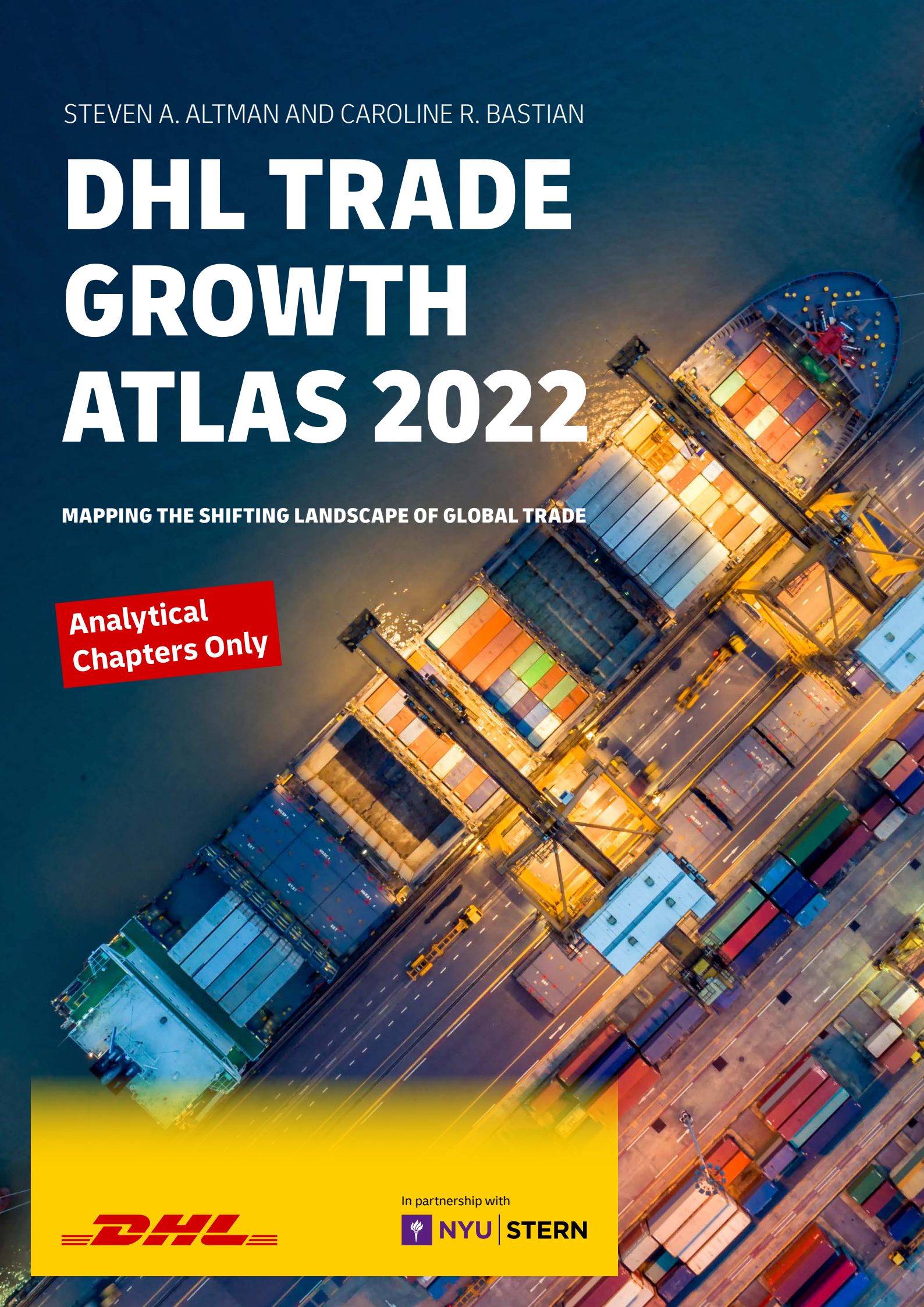
STEVEN A. ALTMAN AND CAROLINE R. BASTIAN

DHL TRADE GROWTH ATLAS 2022

MAPPING THE SHIFTING LANDSCAPE OF GLOBAL TRADE

Analytical Chapters Only



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Mapping the Shifting Landscape of Global Trade

Steven A. Altman
Caroline R. Bastian

NYU Stern School of Business
Center for the Future of Management
DHL Initiative on Globalization

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DEAR READER,

Global trade is in the spotlight today more than ever. The last two years have been a stark reminder of how crucial trade patterns and supply chains are for our quality of life and cost of living—and what happens when they are disrupted. So it's no surprise that these issues have become top priority in board rooms, for politicians, at universities and in the media.

Undoubtedly, international trade has experienced a host of challenges recently: Covid-19 constrained the production and transport of many goods; Great Britain left the EU; America imposed tariffs on Chinese exports; protectionist policies became more en vogue; and most recently, Russia's shocking war in Ukraine has caused severe disruptions to global food and energy markets. It's a new age of uncertainty, and our world appears turbulent and unpredictable. There have even been some dire forecasts claiming that the age of globalization is coming to an end.

So how concerned do we really need to be about global trade? And what are its prospects? The DHL Trade Growth Atlas provides answers to these questions—based on data and well-researched facts to help cut through the rhetoric and speculation.

And the facts give us many encouraging take-aways. For example, the latest forecasts—despite successive downgrades due to the war in Ukraine and worsening macroeconomic conditions—still point to huge opportunities to grow trade. This is good news, because trade can help contribute to faster economic growth, lower inflation, and more resilient and diversified supply chains. Meanwhile, trade growth is broadening across a wider variety of countries, creating promising opportunities in both advanced and emerging economies.

Overall, the report's findings confirm my optimistic view: Open trade and countries that work together will remain crucial drivers of prosperity in the future—as they have been for centuries. Trade will continue to build bridges that strengthen us as a global community. However, decision-makers might reconsider certain supply chains, based on reasonable tradeoffs between cost and risk, so that they are not just efficient, but also secure. Multi-sourcing of suppliers, or using multiple trade lanes and modes of transport, can be reasonable steps to prepare for single source disruptions.

As the world's leading logistics provider, Deutsche Post DHL Group is the ideal partner for managing any of these tasks. We offer solutions for all logistics needs, and no other company in the sector has a similar global presence or the networks to match. This makes us robust and resilient when things get tough.

I wish you an insightful read and hope you will find this report as inspiring as I did.

Yours sincerely,

Frank Appel
CEO, Deutsche Post DHL Group

DEAR READER,

In a world buffeted by a series of crises, questions about international trade have gained prominence in business and public policy deliberations. Is trade still an attractive source of growth? How is the geography of trade shifting? Which countries are achieving the strongest trade growth and where could new poles of trade growth emerge in the future?

In this context, our research team at NYU Stern's DHL Initiative on Globalization is pleased to introduce this inaugural edition of the DHL Trade Growth Atlas, which we hope will become a go-to resource for understanding and navigating shifts in the global trade landscape. We have sought to distil here the most important data on the state and trajectory of global trade, and to employ maps, graphs, and other types of visual content to bring the data to life. To help pinpoint promising opportunities, we rank 173 countries and territories according to the speed and the scale of their trade growth.

The DHL Trade Growth Atlas complements the established DHL Global Connectedness Index report series, which has been published regularly since 2011. The DHL Trade Growth Atlas provides a deep dive on trade in goods, while the DHL Global Connectedness Index analyzes the broader phenomenon of globalization based on trade in goods and services, as well as international flows of capital, people, and information.

I would like to thank Caroline R. Bastian for co-authoring this publication, and for her myriad contributions from its conceptualization through to the development of its analytical content and data visualizations. This publication also builds on prior research conducted for the DHL Global Connectedness Index, which was developed under the leadership of Pankaj Ghemawat and has been co-authored since 2018 by Caroline R. Bastian.

My sincere thanks also to Anita Gupta and Mathias Schneider for their steadfast and insightful collaboration on the development of this new publication, to Davis Fattedad, Lindsay Hopewell, Ryan Li, and Md. Shah Naoaj for meticulous research assistance, to Thomas Hout, Susan Perkins, Niccolò Pisani, and Robert Seamans for reviewing preliminary drafts, to Björn Schuman and Keir Bonine for editorial support and proofreading, and to Dirk Hrdina for turning our text and graphics into a compelling visual product.

Finally, I would like to thank Deutsche Post DHL Group for its longstanding support of our research and its sponsorship of the DHL Initiative on Globalization at NYU Stern's Center for the Future of Management. Our research initiative aims to be a leading center of excellence for data-driven globalization research. To learn more about our work, please visit our website at **stern.nyu.edu/globalization**.

Steven A. Altman
Senior Research Scholar and Director of the
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TEN KEY TAKE-AWAYS

1 International trade has proved surprisingly resilient through the Covid-19 pandemic, expanding to well above pre-pandemic levels, even as supply bottlenecks constrained further growth.

2 Trade is still expected to grow slightly faster in 2022 and 2023 than it did over the previous decade, despite forecast downgrades due to the war in Ukraine and slowing global economic growth.

3 E-commerce sales boomed during the pandemic, expanding opportunities for sellers to access new markets abroad. Forecasts call for strong cross-border e-commerce growth to continue.

4 Trade growth is especially important in the present environment because of the power of trade to accelerate economic growth, reduce inflation, and enable countries to access multiple sources of key inputs.

5 Emerging economies grew their share of world trade from 24% in 2000 to 40% in 2012, with China alone driving about half of this increase. But over the past decade, the emerging economies' share of world trade has changed very little.

6 Trade growth is spreading out across a wider variety of countries. From 2016 to 2021, China generated one-quarter of the world's trade growth. Based on the latest IMF forecast, China will still achieve the most trade growth from 2021 to 2026, but its share of global growth will fall by half to 13%.

7 New poles of trade growth are emerging in Southeast and South Asia, and trade growth is forecast to accelerate dramatically in Sub-Saharan Africa. After decades of shifts to the east, the center of gravity of world trade is poised for a turn to the south.

8 While trade is growing faster in emerging economies, advanced economies continue to generate the largest amount of trade growth. Looking forward, IMF forecasts imply that 55% of trade growth through 2026 will be in advanced economies, while 45% will take place in emerging economies.

9 The mix of products traded by advanced versus emerging economies has shifted. Emerging economies are increasingly important importers of raw materials and exporters of sophisticated capital, intermediate, and consumer goods.

10 Emerging economies continue to race forward on measures of connectivity, innovation, and leading companies. Future shifts in trade patterns could reflect more the quality rather than the quantity of goods produced in these countries.

EXECUTIVE SUMMARY

International trade has defied predictions that the Covid-19 pandemic would trigger the end of globalization. Instead, trade in goods has surged to as high as 10% above pre-pandemic levels, even in the face of significant supply constraints.[1] As the world now confronts another shock due to the war in Ukraine, there is once again talk of a retreat from global trade. But with inflation at multi-decade highs and economies slowing down, trade's power to accelerate growth, lower prices, and diversify sources of key inputs is even more crucial for companies and countries than it was before the present wave of crises.

This inaugural edition of the DHL Trade Growth Atlas paints a rich portrait of the evolving landscape for global trade growth, drawing on more than 1 million data points on country-to-country flows of goods.[2] It reviews the present outlook for global trade growth, tracks shifts in the geography of world trade, ranks countries based on the speed and scale of their trade growth, examines the mix of goods traded, and measures broader changes in the business environment that could affect trade opportunities moving forward. At the back of this publication are country profiles that provide a closer look at the trade patterns of 173 different economies.

Prospects for future trade growth—despite worsening macroeconomic conditions in most of the world—are surprisingly positive. Trade growth forecasts have been downgraded due to the war in Ukraine, but recent forecasts still call for trade to grow slightly faster in 2022 and 2023 than it did over the preceding decade. And forecasters expect trade growth to modestly outpace GDP growth, sustaining or even expanding the role of international trade in the world economy.[3] Forecasts also call for strong cross-border e-commerce growth to continue, expanding access to international markets.[4]

As trade continues to present large opportunities, the geography of trade growth is broadening. Between 2016 and 2021, China alone generated one-quarter of the world's trade growth. While China is still expected to achieve the most trade growth of any individual country from 2021 to 2026, the latest International Monetary Fund (IMF) forecast implies that China's share of global growth will fall by half over this same period (to 13%).[5]

New poles of trade growth are emerging, most notably in Southeast and South Asia, and trade growth is forecast to accelerate significantly in Sub-Saharan Africa. Viet Nam, uniquely, is ranked among the top 10 countries over the past five years for both the speed (growth rate) and scale (absolute amount) of its trade growth. Looking at forecast growth through 2026, no countries rank among the top 10 on both speed and scale of trade growth, though Viet Nam, India, and the Philippines come closest. India and the Philippines are both forecast to double their trade volume growth rates versus the past five-year period.

Another way to highlight the emergence of new poles of trade growth is to look at regional trade growth rankings. From 2016–2021, China beat every major world region on the growth rates of its exports and imports.[6] But the latest IMF forecast implies that over the next five years, the Association of Southeast Asian Nations (ASEAN) region will achieve the fastest trade growth, followed by South & Central Asia, and Sub-Saharan Africa. The forecast acceleration in Sub-Saharan Africa's exports is especially striking, as this region ranked last in export growth over the previous five-year period. Five of the 10 countries with the fastest projected trade growth through 2026 are in Africa, and three are in the Caribbean region.

While trade growth continues to be fastest in emerging economies, IMF forecasts imply that the largest amount of trade growth over the next five years (55% of the world total) will take place in advanced economies, which still conduct the majority of global trade. From a regional perspective, Europe is forecast to generate almost as much total trade growth (35% of the world total) as East Asia & the Pacific (37%). This means there are significant trade growth

opportunities in both advanced and emerging economies, and in regions around the world.

The sense that advanced and emerging economies both present attractive trade growth opportunities is underscored by trends in their respective shares of world trade. The emerging economies' share of world trade soared from 24% in 2000 to 40% in 2012, and has since fluctuated around 40%. China drove about half of the overall increase, but its share did not grow between 2015 and 2019.[7] As a result, the first decade of the 2000s—when trade growth was especially concentrated in China and other emerging economies—saw a much larger movement (to the east) of the center of gravity of world trade than during any other of the past seven decades. But since then, shifts in trade patterns have been much smaller.

Looking beyond trade, the emerging economies' shares of several indicators of economic output and financial activity follow the same pattern of surging upward during the 2000s and then stabilizing in the 2010s. But the emerging economies continue to race forward in other areas, especially on measures of connectivity, innovation, and headquarters locations of leading companies. As a result, emerging economies are becoming increasingly important exporters of sophisticated capital, intermediate, and consumer goods (and increasingly important importers of raw materials). The rise of emerging economies is no longer mainly a story about the quantities of goods they are trading but the quality of those goods and the innovative content embedded in them.

The dramatic upgrading of the roles played by emerging economies in global trade networks—from raw material suppliers to assemblers of foreign components to manufacturers of increasingly sophisticated products—highlights the substantial benefits countries can derive from active involvement in international trade. An influential recent study suggests that a 10% increase in a country's trade flows raises its per capita income by more than 5%.[8]

In addition to accelerating growth, trade is a powerful lever for reducing inflation. According to one recent analysis, selected reductions in U.S. trade barriers could cut the country's inflation rate by 1.3 – 2 percentage points. Even at the low end of this range, the average U.S. household would save $800 per year.[9] And international trade is also a key ingredient for economic resilience, because it enables countries to diversify their sources of key inputs and the markets where they can sell their products.[10]

For companies, the power of trade to accelerate growth, reduce costs, and boost resilience, is also especially salient in the present context. Many business leaders are facing the challenge of high inflation for the first time in their careers, at the same time as they confront slowing economic growth and more frequent disruptions to their operations. Trade can be an important part of their strategies for responding to these challenges.

The material that follows—and especially the country profiles at the back of this report—is designed to provide policymakers, business leaders, and the interested public a convenient and up-to-date overview of the trade landscape around the world. We hope it will help countries and companies to seize their most promising opportunities, contributing to more robust economic growth, lower inflation, and a more resilient global economy.

1. TRADE GROWTH OUTLOOK

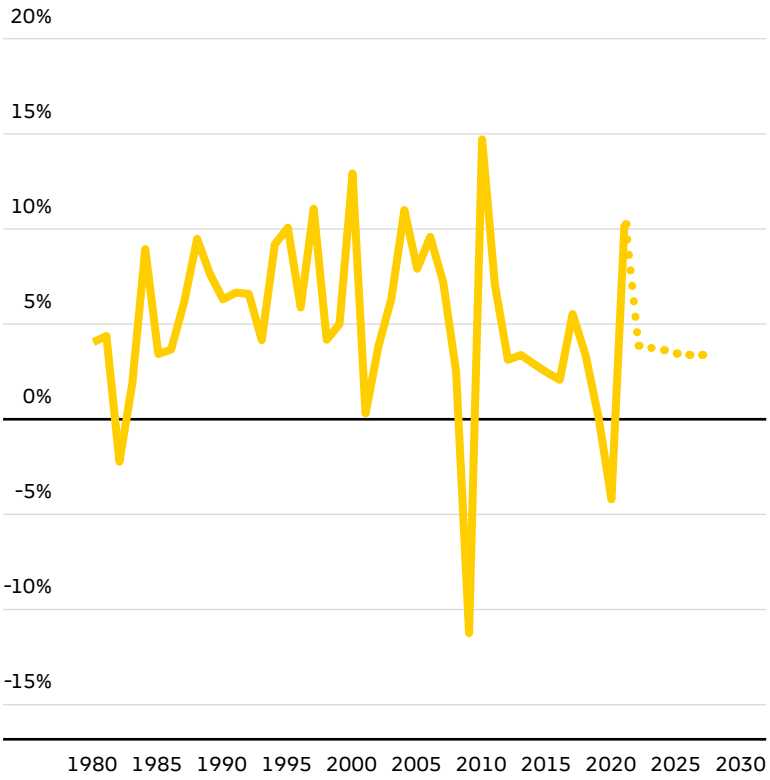
The Covid-19 pandemic and the war in Ukraine have confronted global trade with a series of dramatic shocks, further adding to concerns about trade growth prospects in the wake of the U.S.-China trade war, Brexit, and the 2008 global financial crisis. This section reviews the resilience of global trade during the Covid-19 pandemic, examines potential effects of the war in Ukraine, and puts recent developments into longer-run perspective.

OUTLOOK OVERVIEW

International trade has proven surprisingly resilient amid recent shocks. Trade in goods has set new records during the Covid-19 pandemic, and the war in Ukraine is only expected to slow—not reverse—the growth of international trade in 2022 and 2023. Looking ahead through 2027, trade is forecast to grow marginally faster than GDP every year, sustaining or even slightly expanding the role of international trade in the world economy.[1]

To place the current trade expansion into historical context, **Figure 1.1** tracks the annual growth rate of world exports of goods since 1980.[2] Three main messages stand out, and we will examine each of these in turn in this section. First, trade proved far more resilient than many expected during the Covid-19 pandemic, bouncing back to above pre-pandemic levels after a sharp but brief decline. Second, while the war in Ukraine has reduced trade flows and prompted forecast downgrades, trade is still expected to grow faster over the short and medium term than it did over the preceding decade. Third, trade growth has, nonetheless, slowed significantly since the 2008 – 09 global financial crisis.

FIGURE 1.1 ANNUAL GOODS EXPORTS VOLUME GROWTH, WORLD, 1980 – 2027 (IMF FORECAST)



Trade Growth Measures: Volume vs. Value

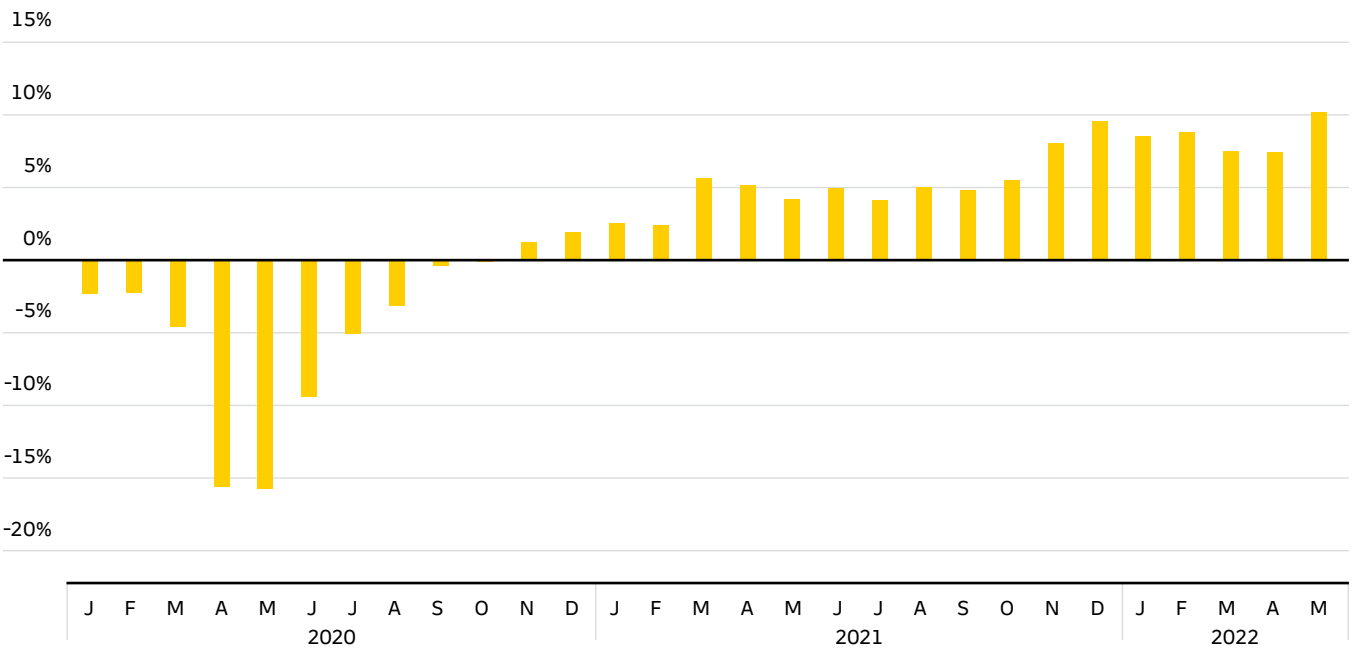
Figure 1.1 and most other parts of this report show trade growth in *volume* terms, which simply means that we hold price levels constant to show actual changes in the amount of goods traded (this has nothing to do with the size or weight of the goods). Occasionally, we will also look at trade growth in *value* terms, i.e., in current prices, but we prefer to use trade volume statistics because fluctuations in the prices of traded goods (especially commodities) can often cause large swings in trade value even when no significant changes have occurred in the amount of goods traded.

Merchandise trade surged back after a decline at the beginning of the pandemic, and forecasts call for a reversion roughly to pre-pandemic growth rates rather than another decline due to the war in Ukraine.
Data Source: IMF World Economic Outlook, April 2022

EFFECTS OF THE COVID-19 PANDEMIC

For a monthly view of how international trade performed during the Covid-19 pandemic, **Figure 1.2** shows how global trade in goods plummeted in early 2020, only to bounce back to above its pre-pandemic level before the end of the year. By early 2021, more goods were being delivered across national borders than ever before.[3] The pandemic produced the steepest decline in international trade on record, but it was followed by the fastest recovery.[4] This calls into question the argument that vulnerabilities revealed by the pandemic should prompt countries to reduce their reliance on global supply chains (see the box titled **Pandemic Lessons on Global Supply Chain Resilience** on p. 14).

FIGURE 1.2. MERCHANDISE TRADE VOLUME (VS. DECEMBER 2019)



This graph shows how much more—or less—goods were traded internationally in each month, as compared to the amount traded in December 2019. Seasonal differences in trade volumes, as well as price changes, are removed from these statistics to paint the clearest possible picture of real trends in the amount of goods traded. In April and May 2020, goods trade was more than 15% below pre-pandemic levels, but trade was already back above pre-pandemic levels before the end of 2020 and was 10% higher as of May 2022.

Trade in goods staged an unprecedented recovery during the Covid-19 pandemic, with demand surges driving trade flows to record levels even as supply bottlenecks constrained further growth.

Data Source: CPB World Trade Monitor May 2022 (data released July 2022)

As the world faced severe supply constraints during the pandemic, many overlooked the fact that much of the stress on supply chains was caused by surges in demand. In the U.S., for example, real personal consumption of physical goods rose faster between 2019 and 2021 than at any other time since the recovery from World War II.[5] The pandemic caused an unprecedented shift in consumption from services (many of which, like restaurant meals and tourism, were restricted to reduce in-person contact) to physical goods, which were already traded much more intensively than services.[6] At the same time, the pandemic also accelerated the growth of cross-border e-commerce (see the box titled **Covid-19 International E-Commerce Boom** on p. 15).

During the pandemic, the production and distribution of goods could only partially keep up with surging demand. There are always limits on how quickly capacity can be increased to respond to demand, and they were exacerbated by several unique features of the pandemic: large shifts in the types of products in demand, sudden closures of factories and ports due to virus outbreaks, labor shortages, and shipping delays.[7] In the absence of such constraints, trade in goods would have soared to even greater heights. One analysis published by the World Bank estimated that without supply constraints, global trade in goods would have grown to 13% above pre-pandemic levels by mid-2021, rather than the actual 5% increase achieved at that point in the recovery.[8]

This makes clear that the pandemic has not been the major setback for global trade that many anticipated. At the beginning of the crisis, there was a surge of interest in shortening supply chains and producing goods closer to customers. But as trade rebounded and global supply chains delivered record amounts of goods, many companies backed away from reshoring and nearshoring plans. Ultimately, many more companies decided to boost supply chain resilience by increasing inventory levels, investing in digitization, and selectively increasing diversification instead.[9] While supply chain reconfigurations can take several years to execute (and the war in Ukraine has prompted renewed emphasis on these efforts), current trends suggest no major retreat from global trade.

The rise of inflation to multi-decade high levels during the pandemic also highlights both the costs of a potential retreat from trade and the benefits of further openness. Several studies suggest that trade growth has contributed to lower inflation in the past, prompting warnings that a retreat from global supply chains would further increase price levels.[10] In contrast, reductions in trade barriers could help to reduce inflation. According to one recent study, selected reductions in U.S. trade barriers could cause a one-time reduction of the country's consumer price inflation of 1.3 – 2 percentage points. Even at the low end of this range, the average U.S. household would save $800 per year.[11]

> *Global trade in goods plummeted in early 2020, only to bounce back to above its pre-pandemic level before the end of the year. By early 2021, more goods were being delivered across national borders than ever before.*

PANDEMIC LESSONS ON GLOBAL SUPPLY CHAIN RESILIENCE

The Covid-19 pandemic confronted global supply chains with their toughest stress test since the current wave of globalization began after World War II. We have seen more than two years of rolling shocks, with successive waves hitting virtually every country and affecting every industry.[12] While the pandemic is still not over, several lessons have already become apparent, and the war in Ukraine has made these lessons even more important:

1. *Trade is essential for resilience:* Trade boosts resilience by harnessing resources from around the world to confront shocks wherever they occur. During the Covid-19 pandemic, trade in medical goods surged to support the fight against the virus, and the resilience of trade itself helped to accelerate the global macroeconomic recovery.[13] While trade can also transmit shocks between countries, multiple studies have shown that retreating from trade would reduce resilience.[14]

2. *Dual-sourcing is often a smart way to diversify:* Diversification is another important ingredient for resilience, to avoid depending on a single source for key inputs. But adding more redundancy into supply chains comes at a cost. It increases complexity, and it sometimes involves producing in less efficient locations or foregoing economies of scale. That's why smart diversification strategies often just involve shifting from a single source to two (dual-sourcing) or three.[15]

3. *Digitization boosts visibility and flexibility:* Digitization helps companies to access timely data across multiple tiers of their supply chains and to use that data to boost resilience. While diversification increases complexity, digitization helps to manage more complex supply chains flexibly and efficiently. The adoption of digital supply chain tools has surged during the pandemic, and forecasts call for this trend to continue well into the future.[16]

4. *Bottlenecks must be addressed:* Trade's contribution to the recovery from Covid-19 was constrained by supply bottlenecks, which were dramatically apparent at key chokepoints such as the major container ports on the West Coast of the United States. Investments aimed at easing such bottlenecks can expand trade's capacity to help address future shocks.[17]

5. *Trade agreements and trade facilitation strengthen resilience:* Trade between countries linked by a trade agreement proved to be more resilient than trade between other countries during the pandemic. When trade declined in 2020, the dip was 40% smaller if countries were linked by a deep trade agreement.[18] At the same time, trade facilitation (aimed at making export and import processes simpler and more efficient) helped to keep trade flowing. Several countries simplified forms and procedures, accepted scanned rather than paper documents, and accelerated digitization efforts.[19]

6. *The role of regionalization in boosting resilience may be overestimated:* Contrary to predictions that the pandemic would force greater reliance on nearby suppliers, trade flows stretched out over longer distances during the first two years of the Covid-19 pandemic (as discussed further in **Section 2**). Regionalization can play a positive role in strategies for boosting resilience by shortening transit times and reducing cross-region interdependencies, but predictions of a substantial increase in trade regionalization have not (yet) come to fruition.[20]

COVID-19 INTERNATIONAL E-COMMERCE BOOM

The Covid-19 pandemic caused an unprecedented surge in e-commerce sales as buyers purchased goods online to avoid in-person contact in retail stores. According to an UNCTAD analysis, e-commerce sales rose from 16% of total retail sales in 2019 to 19% in 2020, and they held steady at that level in 2021.[21] A McKinsey study pegs the global share of retail sales conducted via e-commerce at 17% in 2020.[22]

Most e-commerce sales, nonetheless, still take place within rather than across national borders. UNCTAD estimates that 9% of business-to-consumer (B2C) e-commerce sales were cross-border in 2019.[23] And McKinsey estimates the cross-border share of e-commerce sales in 2020 at 11%.[24]

Within the European Union, consumer adoption of cross-border e-commerce has been on a rising trend for more than a decade. The proportion of individuals in the EU who reported at least one online purchase from a seller in a different EU country during the last 12 months rose from 6% in 2008 to 21% in 2019. By 2021, nearly as high a proportion (18%) had ordered online from another EU country in just the last three months, and 12% had purchased from a country outside the EU.[25]

The outlook for future cross-border e-commerce growth is strong. According to McKinsey, sales are likely to soar from $300 billion in 2020 to roughly $1 trillion in 2030. Under an even more optimistic scenario, cross-border e-commerce sales could reach $2 trillion over the next decade and the cross-border share of e-commerce sales could double. A survey commissioned by Paypal showed that 23% of respondents became more comfortable with cross-border shopping since the pandemic.[26]

The growth of cross-border e-commerce holds significant potential to boost trade growth, especially via greater participation of small and medium sized enterprises (SMEs) in international trade. According to one large global study, companies that participate in e-commerce export 40% more than otherwise similar firms.[27] There is also promising evidence that cross-border e-commerce can help to close gender gaps, with several studies showing that firms participating in cross-border e-commerce are more likely to be owned by women than are firms engaged in offline trade.[28]

The Covid-19 pandemic caused an unprecedented surge in e-commerce sales as buyers purchased goods online to avoid in-person contact in retail stores.

THE WAR IN UKRAINE AND RECENT FORECAST UPDATES

The war in Ukraine has confronted globalization with yet another shock, but the evidence thus far points to a much smaller impact on global trade growth as compared to the pandemic. At the beginning of the pandemic, the International Monetary Fund (IMF), World Bank, and Organization for Economic Cooperation and Development (OECD) all cut their 2020 trade growth forecasts (covering both goods and services) by more than 10 percentage points (from positive growth to a sharp contraction). By contrast, in their first updates since the start of the war in Ukraine, the IMF cut its 2022 trade growth prediction by only 1.0 percentage point, the World Bank cut its forecast by 1.8 percentage points, and the OECD maintained its trade growth forecast unchanged even as it cut its GDP forecast.[29] All three forecasts still called for positive trade growth.

The IMF went on to downgrade its forecast a second time in July 2022, as shown in **Figure 1.3**. This downgrade reflects not only the effects of the war itself but also monetary policy tightening to fight inflation and recent Covid-19 outbreaks in China. It is striking to note, however, that the downgraded forecast still calls for trade to grow slightly faster in 2022 and 2023 than it did, on average, over the preceding decade.[30] The last 10 years was a period of comparatively slow trade growth, but the war and other negative developments are likely to just extend this period of slow growth rather than to cause a major retreat from global trade.

The most recent forecasts also call for trade in goods and services to grow slightly faster than world GDP, as shown in **Figure 1.4**. The July 2022 IMF World Economic Outlook Update forecasts 4.1% and 3.2% trade growth in 2022 and 2023, respectively, as compared to 3.2% and 2.9% real GDP growth. This implies that the role of trade in the world economy will be sustained and potentially even increased modestly moving forward.

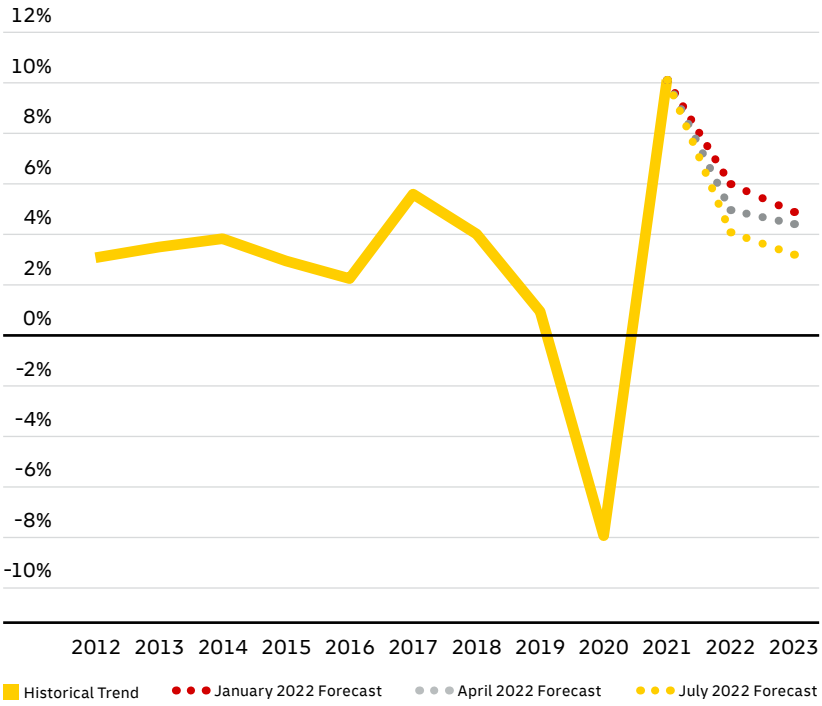
Focusing specifically on trade in goods (excluding services), the same pattern of resilience is also clear. As of April 2022,

the IMF predicted faster growth of trade in goods in 2022 and 2023 than during eight of the last 10 years (see **Figure A.1** on p. 262). The global ratio of trade in goods to world GDP (**Figure A.2** on p. 262) also shows no signs of a retreat from market integration via international trade.[31]

While the war in Ukraine is likely to only slow rather than reverse the global expansion of world trade, its consequences are much more severe for trade in specific regions and commodities. The countries where trade flows have been disrupted most severely are, unsurprisingly, Ukraine and Russia.[32] In March and April 2022, the value of Ukraine's imports from the EU, U.S., and China fell 48%, 27%, and 90%, respectively, while Ukraine's exports to them fell 10%, 31%, and 10%. Russia's imports from the EU, U.S., and China fell 59%, 83%, and 18%, respectively, but its exports to the EU and China rose 75% and 38% (Russian exports to the U.S. fell 4%).[33] The prices of Russia and Ukraine's major exports, particularly food, fuels, and industrial metals, soared as the war has disrupted supplies of these essential commodities.[34]

Later, in **Section 2**, we will further explore the recent geography of trade flows, but next we take a closer look at why trade growth slowed during the period between the 2008 global financial crisis and the beginning of the Covid-19 pandemic.

