



23-11 Trade hyperglobalization is dead. Long live...?

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November 2023

ABSTRACT

This paper examines the evolving landscape of global trade since the global financial crisis. It argues that a new era—characterized by the deglobalization of goods and the slower yet persistent globalization of services—has supplanted the era of hyperglobalization. It posits that the halt in manufacturing’s shrinking share in global value added may have mitigated even stronger deglobalization caused by a number of influences such as slowing income convergence, financial deglobalization, and more restrictive trade policies. The paper also documents the end of disruptive North-South trade and highlights a new China puzzle, in which sharp internal trade contraction coexists with surging global export shares. It also reveals a positive correlation between mercantilism and both trade and growth at the global level.

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JEL Codes: F60, F62, F30, F13, F14

Keywords: Global Value Chains; Globalization; Current Account; China

Authors’ Note: For comments on the paper, we are grateful to Olivier Blanchard, Joe Gagnon, Gary Hufbauer, Nick Lardy, Mary Lovely, Marcus Noland, Maury Obstfeld, Ángel Ubide, and Alan Wolff and other participants at the PIIE research seminar, and to Shoumitro Chatterjee, Aaditya Mattoo, and especially Josh Felman. We are extremely grateful to Adam Tooze and especially Paul Krugman and Martin Sandbu for their responses to this paper’s predecessor, which has encouraged us to update it 10 years on.

Introduction

Ten years ago, we wrote a Peterson Institute of International Economics (PIIE) paper, *Trade Hyperglobalization and its Future* (Subramanian and Kessler 2013). It quietly descended into intellectual oblivion, sinking beneath its wisdom like a stone, as Leonard Cohen might have put it.

Four years later, Paul Krugman—in an exchange with economist and blogger Noah Smith—wrote in the *New York Times* that academic literature was of value only if it could claim to have produced two papers of real importance (“The Two Paper Rule”).¹ In the field of trade, he identified two candidates: the China shock paper of Autor, Dorn, and Hanson (2013) and our PIIE paper, justifying the choice of the latter on the grounds that “realizing that this globalization is different from anything that came before is a big deal.”²

A flurry of favorable responses followed. The Columbia University historian Adam Tooze³ and Martin Sandbu of the *Financial Times* went so far as to say that the medium of Twitter (now X) stood redeemed because it allowed for intellectual archaeology that could result in excavating papers such as ours.⁴

In view of this attention, we have updated that paper 10 years on, recognizing that globalization’s past and future are insightfully over-grazed intellectual pastures (analytically and empirically).⁵

One of the conclusions of our original paper was the following paradox: in a context of an increasingly disruptive process of globalization, the dog barked but did not bite. Data through 2011 revealed that trade had caught up to the levels that preceded the Global Financial Crisis (GFC) of 2008–09. One could see the continuing effects of the China shock, the rapid pace of integration through direct trade or through value chains. The political and intellectual moment was shifting, with calls from card-carrying free-traders such as Alan Blinder, Michael Spence, and Larry Summers to be more guarded about trade integration. Yet trade seemed to rise, unabashed.

¹ Paul Krugman, “Calling Literatures from the Vasty Deep,” *New York Times*, May 17, 2017 (<https://archive.nytimes.com/krugman.blogs.nytimes.com/2017/05/17/calling-literatures-from-the-vasty-deep/>).

² In public finance, Krugman’s candidates were Blanchard and Leigh (2013) and Nakamura and Steinsson (2014).

³ See https://twitter.com/adam_tooze/status/1087092401984995330.

⁴ Martin Sandbu (“Hyperglobalisation and its Critics,” *Financial Times*, January 30, 2019, <https://www.ft.com/content/f0b37e0e-23cf-11e9-8ce6-5db4543da632>) wrote, “The article is worth reading by those who did not catch it when it first came out and is worth re-reading by those who did.”

⁵ In addition to the excellent recent contributions of Antràs (2020) and Baldwin (2022) are the many important papers on globalization, government intervention, and industrial policy listed in the October 7, 2023, issue of *The Economist*. (<https://www.economist.com/special-report/2023/10/02/sources-and-acknowledgments>).

In retrospect, 2011 was a turning point, just as the Russian invasion of Ukraine and US–China rivalry may prove to be. The intervening years (roughly 2010–20) seem worth reflecting on as an era.

Our new research yields several findings. First, the end of two decade–long hyperglobalization is undeniable. Its successor is deglobalization in goods and continuing albeit slower globalization in services (“slowbalization”). The goods–services dichotomy is evident across indicators, offering a clue to understanding the post–GFC world.

The puzzle is not that the GFC marked the end of a two decades–long trade hyperglobalization (the rapid increase in global exports) but rather why it did not lead to stronger deglobalization. Several factors should have caused the ratio of trade to GDP to decline. They include the attenuation of value chains, the compositional shift that led to reduced “traded-ness” of goods, strong forces of gravity that led to a less unequal distribution of world output and hence less trade, increasing policy restrictiveness, and financial deglobalization. This puzzle may be at least partially explained by a surprising offsetting factor: the end of the secular decline in the share of manufacturing in global value added. Manufacturing is the most tradable part of economic activity; its share in global GDP has plateaued since 2010, after decades of decline.

Second, the GFC marked the end of a three decades–long trend increase in Northern trade exposure to the South. One might call it the end of dislocating or disruptive “comparative advantage,” or Heckscher-Ohlin trade, in the sense of a stabilization of the relative wage/income levels of imports to the North.

A related dimension of this Heckscher-Ohlin trade was the China shock, which Autor, Dorn, and Hanson (2013, 2016, 2021) examine. It was felt especially acutely in the United States. After the GFC, the magnitude of the China shock continued to rise, at only a slightly slower pace, without any apparent impact on manufacturing employment. Indeed, the phenomenon of China as a historic mega-trader continued after the GFC, as China continued to increase its global share of exports, especially manufacturing exports. Clearly, US trade actions against China had little impact in stopping the Chinese export juggernaut.

