared to pre-pandemic levels; in the Eurozone, employment is up a staggering 4.2% (Figure B5). The U.S. lags somewhat the performance of other countries, but only because the American labor market shed considerably more jobs than others during the pandemic, which means it had a steeper hill to climb. But even in the U.S., employment has now blown past its pre-pandemic levels, growing by 1.7% compared to February 2020 values.

The strength and resiliency of the global economy are attributed primarily to the astonishing performance of the U.S. economy. At the start of 2023, it was widely thought that America was on the brink of a recession. Instead, it ended 2023 with a real GDP nearly 3% higher, one of the healthiest growth rates over the past decade. Since the end of 2019—a period that includes the COVID-19 pandemic and its aftermath—America's economy has grown by about 8.2% in real terms (Figure B6). During that same time, the euro area has expanded by only 3%, Japan by 2.8% and Britain by a measly 1.1%.

**Figure B5**
**Employment Has Recovered Robustly Across the World**
**(percent change relative to February 2020)**

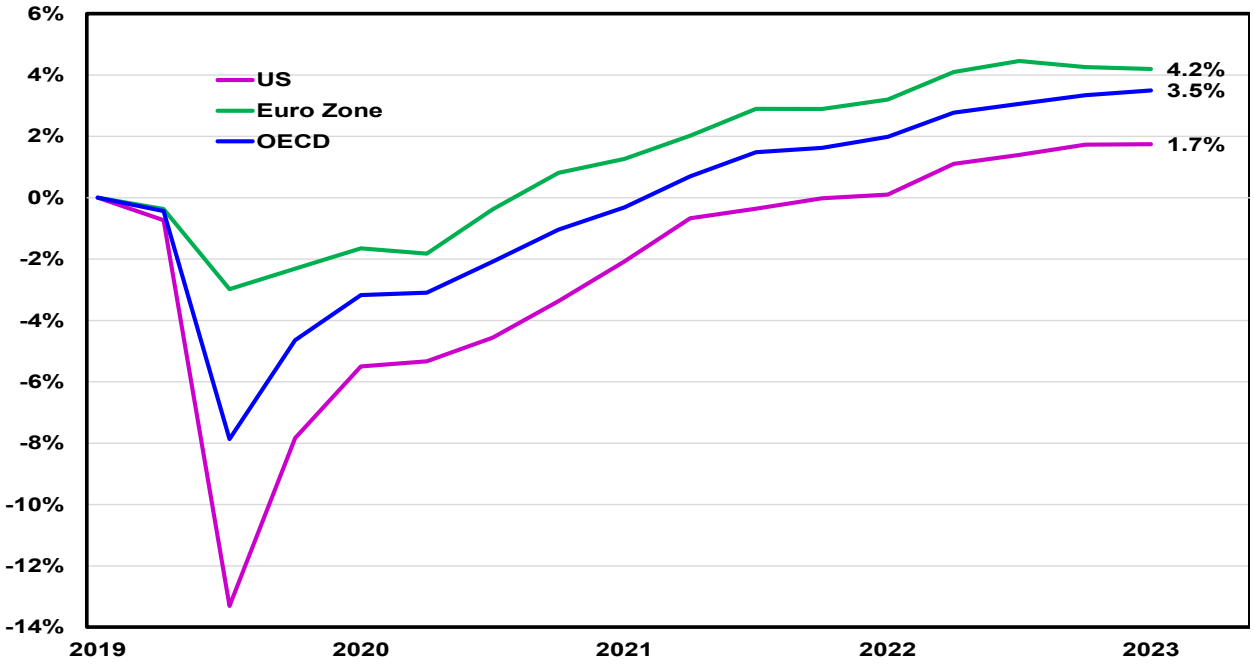
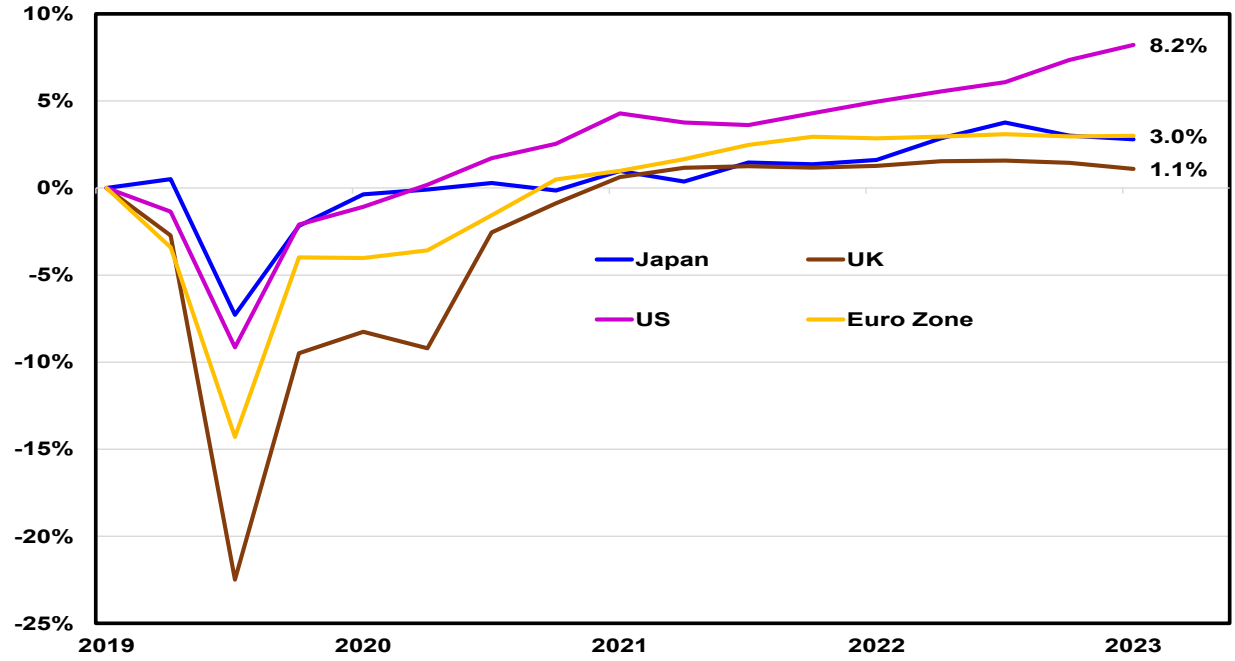



**Figure B6**
**Up and Away: The U.S. Economy Has Vastly Outperformed Others**
**(real GDP, percent change relative to February 2020)**

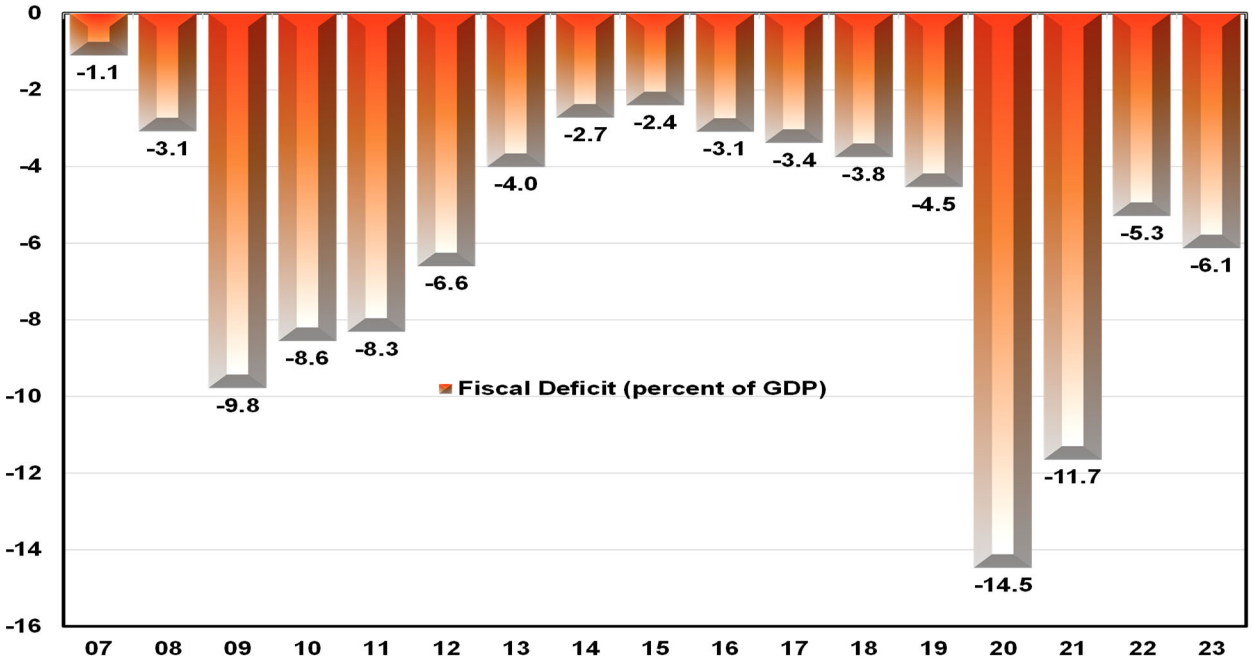


There are reasons why the U.S. economy has defied expectations time and again and they relate both to demand and supply-side factors. Start with demand. American consumers have proven remarkably resilient for good reasons. Strong equity market gains and a rapid increase in home prices have delivered an unprecedented rise in household net worth, from $110 trillion in the fourth quarter of 2019 to a current $147 trillion, a 33% increase, the fastest rise in a four-year period. At the onset of the pandemic, consumer balance sheets were in great shape: consumer debt as percent of GDP had fallen to a historical average after the binge in 2005-2007, and debt loans were at historically low levels. COVID did not alter this picture; in fact, it made consumer buffers even stronger. Lavish government support to the tune of $6 trillion dollars propped up bank deposits and fattened consumer coffers. At their height, excess savings were estimated to have reached $2.5 trillion dollars. The outsized government support during the pandemic stood out: the U.S. fiscal deficit in 2020 and 2021 averaged 14% of GDP, far higher than the 6% in the euro area.

Fiscal support continues even as the economy outperforms expectations. After narrowing to about 5.3% in 2022, the fiscal deficit rose to 6.1% of GDP last year, a level typically seen only during wars or recessions (Figure B7). Some of this was due to weaker tax returns in 2022 as the stock market, particularly the tech sector, was hit hard. However, most of this is attributed to lavish government spending on industrial policy, from green energy subsidies and investments to chip manufacturing, EVs, and infrastructure. Government spending accounted for nearly one-third of real GDP growth last year, as three successive bills — the Bipartisan Infrastructure Act ($1 trillion), the Inflation Reduction Act (IRA) ($1.2 billion) and the CHIPS Act ($280 billion) — continued to bolster the economy. As expected, investment in non-residential structures rose by a staggering 13% in 2023. Real spending in manufacturing is up nearly 60% compared to the same period last year.

Another reason why interest rate hikes have not derailed the economy is fixed-rate lending. Households and businesses took advantage of rock-bottom interest rates during the pandemic to shore up their finances and obtain loans at low-fixed rates, maturing further out in the future. Currently, 60% of 30-year fixed-rate mortgages are below 4%, and nearly 80% are below 5% rate. Some of this has drawbacks: housing inventory is low, as most people have opted to stay put rather than take out a higher mortgage rate. But it does mean that the U.S. economy has been fortuitously well insulated from the shock of higher interest rates during this hiking cycle and has handled higher rates better than in the past.

**Figure B7**
**Fiscal Spending Continues to Boost the Economy**
**(government deficit, percent of GDP)**



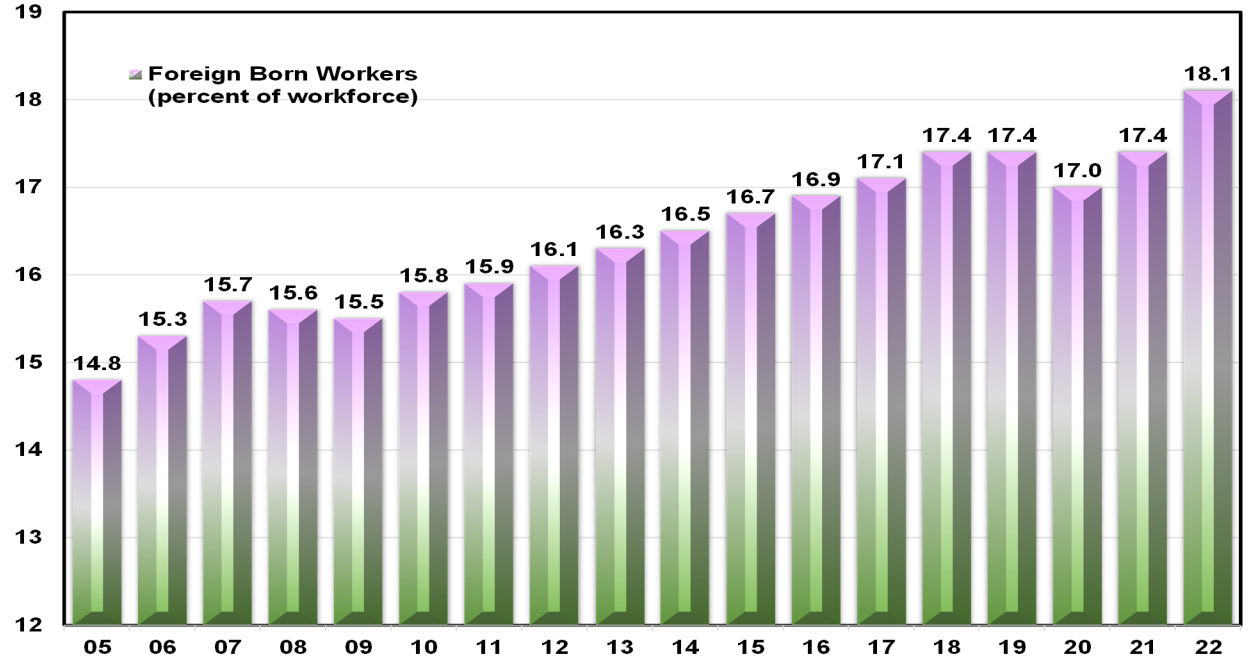

Supply-side developments have also helped. The U.S. has become a big producer and exporter of energy, which has helped it benefit from higher prices without suffering too much. Last year, the U.S. became the largest LNG exporter in the world, exporting large amounts to both Europe and Asia. For the first time in a decade, trade contributed positively to real economic activity in 2023, adding 0.6 percentage points to real GDP growth.

The U.S. labor force has expanded by nearly 2% since early 2020, before the pandemic, even as a record number of baby boomers retire, in large part because of immigration. Foreign born workers now make up a jaw-dropping 18.1% of the labor force, up from 16.3% a decade ago (Figure B8). From 2020 to 2023, nearly 4 million immigrants joined the labor force, a 13.7% increase, far outpacing the native-born population, which rose by 2.6 million during this period (or a 2% increase). A rise in the labor force has taken some pressure off the overly tight labor market, restraining wage gains, which in turn has helped ease inflationary pressures.

The AI revolution has certainly goosed the stock market over the past year, with tech-heavy firms posting astronomical returns: the big four — Amazon, Meta, Microsoft, and Nvidia — are up 250% since January 2022. Productivity has shot up, rising by 2.6% in the last quarter of 2023 compared to the previous year. Of course, it is too soon for this surge in productivity to be attributed to AI, as benefits in this area will take a while to materialize. It is more likely that current productivity gains are due to the normalization of supply chains after the pandemic, which means that a portion of the boost may be somewhat short-lived. The historical post-financial crisis annualized productivity growth rate has been around 1.6% — a full percentage lower than recent figures. Nonetheless, the

pickup in productivity growth contributed greatly to the surprising performance of the U.S. economy last year.

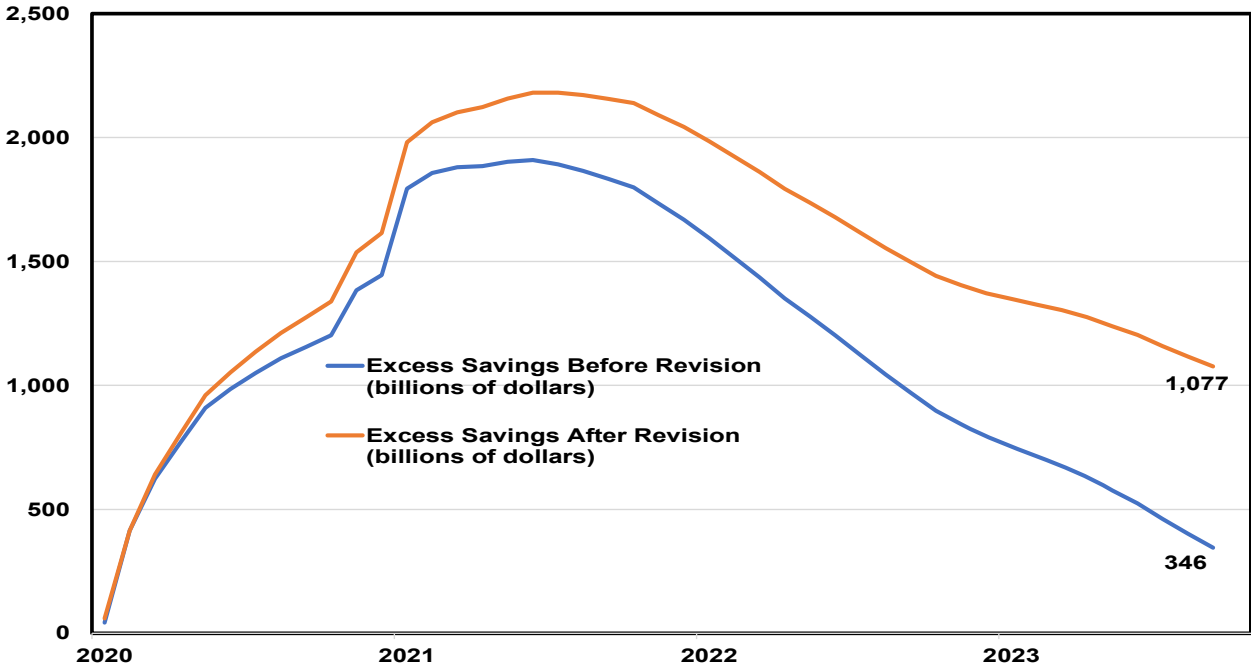
**Figure B8**
**Foreign Workers Have Boosted Labor Supply in the U.S.**
**(foreign born workers, percent of workforce)**




Another reason why recession calls were so misplaced has to do with an unusually large revision of data. Early in 2023, the Congressional Budget Office reckoned that the fiscal budget deficit for the year would be $1.4 trillion. That estimate was wildly off the mark as the final number came at a much higher, nearly $2 trillion. Though revisions of budget estimates are hardly a novelty, we are hard pressed to come up with a previous example when the final tally and original estimate were so far apart. That $600 billion is the difference between a continued expansion and a recession.

A second important data revision relates to excess savings. Towards the end of 2023, analysts' estimates pegged excess savings — the extra savings in consumers coffers due to the spending shortfall (during the lockdowns) and outsized government support during the pandemic — between $400-$600 billions (Figure B9). Around that time, the Bureau of Economic Analysis revised savings numbers, going back a decade, showing that excess savings were much higher than originally thought at around $1.1 trillion. Notably, the revision was not due to consumers saving more since the pandemic but rather due to them saving less prior to the pandemic. In other words, the pre-pandemic baseline shifted from a 9.1% saving rate down to 7.2%. Since the baseline comparison was reduced, excess savings ended up being much higher. But whatever the reason, the fact that consumers had an extra $600 billion of cash is one of the main reasons why America dodged a recession last year.

**Figure B9**
**Excess Savings Have Been Revised Upwards**
**(billions of dollars)**




Will the U.S. economy continue to defy expectations? Most economists and market analysts have already declared that the Fed has either accomplished or is on its way to delivering the much-elusive soft-landing: quelch inflation without quashing growth. In fact, given the performance of the economy recently, calling it a soft landing is an understatement because the most striking feature of the American economy at the moment is not its deceleration but its continued strength. A couple of months ago, the consensus predictions for first-quarter real GDP was for 1% growth; those predictions have since doubled.

Our view is more nuanced than the consensus fare and decidedly more complex for an outlook that will likely unfold in two stages: more optimistic in the short run but grimmer in the long run. In the short-run, over the next 6-8 months, instead of a soft-landing we see a "no landing scenario" — continued growth which is more likely to accelerate than downshift, given the tailwinds propelling it: impending rate cuts, strong balance sheets, excess savings, fiscal support, and a buoyant stock market. However, the very strength and resiliency of the economy, coupled with expectations of rate cuts, is likely to sow the seeds of risks and imbalances in the long term. While a recession is no longer our base case scenario, its probability continues to remain uncomfortably high, especially if inflation continues to remain sticky (which is our base case) and the Fed can't cut too aggressively. But the most likely outcome longer term is a stagflationary-like environment where growth slows (to below 2%) and inflation remains range-bound between 3%-4%. This is far from the full-blown stagflation a la 1970s, where growth stalled, unemployment rose, and inflation raged. Call it stagflationary-lite to distinguish it from the horrors of the 1970s.

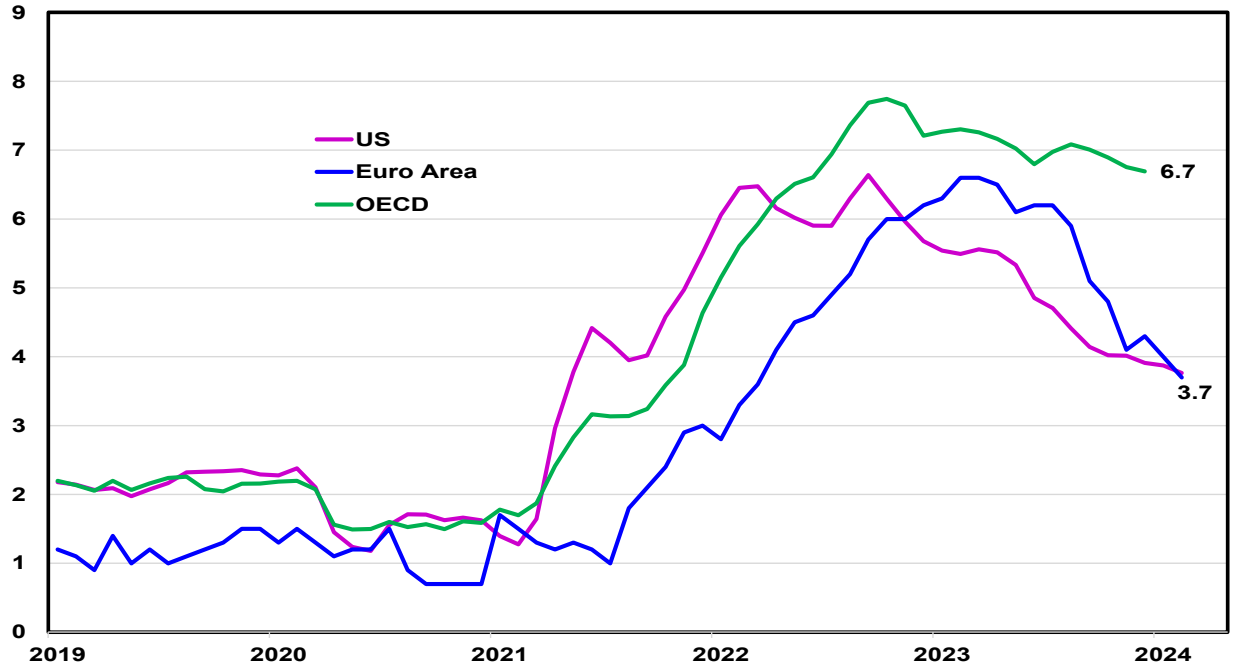
Take the short term first. Soft-landing talks imply that growth has downshifted or is about to. But it is hard to see this in the data: sure, U.S. growth has come off the boil, but is still solid. The Atlanta Fed nowcasting model is currently penning first quarter growth at a robust 2.5% — above the economy's potential. In fact, a stronger argument can be made that instead of downshifting, the U.S. economy is likely to reaccelerate in the short term. The biggest tailwind is the "Fed pivot," from "higher-for-longer" to "imminent cuts," which has spiked a spectacular rally in the market and has meaningfully loosened financial conditions. This will boost growth in the near term. And in many ways, the factors that helped America dodge a recession and thrive over the past two years are still in place to varying degrees. Low-rate long-term loans for both businesses and consumers will continue to provide a strong buffer against high interest rates for a while longer. The $1.1 trillion in excess savings, though less than half of the original stockpile, is still enough to last at least one year. Business and consumer balance sheets remain strong on aggregate. The fiscal splurge is far from over, as the bulk of funding from the three latest bills has just begun to be allocated. Oil and gas production continues to expand as more LNG terminals come online. All these factors underpin a strong economy that still has room and legs to run, at least over the next 6-8 months.

But the rosier projections in the short run stand in stark contrast to the darker outlook beyond the immediate setting. The main culprit is inflation, which as we cautioned in our previous reports, is turning out to be stickier, more stubborn, and harder to tame than most expect. The U.S., and the global economy are about to enter a new phase where rapid disinflation is being replaced by a slower slog downward. In the U.S., headline inflation has remained range-bound — between 3%-4% — since June last year. The latest figures are even more concerning, as headline inflation appears to be ticking up: from 3.1% in January to 3.2% in February (latest available data). Core inflation is also showing signs of an uptick: while the rate on a 12-month basis has declined from a cycle-high of 6.7% to a current 3.8%, annualized core inflation was up 4.2% on a 3-month basis and 4.4% on a 1-month basis, indicating that things are heating up again. Core inflation has also proven stubborn elsewhere: The rate for OECD countries has declined only marginally — from 7.7% to 6.7% — settling at more than double the historical pace (Figure B10). And even in places where progress has been more rapid, such as the Eurozone, the latest figures came at 3.1%, exceeding the 2.9% expected by the consensus.

The reacceleration in inflation is not entirely unexpected given the strength of the economy and the Fed's pivot on interest rates. Financial conditions have turned from overly restrictive to overly easy, placing further pressure on inflation dynamics. But the biggest challenges are related to supply-side issues. The boost from supply chain untangling has already occurred: once untangled, supply chains cannot become even more so. In fact, the opposite is occurring as the crisis in the Red Sea and the drought in the Panama Canal are complicating deliveries and increasing shipping rates. Geopolitical risks are at the highest level in over three decades: should tensions escalate, oil prices will rise. As argued above, supply chains are being redesigned with an eye toward resiliency rather than efficiency, which will likely put additional upward pressure on inflation. The rapid rise in labor

force participation in America, which earlier on eased pressures on wages, appears to have stalled and reversed: after rising from 60% in 2020 to nearly 63% in August 2023, the participation rate has fallen to 62.5% over the past few months. The green energy transition being orchestrated across advanced economies will also add additional strains to inflation for some time to come.

**Figure B10**
**Sticky: Core Inflation is Proving Hard to Dislodge**
**(y-o-y percent change)**




Higher inflation makes it harder for central banks to ease too aggressively, which means that recession risks remain elevated across the world. Our view is that the Fed and other monetary authorities will do all they can to avoid a recession, which means that they will begin cutting rates in the second half of this year even if inflationary pressures are not entirely vanquished. This risks a re-acceleration of inflation, which is why our baseline case for the longer term is a world with a stagflation-lite dynamic: higher inflation and slower growth.

But while signs of a re-acceleration in inflation are appearing, slower growth is harder to spot, especially in America. Yet, even here, signs of strain are emerging. Corporate bankruptcies last year rose to the highest levels since 2011, when the U.S. economy was exiting the Great Recession. Cracks have also begun to appear in consumer balance sheets. Consumers are relying significantly more on credit card debt than in the past: credit card usage exceeded $1 trillion in the summer of 2023 and has stayed elevated ever since. The cost of borrowing has also shot up and currently stands at 21.5% — the highest in over three decades. Consumers are also having a harder time paying down debt: At the end of 2021, 39% of credit card holders carried debt from month to month, but that jumped to 47% in 2023. Defaults are on the rise with auto loan delinquencies reaching their highest level since

the Great Recession. Housing wealth is at an all-time high of $30 trillion, but that is small solace when it is virtually impossible to tap given the high cost of mortgage refinancing or a HELOC loan.