FIGURE 1.3: ANNUAL GROWTH OF TRADE IN GOODS AND SERVICES, HISTORICAL TREND AND IMF FORECASTS

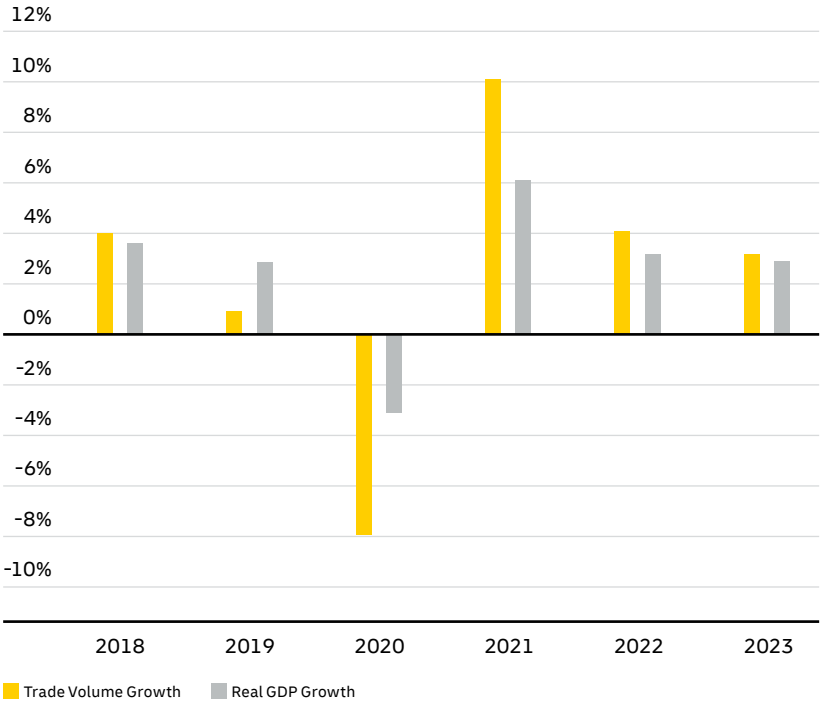


The solid yellow line on this figure depicts actual trade volume growth through 2021. The red dotted line shows the IMF's forecast before the start of the war in Ukraine (as of January 2022). The gray dotted line reflects the IMF's first forecast downgrade after the start of the war (issued in April 2022). The yellow dotted line depicts the second downgrade issued in the IMF's most recent (July 2022) forecast.

Even after the IMF downgraded its trade growth forecasts in April and July 2022, the latest forecast still calls for trade to grow slightly faster in 2022 and 2023 than it did, on average, over the preceding decade.

Data Source: IMF World Economic Outlook, January, April, and July, 2022

FIGURE 1.4: TRADE GROWTH VERSUS REAL GDP GROWTH, IMF FORECAST



When trade grows faster than world GDP, trade becomes a more important contributor to global economic output. Conversely, when trade growth lags behind GDP growth, trade plays a smaller role in the world economy. The fact that trade is predicted to grow slightly faster than GDP in 2022 and 2023 highlights the resilience of international trade in the face of major headwinds from the war in Ukraine, the Covid-19 pandemic, and weakening macroeconomic conditions.

Trade is forecast to grow slightly faster than world GDP in 2022 and 2023, sustaining and potentially even increasing the importance of trade to the world economy.

Data Source: IMF World Economic Outlook Update, July 2022

LONGER TERM TRENDS

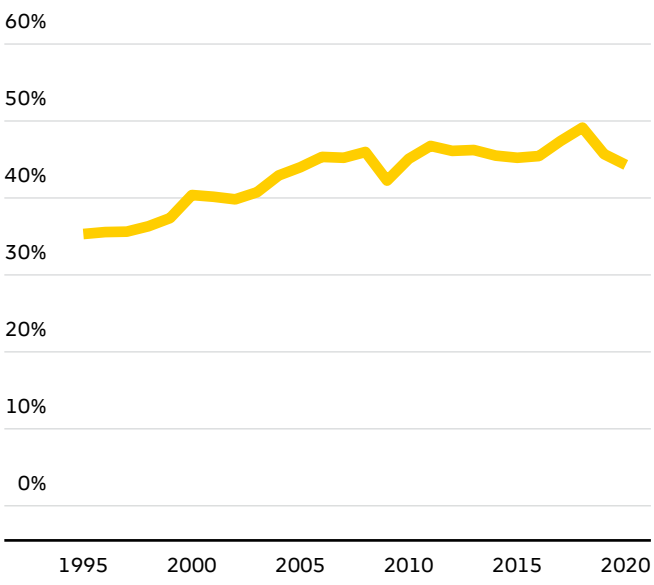
From the late 1980s until 2007, trade typically grew about twice as fast as GDP. But after the 2008 financial crisis—and up until the pandemic—trade growth settled into a more modest pattern, roughly keeping pace with GDP.[35] One of the key reasons for slower trade growth was the end of a strong upward trend in the extension of global value chains. Especially in the 1990s and early 2000s, companies were busy spreading their production processes across multiple countries; as a result, the share of the total value of world exports crossing more than one border before final consumption rose from 35% in 1995 to 46% in 2008 (see **Figure 1.5**). But since 2008, this measure of the extension of global value chains has fluctuated between 42% and 49%. In 2020, it stood at 44% (slightly below its 2008 level).

A big contributor to this phenomenon was the maturation of China's domestic value chains. Over this period, a growing proportion of Chinese exports relied on domestically produced components instead of imports. In parallel, China's growing domestic market—and policies aimed at a transition to consumption-led growth rather than export-led growth—boosted the share of output destined for China's own burgeoning market. As a result, imports of goods and services fell from 28% of China's GDP in 2006 to 16% in 2020. Over the same period, China's exports-to-GDP ratio fell from 36% to 19%.[36]

Pre-pandemic trade growth trends were also affected by the sluggish macroeconomic recovery after the 2008 global financial crisis, and the eurozone crisis that followed. Trade growth tends to follow a cyclical pattern, with trade growing faster than GDP in good times and trade lagging behind during periods of macroeconomic weakness.

Of more lasting concern, developments in the public policy environment also appear to have weighed on trade growth since 2008. The most dramatic challenge was the U.S.-China trade war, with multiple rounds of tit-for-tat tariff escalation. More generally, the period since 2008 has been marked by the rising adoption of policy measures, such as subsidies, that have tilted the playing field in favor of domestic producers in many countries.[37]

FIGURE 1.5: INDIRECT TRADE AS A PERCENTAGE OF TOTAL EXPORTS

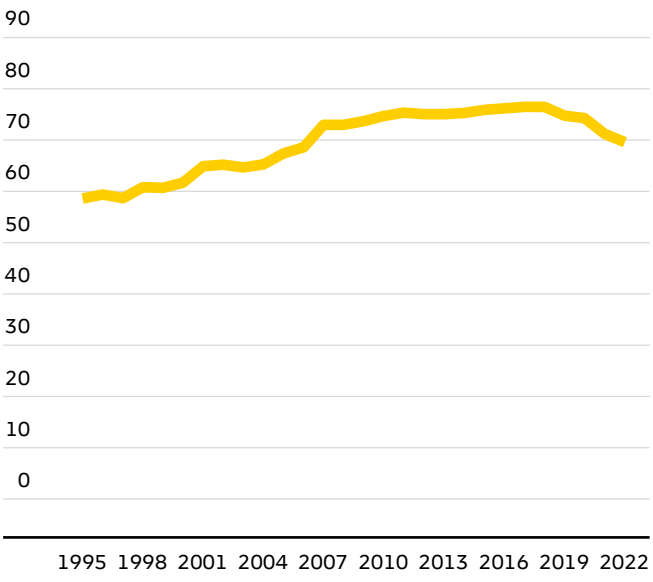


The ratio of indirect trade to total exports provides an indication of the extension of global value chains. It measures how much of the value contained in exported goods crosses two or more borders before it reaches the country where it will finally be consumed.

The extension of global value chains stalled after the 2008 global financial crisis, indicating a flattening of the prior trend of companies spreading more and more of their production processes across multiple countries.
Data Source: Asian Development Bank, → **"Global Value Chain Development Report 2021: Beyond Production,"** November 2021.

The Heritage Foundation's Trade Freedom Index provides a global summary of trade policy trends, combining data on tariffs and non-tariff barriers, such as quantity and price restrictions as well as other regulations affecting international trade. **Figure 1.6** shows that a trend of increased openness to trade lost substantial momentum after 2007 and began to go into reverse in 2019. This is a concerning development, since extensive research has linked trade and other aspects of globalization to faster economic growth (see the box titled **How Globalization Contributes to Rising Prosperity** on p. 20)

FIGURE 1.6: HERITAGE FOUNDATION TRADE FREEDOM INDEX



The Heritage Foundation's trade freedom indicator provides a summary of trade policy around the world, taking into account both tariffs and non-tariff barriers (quantity and price restrictions, regulations, etc.). It is compiled based on country-level data and then aggregated across countries to provide a global trend.

A wave of trade liberalization slowed around the 2008 global financial crisis and began to go into reverse in 2019, in part due to the effects of the U.S.-China trade war. This trend toward increased trade protectionism has continued through the Covid-19 pandemic.

Data Source: Heritage Foundation

Looking forward, the trade growth outlook is still positive. However, a return to the pre-2008 pattern—of trade regularly growing twice as fast as world GDP—is unlikely over the near-to-medium term. There is still ample scope for further trade expansion, which would help accelerate global economic growth, but medium-to-long term trends point more to slowbalization than to either a return of hyperglobalization or a reversal to deglobalization.[38]

In this section, we have seen that trade rebounded from a significant decline and grew to new heights during the first two years of the Covid-19 pandemic, and that the war in Ukraine is likely to merely reduce—not reverse—trade growth in 2022 and 2023. This implies a return to the modest pace of trade expansion that prevailed during the decade leading up to the pandemic. In the next section, we turn to changes in the geography of world trade. We will map shifts in trade patterns over time and identify the regions that are leading the present wave of trade growth.

HOW GLOBALIZATION CONTRIBUTES TO RISING PROSPERITY[39]

The wealthiest countries are all among the most active in international exchange, while the poorest are all among the least connected to the rest of the world. But does trade actually contribute to greater prosperity? We cannot simply assume so, because the relationship between trade and prosperity is not a one-way street. There are also reasons to believe that prosperity boosts trade. Richer countries, for example, might trade more because they can afford larger investments in ports and other types of infrastructure.

Because trade and prosperity can be mutually reinforcing, it is challenging to demonstrate that one actually causes the other. A major advance in the development of causal evidence on trade's economic benefits came two decades ago, when economists Jeffrey Frankel and David Romer applied established statistical tools in a novel way to demonstrate that trade does raise countries' per capita incomes.[40] A recent study by economist James Feyrer built on this research to show that a 10% increase in trade raises a country's per capita income by more than 5%.[41]

How does globalization boost prosperity both for individual countries and for the world as a whole? John Stuart Mill's 1848 discussion of the direct and indirect economic benefits of trade, as well as its other more subjective benefits, provides a convenient framework for identifying the ways that trade contributes to prosperity.[42] There are several direct economic benefits of trade:

- *Specialization and scale economies:* Trade boosts economic efficiency by enabling producers to specialize in what they can do especially well and to do it on a larger scale.[43]

- *Competition boosting quality, lowering prices:* Trade increases business competition, pressing sellers to raise their quality or lower their prices.[44]

- *Greater variety of products and services:* Many products and services would simply be unavailable without international trade.[45]

The indirect economic benefits of trade—and globalization more generally—lie in its power to boost productivity over time. History has consistently shown that countries that cut themselves off from the world fall behind. International exchange boosts productivity growth in various ways:

- *Spreading ideas and technologies:* Trade, capital, information, and people flows can all propel ideas and technologies across national borders, accelerating productivity growth. As an example, manufacturers can boost their efficiency by importing state-of-the-art capital equipment.[46]

- *Fostering ongoing innovation:* All types of international exchange have the potential to accelerate innovation. Mechanisms for this range from trade and investment expanding potential returns to R&D expenditure to international scientific and educational exchanges directly boosting innovation.[47]

- *Competition pushing progress:* International competition can induce firms to accelerate improvements in productivity. This can happen both within firms and through more productive firms gaining market share from less productive ones.

Of course, there is more to globalization than just its potential to raise incomes. However, globalization's other benefits are more subjective.[48] For many, life is enriched by connections to people, cultures, and ideas from around the world. Institutionally, there is evidence that more economic openness reduces corruption.[49] And scholars of international relations continue to debate the possibility that stronger business and personal linkages between countries might reduce the probability of armed conflict (a debate that has gained prominence again since Russia's invasion of Ukraine).[50]

2. THE SHIFTING GEOGRAPHY OF WORLD TRADE

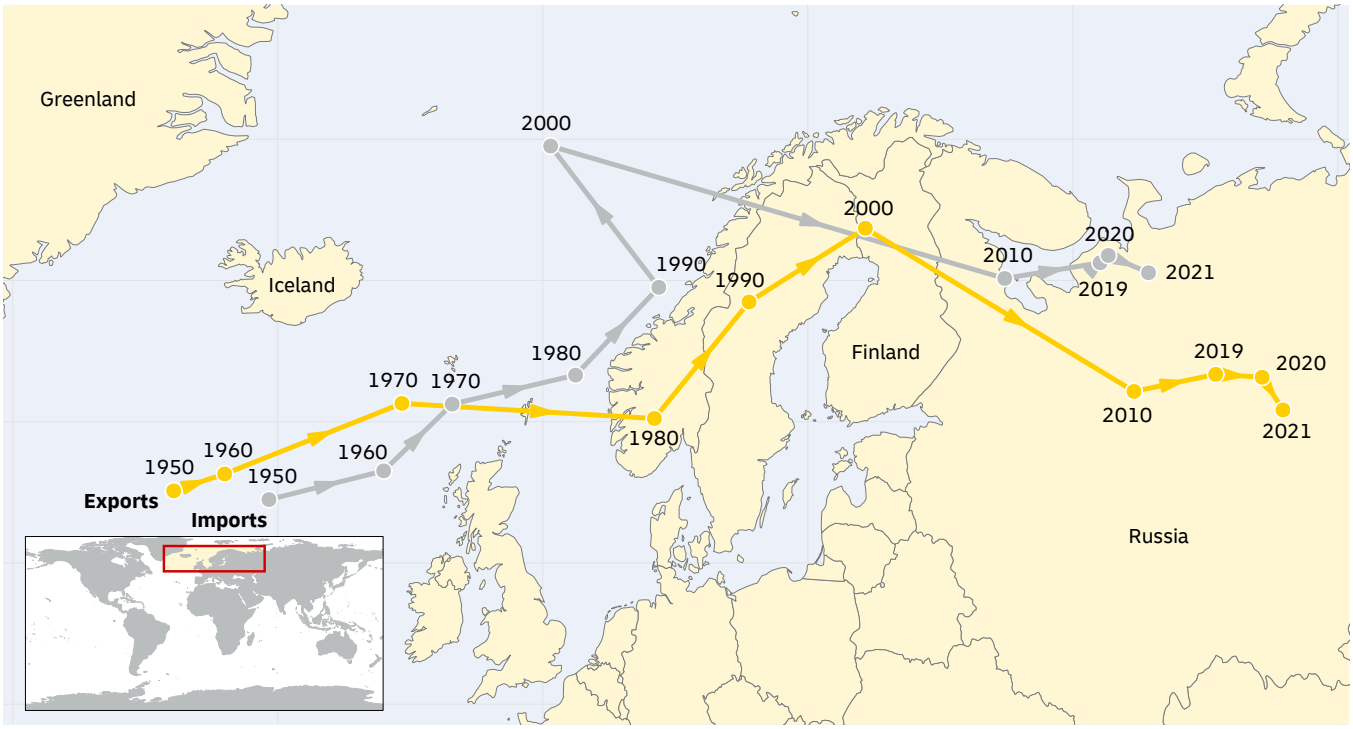
The dramatic expansion of global trade in the 1980s, 1990s, and 2000s was accompanied by large shifts in its geography, and slower trade growth over the past decade was matched by more limited geographic shifts. This section begins by tracking the center of gravity of exports and imports over the past 70 years. We then examine how the rise of emerging economies has altered the geography of world trade. Next, we contrast absolute versus relative perspectives to highlight how much trade has grown even in parts of the world with shrinking shares of world trade. Finally, we map trade growth forecasts through 2026 to identify where new poles of trade growth could emerge moving forward.

CENTER OF GRAVITY OVER 70 YEARS

Over the first decade of the 21st century, global trade patterns shifted dramatically, with China at the heart of a surge in emerging market trade flows. But over the last 10 years, shifts in trade patterns have been much more limited.

Figure 2.1 places recent developments into historical context, tracking the shifting center of gravity of global trade flows over the past seven decades.[1] Both exports and imports have shifted dramatically from west to east over

FIGURE 2.1: SHIFTING CENTER OF GRAVITY OF MERCHANDISE EXPORTS AND IMPORTS, 1950 – 2021



Shifts in the center of gravity of world exports and imports provide a convenient summary of changes in the geography of world trade over time. The center of gravity is calculated using trade-weighted averages across the latitudes and longitudes of the countries where exports and imports were recorded in each year (based on reported trade values in current U.S. dollars). The center of gravity, thus, is a reflection of all trade flows around the world, and it can pass through locations where little or even no trade takes place.[2]

The largest movement in the center of gravity of both exports and imports took place between 2000 and 2010, as China surged to become the world's largest trading nation. Since 2010, shifts in the geography of world trade have been more modest.

Data Source: IMF Direction of Trade Statistics

this period. In the aftermath of World War II, the recovery and integration of major European economies and the rise of Japan pushed world trade toward the east—a trend that continued with the rise of the "Asian Tigers" (Hong Kong, Taiwan, South Korea, and Singapore). That trend was turbocharged by China's surge to become the world's largest exporter in 2009 (up from seventh place in 2000, when China's exports were less than one-third as large as the U.S.'s and half as large as Germany's). As a result, the center of gravity of both exports and imports shifted more between 2000 and 2010 than during any other decade since 1950.

Apart from the overall eastward shift of the center of gravity of world trade over time, two other highlights stand out from the long-term perspective shown in Figure 2.1. First, while the trends for exports and imports tend to move together, the center of gravity for exports has been to the east of the center of gravity for imports since the two centers crossed paths during the 1970s. More goods flow from east to west than vice versa, and this gap peaked in 2000 before starting to narrow as the U.S. trade deficit and the Chinese trade surplus diminished.[3] Second, the center of gravity of world trade tended to shift to the north before 2000, after which there was a notable southward shift between 2000 and 2010.[4] This turn to the south was driven not only by the rise of China but also by increases in shares of world trade across regions as far flung as South Asia, South America, and Sub-Saharan Africa. While this southward shift did not continue between 2010 and 2020, it did resume in 2021, and there are indications—as we will see later in this section—that further shifts to the south could be on the horizon.

> *Over the first decade of the 21st century, global trade patterns shifted dramatically, with China at the heart of a surge in emerging market trade flows. But over the last 10 years, shifts in trade patterns have been much more limited.*

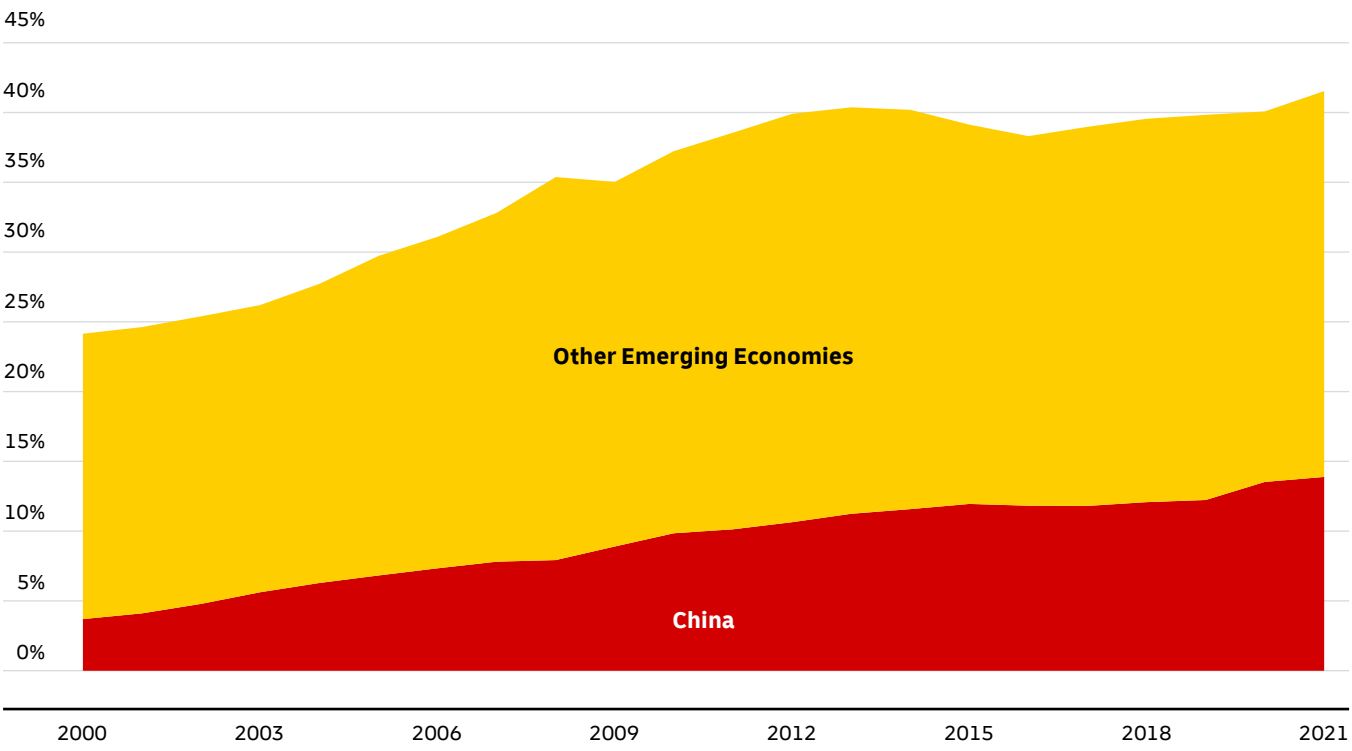
EMERGING ECONOMIES AND THE RISE OF ASIA

The dominant factor behind recent shifts in global trade patterns has been the rise of emerging economies as central players in international trade.[5] The share of world trade conducted by emerging economies rose from 24% in 2000 to 40% in 2012, but it has not grown significantly since then (see **Figure 2.2**).[6] China's rise to become the world's largest participant in global trade drove about half of the increase in the emerging economies' overall share of world trade. China's share of world trade rose from 4% in 2000 to 12% in 2015, after which it held steady until the pandemic. The resilience of Chinese production and consumption through the first two years of the pandemic then boosted China's share of world trade to 14% in 2020 and 2021.

Many of the contributors to slower global trade growth following the 2008 global financial crisis (see previous section) also contributed to the stagnation of the emerging economies' share of world trade over the past decade. Most notably, the maturation of the Chinese economy and other emerging markets as both producers and consumers reduced their reliance on foreign suppliers of inputs and on foreign buyers of their products. More generally, however, as we discuss in **Section 5**, the rise of emerging economies' shares of a variety of measures of production, trade, and finance stalled or slowed, while emerging economies continued to advance swiftly in other areas such as innovation and the growth of large corporations.

From a regional perspective, the eastward shift in the center of gravity of world trade—and China's pivotal role in this trend—has boosted the East Asia & Pacific region's share of world trade from 24% in 2000 to 33% in 2021 (see **Figure 2.3**).[7] But trade grew even faster in South & Central Asia, roughly doubling that region's share from 2.3% to 4.5% (primarily due to India's share rising from 0.7% to 2.2%). Europe remains the region with the largest trade flows, although its share declined from 42% in 2000 to 37% in 2021. North America's share of world trade declined more than Europe's, falling from 22% to 15% over the same period.

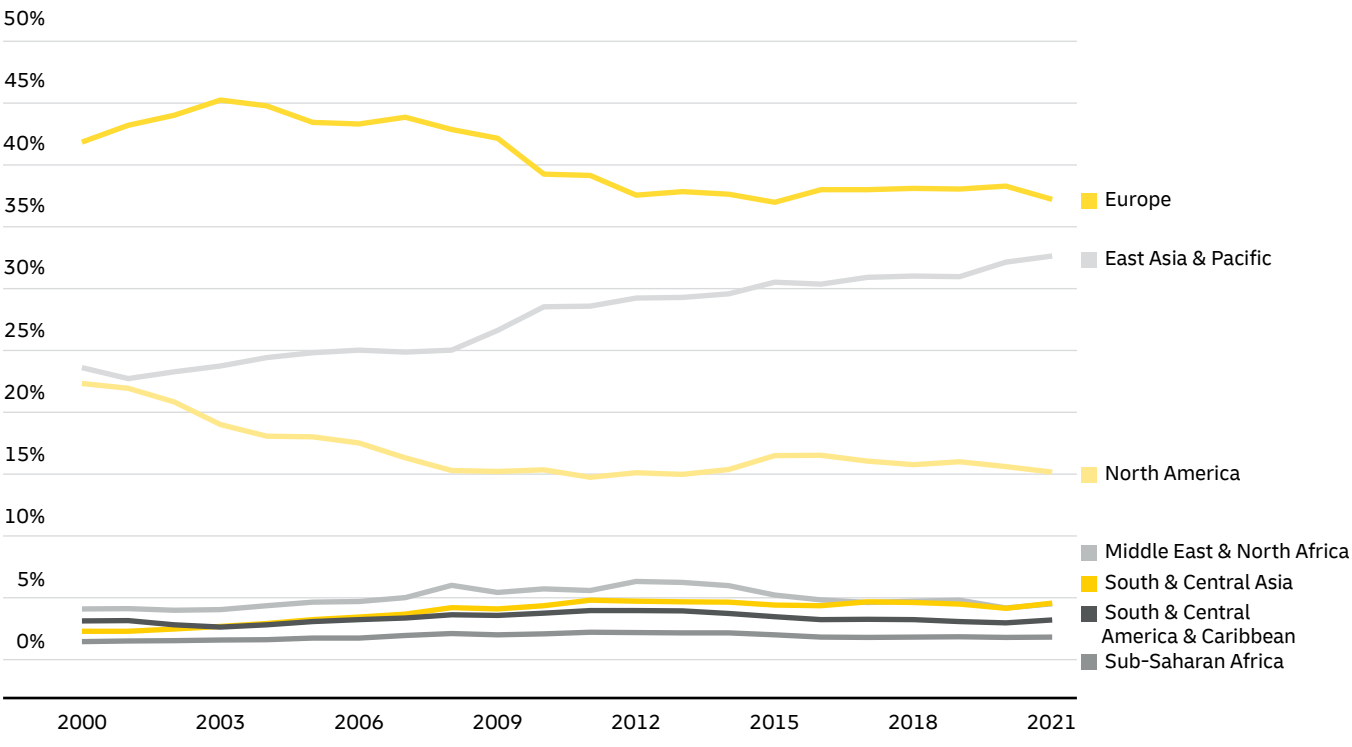
FIGURE 2.2: EMERGING ECONOMIES' SHARE OF WORLD MERCHANDISE TRADE



Emerging economies' share of global merchandise trade grew from 24% in 2020 to 40% in 2012, but their share of world trade has not continued to grow appreciably since then. China's share of world trade flattened after 2015 but surged during the Covid-19 pandemic.

Data Source: IMF Direction of Trade Statistics

FIGURE 2.3: REGIONAL SHARES OF WORLD MERCHANDISE TRADE



Mirroring the shifts in the center of gravity of world trade, the East Asia & Pacific region's share of world trade has increased while North America's and Europe's shares have declined. These shifts, however, slowed markedly roughly a decade ago.

Data Source: IMF Direction of Trae Statistics

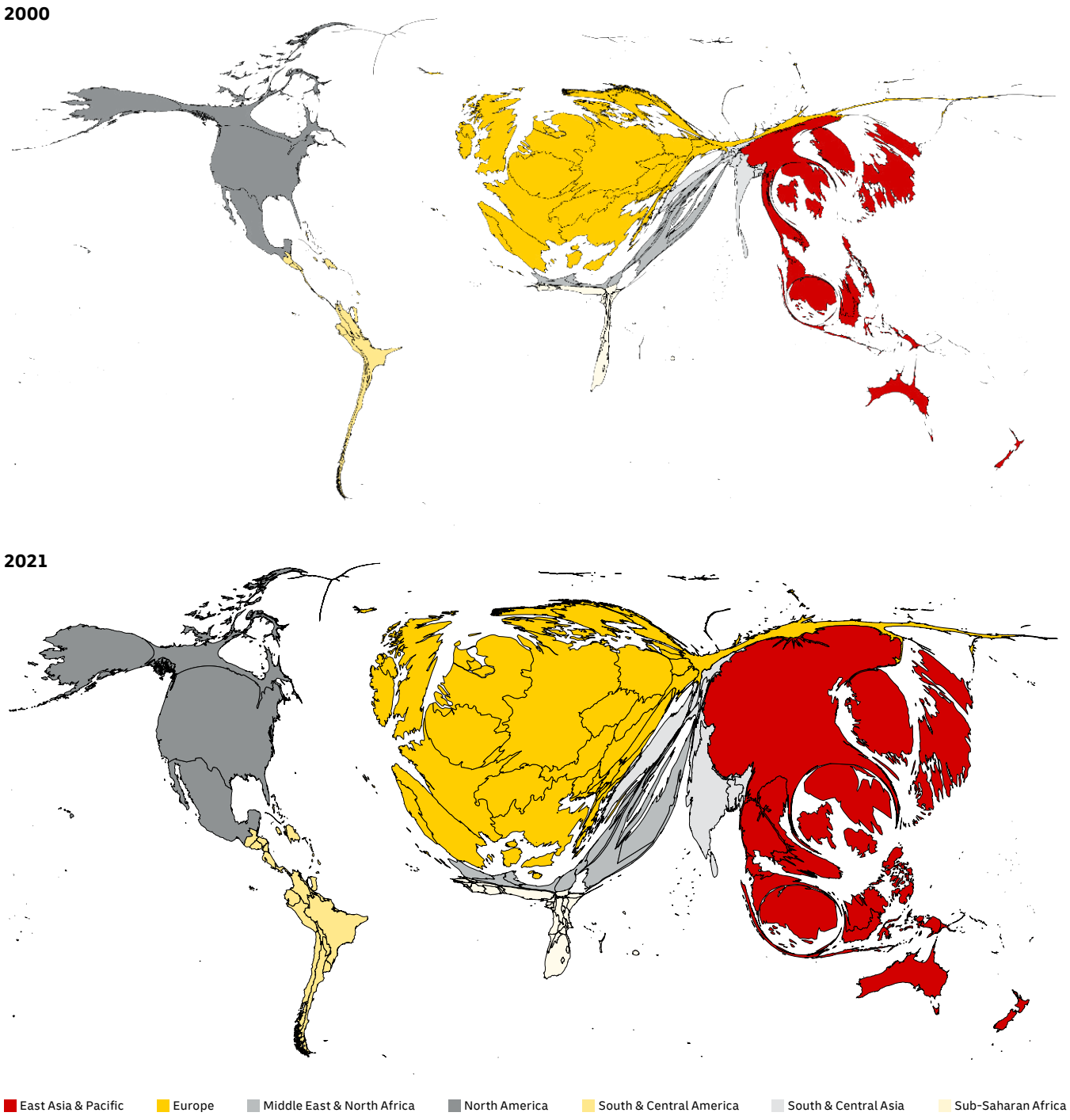
ABSOLUTE VERSUS RELATIVE PERSPECTIVES

It is important not to mistake a decline in any region's (relative) share of world trade with an actual decline in its (absolute) exports or imports. Over the past two decades, the amount of goods crossing national borders increased in every region around the world. The pace of growth, however, varied widely. East Asia & Pacific's trade volume nearly quadrupled from 2000 to 2021 (up 271%), while Europe's roughly doubled (up 96%), and North America's increased 77%.[8]

To visualize how trade flows have grown and shifted geographically over the past two decades, **Figure 2.4** displays a pair of maps in which countries are sized in proportion to their total trade flows (merchandise exports and imports) in 2000 (top map) and 2021 (bottom map). Over this period, the total amount of trade taking place around the world more than doubled, so there is roughly twice as much land area on the bottom map as on the top map. Meanwhile, the geographic shifts already discussed are clearly apparent. Every region has grown, but Asia has grown far more than other regions as its share of world trade has increased.

It is important not to mistake a decline in any region's share of world trade with an actual decline in its exports or imports. The amount of goods crossing national borders increased over the past two decades in every region around the world.

FIGURE 2.4: MERCHANDISE TRADE VOLUME GROWTH AND SHIFTS, 2000 VS. 2021



Maps depicting both the growth and the changing geography of world trade help to avoid the misperception that a declining share of world trade for any region implies an actual decline in that region's trade flows. To visualize both growth and shifts over time, we display maps where countries are sized in proportion to their total trade volumes. As trade volumes grow, the total amount of land area shown expands.[9]

Trade flows grew across every region of the world over the past two decades, even as Asia's rising share shifted the center of gravity of world trade to the east.
Data Sources: IMF World Economic Outlook April 2022 and IMF Direction of Trade Statistics

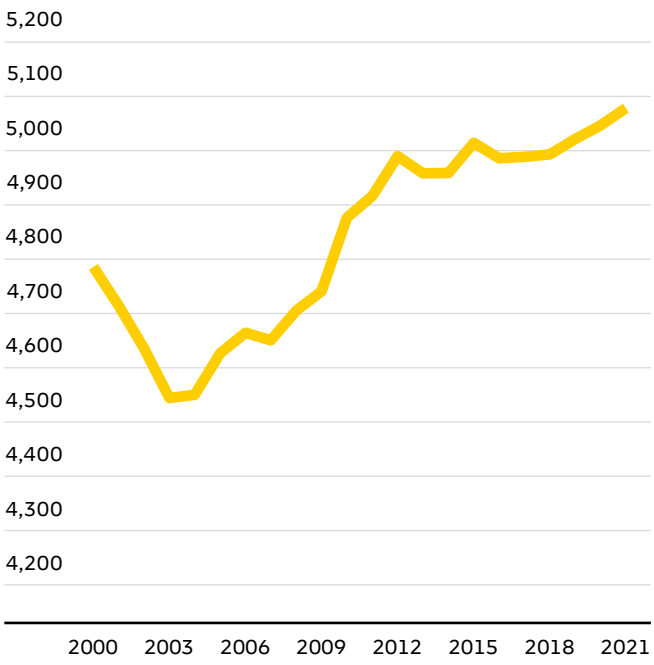
TRADE STRETCHING OVER LONGER DISTANCES

As trade grew around the world during the past two decades—with Asia leading the expansion—the growth of trade between regions tended to outpace the growth of trade within regions. This is largely because Europe and North America traded more with Asia as "Factory Asia" became increasingly central to global production networks.[10] As a result, the global average distance traversed by merchandise trade increased, as shown in **Figure 2.5**. Similar to the pattern we saw with the center of gravity of world exports and imports, the distance traversed by world trade increased rapidly during the first decade of the 21st century and then stabilized as shifts in the geography of world trade slowed.