We suspect that this aspect of continuing rise in Chinese exports has been obscured by the more widely documented collapse in the China trade to GDP ratio after the GFC. We identify a new China puzzle post–GFC: the co-existence of the collapse in China’s share of trade internally with a continuing rise in China’s trade externally, reflected in its rising global export market share. The magnitudes are stark: a near-halving of China’s internal trade–GDP ratio and a rough doubling of its global export market share. The former should have led to a decline in the competitiveness of China’s tradables via trade policy effects or Balassa-Samuelson-type exchange rate-cum-labor market effects. It is possible that anxieties about China may shift, as Mexican exports to the United States have risen since the GFC, even pre-dating actions by presidents Trump and Biden against China. We leave the question open of how likely a return to

the “giant sucking sound” alarmism stoked by that former presidential candidate Ross Perot would be.

Third, at the global level, there is a positive correlation between mercantilism on the one hand and trade globalization and growth on the other. The era of rising and peak mercantilism was also the era of trade hyperglobalization and rapid growth. The decline of mercantilism was also associated with deglobalization and slower growth. It is possible that this positive correlation is still consistent with the view of Klein and Pettis (2020) that the partial effect of mercantilism is deflationary and that the opposite correlation in the data relates to the underlying drivers of growth—not just mercantilism but also the macroeconomic policies of China and advanced economies.

A caveat to this conclusion relates to the data on global mercantilism. Simply put, global exports have overtaken global imports, which would only imply that Earth seems to have become a net exporter to Mars. This is (as far as our knowledge of UFOs would imply) obviously a measurement puzzle. The strange thing is that this is a new phenomenon: before the GFC, global current account deficits exceeded surpluses. The reasons for this dramatic change need further investigation.

In the era of hyperglobalization, there were no nuances or caveats or distinctions; the surging tide lifted everything. The end of hyperglobalization has created murkiness and muddles, puzzles and paradoxes, creating a more complicated world.

What Comes after Hyperglobalization?

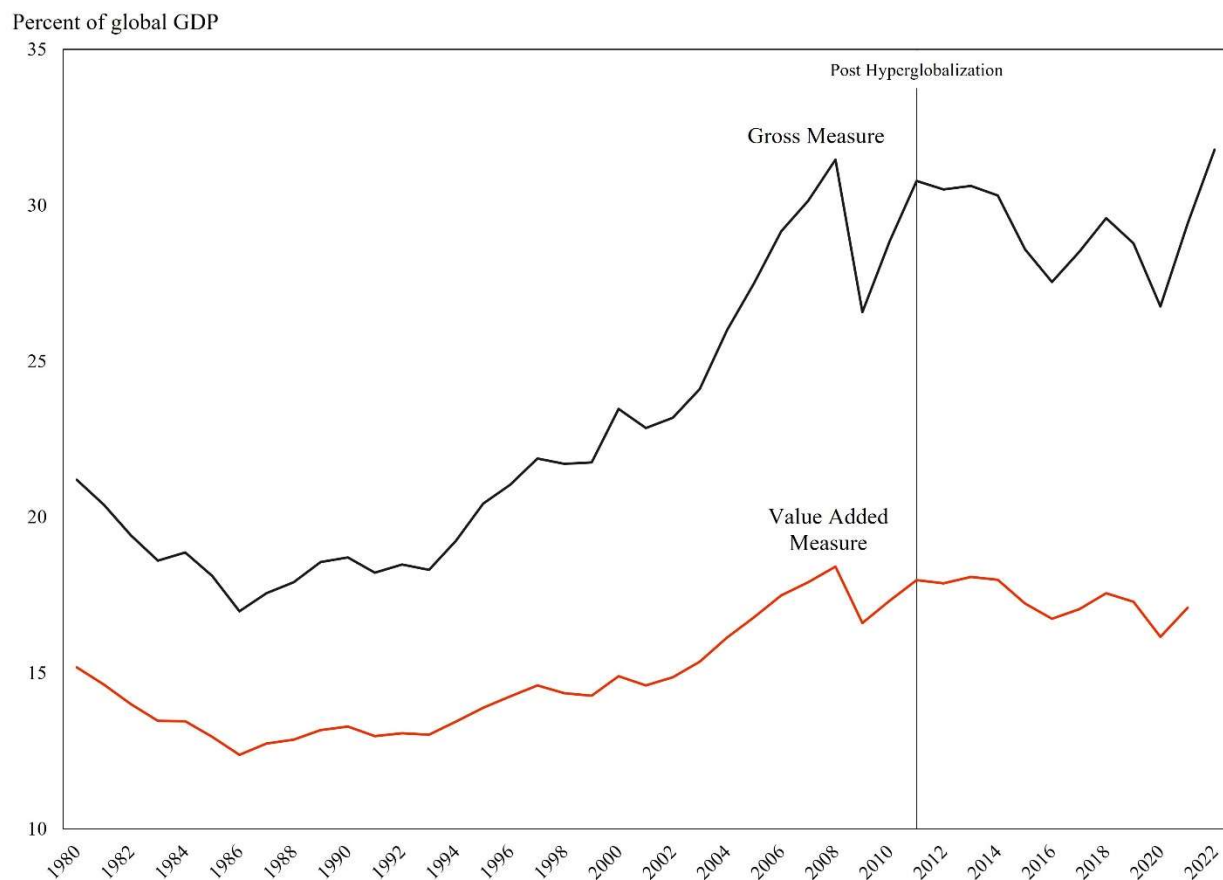
Hyperglobalization refers to the exceptional period between 1992 and 2008 during which global exports grew at close to 10 percent a year in nominal terms while GDP increased by only 6 percent a year. As a result, the share of exports in national economies grew from less than 20 percent to more than 30 percent in a little bit more than 15 years (Figure 1). The *hyper* in *hyperglobalization* does not come from the level of trade relative to GDP, which remains high, or from levels compared with the theoretical potential of trade, which are low. Rather it comes from the change in the level of trade, which was positive before the GFC and stagnant or slightly negative thereafter.⁶

Our use of the term is intended to be descriptive not normative, emphasizing the change of regime: *hyperglobalization* refers not to too much globalization but to an acceleration of a preexisting phenomenon. The sudden collapse of trade after the GFC (Baldwin, 2009)—linked in particular with the global slowdown in investment and the credit crisis—was followed by a rebound that was as sudden and decisive. Although trade rebounded rapidly, some aspects of the crisis lingered (global foreign direct investment (FDI), for example, never fully recovered), as shown below.