Last year's mini-banking crisis was contained from morphing into a full-blown financial crisis due to unprecedented steps taken by the U.S. authorities. But some scars remain: a full three-quarters of regional banks' valuations are lower compared to pre-crisis. The value of unrealized losses due to higher interest rates was $478 billion in the fourth quarter of last year. This is less than the $690 billion recorded in Q3 2022, but persistent losses, even if unrealized, will make banks even more reluctant to lend. This was already manifest in 2023: loan volumes grew by a paltry 2.3% over the balance of the year, far below the 11.2% pace seen in 2022. And troubles in the commercial real estate (CRE) sector have yet to filter through: Small banks are particularly vulnerable because they have 4.4 times more exposure to the CRE market than large banks. And the CRE market is bracing for a record amount of maturing loans— roughly $2.7 trillion between now and end-2027, which will need to be refinanced at higher rates. In 2023, $541 billion in debt backed by commercial real estate came due, but, in most cases, owners were able to exercise one- or two-year extensions built into their original loans. Those extensions are now coming to an end, which means that some of the loans in the books of small and regional banks may go sour, placing further strains on that segment of the market.

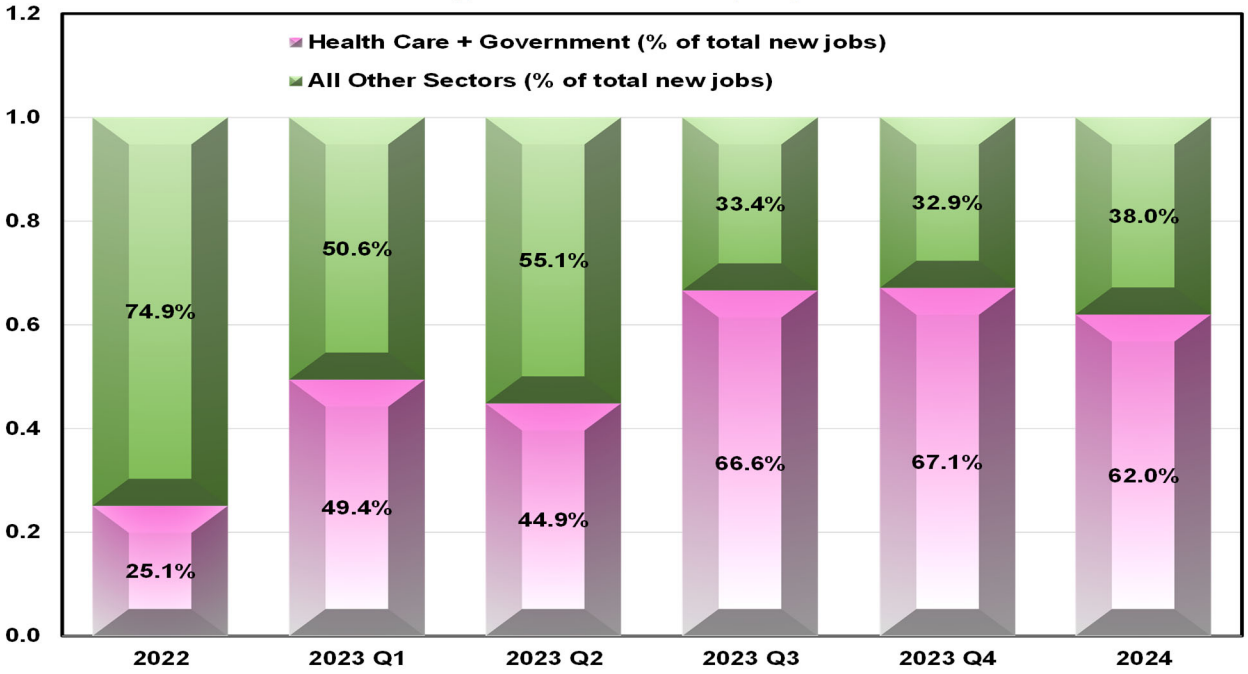
The once unassailable labor market is also showing some signs of fatigue. The breadth of job formation has narrowed ominously, with a disproportionately large number of new jobs coming from just two sectors: health care and government. In 2022, roughly 25% of new jobs came from these two sectors, in line with their overall heft in employment rolls. In the first half of 2023, roughly half of new jobs were in health care and government with this number rising to two-thirds in the second half of the year (Figure B11). This does not bode well for the economy going forward: historically the breadth of the labor market tends to narrow before the economy shifts to a lower gear.

Other leading indicators also point to further stress: the quits rate — the rate at which workers quit existing jobs and a reliable measure of labor market confidence — is now back to pre-pandemic levels after remaining elevated for over two years. Temporary help employment has declined for fifteen straight months and part time employment for economic reasons has edged up. Historically, a drop in temporary help and an increase in part time employment are harbingers of recessions, and though distortions related to the pandemic and post-pandemic recovery are likely driving some of these trends, it appears that some weakness in the labor market has begun to set in.

While slower growth in the U.S. has yet to fully materialize and become widespread, other countries have contended with sluggish economic activity for a while. In fact, the story of 2023 for the global economy is one of divergence: while it has not collapsed, growth has varied from booming (America, India) to respectable (Australia, Japan) to tepid (Canada). Indeed, some places have languished. The Eurozone is estimated to have grown by a whisker in 2023, with its real GDP rising by 0.5%. This modest growth masks even more troubling trends: Germany, Europe's largest economy, shrunk in 2023 as its manufacturing sector struggled, geopolitical risks weighed on sentiment, and slower growth in China and global trade took a bite out of economic activity. The

outlook is not much brighter for this year: the German government now expects its economy will grow by a piffling 0.2% in 2024, after initially expecting a 1.3% rate. In the UK, the economy shrank for the second consecutive quarter at the end of last year, fulfilling the technical definition of a recession, with real GDP posting an annualized rate of decline of 1.4% in the final quarter of 2023. And the UK is less insulated from higher interest rates than America: Most mortgage lending in the UK is fixed rate for 2-5 years. Over 2024, around 1.5 million UK households will need to be refinanced at higher rates, representing more than one-fifth of all outstanding mortgages.

**Figure B11**
**The Breadth of the U.S. Labor Market Has Narrowed**
**(percent of total new jobs)**



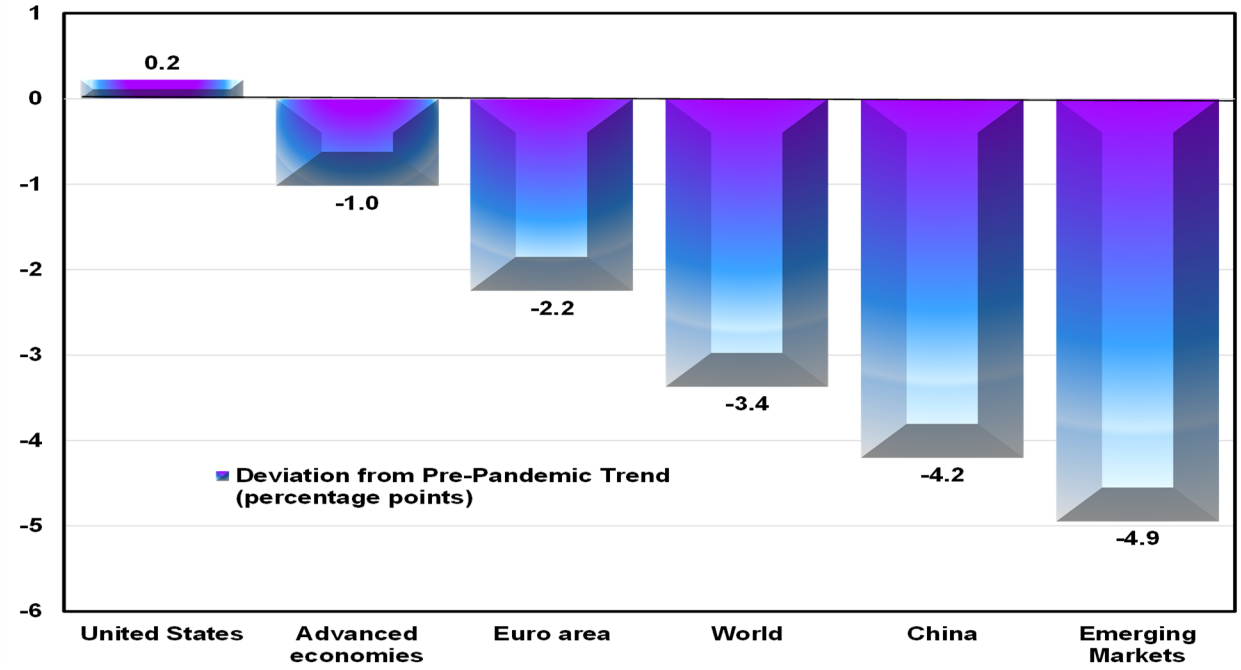

Struggles in Europe were not entirely unexpected, given its proximity to geopolitical hotspots. In fact, the surprise is that the Eurozone managed to avoid a full-scale recession last year. Risks were high: the war in Ukraine sent energy prices through the roof in 2022 and early 2023, hamstringing Europe's manufacturing sector. And some new risks are building: The escalation of tensions in the Middle East and troubles with cargo traffic in the Red Sea have pushed freight costs sharply higher for European manufacturers that rely on Asian suppliers for intermediate goods. In fact, the Red Sea gummed up cargo traffic has a much more direct impact on European economies than the U.S., given the current organization of supply chains.

It's not just Europe: growth in the rest of the world was sluggish last year even as the global economy avoided a recession. Even though Japan grew at a faster pace in 2023 relative to 2022, its economy weakened at the end of the year, with fourth-quarter growth shrinking by 0.1% after a third-quarter decline. China's economy disappointed on many fronts. Its much-anticipated reopening

from the pandemic fizzled out before it even truly began. Its real estate sector, worth around 20% of GDP, continues to struggle and property developers are buckling under debt burdens amounting to roughly 16% of GDP. Unlike the rest of the world, the country spent the better part of 2023 grappling with a bout of deflation as consumer prices fell in the face of weak demand. Uncomfortable figures — such as high youth unemployment (north of 20%) and rock-bottom confidence — prompted the National Bureau of Statistics to stop releasing them altogether rather than face embarrassing headlines. Most ominous is the fact that its old business model, underpinned by heavy investment in infrastructure and real estate, is crumbling.

It is not surprising then that as of the end of 2023, the U.S. was the only major economy that not only recovered fully from the pandemic but surpassed its pre-pandemic trend: U.S. real GDP is currently 0.2% above the path in which it would have grown had the pandemic never happened. Growth in the euro area is around 2.2% below pre-pandemic projections, while that in China languishes a full 4.2% below pre-pandemic trends (Figure B12).

**Figure B12**
**Only the U.S. Has Surpassed Its Pre-Pandemic Trend Growth**
**(percentage point deviation from trend)**




We expect the global economy to avoid a recession over the next two years, but growth will slow over the horizon, in part because of continued headwinds: rising geopolitical risks, persistent inflation, and higher-than-expected interest rates. However, sources of strength will likely rotate over the next couple of years. While we expect the U.S. to continue to push growth forward in the short term as other economies languish, the opposite is expected in the longer term, with growth from the rest of the world compensating for the expected slowdown in the U.S. Growth in Europe should pick up, albeit slowly, as the ECB has more space to cut rates quickly and more aggressively

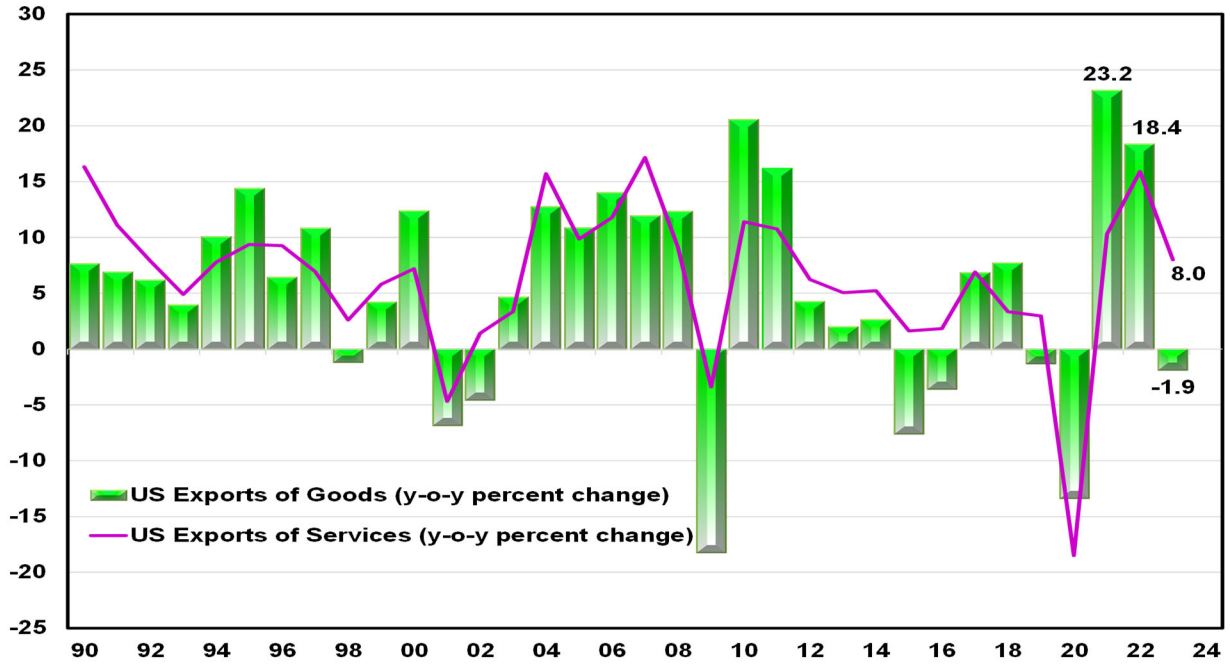
than the Fed. The UK began the year on a stronger footing as growth picked up in January after the technical recession in the second half of last year. The Japanese economy will also pick up speed after ending 2023 on a sour note, as it appears to have finally escaped the clutches of deflation. For the first time in nearly three and a half decades, the Nikkei stock index hit its first high a few weeks ago. The Chinese economy will continue to struggle, given its structural problems, but fiscal support should provide some help. To be sure, what is being advertised from Beijing so far falls short of what is needed to boost the economy: the local government bond issuance quota at CNY3.9 trillion ($550 billion) is only slightly above last year's figures, and the central government has only announced the issuance of CNY1 trillion ($150 billion) in long-term sovereign bonds in 2024. Nonetheless, we expect the central government to provide additional support during the year and monetary policy to continue to remain accommodative. Thus, the Chinese economy is likely to grow by around 4.5%, lower than the 5% target set by the government but higher than in 2022. Overall, we expect world GDP growth to come at 2.9% in 2024 and 2.7% in 2025. World merchandise export growth is expected to be 4.2% in 2024 and 3.2% in 2025.

## C. U.S. EXPORTS: RECENT TRENDS AND OUTLOOK

As we cautioned in our last report, U.S. merchandise exports had a difficult 2023, falling by 1.9%, as geopolitical risks rose, fragmentation continued, the world economy grappled with higher interest rates, and global trade came to a standstill (Figure C1). Even so, the decline came on the heels of two back-to-back spectacular years: U.S. merchandise exports rose by an astounding 23% in 2021, the fastest pace in over 30 years, and a robust 17.5% in 2022. The decline was primarily due to a drop in Oil and Gas exports (-14%), the fourth largest category of U.S. exports, though a few other major exporting sectors also experienced weaker trends: exports of Chemicals fell by 2.2%, and Computer and Electronics declined by 1%. The decline in oil exports is strictly due to a drop in crude oil prices over this period rather than a drop in volume: in 2023, U.S. crude oil exports averaged nearly 4 million barrels per day, the highest since 2015, when a ban on crude oil exports was lifted. Exports of Transportation Equipment — the largest export category — rose by a staggering 16.2%, in large part because of increased exports to the USMCA countries, Canada and Mexico, as car manufacturing in general, and the production of EVs in particular takes off.

Service exports held up better, growing at a nearly 8% annualized pace (Figure C1). Though this is below the 10.2% pace of 2021 and the almost 16% recorded in 2022, service exports boosted growth and helped the U.S. economy avert a recession last year. Education is at the forefront of service exports, with the U.S. hosting an unprecedented 1 million foreign students last year, a 12% increase over 2022 data and the fastest growth in over four decades. Travel has also rebounded since the pandemic, with international spending (which includes travel, tourism, education, and medical) contributing a hefty $213 billion to the U.S. economy last year. It should be noted that services make up only about a third of overall U.S. exports— which, at $3 trillion in 2023, set a record high— with two-thirds still consisting of exports in merchandise goods.

**Figure C1**
**U.S. Merchandise Exports Had a Tough 2023, but Service Exports Helped**
**(y-o-y percent change)**




The outperformance of service exports is not a surprise. First, as the pandemic receded, a splurge in travel was expected. As of December 2023, U.S. airport traffic is nearly back at pre-pandemic levels, ending the year just a hair below December 2019 values (-0.5%). Second, service exports are much less sensitive to higher interest rates than merchandise goods. This is the reason why growth in service exports has outperformed goods exports every single month since October 2022, when rate hikes around the world began to hamper economic activity and weigh on trade (Figure C2). In fact, since March 2022, when the Fed began its rate hiking cycle until February of this year (latest available data), exports of goods have fallen by -0.1%; in contrast, services exports have risen by 5 percentage points over this period.

The good news is that recent talks about rate cuts and a brighter shorter-term economic outlook have given a boost to trade over the past six months. U.S. merchandise exports rose by 4.3%, since hitting a trough in June of last year (Figure C2). We expect U.S. exports to grow by 4.8% in 2024 as rate cuts across the world materialize and the global economy continues to remain resilient. Growth is expected to decelerate to 2.9% in 2025 as stagflationary-like dynamics become more widespread before rising to 6.6% in 2026.

It's also worth noting that despite a more lackluster performance in 2023, trade contributed positively to real GDP growth, the first year to do so since 2013. Net exports added 0.6 percentage points to economic growth last year, another reason why the U.S. economy was able to dodge a recession (Figure C3). Similar to the 2008-09 period, the boost to growth came from a combination of both rising overall exports (spurred by the export of services) and a decline in imports.

**Figure C2**
**U.S. Merchandise Exports Have Turned a Corner and Have Risen Last Six Months**
**(y-o-y percent change)**

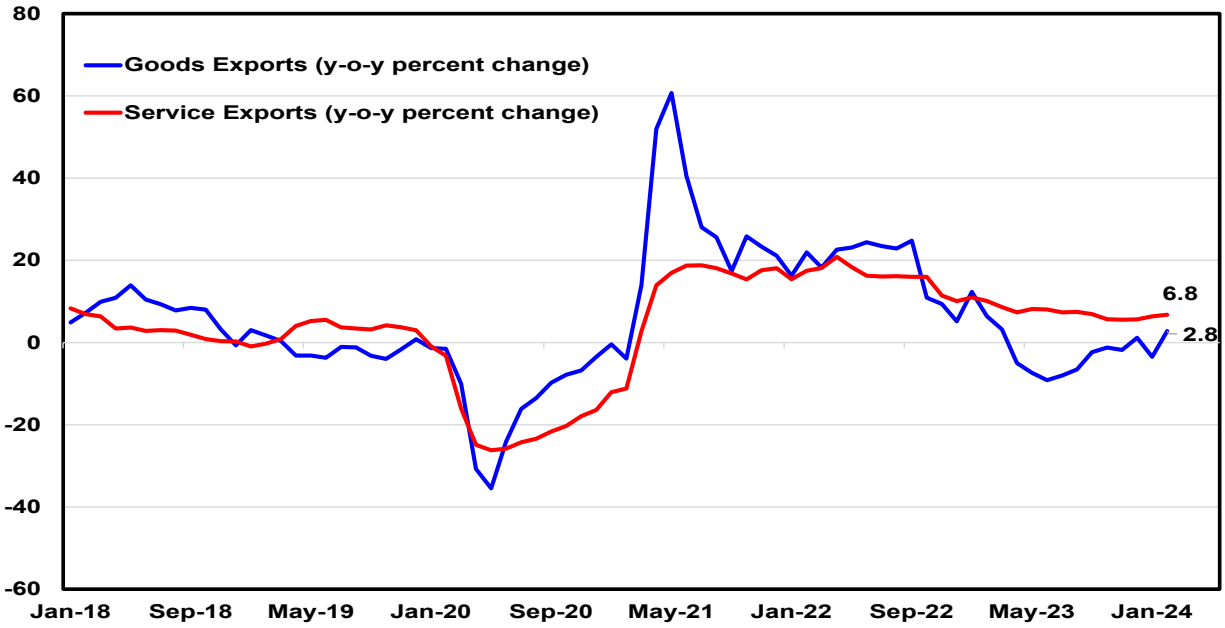
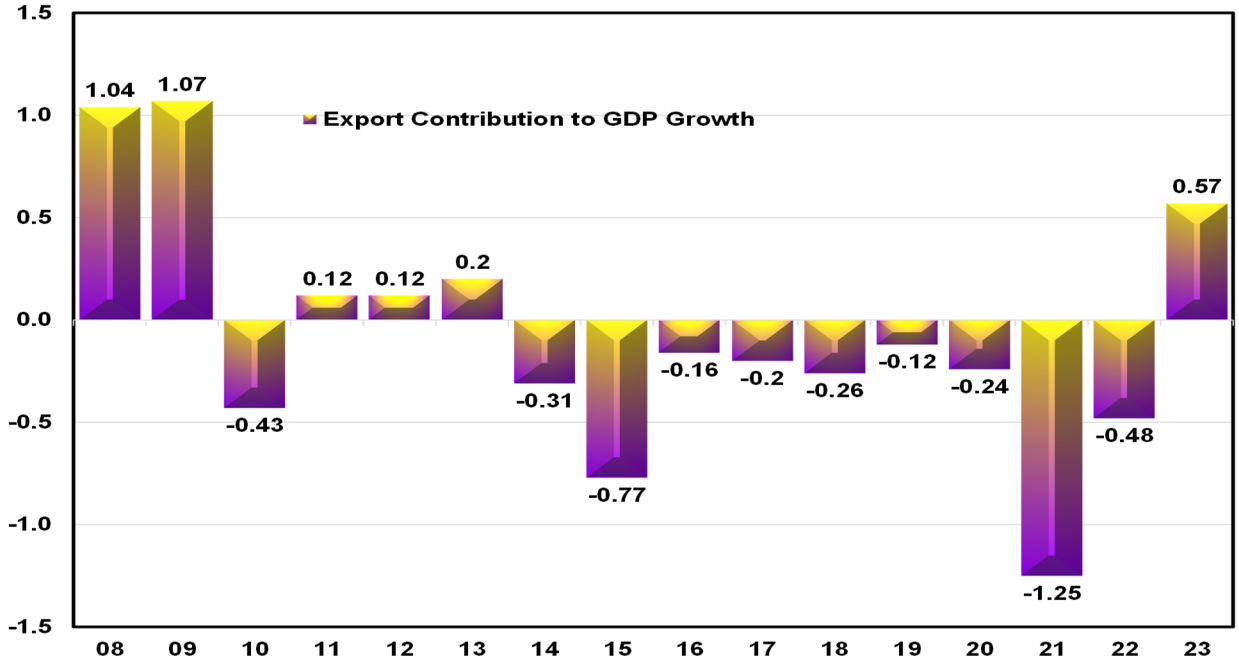


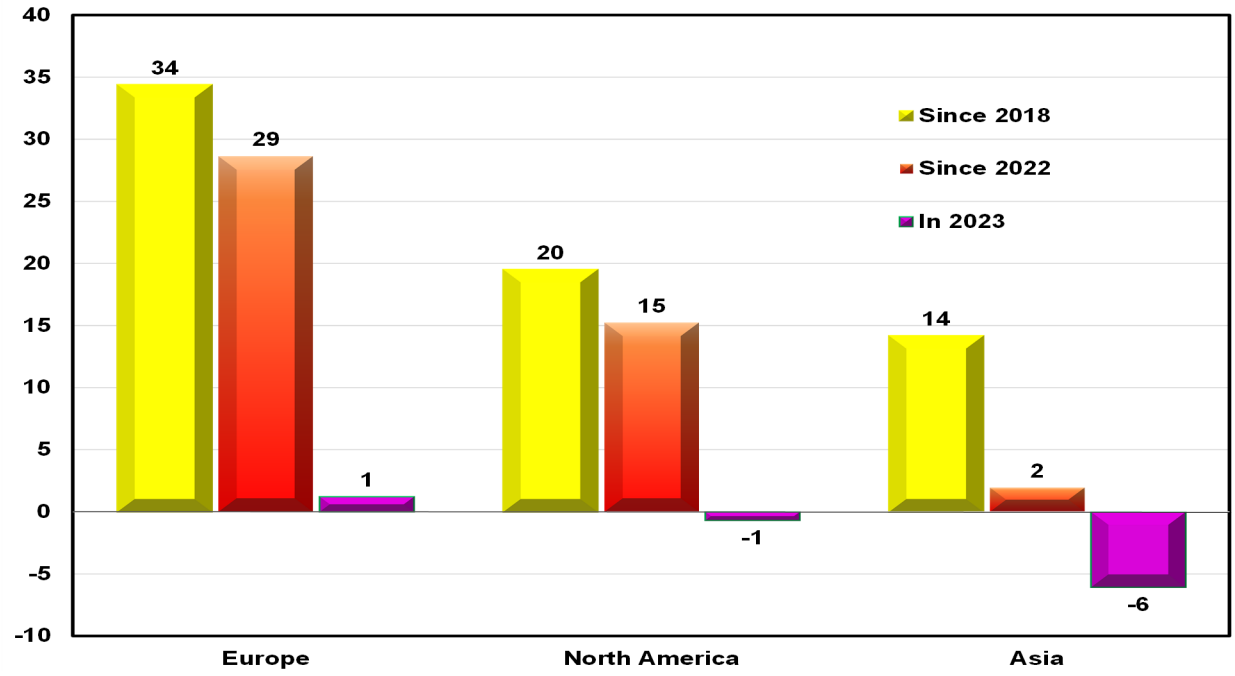

**Figure C3**
**Trade Contributed to Real GDP Growth in 2023 for the First Time in a Decade**
**(contribution to growth, percentage point)**




Focusing closer on merchandise exports, it is important to note that last year's decline would have been even deeper had it not been for a barely perceptible but important structural shift: the U.S. is exporting much more to Europe than in the past, and less to Asia. Exports to the USMCA (Canada

and Mexico) region have grown, but at an average pace. To be sure, USMCA is still the top destination for American exports (with $676 billion in 2023), Asia is second (with $509 billion) and Europe a close third (with $497 billion). But exports to Europe were the only ones that actually grew last year— by a meager 1.2% but growth, nonetheless (Figure C4). Those to North America fell by 0.7%, while exports to Asia sagged by a more worrying 6%. In fact, since the trade wars began — in 2018 — merchandise exports to Europe have galloped ahead, leaving everyone else in the dust. American exports to Europe have risen by a jaw-dropping nearly 35% over this period, while those to the USMCA countries increased by a more modest 19%. Asia has fallen far behind, with exports growing only by 14% over this period.