Trade flows then stretched out over longer distances again in 2020 and 2021. Contrary to expectations that the Covid-19 pandemic might force greater reliance on nearby suppliers, there was in fact a greater reliance on goods produced in Asia during the first two years of the pandemic. This was due to the greater resilience of Asian economies and production networks during this period, as well as surge in demand for many types of products produced primarily in Asia (such as electronics and face masks). As a result, countries far away from Asia, on average, imported over longer distances during this period while countries within Asia itself imported over shorter distances.[11]

A region-level view of changes in the average distance traversed by merchandise trade, as shown in **Figure 2.6**, helps to explain the global patterns. The three regions shown first in the figure jointly conduct 85% of world trade: Europe (37%), East Asia and Pacific (33%), and North America (15%). The trends across these regions therefore have the largest impact on the global averages. As East Asia & Pacific's share of world trade increased, Europe and North America have, on average, tended to trade over longer distances. Meanwhile, the average distance traversed by East Asia & Pacific's trade has held steady since 2004. This is because the region's growing trade with the rest of the world has been balanced by the fast growth of trade within the region itself.[12]

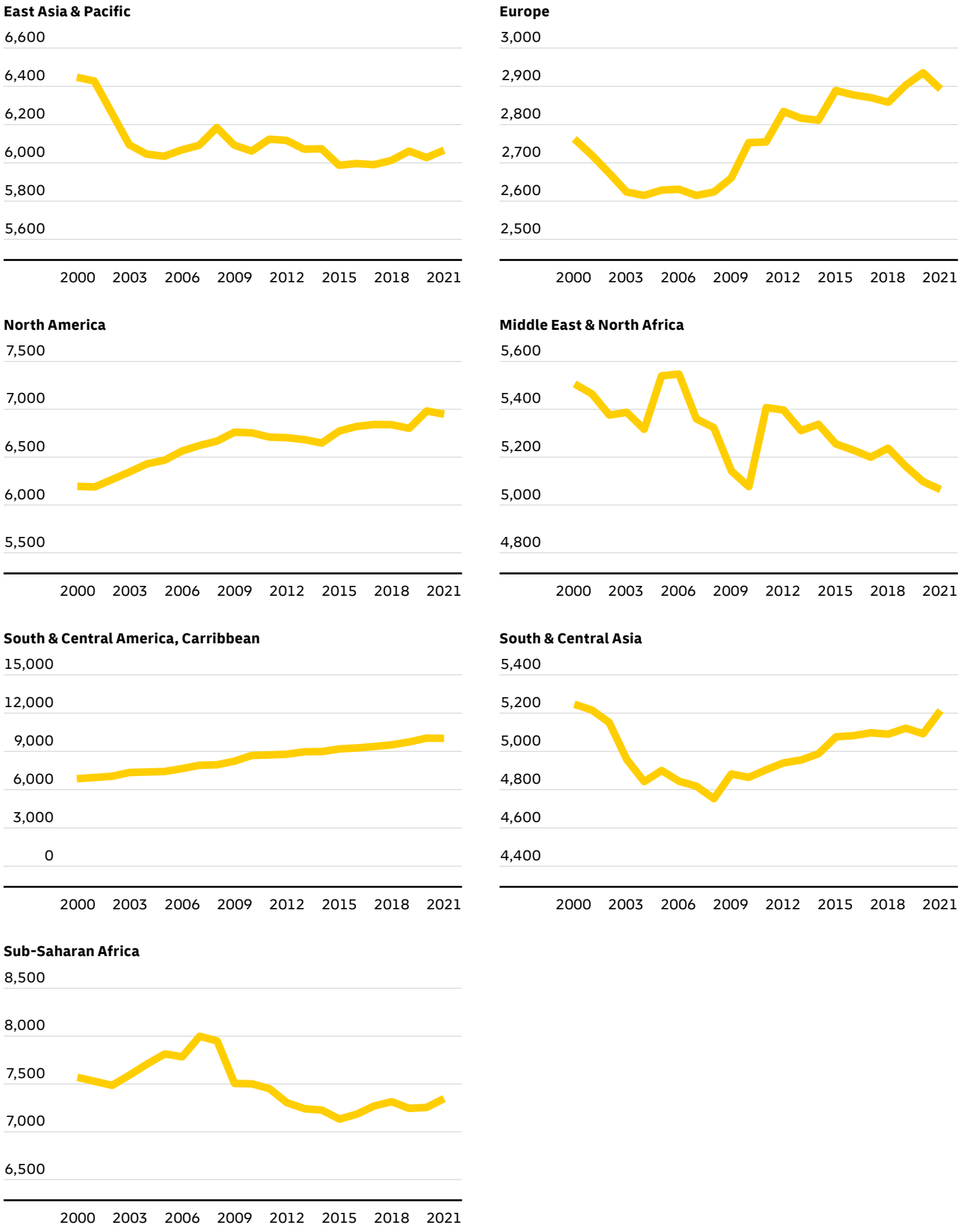
FIGURE 2.5: WORLD AVERAGE DISTANCE TRAVERSED BY MERCHANDISE TRADE, 2000 – 2021 (KILOMETERS)



The average distance traversed by international trade flows increased swiftly between 2004 and 2012 and then it stabilized until the onset of the Covid-19 pandemic. During the pandemic, the world's greater reliance on goods from Asia caused the average distance to start increasing again.

Data Sources: IMF Direction of Trade Statistics, CEPII GeoDist Database

FIGURE 2.6: REGIONAL AVERAGE DISTANCE TRAVERSED BY MERCHANDISE TRADE, 2000 – 2021 (KILOMETERS)



As Asia's share of world trade increased, Europe and North America (which jointly conduct more than half of world trade) tended to trade over longer distances.

Data Sources: IMF Direction of Trade Statistics, CEPII GeoDist Database

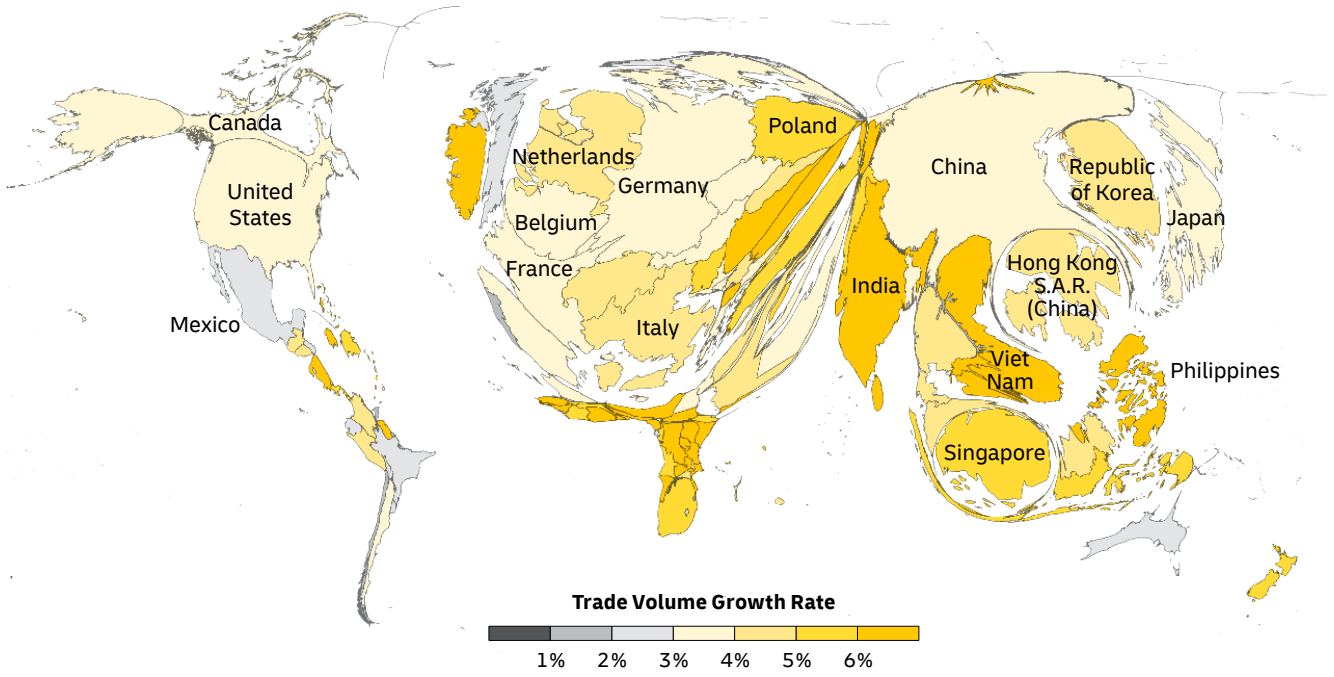
NEW POLES OF TRADE GROWTH

Looking forward, IMF forecasts imply that Asia's share of world trade will continue expanding over the next five years, but with new poles of trade growth emerging within the region. In **Figure 2.7**, we size countries according to how much their trade volumes are predicted to increase between 2021 and 2026, and we color them based on their forecast growth rates. Two key messages stand out from this look at trade growth forecasts. First, there are large growth opportunities available around the world. The largest absolute amount of trade growth is forecast to take place in the East Asia & Pacific region (37% of total growth), but Europe is very close behind (35%) followed by North America (12%). By level of economic development, advanced economies are forecast to generate 55% of global trade growth (and emerging economies 45%). Second, the areas where trade is expected to grow the fastest over the next five years (as highlighted by the colors on the map) are concentrated in Southeast Asia, South Asia, and Africa.

To what extent do the latest trade forecasts imply a shift toward new poles of trade growth? To help answer this question, **Figure 2.8** ranks geographic areas according to their trade growth rates. Between 2016 and 2021, China ranked first with the fastest growth in both exports and imports. But between 2021 and 2026, the ASEAN (Association of Southeast Asian Nations) sub-region is forecast to achieve the fastest export and import growth, followed by South & Central Asia and Sub-Saharan Africa. The predicted acceleration of Sub-Saharan Africa's export growth is especially noteworthy: from -0.1% between 2016 and 2021 (the lowest among the regions analyzed) to 4.4% between 2021 and 2026, just 1.2 percentage points below top-ranked ASEAN. These forecasts imply that the southward shift in the center of gravity of world trade is likely to accelerate substantially over the next several years.

IMF forecasts imply that Asia's share of world trade will continue expanding over the next five years, but with new poles of trade growth emerging within the region.

FIGURE 2.7: MERCHANDISE TRADE VOLUME GROWTH, IMF FORECAST, 2021 – 2026



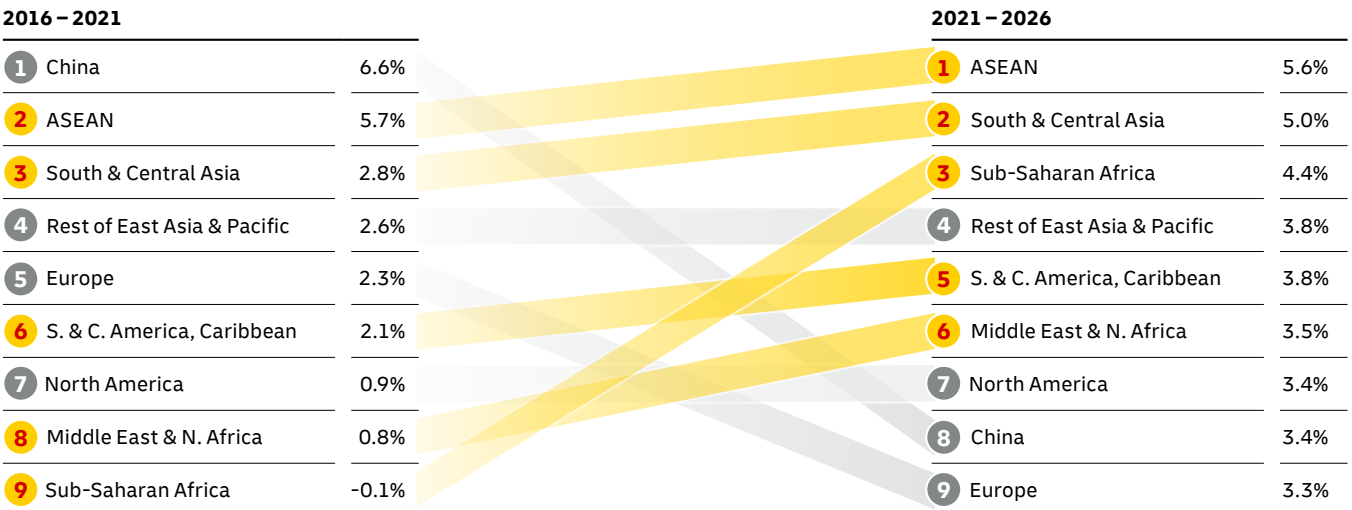
This map uses size and color to depict forecast trade growth over the next five years. Countries are sized in proportion to how much their total trade volumes are forecast to increase. The countries that appear largest on the map are the countries that are expected to contribute the most to global trade growth. The colors on the map depict the forecast growth rates of countries' trade volumes. The countries shown in the brightest yellow are those where the fastest trade growth is predicted, while those in the darkest gray have the slowest forecast trade growth. Countries with negative forecast trade growth are not shown. Country-level trade growth forecasts, including those for countries where negative growth is expected, are covered in detail in the next section.

Forecasts call for the fastest trade growth over the next five years to take place in Southeast Asia, South & Central Asia, and Sub-Saharan Africa. However, even as they grow at a slower pace, the regions with the largest contributions to global trade growth will still be the ones with the largest current amounts of trade: Europe, East Asia & Pacific, and North America.

Data Source: IMF World Economic Outlook April 2022 and IMF Direction of Trade Statistics

FIGURE 2.8: TRADE VOLUME GROWTH RATE BY REGION, NEXT FIVE YEARS (IMF FORECAST) VS. LAST FIVE YEARS

Exports



Imports

The Association of Southeast Asian Nations (ASEAN) is forecast to lead the world in terms of both export and import growth over the next five years, followed by the South & Central Asia and Sub-Saharan Africa regions. China, if treated as its own region, is forecast to fall to 8th place for exports and 5th place for imports.

Data Source: IMF World Economic Outlook April 2022

In this section, we have seen how the center of gravity of world trade shifted dramatically to the east during the first decade of the present century, after which further shifts in the geography of world trade have been more limited. We also saw how trade has tended over time to take place over longer distances, and how Southeast Asia, South Asia, and Sub-Saharan Africa are the regions where the IMF predicts the fastest trade growth over the next five years. In the next section, we zoom in further on trade growth patterns to look at the performance of individual countries. We rank countries according to their trade growth over the past five years, and we look at country-level trade growth forecasts for the next five years.

3. COUNTRY RANKINGS

Which countries are leading the world in trade growth today? And which could emerge as new trade growth leaders moving forward? In this section, we rank countries based on the speed and the scale of their trade growth to identify the fastest growing traders and the countries that are making the largest contributions to global trade growth.

TRADE GROWTH SPEED AND SCALE

In this section, we focus on two dimensions of trade growth: speed and scale. The speed dimension simply captures how fast a country's trade volume is expanding (annualized trade volume growth rate), while the scale dimension tracks the absolute change in the amount of goods traded by a country (the difference between its starting and ending trade volumes).[1]

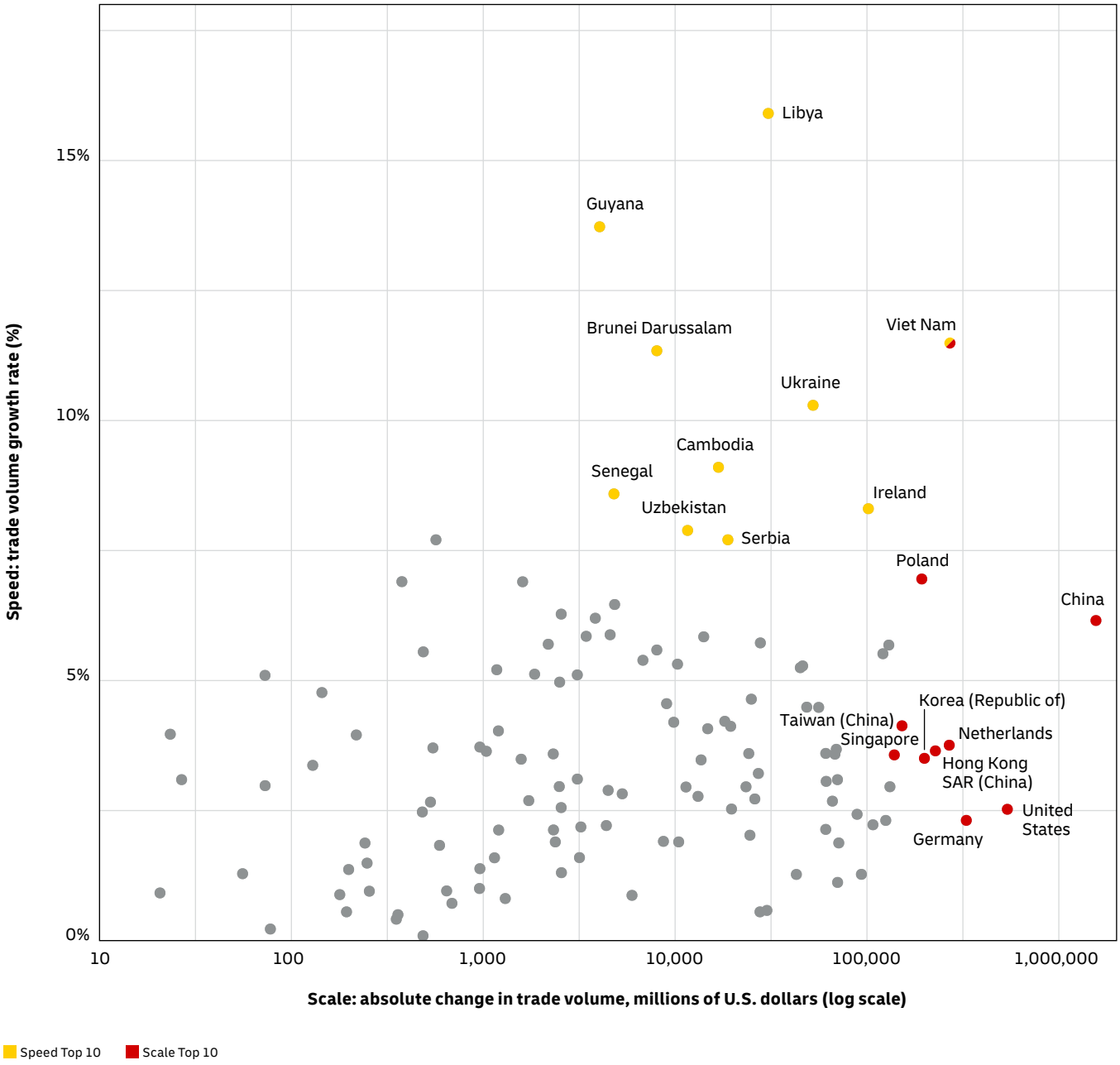
Figure 3.1 plots the speed and the scale of trade growth by country over the past five years (from 2016 to 2021). The countries with the fastest trade growth are closest to the top of the chart, and the countries that generated the largest amount of trade growth are closest to the right side of the chart.[2] The top 10 countries for each dimension are labeled and marked yellow and red, respectively. A version of this chart with all countries labeled appears in the **Appendix** on p. 263), along with similar charts providing separate coverage of exports and imports.

This two-dimensional view of trade growth leaders helps to identify countries that are achieving rapid trade growth and have the scale to make a large contribution to global results, both for a trade partner's economic performance and for a company's bottom line. Countries that stand out on both dimensions—those closest to the top-right corner of the figure—can be especially attractive because of the size of the opportunity available in large markets and the greater potential for successful entry in fast-growing markets. Market shares tend to be more dynamic in fast-growing markets, where new entrants must capture a smaller proportion of their sales from entrenched competitors.[3]

Viet Nam is the only country that was among the top 10 for both speed and scale during the period from 2016 to 2021—a reflection of the cumulative success of that country's export-led development since the mid-1980s. In 1985, exports were less than 20% of Viet Nam's GDP, and the country ranked among the world's poorest (its GDP per capita was only about $500 in today's dollars). By 2019,

Viet Nam is the only country that was among the top 10 for both speed and scale during the period from 2016 to 2021—a reflection of the cumulative success of that country's export-led development since the mid-1980s.

FIGURE 3.1: TRADE GROWTH SPEED AND SCALE, 2016 – 2021



This chart plots countries according to both the speed (annual growth rate, vertical axis) and scale (absolute amount, horizontal axis) of their trade growth over the past five years. The countries with the fastest trade growth are closest to the top of the chart, and the countries that generated the largest amount of trade growth are closest to the right side of the chart. Countries leading on both dimensions, which can be especially attractive markets, are closest to the top-right corner of the chart.

Viet Nam stands out as the only country ranked among the top 10 for both the speed and the scale of its trade growth over the past 5 years. China led on scale, contributing roughly one-quarter of the world's trade growth, while Libya achieved the fastest growth rate.

Data source: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics. Note: Countries with negative growth are omitted from this figure.

exports had soared to 101% of GDP and Viet Nam had reached middle-income status (GDP per capita of nearly $3,000). Viet Nam's exports exceed its GDP because of its deep engagement with global value chains, importing inputs from abroad and exporting final products.

Viet Nam's position in global value chains reflects its broader embrace of globalization, with particular emphasis on trade and foreign direct investment. Viet Nam achieved the world's 8th largest increase in overall globalization between 2001 and 2019 based on combined trade, capital, information, and people flows as measured in the DHL Global Connectedness Index.[4] Viet Nam has also consistently upgraded its export mix over time, developing a strong position in electronics even as it continues to be a major exporter of textiles. Electronics comprised 40% of Viet Nam's goods exports in 2019, up from just 6% in 2000, while textiles declined from 30% to 24% over the same period.[5]

Looking further to countries that ranked among the top 20 on both the speed and the scale of their trade growth, three additional countries stand out: China, Poland, and Ireland. China ranked first by a wide margin in terms of absolute trade growth (scale), generating one-quarter of the world's trade growth over the past five years. At the same time, China's 6% trade volume growth rate ranked 18th on the speed dimension.

Poland ranked 8th in absolute trade growth and 12th in trade volume growth rate (7%). Poland's trade growth has been impressive since the early 1990s and was reinforced by its entry into the European Union in 2004. Germany is Poland's top partner in terms of both exports and imports, and Poland has made itself an important part of regional value chains, specializing in industrial machinery and automobiles.

Ireland ranked 8th in trade volume growth rate (8%) and 16th on the scale of its trade growth. After a long run of strong export growth stalled in the wake of the 2008 global financial crisis, Ireland's exports began to accelerate again in 2015. And Ireland's robust trade growth has continued despite challenges posed by the exit of its second-largest trading partner, the UK, from the European Union (of which Ireland remains a member). While Ireland's imports from the UK declined after border controls were introduced at the beginning of 2021, Ireland's exports to the UK continued to grow.[6] Ireland benefits from strong trade links with both Europe and North America.

SPEED RANKINGS

Table 3.1 provides a full ranking of countries according to their trade volume growth rates between 2016 and 2021. The countries with the fastest trade growth during this period were Libya, Guyana, Viet Nam, Brunei Darussalam, Ukraine, Cambodia, Senegal, Ireland, Uzbekistan, and Serbia. High annual growth rates across these countries resulted in very large increases in their trade volumes. Libya, for example, more than doubled its trade over this period, and Guyana nearly did as well.

The two fastest growing countries were both driven by oil exports. In 2016 (the base year for our comparison), Libya's oil production and exports were severely depressed due to infrastructure damage and a blockade on export terminals caused by the civil conflict raging in the country. In contrast, 2021 (the final year for our comparison) was an especially strong year for Libya's oil production and exports.[7] Guyana began production of crude oil in 2019 after ExxonMobil made a discovery in its coastal waters in 2017.[8] The third fastest growing country, Viet Nam, boosted exports and imports via its integration into manufacturing value chains, as discussed earlier.

Ukraine's strong trade growth between 2016 and 2021 reflected a period of recovery following the military conflict with Russia in 2014. At the beginning of this conflict, Ukraine's exports collapsed by nearly half, down 46% from 2013 levels as of 2015. Exports then recovered strongly, growing 66% from 2016 through 2021. Ukraine's imports shrunk less than its exports at the beginning of the conflict (down 21%) and then grew even more (69%).[9] These gains proved temporary, of course, as Ukraine's trade flows collapsed again in 2022 due to the larger-scale war with Russia (still ongoing as of this writing).

Countries with fast-growing trade flows can be attractive markets. As noted earlier, more dynamic markets can afford attractive opportunities to gain market share. In addition, countries that engage more with international trade tend to

enjoy faster GDP growth. In fact, there is growing evidence that trade growth contributes causally to faster GDP growth (via mechanisms discussed in the box titled **How Globalization Contributes to Rising Prosperity** on p. 20).[10]

Decision-makers should keep two caveats in mind, however, when considering the countries with the fastest trade volume growth rates. First, many of these countries are small and have limited absolute growth potential—hence the importance of also considering the scale of trade growth. The first and second ranked countries over the last five years, Libya and Guyana, accounted for just 0.13% and 0.02% of total world trade, respectively. Second, trade volume growth rates tend to be quite volatile. Some countries grow their trade quickly—but temporarily—while recovering from civil strife or natural disasters.[11] Other countries grow their exports very quickly when new sources of natural resources come online. In such cases it is important to consider sustainability and the impact of changes in commodity prices, especially for countries like Libya or Guyana, whose trade growth is driven by a single commodity.

TABLE 3.1: SPEED RANKING: ANNUAL TRADE VOLUME GROWTH RATES, 2016 – 21 AND IMF FORECAST 2021 – 26

Rank 2016–21	Country	Growth Rate 2016–21	IMF Forecast Rank 2021–26	IMF Forecast Growth Rate 2021–26
1	Libya	16%	19	8%
2	Guyana	14%	4	11%
3	Viet Nam	12%	16	8%
4	Brunei Darussalam	11%	29	7%
5	Ukraine	10%	–	–
6	Cambodia	9%	38	6%
7	Senegal	9%	10	10%
8	Ireland	8%	33	6%
9	Uzbekistan	8%	11	9%
10	Serbia	8%	72	5%
11	Djibouti	8%	76	5%
12	Poland	7%	61	5%
13	Burundi	7%	23	7%
14	Rwanda	7%	6	10%
15	North Macedonia	6%	20	8%
16	Moldova	6%	31	6%
17	Botswana	6%	160	0.2%
18	China	6%	104	4%
19	Burkina Faso	6%	54	5%
20	Uganda	6%	2	12%
21	Croatia	6%	105	4%
22	Slovenia	6%	59	5%
23	Guinea	6%	22	7%
24	Malaysia	6%	79	4%
25	Costa Rica	6%	25	7%
26	Sierra Leone	6%	156	1.1%
27	Brazil	6%	140	2%
28	Côte d'Ivoire	5%	43	6%
29	Estonia	5%	117	3%
30	Romania	5%	24	7%
31	Philippines	5%	9	10%
32	Yemen	5%	8	10%
33	Armenia	5%	77	5%
34	Mozambique	5%	28	7%
35	Comoros	5%	42	6%
36	Albania	5%	159	0.2%
37	Gambia	5%	40	6%
38	Greece	5%	126	3%
39	Latvia	5%	146	2%
40	Denmark	4%	119	3%
41	Hungary	4%	39	6%
42	Morocco	4%	103	4%
43	Ecuador	4%	135	3%
44	Taiwan (China)	4%	149	2%
45	Bangladesh	4%	99	4%
46	Belarus	4%	163	-0.2%
47	Mauritania	4%	142	2%
48	Kiribati	4%	87	4%
49	Cabo Verde	4%	108	4%
50	Netherlands	4%	92	4%
51	Tajikistan	4%	161	0.2%
52	Togo	4%	21	8%
53	Indonesia	4%	41	6%
54	Hong Kong SAR (China)	4%	91	4%
55	Niger	4%	1	15%
56	Sweden	4%	111	4%
57	Israel	4%	85	4%
58	Georgia	4%	26	7%
59	Austria	4%	121	3%
60	Singapore	4%	46	6%
61	Korea (Republic of)	4%	78	4%
62	Malta	3%	127	3%
63	Bulgaria	3%	102	4%
64	Eritrea	3%	56	5%
65	Chile	3%	148	2%
66	El Salvador	3%	71	5%
67	São Tomé and Príncipe	3%	64	5%
68	Turkey	3%	63	5%
69	Czechia	3%	114	4%
70	Guinea-Bissau	3%	141	2%
71	Honduras	3%	129	3%
72	India	3%	34	6%
73	Portugal	3%	153	2%
74	New Zealand	3%	44	6%
75	Ghana	3%	32	6%
76	Guatemala	3%	81	4%
77	Pakistan	3%	47	6%
78	Slovakia	3%	80	4%
79	Cyprus	3%	74	5%
80	Thailand	3%	66	5%
81	Benin	3%	36	6%
82	Bosnia and Herzegovina	3%	116	3%
83	Finland	3%	110	4%
84	United States	3%	125	3%
85	Eswatini	2%	157	1.1%
86	Russian Federation	2%	167	-3%
87	Germany	2%	94	4%
88	Italy	2%	65	5%
89	Mexico	2%	132	3%
90	Democratic Republic of the Congo	2%	7	10%
91	Bahrain	2%	60	5%
92	Australia	2%	139	2%
93	Paraguay	2%	158	0.4%
94	Cameroon	2%	30	7%
95	Norway	2%	138	2%
96	Peru	2%	90	4%
97	Egypt	2%	120	3%
98	Kenya	2%	27	7%
99	Spain	2%	128	3%
100	Maldives	2%	83	4%
101	Jamaica	2%	3	11%
102	Luxembourg	2%	123	3%
103	Lao People's Democratic Republic	2%	151	2%
104	Montenegro	1.5%	113	4%
105	Papua New Guinea	1.4%	136	3%
106	Chad	1.4%	97	4%
107	Dominican Republic	1.3%	62	5%
108	Dominica	1.3%	69	5%
109	Japan	1.3%	118	3%
110	Switzerland	1.3%	93	4%
111	France	1.1%	115	3%
112	Uruguay	1.0%	144	2%
113	Iceland	1.0%	145	2%
114	Madagascar	0.9%	75	5%
115	Grenada	0.9%	98	4%
116	Haiti	0.9%	154	2%
117	Argentina	0.9%	96	4%
118	Jordan	0.8%	100	4%
119	Bolivia (Plurinational State of)	0.7%	131	3%
120	Belgium	0.6%	106	4%
121	Canada	0.6%	124	3%
122	Kyrgyzstan	0.6%	70	5%
123	Namibia	0.5%	15	8%
124	Tanzania (United Republic of)	0.4%	18	8%
125	Central African Republic	0.3%	48	6%
126	Mauritius	0.2%	67	5%
127	Kazakhstan	0.1%	122	3%
128	Nicaragua	-0.3%	162	0.1%
129	Oman	-0.3%	112	4%
130	Saudi Arabia	-0.5%	88	4%
131	Colombia	-0.5%	89	4%
132	South Africa	-0.6%	52	5%
133	Panama	-0.6%	55	5%
134	Zambia	-0.8%	17	8%
135	Nigeria	-0.8%	168	-4%
136	Malawi	-1.0%	84	4%
137	Azerbaijan	-1.0%	165	-1.3%
138	Antigua and Barbuda	-1.0%	37	6%
139	United Kingdom	-1.0%	143	2%
140	Gabon	-1.1%	134	3%
141	Tunisia	-1.2%	–	–
142	Mali	-1.4%	50	5%
143	Mongolia	-1.5%	12	9%
144	Qatar	-2%	95	4%
145	Lesotho	-2%	137	2%
146	Myanmar	-2%	150	2%
147	Belize	-2%	109	4%
148	Liberia	-2%	133	3%
149	Seychelles	-2%	49	5%
150	Suriname	-3%	130	3%
151	United Arab Emirates	-3%	107	4%
152	Kuwait	-3%	73	5%
153	Ethiopia	-3%	53	5%
154	Trinidad and Tobago	-3%	152	2%
155	Bahamas	-3%	14	8%
156	Sudan	-4%	13	9%
157	Algeria	-4%	164	-0.8%
158	Angola	-4%	51	5%
159	Barbados	-4%	101	4%
160	Bhutan	-4%	147	2%
161	Solomon Islands	-5%	68	5%
162	St. Vincent and the Grenadines	-5%	57	5%
163	Sri Lanka	-5%	35	6%
164	Iran (Islamic Republic of)	-6%	166	-2%
165	Palau	-6%	86	4%
166	Congo	-6%	45	6%
167	Tonga	-6%	–	–
168	St. Lucia	-7%	58	5%
169	Turkmenistan	-7%	155	1.4%
170	Zimbabwe	-7%	82	4%
171	St. Kitts and Nevis	-8%	5	10%
172	Equatorial Guinea	-14%	169	-9%
173	Venezuela (Bolivarian Republic of)	-24%	–	–

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Data sources: IMF World Economic Outlook April 2022. Note: Growth expressed as compound annual growth rates.

IMF World Economic Outlook Forecasts

The IMF World Economic Outlook provides one of the most widely used global economic forecasts, along with several decades of historical data about nearly every country around the world. Full forecasts are published every spring and fall, and interim updates are provided each summer and winter.[12] This report, unless otherwise noted, uses the forecast published in April 2022.

These forecasts are produced using a "bottom-up" approach, whereby the IMF's country teams first generate a set of projections for each individual country (using methods that can vary from country to country). These country forecasts are then aggregated and the IMF conducts an iterative refinement process, feeding inputs back into the country forecasts until they converge to produce the results that are published by country, by region and for the world as a whole.[13]

The April 2022 edition of the IMF World Economic Outlook was issued during the early stages of the war in Ukraine, taking into account the state of the war and the sanctions implemented as of the end of March. As such, the forecasts used here do not account for subsequent developments, and even under normal circumstances, the five-year forecasts on which we focus are subject to a high level of uncertainty.

The volatility of countries' trade growth rates—even over five-year periods—is underscored by the ever-changing list of top 10 countries. **Table 3.2** shows the top 10 countries for trade growth rate over successive five-year periods going back two decades; it also shows a forecast top 10 list for the next five years (2021– 2026) based on the IMF's April 2022 World Economic Outlook forecast (for background on these forecasts, refer to the box titled **IMF World Economic Outlook Forecasts**). Only three of the top 10 countries from 2016 – 2021 were also in the top 10 in 2011– 2016 (Cambodia, Viet Nam, and Ireland). And only two of this year's top 10 are projected to be among the fastest growing between 2021 and 2026 (Guyana and Senegal).

TABLE 3.2: SPEED TOP 10 OVER TIME: ANNUAL TRADE VOLUME GROWTH RATES, 2001 – 2026 (FORECAST)

Rank	2001 – 2006	2006 – 2011	2011 – 2016	2016 – 2021	2021 – 2026
1	Chad	Sierra Leone	Cambodia	Libya	Niger
2	Eq. Guinea	D.R. Congo	Ethiopia	Guyana	Uganda
3	China	Ghana	Liberia	Viet Nam	Jamaica
4	Costa Rica	Tajikistan	Benin	Brunei	Guyana
5	Romania	Lao PDR	Viet Nam	Ukraine	St. Kitts and Nevis
6	Viet Nam	Niger	Cent. Afr. Rep.	Cambodia	Rwanda
7	Bulgaria	Bangladesh	Palau	Senegal	D.R. Congo
8	Azerbaijan	Rwanda	D.R. Congo	Ireland	Yemen
9	Kyrgyzstan	Qatar	Mali	Uzbekistan	Philippines
10	Estonia	Eritrea	Ireland	Serbia	Senegal

Data sources: IMF World Economic Outlook April 2022

TABLE 3.3: SCALE RANKING: ABSOLUTE TRADE VOLUME GROWTH, 2016 – 21 AND IMF FORECAST 2021 – 26

Rank 2016–21	Country	Absolute Growth 2016–21	IMF Forecast Rank 2021–26	IMF Forecast Absolute Growth 2021–26
1	China	1561	1	1198
2	United States	539	2	750
3	Germany	329	3	658
4	Viet Nam	274	7	305
5	Netherlands	268	4	350
6	Hong Kong SAR (China)	227	6	311
7	Korea (Republic of)	199	9	304
8	Poland	193	14	191
9	Taiwan (China)	152	31	81
10	Singapore	139	10	278
11	India	132	5	347
12	Malaysia	130	21	130
13	Italy	125	8	304
14	Brazil	121	36	61
15	Mexico	107	17	149
16	Ireland	102	26	111
17	Japan	94	11	273
18	Russian Federation	89	169	-121
19	Spain	71	23	128
20	France	70	12	242
21	Turkey	70	20	139
22	Indonesia	69	18	140
23	Austria	68	34	72
24	Thailand	66	19	139
25	Czechia	61	30	82
26	Sweden	61	32	73
27	Australia	61	33	72
28	Hungary	56	28	97
29	Ukraine	52	--	--
30	Denmark	49	38	44
31	Romania	46	29	82
32	Philippines	45	24	119
33	Switzerland	43	16	152
34	Libya	31	47	26
35	Belgium	30	13	208
36	Slovenia	28	40	33
37	Canada	28	15	168
38	Chile	27	56	19
39	Slovakia	26	37	49
40	Greece	25	54	20
41	Norway	25	43	31
42	Israel	24	39	34
43	Portugal	23	61	14
44	Finland	20	42	32
45	Bangladesh	19	50	22
46	Serbia	18	60	15
47	Morocco	18	55	19
48	Cambodia	17	59	17
49	Belarus	15	163	-0.8
50	Croatia	14	68	11
51	Bulgaria	14	58	17
52	Pakistan	13	41	33
53	Uzbekistan	12	52	21
54	New Zealand	11	45	27
55	Egypt	10	53	20
56	Estonia	10	78	8
57	Ecuador	10	83	7
58	Latvia	9	95	5
59	Peru	9	51	22
60	Brunei Darussalam	8	81	7
61	Costa Rica	8	63	14
62	Côte d'Ivoire	7	73	10
63	Argentina	6	44	30
64	Guatemala	5	72	10
65	North Macedonia	5	79	8
66	Senegal	5	77	8
67	Burkina Faso	5	92	5
68	Ghana	4	64	12
69	Democratic Republic of the Congo	4	46	26
70	Guyana	4	89	6
71	Botswana	4	152	0.14
72	Uganda	3	69	11
73	Bahrain	3	75	9
74	Luxembourg	3	85	7
75	El Salvador	3	91	5
76	Mozambique	3	93	5
77	Dominican Republic	3	67	11
78	Moldova	3	100	4
79	Bosnia and Herzegovina	3	98	4
80	Albania	3	153	0.12
81	Honduras	2	107	3
82	Kenya	2	71	10
83	Paraguay	2	134	0.5
84	Georgia	2	90	6
85	Guinea	2	99	4
86	Armenia	2	112	2
87	Cyprus	2	102	3
88	Rwanda	2	101	4
89	Malta	2	117	2
90	Jordan	1.3	86	7
91	Cameroon	1.2	96	4
92	Mauritania	1.2	126	0.8
93	Yemen	1.2	104	3
94	Lao People's Democratic Republic	1.1	121	1.4
95	Niger	1.0	87	6
96	Papua New Guinea	1.0	113	2
97	Tajikistan	1.0	161	0.05
98	Uruguay	1.0	111	2
99	Bolivia (Plurinational State of)	0.7	108	3
100	Iceland	0.6	119	1.5
101	Jamaica	0.6	94	5
102	Djibouti	0.6	133	0.5
103	Togo	0.5	120	1.4
104	Benin	0.5	118	2
105	Sierra Leone	0.5	154	0.12
106	Kazakhstan	0.5	57	18
107	Eswatini	0.5	148	0.2
108	Burundi	0.4	131	0.5
109	Namibia	0.4	84	7
110	Tanzania (United Republic of)	0.4	80	8
111	Madagascar	0.3	122	1.4
112	Montenegro	0.2	128	0.7
113	Maldives	0.2	130	0.6
114	Cabo Verde	0.2	144	0.2
115	Chad	0.2	129	0.6
116	Kyrgyzstan	0.2	115	2
117	Haiti	0.2	139	0.3
118	Gambia	0.1	146	0.2
119	Eritrea	0.1	143	0.2
120	Mauritius	0.1	114	2
121	Guinea-Bissau	0.1	157	0.06
122	Comoros	0.1	155	0.11
123	Dominica	0.1	147	0.2
124	São Tomé and Príncipe	0.03	160	0.05
125	Kiribati	0.02	162	0.03
126	Grenada	0.02	156	0.10
127	Central African Republic	0.010	151	0.2
128	Antigua and Barbuda	-0.04	141	0.3
129	Palau	-0.08	159	0.05
130	Belize	-0.14	142	0.3
131	St. Kitts and Nevis	-0.15	149	0.2
132	Nicaragua	-0.2	158	0.06
133	St. Vincent and the Grenadines	-0.2	150	0.2
134	Tonga	-0.2	--	--
135	Malawi	-0.2	124	1.0
136	Solomon Islands	-0.3	145	0.2
137	Lesotho	-0.3	137	0.4
138	Seychelles	-0.3	127	0.7
139	Suriname	-0.3	138	0.3
140	Liberia	-0.3	132	0.5
141	Panama	-0.4	97	4
142	Gabon	-0.4	123	1.1
143	St. Lucia	-0.5	140	0.3
144	Barbados	-0.5	136	0.4
145	Zambia	-0.7	82	7
146	Mali	-0.8	103	3
147	Bahamas	-0.9	110	2
148	Bhutan	-1.1	135	0.4
149	Oman	-1.2	62	14
150	Mongolia	-1.3	74	9
151	Azerbaijan	-2	165	-2
152	Colombia	-2	49	23
153	Tunisia	-2	--	--
154	Myanmar	-3	105	3
155	Ethiopia	-4	88	6
156	Congo	-4	106	3
157	Trinidad and Tobago	-4	116	2
158	Sudan	-4	70	11
159	Zimbabwe	-5	109	3
160	Nigeria	-5	168	-23
161	Kuwait	-6	76	9
162	Turkmenistan	-6	125	0.9
163	Equatorial Guinea	-6	164	-2
164	South Africa	-6	35	66
165	Angola	-9	65	12
166	Sri Lanka	-10	66	11
167	Qatar	-10	48	25
168	Saudi Arabia	-10	27	100
169	Iran (Islamic Republic of)	-13	167	-5
170	Algeria	-16	166	-3
171	Venezuela (Bolivarian Republic of)	-40	--	--
172	United Kingdom	-60	22	129
173	United Arab Emirates	-85	25	112

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Data sources: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics. Note: Expressed using constant 2021 prices, in billions of U.S. dollars. Trade volume growth rates applied to 2021 trade values.