⁶ See Bradford, Grieco, and Hufbauer (2006) for one estimate of the potential for further globalization.

Since 2011, the ratio of global exports to GDP has remained roughly constant, albeit punctuated by shocks such as the COVID-19 crisis and the war in Ukraine. From 30.7 percent in 2011, the share of global exports in global GDP rose to 31.8 percent in 2022. The rebound in 2021 and 2022 was caused partly by price effects: Price indices for traded goods rose more rapidly than GDP deflators, as a result of the combination of the supply chain slowdown in 2021 and commodities shocks after the war in Ukraine began, in 2022. The data displayed in figure 1 give us confidence in asserting that hyperglobalization ended in 2011.

Figure 1: Global gross and value-added exports, 1980–2022



Note: See appendix A for explanation of value-added computations.

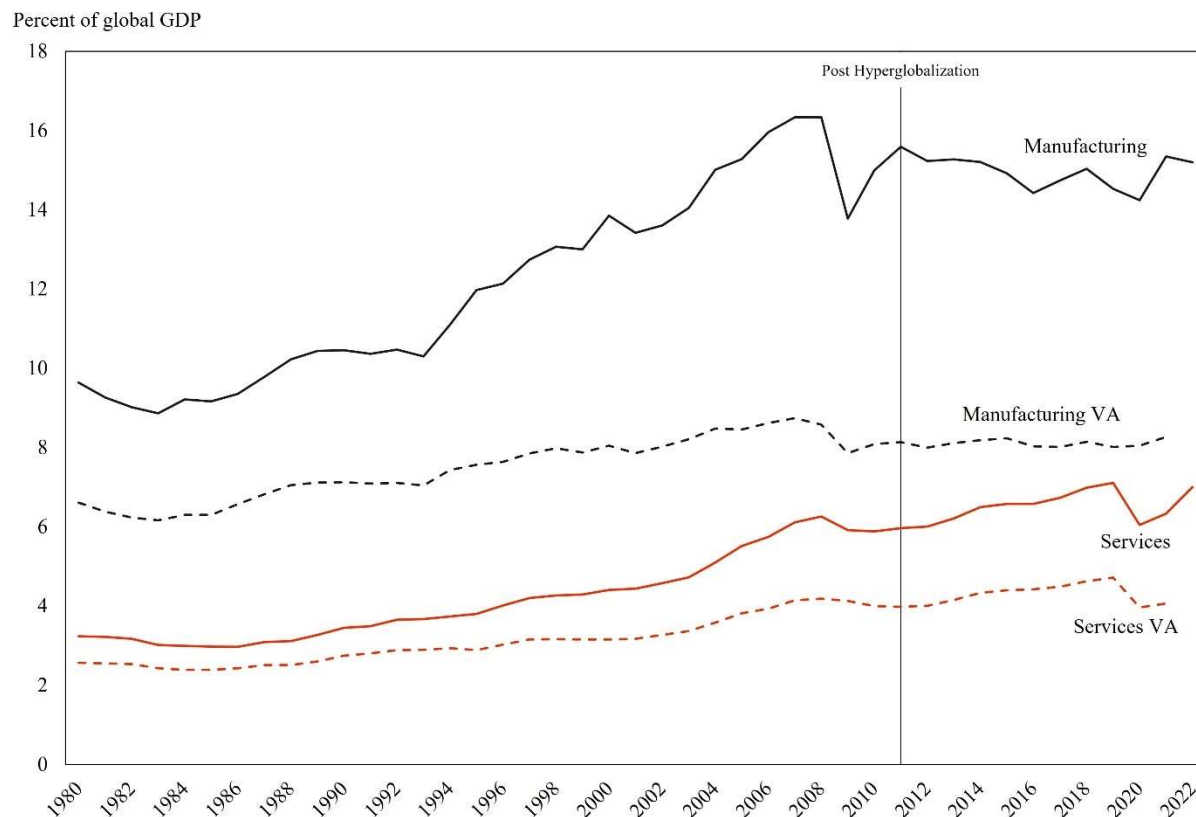
Sources: Authors' calculations based on data from the World Trade Organization *International Trade Statistics* database for gross exports; Borin and Mancini (2019) and Borin, Mancini, and Taglioni (2021) data for value-added exports; and the World Bank's *World Development Indicators* for GDP.

A large body of literature has examined the role of various factors in the global trade slowdown. Antràs (2020) finds that the forces that ignited hyperglobalization were bound to slow and reach their limits. He argues, however, that even large shocks, such as the GFC or COVID-19, are unlikely to reverse globalization, as the fixed costs of setting up trade relationships and global value chains are high, which favors continuation of the status quo. Even policy trade tensions have had limited impact.

Baldwin (2022) also contests the idea that deglobalization or a uniform slowdown occurred at all. In the European Union, he notes, the trade to GDP ratio continues to rise (albeit only when including intra-EU exchanges).

Understanding what replaced hyperglobalization requires disaggregating aggregate trade into goods and services. Doing so reveals a clear pattern. Manufacturing trade deglobalized after the GFC, declining from 15.6 percent of world GDP in 2011 to 14.5 percent just before the pandemic (figure 2). Services trade continued to globalize but at a slower pace than during the era of hyperglobalization, increasing from 6 percent of GDP in 2011 to 7 percent in 2019. Both sectors saw the end of hyperglobalization, but the trend was more severe for trade in goods.