**Figure C4**
**Export Growth by Main Region**
**(percent change)**

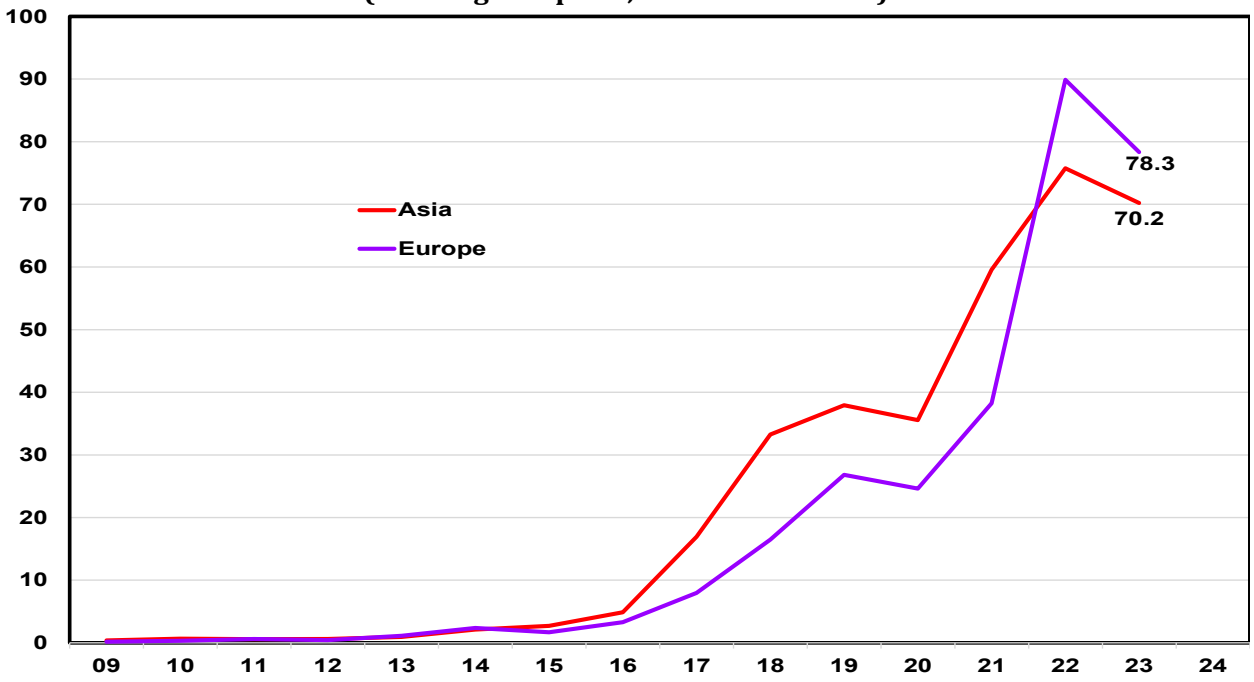



Indeed, the destination list for U.S. exports has undergone a dramatic shift over the past few years, reflecting the trend away from Asia and towards Europe. The Netherlands and Germany are now the top 4th and 5th export destinations, with Japan and the UK slipping to the 6th and 7th spot, respectively. France has dislodged Singapore from the 10th spot. Canada is still the top destination for U.S. exports (with 17.5% of total exports); Mexico is a close second (with 16%), and China the third (accounting for 7.4%, down from 8.4% in 2017). Netherlands now accounts for a full 4% of U.S. exports, while Germany for 3.8%.

The shift towards Europe has everything to do with the Russia/Ukraine war, as European countries have dramatically reduced their reliance on Russian energy exports. The U.S. has filled the void: U.S. oil and gas exports to Europe almost tripled in 2022, from $38 billion in 2021 to $91 billion. They fell to $78 billion last year due to a drop in energy prices and sluggish growth in Europe, but

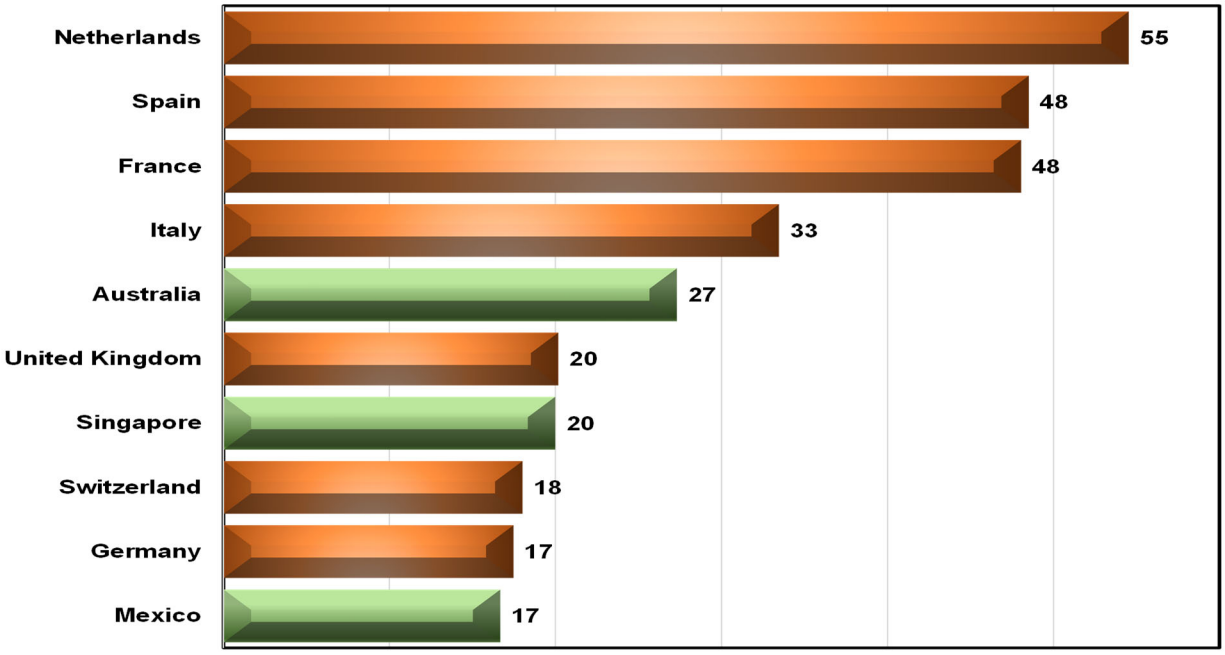
they remain quite historically elevated, surpassing energy exports to Asia, which have been higher historically (Figure C5). In fact, oil and gas exports made for a hefty share of U.S. exports to individual European countries: In 2023, they accounted for 34% of total exports to Spain (the 19th largest destination for U.S. exports), 30% of exports to the Netherlands, 20% for France and Italy (the 10th and 16th destination), and 14% for the UK (the 4th largest).

**Figure C5**
**Energy Exports to Europe Have Surpassed Asia**
**(oil and gas exports, billions of dollars)**




It is not a surprise then that U.S. exports to European countries have experienced the strongest growth over the past two years, largely on the back of robust energy exports. Since the start of the Russia/Ukraine war, seven of the top ten fastest-growing U.S. export destinations were in Europe, with exports to the Netherlands growing by a total of 54%, those to Spain and France by 48%, and to Italy by 33% (Figure C6).

**Figure C6**
**Export Growth Has Been Highest to European Countries Since Start of Russia/Ukraine War**
**(percent change, February 2022 to December 2023)**



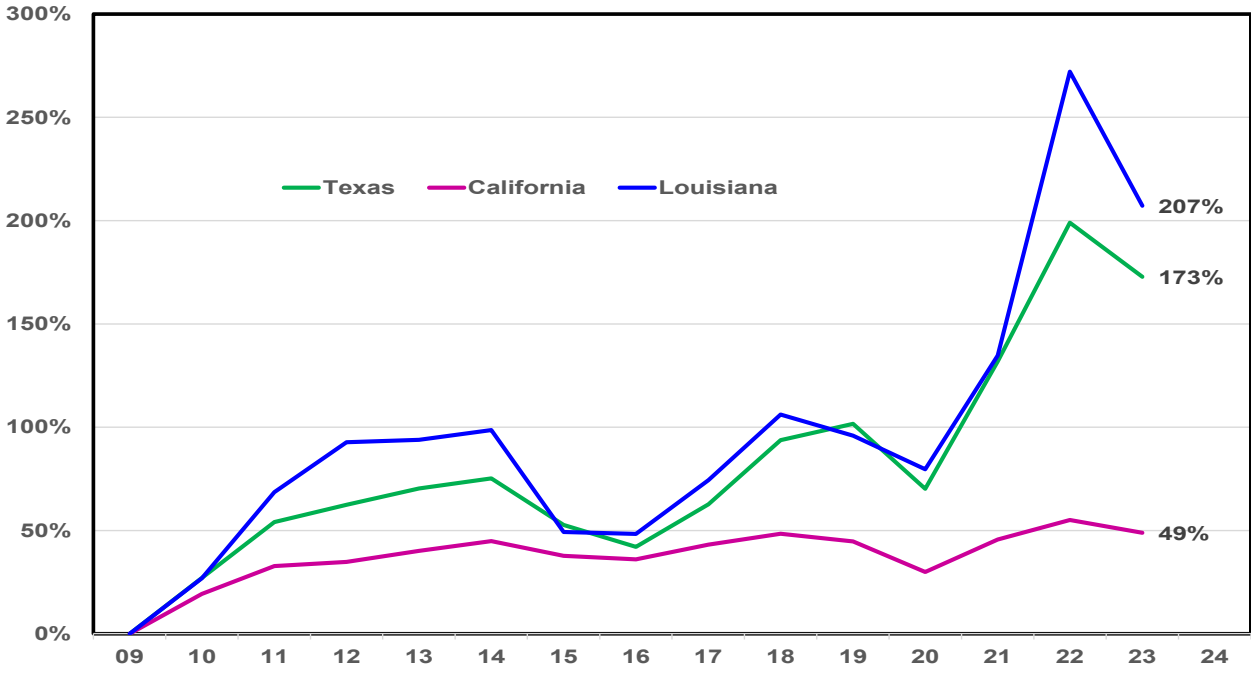

## C.1 It's All About That Oil and Gas: An Energy Export Juggernaut

The U.S. has become one of the biggest producers (and exporters) of energy products: in the last quarter of 2023, America produced a record 13.3 million barrels of oil per day. Last year it exported the same amount of crude oil, refined products, and natural gas as Saudi Arabia or Russia produces. Oil and gas exports were the 12th largest sector in 2012, prior to the shale revolution, coming at a mere $11 billion, or 0.7% of total U.S. exports. By 2023, Oil and Gas exports reached $184 billion, accounting for more than 9% of total exports and ranking as the fourth largest export sector, behind Transportation Equipment ($291 billion), Chemicals ($282 billion), and Computer & Electronics ($231 billion).

The energy revolution has upended the ranking of states and Metropolitan Statistical Areas (MSA) for merchandise exports. Texas and California remain the top two exporting states, but the gap between the two has widened dramatically over the past 15 years. From 2009 to 2023, exports from Texas grew from $146 to $444 billion, a cumulative 173% increase (Figure C7). During that period, exports from California rose by a much more tepid 49%, from $120 billion to $178 billion. But the most impressive performance has come from Louisiana, whose exports staged a dramatic increase from $32 billion in 2009 to over $100 billion in 2023. For the second year in a row, Louisiana is ranked 3rd in the nation in terms of merchandise exports, having edged out New York (with $97 billion) for that spot. In contrast, Washington has dropped from the 4th spot in 2009 to the 8th spot, primarily due to declines in aircraft deliveries (Transportation is Washington's top exporting sector). Indeed, Washington's merchandise exports have had a difficult time since the pandemic: aircraft and

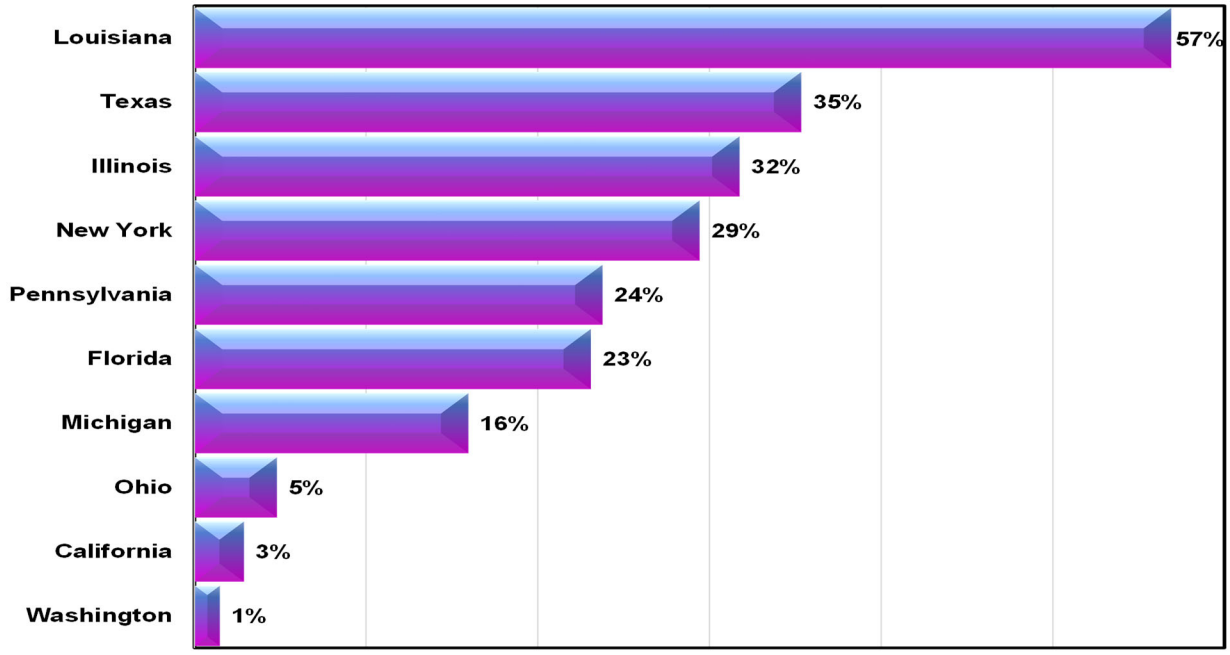
parts commonly make up around 40% of the state's exports, but they accounted for a mere 29% over the past three years due to declines in air travel during the pandemic and the 737 Max challenges.

**Figure C7**
**Export Growth: Top Three Exporting States**
**(percent change since 2009)**




The "true" oil and gas bonanza can be seen especially since 2022, when Russia invaded Ukraine, and the US stepped in to backfill the energy needs of the Eurozone. Export growth for oil producing states has skyrocketed since then: Louisiana's exports grew by a jaw-dropping 57%, while Texas' by 35%. Of the top ten exporting states, Washington grew the least — by a paltry 1.4%— followed by California with the second lowest growth at 2.8% (Figure C8). The sluggish growth of California exports can be attributed to the makeup of exports: California's top exporting sector is Computer & Electronics, but this category has underperformed under trade wars. California exports of Computers and Electronics reached a peak of $45 billion in 2018. Since then, exports have fallen to a bit less than $41 billion, a drop of 9.3%.

**Figure C8**
**Oil and Gas States the Top Performers Since Ukraine War**
**(percent change since 2022)**

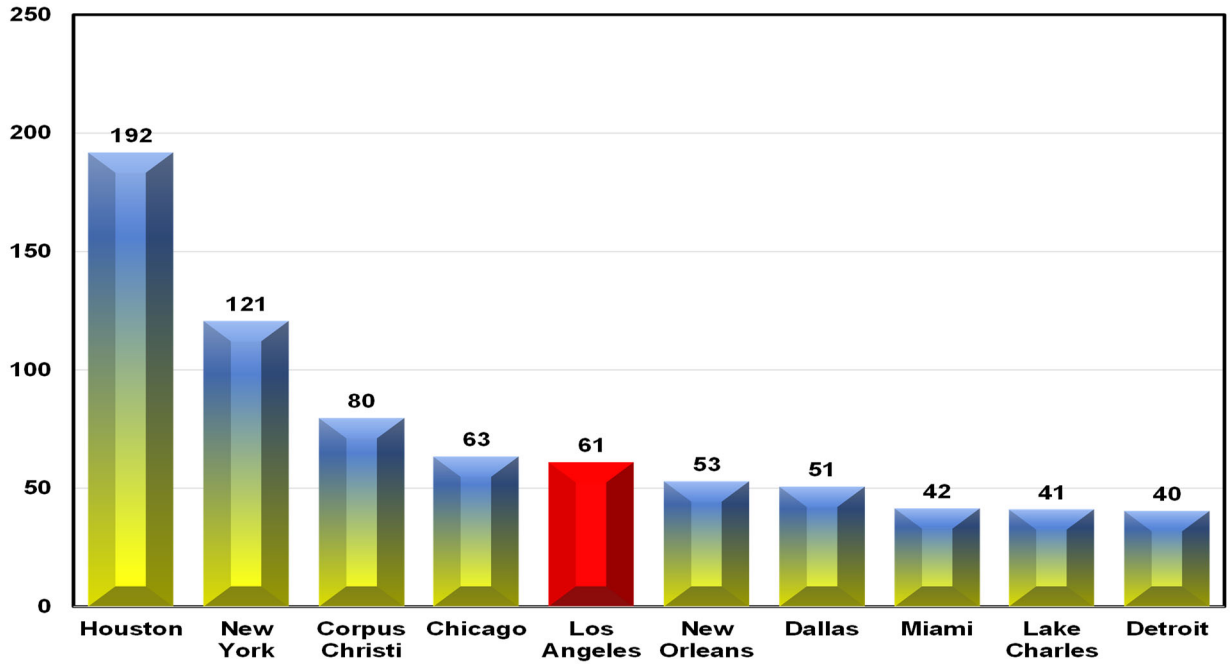



The importance of energy exports stands out even more starkly at the MSA level. In 2005 (when MSA export data began), the top two largest exporters were the New York-Newark-Jersey City MSA (with $55.5 billion in exports) and Los Angeles-Long Beach-Santa Ana MSA (with nearly $44 billion). By 2022 (latest available data), the ranking had been reshuffled almost entirely (and almost unrecognizably). The Los Angeles MSA dropped to the 5th spot (with nearly $61 billion in exports), far behind the top spot Houston MSA, which exported more than three times as much ($190 billion). New York-Newark-Jersey City MSA was ranked a distant 2nd ($120 billion), and Corpus Christie MSA was slotted 3rd, exporting $79 billion in 2023. For reference, Corpus Christie MSA was ranked 107th largest exporter in the nation in 2005 (Figure C9).

But it's not just Corpus Christie. Two other MSAs have moved up the rank: New Orleans-Metairie was the 6th largest exporter among the metro areas in 2022 (with $52 billion in exports), and Lake Charles MSA was the 9th largest (with $42 billion). Neither was even in the top 30 in 2005: New Orleans MSA was ranked 38th back then, and Lake Charles was 170th. The three newcomers in the top 10— Corpus Christie, New Orleans, and Lake Charles— have something in common: a huge increase in oil and gas exports since 2018. Corpus Christie oil and gas exports in 2022 were a dizzying $65.5 billion (accounting for 82% of total exports from the region), Lake Charles exported $32 billion (78% of total exports), while New Orleans exported $6 billion (12% of total). To make way for the

newcomers, three MSAs are no longer in the top ten rankings: Seattle-Tacoma-Bellevue, WA, San Jose-Sunnyvale-Santa Clara, CA, and Boston-Cambridge-Newton, MA-NH.

**Figure C9**
**Oil and Gas MSAs Have Seen a Renaissance in Exports**
**(billions of dollars)**



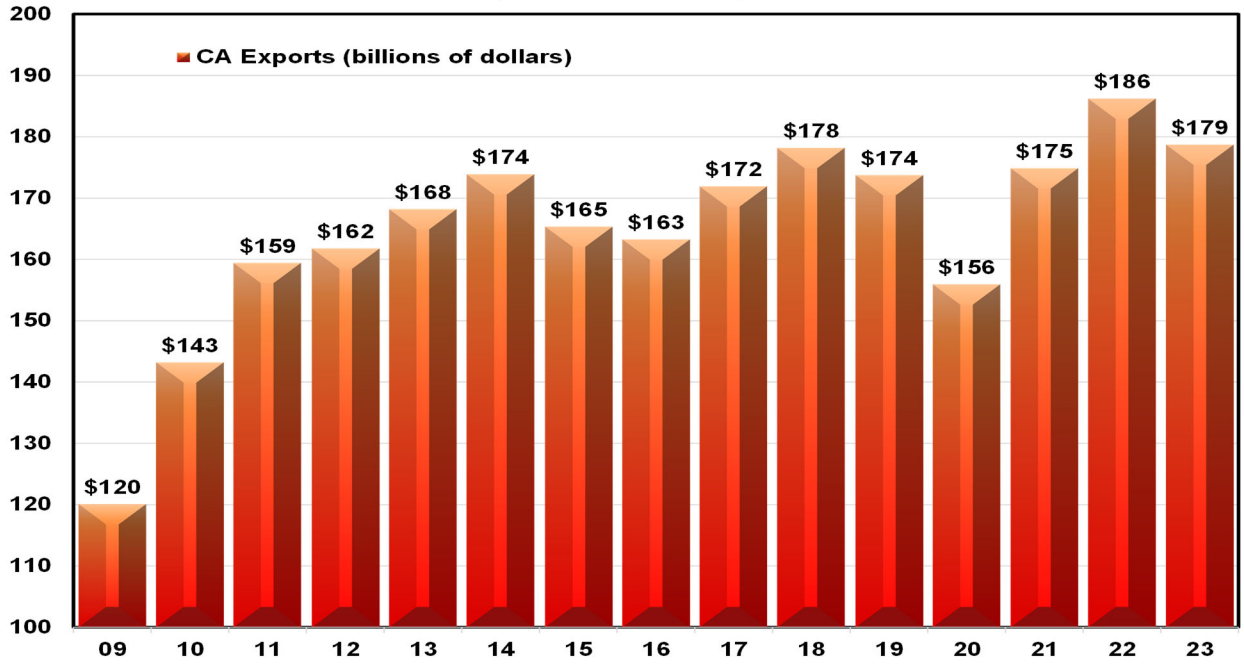

## D. CALIFORNIA EXPORTS: RECENT TRENDS AND OUTLOOK

California merchandise exports shrank by 4% last year, more than the nation's 1.8% decrease, after rising by a robust 12% in 2021 and a more tepid 6.6% in 2022. Total exports were $178 billion in 2023, roughly around the same level as in 2018, right before the commencement of the U.S.-China trade war (Figure D1). California exports reached a historical high of $186 billion in 2022 before taking a step back last year, but even so, the pace of growth has been the most anemic among the top exporting states, even slower than Washington's since 2020. For example, California exports have risen by 14% since the pandemic (from 2020 to 2023), far below the 70% growth posted by Louisiana (3rd ranked state) and the 60% growth in Texas (1st ranked). As we have argued in the past, some of the slow rebound from the pandemic can be attributed to California's more stringent lockdown restrictions during the pandemic and a slower pace of normalization compared to other states. For example, when the first lockdown was implemented, California lost a full 16% of its workforce, while Florida and Texas lost around 14% and 12%, respectively. More importantly, California implemented more stringent criteria throughout the pandemic than other states, adopting a second lockdown in summer 2020 and a third one in the winter of 2020/2021.

Exports from all top industries (those with values above $10 billion) declined last year, with the exception of Transportation Equipment (the second largest category), which grew by 6.6%. This

was driven primarily by an outsized jump in vehicle and vehicle parts exports to Mexico— by a staggering 18%, as supply chains reoriented. In particular, car production is being relocated to Mexico from tariffed countries (such as China) to take advantage of the USMCA free trade agreement. California is uniquely positioned to benefit from the recent reshuffling of supply chains, given its geographic location and proximity to Mexico. Exports from other industries fell: Computers & Electronics (the largest category) shrunk by 1.5% compared to previous year values; Machinery exports (3rd largest category) collapsed by an unexpected 19%; Chemicals (fourth largest) dropped by 3.4%, and Agriculture exports shrank by 2.3%.

**Figure D1**
**California Exports Have Treaded Water Over the Past Five Years**
**(billions of dollars)**

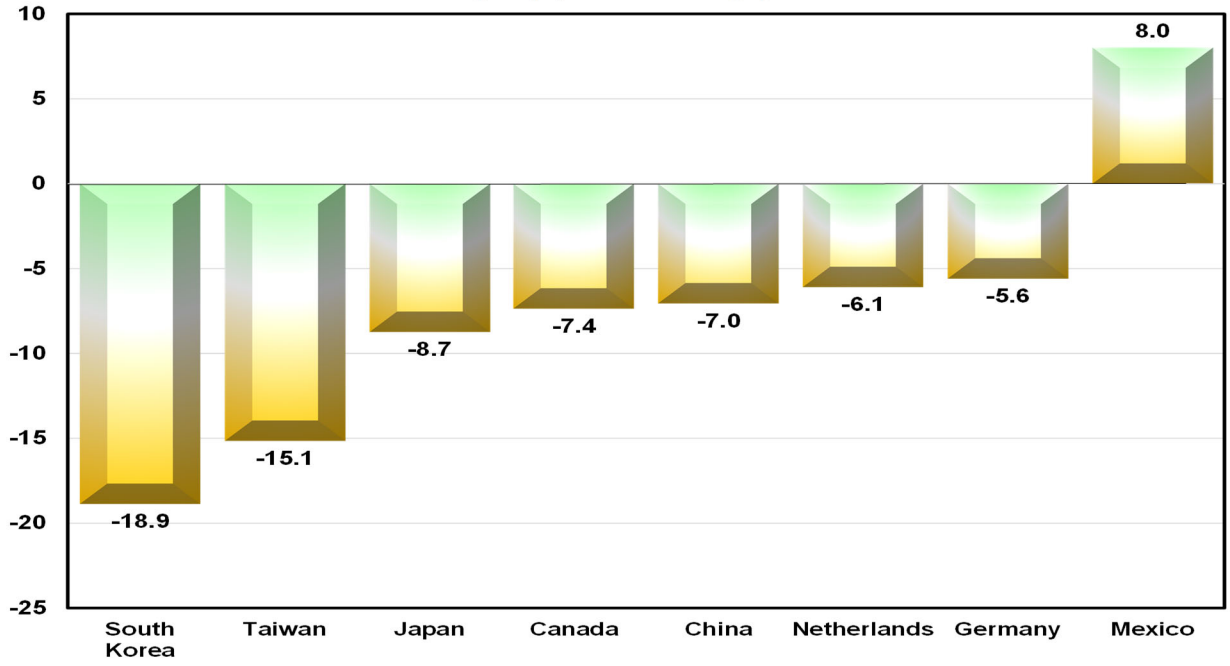



The top export destinations for California in 2023 were: Mexico (with $33 billion in 2023), Canada ($19 billion), China ($16.9 billion), Japan ($10.6 billion), and South Korea ($9.3 billion). The only destination (among top importers) where California exports grew last year was Mexico, up 8.8% compared to a year prior (Figure D2). Everywhere else, exports collapsed, with Asia Pacific faring the worst. California's exports to South Korea fell by an astounding 18%, exports to Taiwan decline by 15%, and exports to Japan by 8%. Exports to China also fell, reflecting a broader national pattern, but by a smaller 7%. California exports to China, Japan, and South Korea are currently at 2017-2018 levels. The secular decline of exports to Japan is puzzling: Japan's economy grew more robustly last year.

The decade-old U.S./South Korea free trade agreement should have also boosted exports to that country. Instead, exports to South Korea have suffered declines in back-to-back years. But this is not specific to California: national exports to South Korea also declined by 10% last year. Weaker

exports to South Korea are due to a sluggish performance of the South Korean economy: global monetary tightening, anemic growth in China (with which South Korea has close trade ties), and a slowing of global demand for chips have combined for slower growth in that country.

**Figure D2**
**California Exports Fell to All Top Destinations Last Year, Except to Mexico**
**(y-o-y percent change)**




Exports have never accounted for much of the state's GDP, unlike in the case of other top exporters, and with a tepid recovery from the recession, the share of merchandise exports in the state's GDP has slid even further: Exports now account for 4.6% of California's GDP, down from 7.9% in 2011. This is far behind some of the top exporting states: exports account for a jaw-dropping 30% of Louisiana's GDP and 17% of Texas' GDP (Figure D3). This speaks to the diversity of the state's economy, which tends to insulate the state from the booms and busts of global trade. We expect California exports to grow by 3.1.% in 2024 and by 1.4% in 2025.

Within the state, the Los Angeles Metro Area accounts for the bulk of exports: $60 billion in 2022 (latest available data), roughly twice the value of the 2nd ranked MSA, San Francisco (with $30 billion). San Diego MSA and San Jose MSA come in 3rd and 4th, respectively, with around $24 billion in exports. Inland Empire rounds up the top 5 exporters, with a much smaller $11 billion in merchandise exports. However, growth has been uneven: since the pandemic, Inland Empire exports have grown at the fastest pace, by nearly 34%, significantly outpacing the 21% rate of the Los Angeles MSA (Figure D4). Most importantly, while the Inland Empire, San Diego, and San Francisco merchandise exports have set fresh new highs after the pandemic, exports from both Los Angeles and San Jose are below their peaks by a staggering 20% in the LA Metro Area and by 13% for San Jose. The record for the Los Angeles MSA was set in 2013 as global trade rebounded strongly from the financial crisis and

the Obama administration began an earnest push to boost growth through exports. The peak for San Jose stretches even further back in 2006, before the onset of the financial crisis.