SCALE RANKINGS

Table 3.3 ranks countries by absolute trade volume growth for the period between 2016 and 2021. The leaders on this metric over that half decade were China, the United States, Germany, Viet Nam, the Netherlands, Hong Kong (China), the Republic of Korea, Poland, Taiwan (China), and Singapore.[14]

Table 3.4 provides historical context on the scale ranking, showing the development of the top 10 countries since 2001. It is notable that these lists are much more stable than the lists of fastest growing traders. The top three countries have held their positions in all but one of the periods shown. And all but two of the countries on the top 10 from 2016 to 2021 are forecast to remain among the top 10 over the period from 2021 and 2026.

China expanded its trade by the largest amount over the most recent five-year period, and it is expected to retain its top rank for 2021– 2026. Although China's growth has been the largest over any five-year period since at least 2001– 2006, it has not been among the top 10 fastest growing countries since that first five-year span (as shown earlier in Table 3.2).

The United States and Germany have ranked 2nd and 3rd respectively in all but the 2006 – 2011 period. The United States remains the world's largest economy in terms of GDP at market exchange rates, so even though it trades relatively little as compared to its GDP, the combined export and import growth continues to be very large. (China overtook the U.S. on GDP at purchasing power parity in 2016, but the U.S. economy was still 32% larger at market exchange rates as of 2021.[15]) While Germany is smaller, it is a very significant trader, as it hosts some of the world's leading exporters and lies at the heart of the European single market.

TABLE 3.4: SCALE TOP 10 OVER TIME: ABSOLUTE TRADE VOLUME GROWTH, 2001– 2026 (FORECAST)

Rank	2001 – 2006	2006 – 2011	2011 – 2016	2016 – 2021	2021 – 2026
1	China	China	China	China	China
2	United States	Germany	United States	United States	United States
3	Germany	India	Germany	Germany	Germany
4	Japan	Korea (Rep. of)	Netherlands	Viet Nam	Netherlands
5	Hong Kong SAR (China)	United States	Mexico	Netherlands	India
6	Korea (Rep. of)	Hong Kong SAR (China)	Viet Nam	Hong Kong SAR (China)	Hong Kong SAR (China)
7	United Kingdom	U. Arab Emirates	Japan	Korea (Rep. of)	Viet Nam
8	Singapore	Singapore	U. Arab Emirates	Poland	Italy
9	Netherlands	Russia	Hong Kong SAR (China)	Taiwan (China)	Korea (Rep. of)
10	Russia	Switzerland	France	Singapore	Singapore

Data sources: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics

SPEED AND SCALE FORECASTS

Delving further into future growth prospects, **Figure 3.2** plots speed and scale measures for the period 2021 – 2026 based on trade forecasts from the April 2022 IMF World Economic Outlook (for background and caveats regarding these forecasts, refer to the box titled **IMF World Economic Outlook Forecasts** on p. 39). A version of this figure with all countries labeled is in the **Appendix**, along with similar figures showing exports and imports separately.

While no countries feature in the top 10 for both speed and scale in this forecast, the three countries that come closest are all in Southeast and South Asia: Viet Nam, India, and the Philippines. Viet Nam's trade growth is forecast to slow from 12% during the last five years to a still very rapid 8% over the next five years, descending to 16th place on the speed ranking. Viet Nam is predicted, however, to fall only three places to 7th on the scale ranking.

India and the Philippines, in contrast, stand out because of the potential for a major acceleration in their trade growth. India's trade volume growth rate is forecast to double from 3% to 6%, boosting its speed rank from 72nd to 34th and its scale rank from 11th to 5th. While the Philippines is smaller than India, its trade growth is already faster than India's, and it is also forecast to double, accelerating from 5% to 10%. This would boost the Philippines' speed rank from 31st to 9th and its scale rank from 32nd to 24th.

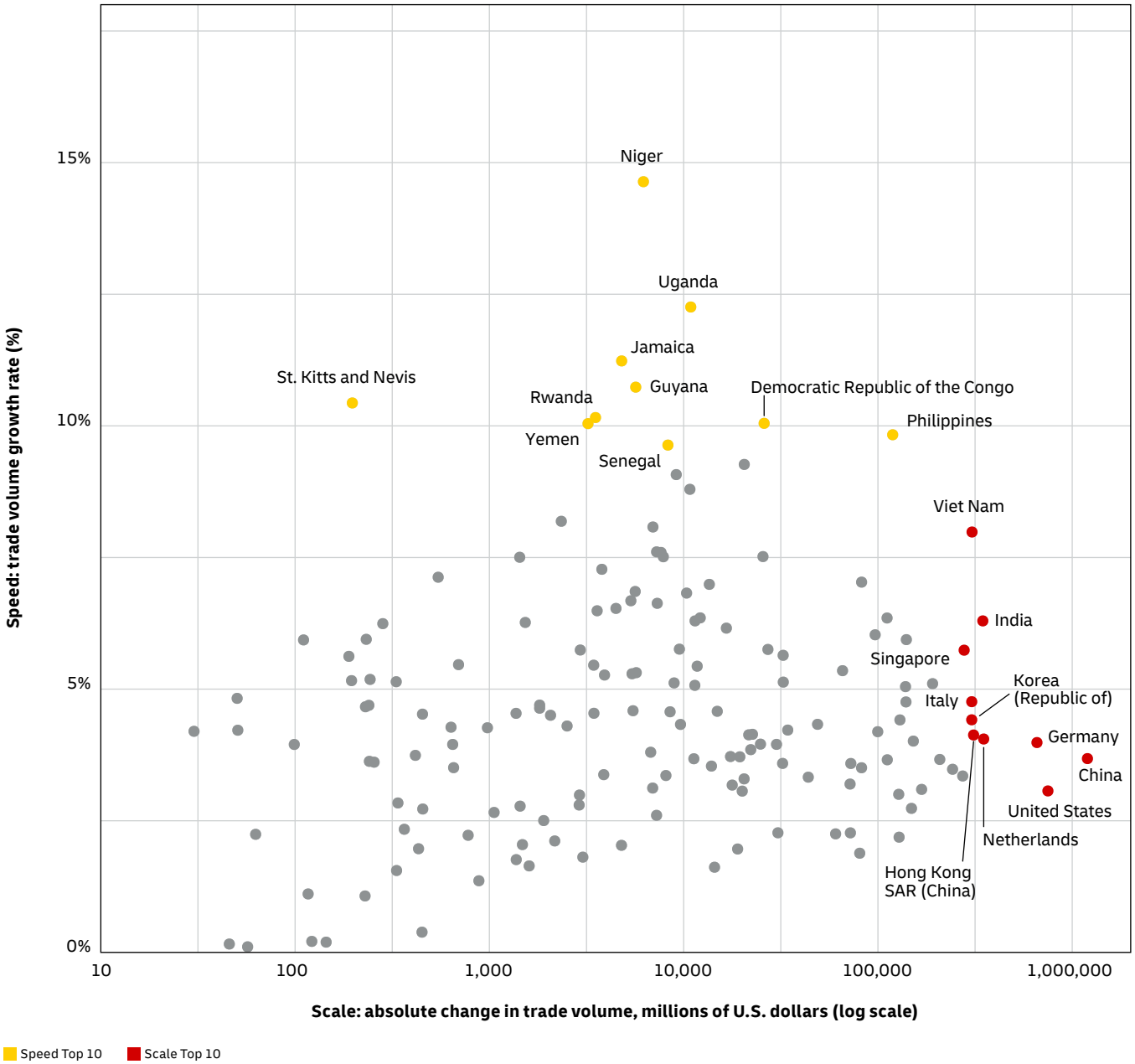
Viet Nam, India, and the Philippines all stand to benefit from efforts by many companies to diversify China-centric production and sourcing strategies. While China is still forecast to achieve the most absolute trade growth over the next five years (top rank on the scale dimension), its trade volume growth rate is forecast to decline from 6% to 4%, pushing China's speed rank down from 18th to 104th. This development, however, should be viewed in the context of China's dramatic outperformance on trade growth during the pandemic. China's export volume grew 5% in 2020 and 17% in 2021 against the backdrop of a 4% global decline in exports in 2020 and just 10% growth in 2021. Even without headwinds from geopolitical tensions and companies striving to diversify their supply chains, China's trade growth would have naturally slowed from such elevated levels.

A final message to take away from the forecasts discussed in this section is the wide breadth of trade growth opportunities around the world. Whereas China was the dominant source of trade growth over the past five years and continues to be the single largest contributor to global trade growth, forecast trade growth over the next five years is spread out more broadly across countries and regions. The largest growth opportunities are still in major Asian, North American, and European economies, but five of the 10 countries with the fastest projected trade growth are in Africa, and three of the others are in the Caribbean region. As macroeconomic stresses continue to mount around the world with slowing growth and high inflation, international trade continues to afford a wide range of opportunities to accelerate growth and reduce costs.

The country-level perspective in this section concludes our examination of shifts in the geographic patterns of trade growth that we began in the preceding section. We have highlighted the importance of looking at countries that excel on both the speed and the scale of their trade growth. Viet Nam ranked among the top 10 on both dimensions over the last five years. Looking forward, we also highlighted India and the Philippines as countries that, along with Viet Nam, are likely to excel over the next five years. Next, we shift focus from countries to products to examine the contributions of different types of goods to global trade growth.

As macroeconomic stresses continue to mount around the world with slowing growth and high inflation, international trade continues to afford a wide range of opportunities to accelerate growth and reduce costs.

FIGURE 3.2: FORECAST TRADE GROWTH SPEED AND SCALE, 2021 – 2026



No countries rank among the top 10 for both speed and scale of trade growth over the next five years based on IMF forecasts. However, the three countries that come closest are all in Southeast and South Asia: Viet Nam, India, and the Philippines

Data source: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics. Note: Countries with negative growth are omitted from this figure.

4. THE MIX OF GOODS TRADED

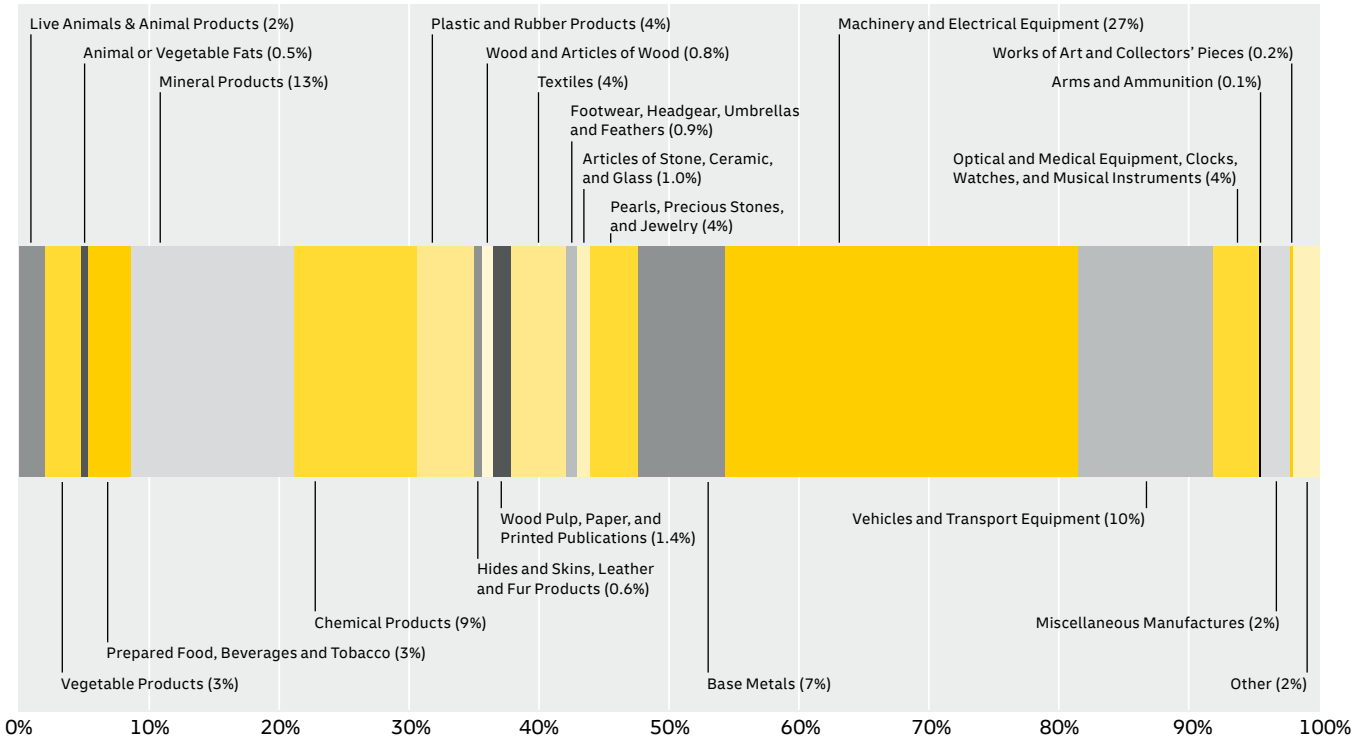
As we saw in the preceding sections, the geography of world trade has seen dramatic changes over the past two decades. But as revealed in this section, changes in the types of goods traded over this period have been comparatively modest. We start by looking at the current composition of world trade, focusing on large product categories and the most heavily traded products within these categories. We then discuss changes over time in the global mix of goods traded. Finally, we examine the mix of products exported and imported by advanced versus emerging economies to highlight the changing roles these groups of countries play in world trade.

CURRENT MIX OF GOODS TRADED[1]

To begin with a high-level overview of the mix of goods traded between countries, **Figure 4.1** summarizes the value of all goods traded internationally between 2015 and 2020. It categorizes goods according to the 22 *sections* of the Harmonized System (HS), which is used to report international shipments to customs agencies around the world.

The *sections* are the broadest official categories used in this classification system. For additional background on the HS system, which we will use throughout this part of the report, refer to the box titled **The Harmonized Commodity Description and Coding System** on p. 47.

FIGURE 4.1: COMPOSITION OF WORLD TRADE BY HS SECTIONS, 2015 – 2020



This figure summarizes all trade in goods using the 22 broad categories defined as *sections* in the Harmonized System (HS) administered by the World Customs Organization. The categories are shown in the order they appear in that classification system—roughly from agricultural goods at the far left, to mineral goods, to increasingly sophisticated types of manufactured goods on the right.

The majority of goods traded internationally are manufactured products, and more than one-quarter of all trade is in machinery and electrical equipment.
Data Source: UN Comtrade Database. Note: Measured in value terms using current U.S. dollars

The categories of goods proceed, roughly speaking, from agricultural products on the left through mineral products, to a variety of manufactured goods towards the right. While there are some exceptions to that broad characterization, it becomes clear at this level of aggregation that the majority of the value of goods traded internationally involves manufactured products. The four categories closest to the left side of the figure (agricultural products and closely related goods such as processed foods) account for just 9% of world trade, and mineral products comprise just 13%.

By far the largest category in Figure 4.1 is Machinery and Electrical Equipment, which makes up more than a quarter of all international trade. This category covers many of the most important products in the modern economy, from high tech capital equipment to mobile telephones. Why are these products traded so intensively? Because they are subject to large economies of scale (it is most efficient to produce them in large quantities), their production requires capabilities that are not available in every country, their input costs (including labor) vary widely across markets, and the costs of transporting them are small relative to their value, among other reasons.

The next largest category is Mineral Products, which is less than half as large. This includes petroleum products and other products of the mining industry that are often important manufacturing inputs. These products are traded intensively because they are only found in certain parts of the world, often in different countries from where they are in greatest demand.

Vehicles and Transport Equipment is the third largest category, comprising about one tenth of global trade. As with machinery and electrical equipment, this is a scale- and technology-intensive industry, making it most efficient to produce in a limited number of countries and to export from those locations to other markets.

Trade in vehicles—and many other types of manufactured goods—also gets a boost from the fact that different buyers often prefer different varieties of the same type of product. Thus, for example, even though China produces more cars than any other country, some Chinese buyers prefer imported cars.[2] China is the largest destination of German car exports.[3]

Trade in Machinery and Electrical Equipment makes up more than one-quarter of all international trade. This category includes many of the most important products in the modern economy.

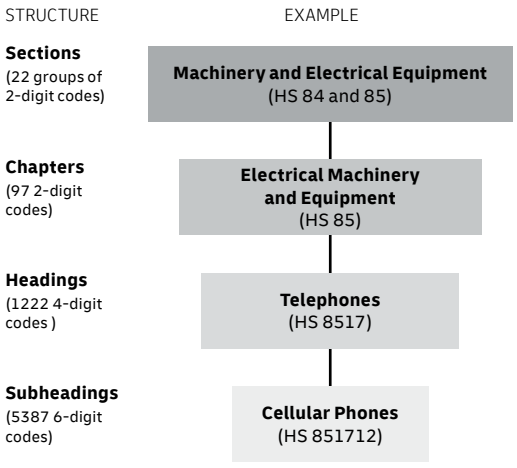
The Harmonized Commodity Description and Coding System

The Harmonized System, administered by the World Customs Organization, is the most commonly used product classification for international trade. It is used by customs authorities worldwide for specifying tariff rates, which means that products must be classified using this system to determine the duties owed when they cross national borders.

Nearly all economies provide data using this classification scheme, so it can be used reliably to aggregate trade at the world level. There are four levels of aggregation defined for international use: *section* (defined by combinations of 2-digit codes), *chapter* (individual 2-digit codes), *heading* (4-digit codes), and *subheading* (6-digit codes). These levels move from broad to narrow. [4] Thus, for example, Cellular Phones have their own *subheading*, within the Telephones *heading*, which is itself part of the Electrical Machinery and Equipment *chapter* and the Machinery and Electrical Equipment *section*.

One advantage of this classification scheme is that it groups similar products together. However, one of its limitations is that it does not separate components and parts from finished products at its higher levels of aggregation. While it mostly separates raw materials from manufactured goods, that division is also imperfect. And as with any classification system that has been in use for decades, past decisions about how to classify products may not reflect how we think of them now. Nevertheless, such historical conventions persist because changes would be difficult to coordinate and would complicate the analysis of trends over time.[5]

HARMONIZED SYSTEM (2017 EDITION)



Sources: World Customs Organization, "1988-2018: The Harmonized System: A Universal Language for International Trade 30 Years On," 2018; Atlas of Economic Complexity.

Proceeding to a more detailed view of the composition of world trade, **Figure 4.2** shows the value of all goods traded between 2015 and 2020 using narrower product categories (2-digit HS *chapters* and, for the largest categories, further subdivisions using 4-digit HS *headings*). The size of each rectangle in Figure 4.2 shows the share of total trade in each category, and the categories are arranged roughly in descending order by value, starting at the top left and filling in towards the bottom right. The boxes on this figure are also colored according to how fast trade in each category grew from 2000 to 2020 (we will return to growth rates later in this section).

The top 10 products traded internationally at the *chapter* level were: Electrical Machinery and Equipment (15%); Industrial Machinery (12%); Mineral Fuels, Oils, and Waxes (11%); Vehicles (8%); Precious Metals and Stones (4%); Plastics (3%); Apparatuses (optical, medical, etc.) (3%); Pharmaceutical Products (3%); Organic Chemicals (2%); and Iron and Steel (2%). These 10 categories made up almost two-thirds of all world trade between 2015 and 2020.

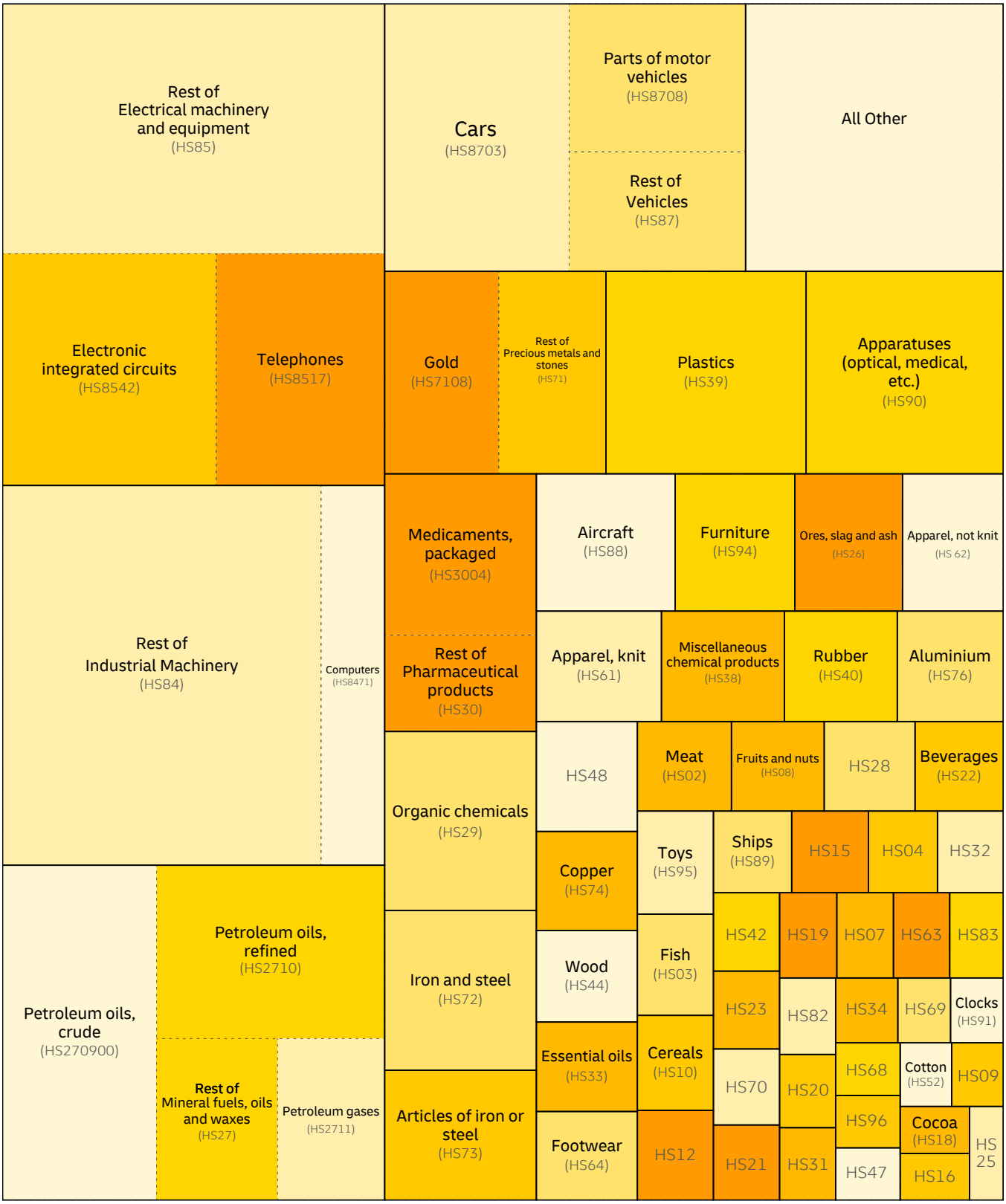
The top *chapter*-level category is Electrical Machinery and Equipment, which subsumes many different products, and includes both finished goods and intermediate goods. These products are sold worldwide, but their manufacture is dominated by a small number of countries. And since many are built in complex value chains that span many different countries, a large fraction of the trade in this *chapter* is in intermediate goods. Overall, East Asia and the Pacific is the biggest exporting region for these goods, with a 65% market share between 2015 and 2020. Europe exports 21%, and North America exports about 10%. By contrast, East Asia and the Pacific is the destination of about 50% of imports, while Europe imports 24% and North America 17%.

The Electrical Machinery and Equipment *chapter* includes two of the most iconic goods in the international marketplace. First, Electronic Integrated Circuits,[6] a *heading* that includes the processors that power computers, smart phones, and many other devices. And second, Telephones; here most trade is in smartphones with features well beyond what the category was originally meant to cover.[7] Integrated circuits, which made up just over a quarter of all Electrical Machinery and Equipment trade, are intermediate goods. The Telephones *heading* makes up just over a fifth of all Electrical Machinery and Equipment; it includes some parts, but roughly 75% is made up of final products. Both of these markets are dominated by exporters in East Asia and the Pacific, but imports are a somewhat different story.

The bulk of Electronic Integrated Circuits—86% of the world total between 2015 and 2020—are exported by countries in East Asia and the Pacific, but only about 13% are exported by Mainland China. Another 19% comes from Hong Kong SAR (China), 15% comes from Taiwan (China),

This figure highlights the most heavily traded types of goods. Each box on the figure represents a 2-digit *chapter* in the HS classification. These are sorted from top-left to bottom-right according to the value of the goods traded between 2015 and 2020. The 2-digit *chapters* with the most trade are further subdivided into 4-digit *headings* to provide additional detail on the types of goods traded within those categories. Additionally, the boxes for each *chapter* (or *heading*) are colored according to their annualized growth rates over the longer period from 2000 to 2020. These growth rates are reported in value terms (according to trade values reported in current US dollars), because we do not have trade volume growth rates available at this level of detail. Therefore, the growth rates reported here are affected by changes in price levels over time.

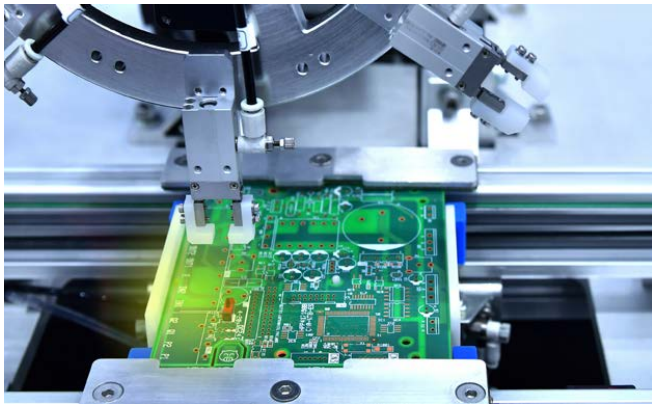
FIGURE 4.2: COMPOSITION OF WORLD TRADE BY HS CHAPTERS, 2015 – 2020



HS codes and corresponding product categories are listed on p. 266.

At the level of HS chapters (2-digit codes), the most heavily traded products are Electrical Machinery and Equipment, Industrial Machinery, and Mineral Fuels, Oils, and Waxes.

Data Sources: UN Comtrade database. Note: Measured in value terms using current U.S. dollars



12% from Singapore, 12% from South Korea, and 11% from other ASEAN countries. However, when it comes to imports, Mainland China is much more prominent, taking in 36% of worldwide imports of these products. Only about 15% are imported by regions other than East Asia and the Pacific.

Mainland China is the leading origin for telephone exports, with 40% of the worldwide total. Another 32% is from other exporters in East Asia and the Pacific, including 12% by ASEAN countries. These products are imported by countries around the world. East Asia and the Pacific takes in about 38%, Europe 26%, and North America 22%.

These two product categories—Electronic Integrated Circuits and Telephones—thus illustrate a prominent pattern of multi-country production: intermediate products are manufactured throughout Asia and shipped to China, where they are assembled into final goods that are sold throughout the world.

The second-largest *chapter*, Industrial Machinery, also encompasses a wide variety of different products, from nuclear reactors to personal computers.[8] Again, East Asia and the Pacific is the biggest exporting region, with a 41% share in 2015 – 2020, with Europe close behind at 40%. North America is a distant 15%. In terms of imports, Europe is the leader, taking in 36% of Industrial Machinery products, followed by East Asia and the Pacific (28%) and North America (23%).

The third-largest *chapter*—Mineral Fuels, Oils, and Waxes—is much different. This is dominated by petroleum products, which make up 85% of the trade in this category. Perhaps surprisingly, this product category is most traded in Europe, which exported 29% of the world total between 2015 and 2020. It is worth keeping in mind that Russia and the countries surrounding the North Sea are significant oil producers, and petroleum products at various stages of production are traded extensively between European countries. European countries are also major consumers of petroleum products and many rely almost exclusively on imports.

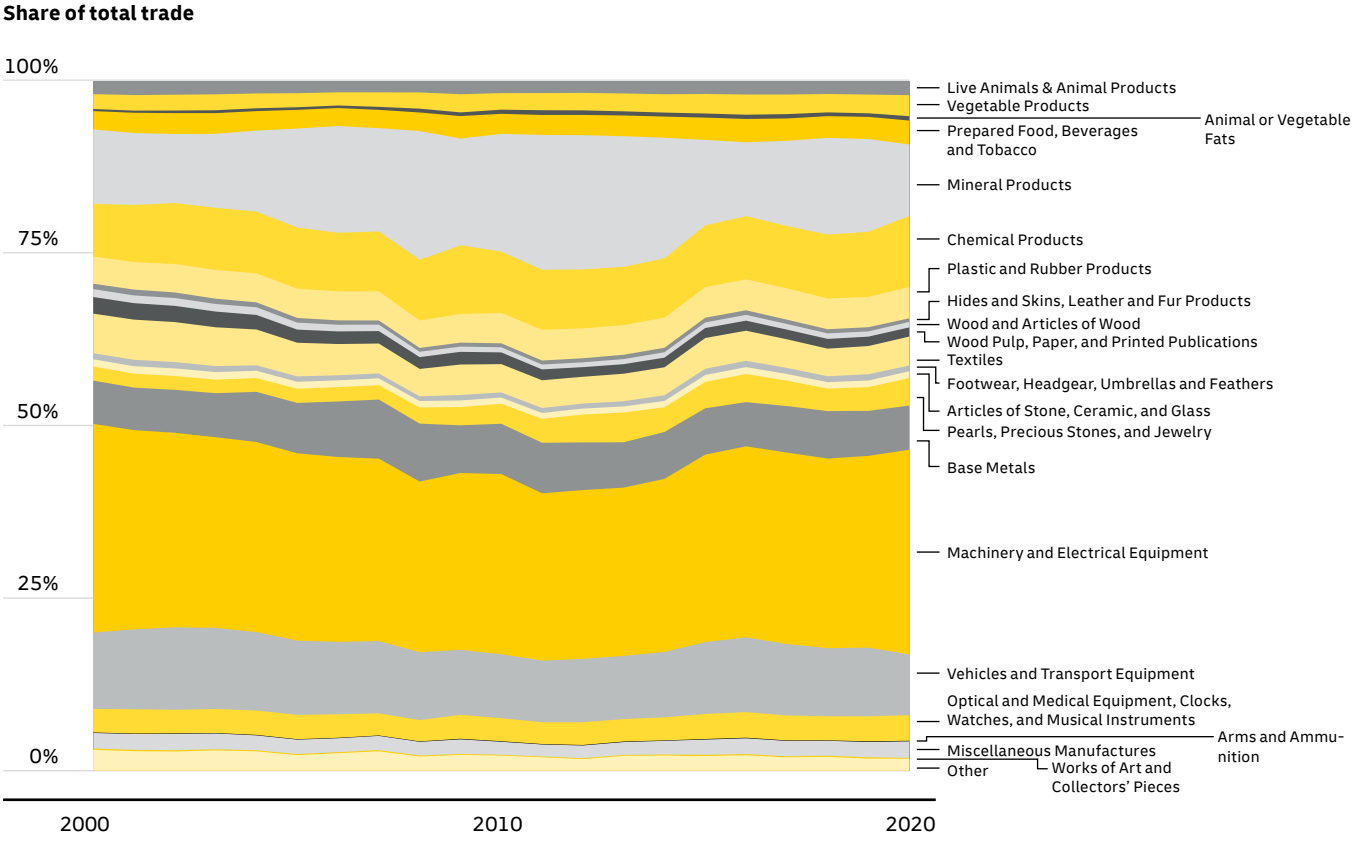
After Europe, the Middle East and North Africa exported 26% of the world total in this category between 2015 and 2020, followed by East Asia and the Pacific (15%) and North America (14%). The import market for these products looks quite different, with East Asia and the Pacific taking in 39% (13% going to China alone), Europe taking in 30%, and North America 13%.

GLOBAL TRADE MIX TRENDS

For a big-picture overview of trends in the mix of goods traded, **Figure 4.3** depicts the same 22 categories (HS *sections*) shown in Figure 4.1 over a longer timeframe. It reveals relatively little change over the last 20 years—at least at this broad level. Most of the shifts we do see appear to be due to fluctuations in the prices of goods (especially mineral fuels), not in the actual volumes of goods traded.[9]

There was a large but temporary increase in the value of world trade in Mineral Products (which includes Mineral Fuels, Oils and Waxes) relative to other categories of goods. In 2000, Mineral Products made up 11% of the value of goods traded worldwide, soared to 20% by 2011, and fell back to 10% by 2020. For context, **Figure 4.4** shows the historical trend in crude oil prices over the same period. The Brent crude benchmark price rose from $29 in 2000 to $111 in 2011 and $112 in 2012 before falling back to $42 by 2020. In 2022, oil prices spiked due to the war in Ukraine—accelerating a rising trend already underway as economies were recovering from the Covid-19 pandemic. From March

FIGURE 4.3: TRENDS IN COMPOSITION OF WORLD TRADE BY HS CHAPTERS, 2000 – 2020



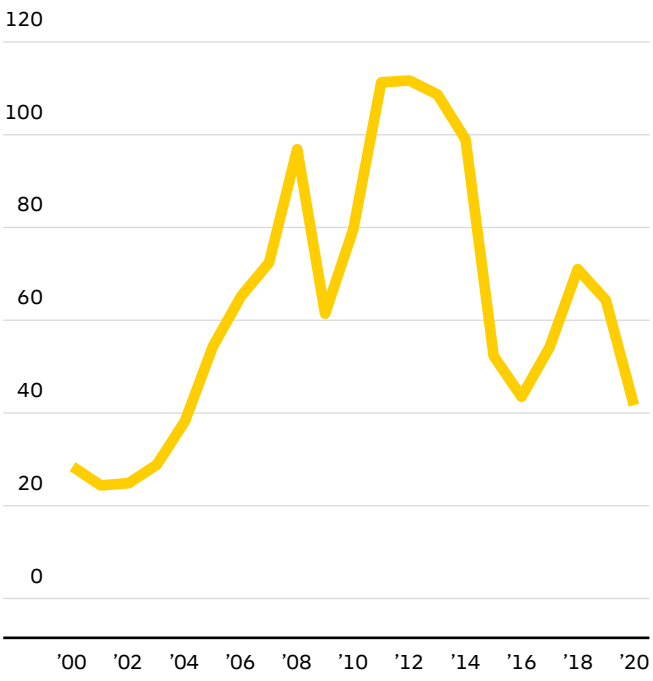
Across broad categories of goods, the composition of world trade has changed little over the past two decades. Most shifts during this period were due to changes in commodity price levels rather than actual shifts in the amounts of different types of goods traded. Data Source: UN Comtrade database. Note: Measured in value terms using current U.S. dollars

The composition of world trade across high-level product categories—leaving aside commodity price fluctuations—has been fairly stable over the past two decades.

through May of 2022, Brent crude was trading above $100 per barrel. While we do not have data yet on the composition of world trade by product in 2022, high oil prices have presumably caused a sharp increase in Mineral Products' share of world trade.