Figure 2: Global exports (gross and value-added) of manufactures and services, 1980–2022



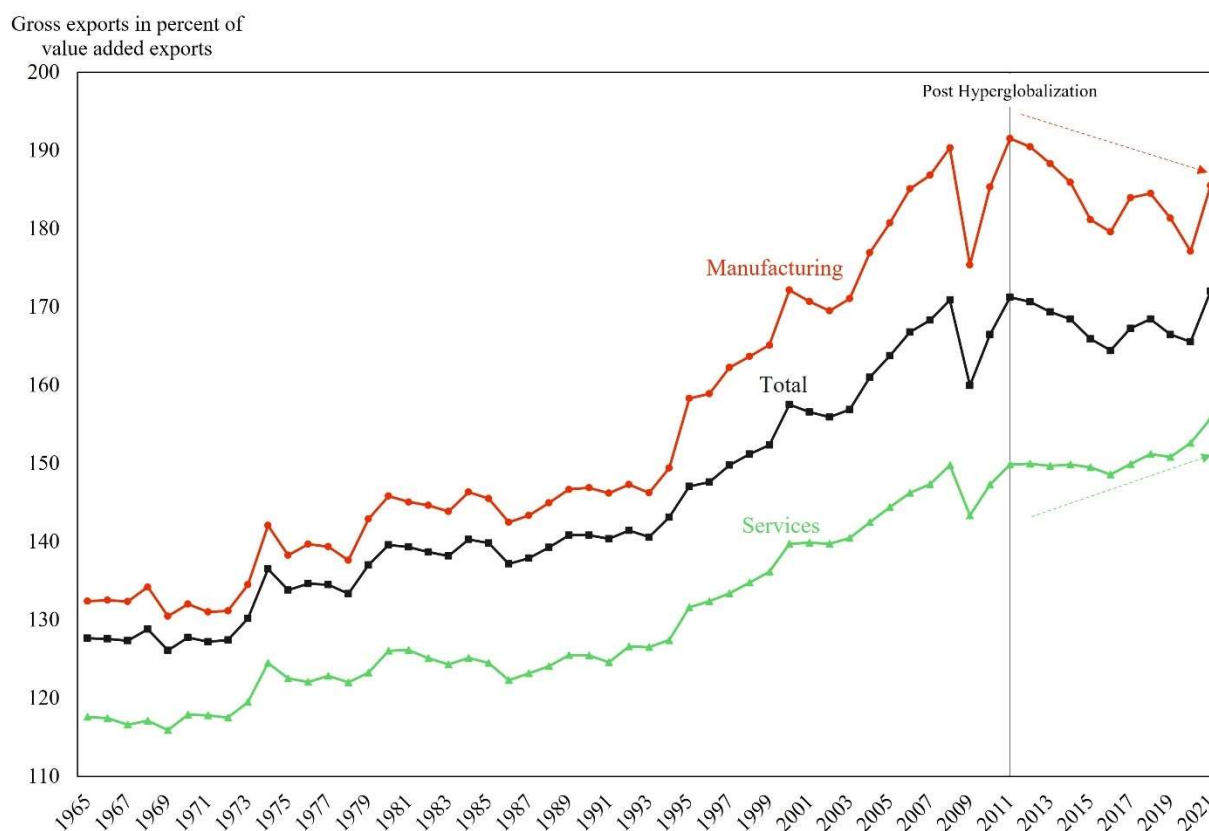
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Sources: Authors' calculations based on data from the World Trade Organization *International Trade Statistics* database for gross exports; Borin and Mancini (2019) and Borin, Mancini, and Taglioni (2021) for value-added exports; and the World Bank's *World Development Indicators* for GDP.

The same pattern is evident in value-added trade. The era of hyperglobalization saw rapid increases in global value chains in both goods and services. As a result of these forces of concentration of output and the declining "traded-ness" of manufacturing, value chains,

especially those linked with goods rather than services, declined. The ratio of global exports to value-added exports declined between 2011 and 2020, after two decades of rapid increase (value added exports are exports that cross borders only once; see Baldwin and Lopez-Gonzalez, 2015; Borin and Mancini, 2019; and Borin, Mancini, and Taglioni 2021). In manufacturing, the ratio of gross to value-added exports was about 1.5 in 1993 (meaning that goods would have to cross the border 1.5 times so that the final product could cross the border once); this ratio peaked at 1.92 in 2011, before dropping to 1.81 just before the pandemic. After 2011, the role of global value chains declined sharply in manufacturing but continued to rise in services, albeit at a slower pace than before the GFC (Figure 3).

Figure 3: Performance of value chains in manufacturing and services, 1965–2021



Sources: Authors' calculations based on data in Borin and Mancini (2019) and Borin, Mancini, and Taglioni (2021).

In its latest report, the World Trade Organization (2023) confirms that the stagnating globalization narrative largely reflects growth composition effects. On average, trade to GDP ratios are still growing at the sector and country level. As a share of GDP, for example, trade increased in 123 countries in 2001–11; for 67 countries, it increased between 2011 and 2021. The sectoral composition of GDP and its geographic repartition have simply made global production less tradeable. Taking those forces of composition into account results in stagnating world trade.

Composition effects are an important component of the story. Ten years after the end of hyperglobalization, the geography and sectors of production are less conducive for trade than they once were. Indeed, one would even have expected more deglobalization to have occurred. What are these effects?

The Puzzle and Possible Explanations

In some ways, the end of hyperglobalization is no surprise. As we show below, the constellation of anti-trade factors was so strong that the puzzle is why both goods and services did not deglobalize more than they did. Five forces were at play.

Gravity and slowing convergence

What does the geography of production reveal about trade? The key insight is that countries of equal size trade more than countries of different sizes.

To see this, consider a world with two countries. If they are of similar size, world trade will depend on productive dissimilarities and trade costs. However, imagine that one country had a much larger share of global output than the other. Most commerce would now be within the larger country; trade that was external in the first case would not be domestic. At a given global income level, the dispersion of income across countries should thus be predictive of global trade. This dispersion can easily be translated in country equivalents:

$$\frac{T_w}{G_w} = \text{constant} * (1 - \sum s_i^2)$$

where $\frac{T_w}{G_w}$ is global trade divided by global GDP; s_i is the share of country i in world output; and the term that is the sum of squared output shares can be inverted to become the number of country equivalents in the world.⁷