**Figure D3**
**State Exports as Share of State GDP in 2023**
**(percent of GDP)**

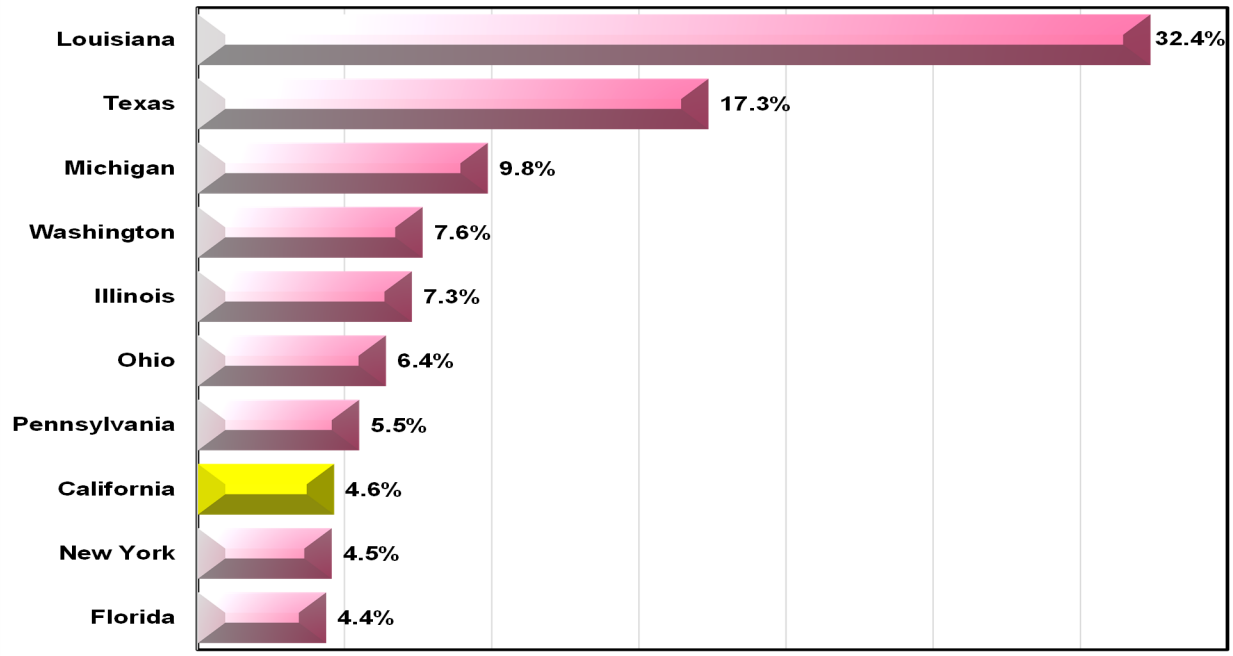
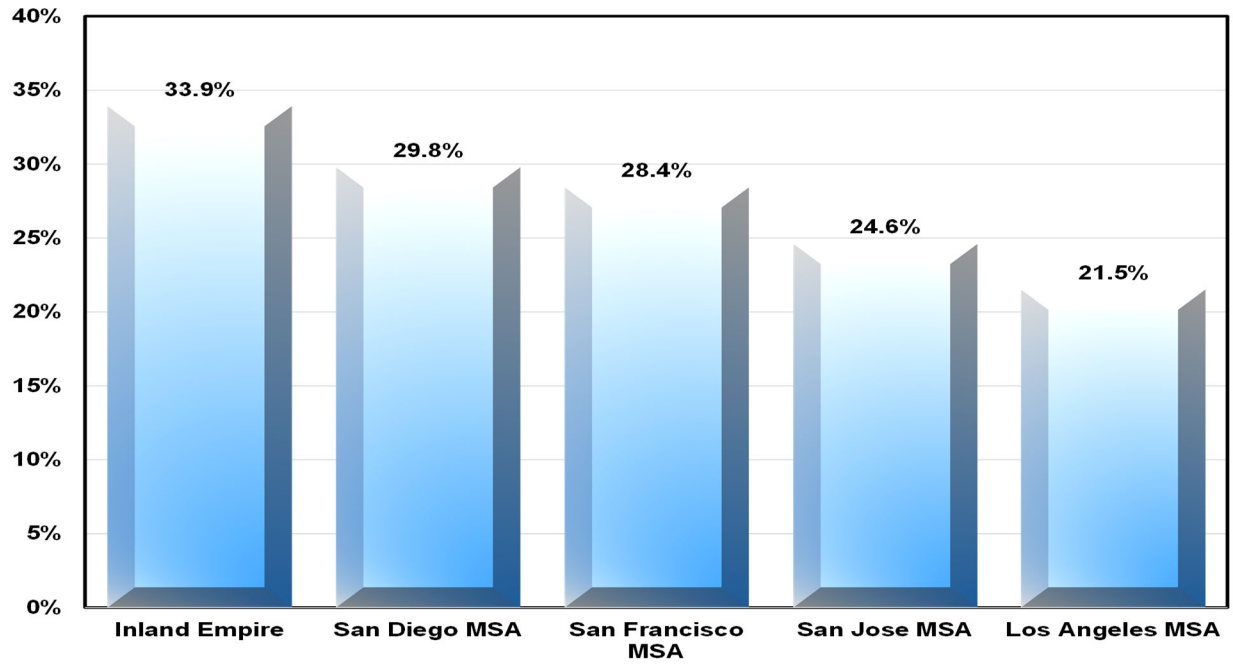



**Figure D4**
**California MSA Export Growth After the Pandemic**
**(percent change since 2020)**



## E. REGIONAL EXPORTS: RECENT TRENDS AND FORECASTS

In 2022 (latest available data), the Los Angeles MSA had the second-largest gross metropolitan product at $1.2 trillion, trailing behind the New York-Newark-Jersey City MSA, which was nearly twice as large at $2.2 trillion. In a trend that has been in place since the pandemic, the population of Los Angeles and Orange Counties continued to decline in 2023, falling around 3.4% below their 2020 levels. While the U.S. economy experienced robust growth in 2023, defying expectations, the performance of the state and regional economies was quite sluggish. For example, while real GDP growth in the U.S. came at a healthy 2.5% and employment growth at 2.3%, employment in Los Angeles County saw only a marginal uptick of 0.2%. This is in stark contrast to the staggering 5.3% increase observed in 2022. The annual unemployment rate in Los Angeles County remained at 5.0% throughout 2022 and 2023, lower than the peak of 18.9% recorded in May 2020, but significantly higher than the national average which has remained below 4% for over two years.

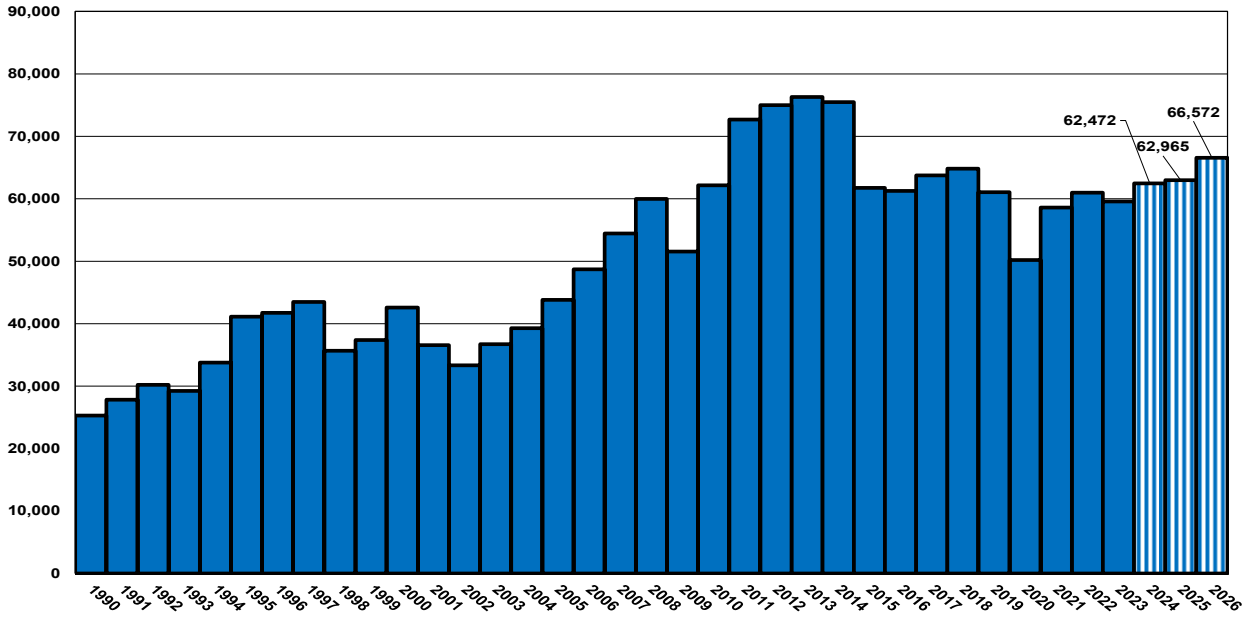
Merchandise exports constituted approximately 5.0% of the Gross Metropolitan Product (GMP) of the Los Angeles Metropolitan Statistical Area (MSA) in 2022 (latest available data). The Los Angeles MSA benefits significantly from its direct connectivity to the two primary ports of the nation, robust infrastructure, strong manufacturing base, and expansive distribution and warehousing facilities. Although Orange County is part of the broader Los Angeles MSA, it is examined separately in the next section due to its substantial contribution to the region's economic growth and development.

At the time of this report, data is available from the International Trade Administration (ITA) for total merchandise exports for the Los Angeles MSA only from 2005 through 2022. The U.S. Census Bureau provides total merchandise exports for the Los Angeles MSA for 2023. While the ITA provides merchandise export data from 2005 through 2022 by region, country (top 50), and sector (top 30), considerably less details are available for 2005, 2006, and 2007 and 2023. No export data are available for the period preceding 2005. The Woods Center at California State University Fullerton provides historical estimates for years prior to 2005 (by country, regions, and sectors) and for 2023, which are derived from an econometric model that accounts for trends in regional, state, national, and international trade patterns. These estimates are consistent with the new methodology adopted by the U.S. Census Bureau for tracking merchandise exports (see Appendix A2 and A3). Forecasts for 2024-2026 are based on statistical and econometric models using historical estimates for the region's exports, state and national export volumes, trade-weighted exchange rates, labor productivity in export-related industries, as well as U.S. and foreign real GDP growth rates.

## E.1 Los Angeles MSA Merchandise Exports

Merchandise export from the Los Angeles MSA fell by -2.3% to $59.6 billion in 2023, after growing by 4.1% the previous year (see Figure E1 and Table 2). The metro area has underperformed the national picture: U.S. merchandise exports fell by a more muted -1.8% in 2023 and rose by a staggering 18% in 2022. Los Angeles metro area exports are currently $1.5 billion below pre-pandemic levels and a full $16.7 billion below the peak reached in 2013, which stood at $76.3 billion. Last year's drop in exports comes as no surprise given the decline in global trade amid geopolitical tensions and changing trade dynamics.

**Figure E1**
**Los Angeles MSA Total Merchandise Exports**
**(millions of dollars)**




*Source: Woods Center, California State University Fullerton and International Trade Administration*

Merchandise exports from the Los Angeles MSA are projected to rise by 4.9% in 2024, reaching $62.5 billion, as the global economy avoids a recession, but growth remains relatively subdued. We project merchandise exports to remain relatively flat in 2025 as headwinds from the U.S. economy spread and global growth slows. With stronger world economic growth, merchandise exports are forecasted to rebound in 2026, growing by 5.7% to reach $66.6 billion. By the end of the forecast horizon in 2026, merchandise exports from the Los Angeles MSA are projected to be $9.7 billion less than the record high of $76.3 billion in 2013.

**Table 2**
**Los Angeles MSA Total Merchandise Exports**
**(millions of dollars)**

| Year | Total Export Volume | Growth Rate |
|---|---|---|
| **1990** | 25,290 | n/a |
| **1991** | 27,824 | 10.0% |
| **1992** | 30,208 | 8.6% |
| **1993** | 29,229 | -3.2% |
| **1994** | 33,757 | 15.5% |
| **1995** | 41,113 | 21.8% |
| **1996** | 41,739 | 1.5% |
| **1997** | 43,480 | 4.2% |
| **1998** | 35,669 | -18.0% |
| **1999** | 37,372 | 4.8% |
| **2000** | 42,573 | 13.9% |
| **2001** | 36,538 | -14.2% |
| **2002** | 33,324 | -8.8% |
| **2003** | 36,725 | 10.2% |
| **2004** | 39,279 | 7.0% |
| **2005** | 43,814 | 11.5% |
| **2006** | 48,718 | 11.2% |
| **2007** | 54,433 | 11.7% |
| **2008** | 59,986 | 10.2% |
| **2009** | 51,528 | -14.1% |
| **2010** | 62,168 | 20.6% |
| **2011** | 72,689 | 16.9% |
| **2012** | 75,008 | 3.2% |
| **2013** | 76,306 | 1.7% |
| **2014** | 75,471 | -1.1% |
| **2015** | 61,759 | -18.2% |
| **2016** | 61,246 | -0.8% |
| **2017** | 63,753 | 4.1% |
| **2018** | 64,815 | 1.7% |
| **2019** | 61,041 | -5.8% |
| **2020** | 50,185 | -17.8% |
| **2021** | 58,588 | 16.7% |
| **2022** | 60,980 | 4.1% |
| **2023** | 59,562 | -2.3% |
| | **Forecast** | |
| **2024** | 62,472 | 4.9% |
| **2025** | 62,965 | 0.8% |
| **2026** | 66,572 | 5.7% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

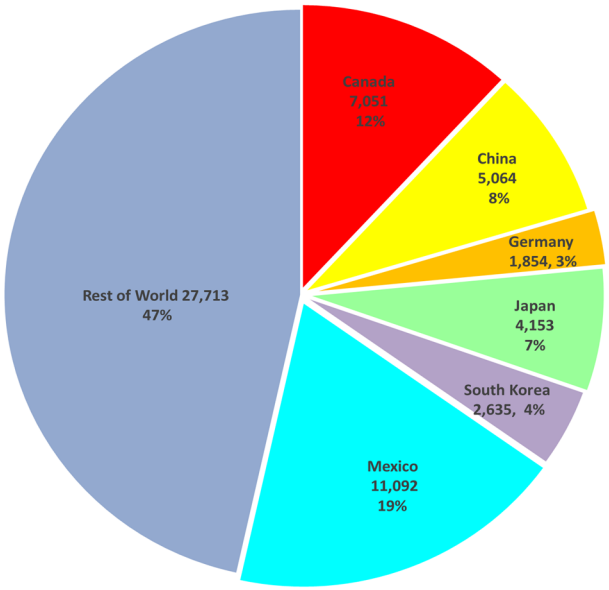
## E.2 Los Angeles MSA Merchandise Exports by Country

In 2023, the largest six merchandise export destinations for the Los Angeles MSA were: Mexico ($11.1 billion), Canada ($7.1 billion), China ($5.1 billion), Japan ($4.2 billion), South Korea ($2.6 billion), and Germany ($1.8 billion) as shown in Figure E2 and Table 3. Mexico is the only destination where merchandise exports from the metro area are estimated to have risen in 2023, growing by 4.3%. This uptick is partly attributed to the ongoing relocation of some supply chains from Asia and other locations to Mexico, driven by a desire to avoid China-related tariffs, cost-effectiveness (cheaper labor), and the United States-Mexico-Canada Agreement (USMCA). At the current level, exports to Mexico are $1.5 billion higher (16%) than their pre-pandemic values. Mexico remains the leading country for Los Angeles MSA merchandise exports, with exports 1.6 times higher than the second largest destination, Canada. However, it should be noted that despite recent outperformance, exports to Mexico are more than $8 billion (42%) below their 2013 peak.

Exports to Canada experienced a notable decline of -5.7% (to $7.1 billion) in 2023, following a remarkable rise of 13.9% (to $6.9 billion) in 2021 and another 7.9% (to $7.5 billion) in 2022. Currently, merchandise exports to Canada hover slightly below pre-pandemic levels. The next three top export destination for Los Angeles metro area exports are in Asia: China accounts for 8.5% of total exports from the region (with $5.1 billion in exports), Japan for 7% (with $4.2 billion) and South Korea for 4.4% (with $2.6 billion). Exports to all three countries declined last year: exports to China fell by 6.4%, those to Japan by 7.6% and exports to Korea by a far larger 14.2%. These adjustments reflect both a decoupling of the U.S. from China as well as sluggish growth in China and South Korea.

Exports from the Los Angeles MSA to Germany soared in 2020 and 2021, rising by a total of 34% over the two-year period. This moved Germany ahead of South Korea in the rankings, becoming the fifth largest export destination for exports from the metro area. This trend reversed over the past two years with South Korea back as the fifth largest merchandise export destination in 2022 and 2023. While exports from the region to South Korea have also not fared well (they rose by 0.9% in 2022 and fell by 14.2% in 2023), the drop in exports to Germany was far larger in 2022 declining by nearly half (-45.5%). For 2023, we estimate that Los Angeles MSA merchandise exports to Germany will decrease for the second year in a row, but this time only by -3.5%. Consequently, exports to Germany as a share of metro merchandise exports dropped to 3.1% in 2023, almost half the 6.0% high recorded in 2021. Though the ITA does not break down sector exports by country, our estimates show that the main category exported to Germany is Computer and Electronics (the largest export sector in the region): exports from this sector rose by $1.2 billion in 2022 and fell by an estimated 1.1 billion in 2023, largely matching the rise and fall in exports to Germany.

**Figure E2**
**Los Angeles MSA Exports by Country**
**(millions of dollars, 2023)**




Merchandise exports are forecasted to rise for all top trading partners over the entire forecast horizon. They are generally projected to grow more strongly in 2024 and 2026 compared to 2025 when global demand for merchandise exports slows down due to sluggish global growth. To provide some long run insights, we compare the amount of merchandise exports in 2022 (the most recent ITA data) to the end of the forecast horizon in 2026. For this forecast horizon, the largest gains are predicted for Mexico (up 26.8% over the 4-year period), Canada (up 12.7%), Germany (8.0%), South Korea (6.2%), Japan (5.5%), and China (2.4%).

The adjustment of supply chains and the realignment of countries along the cliques and walls is the clearest for Mexico. The trend towards nearshoring coupled with the benefits from the USMCA should boost exports from the region to the country. Thus, merchandise exports to Mexico are anticipated to surge by 9.6% (reaching $12.2 billion) in 2024, followed by a more modest growth of 2.1% (to $12.4 billion) in 2025, and by 8.6% (reaching $13.5 billion) in 2026. However, even with this rebound, merchandise exports to Mexico in 2026, the end of the forecast horizon, will still fall nearly $6 billion short of the record high of $19.4 billion set in 2013. For Canada, merchandise exports are projected to increase by 7.4% in 2024 (to $7.6 billion), by 2.0% (to $7.7) billion in 2025 and by a more robust 9.1% (to $8.4 billion) in 2026. By 2026, merchandise exports to Canada are projected to surpass their 2019 pre-pandemic levels by $1.1 billion but will still fall $0.8 billion short of the record high in 2008.

The ongoing decoupling and trade tensions between the U.S. and China, as discussed above, mean that China is expected to see the smallest projected increase in merchandise exports among

the top five export destinations. Exports to China are projected to increase by a relatively small 1.5% (to $5.1 billion) in 2024, by 1.6% (to $5.2 billion) in 2025, and a more robust 6% (to $5.5 billion) in 2026. The ongoing repercussions of trade tensions and decoupling between the U.S. and China are evident, as merchandise exports are forecasted to be $2.4 billion lower in 2026 than the record high set back in 2011 as the global economy was recovering from the Great Recession. China's share of the Los Angeles MSA merchandise exports are projected to decline from 8.5% in 2023 to 8.3% in 2026.

Merchandise exports to Japan are forecasted to rise by 4.6% (to $4.3 billion) in 2024, followed by a smaller increase of 1.9% (to $4.4 billion) in 2025, and a more robust 7.1% (to $4.7 billion) in 2026. By 2026, Japan's merchandise exports from the Los Angeles MSA are projected to remain $0.7 billion below the 2019 pre-pandemic level and $2 billion below the record high set over 25 years earlier in 2000.

The Korea-U.S. Free Trade Agreement, which is now over a decade old, is expected to have a more prominent positive impact in the coming years. Merchandise exports from the Los Angeles MSA to South Korea are projected to grow by a sturdy 7.4% (to $2.8 billion) in 2024 followed by a 4.3% increase (to $3.0 billion) in 2025 and a robust 10.5% rate (to $3.3 billion) in 2026. Despite this projected growth over the forecast horizon, merchandise exports to South Korea by 2026 are forecasted to be slightly below the pre-pandemic peak of $3.5 billion recorded in 2019 as the South Korean economy is likely to experience sluggish economic growth during this period.

Merchandise exports to Germany are expected to pick up reflecting a dramatic shift in trade flows after the onset of the Russia/Ukraine war. After two years of decline, Los Angeles MSA merchandise exports to Germany are projected to grow by a moderate 3.6% rate in 2024, followed by a 1.3% increase in 2025, and a robust 6.6% rate in 2026, reaching $2.1 billion at the end of the forecast horizon. However, exports to the country in 2026 are projected to be just under $1.4 billion below the record high of $3.5 billion set in 2021.

**Table 3**
**Los Angeles MSA Exports by Country**
**(millions of dollars)**

| Year | Canada | China | Germany | Japan | South Korea | Mexico | Rest of World | Total Exports |
|---|---|---|---|---|---|---|---|---|
| **1999** | 5,096 | 860 | 704 | 4,933 | 1,568 | 4,815 | 19,397 | 37,372 |
| **2000** | 5,949 | 1,322 | 755 | 6,700 | 2,293 | 6,196 | 19,359 | 42,573 |
| **2001** | 5,125 | 1,816 | 756 | 6,203 | 1,783 | 6,003 | 14,853 | 36,538 |
| **2002** | 4,323 | 1,814 | 745 | 4,414 | 1,586 | 5,934 | 14,509 | 33,324 |
| **2003** | 4,849 | 2,302 | 689 | 4,599 | 1,708 | 5,418 | 17,160 | 36,725 |
| **2004** | 5,600 | 3,041 | 749 | 5,452 | 2,186 | 5,970 | 16,281 | 39,279 |
| **2005** | 6,397 | 3,649 | 837 | 5,777 | 2,412 | 6,115 | 18,626 | 43,814 |
| **2006** | 6,895 | 5,068 | 1,039 | 5,791 | 2,577 | 7,847 | 19,500 | 48,718 |
| **2007** | 8,871 | 6,005 | 1,115 | 5,869 | 3,155 | 6,559 | 22,858 | 54,433 |
| **2008** | 9,246 | 5,988 | 1,639 | 6,070 | 3,436 | 7,945 | 25,661 | 59,986 |
| **2009** | 7,127 | 4,964 | 1,290 | 5,049 | 2,695 | 8,936 | 21,467 | 51,528 |
| **2010** | 8,061 | 6,506 | 1,458 | 5,558 | 3,038 | 14,205 | 23,342 | 62,168 |
| **2011** | 8,630 | 7,985 | 1,679 | 6,226 | 3,074 | 17,681 | 27,414 | 72,689 |
| **2012** | 8,904 | 7,244 | 1,594 | 5,970 | 3,089 | 18,340 | 29,867 | 75,008 |
| **2013** | 8,287 | 7,329 | 2,026 | 5,707 | 3,187 | 19,415 | 30,354 | 76,306 |
| **2014** | 8,251 | 7,221 | 1,885 | 5,580 | 3,149 | 16,845 | 32,540 | 75,471 |
| **2015** | 7,585 | 6,266 | 1,756 | 4,712 | 2,932 | 11,125 | 27,383 | 61,759 |
| **2016** | 7,121 | 5,507 | 1,925 | 5,126 | 2,745 | 9,881 | 28,940 | 61,246 |
| **2017** | 7,567 | 6,134 | 2,366 | 5,026 | 2,874 | 10,899 | 28,887 | 63,753 |
| **2018** | 7,774 | 5,866 | 2,661 | 5,621 | 3,181 | 11,853 | 27,860 | 64,815 |
| **2019** | 7,280 | 4,949 | 2,617 | 5,420 | 3,548 | 9,559 | 27,668 | 61,041 |
| **2020** | 6,101 | 4,134 | 2,711 | 4,332 | 2,546 | 8,853 | 21,508 | 50,185 |
| **2021** | 6,949 | 4,506 | 3,524 | 4,472 | 3,046 | 10,825 | 25,266 | 58,588 |
| **2022** | 7,480 | 5,412 | 1,921 | 4,495 | 3,073 | 10,633 | 27,966 | 60,980 |
| **2023** | 7,051 | 5,064 | 1,854 | 4,153 | 2,635 | 11,092 | 27,713 | 59,562 |
| | | | | **Forecast** | | | | |
| **2024** | 7,573 | 5,141 | 1,921 | 4,343 | 2,830 | 12,158 | 28,506 | 62,472 |
| **2025** | 7,724 | 5,223 | 1,946 | 4,425 | 2,952 | 12,413 | 28,281 | 62,965 |
| **2026** | 8,428 | 5,539 | 2,074 | 4,740 | 3,262 | 13,478 | 29,051 | 66,572 |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

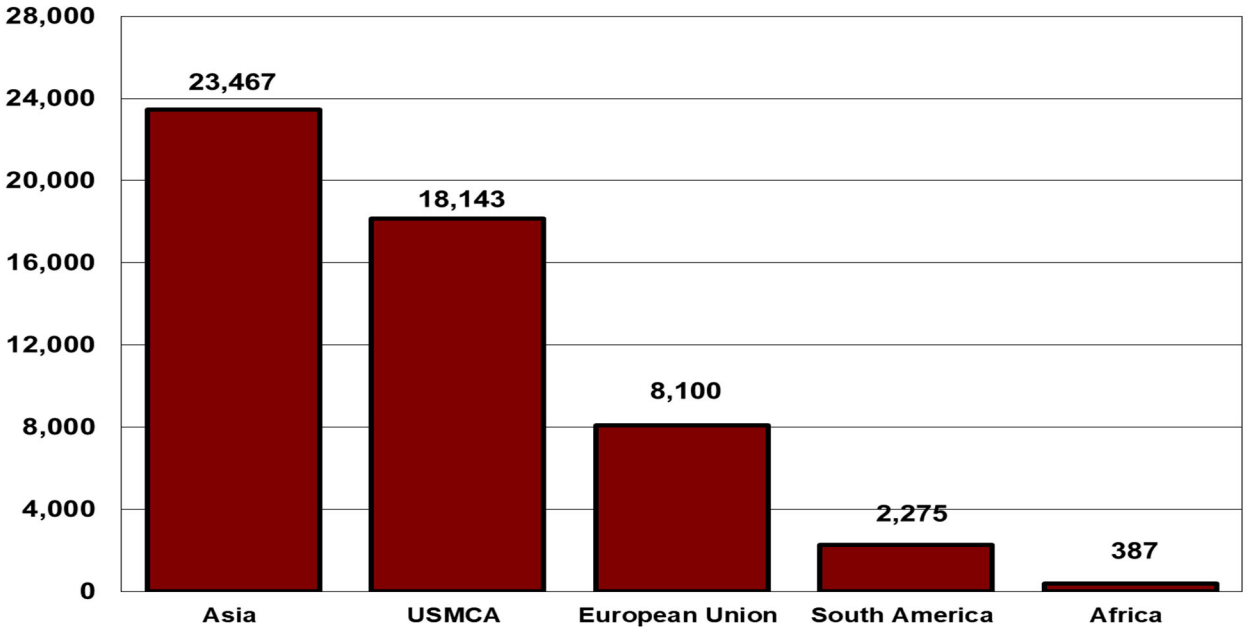
### E.3 Los Angeles MSA Merchandise Exports by Region

Asia ($23.5 billion or 39.4% of merchandise exports), USMCA (Mexico and Canada) ($18.1 billion or 30.5% of merchandise exports), and the European Union ($8.1 billion or 13.6% of merchandise exports) were the three largest trading regions for the Los Angeles MSA in 2023 (see Figure E3 and Table 4). Exports to Asia tumbled by 9.7% in 2023, after rising by 14.3% in 2021 and by 8.3% in 2022. The decline reflects partly slow growth in China and the partial decoupling between the U.S. and China. At their current levels, merchandise exports to Asia are $3.2 billion below 2019 pre-pandemic levels and $6.3 billion below the 2014 peak of nearly $30 billion.

As U.S. trade shifts away from China, the major beneficiaries are the European Union and the USMCA countries. Los Angeles MSA merchandise exports to the European Union rose by 2.4% last

year, after collapsing by nearly 26% in 2022. The large drop reflects in large part the decline in exports to Germany. Exports to the European Union currently remain $3.1 billion below the 2019 pre-pandemic levels. Los Angeles MSA merchandise exports to the USMCA countries increased only marginally —by 0.2% in 2023— but this is the third year in a row when exports rose, growing by 1.9% in 2022 and a massive 19.9% surge in 2021, as the world recovered from the pandemic. While merchandise exports to USMCA in 2023 are $1.3 billion above the 2019 pre-pandemic levels, they remain an astounding $9.6 billion below the record high of 2013. Combined, Asia and the USMCA account for nearly 70% of all Los Angeles MSA merchandise exports. Africa and South America were the destination for only 4.5% of Los Angeles merchandise exports in 2023.