The data on the largest category of products traded, Machinery and Electrical Equipment, reinforces the point that the actual composition of world trade across high-level categories—leaving aside commodity price fluctuations—has been fairly stable over the past two decades. In 2000, Machinery and Electrical Equipment made up 30% of the value of all goods traded worldwide. Its share fell to as low as 24% in 2013 (when the share of Mineral Products was elevated due to higher price levels), but in 2020 it was back up to 30%.

FIGURE 4.4: BRENT CRUDE OIL SPOT PRICE, CURRENT U.S. DOLLARS, 2000 – 2020



Oil prices soared to record high levels roughly a decade ago before falling again. This caused a large but temporary increase in value of world trade in mineral fuels relative to other categories of goods.

Source: U.S. Energy Information Administration

A more granular look at product categories, however, reveals more variation in the speed and scale of trade growth. **Table 4.1** ranks the top 20 HS *chapters* (depicted in Fig. 4.2) in terms of trade growth between 2000 and 2020. The left side of the table focuses on the scale of trade growth, i.e. the difference between the dollar value of goods traded in 2020 relative to 2000. Unsurprisingly, the four *chapters* with the largest increases in trade value were also the four largest in terms of current trade values: Electrical Machinery and Equipment; Industrial Machinery; Mineral Fuels, Oils and Waxes; and Vehicles. While these are not the fastest-growing categories, they grew the most because their share of overall trade is (and has been) much larger than the fastest-growing categories.

Moving to the right side of Table 4.1, the fastest growing category was Ores, Slag and Ash, with an average annual growth rate of 12%. This includes raw metals like iron and copper, which are the largest *headings* in this *chapter*. Ranking second in growth rate was Pharmaceutical Products, which also ranked 5th in absolute growth. The growth of the pharmaceutical category (which includes vaccines) was accelerated by the pandemic, but it was already a large and fast-growing category before the pandemic. The third-ranked category—Other Made-up Textile Articles (which includes face masks) did rank much higher than it would have without the effects of the pandemic. If this analysis had ended in 2019 rather than 2020, its growth rate would only be ranked 19th (out of 97).

TABLE 4.1: SPEED AND SCALE OF TRADE GROWTH, TOP 20 HS CHAPTERS, 2000 – 2020

Scale: Absolute Growth in U.S. dollars, 2000 – 2020

		US dollars (trillions)
1.	Electrical machinery and equipment	3.7
2.	Industrial Machinery	2.3
3.	Mineral fuels, oils and waxes	1.7
4.	Vehicles	1.4
5.	Pharmaceutical products	1.2
6.	Precious metals and stones	1.1
7.	Plastics	0.8
8.	Apparatuses (optical, medical, etc.)	0.8
9.	Ores, slag and ash	0.5
10.	Organic chemicals	0.5
11.	Iron and steel	0.4
12.	Articles of iron or steel	0.4
13.	Miscellaneous chemical products	0.3
14.	Furniture	0.3
15.	Rubber	0.2
16.	Other	0.2
17.	Essential oils	0.2
18.	Copper	0.2
19.	Other made up textile articles	0.2
20.	Fruits and nuts	0.2

Speed: Percentage Growth Rate, 2000 – 2020

		Annualized percent change
1.	Ores, slag and ash	11.8%
2.	Pharmaceutical products	10.4%
3.	Other made-up textile articles	10.1%
4.	Oil seeds and oleaginous fruits	8.7%
5.	Animal or vegetable fats, oils or waxes	8.4%
6.	Preparations of cereals, flour, starch or milk	8.4%
7.	Miscellaneous edible preparations	8.3%
8.	Precious metals and stones	8.3%
9.	Essential oils	8.1%
10.	Fruits and nuts	7.7%
11.	Food residues and animal feed	7.2%
12.	Cocoa	7.2%
13.	Miscellaneous chemical products	7.1%
14.	Lead	6.8%
15.	Copper	6.8%
16.	Flours, starches and malts	6.7%
17.	Soaps, waxes, and paints	6.7%
18.	Vegetables	6.6%
19.	Fertilisers	6.6%
20.	Lac and other vegetable extracts	6.5%

Data Source: UN Comtrade database. Note: Measured in value terms using current U.S. dollars

TRADE MIX SHIFTS IN ADVANCED VERSUS EMERGING ECONOMIES

Although there has been a fairly stable mix of products traded at the global level, there have been important shifts in the economies that export and import different types of goods. An examination of these shifts in trade patterns between advanced and emerging economies helps to set the stage for the analysis of global shifts beyond trade covered in the final section of this report. (For detail on how countries are classified as advanced or emerging economies, refer to the box titled **Country Classification: Advanced vs. Emerging Economies** on p. 64.)[10]

Different countries and regions have always specialized in producing different products—indeed, that is a primary motivation for trade as highlighted more than two centuries ago in David Ricardo's seminal work on comparative advantage.[11] Countries export products for which they have a relative advantage and import products for which they have a relative disadvantage. Over the past 20 years, emerging economies have developed new capabilities, changing and expanding their relative advantages.

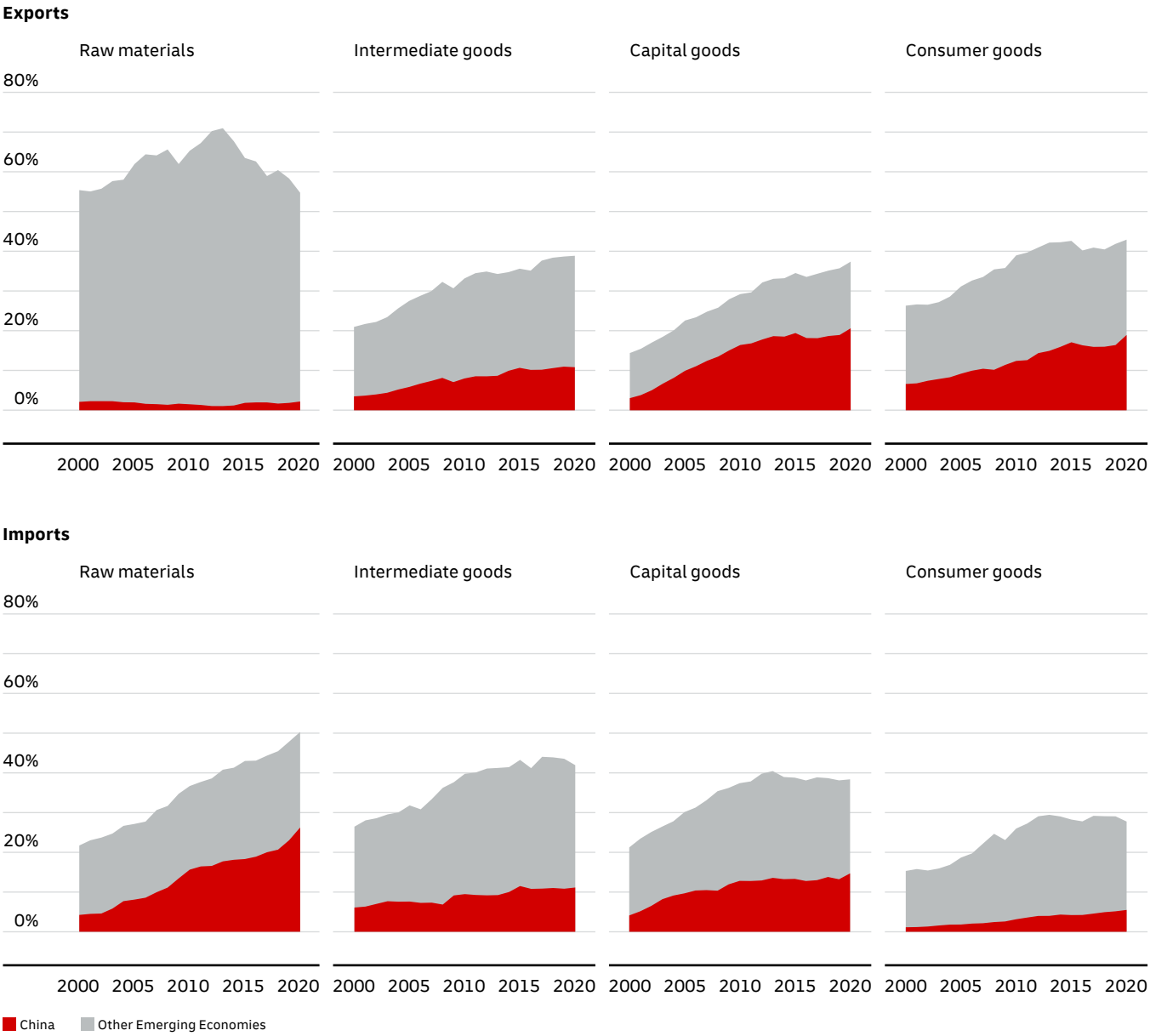
Emerging markets have traditionally been producers of raw materials, while intermediate and finished products were the domain of advanced economies. **Figure 4.5** shows changes in the emerging economies' shares of exports and imports of raw materials, intermediate goods, consumer goods, and capital goods.[12] Given China's large role in many of these trends, China is split out separately from other emerging economies on these charts.

As shown on the top-left panel of Figure 4.5, the emerging economies' share of raw materials exports started high and remained high throughout the period (despite some fluctuation due to prices). China contributed relatively little to these exports. On the other hand, imports of raw materials by emerging economies (bottom-left panel) grew steadily, mostly driven by a substantial increase in China's share of these imports. In 2020, emerging economies imported more than half of all the raw materials traded internationally, more than twice their share in 2000.

In the case of intermediate goods, consumer goods, and capital goods, the emerging economies' share of exports grew significantly—driven primarily by increased exports from China. However, this growth was stronger in the first decade of the 2000s and has slowed somewhat since then. Imports of intermediate, consumer and capital goods by emerging economies follow a similar pattern, although China's role in the import trends is not as consistent. The plateau in imports is particularly noticeable in capital goods, with emerging economy shares of capital imports remaining below 2013 levels in 2020. As emerging economies have become more technologically sophisticated, they have started to rely less on imported capital goods.

Imports of raw materials by emerging economies grew steadily, driven by a large increase in China's share of these imports. In 2020, emerging economies imported more than half of all the raw materials traded internationally, more than twice their share in 2000.

FIGURE 4.5: EMERGING ECONOMIES' SHARES OF WORLD EXPORTS AND IMPORTS OF GOODS BY STAGE OF PROCESSING, 2000 – 2020



Emerging economies are still the main exporters of raw materials, but they now also receive more than half of global imports of raw materials, and they are increasingly central to trade in intermediate, consumer, and capital goods.

Data Source: UN Comtrade database. Note: Measured in value terms using current U.S. dollars

For a somewhat more detailed view of shifts over the past two decades, the left side of **Figure 4.6** ranks the 22 HS *sections* according to how much their export and import shares have shifted between advanced economies, China, and other emerging economies since 2000. The right side of the figure shows the current (2020) composition of exports and imports across the same locations for each of the categories.

The biggest shift in exports was in Miscellaneous Manufactures, the majority of which are now exported by China. The share of these goods exported from emerging economies soared from 27% to 64%, as China's share rose from 13% to 45%. Six other categories had more than a 20 percentage point increase in the share of exports coming from emerging economies: Articles of Stone, Ceramic, and Glass; Textiles; Machinery and Electrical Equipment; Plastic and Rubber Products; Footwear, Headgear, Umbrellas, and Feathers; and Wood, Pulp, Paper, and Printed Publications.

The only category for which advanced economies increased their share of global exports was Mineral Products. This was due primarily to rising production of mineral fuels in North America, which shifted from being a net importer to being a net exporter of these products. Meanwhile, emerging and developing economies greatly increased their imports of Mineral Products (from 22% in 2000 to 51% in 2020). This was the category where the emerging economies increased their share of imports the most, by a wide margin. There was no category for which advanced economies increased their share of imports.

These results underscore the extent to which emerging economies have become more technologically sophisticated, especially with regard to manufacturing. These economies are now much larger exporters of both the broad categories of technologically-intensive manufactures included in categories such as Machinery and Electrical Equipment, as well as the more specialized products classified as Miscellaneous Manufactures. At the same time, they have become much larger importers of raw materials, such as Mineral Products, both for use as inputs in their export-oriented manufacturing industries and to meet the needs of their rapidly-growing domestic markets.

We conclude this examination of differences in trade patterns across advanced versus emerging economies by looking at the composition of their exports—and their export value growth rates—at the *chapter* level (with a breakdown

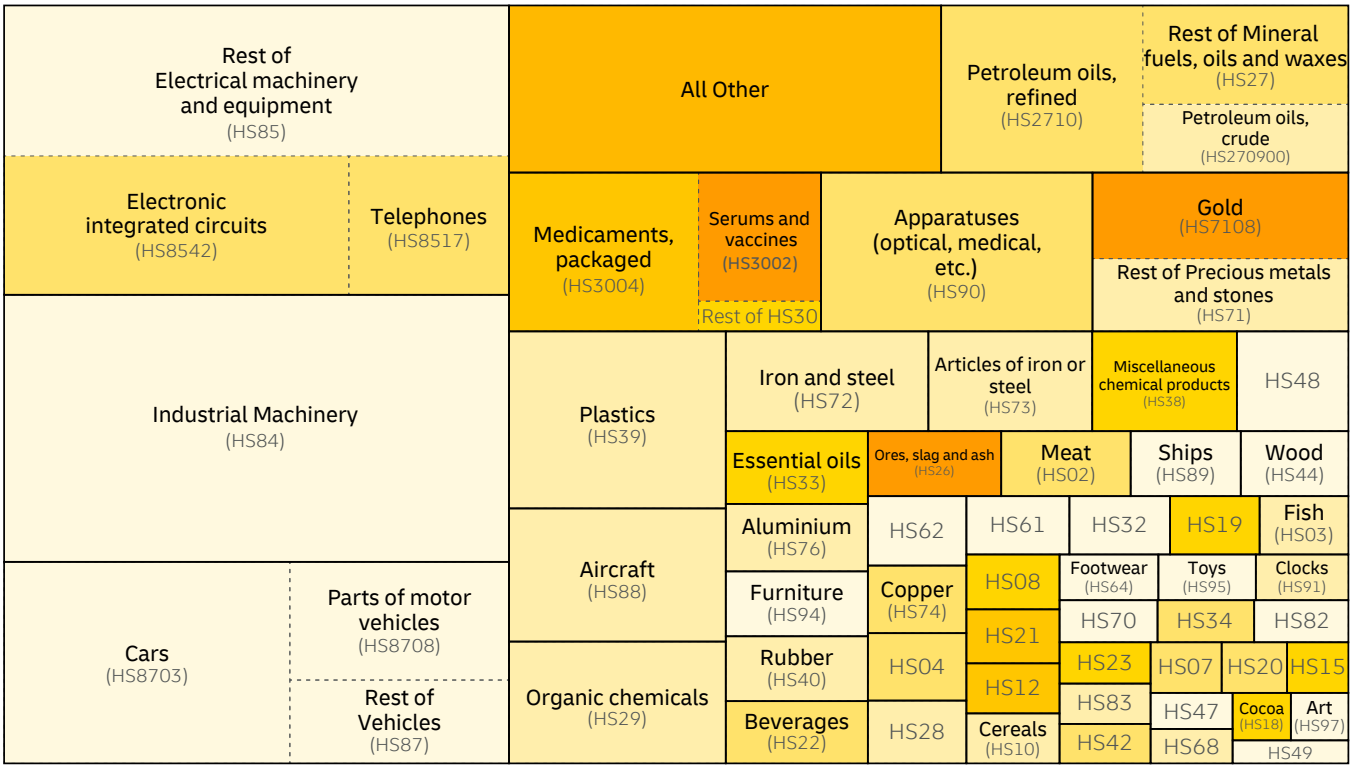
Figure 4.6 ranks HS *sections* according to how much their exports and imports shifted between advanced and emerging economies over the past two decades. The left side of the figure ("Share Shift 2000 – 2020") shows the change in the percentages of these types of exports (top) and imports (bottom) happening in advanced economies, in China, and in other emerging economies. In the top row of the chart (Miscellaneous Manufactures exports), the -37% (negative) value shown for advanced economies (yellow) is mirrored by a 37% total positive value for China (32%) and other emerging economies (5%) shown in red and gray, respectively. This means that the advanced economies' share of total exports of these goods fell 37 percentage points, while China's share rose by 32 percentage points and other emerging economies' shares rose by 5 percentage points. On the right side of the figure ("Current Shares"), we show the current distribution of each category of exports and imports across the same locations. After the shifts shown on the left side in 2020, 45% of exports of Miscellaneous Manufactures were from China, 36% were from advanced economies, and 19% were from other emerging economies.

FIGURE 4.6: EXPORT AND IMPORT SHIFTS TO EMERGING ECONOMIES, BY HS SECTION, 2000 – 2020

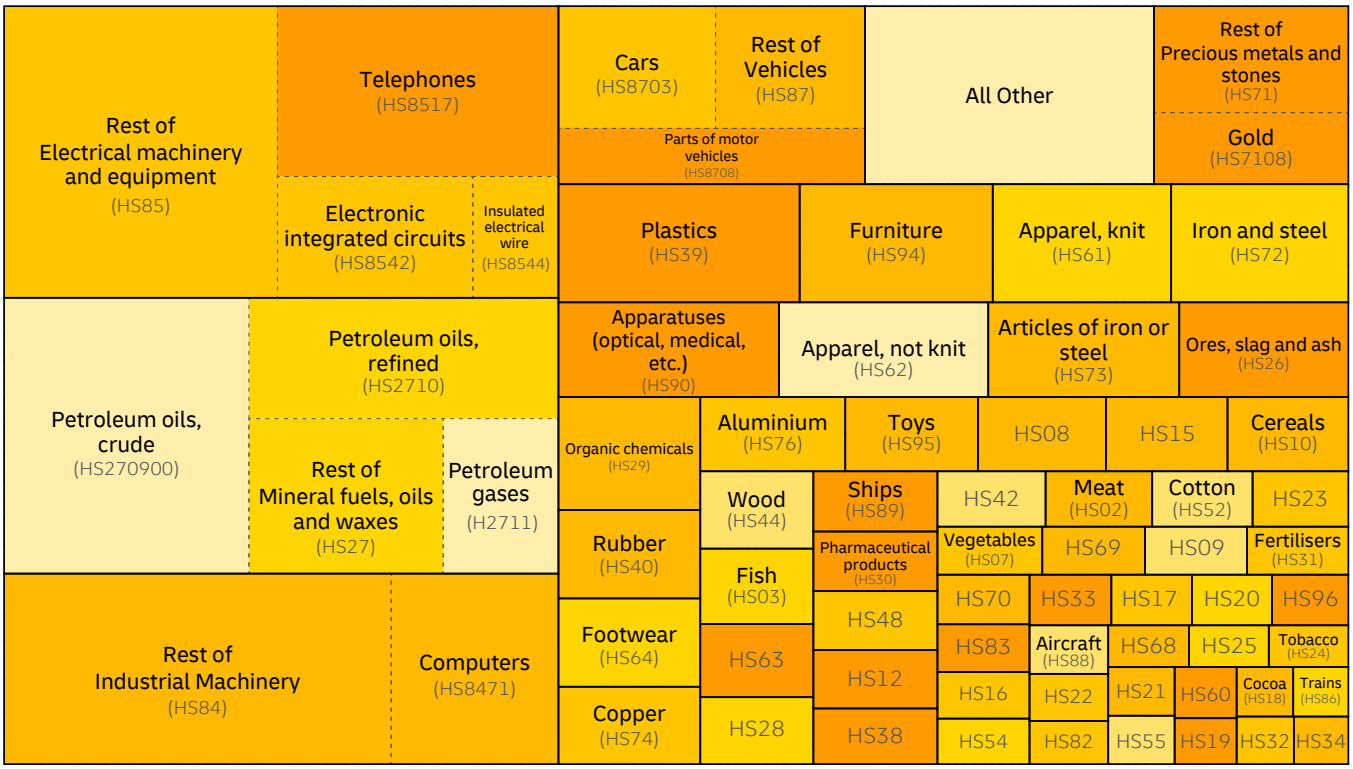
The emerging economies' share of exports and imports has increased over the past two decades for every HS section except Mineral Products (where advanced economies modestly increased their share of exports). China played a pivotal role in many of these shifts, but China's share varies widely across product categories. Data Source: UN Comtrade database. Note: Measured in value terms using current U.S. dollars

FIGURE 4.7: MERCHANDISE EXPORTS BY PRODUCT CATEGORY AND DEVELOPMENT LEVEL, 2015 – 2020

Advanced Economies



Emerging and Developing Economies



Annualized growth rate, 2000 – 2020

HS codes and corresponding product categories are listed on p. 266.

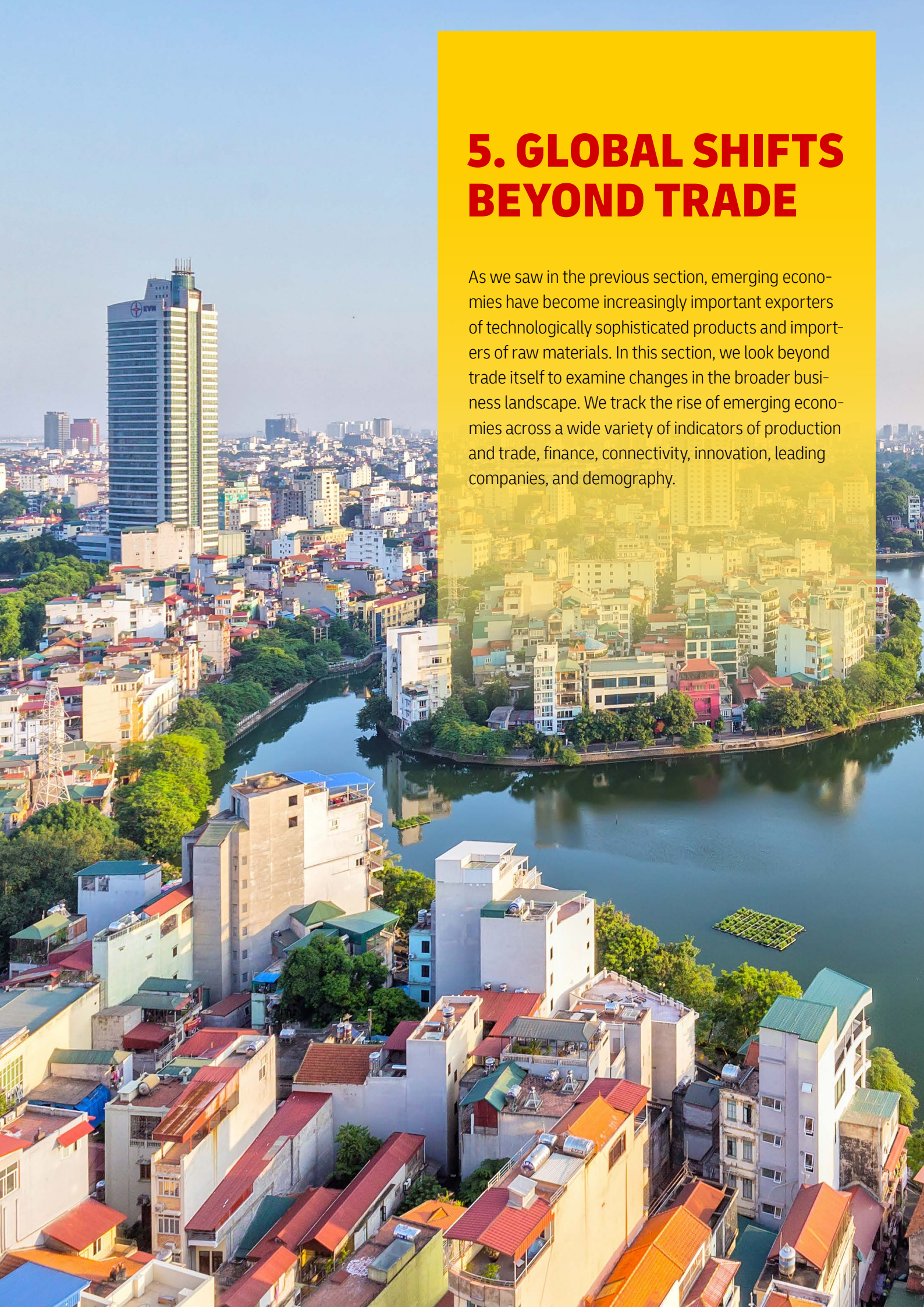
Both advanced and emerging economies are large exporters of Electrical Machinery and Equipment and Industrial Machinery. Across other product categories, however, there are large differences in the mix of goods exported by advanced versus emerging economies.

Data Source: UN Comtrade database. Note: Measured in value terms using current U.S. dollars

of the larger *headings*). **Figure 4.7** shows the composition of exports from advanced economies (top panel) and emerging economies (bottom panel) between 2015 and 2020. The goods categories are also colored according to export value growth rates over the longer period from 2000 to 2020.

Since both panels in Figure 4.7 (advanced economies at top, emerging economies at bottom) use the same color scale, it is clear that emerging economies grew their exports in most categories at a much faster clip than advanced economies. It is also clear that both advanced and emerging economies are major exporters of Electrical Machinery and Equipment, which is the top-ranked category on both charts. Both groups of economies are also large exporters of Industrial Machinery, the second-ranked category for advanced economies and the third-ranked category (after Mineral Fuels) for emerging economies. Nonetheless, there are still large differences between the export specialties of these groups of economies. Advanced economies specialize more in exporting products such as pharmaceuticals and airplanes, while emerging economies still focus more on exporting raw and basic materials.

This section discussed the types of products traded across borders and changes to the mix of products traded, both overall and by level of economic development. We saw that most international trade involves manufactured goods, and that the mix of goods traded—across broad categories—has remained fairly consistent over the past two decades. At the same time, there have been large changes in the types of goods exported and imported by advanced relative to emerging economies. In the next section, we look beyond trade to explore how emerging economies are changing the broader business landscape and how those changes could affect trade opportunities in the future.



5. GLOBAL SHIFTS BEYOND TRADE

As we saw in the previous section, emerging economies have become increasingly important exporters of technologically sophisticated products and importers of raw materials. In this section, we look beyond trade itself to examine changes in the broader business landscape. We track the rise of emerging economies across a wide variety of indicators of production and trade, finance, connectivity, innovation, leading companies, and demography.

TWO DECADES OF SHIFTS IN THE GLOBAL BUSINESS ENVIRONMENT

As we saw in **Sections 2 and 4**, the rise of emerging economies—especially China—has dramatically altered global trade patterns since the beginning of the 21th century. The share of total merchandise exports coming from emerging economies soared from 26% in 2000 to 42% in 2020, and the share of imports going to emerging economies rose in parallel from 22% to 38%.[1] Also changing over this time was the mix of goods exported and imported by emerging economies, as these countries developed the capabilities to produce increasingly sophisticated types of products. Nevertheless, despite the impressive increase in the emerging economies' share of merchandise imports and exports, merchandise trade did not see the most dramatic shift over these two decades as compared to other types of economic activity.

Figure 5.1 provides a broad overview of shifts across 50 types of activity spanning the areas of production and trade, finance, connectivity, innovation, leading companies, and demography. **Figure 5.2** summarizes those results by showing averages across the indicators in each of the six categories. In both Figure 5.1 and 5.2, the "Share Shift 2000 – 2020" panel shows changes in the global shares of each type of activity that take place in advanced versus emerging economies (with China split out from other emerging economies because of its large role in many of these shifts). The "Current Shares" panel depicts the current distribution of each type of activity across the same locations, using data from 2020 or the most recent prior year available. The indicators are ranked from top to bottom according to how much each type of activity shifted over the period shown. (For background on how countries are classified as advanced or emerging economies, refer to the box titled **Country Classification: Advanced vs. Emerging Economies** on p. 64.)

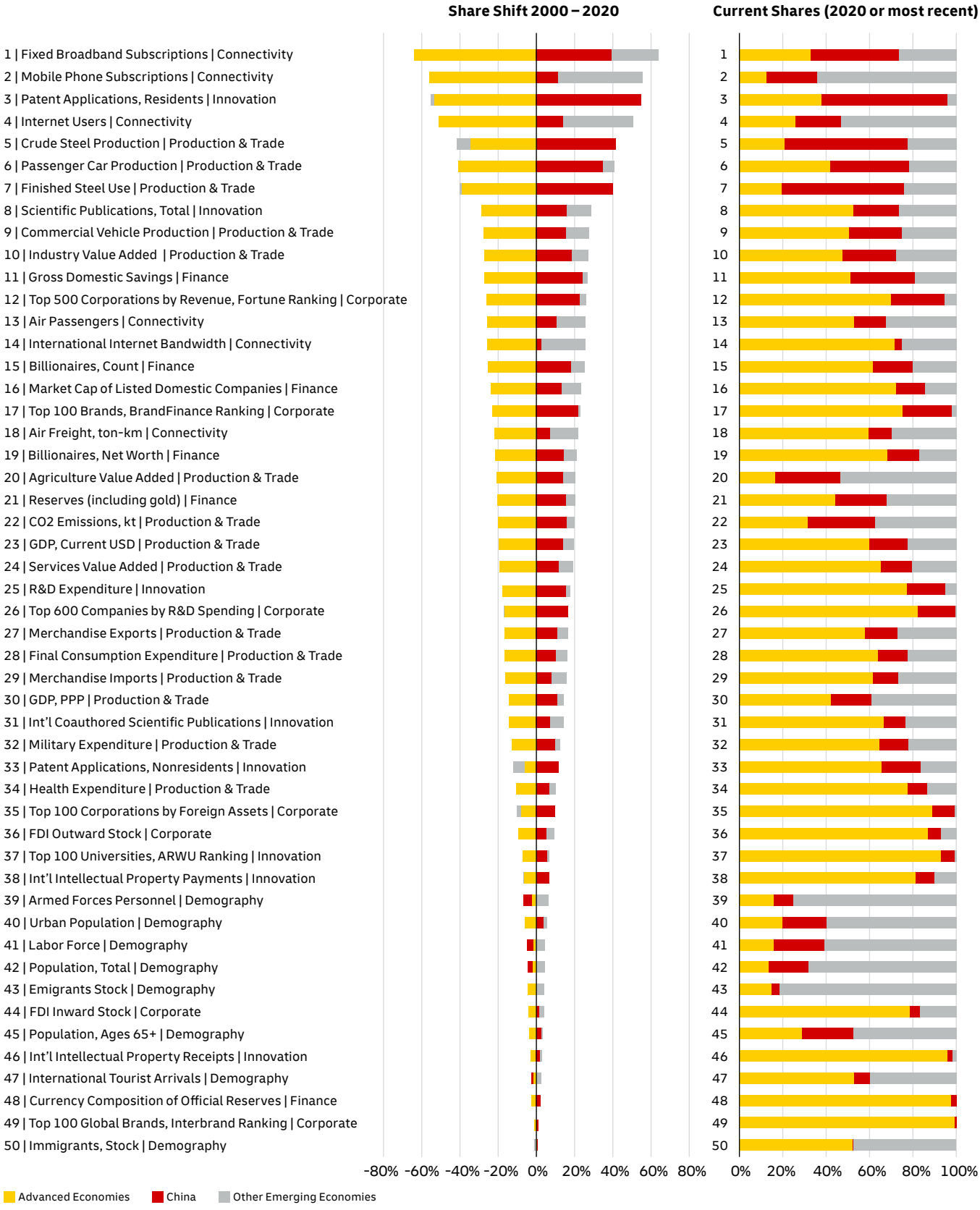
As seen in Figure 5.1, shifts in merchandise trade rank in the lower half, with merchandise exports ranking 27th out of the 50 types of activity shown, and merchandise imports ranking 29th. The shifts in merchandise export and import patterns closely mirror shifts in overall economic activity (the shift of GDP in U.S. dollars ranked 23rd).

Far more than trade, technological connectivity stands out as the area with the largest shift to emerging economies over the past two decades. The top-ranked indicator on Figure 5.1 is fixed broadband subscriptions, and two other connectivity measures rank among the top five: mobile phone subscriptions and internet users. At the bottom of the list are demographic shifts (e.g. population, migration) and changes in the home countries of the world's leading corporations.

The modest demographic shifts are unsurprising since demography normally changes very gradually and emerging economies have always had a greater share of the world's population than advanced economies. More surprising are some of the limited changes on corporate rankings. While more and more of the world's top 500 corporations by revenue are based in emerging economies (the 12th largest shift on Figure 5.1), there has been almost no shift towards emerging economies when it comes to the world's top 100 global brands (49th out of the 50 indicators), which is assessed using criteria that require a brand to have a strong presence in multiple regions of the world. This is because the rise of large corporations from emerging economies has reflected the growth of their home markets and their success at home more than their efforts at expanding around the world.

Another central message from Figures 5.1 and 5.2 is that China was responsible for a large share of the shifts to emerging economies that took place over the past two decades. On average, across all of our 50 indicators, China's share of the world total increased by 12 percentage points while all other emerging economies combined only increased their shares by 6 percentage points. In short: two-thirds of the entire shift of activity to emerging markets measured here was due to China alone.

FIGURE 5.1: TWO DECADES OF ECONOMIC SHIFTS, ADVANCED VERSUS EMERGING ECONOMIES[2]



The rise of emerging economies over the past two decades varies widely across types of activity. The share of broadband connections and mobile phone subscriptions in emerging economies skyrocketed over this period, while the emerging economies' shares of global brands and immigrants barely shifted at all.

Data Sources: World Bank World Development Indicators, International Telecommunication Union World Telecommunication/ICT Indicators, Telegeography Global Internet Geography, World Steel Association, International Organization of Motor Vehicle Manufacturers, Fortune Global 500, Forbes, BrandFinance Global 500, EU Industrial R&D Investment Scoreboard, Clarivate Web of Science, UNCTAD World Investment Report, Academic Ranking of World Universities, UN DESA International Migration Database, IMF Currency Composition of Official Foreign Exchange Reserves, Interbrand Best Global Brands.

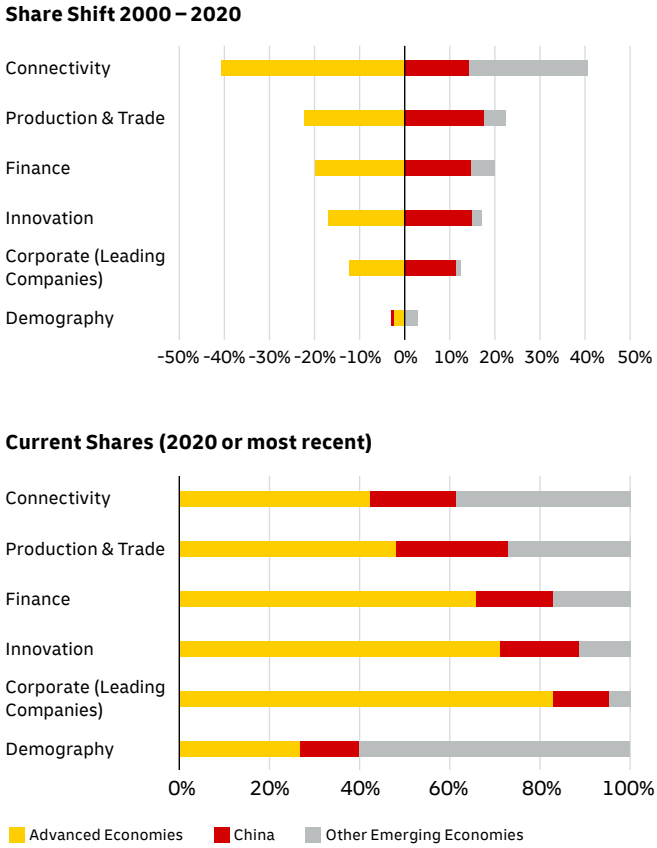
Figure 5.1 ranks 50 indicators according to how much they shifted between advanced and emerging economies over the past two decades. The column on the left ("Share Shift 2000-2020") shows the change in the percentages of these quantities in advanced economies, in China, and in other emerging economies. In the top row of the chart (Fixed Broadband Subscriptions), the -64% (negative) value shown for advanced economies (yellow) is mirrored by a 64% total positive value for China (40%) and other emerging economies (24%) shown in red and gray, respectively. This means that the advanced economies' share of total broadband subscriptions fell by 64 percentage points, while China's share rose by 40 percentage points and other emerging economies' shares rose by 24 percentage points. On the right side of the figure, we show the current (or most recent available) distribution of each indicator across locations. After the shifts shown on the left side, in 2020, 33% of fixed broadband subscriptions were in advanced economies, 40% were in China, and 27% were in other emerging economies.