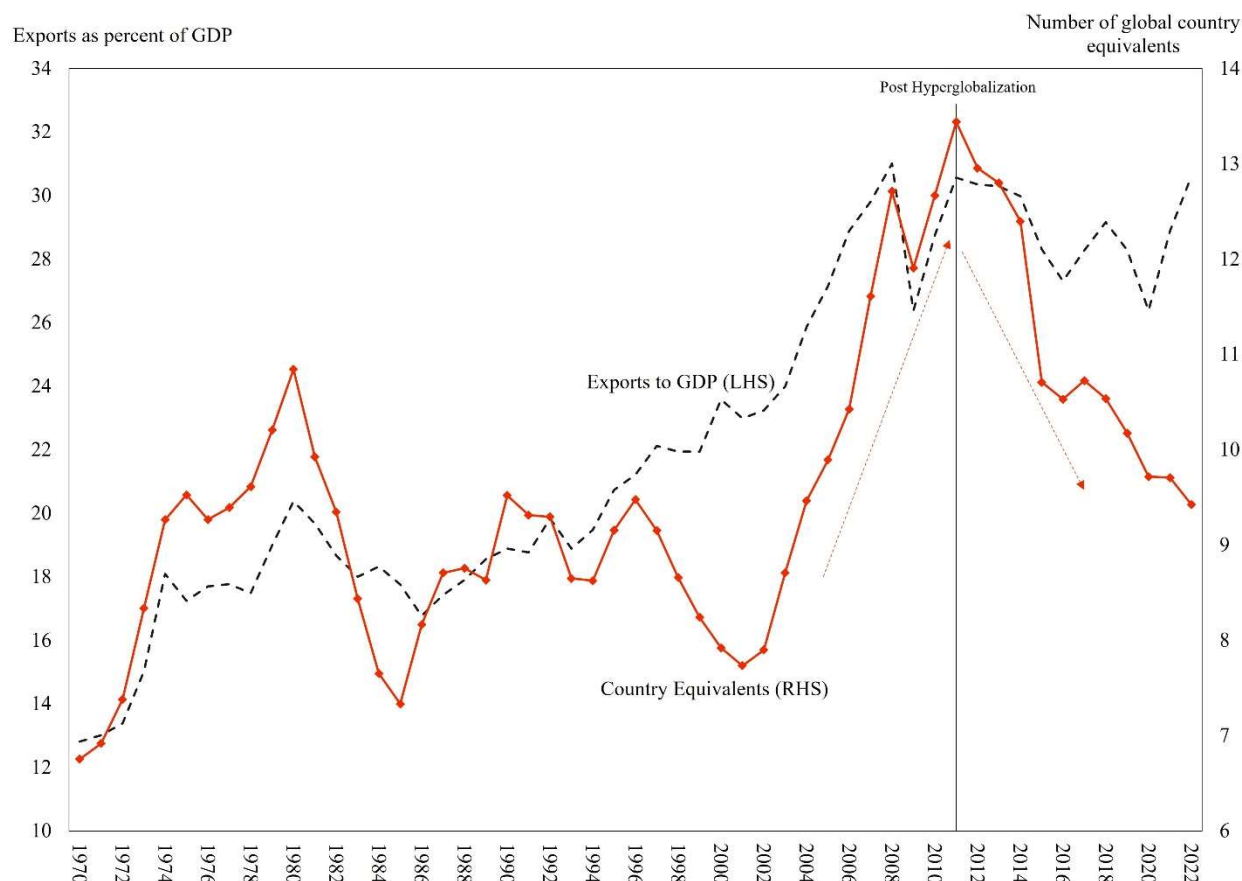
There is a strong correlation between the number of country equivalents and trade. In our original paper, we showed that dramatic income convergence in the world, which coincided with the era of hyperglobalization, led to more country equivalents and hence more trade (see also Patel, Sandefur, and Subramanian 2021). We estimated that about 30 percent of the increase in the trade to GDP ratio could be explained by the repartition of output. As low-income countries grew, global GDP was distributed more evenly. China played a major role, but even without its externally led growth strategy, one would expect more trade more when convergence occurs.

During the post-hyperglobalization period, income convergence slowed and the number of country equivalents declined (Figure 4). Less equal distribution of world output created strong pressures for deglobalization: the decline in the number of country equivalents accounts for

⁷ The formal derivation, in Krugman (1995), is based on the assumption that in an idealized world in which a buyer is equally likely, when buying a traded good, to buy it from a supplier anywhere in the world. The coefficients on income in a gravity model are then equal to 1 and the coefficient on the distance term is 0.

around 40 percent of the decrease in trade as a share of global GDP.⁸ Figure B.3, in the appendix, which decomposes the country equivalents metric by country, suggests that China's growth explains much of the decline in country equivalents after the GFC.

Figure 4: Impact of “gravity” on trade, 1970–2022



Note: As shown in Appendix B, when world output is computed in constant US dollars, changes in the number of country equivalents before and after the GFC remain broadly similar to those shown in the figure, which is based on valuing output at current exchange rates. To evaluate the contribution of each country to this decrease, Appendix B also shows the evolution of output shares and of their squared measure over time.

Source: Authors' calculation based on data from the World Bank's *World Development Indicators*.