**Figure E3**
**Los Angeles MSA Exports by Region**
**(millions of dollars, 2023)**




***Source:*** *Woods Center California State University Fullerton and International Trade*

Despite the ongoing decoupling between the U.S. and China, merchandise exports to Asia are projected to rise by 5.4% in 2024, reaching $24.7 billion, followed by a modest 1.6% increase in 2025 and a healthier 6.0% in 2026. At the end of the forecast horizon in 2026, merchandise exports to Asia are projected to reach $26.6 billion, which is $3.1 billion below the record high of $29.8 billion in 2014. With the increased focus on trade with Canada and Mexico partly because of a reconfiguration of global supply chains, merchandise exports to USMCA are forecasted to climb steadily throughout the entire forecast period. They are expected to grow by 8.8% in 2024 (reaching $19.7 billion), followed by a 2.1% (to $20.1 billion) in 2025, and by 8.8% (to $21.9 billion) in 2026.

As trade is partially redirected away from Asia, merchandise exports to the European Union are also expected to rise steadily throughout the forecast period. Exports to the EU are projected to

increase by 6.4% in 2024 (reaching $8.6 billion), followed by a moderate 2.2% increase in 2025. In 2026, a healthy 11.8% surge is projected, bringing merchandise exports to nearly $10 billion. This is still below the record peak of $11.2 billion recorded in 2017. Despite strong growth in merchandise exports over the forecast horizon, all five regions will remain below their previous peaks by the end of 2026. That's because the region's growth has been propelled less by exports over the past decade than it did in the aftermath of the Great Recession.

**Table 4**
**Los Angeles MSA Exports by Region**
**(millions of dollars)**

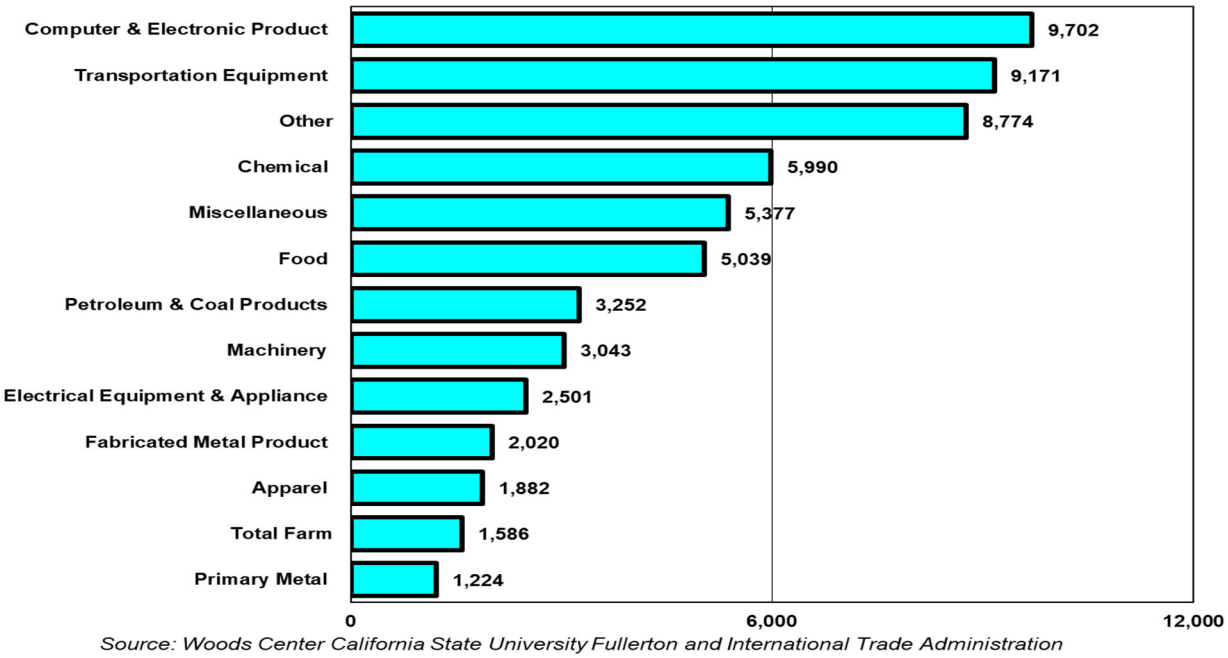
| Year | Africa | Asia | European Union | USMCA | South America |
|---|---|---|---|---|---|
| **1999** | 266 | 14,615 | 7,736 | 9,910 | 1,099 |
| **2000** | 233 | 16,295 | 8,437 | 12,145 | 1,054 |
| **2001** | 238 | 13,047 | 7,293 | 11,128 | 1,012 |
| **2002** | 238 | 12,362 | 6,195 | 10,257 | 722 |
| **2003** | 267 | 14,203 | 7,054 | 10,267 | 753 |
| **2004** | 352 | 15,249 | 7,351 | 11,570 | 973 |
| **2005** | 406 | 17,684 | 7,827 | 12,512 | 1,221 |
| **2006** | 520 | 19,508 | 8,049 | 14,742 | 1,477 |
| **2007** | 456 | 21,982 | 9,401 | 15,430 | 1,798 |
| **2008** | 617 | 22,727 | 10,226 | 17,191 | 2,434 |
| **2009** | 613 | 19,212 | 8,188 | 16,062 | 1,806 |
| **2010** | 511 | 22,803 | 8,234 | 22,266 | 2,274 |
| **2011** | 525 | 26,630 | 9,429 | 26,311 | 2,912 |
| **2012** | 641 | 25,169 | 9,771 | 27,244 | 3,055 |
| **2013** | 511 | 25,550 | 10,417 | 27,702 | 3,123 |
| **2014** | 432 | 29,763 | 11,122 | 25,096 | 3,392 |
| **2015** | 388 | 25,732 | 9,978 | 18,710 | 2,413 |
| **2016** | 421 | 26,857 | 10,316 | 17,002 | 2,118 |
| **2017** | 314 | 27,293 | 11,224 | 18,466 | 2,155 |
| **2018** | 401 | 27,528 | 10,907 | 19,626 | 2,021 |
| **2019** | 375 | 26,640 | 11,152 | 16,839 | 1,794 |
| **2020** | 322 | 20,913 | 9,279 | 14,954 | 1,420 |
| **2021** | 399 | 24,005 | 10,675 | 17,774 | 1,771 |
| **2022** | 390 | 25,998 | 7,911 | 18,114 | 2,426 |
| **2023** | 387 | 23,467 | 8,100 | 18,143 | 2,275 |
| | | | **Forecasts** | | |
| **2024** | 400 | 24,739 | 8,621 | 19,730 | 2,424 |
| **2025** | 409 | 25,123 | 8,815 | 20,137 | 2,172 |
| **2026** | 426 | 26,636 | 9,853 | 21,906 | 2,530 |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

## E.4 Los Angeles MSA Merchandise Exports by Sector

The two largest exporting sectors of the Los Angeles metro area in 2023 were Transportation Equipment ($9.7 billion) and Computer & Electronic Products ($9.2 billion). In 2023, Computer & Electronic Products declined by -3.7% whereas Transportation Equipment increased by 5.3% (see Figure E4 and Table 5). Together these two industries account for 31.7% of all merchandise exports in 2023, slightly higher than in 2022. The third most important sector in 2023 is Chemical Manufacturing with a share of 10.1% ($6.0 billion). In 2023, Miscellaneous Manufacturing with a share of 9% ($5.4 billion) moved into fourth place above Food Manufacturing with a share of 8.5% ($5.0 billion). Food manufacturing continued to grow for a remarkable eight consecutive years. Chemical Manufacturing and Food Manufacturing remain important exports sectors with a combined share of 18.5% ($11.0 billion) of merchandise exports in 2023. Other important industries are Petroleum & Coal Products, Machinery, Electrical Equipment & Appliances, Fabricated Metal Products, Apparel, and Primary Metal totaling for a combined $13.9 billion in merchandise exports.

**Figure E4**
**Los Angeles MSA Exports by Sector**
**(millions of dollars, 2023)**




*Source: Woods Center California State University Fullerton and International Trade Administration*

To provide some long run insights, we compare the amount of merchandise exports by sector in 2022 (the most recent ITA data) to the end of the forecast horizon in 2026. For this forecast horizon, the predicted cumulative growth is: Petroleum & Coal Products (32.3%), Transportation Equipment (19.6%), Food (16.2%), Apparel (15.3%), Total Farm (13.6%), Electrical Equipment & Appliance (13.6%), Fabricated Metal Product (13.5%), Machinery (12.1%), Chemical (9.7%),

Miscellaneous (5.1%), Computer & Electronic Product (4.6%), and Primary Metal (4.3%).

While exports of Computer & Electronic products declined in 2023, they are projected to increase over the entire forecast horizon and reach $10.5 billion by the end of 2026. Despite this growth, Computer & Electronic products exports will continue to remain almost 50% below record-high levels ($21.8 billion) in 2013. Merchandise exports for Transportation Equipment have increased each year since 2021 and are forecasted to rise further over the forecast period to reach $10.4 billion by the end of 2026. Even with six years of consecutive growth, Transportation Equipment exports are forecasted to remain a significant amount ($5.1 billion) below the record high of $15.5 billion in 2013. Chemical Manufacturing is projected to grow by 5.3% in 2024 but decline by -1.6% in 2025. A projected 5.7% increase in 2026 will push Chemical Manufacturing to a record high of $6.6 billion. Food Manufacturing merchandise exports have increased every year since 2016 and are projected to grow over the entire forecast horizon to reach a record high of $5.7 billion by 2026. Petroleum & Coal Products, Machinery, Electrical Equipment & Appliances, Fabricated Metal Products, Apparel, and Primary Metal are projected to contribute heftily to exports from the area, adding up to $15.9 billion by 2026.

**Table 5**
**Los Angeles MSA Exports by Sector**
**(millions of dollars)**

| Year | Transportation Equipment | Computer& Electronic | Miscellaneous | Chemical | Machinery | Petroleum & Coal Products | Food |
|---|---|---|---|---|---|---|---|
| **1998** | 7,911 | 8,873 | 1,542 | 1,640 | 1,836 | 470 | 1,091 |
| **1999** | 7,145 | 11,038 | 1,629 | 1,579 | 1,933 | 453 | 1,101 |
| **2000** | 6,689 | 13,725 | 1,826 | 1,923 | 3,116 | 610 | 1,232 |
| **2001** | 5,744 | 11,153 | 1,615 | 1,828 | 2,390 | 675 | 1,229 |
| **2002** | 4,976 | 9,657 | 1,633 | 1,805 | 1,962 | 544 | 1,312 |
| **2003** | 6,802 | 8,902 | 2,087 | 2,354 | 2,133 | 556 | 1,511 |
| **2004** | 8,314 | 9,740 | 2,116 | 2,515 | 2,343 | 575 | 1,495 |
| **2005** | 10,273 | 10,233 | 2,628 | 2,691 | 2,800 | 939 | 1,649 |
| **2006** | 10,049 | 11,714 | 3,119 | 3,056 | 2,895 | 1,038 | 1,864 |
| **2007** | 11,917 | 11,761 | 3,594 | 3,652 | 3,141 | 1,494 | 2,088 |
| **2008** | 13,465 | 11,653 | 4,186 | 4,068 | 3,638 | 3,141 | 2,552 |
| **2009** | 10,566 | 11,965 | 3,910 | 3,698 | 2,892 | 1,953 | 2,312 |
| **2010** | 11,064 | 17,946 | 4,325 | 4,268 | 3,208 | 2,094 | 2,911 |
| **2011** | 12,215 | 21,160 | 5,117 | 5,046 | 3,554 | 3,372 | 3,590 |
| **2012** | 14,109 | 21,561 | 5,662 | 4,954 | 3,707 | 2,790 | 3,600 |
| **2013** | 15,505 | 21,793 | 5,120 | 5,134 | 3,584 | 2,499 | 3,336 |
| **2014** | 15,305 | 18,562 | 5,396 | 5,635 | 3,432 | 2,843 | 3,449 |
| **2015** | 11,780 | 12,728 | 5,172 | 5,338 | 3,254 | 1,552 | 3,148 |
| **2016** | 12,776 | 11,825 | 6,007 | 4,807 | 2,833 | 1,117 | 3,455 |
| **2017** | 13,142 | 11,676 | 5,806 | 4,527 | 2,824 | 1,617 | 3,681 |
| **2018** | 11,903 | 12,099 | 6,556 | 4,553 | 2,868 | 2,300 | 3,717 |
| **2019** | 11,254 | 10,240 | 6,996 | 4,646 | 2,808 | 1,513 | 3,886 |
| **2020** | 7,426 | 10,103 | 4,053 | 4,542 | 2,307 | 915 | 3,961 |
| **2021** | 7,685 | 11,256 | 4,500 | 5,635 | 2,715 | 1,547 | 4,662 |
| **2022** | 8,710 | 10,070 | 5,578 | 5,983 | 3,018 | 2,967 | 4,904 |
| **2023** | 9,171 | 9,702 | 5,377 | 5,990 | 3,043 | 3,252 | 5,039 |
| | | | **Forecast** | | | | |
| **2024** | 9,697 | 10,156 | 5,603 | 6,307 | 3,198 | 3,557 | 5,312 |
| **2025** | 9,793 | 10,359 | 5,452 | 6,205 | 3,210 | 3,629 | 5,365 |
| **2026** | 10,416 | 10,537 | 5,865 | 6,560 | 3,384 | 3,925 | 5,700 |

**Los Angeles MSA Exports by Sector (continued)**

| Year | Fabricated Metal Product | Electrical Equipment | Apparel | Total Farm | Primary Metal | Other Sectors | Total Export |
|---|---|---|---|---|---|---|---|
| **1998** | 1,098 | 1,037 | 837 | 536 | 607 | 8,192 | 35,669 |
| **1999** | 962 | 1,056 | 825 | 431 | 439 | 8,782 | 37,372 |
| **2000** | 1,065 | 1,454 | 949 | 572 | 598 | 8,815 | 42,573 |
| **2001** | 1,050 | 1,270 | 979 | 560 | 549 | 7,497 | 36,538 |
| **2002** | 1,041 | 1,156 | 977 | 487 | 497 | 7,277 | 33,324 |
| **2003** | 1,192 | 1,130 | 893 | 814 | 554 | 7,797 | 36,725 |
| **2004** | 1,307 | 1,309 | 892 | 859 | 621 | 7,193 | 39,279 |
| **2005** | 1,535 | 1,395 | 1,052 | 987 | 744 | 6,886 | 43,814 |
| **2006** | 1,791 | 1,706 | 1,092 | 1,061 | 878 | 8,454 | 48,718 |
| **2007** | 1,818 | 1,799 | 1,074 | 1,082 | 922 | 10,091 | 54,433 |
| **2008** | 1,764 | 1,640 | 1,199 | 1,159 | 1,081 | 10,438 | 59,986 |
| **2009** | 1,544 | 1,375 | 1,208 | 1,055 | 829 | 8,222 | 51,528 |
| **2010** | 1,768 | 1,519 | 1,349 | 1,031 | 1,012 | 9,673 | 62,168 |
| **2011** | 1,762 | 1,671 | 1,383 | 1,367 | 1,259 | 11,191 | 72,689 |
| **2012** | 1,839 | 1,825 | 1,433 | 1,447 | 1,344 | 10,736 | 75,008 |
| **2013** | 2,079 | 1,943 | 1,436 | 1,552 | 1,482 | 10,844 | 76,306 |
| **2014** | 2,039 | 2,530 | 1,507 | 1,503 | 1,577 | 11,692 | 75,471 |
| **2015** | 1,944 | 2,492 | 1,449 | 1,330 | 1,431 | 10,140 | 61,759 |
| **2016** | 1,885 | 2,370 | 1,225 | 1,597 | 1,906 | 9,441 | 61,246 |
| **2017** | 2,011 | 2,549 | 1,260 | 1,528 | 2,442 | 10,689 | 63,753 |
| **2018** | 2,070 | 2,544 | 1,456 | 1,529 | 1,916 | 11,304 | 64,815 |
| **2019** | 2,136 | 2,554 | 1,339 | 1,642 | 1,636 | 10,390 | 61,041 |
| **2020** | 1,632 | 1,995 | 1,053 | 1,698 | 1,092 | 9,409 | 50,185 |
| **2021** | 1,789 | 2,183 | 1,645 | 1,731 | 1,392 | 11,849 | 58,588 |
| **2022** | 2,039 | 2,471 | 1,839 | 1,581 | 1,282 | 10,536 | 60,980 |
| **2023** | 2,020 | 2,501 | 1,882 | 1,586 | 1,224 | 8,774 | 59,562 |
| | | | | **Forecast** | | | |
| **2024** | 2,149 | 2,625 | 1,996 | 1,722 | 1,259 | 8,891 | 62,472 |
| **2025** | 2,163 | 2,649 | 2,004 | 1,760 | 1,267 | 9,112 | 62,965 |
| **2026** | 2,315 | 2,806 | 2,121 | 1,796 | 1,337 | 9,811 | 66,572 |

*Source: Woods Center, California State University Fullerton and International Trade Administration*

## ORANGE COUNTY EXPORTS

Orange County's recovery from the pandemic continued, with the Gross County Product reaching $314.2 billion in 2022. Nonfarm employment grew by an astounding 4.9% in 2022, but progress has stalled, and the labor market has shown marked signs of weakness over the past year bucking the national trend. The county's employment, as measured by the payroll survey, rose by a much more subdued 0.9% in 2023. The unemployment rate has also risen from 3.2% in 2022, to 3.6% in 2023, to 4.2% at the start of 2024. This reflects some weakening in economic activity, which stands in stark contrast with the national picture where the unemployment rate has remained below 4% for more than two years.

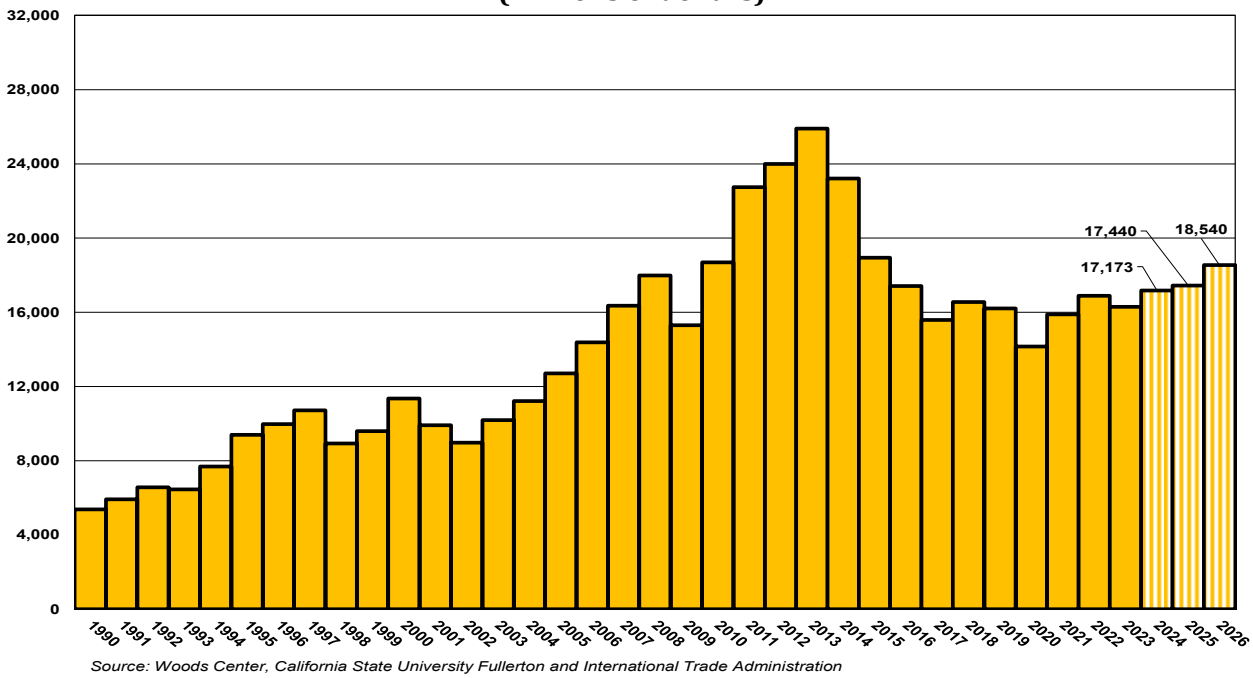
Merchandise exports constitute a relatively minor portion of the county's diverse economy, comprising 5.4% of the Gross County Product in 2022. Exports totaled $16.9 billion in 2022 (latest available data provided by the ITA), which is smaller than the value of exports from the Indianapolis-Carmel-Anderson MSA and Phoenix-Mesa-Chandler MSA but larger than St. Louis MSA and Greenville-Anderson MSA.

The International Trade Administration has recently begun to report total merchandise exports for Orange County for a short period: from 2012 through 2022. At the time of our report, no data for Orange County total merchandise exports were available for 2023. The ITA does not provide any data for Orange County export breakdown by region, country, or sector. The Woods Center at California State University Fullerton provides historical estimates and projections for Orange County merchandise exports by volume, region, country, and sector, which are derived from an econometric model that accounts for trends in regional, state, national and international trade patterns.

### E.5 Orange County Merchandise Exports

In 2022 (latest available data), exports from Orange County rose by of 6.3%, reaching $16.9 billion. However, we estimate that merchandise exports from the county have declined by -3.5% in 2023, dropping to $16.3 billion (see Figure E5 and Table 6). The decrease is larger than the nation's and the broader region's: U.S. exports fell only by 1.8% last year, while exports from the broader Los Angeles MSA fell by 2.3%. Orange County's exports have fared better than the broader region when compared to pre-pandemic levels: they are relatively flat (only $92 million above 2019 levels), whereas exports from the broader Los Angeles MSA have fallen by $1.5 billion during this period. Despite the better performance since the pandemic, at their current level, Orange County exports remain nearly $10 billion below the record high of nearly $26 billion reached in 2013. The story here is similar to the broader region: the county has simply not invested as much in expanding exports over the past decade as it did after the end of the Great Recession.

**Figure E5**
**OC Total Merchandise Exports**
**(millions of dollars)**




*Source: Woods Center, California State University Fullerton and International Trade Administration*

Merchandise exports from Orange County are forecasted to rebound, rising by 5.4% (to $17.2 billion) in 2024, and by 1.6% (to $17.4 billion) in 2025. A more robust growth of 6.3% is forecasted for 2026 with merchandise exports reaching $18.5 billion. Despite these positive trends, by the end of the forecast period in 2026, merchandise exports from the county are still projected to fall short (by $7.4 billion) of the record high of $25.9 billion recorded in 2013.

**Table 6**
**OC Total Merchandise Exports**
**(millions of dollars)**

| Year | Total Export Volume | Growth Rate |
|---|---|---|
| **1990** | 5,385 | n/a |
| **1991** | 5,923 | 10.0% |
| **1992** | 6,568 | 10.9% |
| **1993** | 6,457 | -1.7% |
| **1994** | 7,688 | 19.1% |
| **1995** | 9,401 | 22.3% |
| **1996** | 9,973 | 6.1% |
| **1997** | 10,717 | 7.5% |
| **1998** | 8,932 | -16.7% |
| **1999** | 9,597 | 7.5% |
| **2000** | 11,353 | 18.3% |
| **2001** | 9,910 | -12.7% |
| **2002** | 8,973 | -9.5% |
| **2003** | 10,192 | 13.6% |
| **2004** | 11,212 | 10.0% |
| **2005** | 12,707 | 13.3% |
| **2006** | 14,381 | 13.2% |
| **2007** | 16,360 | 13.8% |
| **2008** | 17,979 | 9.9% |
| **2009** | 15,302 | -14.9% |
| **2010** | 18,694 | 22.2% |
| **2011** | 22,746 | 21.7% |
| **2012** | 23,995 | 5.5% |
| **2013** | 25,902 | 7.9% |
| **2014** | 23,208 | -10.4% |
| **2015** | 18,948 | -18.4% |
| **2016** | 17,418 | -8.1% |
| **2017** | 15,588 | -10.5% |
| **2018** | 16,554 | 6.2% |
| **2019** | 16,205 | -2.1% |
| **2020** | 14,159 | -12.6% |
| **2021** | 15,888 | 12.2% |
| **2022** | 16,891 | 6.3% |
| **2023** | 16,296 | -3.5% |
| | **Forecast** | |
| **2024** | 17,173 | 5.4% |
| **2025** | 17,440 | 1.6% |
| **2026** | 18,540 | 6.3% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

## E.6 Orange County Merchandise Exports by Country

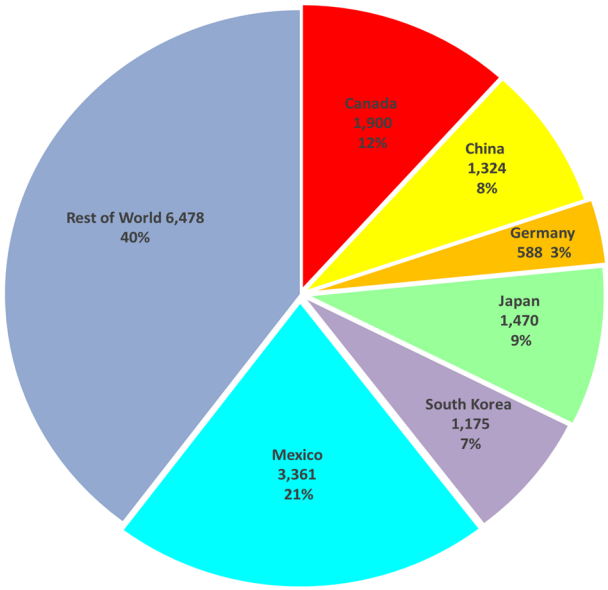
Orange County's largest export destinations in 2023 were: Mexico (with $3.4 billion in exports), Canada ($1.9 billion), Japan ($1.5 billion), China ($1.3 billion), South Korea ($1.2 billion), and Germany ($0.6 billion) as shown in Figure E6 and Table 7. Merchandise exports to these six largest trading partners decreased by $0.5 billion (-5.0%) in 2023 compared to 2022. The overall share of exports of the top six destinations fell from 62.1% in 2022 to 60.2% in 2023.

Mexico has been the biggest beneficiary of the relocation of supply chains. Not surprisingly, exports from Orange County to the country rose in 2023 (by 1.5%) reaching $3.4 billion, the only top country to experience any growth last year. This follows the staggering 17% rise in exports to the country in 2021, and an additional robust 9.6% growth in 2022. Mexico remains the leading country for Orange County merchandise exports, accounting for 20.6% of total merchandise exports in 2023. Nonetheless, despite rapid growth since the pandemic, Orange County exports to Mexico are half the peak of $7.2 billion recorded in 2013.

Exports to Canada are estimated to have fallen by a sizable 8.2% last year, after growing by 8.1% in 2021 and an additional 7.6% in 2022. At their current level, exports to Canada are roughly at the same level as in 2019 (prior to the pandemic) and $1.2 billion below the record high in 2012 of $3.1 billion. Mexico and Canada together account for roughly a third of merchandise exports from the county.

The decoupling and trade tensions between the U.S. and China have caused Orange County merchandise exports to China to drop by -10.1% to $1.3 billion in 2023. At their current level, exports to China are only a hair below pre-pandemic levels, but less than half of the record high of $2.7 billion in 2011. For Japan, merchandise exports are estimated to have declined by -4.7% in 2023 (to $1.5 billion), on par with 2019 figures (right before the pandemic). Nonetheless, exports to Japan are $0.6 billion below the record high of $2.1 billion set in 2011. Exports to South Korea have risen over the years, reaching a record high of $1.3 billion in 2022. However, Orange County exports to South Korea are estimated to have declined by 12% last year as the South Korea's economy has struggled. Merchandise exports from Orange County to Germany decreased -2.4% in 2023 to $0.6 billion following a massive -38.2% decline in 2022.