At the same time, China's role in global shifts varied widely across types of activity. The East Asian giant played an especially central role in the shifts in corporate rankings and innovation. In terms of innovation measures, 87% of the overall increase for emerging economies was due to China. And in terms of shifts in leading companies, 92% was due to China's rise alone. By contrast, China had little impact on the demographic shifts towards emerging economies over the past two decades. These shifts were relatively small, but they were driven by the rise of other emerging economies (not China). In fact, China's share on the demographic variables declined slightly.

The "Current Shares" panels in Figures 5.1 and 5.2 also highlight the very large differences in the current distribution of different types of activity across emerging vs. advanced economies. Emerging economies, which have always led on demographic measures, now also host the majority of global activity in our connectivity category as well as roughly half of the activity measured in the production and trade category. By contrast, the advanced economies still lead by a wide margin on the measures of innovation, finance, and leading companies.

A more detailed analysis reveals other important contrasts across and within categories in the pace of these shifts over time and in patterns of international versus domestic activity. We therefore conclude this report with a closer look at the rise of emerging economies within each of our six categories.

FIGURE 5.2: TWO DECADES OF ECONOMIC SHIFTS, ADVANCED VERSUS EMERGING ECONOMIES, CATEGORY AVERAGES



The largest shifts took place in the area of technological connectivity, while the smallest pertained to demography.

Data Sources: See Figure 5.1 data sources

Figure 5.2 summarizes the results shown in Figure 5.1. The values shown are the averages by category of the values shown in Figure 5.1.

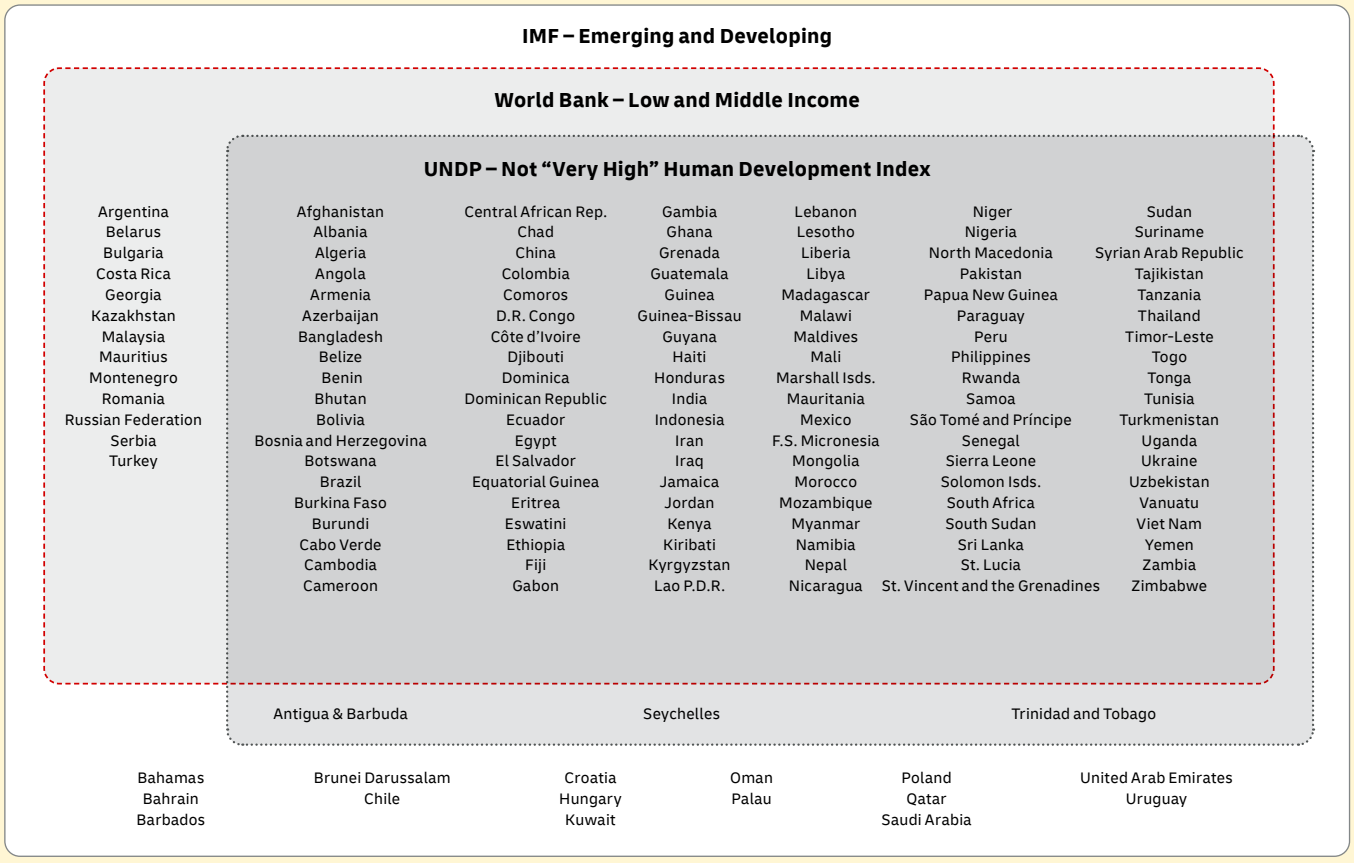
Country Classification: Advanced vs. Emerging Economies

The term "emerging markets" was coined by Antoine van Agtmael in 1981, when he was deputy director of the capital markets department of the World Bank's International Finance Corporation (IFC). He saw large potential for private sector investment in poorer countries and felt they needed a more "uplifting" name to attract foreign capital. Over time, these countries came to be referred to as "emerging economies," reflecting broader interest in these countries beyond only the investment arena.[3]

There are many classifications of countries according to their levels of economic development. In this report, we adopt the International Monetary Fund (IMF)'s designation of countries as either advanced economies or emerging and developing economies (which we shorten here simply to emerging economies). The main classification criteria employed by the IMF are per capita income levels, export diversification (countries that achieve high incomes mainly by exporting a single commodity such as oil are considered emerging rather than advanced), and integration into the global financial system. The IMF notes, however, that its classification "is not based on strict criteria, economic or otherwise, and it has evolved over time."[4]

The Venn diagram shown below compares countries classified by the IMF as Emerging and Developing Economies with two related classifications: the World Bank's classification of countries by their income levels and the UN Development Program's classification of countries according to their Human Development Index scores, which take into account education levels and life expectancy, along with per capita incomes.[5]

Most of the countries the IMF classifies as Emerging and Developing Economies are also classified as Low and Middle Income economies by the World Bank,[6] and many of the exceptions (shown at the bottom of the diagram) are petroleum exporters. Qatar, most strikingly, ranks among the top 10 wealthiest countries based on per capita income, but it is still classified as an emerging economy.[7] Similarly, most emerging economies do not receive "Very High" Human Development Index scores,[8] but there are exceptions here as well. Argentina and several other countries, shown on the left of the diagram, rank in the top tier on the Human Development Index, even though they do not meet the World Bank's criteria for high income status.



Note: Countries that are not classified by all three sources are excluded from this diagram.

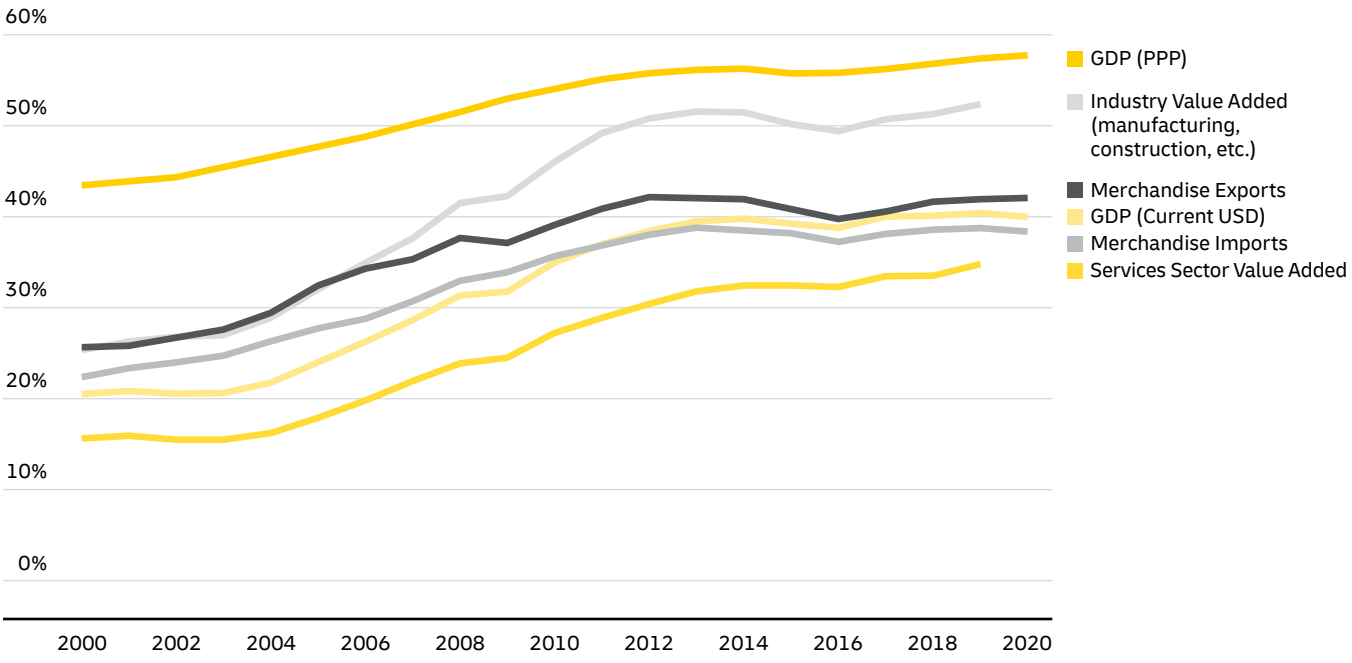
SHIFTS IN PRODUCTION AND TRADE

Given the primary focus of this publication on international trade, our closer examination of the shifts towards emerging economies begins with trends related to production and trade. As shown in **Figure 5.3**, the shifts of exports and imports to emerging economies stalled about a decade ago, in parallel with the shift of world GDP (overall economic output) and other production measures.

The trends for merchandise exports and imports very closely parallel the trend for GDP in current U.S. dollars.[9] This highlights the close relationship between trade growth and overall economic growth that we noted in **Section 1**. Moreover, the stability of the emerging economies' shares of these measures over the past decade reinforces the point—discussed in **Sections 2 and 3**—that both advanced and emerging economies present attractive trade growth opportunities, with trade growth now spread out across a wider variety of countries and regions than it was in the recent past.

The other indicators shown on Figure 5.3 provide additional context for thinking about the rise of production and trade in emerging economies. Note the large difference between the emerging economies' share of world GDP measured on a purchasing power parity (PPP) basis (58% of the world total in 2020) versus GDP measured in current U.S. dollars at market exchange rates (40% in 2020). The difference between these measures is due to the fact that the PPP values adjust for differences in local price levels between countries. Since prices tend to be lower in emerging economies,

FIGURE 5.3: PRODUCTION AND TRADE SHIFTS, EMERGING ECONOMIES' SHARE OF WORLD TOTALS



The emerging economies' shares of many indicators of production and trade rose swiftly during the first dozen years of the present century and then stabilized.

Data Source: World Bank World Development Indicators

this adjustment boosts the share of global output in those countries. Such differences in price levels between countries continue to create large trade opportunities, with companies exporting goods from lower-cost locations to markets where they can be sold at higher prices. However, GDP in PPP terms shifted less to emerging economies over the past two decades than GDP in current U.S. dollars. This highlights how costs and prices are rising relatively faster in emerging economies, gradually shifting their roles in export and import patterns.

It is also striking to note the rise of emerging economies in industrial output, and the extent to which this outpaces their advances in the services sector. The emerging economies' share of value added in the industrial sector (manufacturing, construction, mining, etc.) surpassed 50% in 2012 and stood at 52% in 2019. As such, the old shorthand of equating advanced economies with industrialized economies no longer holds. Emerging economies produce more industrial output than advanced economies. And looking back at Figure 5.1, this pattern is particularly stark for specific types of industrial products, such as steel (79% of global crude steel production took place in emerging economies in 2020, with 57% in China alone) and passenger cars (58% produced in emerging economies, including 36% produced in China). By contrast, the emerging economies are still home to only 35% of activity in the services sector.

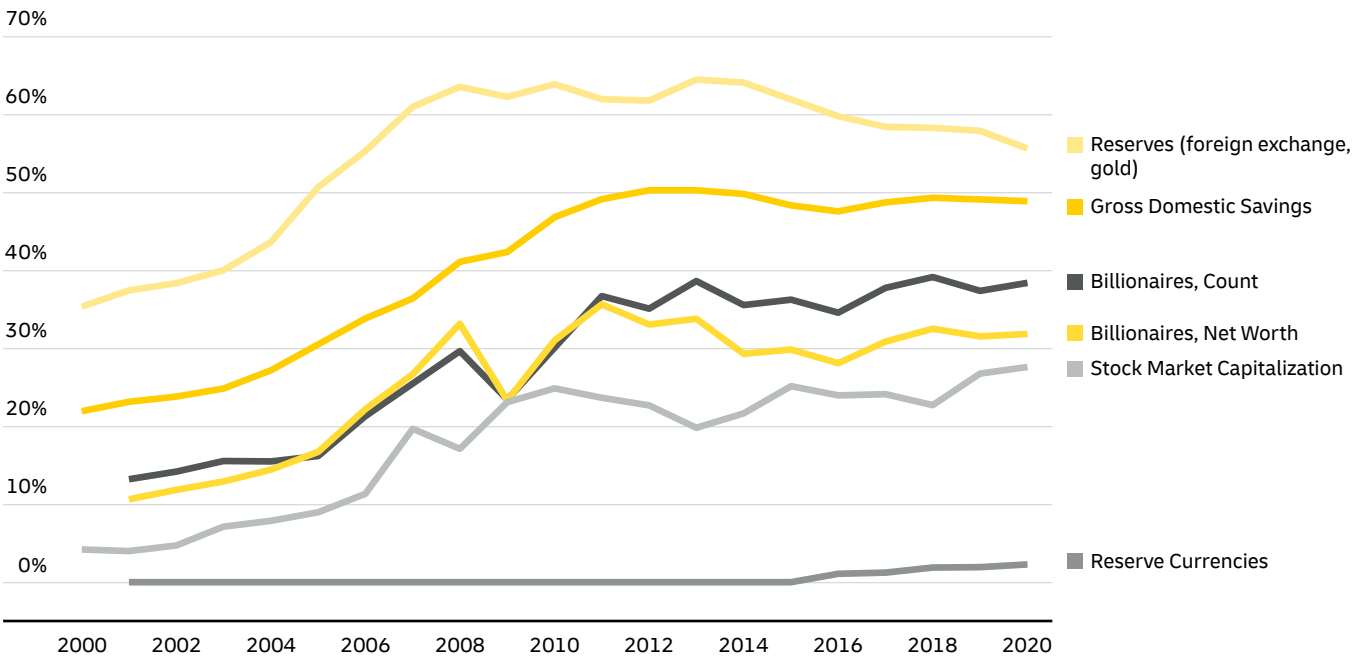
The emerging economies' share of value added in the industrial sector surpassed 50% in 2012 and stood at 52% in 2019. As such, the old shorthand of equating advanced economies with industrialized economies no longer holds.

SHIFTS IN FINANCE

Across multiple financial indicators, the rise of emerging economies follows the same general pattern as on production and trade measures: a sharp rise during the first decade of the present century followed by a period of relative stability. The trends for the emerging economies' share of global savings, billionaires, and stock market capitalization all fit this pattern (see **Figure 5.4**). The high savings rates in emerging economies—in part reflecting the more limited social safety nets in these countries—pushed their shares of global gross domestic savings all the way to 50% in 2012, and this high level has been maintained with minor fluctuations through 2020. The emerging economies' share of global reserves peaked in 2013 at roughly two-thirds, and has since declined modestly.

The rise in the proportion of billionaires based in emerging economies (from 13% to 38%) provides an important counterpoint to the observation about lower local price levels, on average, in emerging economies. Emerging economies are now home to a large number of buyers of higher-priced products, including many luxury products exported from advanced economies. Buyers from China, alone, purchased one-third of all luxury products worldwide in 2019.[10] The share of billionaires in emerging economies, however, has not increased since 2013, and the share of billionaire net worth owned by billionaires from emerging economies has declined somewhat since 2011, even as there have been some increases in the share of world stock market capitalization accounted for by stock markets in emerging economies.

FIGURE 5.4: FINANCE SHIFTS, EMERGING ECONOMIES' SHARE OF WORLD TOTAL



The emerging economies' shares of many finance indicators parallel the pattern observed for production and trade: swift rises followed by a period of stability. The main exception to this pattern pertains to reserve currencies, where there is only a very modest shift.

Data Sources: World Bank World Development Indicators, Forbes, IMF Currency Composition of Official Foreign Exchange Reserves (COFER).

> *The U.S. dollar and the euro continued to dominate invoicing in international trade, with more than 85% of world trade priced in those currencies in 2019.*

The major exception to this pattern of rises and then stability on financial metrics pertains to currencies. The world's major reserve currencies are still issued almost exclusively by advanced economies. The Chinese Yuan has grown from a negligible share of reserves in 2015 up to 2.4% in 2020 (and 2.9% in 2021), according to the sample of reserves with currency data reported in the IMF's Currency Composition of Official Foreign Exchange Reserves (COFER) database. While the share of reported reserves held in U.S. dollars declined from 71% in 2000 to 59% in 2021, the main currencies with rising shares were also issued by advanced economies, such as the euro, the pound sterling, the Australian dollar, and the Canadian dollar.[11]

The U.S. dollar and the euro also continued to dominate invoicing in international trade, with more than 85% of world exports priced in those currencies in 2019, according to an analysis that covers approximately 75% of world trade (this indicator is not shown on our graphs due to data limitations). Excluding trade between eurozone countries, roughly half of world exports were estimated to have been invoiced in U.S. dollars in 2019, and slightly more than 30% were in euros. While the euro modestly increased its share between 2000 and 2019, the dollar's share ended this period at the same level as it started. The share of trade invoiced in currencies other than the dollar and euro declined between 2000 and 2008, after which it stabilized.[12]

While we do not have sufficient data to measure the effects of the war in Ukraine on these currency measures, the war and resulting sanctions are likely to accelerate shifts away from the dollar and euro. One indication of the magnitude of such shifts comes from currency trading volumes. As of May 2022, trading between the Russian rouble and the Chinese yuan was almost 12 times greater than before the start of the war, while trading between the rouble and the U.S. dollar was at its lowest level in a decade.[13]

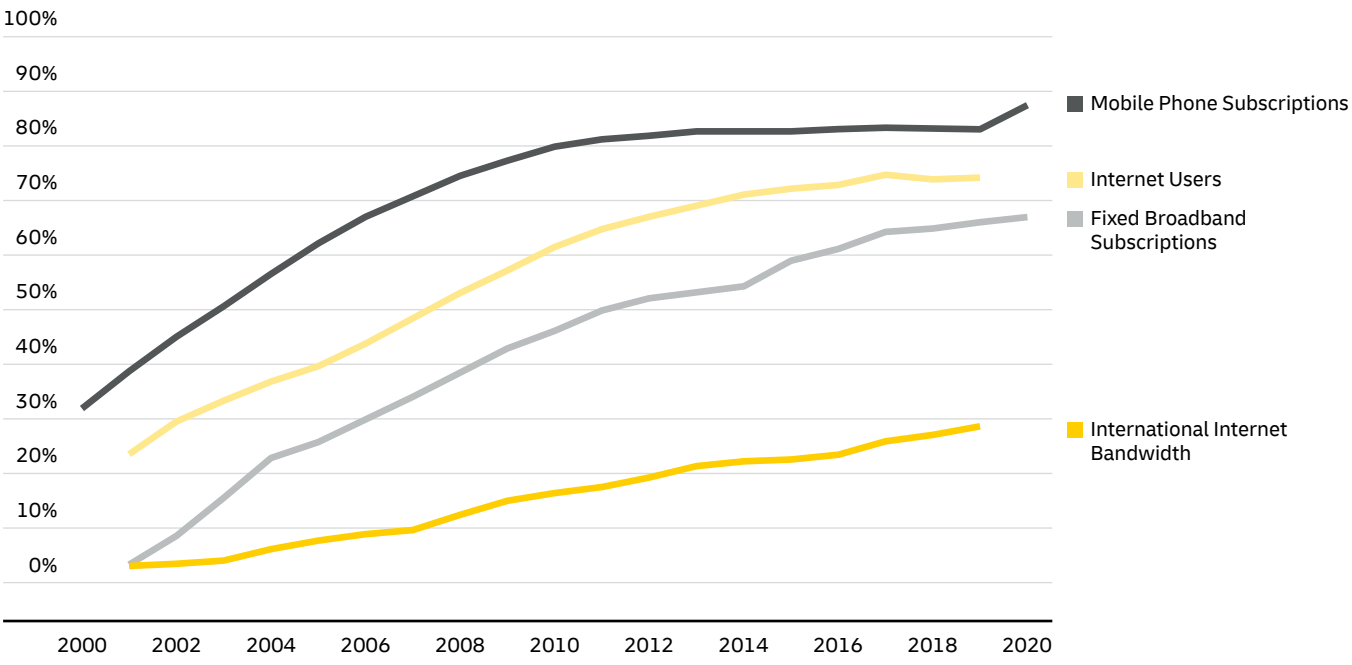
SHIFTS IN CONNECTIVITY

The rise of emerging economies in technological connectivity has been much larger than their rise in the areas of production, trade, and financial indicators. Moreover, their rise in connectivity has continued through both the first and the second decade of the present century (see **Figure 5.5**). Among all 50 measures shown in Figure 5.1, the largest shift was in fixed broadband subscriptions. In 2001, the first year for which data are available on this measure, just 3% of broadband subscriptions were in emerging economies; by 2020, this figure had risen to 67%.

The growth of mobile phone subscriptions and internet users in emerging economies has also been especially striking. In 2020, 87% of all mobile phone subscriptions were in emerging economies, slightly surpassing even the 86% of the world population that lives in emerging economies. Also, by 2019, 74% of internet users were in emerging economies, many of them primarily accessing the internet via mobile devices. This stunning progress has underpinned the ability of emerging economies to "leapfrog" in areas such as mobile payments.[14] It has also created large growth opportunities for trade in digital services, helped boost the efficiency of trade in physical goods, and accelerated the adoption of e-commerce. In China, for example, e-commerce penetration is roughly twice the global average.[15]

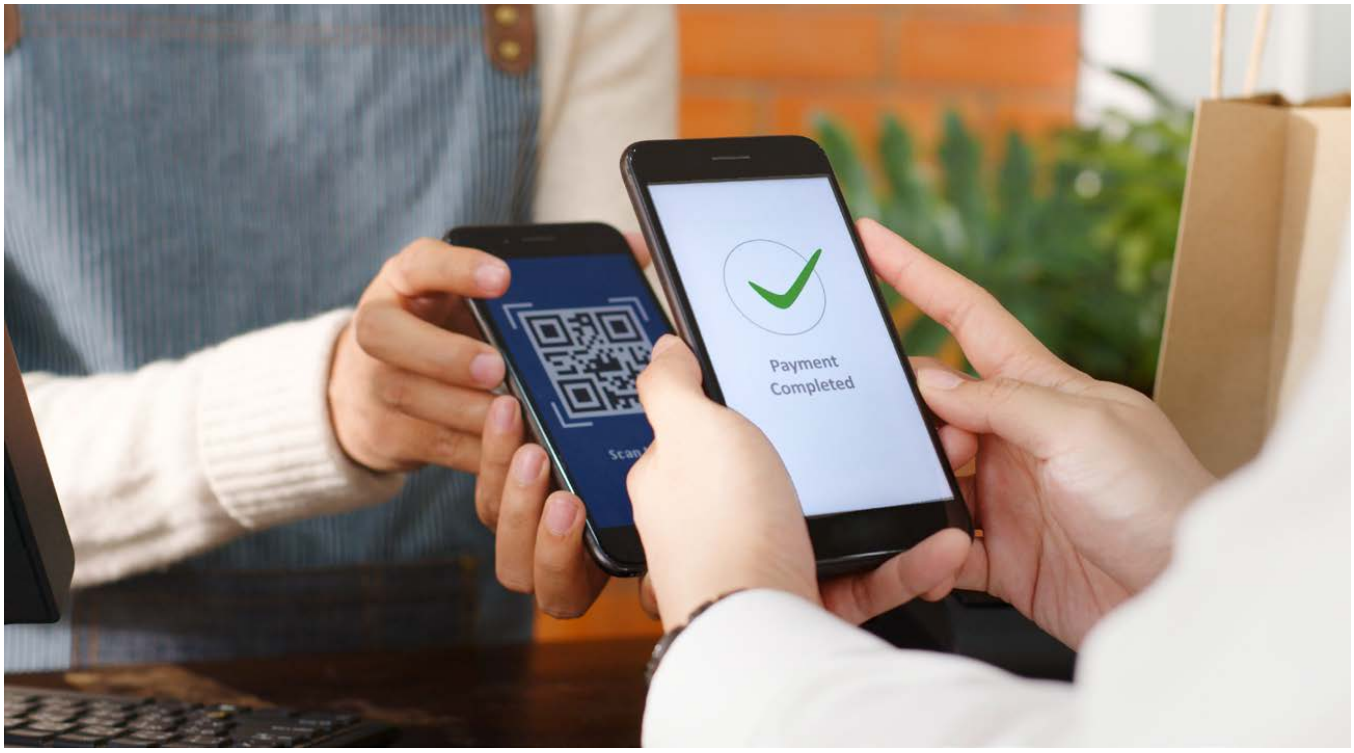
Nonetheless, emerging economies continue to lag behind advanced economies on *international* connectivity measures (i.e., connectivity across national borders). In 2019, just 29% of all international internet bandwidth was connected to

FIGURE 5.5: CONNECTIVITY SHIFTS, EMERGING ECONOMIES' SHARE OF WORLD TOTAL



The emerging economies' shares of technological connectivity measures skyrocketed over the past two decades. The majority of mobile phone subscriptions, internet users, and fixed broadband subscriptions are now in emerging rather than advanced economies.

Data Sources: World Bank World Development Indicators, International Telecommunication Union World Telecommunication/ICT Indicators, Telegeography Global Internet Geography.



emerging economies. As a result, international bandwidth per internet user in emerging economies was just 14% of its level in advanced economies. It is important to note here that technological connectivity—in both advanced and emerging economies—primarily facilitates domestic rather than international communications and commerce. Only about 7% of all voice calling minutes worldwide (including calls on both traditional phone lines and over the internet) are international.[16] As such, the rising connectivity in emerging economies has been even more transformational within those countries than with respect to their links to the wider world.

Technological connectivity—in both advanced and emerging economies—primarily facilitates domestic rather than international communications and commerce. Only about 7% of all voice calling minutes worldwide are international.

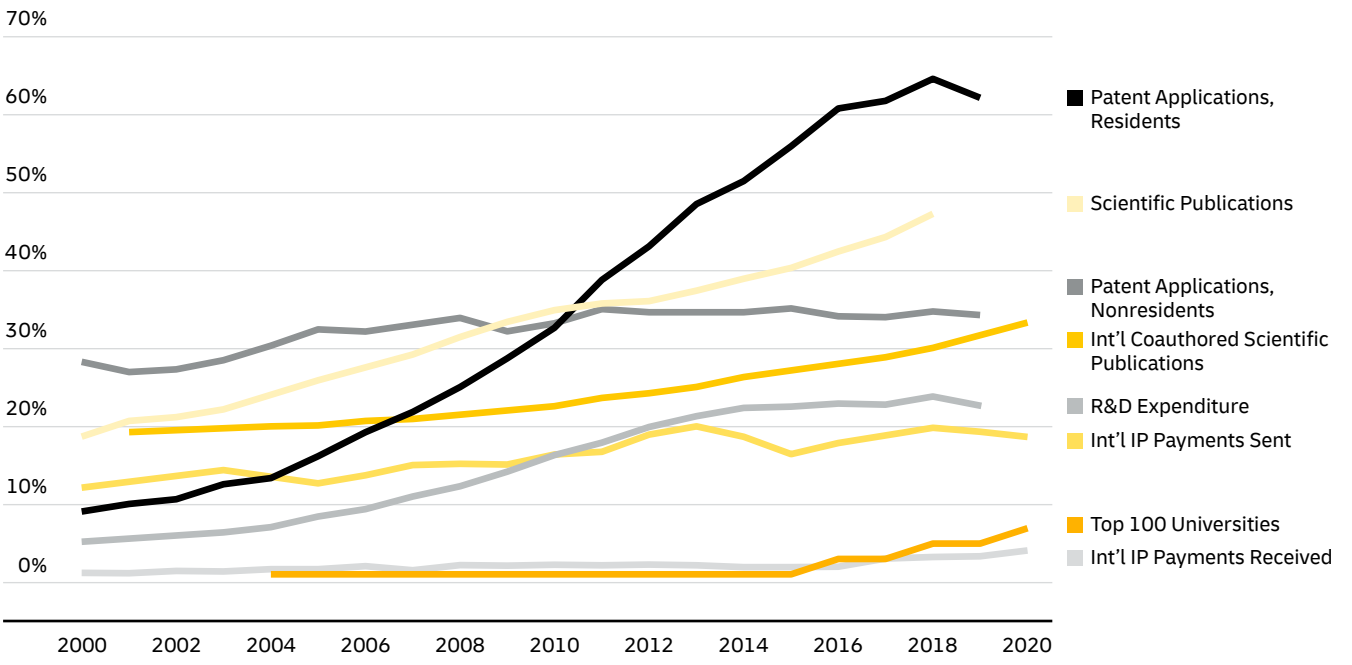
SHIFTS IN INNOVATION

Trends across innovation indicators are more varied than those pertaining to connectivity, but there is a similar pattern of larger increases on domestic as compared to international measures (see **Figure 5.6**). And as with connectivity, many of the rising trends in innovation have continued through 2020, in contrast to the stalling pattern observed for many of the production, trade, and finance indicators.

The largest increase shown on Figure 5.6 and the third-largest out of our full set of 50 indicators pertained to patent applications by residents (applications filed from within the country where the applicant is seeking patent protection). This increase, however, was driven entirely by a surge of patenting activity in China, boosting China's share of world-wide applications by residents from 3% in 2000 to 58% in 2019. Many studies have questioned how well these data reflect actual increases in innovative activity in China, in part because of the relatively low rates at which these patents are granted and commercialized, as well as concerns about how patent subsidies offered in China affect application trends.[17] Nonetheless, they do clearly demonstrate the strong emphasis that China's government and business leaders have placed on increasing innovation.

Shifts in patent applications filed by non-residents (applications from outside the country where the patent is being sought) have been much smaller. The share of non-resident patent applications coming from emerging economies increased from 28% in 2000 to 34% in 2019 (as China's share rose from 6% to 18%). These data, which probably

FIGURE 5.6: INNOVATION SHIFTS, EMERGING ECONOMIES' SHARE OF WORLD TOTAL



Emerging economies are steadily climbing the ranks on many traditional measures of innovation and innovative capacity. However, the advanced economies still lead by a wide margin across most of these measures.

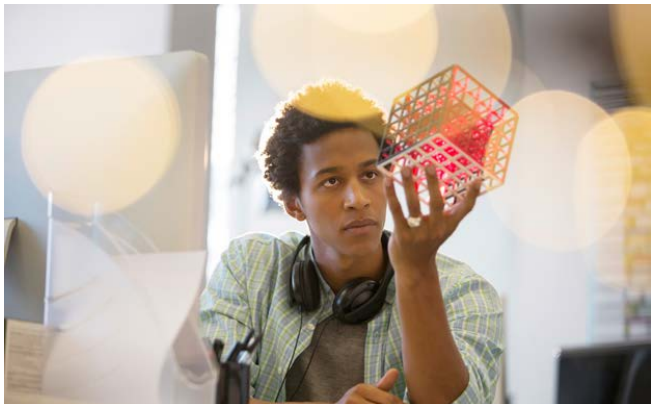
Data Sources: World Bank World Development Indicators, Clarivate Web of Science, Academic Ranking of World Universities.

correspond more closely to actual innovative activity, affirm the rise of China and other emerging economies but at more moderate levels of magnitude.

Similar but less extreme contrasts between domestic and international measures also show up for research publications. A broad measure of total scientific and technical journal articles shows that the percentage of articles authored in emerging economies rose from 19% in 2000 to 47% in 2018. However, using a different sample of articles, the proportion of internationally co-authored research with at least one author based in an emerging economy rose from 19% in 2001 to 33% in 2020.

The other indicators on Figure 5.6 underscore the rise of emerging economies in innovation and provide reasons to expect continued advances in this area. The share of global R&D expenditures in emerging economies has increased from 5% in 2000 to 23% in 2019. Meanwhile, the emerging economies' share of the world's top 100 research universities rose from 1% in 2015 to 7% in 2020 (according to the Academic Ranking of World Universities). Emerging economies are also licensing more intellectual property from abroad and beginning to earn non-negligible income from licensing their own intellectual property. The emerging economies' share of payments sent abroad for the use of foreign intellectual property rose from 12% in 2000 to 20% in 2013, before stagnating at roughly that level. The share of intellectual property payments received by emerging economies then rose from 2% in 2016 to 4% in 2020.

The advanced economies still lead on most innovation indicators—especially those focused on international activity—but the emerging economies have strong momentum in this area.[18] For international trade, this implies that emerging economies will continue to increase the sophistication of their exports and increasingly compete in spheres where innovation is a key driver of success.



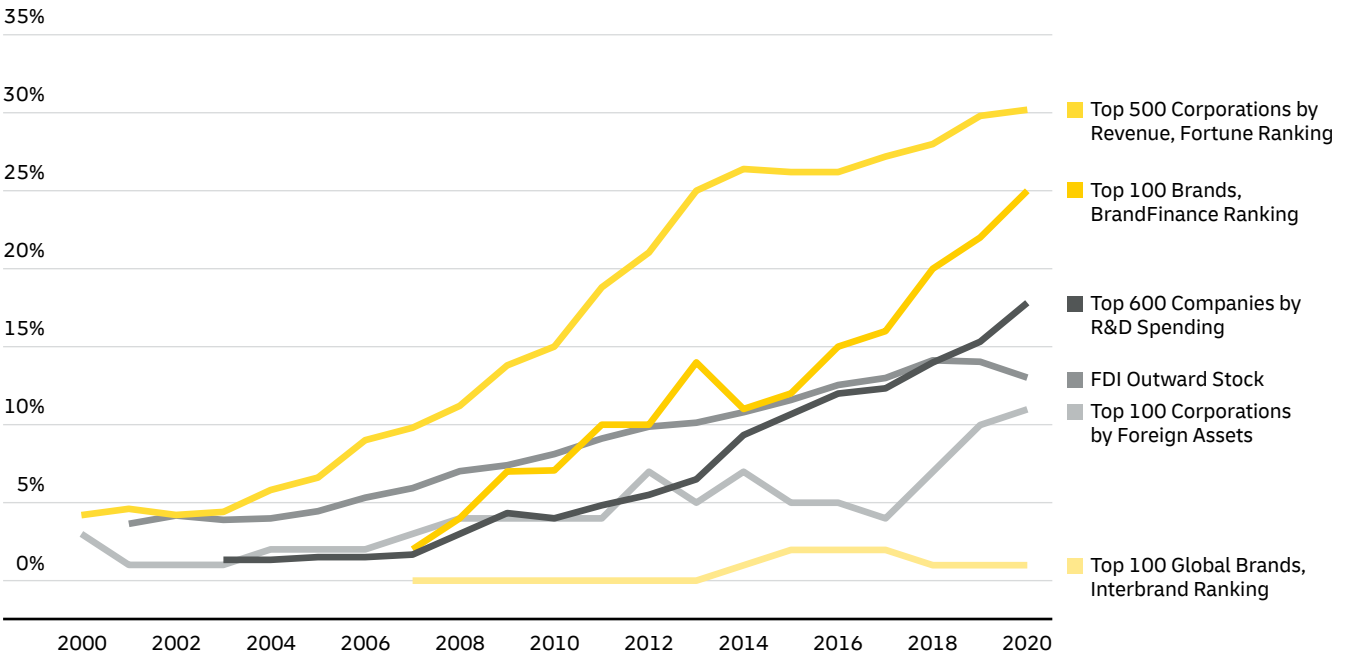
The advanced economies still lead on most innovation measures—especially international measures—but the emerging economies have strong momentum in this area.