The declining “traded-ness” of output

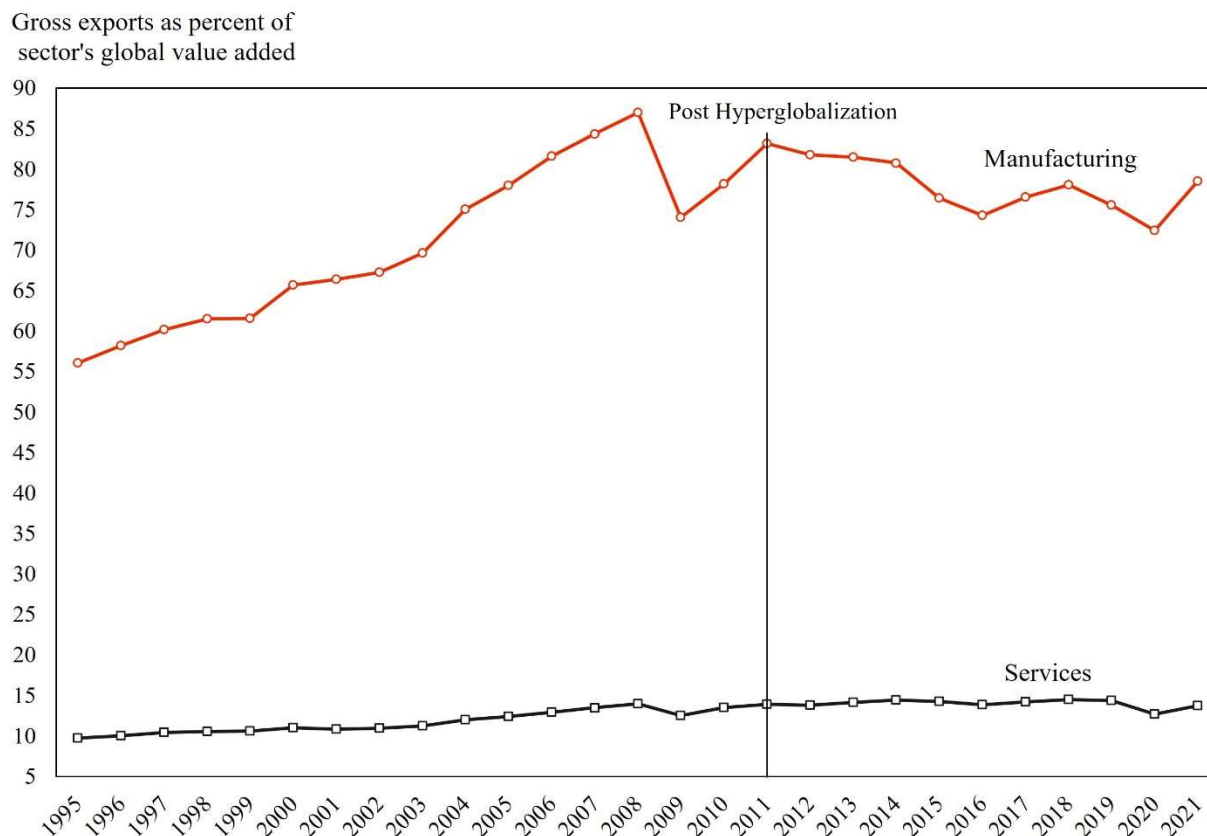
Whether it is just a correlate or a cause, patterns are evident in the traded-ness of underlying manufacturing and services output.⁹ The share of manufacturing value added that was traded rose from 55 percent in the mid-1990s to a peak of 87 percent in 2008 (Figure 5). Services, which are less tradable than manufacturing, witnessed a smaller increase, of about 5 percentage points, during this period. After the GFC, the share of manufacturing value added

⁸ In a simple ordinary least squares regression of $\Delta \text{globalexports}$ on $\Delta \text{countryequivalents}$, the R -squared value is 0.43 for the period starting in 2011.

⁹ Traded-ness is an ex post measure; it is different from ex ante tradability, which is more difficult to measure.

that was traded declined by about 10 percentage points from its peak, and the tradability of services plateaued. Something happened after hyperglobalization that made underlying economic activity less traded.

Figure 5: Traded-ness of manufacturing and services, 1995–2021



Note: We define the *traded-ness* of a sector as world trade divided by the global value added in the sector.

Sources: Authors, based on data from Borin and Mancini (2019); OECD *Trade in Value Added* (TiVA) 2022 edition; and UNCTAD *UNCTADstat* database.

Traded-ness is also an outcome measure and is probably affected by deeper factors. China rose as a mega-trader by integrating the middle of value chains, importing goods to reexport, as Baldwin (2022) notes. It is now producing most of its inputs, thereby reducing the “traded-ness” of manufactured goods and increasing its share of global manufacturing.

It is also possible that even within manufacturing compositional shifts took place that reduce trade in goods. China’s responses to the GFC took the form of a massive increase in infrastructure spending, which tilted the composition of output toward more nontradable activities (such as construction).

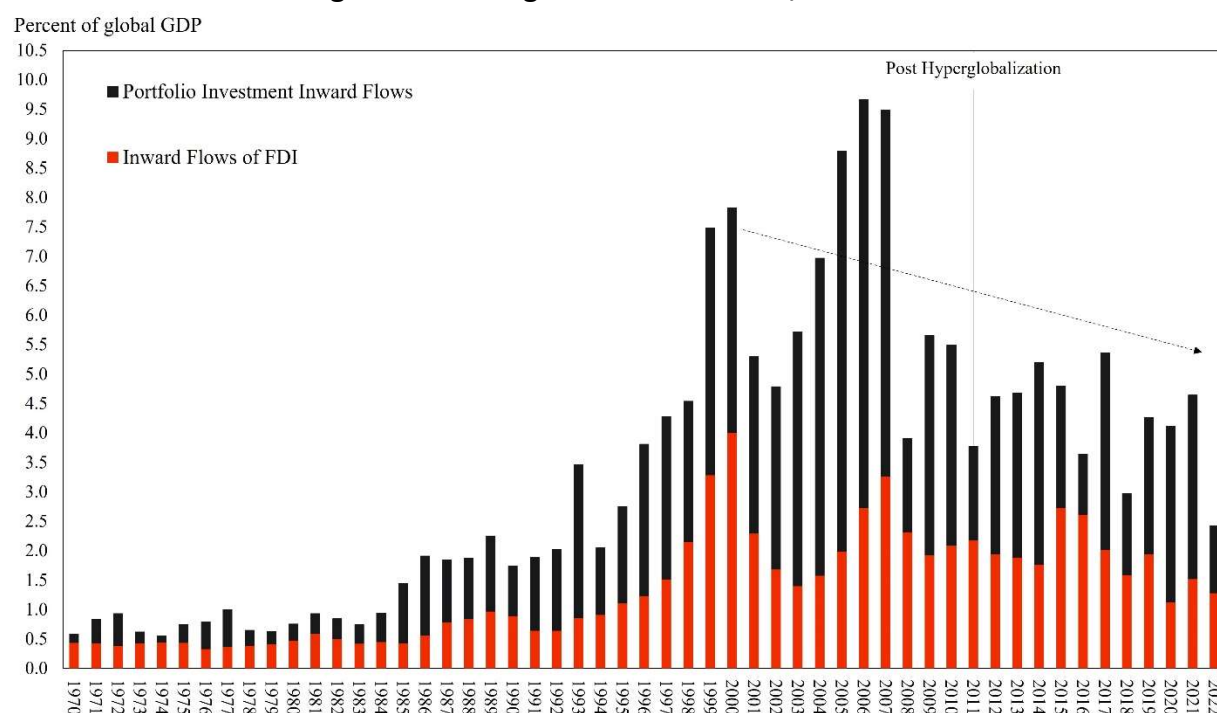
Trade flows do not capture all modes of globalization, because markets can be serviced through local sales of multinational corporations (MNCs) and their affiliates, which do not show us as

cross-border sales. Alfaro and Chor (2023) present corrected trade data but also recognize the possible limitations to such integration, especially as import prices from upstream inputs rise.