**Figure E6**
**OC Merchandise Exports by Country**
**(millions of dollars, 2023)**




Merchandise exports are projected to rise for all top trading partners over the entire forecast horizon. It's anticipated that their growth will be notably stronger in 2024 and 2026 compared to 2025 when global demand for merchandise exports is expected to taper off slightly during that year. To provide some long run insights, we compare the amount of merchandise exports in 2022 to the end of the forecast horizon in 2026. Our forecast show that OC exports to Mexico will grow the fastest over the forecast period (by a cumulative 22.2%), followed by Germany (11.5%), Canada (9.2%), South Korea (6.7%), China (6.5%), and Japan (6.1%).

Merchandise exports from Orange County to Mexico are projected to increase by a robust 9.4% (to $3.7 billion) in 2024, a smaller 2.4% increase (to $3.8 billion) in 2025, and another robust 7.5% (to $4.0 billion) in 2026. Although exports to Mexico are expected to make up more than one-fifth of Orange County's exports total by 2026, they are projected to still fall short of the peak of $7.2 billion reached in 2013. Merchandise exports to Canada are also projected to grow by 6.5% (to $2.0 billion) in 2024, by a moderate 2.8% (to $2.1 billion) in 2025, and by a robust 8.5% (to $2.3 billion) in 2026. At the end of 2026, merchandise exports to Canada will represent 12.2% of Orange County's total merchandise exports. Having said that, Orange County exports to Canada will continue to remain short of the peak ($3.1 billion) set in 2012 even at the end of the forecast horizon.

The continual decoupling and trade tensions between the U.S. and China is expected to have a larger negative impact on merchandise exports for the Los Angeles MSA than Orange County. Merchandise exports to China are projected to increase moderately by 5.5% (to $1.4 billion) in 2024, followed by a 2.4% increase in 2025 and a strong rebound of 9.7% (to $1.6 billion) in 2026. Despite this projected growth, Orange County exports to China will still be $1.1 billion below the record high

of $2.7 billion in 2011. Merchandise exports to Japan are projected to rise by 3.2% in 2024, 2.4% in 2025, and another 5.5% in 2026. By 2026, Orange County exports to Japan are projected to reach $1.6 billion which is just under $0.5 billion below the record high of $2.1 billion in 2011.

Merchandise exports to South Korea are projected to increase by a total of 6.8% over the forecast horizon as the decade old Korea-U.S. Free Trade Agreement starts to have a more profound impact and as trade missions between Orange County and South Korea ramp up. South Korea is the only country where, by the end of the forecast period, Orange County exports are expected to set new highs. Orange County merchandise exports to South Korea are expected to increase strongly by 7.6% (to $1.3 billion) in 2024, a moderate 3.8% in 2025, and a more robust 8.8% to a new record high of $1.4 billion in 2026. Merchandise exports from Orange County to Germany are projected to grow by 11.5% over the forecast horizon, reaching over $0.6 billion by 2026.

**Table 7**
**OC Merchandise Exports by Country**
**(millions of dollars)**

| Year | Canada | China | Germany | Japan | South Korea | Mexico | Rest of World | Total Exports |
|---|---|---|---|---|---|---|---|---|
| **1999** | 1,496 | 264 | 188 | 1,448 | 481 | 1,484 | 4,237 | 9,597 |
| **2000** | 1,657 | 368 | 210 | 1,867 | 639 | 1,726 | 4,886 | 11,353 |
| **2001** | 1,452 | 515 | 214 | 1,758 | 505 | 1,701 | 3,765 | 9,910 |
| **2002** | 1,212 | 508 | 209 | 1,237 | 445 | 1,663 | 3,699 | 8,973 |
| **2003** | 1,403 | 666 | 199 | 1,331 | 494 | 1,568 | 4,530 | 10,192 |
| **2004** | 1,675 | 909 | 224 | 1,630 | 654 | 1,785 | 4,335 | 11,212 |
| **2005** | 1,945 | 1,110 | 255 | 1,757 | 734 | 1,860 | 5,047 | 12,707 |
| **2006** | 2,146 | 1,578 | 323 | 1,803 | 802 | 2,443 | 5,286 | 14,381 |
| **2007** | 2,838 | 1,921 | 357 | 1,878 | 1,009 | 2,098 | 6,258 | 16,360 |
| **2008** | 2,957 | 1,915 | 524 | 1,941 | 1,099 | 2,541 | 7,001 | 17,979 |
| **2009** | 2,264 | 1,577 | 410 | 1,604 | 856 | 2,839 | 5,750 | 15,302 |
| **2010** | 2,601 | 2,099 | 471 | 1,793 | 980 | 4,583 | 6,168 | 18,694 |
| **2011** | 2,931 | 2,712 | 570 | 2,115 | 1,044 | 6,005 | 7,369 | 22,746 |
| **2012** | 3,111 | 2,531 | 557 | 2,086 | 1,079 | 6,408 | 8,223 | 23,995 |
| **2013** | 3,059 | 2,705 | 748 | 2,107 | 1,176 | 7,166 | 8,941 | 25,902 |
| **2014** | 2,763 | 2,418 | 631 | 1,868 | 1,054 | 5,640 | 8,833 | 23,208 |
| **2015** | 2,529 | 2,089 | 585 | 1,571 | 978 | 3,709 | 7,486 | 18,948 |
| **2016** | 2,215 | 1,713 | 599 | 1,595 | 899 | 3,074 | 7,323 | 17,418 |
| **2017** | 1,935 | 1,569 | 605 | 1,285 | 846 | 2,787 | 6,560 | 15,588 |
| **2018** | 2,042 | 1,541 | 699 | 1,477 | 910 | 3,114 | 6,770 | 16,554 |
| **2019** | 1,981 | 1,346 | 712 | 1,475 | 965 | 2,601 | 7,125 | 16,205 |
| **2020** | 1,778 | 1,205 | 790 | 1,263 | 1,027 | 2,581 | 5,515 | 14,159 |
| **2021** | 1,922 | 1,386 | 975 | 1,423 | 1,146 | 3,020 | 6,016 | 15,888 |
| **2022** | 2,068 | 1,473 | 603 | 1,542 | 1,336 | 3,312 | 6,689 | 16,891 |
| **2023** | 1,900 | 1,324 | 588 | 1,470 | 1,175 | 3,361 | 6,478 | 16,296 |
| | | | | **Forecast** | | | | |
| **2024** | 2,024 | 1,397 | 614 | 1,516 | 1,264 | 3,677 | 6,680 | 17,173 |
| **2025** | 2,080 | 1,430 | 627 | 1,552 | 1,312 | 3,764 | 6,675 | 17,440 |
| **2026** | 2,258 | 1,569 | 672 | 1,637 | 1,427 | 4,045 | 6,932 | 18,540 |

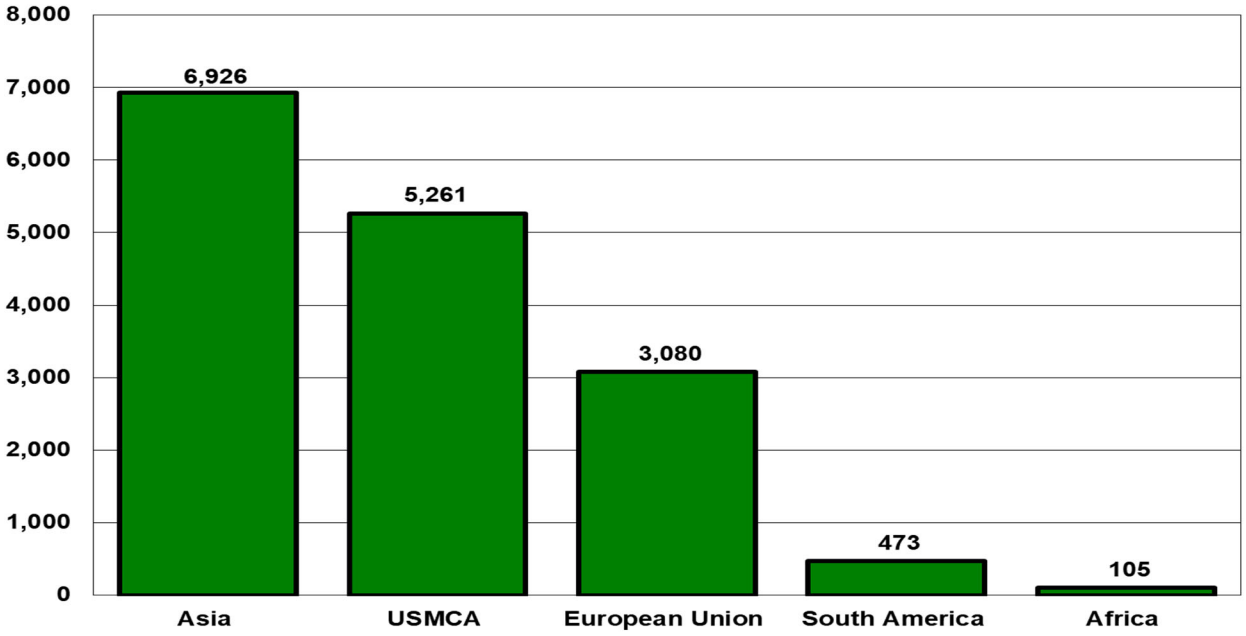
***Source:*** *Woods Center, California State University Fullerton & International Trade Administration*

### E.7 Orange County Merchandise Exports by Region

The ongoing decoupling between the U.S. and China and the reshuffling of supply chains was also evident for Orange County merchandise exports to Asia, which fell by 6.3% to $6.9 billion in 2023. Nonetheless, Asia continues to hold paramount importance as merchandise exports constituted a jaw-dropping 42.5% of Orange County's merchandise exports in 2023 (see Figure E7 and Table 8). At the current level, Orange County exports to Asia have nearly returned to pre-pandemic levels of 2019, yet they remain $2.6 billion below peak of $9.5 billion set in 2013. Merchandise exports to the USMCA countries are estimated to have decreased by -2.2% to $5.3 billion in 2023, with the region representing 32.3% of county's exports. Asia and the USMCA countries (with

a combined total export volume of $12.2 billion) made up nearly 75% of merchandise exports from the county in 2023. In contrast, Orange County exports to the European Union were up by 1.3% in 2023, reaching $3.0 billion. Despite strong export growth to Europe, exports are nearly $0.8 billion below their peak of $3.8 billion recorded in 2013. Exports to Africa and South America combined for $0.6 billion in 2023.

**Figure E7**
**OC Merchandise Exports by Region**
**(millions of dollars, 2023)**




*Source: Woods Center California State University Fullerton*

**Table 8**
**OC Exports by Region**
**(millions of dollars)**

| Year | Africa | Asia | European Union | USMCA | South America |
|---|---|---|---|---|---|
| **1999** | 71 | 3,852 | 1,979 | 2,980 | 294 |
| **2000** | 65 | 4,697 | 2,383 | 3,384 | 294 |
| **2001** | 67 | 3,909 | 2,070 | 3,154 | 287 |
| **2002** | 67 | 3,670 | 1,804 | 2,875 | 203 |
| **2003** | 77 | 4,448 | 2,042 | 2,971 | 198 |
| **2004** | 105 | 4,810 | 2,203 | 3,460 | 304 |
| **2005** | 124 | 5,392 | 2,387 | 3,805 | 372 |
| **2006** | 162 | 6,090 | 2,513 | 4,589 | 461 |
| **2007** | 146 | 7,058 | 3,018 | 4,936 | 577 |
| **2008** | 198 | 7,299 | 3,284 | 5,498 | 782 |
| **2009** | 196 | 6,133 | 2,614 | 5,104 | 577 |
| **2010** | 166 | 7,396 | 2,671 | 7,184 | 738 |
| **2011** | 179 | 9,099 | 3,222 | 8,936 | 995 |
| **2012** | 225 | 8,853 | 3,437 | 9,519 | 1,075 |
| **2013** | 190 | 9,496 | 3,872 | 10,225 | 1,161 |
| **2014** | 145 | 9,190 | 3,637 | 8,403 | 1,143 |
| **2015** | 130 | 7,977 | 3,051 | 6,239 | 810 |
| **2016** | 138 | 7,826 | 3,084 | 5,289 | 658 |
| **2017** | 80 | 6,980 | 2,871 | 4,723 | 551 |
| **2018** | 105 | 7,233 | 2,866 | 5,157 | 531 |
| **2019** | 102 | 7,248 | 3,034 | 4,582 | 488 |
| **2020** | 94 | 6,096 | 2,705 | 4,359 | 414 |
| **2021** | 102 | 6,963 | 2,920 | 4,943 | 484 |
| **2022** | 109 | 7,392 | 3,040 | 5,380 | 510 |
| **2023** | 105 | 6,926 | 3,080 | 5,261 | 473 |
| | | | **Forecasts** | | |
| **2024** | 111 | 7,316 | 3,160 | 5,701 | 507 |
| **2025** | 113 | 7,360 | 3,279 | 5,844 | 506 |
| **2026** | 119 | 7,787 | 3,504 | 6,303 | 538 |

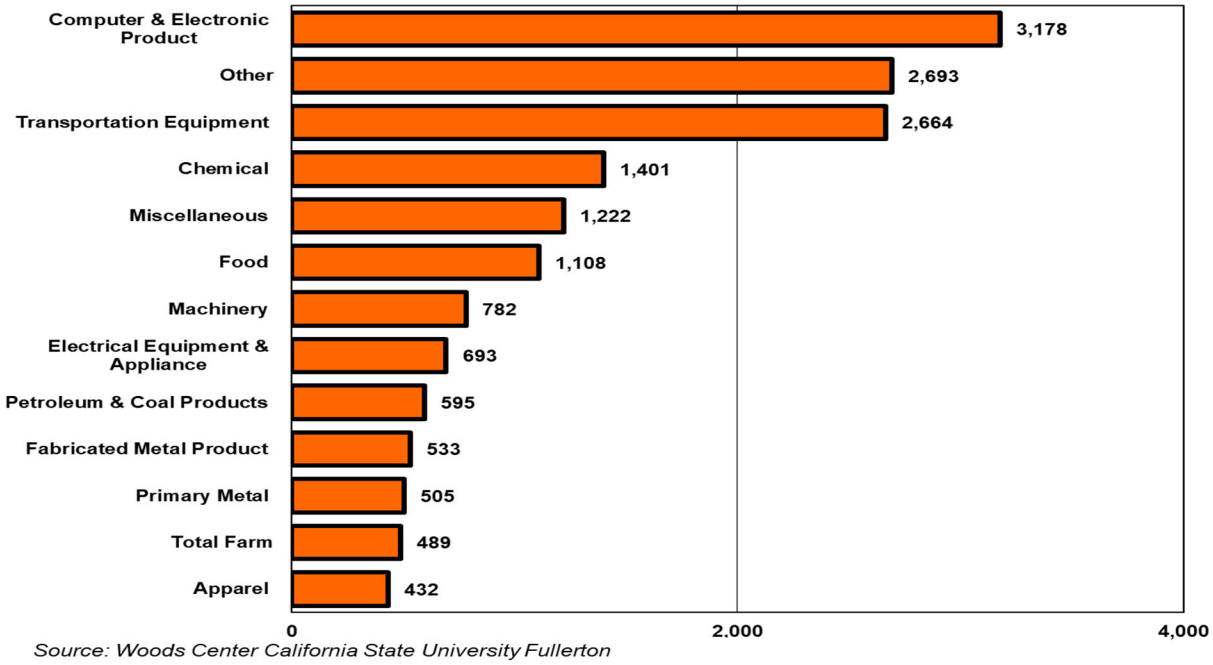
***Source:*** *Woods Center, California State University Fullerton*

Merchandise exports to Asia are projected to increase over the entire forecast horizon, rising by 5.6% (to $7.3 billion) in 2024, remaining relatively flat with a projected 0.6% growth in 2025, followed by a stronger 5.8% growth (to $7.8 billion) in 2026. Despite this growth, OC exports to Asia are projected to remain $1.7 billion below peak-level of $9.5 billion in 2013. Merchandise exports to USMCA are projected to rise over the entire forecast horizon as the advantages of supply chain reshuffling become more pronounced over time. Orange County exports to USMCA are forecasted to grow by 8.4% (to $5.7 billion) in 2024, by 2.5% (to $5.8 billion) in 2025, and by another robust 7.9% (to $6.3 billion) in 2026. The European Union is also poised for steady gains as the Russia-Ukraine war realigns this region closer to the U.S. Merchandise exports from Orange County to the EU are projected to rise by 2.6% in 2024, by 3.8% in 2025, and a by 6.9% growth in 2026. Exports to the EU are forecasted to reach $3.5 billion by the end of 2026, nearing the record high of $3.9 billion in 2013.

## E.8 Orange County Merchandise Exports by Sector

High-tech industries play a major role in Orange County, contributing significantly to the county's merchandise exports. (see Figure F8 and Table 9). In 2023, the two main sectors for Orange County merchandise exports are Computer & Electronic Products with a share of 19.5% ($3.2 billion) and Transportation Equipment which made up 16.4% ($2.7 billion). Exports from the Computers & Electronic Products category remain $4.0 billion below the record high of $7.2 billion in 2013. The second most important sector of Transportation Equipment is $3.0 billion less than the peak in 2013 of $5.7 billion. In 2023, Chemical, Miscellaneous, and Food manufacturing exports accounted for a total of $3.7 billion (22.9%) of total merchandise exports. Other important sectors (Machinery, Electrical Equipment & Appliance, Petroleum & Coal Products, Fabricated Metal Product, Primary Metal and Apparel) accounted for 21.7% ($3.6 billion) of Orange County merchandise exports in 2023.

**Figure E8**
**OC Merchandise Exports by Sector**
**(millions of dollars, 2023)**




*Source: Woods Center California State University Fullerton*

To provide some long run insights, we compare the amount of merchandise exports by sector in 2022 to the end of the forecast horizon in 2026. For this forecast horizon, predicted gains for the main sectors are: Chemicals (24.3%), Transportation Equipment (18.5%), Petroleum & Coal Products (12.4%), Total Farm (10.5%), Machinery (9.8%), Food (9.6%), Apparel (9.3%), Computer & Electronic Product (8.3%), Primary Metal (7.1%), Fabricated Metal Product (7.1%), Electrical Equipment & Appliance (7.0%), and Miscellaneous (6.0%).

Merchandise exports for the largest sector of Computer and Electronics are projected to

increase by 7.0% to $3.4 billion in 2024 but decline by -2.0% in 2025. They are then projected to rise by a robust 10.2% to $3.7 billion 2026 but will remain over 50% below the $7.2 billion record high in 2013. Transportation Equipment merchandise exports are forecasted to increase over the entire forecast horizon. There is a projected increase of 5.0% to $2.8 billion in 2024, another 6.6% rise in 2025, and another 5.7% increase to $3.2 billion in 2026. Even then, exports from this category are projected to remain $2 billion below the 2013 record high of $5.2 billion. By the end of 2026, merchandise exports are projected as follows: Chemical ($1.8 billion), Miscellaneous Manufacturing ($1.4 billion), and Food Manufacturing ($1.2 billion). Merchandise exports from other sectors (Machinery, Electrical Equipment & Appliance, Petroleum & Coal Products, Fabricated Metal Product, Primary Metal and Apparel) are projected to total $3.9 by the end of 2026. Orange County remains well equipped to take advantage of an expected increase in the demand for high-technology and capital-intensive products.

**Table 9**
**OC Merchandise Exports by Sector**
**(millions of dollars)**

| Year | Transportation Equipment | Computer& Electronic | Miscellaneous | Chemical | Machinery | Petroleum & Coal Products | Food |
|---|---|---|---|---|---|---|---|
| **1998** | 1,737 | 2,474 | 383 | 391 | 470 | 120 | 258 |
| **1999** | 1,914 | 2,877 | 408 | 405 | 466 | 124 | 276 |
| **2000** | 2,097 | 3,440 | 481 | 499 | 754 | 171 | 318 |
| **2001** | 1,557 | 3,054 | 426 | 445 | 664 | 163 | 295 |
| **2002** | 1,383 | 2,526 | 429 | 377 | 588 | 157 | 274 |
| **2003** | 1,669 | 2,993 | 469 | 429 | 613 | 152 | 320 |
| **2004** | 1,882 | 3,022 | 491 | 520 | 751 | 175 | 417 |
| **2005** | 2,378 | 3,347 | 598 | 694 | 867 | 229 | 464 |
| **2006** | 2,826 | 3,610 | 829 | 888 | 870 | 318 | 546 |
| **2007** | 3,440 | 3,955 | 955 | 1,130 | 930 | 415 | 613 |
| **2008** | 3,788 | 4,387 | 1,149 | 1,156 | 1,061 | 440 | 748 |
| **2009** | 3,049 | 3,336 | 992 | 1,081 | 892 | 493 | 638 |
| **2010** | 4,061 | 4,764 | 1,220 | 1,274 | 1,000 | 585 | 875 |
| **2011** | 4,889 | 6,191 | 1,653 | 1,533 | 1,064 | 836 | 1,105 |
| **2012** | 5,157 | 6,696 | 1,739 | 1,555 | 1,178 | 807 | 1,171 |
| **2013** | 5,685 | 7,212 | 1,711 | 1,739 | 1,323 | 879 | 1,168 |
| **2014** | 5,155 | 6,069 | 1,519 | 1,703 | 1,104 | 846 | 1,058 |
| **2015** | 4,172 | 4,605 | 1,205 | 1,354 | 838 | 697 | 849 |
| **2016** | 3,908 | 3,924 | 1,083 | 1,273 | 766 | 593 | 772 |
| **2017** | 3,352 | 3,113 | 1,104 | 1,138 | 680 | 586 | 798 |
| **2018** | 3,305 | 3,467 | 1,334 | 1,265 | 721 | 607 | 819 |
| **2019** | 3,113 | 2,981 | 1,526 | 1,312 | 687 | 599 | 910 |
| **2020** | 2,191 | 2,837 | 1,038 | 1,166 | 635 | 411 | 962 |
| **2021** | 2,337 | 3,251 | 1,148 | 1,441 | 758 | 591 | 1,157 |
| **2022** | 2,659 | 3,389 | 1,364 | 1,462 | 777 | 594 | 1,134 |
| **2023** | 2,664 | 3,178 | 1,222 | 1,401 | 782 | 595 | 1,108 |
| | | | **Forecast** | | | | |
| **2024** | 2,799 | 3,400 | 1,358 | 1,494 | 841 | 618 | 1,168 |
| **2025** | 2,982 | 3,331 | 1,327 | 1,587 | 785 | 610 | 1,203 |
| **2026** | 3,152 | 3,671 | 1,446 | 1,817 | 853 | 667 | 1,242 |

**OC Merchandise Exports by Sector (continued)**

| Year | Fabricated Metal Product | Electrical Equipment | Apparel | Total Farm | Primary Metal | Other Sectors | Total Export |
|---|---|---|---|---|---|---|---|
| **1998** | 276 | 257 | 212 | 115 | 156 | 2,085 | 8,932 |
| **1999** | 248 | 274 | 219 | 120 | 116 | 2,152 | 9,597 |
| **2000** | 276 | 387 | 252 | 151 | 157 | 2,372 | 11,353 |
| **2001** | 292 | 314 | 287 | 159 | 145 | 2,110 | 9,910 |
| **2002** | 246 | 308 | 276 | 167 | 133 | 2,109 | 8,973 |
| **2003** | 335 | 311 | 251 | 216 | 154 | 2,280 | 10,192 |
| **2004** | 389 | 373 | 257 | 227 | 173 | 2,534 | 11,212 |
| **2005** | 440 | 419 | 313 | 242 | 222 | 2,496 | 12,707 |
| **2006** | 524 | 494 | 329 | 284 | 260 | 2,605 | 14,381 |
| **2007** | 562 | 513 | 331 | 307 | 281 | 2,928 | 16,360 |
| **2008** | 539 | 505 | 351 | 348 | 328 | 3,179 | 17,979 |
| **2009** | 463 | 411 | 371 | 291 | 263 | 3,023 | 15,302 |
| **2010** | 549 | 470 | 400 | 371 | 329 | 2,798 | 18,694 |
| **2011** | 647 | 589 | 441 | 431 | 409 | 2,957 | 22,746 |
| **2012** | 665 | 624 | 477 | 441 | 409 | 3,077 | 23,995 |
| **2013** | 748 | 769 | 535 | 554 | 543 | 3,037 | 25,902 |
| **2014** | 637 | 811 | 482 | 471 | 507 | 2,846 | 23,208 |
| **2015** | 495 | 678 | 369 | 377 | 421 | 2,888 | 18,948 |
| **2016** | 470 | 643 | 343 | 343 | 413 | 2,886 | 17,418 |
| **2017** | 449 | 604 | 356 | 331 | 414 | 2,664 | 15,588 |
| **2018** | 503 | 671 | 391 | 376 | 406 | 2,689 | 16,554 |
| **2019** | 556 | 718 | 376 | 393 | 430 | 2,604 | 16,205 |
| **2020** | 461 | 624 | 340 | 438 | 436 | 2,620 | 14,159 |
| **2021** | 515 | 637 | 421 | 467 | 523 | 2,643 | 15,888 |
| **2022** | 571 | 739 | 424 | 486 | 519 | 2,773 | 16,891 |
| **2023** | 533 | 693 | 432 | 489 | 505 | 2,693 | 16,296 |
| | | | **Forecast** | | | | |
| **2024** | 569 | 738 | 464 | 515 | 515 | 2,693 | 17,173 |
| **2025** | 574 | 767 | 488 | 518 | 520 | 2,747 | 17,440 |
| **2026** | 612 | 791 | 464 | 538 | 556 | 2,732 | 18,540 |

*Source: Woods Center, California State University Fullerton*

## F. CONCLUSION

The Woods Center at California State University Fullerton provides a unique and detailed analysis, estimates, and forecasts for merchandise exports from Orange County and the broader region of Los Angeles-Long Beach-Anaheim MSA (which includes Orange County). Merchandise exports can play a large role in boosting the economy of the Southern California region. As such, analysis and forecasts for exports are important but they are severely limited by data availability. The International Trade Administration provides some details on merchandise exports for the broader Los Angeles-Long Beach-Anaheim MSA and for Orange County (from 2012 to 2022). Nonetheless, the data for Orange County is limited to total volumes and does not offer a breakdown across countries, regions, or sectors. Exports for MSAs, but not counties, are available from the U.S. Census Bureau for 2023. This report is important because it is the only available source that fills in this gap by providing detailed historical data through 2023 and forecasts over the period from 2024 through 2026 for merchandise exports from Orange County and the broader Los Angeles-Long Beach-Anaheim MSA.

In 2023, merchandise exports from Orange County and the broader Los Angeles-Long Beach-Anaheim Metropolitan Statistical Area declined. The outlook for merchandise exports over the three-year forecast period is positive but growth is not projected to be as strong as in the aftermath of the financial crisis or the end of the pandemic. We project a moderate recovery in merchandise exports growth in 2024, followed by slower growth in 2025 (reflecting an overall sluggish global economy), and more robust exports in 2026.

Merchandise exports for the Los Angeles Metro area are projected to reach the following levels by the end of 2026:

- Total: $66.6 billion which is $9.7 billion below the record high of $76.3 billion in 2013.
- Six largest countries: Mexico ($13.5 billion), Canada ($8.5 billion), China ($5.5 billion), Japan ($4.7 billion), South Korea ($3.2 billion), and Germany ($2.0 billion).
- Major regions: Asia ($26.6 billion), USMCA ($21.9 billion), European Union ($9.9 billion)
- Two largest exporting sectors: Computer & Electronic Products ($10.5 billion) and Transportation Equipment ($10.4 billion).

For Orange County, merchandise exports are projected to reach the following levels by the end of 2026:

- Total: $18.5 billion which is $7.5 billion below the record high of $25.5 billion in 2013.
- Six largest countries: Mexico ($4.0 billion), Canada ($2.3 billion), China ($1.6 billion), Japan ($1.6 billion), South Korea ($1.4 billion), and Germany ($0.7 billion).
- Major regions: Asia ($7.8 billion), USMCA ($6.3 billion), European Union ($3.5 billion).
- Two largest exporting sectors: Computer & Electronic Products ($3.7 billion) and Transportation Equipment ($3.2 billion).

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## APPENDIX
## A1. DATA SOURCES


"Annual Survey of Manufactures: Geographic Area Statistics," *U.S. Census Bureau*, http://www.census.gov/prod/www/abs/manu-asm-geo.

"California International Trade Register," *Database Publishing Company*, (1992), out-of-print.

"Census Bureau," www.census.gov.

"Current Establishment Survey," *Bureau of Labor Statistics, http://www.bls.gov*.

"Exchange Rates," Wharton Research Data Services database, http://wrds.wharton.upenn.edu, 2016-2022.