SHIFTS IN LEADING COMPANIES

Rankings of leading companies (see **Figure 5.7**) mirror a variety of the patterns we have seen in the areas already discussed. The growth of very large companies from emerging economies has been especially striking, with the share of the world's 500 largest corporations by revenue (Fortune Global 500) based in emerging economies rising from 4% in 2000 to 26% in 2014, and then advancing more slowly to 30% in 2020. The slowdown echoes the pattern we observed for the emerging economies' share of production, trade, and finance indicators. But the fact that growth did continue—albeit at a slower pace—echoes the continued advance of emerging economies in the areas of connectivity and innovation. The largest companies from emerging economies represent the corporate apex of the emerging world and they span the globe, but most of them still achieve the majority of their sales at home. As a result, their revenue growth is still closely tied to the growth of their home countries.

While the rise of large corporations from emerging economies (based on revenue) has slowed recently, shifts in leading companies with regard to innovation and brand value have continued to advance swiftly over the past decade. The emerging economies' share of the world's top 600 companies based on R&D expenditures rose from 1% in 2003 to 6% in 2013 before surging all the way to 18% by 2020. And according to the BrandFinance ranking of the most valuable brands, the share of these brands from emerging economies rose from just 2% in 2007 to 25% in 2020.

FIGURE 5.7: SHIFTS IN LEADING COMPANIES, EMERGING ECONOMIES' SHARE OF WORLD TOTAL



Companies based in emerging economies—and especially in China—have swiftly climbed the ranks of the world's largest corporations, and there are recent surges in the number of firms from emerging markets that rank among the world leaders in brand value and R&D spending. On corporate globalization measures such as global brand rankings, however, large corporations from advanced economies still lead by a wide margin.

Data Sources: Fortune Global 500, BrandFinance Global 500, EU Industrial R&D Investment Scoreboard. UNCTAD World Investment Report, Interbrand Best Global Brands.

Indicators that track the globalization of companies from emerging economies, however, show a more mixed picture. These are consistent with other patterns that show emerging economies lagging behind on growth beyond their own borders. Emerging economies' share of the world's top 100 non-financial corporations based on the value of their foreign assets has increased from 3% in 2000 to 11% in 2020, but this remains much lower than rankings that include domestic activity such as revenue and brand value rankings. Still, this is broadly consistent with the overall expansion of outward foreign direct investment stocks from emerging economies, which grew from 4% of the world total in 2001 to 13% in 2020.

The Interbrand ranking reveals an even smaller shift in terms of the top 100 global brands. In contrast to the BrandFinance ranking, Interbrand requires that a brand be "truly global," which means earning at least 30% of its revenue outside its home region and having a "significant presence in Asia, Europe, and North America, as well as geographic coverage in emerging markets." In this ranking, there were zero brands from emerging economies in the top 100 until Huawei entered the list in 2014 and was joined by Lenovo in 2015, which brought the emerging economies' total up to 2%. It remained here until Lenovo dropped off of the list in 2018 and the share dipped back down to 1%. These two technology leaders from China have been the only brands on this list owned by firms based in emerging markets. The Smirnoff and Corona beverage brands, which originated in Russia and Mexico, were owned by foreign multinationals during the time they appeared on this list.

Overall, these measures point to large gains and strong momentum for major companies from emerging economies, but they also highlight the extent to which their progress has been driven by the growth of their home markets.

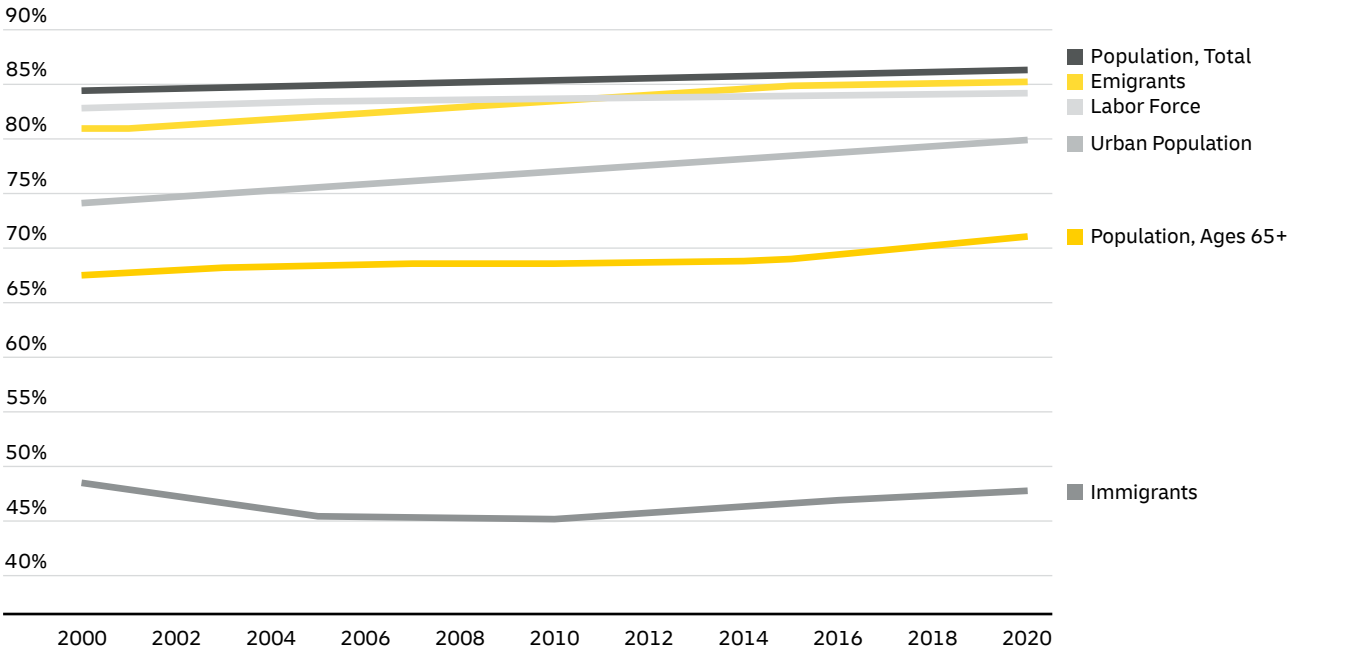
Multinational corporations from emerging economies are increasingly important competitors on the global stage, but companies from advanced economies still have a large lead in most areas—especially with respect to the development of global brands.[19]

SHIFTS IN DEMOGRAPHY

Demographic changes tend to take place much more gradually than economic shifts, but they provide a useful backdrop for contemplating economic shifts and future business possibilities. As shown in **Figure 5.8**, the share of the world population living in emerging economies rose slightly from 84% in 2000 to 86% in 2020, driven by both higher fertility rates, on average, in emerging economies and increases in life expectancy.[20] Improvements in life expectancy are also reflected in the rising share of people aged 65 and older living in emerging economies, from 68% in 2000 up to 71% in 2020. The increase in emerging economies' contribution to the world's urban population was even larger, from 74% to 80% over the same period.

The emerging economies' share of the global labor force, however, increased only very slightly (from 83% to 84%) over the past two decades. This indicator includes people aged 15 and above who are either employed or seeking employment. The vast majority of the world's labor force is located in emerging economies, but the share of workers in those countries is not growing appreciably—and workers in those countries need to support an increasingly large number of retirees. China, among large economies, faces especially challenging demographic trends. As shown in Figure 5.1 (row 41), China's share of the global labor force declined over the past two decades more than all advanced economies combined.

FIGURE 5.8: DEMOGRAPHIC SHIFTS, EMERGING ECONOMIES' SHARE OF WORLD TOTAL



Demographic measures of the rise of emerging economies reveal only modest shifts over the past two decades. The largest shifts in this area highlight the ongoing process of urbanization and improvements in life expectancy in these countries. Emerging economies' share of the global labor force, however, is not increasing appreciably.

Data Sources: World Bank World Development Indicators, UN DESA International Migration Database.

Turning to migration measures, the share of emigrants (people living outside of their birth countries) who came from emerging economies has increased from 81% in 2000 to 85% in 2020 (nearly matching the 86% share of the global population in emerging economies). Over the same period, the share of immigrants (foreign-born population) living in emerging economies declined very slightly from 49% to 48%. The large majority of people who moved to a different country moved out of emerging economies, but the destinations of international migrants are split almost equally between emerging and advanced economies.

The large majority of people who moved to a different country moved out of emerging economies, but the destinations of international migrants are split almost equally between emerging and advanced economies.

The trends highlighted in this section point to three ways the rise of emerging economies will likely continue reshaping international trade opportunities moving forward:

First, the contrast between the stalled advance of emerging economies on measures of production, trade, and finance and their continued rise on indicators of innovation and leading companies shows how emerging economies continue to upgrade their roles in the global economy. Emerging economies increasingly compete on both low costs and on innovation and quality.

Second, the massive increase in connectivity in emerging economies suggests that companies around the world will need to prioritize digital engagement with buyers and sellers in these countries to fully tap into the growth opportunities they afford. This also means that trade facilitation efforts—aimed at boosting the efficiency of export and import processes—can and should leverage this digital connectivity.

Third, China has been at the center of the rise of emerging economies, but its growth has slowed. Thus, one of the key developments to watch moving forward will be the extent to which other emerging economies can accelerate their growth on the measures tracked in this section. The performance of other emerging economies—especially large ones—will exert a large influence on whether or not we see another wave of shifts in global trade patterns moving forward.

NOTES

EXECUTIVE SUMMARY

1 Monthly trade volume comparison based on data from CPB World Trade Monitor. For discussion of supply constraints, refer to Steven A. Altman and Caroline R. Bastian, "The State of Globalization in 2022," *Harvard Business Review*, April 12, 2022.

2 Trade in services is excluded from most of the analysis in this publication, but we do provide an overview of trends in services trade in our DHL Global Connectedness Index report series, which examines international flows of capital, information, and people, along with trade in goods and services.

3 This paragraph reflects forecasts from three major international institutions: the International Monetary Fund (IMF)'s World Economic Outlook, the World Bank's Global Economic Prospects, and the Organization for Economic Cooperation and Development (OECD)'s Economic Outlook.

4 McKinsey & Company, "Signed, sealed, and delivered: Unpacking the cross-border parcel market's promise," March 17, 2022.

5 IMF World Economic Outlook, April 2022. Note that the July 2022 update of this forecast does not include country-level trade forecasts, so the April edition is still the most recent country-level IMF trade forecast. References to forecasts throughout the rest of this section are based on this source.

6 Measured in volume terms, to remove the effects of price changes.

7 The Covid-19 pandemic caused further increases in China's share of world trade, but we focus here on longer-term trends, and it remains unclear whether or not that pandemic-era increase will be sustained.

8 James Feyrer, "Trade and income—exploiting time series in geography," *American Economic Journal: Applied Economics* 11.4, 2019.

9 Gary Hufbauer, Megan Hogan, and Yilin Wang, "How Free Trade Can Fight Inflation," *Foreign Affairs*, June 14, 2022.

10 World Trade Organization, "World Trade Report 2021: Economic Resilience and Trade," November 2021; IMF World Economic Outlook, April 2022, Chapter 4.

NOTES

1. TRADE GROWTH OUTLOOK

1 IMF World Economic Outlook, April 2022.

2 This report focuses on trade in physical goods. Trade in services is excluded from most analytical content in this report.

3 CPB World Trade Monitor.

4 Trade shrunk faster this time than during the Global Financial Crisis and the Great Depression, although the ultimate trade declines during those crises were larger because trade continued falling over longer time periods. See Gerdien Meijerink, Bram Hendriks, and Peter A.G. van Bergeijk, "COVID 19 and World Merchandise Trade: Unexpected Resilience," VoxEU, October 2, 2021; WTO Press Release, "Trade shows signs of rebound from COVID-19, recovery still uncertain," October 6, 2020; UNCTAD, "Global trade's recovery from COVID-19 crisis hits record high," May 19, 2021.

5 U.S. Bureau of Economic Analysis (BEA) National Income and Product Accounts Table 2.3.3. Real Personal Consumption Expenditures by Major Type of Product, Quantity Indexes.

6 According to the BEA data cited earlier, before 2020, there had never been a year when U.S. spending on goods rose while spending on services declined (according to data going all the way back to 1929). For additional background on how shifts in spending patterns affected international trade during the pandemic, refer to OECD, "International trade during the COVID-19 pandemic: Big shifts and uncertainty," March 10, 2022. For additional detail on shifts in U.S. spending patterns, refer to Kristen Tauber and Willem Van Zandweghe, "Why Has Durable Goods Spending Been So Strong during the COVID-19 Pandemic?," Federal Reserve Bank of Cleveland, July 7, 2021. For a sense of the much lower intensity of trade in services relative to goods, note that the World Bank's World Development Indicators database reports only $6.2 trillion of trade in services in 2019, as compared to $18.7 trillion of goods (both on BOP basis), even though services accounted for a much larger share of the world economy (65% of world GDP reflected value added in the services sector).

7 Steven A. Altman and Caroline R. Bastian, "The State of Globalization in 2022," *Harvard Business Review*, April 12, 2022.

8 World Bank, "Global Economic Prospects," January 2022 (Figure 1.2). A related study from the European Central Bank corroborates this perspective but points to a smaller drag on trade growth due to supply bottlenecks. See Erik Frohm, Vanessa Gunnella, Michele Mancini, and Tobias Schuler, "The impact of supply bottlenecks on trade," European Central Bank Economic Bulletin, June 2021.

9 McKinsey & Company, "How COVID-19 is reshaping supply chains," November 23, 2021; Abhishek Saurav, Peter Kusek, Ryan Kuo, and Brody Viney, "The impact of COVID-19 on foreign investors: Evidence from the second round of a global pulse survey," World Bank Blogs, October 6, 2020; Julie Linn Teigland, Hanne Jesca Bax, and Marc Lhermitte, "Foreign investors back Europe, but is Europe back?" EY Attractiveness Survey Europe, June, 2021; Julie Linn Teigland, Hanne Jesca Bax, and Marc Lhermitte, " How can Europe reset the investment agenda now to rebuild its future?," EY Attractiveness Survey Europe, May 2020.

10 Yuka Hayashi, "Retreat From Globalization Adds to Inflation Risks," *The Wall Street Journal*, December 5, 2021.

11 Gary Hufbauer, Megan Hogan, and Yilin Wang, "How Free Trade Can Fight Inflation," *Foreign Affairs*, June 14, 2022.

12 For a review of prior supply chain disruptions and how countries in the Asia-Pacific region adapted to them and sought to learn from them, see UN ESCAP and ADB, "Asia-Pacific Trade Facilitation Report 2021: Supply Chains of Critical Goods Amid the Covid-19 Pandemic," October 2021. See also Caroline Freund, Aaditya Mattoo, Alen Mulabdic, and Michele Ruta, "Natural Disasters and the Reshaping of Global Value Chains," World Bank Policy Research Working Paper 9719, June 2021.

13 World Trade Organization, "Trade in Medical Goods in the Context of Tackling Covid-19: Developments in 2020," June 30, 2021. OECD, "International trade during the COVID-19 pandemic: Big shifts and uncertainty," March 10, 2022.

14 World Trade Organization, "World Trade Report 2021: Economic Resilience and Trade," November 2021; IMF World Economic Outlook, April 2022, Chapter 4; for further discussion and literature citations, see Sebastien Miroudot, "Reshaping the Policy Debate on the Implications of COVID-19 for Global Supply Chains," *Journal of International Business Policy* 3, 2020.

15 Maria Bas, Ana Fernandes, and Caroline Paunov, "How Resilient Was Trade to COVID-19?" World Bank Policy Research Working Paper 9975, March 2022; Farok J. Contractor, "The world economy will need even more globalization in the post-pandemic 2021 decade," *Journal of International Business Studies* 53.1 (2022): 156-171. Note, also, that diversification does not always mean trading less. Since most companies rely primarily on domestic sources of intermediate inputs, diversification sometimes involves adding foreign rather than domestic suppliers. See IMF World Economic Outlook, April 2022, Chapter 4.

16 George Anderson, "Will the lack of skilled people derail retail's digital supply chain transformation?," *RetailWire*, May 13, 2022; Allied Market Research, "Digital Supply Chain Market 2022," January 2022.

17 World Bank, "Global Economic Prospects," January 2022; World Trade Organization, "World Trade Report 2021: Economic Resilience and Trade," November 2021; Congressional Research Service, "Supply Chain Bottlenecks at U.S. Ports," November 10, 2021.

18 Alessandro Nicita and Mesut Saygili, "Trade Agreements and Trade Resilience During COVID-19 Pandemic," UNCTAD Research Paper No. 70, October 2021. Note: this study defines a deep trade agreement as a customs union or a free trade agreement that includes an economic integration agreement.

19 Bill Gain, "Trade facilitation: Critical to COVID-19 recovery," World Bank Blogs, November 2, 2021.

20 Steven A. Altman and Caroline R. Bastian, "Trade Regionalization: More Hype than Reality?," *Harvard Business Review*, May 31, 2022.

21 UNCTAD, "COVID-19 boost to e-commerce sustained into 2021, new UNCTAD figures show," April 25, 2022. This analysis is based on a sample of seven countries that account for roughly half of world GDP: China, United States, United Kingdom, South Korea, Canada, Australia, and Singapore.

22 McKinsey & Company, "Signed, sealed, and delivered: Unpacking the cross-border parcel market's promise," March 17, 2022.

23 UNCTAD, "Estimates of Global E-Commerce 2019 and Preliminary Assessment Of Covid-19 Impact on Online Retail 2020," UNCTAD Technical Notes on ICT for Development No. 18, May 3, 2021.

24 McKinsey & Company, "Signed, sealed, and delivered: Unpacking the cross-border parcel market's promise," March 17, 2022.

25 Eurostat Digital Economy and Society Statistics. See data codes TIN00003 (2008 to 2019) and isoc_ec_ibos (2021).

26 McKinsey & Company, "Signed, sealed, and delivered: Unpacking the cross-border parcel market's promise," March 17, 2022; Paypal, "Meet today's shoppers where they are: everywhere," July 19, 2021.

27 Tidiane Kinda, "E-commerce as a Potential New Engine for Growth in Asia," IMF Working Paper WP/19/135, July 2019.

28 Henadi Al-Saleh, "E-commerce is globalization's shot at equality," World Economic Forum, January 19, 2020.

29 IMF World Economic Outlook, World Bank Global Economic Prospects, and OECD Economic Outlook, various editions.

30 IMF World Economic Outlook Update, July 2022. Between 2012 and 2021, the volume of trade in goods and services, on average, grew 2.8% annually. Excluding 2020 and 2021 to remove the effects of the Covid-19 pandemic, the average trade volume growth rate was 3.3%. The downgraded July 2022 forecast calls for growth to average 3.7% across 2022 and 2023 (4.1% in 2022 and 3.2% in 2023).

31 IMF World Economic Outlook, April 2022. See Table A9.

32 Michele Ruta, "The Impact of the War in Ukraine on Global Trade and Investment," World Bank Group, 2022.

33 UNCTAD Global Trade Update, July 2022.

34 World Trade Organization, "The Crisis in Ukraine: Implications of the War for Global Trade and Development," April 2022.

35 IMF World Economic Outlook Database, April 2022. For purposes of this calculation, the period after the global financial crisis and before the pandemic refers to the years 2010-2019. See also European Central Bank, "Understanding the weakness in global trade: What is the new normal?," Occasional Paper Series No. 178, September 2016.

36 World Bank World Development Indicators.

37 Simon J. Evenett, "Protectionism, state discrimination, and international business since the onset of the Global Financial Crisis," *Journal of International Business Policy*, February 2019. See also IMF, OECD, World Bank, and WTO, "Subsidies, Trade, and International Cooperation," 2022.

38 In January 2019, *The Economist* adopted Adjiedj Bakas's term "slowbalization" to describe the period since 2008. See The Economist, "Globalisation has faltered: It is now being reshaped," January 24, 2019. The term *hyperglobalization* was employed by Dani Rodrik in his book, *The Globalization Paradox: Democracy and the Future of the World Economy*, WW Norton & Company, 2011, and it gained prominence after the publication of Arvind Subramanian and Martin Kessler, "The hyperglobalization of trade and its future," Peterson Institute for International Economics Working Paper 13-6, July 2013. The term "deglobalization" has a longer history, gaining prominence with the publication of Walden Bello, *Deglobalization: Ideas for a New World Economy*, Zed Books, 2002.

39 This box was adapted from content discussed on pages 16 – 18 of Steven A. Altman and Caroline R. Bastian, "Connecting to the World: Lessons from 10 Years of the DHL Global Connectedness Index," Deutsche Post DHL Group, 2021.

40 Frankel and Romer's work uses an instrumental variables technique to predict trade flows using geographical variables only, thus removing the effect of income on trade from the analysis of trade's effect on income. Using this approach, Frankel and Romer showed that increased trade leads to economic growth. See Jeffrey A. Frankel and David H. Romer, "Does trade cause growth?," *American Economic Review* 89.3, 1999.

41 James Feyrer, "Trade and income—exploiting time series in geography," *American Economic Journal: Applied Economics* 11.4, 2019. The Feyrer study addresses important critiques raised about the original Frankel and Romer analysis, most notably by Francisco Rodriguez and Dani Rodrik, "Trade policy and economic growth: a skeptic's guide to the cross-national evidence," *NBER Macroeconomics Annual 2000*, 2001.

42 Mill referred to trade's more subjective benefits as its "intellectual and moral" effects, which he viewed as even larger than its economic advantages. See John Stuart Mill, Principles of Political Economy, with some of their Applications to Social Philosophy, Longmans, 1848. Douglas A. Irwin, *Free Trade Under Fire, 5th edition*, Princeton University Press, 2020 provides an up-to-date discussion of the benefits of international trade using this framework and served as a primary resource for the development of the material that follows in this box.

43 David Ricardo's classic law of comparative advantage highlights how relative (rather than absolute) productivity differences create opportunities for all countries to specialize and gain from international trade. The benefits of specialization appear to be quite large: one multisector model with intermediate goods estimates that static gains from trade boost welfare in the average country by 30%. See Arnaud Costinot and Andrés Rodríguez-Clare, "Trade theory with numbers: Quantifying the consequences of globalization," *Handbook of international economics*, Vol. 4, Elsevier, 2014, as cited in Douglas A. Irwin, *Free Trade Under Fire, 5th edition*, Princeton University Press, 2020.

44 According to a recent study, "Trade is estimated to have reduced by two-thirds (one quarter) the price of the household consumption basket of a typical advanced economy low-income (high income) household." Quoted from International Monetary Fund, World Bank, and World Trade Organization, "Making Trade an Engine of Growth for All: The Case for Trade and for Policies to Facilitate Adjustment," April 2017, based on Pablo D. Fajgelbaum and Amit K. Khandelwal, "Measuring the unequal gains from trade," *The Quarterly Journal of Economics* 131.3, 2016. For additional material on this topic, refer to Xavier Jaravel and Erick Sager, "What are the price effects of trade? Evidence from the US and implications for quantitative trade models," CEPR Discussion Paper No. DP13902, August 2019 and Robert C Feenstra and David E. Weinstein, "Globalization, markups, and US welfare," *Journal of Political Economy* 125.4, 2017.

45 The benefits of variety extend beyond goods that cannot be produced domestically, such as out-of-season fruits and vegetables and scale-intensive products (e.g., airplanes) in small countries. Even when domestic products are available at similar price and quality levels, some buyers will prefer the options offered by foreign sellers. Irwin, *Free Trade Under Fire,* cites research indicating that the welfare losses from a tariff that reduces the variety of imported goods can be as much as 10 times larger than those from a tariff that just reduces the quantity of imported goods. See Paul Romer, "New goods, old theory, and the welfare costs of trade restrictions," *Journal of Development Economics* 43.1, 1994.

46 According to a widely-cited study, differences in prices of capital goods across countries explain about 25% of cross-country productivity differences. See Jonathan Eaton and Samuel Kortum, "Trade in capital goods," *European Economic Review* 45.7, 2001.

47 See, for example, Ufuk Akcigit, "Globalization and Innovation," in Luís Catão and Maurice Obstfeld (editors), *Meeting Globalization's Challenges: Policies to Make Trade Work for All*, Princeton University Press, 2019.

48 John Stuart Mill argued, in the source cited earlier in this section, that "the economical advantages of commerce are surpassed in importance by those of its effects which are intellectual and moral. It is hardly possible to overrate the value, in the present low state of human improvement, of placing human beings in contact with persons dissimilar to themselves, and with modes of thought and action unlike those with which they are familiar."

49 Alberto Ades and Rafael Di Tella, "Rents, competition, and corruption," *American Economic Review* 89.4, 1999.

50 For a wide-ranging examination of this topic, refer to Edward D. Mansfield and Brian M. Pollins, eds., *Economic Interdependence and International Conflict: New Perspectives on an Enduring Debate*, University of Michigan Press, 2009. For a recent contribution before the start of the war in Ukraine, see Frederick R. Chen, "Extended Dependence: Trade, Alliances, and Peace," *The Journal of Politics*, 83:1, January 2021. And for a perspective focusing specifically on the war in Ukraine, see, Patrick Hiller, "Re-examining the connection between peace, conflict and trade," War Prevention Initiative, May 27, 2022.

NOTES

2. THE SHIFTING GEOGRAPHY OF WORLD TRADE

1 Several methodologies have been developed for measuring the world's center of gravity based on economic indicators. This figure was developed using the method employed in Richard Dobbs, Jaana Remes, James Manyika, Charles Roxburgh, Sven Smit, and Fabian Schaer, "Urban world: Cities and the rise of the consuming class," McKinsey Global Institute, June 2012. This method takes a weighted average across locations in three dimensions according to their trade values and then projects that location to the nearest point on the surface of the earth. For another prominent method for such visualizations, see Danny Quah, "The global economy's shifting centre of gravity," *Global Policy* 2.1, 2001.

2 The actual center of gravity generated via such calculations is located beneath the surface of the earth, and we show the point on the earth's surface that is located closest to the calculated center of gravity.

3 Persistent U.S. trade deficits have contributed to this phenomenon. The U.S. has run trade deficits (on goods and services combined) since 1976, peaking in 2005-06 at 5.7% of GDP. Since 2013, U.S. trade deficits have hovered around 3% of GDP, according to data from the World Bank's World Development Indicators. China's trade surplus peaked at 8.7% of GDP in 2007 before declining to 2.4% in 2011, similar to its 2020 level of 2.5%.

4 Because North America and East Asia are located across the North Pole from one another, increases in the share of trade conducted by these regions push the center of gravity to the north. Changes in oil prices also affect the latitude trends. When oil prices rise, this tends to push the center of gravity of exports toward the south, and falling oil prices have the opposite effect.

5 We follow the IMF's classification of countries into the categories of advanced versus emerging and developing economies. For background on this classification, refer to the box titled "Country Classification: Advanced vs. Emerging Economies" in Section 5.

6 Throughout this section, unless otherwise noted, we use trade values from the IMF Direction of Trade Statistics (DOTS) database to calculate shares of world trade.

7 For region definitions, we follow in this report the same seven-region classification scheme employed in the DHL Global Connectedness Index report series. The seven regions are: **East Asia and the Pacific:** Australia, Brunei Darussalam, Cambodia, China, Fiji, Hong Kong SAR (China), Indonesia, Japan, Kiribati, Korea (Republic of), Lao People's Democratic Republic, Macau SAR (China), Malaysia, Mongolia, Myanmar, New Zealand, Philippines, Samoa, Singapore, Solomon Islands, Taiwan (China), Thailand, Timor-Leste, Tonga, Vanuatu, Viet Nam. **Europe:** Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom. **Middle East and North Africa:** Algeria, Bahrain, Egypt, Iraq, Israel, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, United Arab Emirates, Yemen. **North America:** Canada, Mexico, United States. **South & Central America & the Caribbean:** Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela (Bolivarian Republic of). **South & Central Asia:** Afghanistan, Armenia, Azerbaijan, Bangladesh, Georgia, India, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkey, Uzbekistan. **Sub-Saharan Africa:** Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania (United Republic of), Togo, Uganda, Zambia, Zimbabwe.

8 Throughout this section, unless otherwise noted, we use trade volume growth rates from the April 2022 edition of the IMF World Economic Outlook database to depict trade growth over time.

9 All maps in this publication are stylized and not drawn according to the physical scale of any country or territory. They do not reflect a position by Deutsche Post DHL Group or NYU Stern on the legal status of any country or area or the delineation of any frontiers.

10 For discussion of "Factory Asia," refer to Asian Development Bank and Korea Economic Research Institute, "Future of Factory Asia," edited by Byung-il Choi and Changyong Rhee, 2014.

11 Steven A. Altman and Caroline R. Bastian, "Trade Regionalization: More Hype than Reality?" *Harvard Business Review*, May 31, 2022. Note that this overall pattern is robust to the exclusion of China from the calculations, as reported in Christine Arriola, Przemyslaw Kowalski, and Frank van Tongeren, "The Impact of COVID-19 on Directions and Structure of International Trade," OECD Trade Policy Paper No. 252, September 2021.

12 Note that the global average distance traversed by trade flows reflects changes in both the average distance over which each region trades and changes in regions' shares of total trade. Since the East Asia & Pacific region trades, on average, over much longer distances than Europe, as East Asia & Pacific's share rose and Europe's declined, this also contributed to increases in the global average.

NOTES
3. COUNTRY RANKINGS

1 The term "countries" is used throughout this publication to refer to both countries and other territories that report separate trade statistics, regardless of their political status.

2 The vertical axis shows the annual growth rate of countries' trade volumes, and the horizontal axis shows the absolute growth of each country's trade, i.e. how much more trade each country conducted in 2021 than in 2016 (in constant 2021 prices). Note that the horizontal axis is on a logarithmic scale, to make it easier to see the variation across countries. Only countries with positive trade growth are shown.

3 Market shares tend to be less stable in fast-growing markets or industries. This pattern shows up in studies dating back to the 1960s. See, for example, Michael Gort, "Analysis of stability and change in market shares," *Journal of Political Economy* 71.1, 1963. For a more recent study, refer to Masatoshi Kato and Yuji Honjo, "Market share instability and the dynamics of competition: A panel data analysis of Japanese manufacturing industries," *Review of Industrial Organization* 28.2, 2006.

4 For additional background on the drivers of Viet Nam's success in globalization, refer to pages 49-51 of Steven A. Altman and Caroline R. Bastian, "Connecting to the World: Lessons from 10 Years of the DHL Global Connectedness Index," Deutsche Post DHL Group, 2021.

5 Atlas of Economic Complexity, using data aggregated at the H.S. 1-digit level and excluding services.

6 Both exports and imports between the Republic of Ireland and Northern Ireland (part of the UK) surged, partially offsetting the decline in imports from Great Britain. See Ireland Central Statistics Office, "Goods Exports and Imports," CSO Statistical Release, 15 February 2022.

7 For trends in Libya's oil production and how these patterns relate to the course of the civil conflict in the country, refer to U.S. Energy Information Administration, "Country Analysis Executive Summary: Libya," May 9, 2022.

8 Frida Ghitis, "Guyana's Oil Wealth Comes With Some Strings Attached," *World Politics Review*, March 10, 2022.

9 Trade growth data in volume terms, from April 2022 IMF World Economic Outlook Database.

10 We review the evidence on links between trade and economic growth—and elaborate some of the drivers of this phenomenon—in Steven A. Altman and Caroline R. Bastian, "Connecting to the World: Lessons from 10 Years of the DHL Global Connectedness Index," Deutsche Post DHL Group, 2021.

11 Steven A. Altman and Caroline R. Bastian, "Connecting to the World: Lessons from 10 Years of the DHL Global Connectedness Index," Deutsche Post DHL Group, 2021.

12 For historical background on the IMF World Economic Outlook, refer to James M. Boughton, "Modeling the World Economic Outlook at the IMF," IMF Working Paper, April 1997. For a recent assessment of the performance of these forecasts, refer to Oya Celasun, Jungjin Lee, Mico Mrkaic, and Allan Timmermann, "An Evaluation of World Economic Outlook Growth Forecasts—2004-17," IMF Working Paper, August 2021.

13 IMF World Economic Outlook Frequently Asked Questions, accessed June 2022 at https://www.imf.org/external/pubs/ft/weo/faq.htm.

14 China, the United States, Germany, and the Netherlands are (in that order) the countries with the largest current trade flows. While the Netherlands is only the world's 19th largest economy, it plays a much larger role in world trade, in part, because it is home to Europe's top port (Rotterdam). A variety of other structural and policy factors also contribute to the centrality of the Netherlands in international trade networks and with respect to globalization more generally (the Netherlands has ranked first on the DHL Global Connectedness Index every year from 2005 through 2020). For additional details, refer to pages 37-39 of Steven A. Altman and Caroline R. Bastian, "Connecting to the World: Lessons from 10 Years of the DHL Global Connectedness Index," Deutsche Post DHL Group, 2021.

15 IMF World Economic Outlook Database, April 2022.

NOTES
4. THE MIX OF GOODS TRADED

1 The majority of this report uses trade statistics from the IMF's *World Economic Outlook* and *Direction of Trade Statistics* databases; however, these sources do not have data at the product level. For this, we turn to the UN's Comtrade database. We access and summarize the data from UN Comtrade using the Harmonized System (HS) for classifying goods, but we use simplified category names from the Atlas of Economic Complexity throughout the relevant text and figures. The Atlas of Economic Complexity dataset employed for simplified category names is The Growth Lab at Harvard University, "Classifications Data," V4, 2019, accessed via Harvard Dataverse at https://doi.org/10.7910/DVN/3BAL1O.

2 OICA motor vehicle production statistics (https://www.oica.net/category/production-statistics/).

3 Federal Statistical Office of Germany, Press Release, "German car exports below pre-crisis level in 2021," February 24, 2022.

4 World Customs Organization (2022). *HS Nomenclature 2022 Edition*.

5 Perhaps the best example of this is that computers are classified as "industrial machinery," since they were originally not the type of machinery that consumers would have in their homes. This puts them in a section with nuclear reactors and boilers, not the section that includes monitors and home electronics, as they probably would be classified today.

6 HS code 8542.

7 HS code 8517; note: this chapter also includes other devices used for the transmission or reception of voice, images, and other data; as well as other telephony equipment.

8 The breakdown between HS 84 and HS 85 is sometimes surprising. It is mainly a matter of history. Computers started out as a type of machine that only large corporations owned, and thus they were classified as part of industrial machinery. However, computers have become important household goods, and it is somewhat surprising to see them in a category that otherwise contains mostly large equipment used for industrial purposes. It is particularly striking that the integrated circuits that are the core of these same computers are found in HS 85, whereas the computers themselves are in HS 84.

9 Due to data limitations, this analysis is shown in value terms rather than volume terms, i.e., it is not adjusted to remove the effects of changing price levels.

10 In this report, we follow the IMF's classification of economies into "Advanced Economies" and "Emerging and Developing Economies" (which we abbreviate as Emerging Economies). For additional details on how countries are classified along these lines, refer to Section 5.

11 Leading scholars have weighed in on the contemporary relevance of Ricardo's work 200 years since its original publication in Cloth for Wine? The Relevance of *Ricardo's Comparative Advantage in the 21st Century*, edited by Simon J. Evenett, CEPR Press, 2017.

12 Product classification based on UNCTAD classification of goods by stages of processing—UNCTAD-SoP1, SoP2, SoP3, SoP4, accessed via World Bank World Integrated Trade Solution (WITS). Note: due to incomplete classification of products in this classification scheme and limitations in trade data, the coverage is somewhat incomplete. In 2000, about 4% of products were unclassified by this scheme; in 2019, 15%; and in 2020, 16%.