Financial deglobalization

Trade requires finance. Several scholars—especially Hyung-Song Shin of the Bank for International Settlements and Adam Tooze (2018)—have highlighted the links between the two.¹⁰ The era of trade hyperglobalization was also the era of financial hyperglobalization (figure 6). Gross flows of portfolio finance and FDI surged from the early 1990s onward. After the GFC, both forms of financial flows decelerated sharply, portfolio flows from a peak of 7 percent of global GDP to about 3.0–3.5 percent of GDP thereafter and FDI flows by about 2 percentage points of GDP.

Figure 6: Global gross financial flows, 1970–2022



Note: Inward portfolio flows represent portfolio investment liabilities.

Sources: Authors' calculations based on data from UNCTAD *UNCTADstat* database for FDI flows and IMF *International Financial Statistics* for portfolio flows.

Of course, not all FDI flows are trade related. A large share, estimated at about 40 percent, could be considered “phantom FDI”—artificial transactions made through tax havens (Damgaard, Elkjaer, and Johannesen, 2019). A significant share of the post–GFC rebound of FDI

¹⁰ See the speech by Hyung-Song Shin at the Columbia University CFM-PER Alternative Data Initiative virtual seminar on February 16, 2023 (<https://www.bis.org/speeches/sp230216.htm>).

came from flows in offshore financial centers, reinforcing the point that actual financial globalization was in decline (Lane and Milesi-Ferretti 2018).¹¹

After the GFC, financial deglobalization was much more marked than trade deglobalization. It probably dragged down trade.

Trade policy

Explanations of the post-war reglobalization and even the era of hyperglobalization tended to follow the 80-20 rule: 80 percent of increased trade reflected technology (declines in shipping and transportation costs initially, followed by declines in information costs); the remaining 20 percent reflected trade policy (unilateral, regional, or multilateral under the auspices of the WTO).

The era of hyperglobalization was also the period of trade policy liberalization, as documented by Irwin and O'Rourke (2011). It included unilateral reforms; a surge in free trade agreements; and—under the Uruguay Round, followed by the accession to the WTO of several countries, including China—multilateral trade reforms.

Post-GFC some of this momentum plateaued and some even went into reverse (the period examined ended before the Russian invasion of Ukraine). The WTO (2023) has documented the increased number of trade concerns brought before its various committees.¹²

The most dramatic deglobalization event was Brexit, in 2016, and the Trump tariffs on China and Europe, in 2017, documented by Bown (2021) and Freund et. al. (2023). China embarked on localization under Xi Jinping (even before the Russian invasion). India also reversed course, beginning in 2017 (Chatterjee and Subramanian 2020).

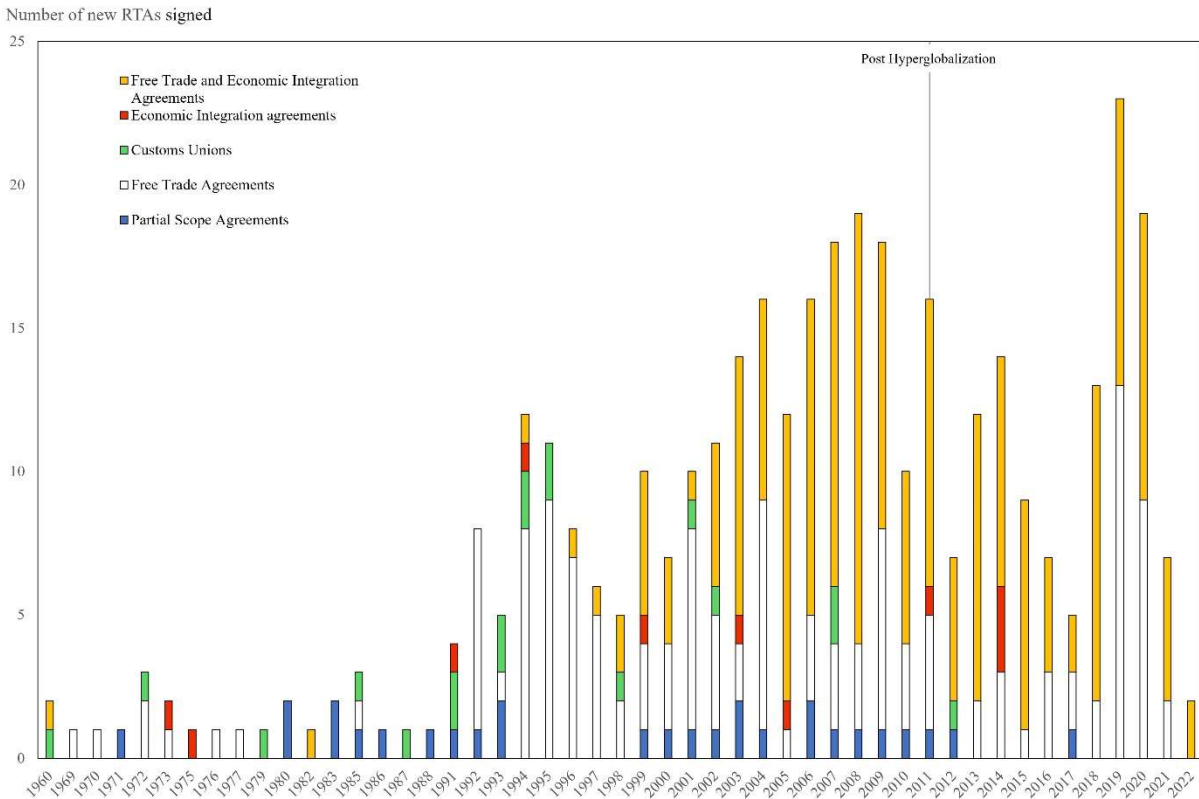
Figure 7 provides some suggestive evidenced on regional trade agreements.¹³ The number of free trade agreements negotiated declined after the GFC, although there was a spike just before the pandemic. Agreements signed then included the Regional Comprehensive Economic Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), both of which include some of the largest economies in Asia and the Pacific. The United States and India are the major absentees from the RCEP; both countries plus China declined to join the CPTPP.