"Exports from U.S. Metropolitan Areas," *International Trade Administration*, http://www.trade.gov/mas/ian/Metro/index.html, 2016-2022.

"Foreign Trade Statistics," *U.S. Census Bureau*, http://www.census.gov/foreign-trade.

"International Financial Statistics," International Monetary Fund, 1990-date, www.imfstatistics.org/imf/

"Labor Market Information," *State of California, Employment Development Department,* http://www.edd.ca.gov.

"Metro Business Patterns," *U.S. Census Bureau,* http://www.census.gov/econ/cbp/index.html.

"National Income and Products Account," *Bureau of Economic Analysis*, http://www.bea.gov.

"Orange County and Regional Economic Outlook," *Center for Economic Analysis and Forecasting*, *California State University Fullerton*, 1999-2023.

"Regional Multipliers," *Bureau of Economic Analysis*, http://www.bea.gov, 1997-2023.

"State and regional exports of merchandise," *International Trade Administration*, http://tse.export.gov, 2016-2023.

"State export data series," *WISERtrade*, http://www.wisertrade.org, 2012-2016.

"Statistical Abstract, Foreign Commerce & Aid," *U.S. Census Bureau*, http://www.census.gov/prod/www/abs/statab.htmlhttp://www.census.gov/foreign-trade.

"Trade Statistics," *International Trade Administration,* http://www.ita.doc.gov/, 2016-2023.

"U.S. merchandise exports," *International Trade Administration*, http://tse.export.gov, 2016-2023.

"U.S. District and Port Exports," *WISERtrade*, http://www.wisertrade.org, 2016.

"World Economic Outlook Database," *International Monetary Fund*, http://www.imf.org, 2016-2023.

## APPENDIX
## A2. EXPORT DATA

The following is a summary of the export data sources. Parts of the summary are cited directly from the respective data source.

**National Trade Data**

*TradeStats Express, International Trade Administration, U.S. Department of Commerce*

The *International Trade Administration*, U.S. Department of Commerce, provides trade data for merchandise exports for the nation. This data is currently available annually (total for the year) from 1989 through 2022. Data are available for individual countries, trade/economic groups, and geographic regions by product type and industry. The data are available in the three product classification systems: North American Industry Classification System (NAICS) up to the four-digit level, Harmonized System (HS) at two- and four-digit levels, or Standard International Trade Classification (SITC) up to the three-digit level.

**State Export Data**

*TradeStats Express, International Trade Administration, U.S. Department of Commerce*

State export data are available annually (total for the year) from 1999 through 2022. Data are available for individual countries, trade/economic groups, and geographic regions by product type and industry. The data are available by NAICS product classification (up to the three-digit level). The data captures origin-of-movement (OM) based on Origin State which differs from an earlier series based on Exporter Location (EL) (1993-2002). The OM series provides export statistics based on the state from which the merchandise starts its journey to the port of export. In contrast, the EL series was based on the zip code of the exporter and unlike the OM series it tended to capture company headquarters, wholesalers, brokers, and freight forwarders. Although OM data are not defined as the state of production origin, it is the closest approximation to state of production for manufactured goods for which it may also capture the state of consolidation or the state of a broker or wholesaler.

**U.S. Metropolitan Areas Export Data**

*International Trade Administration, U.S. Department of Commerce*

The U.S. Metro Area Export data are available annually (total for the year) from 2006-2022 and are updated semi-annually from the International Trade Administration. Total export volumes for some metros, including the Los Angeles MSA Merchandise Exports, are available for 2023 from the Census Bureau. The top five export product profiles to a selected market are available for 2008 and 2022 and are limited to only the top 5 countries for the top 50 metropolitan areas. The export series for Metro Areas are computed by matching the five-digit zip codes entered on U.S. export declarations with the five-digit zip codes specified for each metropolitan area using concordance files from the Census Bureau's Geography Division and the U.S. Postal Service. The metropolitan export data series measures only the dollar value of merchandise exports (goods that can physically be transported across the border) and does not include exports of services. The metropolitan export data are only available in nominal U.S. dollars and are not adjusted for inflation or any other factors. Metropolitan areas referenced in the 2005 to 2023 data are based on the 2000 Census.

The export series for Metro Areas is based on the origin of movement by the zip code of the U.S. Principle Party of Interest (USPPI) of record. In 2004 the zip code of the USPPI, the party in the United States that receives the primary benefit (monetary or otherwise) from the shipment, was redefined to indicate the origin of movement of goods. Initially it did not necessarily represent the location of the USPPI. However, due to increased electronic reporting in the Automated Export System (AES), the validity of the reported ZIP Code has improved significantly since 2004. The USPPI of record is not necessarily the entity that produced the merchandise; hence, the series does not furnish complete and reliable data on the production origin of U.S. exports.

The existing Metro Area Export data differs from an earlier series produced by the U.S. International Trade Administration which were available from 1993-2002. The earlier series were based on the Exporter Location (EL) Series collected by the Census Bureau from shipper's export declarations. With the introduction of the Automated Export System (AES) by the U.S. Customs Bureau and the Census Bureau, the accuracy of the Exporter Location Series became, according to the U.S. Census Bureau, highly suspect, and the series was discontinued. Measurement of exports by metropolitan area was not reported until the introduction of the zip-based Origin of Movement series in 2005. The Census Bureau states that the 2001 and 2005 export series cannot be compared because the 2001 data are based on Exporter Location Series and the 2005 data are based on the Origin of Movement (OM) series.

The OM zip-code series used to measure metropolitan exports differs from the OM data based on origin-state used for state exports. The OM series based on origin of state provides export statistics based on the state from which merchandise began its journey (as listed on the shipper's export declaration). The OM zip-code based series captures the origin of movement by the zip code of the U.S Principle Party of Interest. The collection of this new zip-based series makes it possible to determine exports by metropolitan area. The metropolitan series should only be compared to other sources that also use the Origin of Movement zip code based series and cannot be compared to other data sources that provide state exports (such as *TradeStats* and USA Trade Online) which publish their export data on an Origin of Movement state-basis.

**Customs District Data**

*U.S. Census Bureau*

Customs District and port data measure goods that leave out of a particular district or port (regardless of where the good originated in the United States). The metropolitan export data differs from the Customs District or port data. Since the metropolitan export data are based on the Origin of Movement series, this data attempts to track the export back to its origin of export, regardless of where the good actually leaves the country.

## APPENDIX

## A3. METHODOLOGY

**Estimation of Exports for the Los Angeles – Long Beach – Anaheim Region**

Total export volume before year 2005 for the Los Angeles–Long Beach–Anaheim Region (LA-LB-SA) was extrapolated from regional, state, national and international trade trends as well as estimates from an econometric model. To estimate the historical data, regional, state, national and international merchandise exports volumes were used in conjunction with exchange rates, labor productivity in export industries, U.S. and foreign growth measured by real gross domestic product and exports by industry. Forecasts for year 2024 onwards are based on statistical and econometric modeling methodology.

**Estimation of Orange County Exports**

Orange County's total export volume was extrapolated from regional, state, national and international trade trends as well as estimates from an econometric model. An annual survey, the *California International Trade Register* from Database Publishing Company was also used to estimate historical export volume for Orange County using 401 companies involved in export activities from Orange County. However, this publication is no longer available. The original estimated exports for Orange County have been revised because the newly released 2005-2022 MSA export data has some new important differences concerning the various sectors and export-tracking based on zip-codes. To estimate the historical data, regional, state, national and international merchandise exports volumes were used in conjunction with exchange rates, labor productivity in export industries, and U.S. and foreign growth measured by real gross domestic product. Historical estimates for Orange County exports are also based on exports from the LA-LB-SA region because Orange County is part of the region. Forecasts are based on statistical and econometric modeling methodology.

## APPENDIX
## A4. EXPORT REGIONS

### Africa

Algeria, Angola, Benin, Botswana, British Indian Ocean Territories, Burkina, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Brazzaville), Congo (Kinshasa), Cote d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, French Southern and Antarctic Lands, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, St. Helena, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Western Sahara, Zambia, Zimbabwe.

### Asia

Afghanistan, Bangladesh, Bhutan, Brunei, Burma, Cambodia, China, East Timor, Hong Kong, India, Indonesia, Japan, Laos, Macau, Malaysia, Maldives, Mongolia, Nepal, North Korea, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam.

### European Union

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Federal Republic of Germany, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

### United States-Mexico-Canada Agreement (USMCA)

United States, Canada, Mexico

### South America

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands, French Guaina, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela

***Source:*** *U.S. Census Bureau, Foreign Trade Statistics*

## A5. LOS ANGELES–LONG BEACH -ANAHEIM EXPORTS

**Table A1**
**Los Angeles MSA Exports by Country: Growth Rate**

| Year | Canada | China | Germany | Japan | South Korea | Mexico | Rest of World | Total Exports |
|---|---|---|---|---|---|---|---|---|
| **2000** | 16.7% | 53.7% | 7.3% | 35.8% | 46.3% | 28.7% | -0.2% | 13.9% |
| **2001** | -13.9% | 37.4% | 0.1% | -7.4% | -22.2% | -3.1% | -23.3% | -14.2% |
| **2002** | -15.7% | -0.1% | -1.4% | -28.8% | -11.0% | -1.1% | -2.3% | -8.8% |
| **2003** | 12.2% | 26.9% | -7.5% | 4.2% | 7.7% | -8.7% | 18.3% | 10.2% |
| **2004** | 15.5% | 32.1% | 8.6% | 18.6% | 28.0% | 10.2% | -5.1% | 7.0% |
| **2005** | 14.2% | 20.0% | 11.9% | 6.0% | 10.3% | 2.4% | 14.4% | 11.5% |
| **2006** | 7.8% | 38.9% | 24.1% | 0.2% | 6.8% | 28.3% | 4.7% | 11.2% |
| **2007** | 28.7% | 18.5% | 7.3% | 1.3% | 22.4% | -16.4% | 17.2% | 11.7% |
| **2008** | 4.2% | -0.3% | 46.9% | 3.4% | 8.9% | 21.1% | 12.3% | 10.2% |
| **2009** | -22.9% | -17.1% | -21.3% | -16.8% | -21.6% | 12.5% | -16.3% | -14.1% |
| **2010** | 13.1% | 31.1% | 13.0% | 10.1% | 12.7% | 59.0% | 8.7% | 20.6% |
| **2011** | 7.1% | 22.7% | 15.1% | 12.0% | 1.2% | 24.5% | 17.4% | 16.9% |
| **2012** | 3.2% | -9.3% | -5.1% | -4.1% | 0.5% | 3.7% | 8.9% | 3.2% |
| **2013** | -6.9% | 1.2% | 27.1% | -4.4% | 3.2% | 5.9% | 1.6% | 1.7% |
| **2014** | -0.4% | -1.5% | -7.0% | -2.2% | -1.2% | -13.2% | 7.2% | -1.1% |
| **2015** | -8.1% | -13.2% | -6.9% | -15.6% | -6.9% | -34.0% | -15.8% | -18.2% |
| **2016** | -6.1% | -12.1% | 9.7% | 8.8% | -6.4% | -11.2% | 5.7% | -0.8% |
| **2017** | 6.3% | 11.4% | 22.9% | -1.9% | 4.7% | 10.3% | -0.2% | 4.1% |
| **2018** | 2.7% | -4.4% | 12.5% | 11.8% | 10.7% | 8.8% | -3.6% | 1.7% |
| **2019** | -6.3% | -15.6% | -1.7% | -3.6% | 11.5% | -19.4% | -0.7% | -5.8% |
| **2020** | -16.2% | -16.5% | 3.6% | -20.1% | -28.2% | -7.4% | -22.3% | -17.8% |
| **2021** | 13.9% | 9.0% | 30.0% | 3.2% | 19.6% | 22.3% | 17.5% | 16.7% |
| **2022** | 7.7% | 20.1% | -45.5% | 0.5% | 0.9% | -1.8% | 10.7% | 4.1% |
| **2023** | -5.7% | -6.4% | -3.5% | -7.6% | -14.2% | 4.3% | -0.9% | -2.3% |
| | | | | **Forecasts** | | | | |
| **2024** | 7.4% | 1.5% | 3.6% | 4.6% | 7.4% | 9.6% | 2.9% | 4.9% |
| **2025** | 2.0% | 1.6% | 1.3% | 1.9% | 4.3% | 2.1% | -0.8% | 0.8% |
| **2026** | 9.1% | 6.0% | 6.6% | 7.1% | 10.5% | 8.6% | 2.7% | 5.7% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

**Table A2**
**Los Angeles MSA Exports by Country: Shares of Total Volume**

| Year | Canada | China | Germany | Japan | South Korea | Mexico | Rest of World |
|---|---|---|---|---|---|---|---|
| **1999** | 13.6% | 2.3% | 1.9% | 13.2% | 4.2% | 12.9% | 51.9% |
| **2000** | 14.0% | 3.1% | 1.8% | 15.7% | 5.4% | 14.6% | 45.5% |
| **2001** | 14.0% | 5.0% | 2.1% | 17.0% | 4.9% | 16.4% | 40.6% |
| **2002** | 13.0% | 5.4% | 2.2% | 13.2% | 4.8% | 17.8% | 43.5% |
| **2003** | 13.2% | 6.3% | 1.9% | 12.5% | 4.6% | 14.8% | 46.7% |
| **2004** | 14.3% | 7.7% | 1.9% | 13.9% | 5.6% | 15.2% | 41.5% |
| **2005** | 14.6% | 8.3% | 1.9% | 13.2% | 5.5% | 14.0% | 42.5% |
| **2006** | 14.2% | 10.4% | 2.1% | 11.9% | 5.3% | 16.1% | 40.0% |
| **2007** | 16.3% | 11.0% | 2.0% | 10.8% | 5.8% | 12.1% | 42.0% |
| **2008** | 15.4% | 10.0% | 2.7% | 10.1% | 5.7% | 13.2% | 42.8% |
| **2009** | 13.8% | 9.6% | 2.5% | 9.8% | 5.2% | 17.3% | 41.7% |
| **2010** | 13.0% | 10.5% | 2.3% | 8.9% | 4.9% | 22.8% | 37.5% |
| **2011** | 11.9% | 11.0% | 2.3% | 8.6% | 4.2% | 24.3% | 37.7% |
| **2012** | 11.9% | 9.7% | 2.1% | 8.0% | 4.1% | 24.5% | 39.8% |
| **2013** | 10.9% | 9.6% | 2.7% | 7.5% | 4.2% | 25.4% | 39.8% |
| **2014** | 10.9% | 9.6% | 2.5% | 7.4% | 4.2% | 22.3% | 43.1% |
| **2015** | 12.3% | 10.1% | 2.8% | 7.6% | 4.7% | 18.0% | 44.3% |
| **2016** | 11.6% | 9.0% | 3.1% | 8.4% | 4.5% | 16.1% | 47.3% |
| **2017** | 11.9% | 9.6% | 3.7% | 7.9% | 4.5% | 17.1% | 45.3% |
| **2018** | 12.0% | 9.1% | 4.1% | 8.7% | 4.9% | 18.3% | 43.0% |
| **2019** | 11.9% | 8.1% | 4.3% | 8.9% | 5.8% | 15.7% | 45.3% |
| **2020** | 12.2% | 8.2% | 5.4% | 8.6% | 5.1% | 17.6% | 42.9% |
| **2021** | 11.9% | 7.7% | 6.0% | 7.6% | 5.2% | 18.5% | 43.1% |
| **2022** | 12.3% | 8.9% | 3.1% | 7.4% | 5.0% | 17.4% | 45.9% |
| **2023** | 11.8% | 8.5% | 3.1% | 7.0% | 4.4% | 18.6% | 46.5% |
| | | | **Forecasts** | | | | |
| **2024** | 12.1% | 8.2% | 3.1% | 7.0% | 4.5% | 19.5% | 45.6% |
| **2025** | 12.3% | 8.3% | 3.1% | 7.0% | 4.7% | 19.7% | 44.9% |
| **2026** | 12.7% | 8.3% | 3.1% | 7.1% | 4.9% | 20.2% | 43.6% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

**Table A3**
**Los Angeles MSA Exports by Region: Growth Rate**

| Year | Africa | Asia | European Union | USMCA | South America |
|---|---|---|---|---|---|
| **2000** | -12.3% | 11.5% | 9.1% | 22.5% | -4.1% |
| **2001** | 2.0% | -19.9% | -13.6% | -8.4% | -4.0% |
| **2002** | -0.1% | -5.2% | -15.1% | -7.8% | -28.6% |
| **2003** | 12.3% | 14.9% | 13.9% | 0.1% | 4.2% |
| **2004** | 32.0% | 7.4% | 4.2% | 12.7% | 29.2% |
| **2005** | 15.2% | 16.0% | 6.5% | 8.1% | 25.5% |
| **2006** | 28.1% | 10.3% | 2.8% | 17.8% | 21.0% |
| **2007** | -12.2% | 12.7% | 16.8% | 4.7% | 21.7% |
| **2008** | 35.3% | 3.4% | 8.8% | 11.4% | 35.4% |
| **2009** | -0.7% | -15.5% | -19.9% | -6.6% | -25.8% |
| **2010** | -16.6% | 18.7% | 0.6% | 38.6% | 25.9% |
| **2011** | 2.7% | 16.8% | 14.5% | 18.2% | 28.0% |
| **2012** | 22.0% | -5.5% | 3.6% | 3.5% | 4.9% |
| **2013** | -20.2% | 1.5% | 6.6% | 1.7% | 2.2% |
| **2014** | -15.5% | 16.5% | 6.8% | -9.4% | 8.6% |
| **2015** | -10.1% | -13.5% | -10.3% | -25.4% | -28.9% |
| **2016** | 8.3% | 4.4% | 3.4% | -9.1% | -12.2% |
| **2017** | -25.2% | 1.6% | 8.8% | 8.6% | 1.7% |
| **2018** | 27.5% | 0.9% | -2.8% | 6.3% | -6.2% |
| **2019** | -6.3% | -3.2% | 2.3% | -14.2% | -11.2% |
| **2020** | -14.3% | -21.5% | -16.8% | -11.2% | -20.9% |
| **2021** | 24.2% | 14.8% | 15.0% | 18.9% | 24.7% |
| **2022** | -2.3% | 8.3% | -25.9% | 1.9% | 37.0% |
| **2023** | -0.8% | -9.7% | 2.4% | 0.2% | -6.2% |
| | | | **Forecasts** | | |
| **2024** | 3.3% | 5.4% | 6.4% | 8.8% | 6.5% |
| **2025** | 2.4% | 1.6% | 2.2% | 2.1% | -10.4% |
| **2026** | 4.1% | 6.0% | 11.8% | 8.8% | 16.5% |

*Source: Woods Center, California State University Fullerton and International Trade Administration*

**Table A4**
**Los Angeles MSA Exports by Sector: Growth Rates**

| Industry | Transportation Equipment | Computer Electronic Product | Miscellaneous | Chemical | Machinery | Petroleum & Coal Products | Food |
|---|---|---|---|---|---|---|---|
| **1999** | -9.7% | 24.4% | 5.6% | -3.7% | 5.3% | -3.5% | 0.9% |
| **2000** | -6.4% | 24.3% | 12.1% | 21.8% | 61.2% | 34.6% | 12.0% |
| **2001** | -14.1% | -18.7% | -11.6% | -5.0% | -23.3% | 10.7% | -0.3% |
| **2002** | -13.4% | -13.4% | 1.1% | -1.3% | -17.9% | -19.5% | 6.8% |
| **2003** | 36.7% | -7.8% | 27.8% | 30.4% | 8.7% | 2.3% | 15.2% |
| **2004** | 22.2% | 9.4% | 1.4% | 6.9% | 9.9% | 3.4% | -1.1% |
| **2005** | 23.6% | 5.1% | 24.2% | 7.0% | 19.5% | 63.4% | 10.3% |
| **2006** | -2.2% | 14.5% | 18.7% | 13.5% | 3.4% | 10.5% | 13.0% |
| **2007** | 18.6% | 0.4% | 15.2% | 19.5% | 8.5% | 43.9% | 12.0% |
| **2008** | 13.0% | -0.9% | 16.5% | 11.4% | 15.8% | 110.3% | 22.3% |
| **2009** | -21.5% | 2.7% | -6.6% | -9.1% | -20.5% | -37.8% | -9.4% |
| **2010** | 4.7% | 50.0% | 10.6% | 15.4% | 10.9% | 7.2% | 25.9% |
| **2011** | 10.4% | 17.9% | 18.3% | 18.2% | 10.8% | 61.1% | 23.3% |
| **2012** | 15.5% | 1.9% | 10.6% | -1.8% | 4.3% | -17.3% | 0.3% |
| **2013** | 9.9% | 1.1% | -9.6% | 3.6% | -3.3% | -10.4% | -7.3% |
| **2014** | -1.3% | -14.8% | 5.4% | 9.8% | -4.3% | 13.8% | 3.4% |
| **2015** | -23.0% | -31.4% | -4.1% | -5.3% | -5.2% | -45.4% | -8.7% |
| **2016** | 8.5% | -7.1% | 16.1% | -9.9% | -12.9% | -28.0% | 9.8% |
| **2017** | 2.9% | -1.3% | -3.3% | -5.8% | -0.3% | 44.7% | 6.5% |
| **2018** | -9.4% | 3.6% | 12.9% | 0.6% | 1.6% | 42.2% | 1.0% |
| **2019** | -5.5% | -15.4% | 6.7% | 2.0% | -2.1% | -34.2% | 4.6% |
| **2020** | -34.0% | -1.3% | -42.1% | -2.2% | -17.9% | -39.5% | 1.9% |
| **2021** | 3.5% | 11.4% | 11.0% | 24.1% | 17.7% | 68.9% | 17.7% |
| **2022** | 13.3% | -10.5% | 24.0% | 6.2% | 11.2% | 91.9% | 5.2% |
| **2023** | 5.3% | -3.7% | -3.6% | 0.1% | 0.8% | 9.6% | 2.8% |
| | | | **Forecasts** | | | | |
| **2024** | 5.7% | 4.7% | 4.2% | 5.3% | 5.1% | 9.4% | 5.4% |
| **2025** | 1.0% | 2.0% | -2.7% | -1.6% | 0.4% | 2.0% | 1.0% |
| **2026** | 6.4% | 1.7% | 7.6% | 5.7% | 5.4% | 8.2% | 6.3% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

**Los Angeles MSA Exports by Sector: Growth Rates (continued)**

| Industry | Fabricated Metal Product | Electrical Equipment Appliance | Apparel | Total Farm | Primary Metal | Other Sectors | Total Export Volume |
|---|---|---|---|---|---|---|---|
| **1999** | -12.4% | 1.8% | -1.4% | -19.6% | -27.7% | 7.2% | 4.8% |
| **2000** | 10.7% | 37.6% | 15.1% | 32.8% | 36.3% | 0.4% | 13.9% |
| **2001** | -1.4% | -12.7% | 3.1% | -2.0% | -8.1% | -15.0% | -14.2% |
| **2002** | -0.9% | -8.9% | -0.2% | -13.0% | -9.5% | -2.9% | -8.8% |
| **2003** | 14.5% | -2.3% | -8.5% | 67.1% | 11.4% | 7.1% | 10.2% |
| **2004** | 9.7% | 15.8% | -0.2% | 5.5% | 12.0% | -7.8% | 7.0% |
| **2005** | 17.4% | 6.6% | 18.0% | 14.9% | 19.9% | -4.3% | 11.5% |
| **2006** | 16.7% | 22.3% | 3.8% | 7.4% | 18.0% | 22.8% | 11.2% |
| **2007** | 1.5% | 5.4% | -1.7% | 2.1% | 4.9% | 19.4% | 11.7% |
| **2008** | -3.0% | -8.8% | 11.6% | 7.1% | 17.3% | 3.4% | 10.2% |
| **2009** | -12.5% | -16.2% | 0.8% | -9.0% | -23.3% | -21.2% | -14.1% |
| **2010** | 14.5% | 10.5% | 11.6% | -2.2% | 22.1% | 17.6% | 20.6% |
| **2011** | -0.3% | 10.0% | 2.6% | 32.6% | 24.4% | 15.7% | 16.9% |
| **2012** | 4.4% | 9.2% | 3.6% | 5.9% | 6.7% | -4.1% | 3.2% |
| **2013** | 13.0% | 6.4% | 0.2% | 7.2% | 10.3% | 1.0% | 1.7% |
| **2014** | -1.9% | 30.3% | 4.9% | -3.2% | 6.4% | 7.8% | -1.1% |
| **2015** | -4.7% | -1.5% | -3.9% | -11.5% | -9.3% | -13.3% | -18.2% |
| **2016** | -3.0% | -4.9% | -15.5% | 20.1% | 33.2% | -6.9% | -0.8% |
| **2017** | 6.7% | 7.5% | 2.9% | -4.3% | 28.1% | 13.2% | 4.1% |
| **2018** | 2.9% | -0.2% | 15.6% | 0.1% | -21.6% | 5.8% | 1.7% |
| **2019** | 3.2% | 0.4% | -8.0% | 7.4% | -14.6% | -8.1% | -5.8% |
| **2020** | -23.6% | -21.9% | -21.3% | 3.4% | -33.3% | -9.4% | -17.8% |
| **2021** | 9.6% | 9.4% | 56.2% | 2.0% | 27.4% | 25.9% | 16.7% |
| **2022** | 13.9% | 13.2% | 11.8% | -8.7% | -7.9% | -11.1% | 4.1% |
| **2023** | -0.9% | 1.2% | 2.4% | 0.3% | -4.5% | -16.7% | -2.3% |
| | | | **Forecasts** | | | | |
| **2024** | 6.4% | 5.0% | 6.0% | 8.6% | 2.8% | 1.3% | 4.9% |
| **2025** | 0.6% | 0.9% | 0.4% | 2.2% | 0.7% | 2.5% | 0.8% |
| **2026** | 7.0% | 5.9% | 5.8% | 2.1% | 5.5% | 7.7% | 5.7% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

**Table A5**
**Los Angeles MSA Exports by Sector: Shares of Total Volume**

| Industry | Transportation Equipment | Computer & Electronic | Miscellaneous | Chemical | Machinery | Petroleum & Coal | Food |
|---|---|---|---|---|---|---|---|
| **1998** | 22.2% | 24.9% | 4.3% | 4.6% | 5.1% | 1.3% | 3.1% |
| **1999** | 19.1% | 29.5% | 4.4% | 4.2% | 5.2% | 1.2% | 2.9% |
| **2000** | 15.7% | 32.2% | 4.3% | 4.5% | 7.3% | 1.4% | 2.9% |
| **2001** | 15.7% | 30.5% | 4.4% | 5.0% | 6.5% | 1.8% | 3.4% |
| **2002** | 14.9% | 29.0% | 4.9% | 5.4% | 5.9% | 1.6% | 3.9% |
| **2003** | 18.5% | 24.2% | 5.7% | 6.4% | 5.8% | 1.5% | 4.1% |
| **2004** | 21.2% | 24.8% | 5.4% | 6.4% | 6.0% | 1.5% | 3.8% |
| **2005** | 23.4% | 23.4% | 6.0% | 6.1% | 6.4% | 2.1% | 3.8% |
| **2006** | 20.6% | 24.0% | 6.4% | 6.3% | 5.9% | 2.1% | 3.8% |
| **2007** | 21.9% | 21.6% | 6.6% | 6.7% | 5.8% | 2.7% | 3.8% |
| **2008** | 22.4% | 19.4% | 7.0% | 6.8% | 6.1% | 5.2% | 4.3% |
| **2009** | 20.5% | 23.2% | 7.6% | 7.2% | 5.6% | 3.8% | 4.5% |
| **2010** | 17.8% | 28.9% | 7.0% | 6.9% | 5.2% | 3.4% | 4.7% |
| **2011** | 16.8% | 29.1% | 7.0% | 6.9% | 4.9% | 4.6% | 4.9% |
| **2012** | 18.8% | 28.7% | 7.5% | 6.6% | 4.9% | 3.7% | 4.8% |
| **2013** | 20.3% | 28.6% | 6.7% | 6.7% | 4.7% | 3.3% | 4.4% |
| **2014** | 20.3% | 24.6% | 7.1% | 7.5% | 4.5% | 3.8% | 4.6% |
| **2015** | 19.1% | 20.6% | 8.4% | 8.6% | 5.3% | 2.5% | 5.1% |
| **2016** | 20.9% | 19.3% | 9.8% | 7.8% | 4.6% | 1.8% | 5.6% |
| **2017** | 20.6% | 18.3% | 9.1% | 7.1% | 4.4% | 2.5% | 5.8% |
| **2018** | 18.4% | 18.7% | 10.1% | 7.0% | 4.4% | 3.5% | 5.7% |
| **2019** | 18.4% | 16.8% | 11.5% | 7.6% | 4.6% | 2.5% | 6.4% |
| **2020** | 14.8% | 20.1% | 8.1% | 9.1% | 4.6% | 1.8% | 7.9% |
| **2021** | 13.1% | 19.2% | 7.7% | 9.6% | 4.6% | 2.6% | 8.0% |
| **2022** | 14.3% | 16.5% | 9.1% | 9.8% | 4.9% | 4.9% | 8.0% |
| **2023** | 15.4% | 16.3% | 9.0% | 10.1% | 5.1% | 5.5% | 8.5% |
| | | | **Forecasts** | | | | |
| **2024** | 15.5% | 16.3% | 9.0% | 10.1% | 5.1% | 5.7% | 8.5% |
| **2025** | 15.6% | 16.5% | 8.7% | 9.9% | 5.1% | 5.8% | 8.5% |
| **2026** | 15.6% | 15.8% | 8.8% | 9.9% | 5.1% | 5.9% | 8.6% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