NOTES

5. GLOBAL SHIFTS BEYOND TRADE

1 Trade data in this section are drawn from the World Bank's World Development Indicators.

2 While this chart focuses on comparisons over the period 2000–2020, the following indicators are measured over shorter time periods: Top 100 Global Brands (2007–2020), International Tourist Arrivals (2004–2019), FDI Outward and Inward Stock (2001–2020), Emigrants (2001–2020), Armed Forces Personnel (2000–2019), Top 100 Universities (2003–2020), Health Expenditure (2000–2019), Patent Applications (2000–2019), Int'l Coauthored Scientific Publications (2001–2020), Top 600 Firms by R&D Spending (2003–2020), R&D Expenditure (2000–2019), CO2 Emissions (2000–2018), Agriculture, value added (2000–2019), Billionaires (2001–2020), Top 100 Global Brands (2007–2020), International Internet Bandwidth (2001–2019), Air Passengers (2000–2019), Industry, value added (2000–2019), Scientific Publications, Total (2000–2018), Internet Users (2001–2019), Fixed Broadband Subscriptions (2001–2020). This chart updates and builds upon similar analyses reported in Pankaj Ghemawat and Steven A. Altman, "Depth Index of Globalization 2013," IESE Business School, 2013, and Pankaj Ghemawat and Steven A. Altman, "Economic Distance and the Big Shift to Emerging Economies," Chapter 11 in Pankaj Ghemawat, *The Laws of Globalization and Business Applications*, Cambridge University Press, 2016.

3 "When Are Emerging Markets No Longer 'Emerging'?" *Knowledge at Wharton*, March 5, 2008.

4 IMF World Economic Outlook April 2022 FAQ accessed June 2022 at https://www.imf.org/external/pubs/ft/weo/faq.htm.

5 This diagram and the accompanying analysis are adapted from Pankaj Ghemawat and Steven A. Altman, "Emerging Economies: Differences and Distances," *AIB Insights*, Vol. 16, No. 4, November 2016.

6 The World Bank groups countries into four equal-sized quartiles by gross national income (GNI): low income, lower middle income, upper middle income, and high income. Countries that had a GNI of $12,696 or more in 2020 are classified as high income as of 2022. See World Bank, "World Bank Country and Lending Groups," accessed June 2022 at https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

7 IMF World Economic Outlook Database, April 2022.

8 The Human Development Report classifies countries into groupings based on their Human Development Index score, with countries achieving a score of 0.800 (on a scale of 0-1) being classified as having Very High Human Development. See Human Development Report Office, "Technical notes," from *Human Development Report 2020*.

9 Exports and imports are measured here in current U.S. dollars.

10 Claudia D'Arpizio, Federica Levato, Constance Gault, Joëlle de Montgolfier, and Lyne Jaroudi, "From Surging Recovery to Elegant Advance: The Evolving Future of Luxury," Bain & Company, December 20, 2021. Note that this figure includes both purchases made in China and by Chinese buyers traveling abroad. Chinese buyers' overall share is estimated to have declined from 2019 to 2021, while the share purchased in China itself is estimated to have increased.

11 IMF COFER database, accessed March 31, 2021.

12 Emine Boz, Camila Casas, Georgios Georgiadis, Gita Gopinath, Helena Le Mezo, Arnaud Mehl, and Tra Nguyen, "Patterns of invoicing currency in global trade: New evidence," *Journal of International Economics* 136, 2022. Note that we focus on currency shares and trends excluding intra-eurozone trade here to avoid overstating the global role of the euro because of its dominant use in trade within the eurozone itself. On average between 1999 and 2019, including intra-eurozone trade, an estimated 47% of exports were invoiced in euros, but this high share was driven substantially by the 37% of exports that were destined for eurozone countries.

13 BNN Bloomberg, "Yuan-Ruble Trading Surges as America's Rivals Rebuff Dollar," May 30, 2022.

14 Nick Huber, "Emerging markets 'leapfrog' the west in digital payments race," *Financial Times*, December 1, 2021.

15 Angel Melguizo, "How emerging markets can leapfrog into the digital age," *OECD Development Matters*, October 6, 2021; McKinsey & Company, "Signed, sealed, and delivered: Unpacking the cross-border parcel market's promise," March 17, 2022.

16 Steven A. Altman and Caroline R. Bastian, *DHL Global Connectedness Index 2021 Update*, Deutsche Post DHL Group, 2021.

17 Jianwei Dang and Kazuyuki Motohashi, "Patent statistics: A good indicator for innovation in China? Patent subsidy program impacts on patent quality." *China Economic Review* 35, 2015; Alex He, "What Do China's High Patent Numbers Really Mean?," Centre for international Governance Innovation, April 20, 2021.

18 It is important to note that the innovation measures employed here are very traditional ones, which could be viewed as biased in favor of the advanced economies (where these types of activity took hold originally and where there is a longer history of tracking them). We do not have data, for example, on business model innovation, cultural innovation, or innovation focused on serving lower-income consumers.

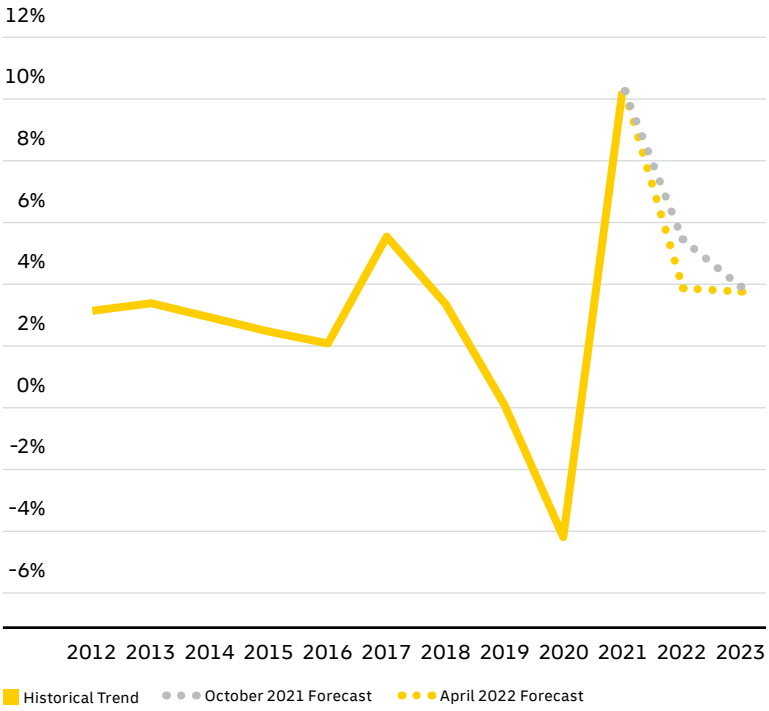
19 Pankaj Ghemawat, lead author of the DHL Global Connectedness Index report series from 2011 to 2016, has framed the competition outlined here as a contest between "incumbents" from advanced economies versus "insurgents" from emerging economies. For discussion of their respective strengths and weaknesses and implications for business strategy, see Pankaj Ghemawat, *The New Global Road Map: Enduring Strategies for Turbulent Times*, Harvard Business Review Press, 2018.

20 Wealthier countries tend to have lower fertility rates than poorer countries, for reasons discussed in Guillaume Vandenbroucke, "The Link between Fertility and Income," Federal Reserve Bank of St. Louis, December 13, 2016. From 2000 to 2020, life expectancy in high income countries rose only two years (from 78 to 80), while life expectancy in low and middle income countries rose six years (from 65 to 71), according to data from the World Bank's World Development Indicators.

APPENDIX

This section provides supplementary figures depicting recent and forecast trade growth. It also contains tables listing ISO country codes and HS product codes.

FIGURE A.1: ANNUAL GROWTH OF GOODS EXPORTS VOLUME, WORLD, HISTORICAL TREND AND IMF FORECASTS

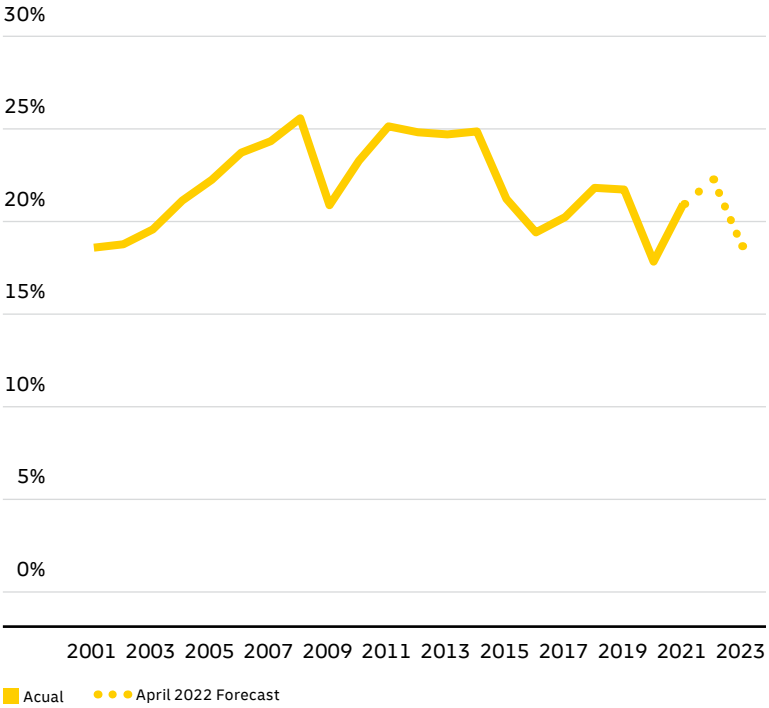


The solid yellow line on this figure depicts actual trade volume growth through 2021. The gray dotted line shows the IMF's forecast before the start of the war in Ukraine (as of October 2021), and the yellow dotted line shows the IMF's downgraded forecast after the start of the war (as of April 2022).

Even after the IMF downgraded its trade growth forecast in April 2022 due mainly to the war in Ukraine, the revised forecast still projected faster trade growth in 2022 and 2023 than during eight of the last ten years.

Data Source: IMF World Economic Outlook, October 2021 and April 2022

FIGURE A.2: GOODS EXPORTS VALUE PERCENT OF WORLD GDP, HISTORICAL TREND AND IMF FORECAST

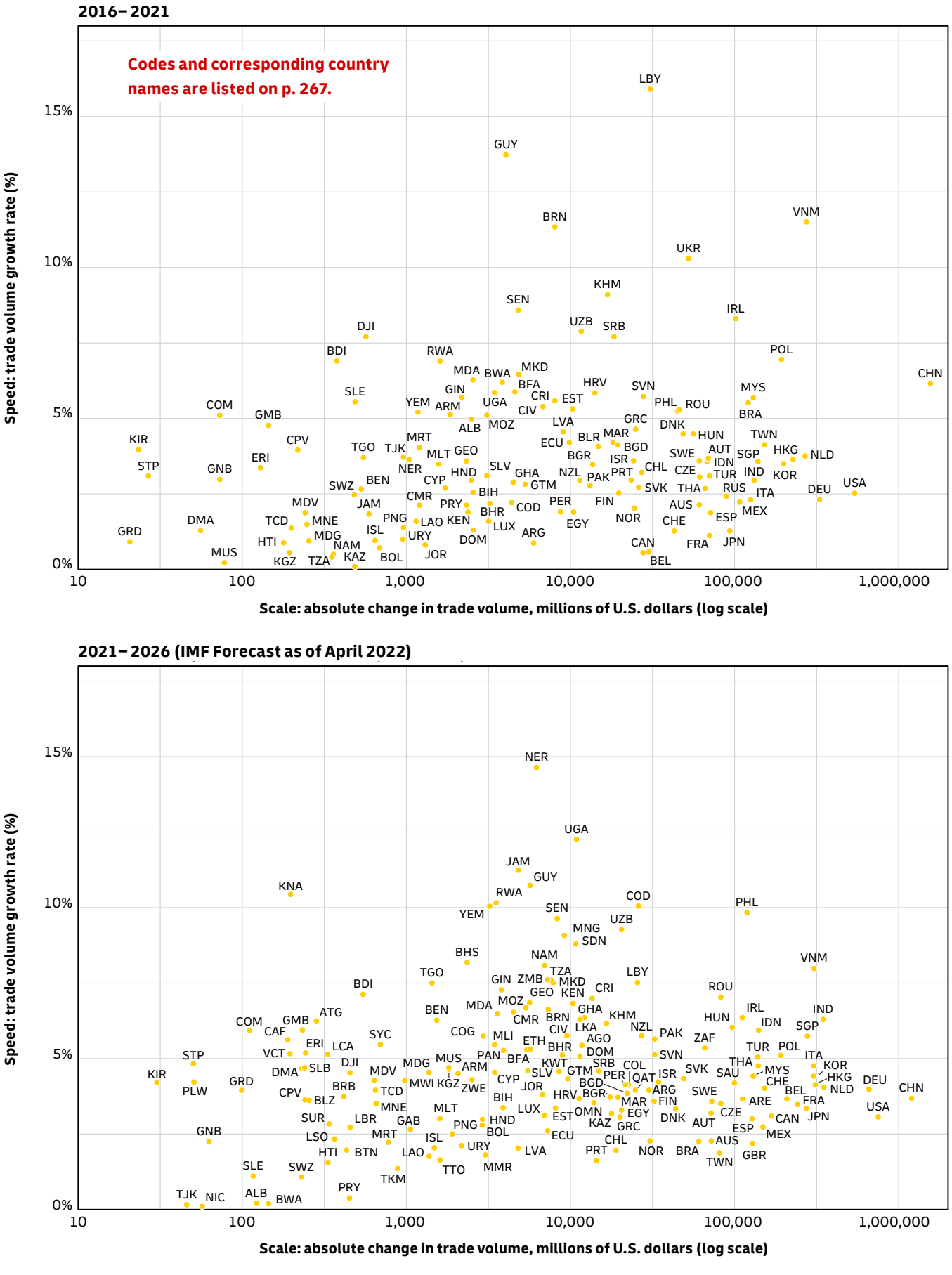


The ratio of goods exports to world GDP provides a rough indication of the contribution of trade in goods to the world economy. It is, however, an imperfect indicator of globalization via trade both because (1) the value in traded goods often crosses multiple borders in multi-country value chains (causing this measure to overstate trade integration) and because (2) services are a bigger part of the world economy than goods (causing this ratio to understate the importance of trade specifically for goods-producing sectors of the economy).

The value of exports of physical goods as a percentage of world GDP declined in 2020 due to the effects of the Covid-19 pandemic, but it rebounded in 2021 and is forecasted to rise to above the pre-pandemic level in 2022. This indicator, however, remains below its 2008 peak level.

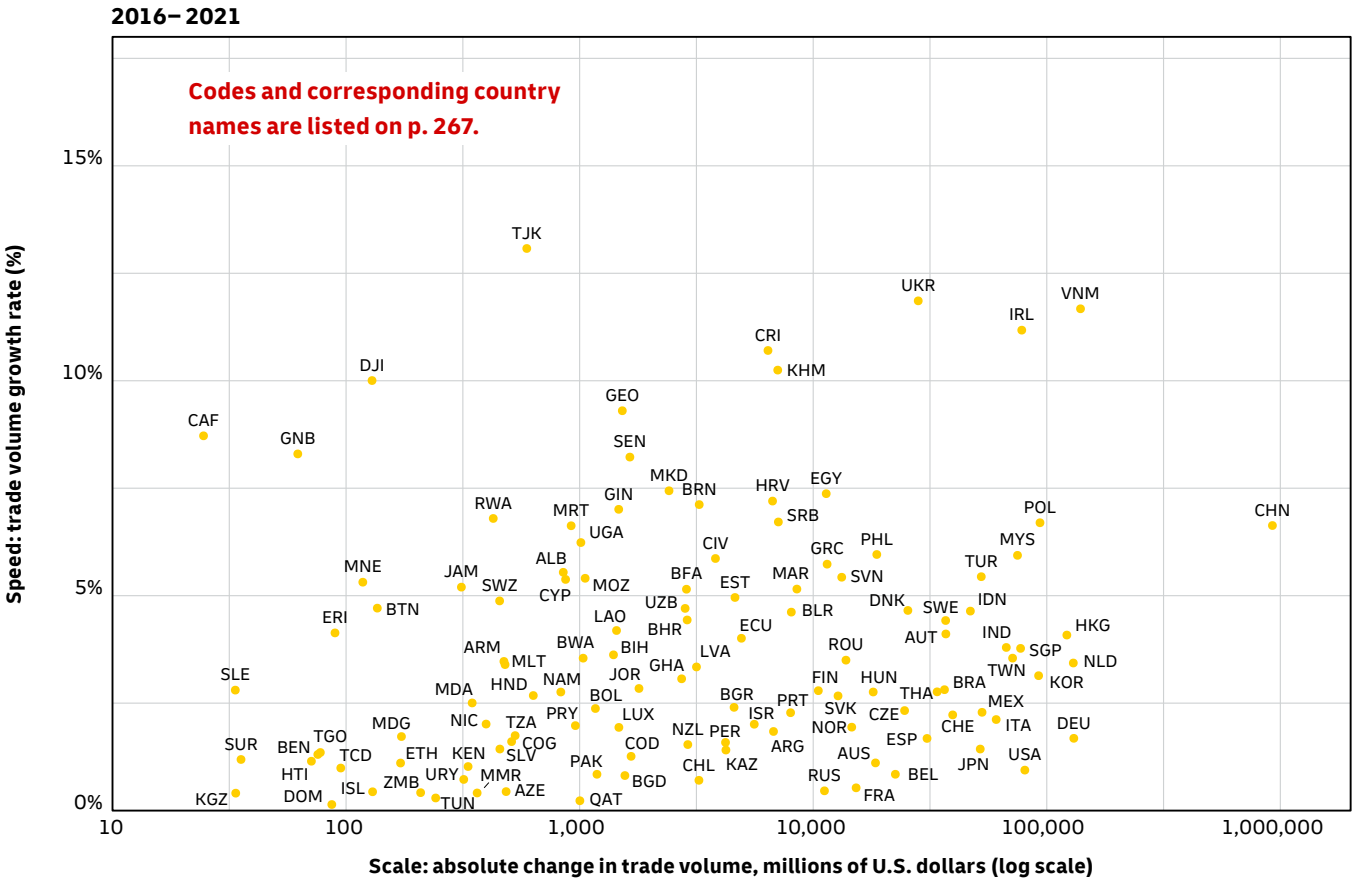
Data Source: IMF World Economic Outlook April 2022

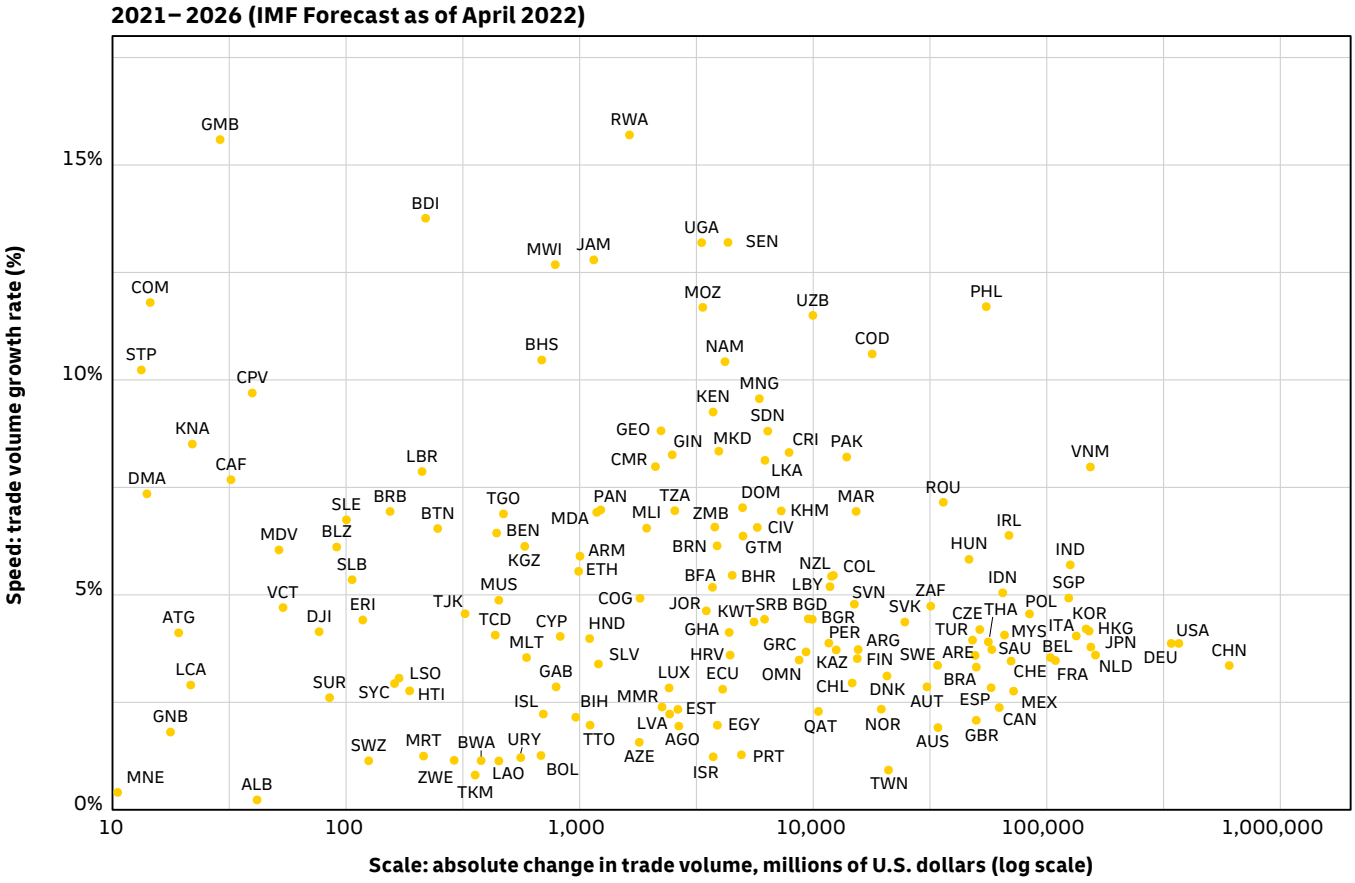
FIGURE A.3: TRADE GROWTH SPEED AND SCALE



Data sources: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics. Note: Countries with negative growth are omitted from this figure.

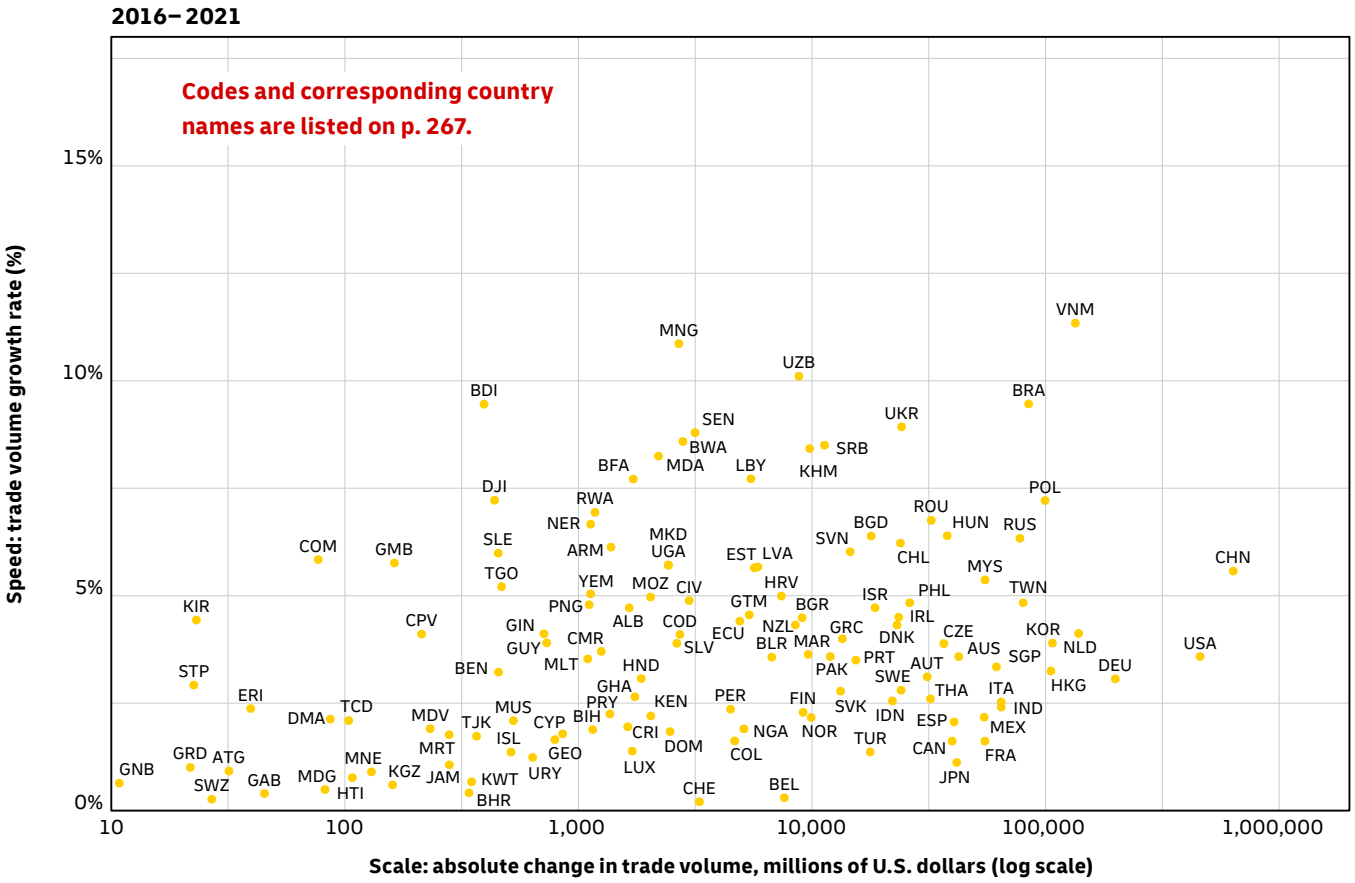
FIGURE A.4: EXPORTS GROWTH SPEED AND SCALE

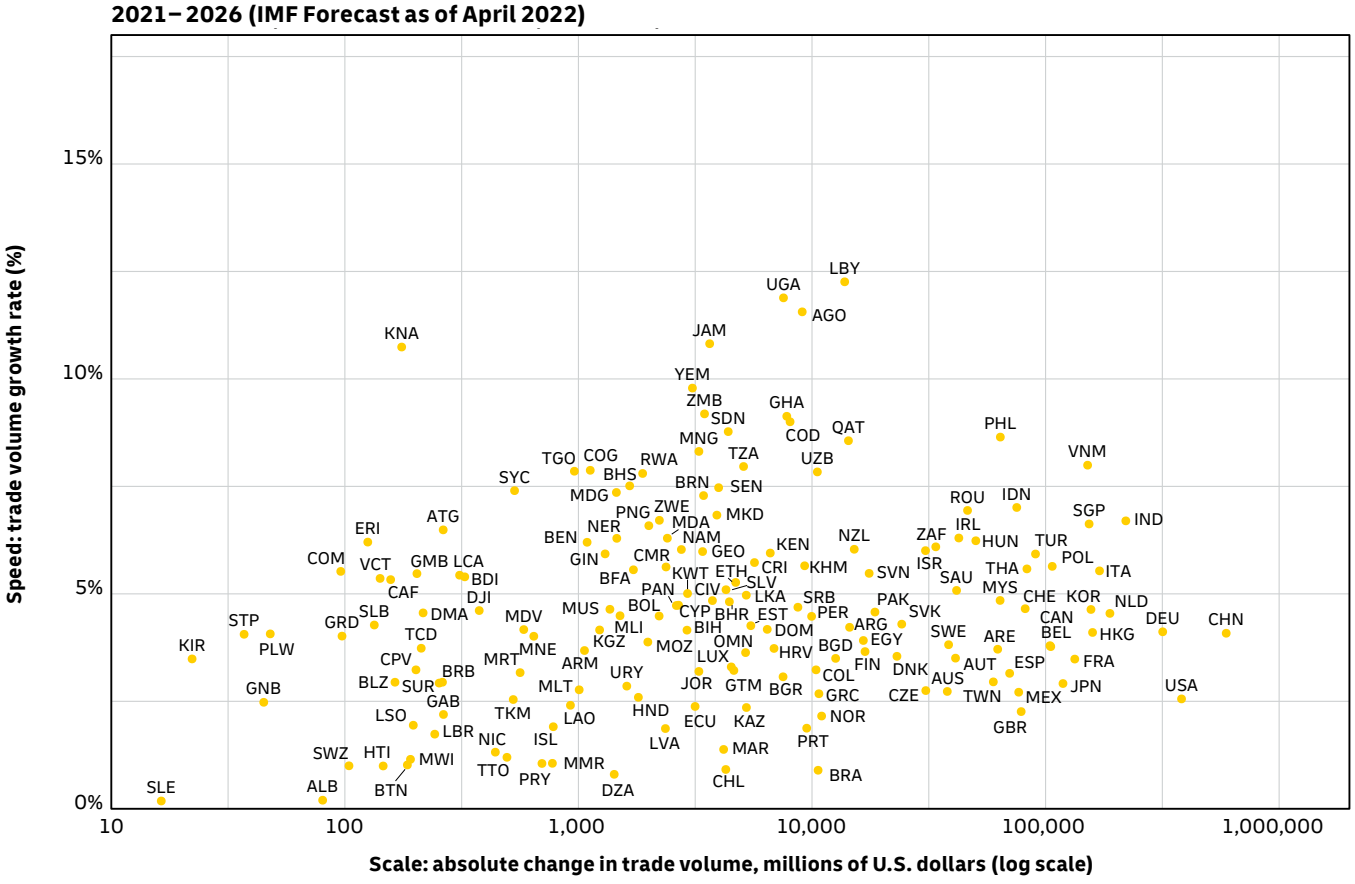




Data sources: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics. Note: Countries with negative growth are omitted from this figure.

FIGURE A.5: IMPORTS GROWTH SPEED AND SCALE





Data sources: IMF World Economic Outlook April 2022, IMF Direction of Trade Statistics. Note: Countries with negative growth are omitted from this figure.

TABLE A.1: LIST OF HS CODES (2-DIGIT CHAPTERS)

HS Code	Product Category
01	Live animals
02	Meat
03	Fish
04	Dairy products
05	Animal products
06	Plants
07	Vegetables
08	Fruits and nuts
09	Coffee, tea and spices
10	Cereals
11	Flours, starches and malts
12	Oil seeds and oleaginous fruits
13	Lac and other vegetable extracts
14	Other vegetable materials
15	Animal or vegetable fats, oils or waxes
16	Preparations of meat or fish
17	Sugar and candy
18	Cocoa
19	Preparations of cereals, flour, starch or milk
20	Preparations of vegetables, fruit, or nuts
21	Miscellaneous edible preparations
22	Beverages
23	Food residues and animal feed
24	Tobacco
25	Salt, sulphur, lime, cement, etc.
26	Ores, slag and ash
27	Mineral fuels, oils and waxes
28	Inorganic chemicals
29	Organic chemicals
30	Pharmaceutical products
31	Fertilisers
32	Dyes, paints, inks, etc.
33	Essential oils
34	Soaps, waxes, and paints
35	Albuminoidals; modified starches; glues; enzymes
36	Explosives
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
39	Plastics
40	Rubber
41	Leather and skins
42	Articles of leather
43	Furskins
44	Wood
45	Cork
46	Manufactues of plaiting materials
47	Pulp of wood
48	Paper and paperboard
49	Products of the printing industry
50	Silk
51	Wool
52	Cotton
53	Other vegetable textile fibres
54	Man-made filaments
55	Man-made staple fibres
56	Wadding, felt and nonwovens
57	Carpets
58	Special woven fabrics
59	Impregnated, coated or laminated textile fabrics
60	Knitted fabrics
61	Apparel, knit
62	Apparel, not knit
63	Other made up textile articles
64	Footwear
65	Headgear
66	Umbrellas and walking-sticks
67	Feathers and down
68	Articles of stone, plaster, cement, etc.
69	Ceramic products
70	Glass and glassware
71	Precious metals and stones
72	Iron and steel
73	Articles of iron or steel
74	Copper
75	Nickel
76	Aluminium
78	Lead
79	Zinc
80	Tin
81	Other base metals
82	Metal tools and tableware
83	Miscellaneous articles of base metal
84	Industrial Machinery
85	Electrical machinery and equipment
86	Trains
87	Vehicles
88	Aircraft
89	Ships
90	Apparatuses (optical, medical, etc.)
91	Clocks
92	Musical instruments
93	Arms and ammunition
94	Furniture
95	Toys
96	Miscellaneous manufactured articles
97	Art
99	Other

TABLE A.2: LIST OF COUNTRY/TERRITORY CODES (ISO 3166-1 ALPHA-3 CODES)

ISO Code	Country/Territory
AGO	Angola
ALB	Albania
ARE	United Arab Emirates
ARG	Argentina
ARM	Armenia
ATG	Antigua and Barbuda
AUS	Australia
AUT	Austria
AZE	Azerbaijan
BDI	Burundi
BEL	Belgium
BEN	Benin
BFA	Burkina Faso
BGD	Bangladesh
BGR	Bulgaria
BHR	Bahrain
BHS	Bahamas
BIH	Bosnia and Herzegovina
BLR	Belarus
BLZ	Belize
BOL	Bolivia (Plurinational State of)
BRA	Brazil
BRB	Barbados
BRN	Brunei Darussalam
BTN	Bhutan
BWA	Botswana
CAF	Central African Republic
CAN	Canada
CHE	Switzerland
CHL	Chile
CHN	China
CIV	Côte d'Ivoire
CMR	Cameroon
COD	Democratic Republic of the Congo
COG	Congo
COL	Colombia
COM	Comoros
CPV	Cabo Verde
CRI	Costa Rica
CYP	Cyprus
CZE	Czechia
DEU	Germany
DJI	Djibouti

ISO Code	Country/Territory
DMA	Dominica
DNK	Denmark
DOM	Dominican Republic
DZA	Algeria
ECU	Ecuador
EGY	Egypt
ERI	Eritrea
ESP	Spain
EST	Estonia
ETH	Ethiopia
FIN	Finland
FRA	France
GAB	Gabon
GBR	United Kingdom
GEO	Georgia
GHA	Ghana
GIN	Guinea
GMB	Gambia
GNB	Guinea-Bissau
GNQ	Equatorial Guinea
GRC	Greece
GRD	Grenada
GTM	Guatemala
GUY	Guyana
HKG	Hong Kong SAR (China)
HND	Honduras
HRV	Croatia
HTI	Haiti
HUN	Hungary
IDN	Indonesia
IND	India
IRL	Ireland
IRN	Iran (Islamic Republic of)
ISL	Iceland
ISR	Israel
ITA	Italy
JAM	Jamaica
JOR	Jordan
JPN	Japan
KAZ	Kazakhstan
KEN	Kenya
KGZ	Kyrgyzstan
KHM	Cambodia
KIR	Kiribati
KNA	St. Kitts and Nevis

ISO Code	Country/Territory
KOR	Korea (Republic of)
KWT	Kuwait
LAO	Lao People's Democratic Republic
LBR	Liberia
LBY	Libya
LCA	St. Lucia
LKA	Sri Lanka
LSO	Lesotho
LUX	Luxembourg
LVA	Latvia
MAR	Morocco
MDA	Moldova
MDG	Madagascar
MDV	Maldives
MEX	Mexico
MKD	North Macedonia
MLI	Mali
MLT	Malta
MMR	Myanmar
MNE	Montenegro
MNG	Mongolia
MOZ	Mozambique
MRT	Mauritania
MUS	Mauritius
MWI	Malawi
MYS	Malaysia
NAM	Namibia
NER	Niger
NGA	Nigeria
NIC	Nicaragua
NLD	Netherlands
NOR	Norway
NZL	New Zealand
OMN	Oman
PAK	Pakistan
PAN	Panama
PER	Peru
PHL	Philippines
PLW	Palau
PNG	Papua New Guinea
POL	Poland
PRT	Portugal
PRY	Paraguay
QAT	Qatar

ISO Code	Country/Territory
ROU	Romania
RUS	Russian Federation
RWA	Rwanda
SAU	Saudi Arabia
SDN	Sudan
SEN	Senegal
SGP	Singapore
SLB	Solomon Islands
SLE	Sierra Leone
SLV	El Salvador
SRB	Serbia
STP	São Tomé and Príncipe
SUR	Suriname
SVK	Slovakia
SVN	Slovenia
SWE	Sweden
SWZ	Eswatini
SYC	Seychelles
TCD	Chad
TGO	Togo
THA	Thailand
TJK	Tajikistan
TKM	Turkmenistan
TON	Tonga
TTO	Trinidad and Tobago
TUN	Tunisia
TUR	Turkey
TWN	Taiwan (China)
TZA	Tanzania (United Republic of)
UGA	Uganda
UKR	Ukraine
URY	Uruguay
USA	United States
UZB	Uzbekistan
VCT	St. Vincent and the Grenadines
VEN	Venezuela (Bolivarian Republic of)
VNM	Viet Nam
YEM	Yemen
ZAF	South Africa
ZMB	Zambia
ZWE	Zimbabwe

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