**Los Angeles MSA Exports by Sector: Shares of Total Volume (continued)**

| Industry | Fabricated Metal | Electrical Equipment | Apparel | Total Farm | Primary Metal | Other Sectors |
|---|---|---|---|---|---|---|
| **1998** | 3.1% | 2.9% | 2.3% | 1.5% | 1.7% | 23.0% |
| **1999** | 2.6% | 2.8% | 2.2% | 1.2% | 1.2% | 23.5% |
| **2000** | 2.5% | 3.4% | 2.2% | 1.3% | 1.4% | 20.7% |
| **2001** | 2.9% | 3.5% | 2.7% | 1.5% | 1.5% | 20.5% |
| **2002** | 3.1% | 3.5% | 2.9% | 1.5% | 1.5% | 21.8% |
| **2003** | 3.2% | 3.1% | 2.4% | 2.2% | 1.5% | 21.2% |
| **2004** | 3.3% | 3.3% | 2.3% | 2.2% | 1.6% | 18.3% |
| **2005** | 3.5% | 3.2% | 2.4% | 2.3% | 1.7% | 15.7% |
| **2006** | 3.7% | 3.5% | 2.2% | 2.2% | 1.8% | 17.4% |
| **2007** | 3.3% | 3.3% | 2.0% | 2.0% | 1.7% | 18.5% |
| **2008** | 2.9% | 2.7% | 2.0% | 1.9% | 1.8% | 17.4% |
| **2009** | 3.0% | 2.7% | 2.3% | 2.0% | 1.6% | 16.0% |
| **2010** | 2.8% | 2.4% | 2.2% | 1.7% | 1.6% | 15.6% |
| **2011** | 2.4% | 2.3% | 1.9% | 1.9% | 1.7% | 15.4% |
| **2012** | 2.5% | 2.4% | 1.9% | 1.9% | 1.8% | 14.3% |
| **2013** | 2.7% | 2.5% | 1.9% | 2.0% | 1.9% | 14.2% |
| **2014** | 2.7% | 3.4% | 2.0% | 2.0% | 2.1% | 15.5% |
| **2015** | 3.1% | 4.0% | 2.3% | 2.2% | 2.3% | 16.4% |
| **2016** | 3.1% | 3.9% | 2.0% | 2.6% | 3.1% | 15.4% |
| **2017** | 3.2% | 4.0% | 2.0% | 2.4% | 3.8% | 16.8% |
| **2018** | 3.2% | 3.9% | 2.2% | 2.4% | 3.0% | 17.4% |
| **2019** | 3.5% | 4.2% | 2.2% | 2.7% | 2.7% | 17.0% |
| **2020** | 3.3% | 4.0% | 2.1% | 3.4% | 2.2% | 18.7% |
| **2021** | 3.1% | 3.7% | 2.8% | 3.0% | 2.4% | 20.2% |
| **2022** | 3.3% | 4.1% | 3.0% | 2.6% | 2.1% | 17.3% |
| **2023** | 3.4% | 4.2% | 3.2% | 2.7% | 2.1% | 14.7% |
| | | | **Forecast** | | | |
| **2024** | 3.4% | 4.2% | 3.2% | 2.8% | 2.0% | 14.2% |
| **2025** | 3.4% | 4.2% | 3.2% | 2.8% | 2.0% | 14.5% |
| **2026** | 3.5% | 4.2% | 3.2% | 2.7% | 2.0% | 14.7% |

***Source:*** *Woods Center, California State University Fullerton and International Trade Administration*

## A6. ORANGE COUNTY EXPORTS

**Table A6**
**OC Exports by Country: Growth**

| Year | Canada | China | Germany | Japan | South Korea | Mexico | Rest of World |
|---|---|---|---|---|---|---|---|
| **2000** | 10.8% | 39.6% | 12.0% | 28.9% | 32.8% | 16.3% | 15.3% |
| **2001** | -12.4% | 39.8% | 1.8% | -5.8% | -20.9% | -1.5% | -22.9% |
| **2002** | -16.6% | -1.2% | -2.5% | -29.6% | -12.0% | -2.2% | -1.7% |
| **2003** | 15.8% | 31.1% | -4.5% | 7.6% | 11.2% | -5.7% | 22.5% |
| **2004** | 19.3% | 36.5% | 12.3% | 22.5% | 32.3% | 13.9% | -4.3% |
| **2005** | 16.2% | 22.0% | 13.8% | 7.7% | 12.2% | 4.2% | 16.4% |
| **2006** | 10.3% | 42.2% | 27.0% | 2.6% | 9.4% | 31.4% | 4.7% |
| **2007** | 32.2% | 21.8% | 10.3% | 4.1% | 25.8% | -14.1% | 18.4% |
| **2008** | 4.2% | -0.3% | 46.9% | 3.4% | 8.9% | 21.1% | 11.9% |
| **2009** | -23.4% | -17.6% | -21.8% | -17.4% | -22.1% | 11.7% | -17.9% |
| **2010** | 14.8% | 33.1% | 14.8% | 11.8% | 14.4% | 61.4% | 7.3% |
| **2011** | 12.7% | 29.2% | 21.2% | 17.9% | 6.5% | 31.0% | 19.5% |
| **2012** | 6.1% | -6.7% | -2.3% | -1.4% | 3.4% | 6.7% | 11.6% |
| **2013** | -1.7% | 6.9% | 34.3% | 1.0% | 9.0% | 11.8% | 8.7% |
| **2014** | -9.7% | -10.6% | -15.6% | -11.3% | -10.4% | -21.3% | -1.2% |
| **2015** | -8.5% | -13.6% | -7.3% | -15.9% | -7.3% | -34.2% | -15.2% |
| **2016** | -12.4% | -18.0% | 2.3% | 1.5% | -8.1% | -17.1% | -2.2% |
| **2017** | -12.6% | -8.4% | 1.0% | -19.4% | -5.9% | -9.3% | -10.4% |
| **2018** | 5.5% | -1.8% | 15.6% | 14.9% | 7.6% | 11.7% | 3.2% |
| **2019** | -3.0% | -12.6% | 1.8% | -0.1% | 6.1% | -16.5% | 5.2% |
| **2020** | -10.2% | -10.5% | 11.0% | -14.4% | 6.4% | -0.8% | -22.6% |
| **2021** | 8.1% | 15.0% | 23.4% | 12.7% | 11.7% | 17.0% | 9.1% |
| **2022** | 7.6% | 6.3% | -38.2% | 8.4% | 16.5% | 9.6% | 11.2% |
| **2023** | -8.2% | -10.1% | -2.4% | -4.7% | -12.0% | 1.5% | -3.2% |
| | | | **Forecasts** | | | | |
| **2024** | 6.5% | 5.5% | 4.4% | 3.2% | 7.6% | 9.4% | 3.1% |
| **2025** | 2.8% | 2.4% | 2.1% | 2.4% | 3.8% | 2.4% | -0.1% |
| **2026** | 8.5% | 9.7% | 7.2% | 5.5% | 8.8% | 7.5% | 3.9% |

***Source:*** *Woods Center, California State University Fullerton*

**Table A7**
**OC Exports by Country: Shares of Total Volumes**

| Year | Canada | China | Germany | Japan | South Korea | Mexico | Rest of World |
|---|---|---|---|---|---|---|---|
| **1999** | 15.6% | 2.7% | 2.0% | 15.1% | 5.0% | 15.5% | 44.1% |
| **2000** | 14.6% | 3.2% | 1.9% | 16.4% | 5.6% | 15.2% | 43.0% |
| **2001** | 14.7% | 5.2% | 2.2% | 17.7% | 5.1% | 17.2% | 38.0% |
| **2002** | 13.5% | 5.7% | 2.3% | 13.8% | 5.0% | 18.5% | 41.2% |
| **2003** | 13.8% | 6.5% | 2.0% | 13.1% | 4.8% | 15.4% | 44.4% |
| **2004** | 14.9% | 8.1% | 2.0% | 14.5% | 5.8% | 15.9% | 38.7% |
| **2005** | 15.3% | 8.7% | 2.0% | 13.8% | 5.8% | 14.6% | 39.7% |
| **2006** | 14.9% | 11.0% | 2.2% | 12.5% | 5.6% | 17.0% | 36.8% |
| **2007** | 17.3% | 11.7% | 2.2% | 11.5% | 6.2% | 12.8% | 38.3% |
| **2008** | 16.4% | 10.7% | 2.9% | 10.8% | 6.1% | 14.1% | 38.9% |
| **2009** | 14.8% | 10.3% | 2.7% | 10.5% | 5.6% | 18.6% | 37.6% |
| **2010** | 13.9% | 11.2% | 2.5% | 9.6% | 5.2% | 24.5% | 33.0% |
| **2011** | 12.9% | 11.9% | 2.5% | 9.3% | 4.6% | 26.4% | 32.4% |
| **2012** | 13.0% | 10.5% | 2.3% | 8.7% | 4.5% | 26.7% | 34.3% |
| **2013** | 11.8% | 10.4% | 2.9% | 8.1% | 4.5% | 27.7% | 34.5% |
| **2014** | 11.9% | 10.4% | 2.7% | 8.1% | 4.5% | 24.3% | 38.1% |
| **2015** | 13.3% | 11.0% | 3.1% | 8.3% | 5.2% | 19.6% | 39.5% |
| **2016** | 12.7% | 9.8% | 3.4% | 9.2% | 5.2% | 17.6% | 42.0% |
| **2017** | 12.4% | 10.1% | 3.9% | 8.2% | 5.4% | 17.9% | 42.1% |
| **2018** | 12.3% | 9.3% | 4.2% | 8.9% | 5.5% | 18.8% | 40.9% |
| **2019** | 12.2% | 8.3% | 4.4% | 9.1% | 6.0% | 16.0% | 44.0% |
| **2020** | 12.6% | 8.5% | 5.6% | 8.9% | 7.3% | 18.2% | 39.0% |
| **2021** | 12.1% | 8.7% | 6.1% | 9.0% | 7.2% | 19.0% | 37.9% |
| **2022** | 12.2% | 8.7% | 3.6% | 9.1% | 7.9% | 19.6% | 39.6% |
| **2023** | 11.7% | 8.1% | 3.6% | 9.0% | 7.2% | 20.6% | 39.8% |
| | | | **Forecasts** | | | | |
| **2024** | 11.8% | 8.1% | 3.6% | 8.8% | 7.4% | 21.4% | 38.9% |
| **2025** | 11.9% | 8.2% | 3.6% | 8.9% | 7.5% | 21.6% | 38.3% |
| **2026** | 12.2% | 8.5% | 3.6% | 8.8% | 7.7% | 21.8% | 37.4% |

***Source:*** *Woods Center, California State University Fullerton*

**Table A8**
**OC Exports by Region: Growth Rate**

| Year | Africa | Asia | European Union | USMCA | South America |
|---|---|---|---|---|---|
| **2000** | -8.5% | 21.9% | 20.4% | 13.6% | 0.2% |
| **2001** | 3.8% | -16.8% | -13.1% | -6.8% | -2.3% |
| **2002** | -1.2% | -6.1% | -12.9% | -8.8% | -29.4% |
| **2003** | 15.9% | 21.2% | 13.2% | 3.3% | -2.2% |
| **2004** | 36.5% | 8.1% | 7.9% | 16.5% | 53.1% |
| **2005** | 17.3% | 12.1% | 8.4% | 10.0% | 22.6% |
| **2006** | 31.2% | 12.9% | 5.3% | 20.6% | 23.8% |
| **2007** | -9.8% | 15.9% | 20.1% | 7.6% | 25.2% |
| **2008** | 35.4% | 3.4% | 8.8% | 11.4% | 35.4% |
| **2009** | -1.3% | -16.0% | -20.4% | -7.2% | -26.2% |
| **2010** | -15.3% | 20.6% | 2.2% | 40.7% | 27.9% |
| **2011** | 8.2% | 23.0% | 20.6% | 24.4% | 34.9% |
| **2012** | 25.6% | -2.7% | 6.7% | 6.5% | 8.0% |
| **2013** | -15.7% | 7.3% | 12.6% | 7.4% | 8.0% |
| **2014** | -23.4% | -3.2% | -6.1% | -17.8% | -1.5% |
| **2015** | -10.5% | -13.2% | -16.1% | -25.8% | -29.2% |
| **2016** | 5.6% | -1.9% | 1.1% | -15.2% | -18.7% |
| **2017** | -41.5% | -10.8% | -6.9% | -10.7% | -16.2% |
| **2018** | 30.9% | 3.6% | -0.2% | 9.2% | -3.6% |
| **2019** | -3.0% | 0.2% | 5.9% | -11.2% | -8.1% |
| **2020** | -8.2% | -15.9% | -10.9% | -4.9% | -15.2% |
| **2021** | 8.9% | 14.2% | 8.0% | 13.4% | 17.0% |
| **2022** | 6.7% | 6.2% | 4.1% | 8.8% | 5.3% |
| **2023** | -3.4% | -6.3% | 1.3% | -2.2% | -7.3% |
| | | | **Forecasts** | | |
| **2024** | 5.5% | 5.6% | 2.6% | 8.4% | 7.2% |
| **2025** | 1.4% | 0.6% | 3.8% | 2.5% | -0.2% |
| **2026** | 5.3% | 5.8% | 6.9% | 7.9% | 6.3% |

***Source:*** *Woods Center, California State University Fullerton*

**Table A9**
**OC Exports by Sector: Growth Rate**

| Industry | Transportation Equipment | Computer Electronic Product | Miscellaneous | Chemical | Machinery | Petroleum & Coal Products | Food |
|---|---|---|---|---|---|---|---|
| **2000** | 9.6% | 19.6% | 17.9% | 23.3% | 61.8% | 37.6% | 15.2% |
| **2001** | -25.7% | -11.2% | -11.4% | -10.8% | -11.9% | -4.2% | -7.1% |
| **2002** | -11.2% | -17.3% | 0.8% | -15.3% | -11.5% | -3.8% | -7.1% |
| **2003** | 20.7% | 18.5% | 9.3% | 13.8% | 4.2% | -3.4% | 16.9% |
| **2004** | 12.7% | 1.0% | 4.7% | 21.1% | 22.5% | 15.1% | 30.3% |
| **2005** | 26.4% | 10.7% | 21.7% | 33.4% | 15.5% | 30.8% | 11.2% |
| **2006** | 18.8% | 7.9% | 38.7% | 28.0% | 0.4% | 39.0% | 17.6% |
| **2007** | 21.7% | 9.6% | 15.2% | 27.3% | 6.8% | 30.6% | 12.4% |
| **2008** | 10.1% | 10.9% | 20.4% | 2.4% | 14.1% | 5.9% | 22.0% |
| **2009** | -19.5% | -24.0% | -13.7% | -6.5% | -15.9% | 12.3% | -14.7% |
| **2010** | 33.2% | 42.8% | 23.0% | 17.9% | 12.1% | 18.5% | 37.2% |
| **2011** | 20.4% | 29.9% | 35.5% | 20.3% | 6.5% | 43.0% | 26.3% |
| **2012** | 5.5% | 8.2% | 5.2% | 1.4% | 10.7% | -3.4% | 6.0% |
| **2013** | 10.2% | 7.7% | -1.6% | 11.8% | 12.2% | 8.9% | -0.3% |
| **2014** | -9.3% | -15.8% | -11.2% | -2.1% | -16.5% | -3.8% | -9.4% |
| **2015** | -19.1% | -24.1% | -20.7% | -20.5% | -24.1% | -17.6% | -19.7% |
| **2016** | -6.3% | -14.8% | -10.1% | -5.9% | -8.6% | -15.0% | -9.2% |
| **2017** | -14.2% | -20.7% | 1.9% | -10.6% | -11.3% | -1.1% | 3.4% |
| **2018** | -1.4% | 11.4% | 20.8% | 11.2% | 6.0% | 3.6% | 2.6% |
| **2019** | -5.8% | -14.0% | 14.4% | 3.7% | -4.7% | -1.4% | 11.2% |
| **2020** | -29.6% | -4.8% | -32.0% | -11.1% | -7.6% | -31.3% | 5.7% |
| **2021** | 6.6% | 14.6% | 10.6% | 23.6% | 19.4% | 43.6% | 20.2% |
| **2022** | 13.8% | 4.2% | 18.8% | 1.4% | 2.4% | 0.5% | -2.0% |
| **2023** | 0.2% | -6.2% | -10.4% | -4.1% | 0.7% | 0.1% | -2.2% |
| | | | **Forecasts** | | | | |
| **2024** | 5.0% | 7.0% | 11.1% | 6.6% | 7.6% | 3.9% | 5.4% |
| **2025** | 6.6% | -2.0% | -2.3% | 6.2% | -6.7% | -1.3% | 3.1% |
| **2026** | 5.7% | 10.2% | 9.0% | 14.5% | 8.7% | 9.3% | 3.2% |

***Source:*** *Woods Center, California State University Fullerton*

**OC Exports by Sector: Growth Rate (continued)**

| Industry | Fabricated Metal Product | Electrical Equipment Appliance | Apparel | Total Farm | Primary Metal | Other Sectors | Total Exports |
|---|---|---|---|---|---|---|---|
| **2000** | 11.2% | 41.3% | 15.1% | 25.3% | 36.1% | 10.2% | 18.3% |
| **2001** | 5.7% | -18.8% | 13.8% | 5.4% | -7.9% | -11.1% | -12.7% |
| **2002** | -15.8% | -2.1% | -3.9% | 5.1% | -7.9% | 0.0% | -9.5% |
| **2003** | 36.5% | 1.1% | -9.1% | 29.3% | 15.2% | 8.1% | 13.6% |
| **2004** | 16.2% | 19.9% | 2.5% | 5.3% | 13.0% | 11.2% | 10.0% |
| **2005** | 13.0% | 12.2% | 21.7% | 6.3% | 28.0% | -1.5% | 13.3% |
| **2006** | 19.2% | 17.9% | 5.4% | 17.3% | 16.9% | 4.3% | 13.2% |
| **2007** | 7.1% | 3.9% | 0.6% | 8.2% | 8.4% | 12.4% | 13.8% |
| **2008** | -4.1% | -1.6% | 5.9% | 13.6% | 16.7% | 8.6% | 9.9% |
| **2009** | -14.1% | -18.7% | 5.7% | -16.6% | -19.9% | -4.9% | -14.9% |
| **2010** | 18.7% | 14.4% | 7.7% | 27.5% | 25.0% | -7.5% | 22.2% |
| **2011** | 17.8% | 25.3% | 10.4% | 16.4% | 24.5% | 5.7% | 21.7% |
| **2012** | 2.7% | 6.0% | 8.0% | 2.2% | -0.1% | 4.1% | 5.5% |
| **2013** | 12.6% | 23.3% | 12.2% | 25.6% | 32.7% | -1.3% | 7.9% |
| **2014** | -14.9% | 5.4% | -9.9% | -15.1% | -6.6% | -6.3% | -10.4% |
| **2015** | -22.2% | -16.4% | -23.3% | -19.9% | -17.0% | 1.4% | -18.4% |
| **2016** | -5.0% | -5.1% | -7.1% | -8.9% | -1.9% | 0.0% | -8.1% |
| **2017** | -4.6% | -6.1% | 3.9% | -3.6% | 0.4% | -7.7% | -10.5% |
| **2018** | 12.2% | 11.1% | 9.6% | 13.6% | -2.0% | 0.9% | 6.2% |
| **2019** | 10.4% | 7.1% | -3.8% | 4.5% | 5.9% | -3.2% | -2.1% |
| **2020** | -17.0% | -13.1% | -9.6% | 11.5% | 1.2% | 0.6% | -12.6% |
| **2021** | 11.6% | 2.0% | 23.9% | 6.7% | 20.0% | 0.9% | 12.2% |
| **2022** | 11.0% | 16.1% | 0.7% | 4.2% | -0.7% | 4.9% | 6.3% |
| **2023** | -6.7% | -6.2% | 1.8% | 0.5% | -2.7% | -2.9% | -3.5% |
| | | | **Forecasts** | | | | |
| **2024** | 6.9% | 6.4% | 7.4% | 5.4% | 2.0% | 0.0% | 5.4% |
| **2025** | 0.9% | 4.0% | 5.3% | 0.5% | 0.9% | 2.0% | 1.6% |
| **2026** | 6.5% | 3.1% | -5.1% | 3.8% | 7.0% | -0.6% | 6.3% |

***Source:*** *Woods Center, California State University Fullerton*

**Table A10**
**OC Exports by Sector: Shares of Total Volume**

| Industry | Transportation Equipment | Computer & Electronic | Miscellaneous | Chemical | Machinery | Petroleum & Coal | Food |
|---|---|---|---|---|---|---|---|
| **1999** | 19.9% | 30.0% | 4.2% | 4.2% | 4.9% | 1.3% | 2.9% |
| **2000** | 18.5% | 30.3% | 4.2% | 4.4% | 6.6% | 1.5% | 2.8% |
| **2001** | 15.7% | 30.8% | 4.3% | 4.5% | 6.7% | 1.6% | 3.0% |
| **2002** | 15.4% | 28.2% | 4.8% | 4.2% | 6.6% | 1.8% | 3.1% |
| **2003** | 16.4% | 29.4% | 4.6% | 4.2% | 6.0% | 1.5% | 3.1% |
| **2004** | 16.8% | 27.0% | 4.4% | 4.6% | 6.7% | 1.6% | 3.7% |
| **2005** | 18.7% | 26.3% | 4.7% | 5.5% | 6.8% | 1.8% | 3.7% |
| **2006** | 19.6% | 25.1% | 5.8% | 6.2% | 6.1% | 2.2% | 3.8% |
| **2007** | 21.0% | 24.2% | 5.8% | 6.9% | 5.7% | 2.5% | 3.7% |
| **2008** | 21.1% | 24.4% | 6.4% | 6.4% | 5.9% | 2.4% | 4.2% |
| **2009** | 19.9% | 21.8% | 6.5% | 7.1% | 5.8% | 3.2% | 4.2% |
| **2010** | 21.7% | 25.5% | 6.5% | 6.8% | 5.3% | 3.1% | 4.7% |
| **2011** | 21.5% | 27.2% | 7.3% | 6.7% | 4.7% | 3.7% | 4.9% |
| **2012** | 21.5% | 27.9% | 7.2% | 6.5% | 4.9% | 3.4% | 4.9% |
| **2013** | 21.9% | 27.8% | 6.6% | 6.7% | 5.1% | 3.4% | 4.5% |
| **2014** | 22.2% | 26.2% | 6.5% | 7.3% | 4.8% | 3.6% | 4.6% |
| **2015** | 22.0% | 24.3% | 6.4% | 7.1% | 4.4% | 3.7% | 4.5% |
| **2016** | 22.4% | 22.5% | 6.2% | 7.3% | 4.4% | 3.4% | 4.4% |
| **2017** | 21.5% | 20.0% | 7.1% | 7.3% | 4.4% | 3.8% | 5.1% |
| **2018** | 20.0% | 20.9% | 8.1% | 7.6% | 4.4% | 3.7% | 4.9% |
| **2019** | 19.2% | 18.4% | 9.4% | 8.1% | 4.2% | 3.7% | 5.6% |
| **2020** | 15.5% | 20.0% | 7.3% | 8.2% | 4.5% | 2.9% | 6.8% |
| **2021** | 14.7% | 20.5% | 7.2% | 9.1% | 4.8% | 3.7% | 7.3% |
| **2022** | 15.7% | 20.1% | 8.1% | 8.7% | 4.6% | 3.5% | 6.7% |
| **2023** | 16.4% | 19.5% | 7.5% | 8.6% | 4.8% | 3.7% | 6.8% |
| | | | **Forecasts** | | | | |
| **2024** | 16.3% | 19.8% | 7.9% | 8.7% | 4.9% | 3.6% | 6.8% |
| **2025** | 17.1% | 19.1% | 7.6% | 9.1% | 4.5% | 3.5% | 6.9% |
| **2026** | 17.0% | 19.8% | 7.8% | 9.8% | 4.6% | 3.6% | 6.7% |

***Source:*** *Woods Center, California State University Fullerton*

| OC Exports by Sector: Shares of Total Volume (continued) | | | | | | |
|---|---|---|---|---|---|---|
| **Industry** | **Fabricated Metal** | **Electrical Equipment** | **Apparel** | **Total Farm** | **Primary Metal** | **Other Sectors** |
| **1999** | 2.6% | 2.9% | 2.3% | 1.3% | 1.2% | 22.4% |
| **2000** | 2.4% | 3.4% | 2.2% | 1.3% | 1.4% | 20.9% |
| **2001** | 2.9% | 3.2% | 2.9% | 1.6% | 1.5% | 21.3% |
| **2002** | 2.7% | 3.4% | 3.1% | 1.9% | 1.5% | 23.5% |
| **2003** | 3.3% | 3.1% | 2.5% | 2.1% | 1.5% | 22.4% |
| **2004** | 3.5% | 3.3% | 2.3% | 2.0% | 1.5% | 22.6% |
| **2005** | 3.5% | 3.3% | 2.5% | 1.9% | 1.7% | 19.6% |
| **2006** | 3.6% | 3.4% | 2.3% | 2.0% | 1.8% | 18.1% |
| **2007** | 3.4% | 3.1% | 2.0% | 1.9% | 1.7% | 17.9% |
| **2008** | 3.0% | 2.8% | 2.0% | 1.9% | 1.8% | 17.7% |
| **2009** | 3.0% | 2.7% | 2.4% | 1.9% | 1.7% | 19.8% |
| **2010** | 2.9% | 2.5% | 2.1% | 2.0% | 1.8% | 15.0% |
| **2011** | 2.8% | 2.6% | 1.9% | 1.9% | 1.8% | 13.0% |
| **2012** | 2.8% | 2.6% | 2.0% | 1.8% | 1.7% | 12.8% |
| **2013** | 2.9% | 3.0% | 2.1% | 2.1% | 2.1% | 11.7% |
| **2014** | 2.7% | 3.5% | 2.1% | 2.0% | 2.2% | 12.3% |
| **2015** | 2.6% | 3.6% | 1.9% | 2.0% | 2.2% | 15.2% |
| **2016** | 2.7% | 3.7% | 2.0% | 2.0% | 2.4% | 16.6% |
| **2017** | 2.9% | 3.9% | 2.3% | 2.1% | 2.7% | 17.1% |
| **2018** | 3.0% | 4.1% | 2.4% | 2.3% | 2.5% | 16.2% |
| **2019** | 3.4% | 4.4% | 2.3% | 2.4% | 2.7% | 16.1% |
| **2020** | 3.3% | 4.4% | 2.4% | 3.1% | 3.1% | 18.5% |
| **2021** | 3.2% | 4.0% | 2.7% | 2.9% | 3.3% | 16.6% |
| **2022** | 3.4% | 4.4% | 2.5% | 2.9% | 3.1% | 16.4% |
| **2023** | 3.3% | 4.3% | 2.7% | 3.0% | 3.1% | 16.5% |
| | | | **Forecast** | | | |
| **2024** | 3.3% | 4.3% | 2.7% | 3.0% | 3.0% | 15.7% |
| **2025** | 3.3% | 4.4% | 2.8% | 3.0% | 3.0% | 15.7% |
| **2026** | 3.3% | 4.3% | 2.5% | 2.9% | 3.0% | 14.7% |

***Source:*** *Woods Center, California State University Fullerton*

# International Trade Forecasts

## An Overview and Analysis of World, U.S., California, Orange County and Southern California Exports

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