¹¹ Data limitations, especially before 2009, make it difficult to assess the role of these artificial flows in the hyperglobalization period. More recent policy efforts (through the OECD's BEPS) might curve those tax-motivated flows. It is possible that the spike around the GFC was undesirable. Because the shift in policies started only around the mid-2010s and a key agreement on tax in 2022, it still seems likely that financial flows declined after the GFC.

¹² See Figure B.1 of the cited report.

¹³ On services, the comparable indexes on services trade restrictiveness seem to show a slight decrease in restrictiveness from 2008 to 2016, for a limited sample of countries (see Borchert et al. (2019) for more details).

Figure 7: Number of new preferential trade agreements signed, 1960–2022



Note: Years refer to the year the World Trade Organization was notified of the agreement. To simplify the classification of agreements, all agreements that are both economic integration agreements and customs unions or partial scope agreements are included in the “economic integration agreement” category.

Source: Authors’ calculations based on data from the World Trade Organization’s *Regional Trade Agreements Database*.

The end of hyperglobalization also reflected a change in the ecosphere of ideas back toward inwardness.

Arrested global structural transformation

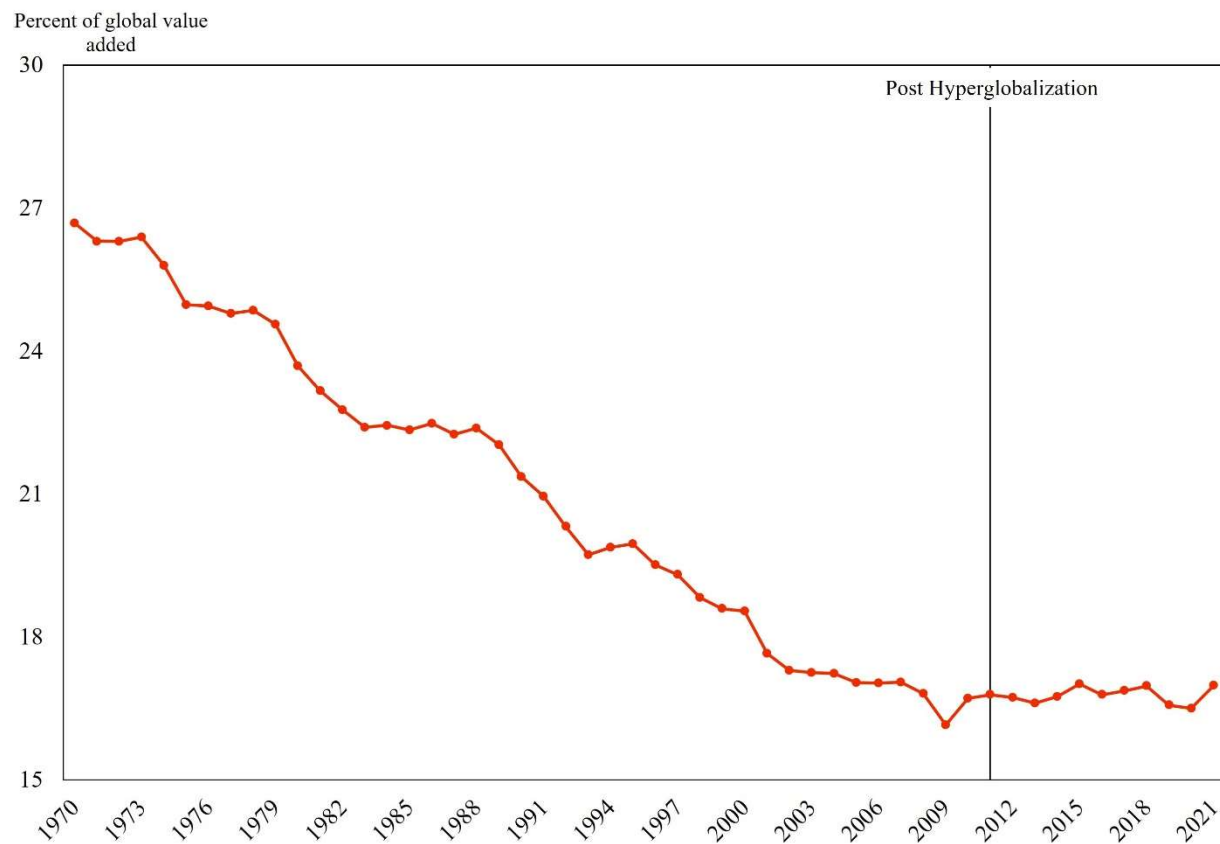
Gravity, the tradability of output, financial deglobalization, and policy restrictiveness all worked against globalization after the GFC. The puzzle is why manufacturing deglobalization was not stronger and why services globalization continues apace.

We offer a possible partial explanation: the cessation of a secular trend in the composition of global output. The share of global manufacturing in global GDP is the product of global manufacturing exports as a share of global manufacturing value added (“traded-ness”) and global manufacturing value added as a share of global GDP (tradable output). Tradability rose dramatically during the era of hyperglobalization and declined thereafter. But it is the second element—the composition of global output that is accounted for by the more tradable output, namely manufacturing—that provides the explanation.

At the country level, structural transformation is associated with first a rising share of manufacturing in total output (and employment) followed by a decline in this share. The decline occurs because of a combination of a high income elasticity of demand for services and the rising productivity of manufacturing.

At the global level, structural transformation is determined by a combination of structural transformation in rich and poor countries. Since 1970 there has been a secular decline in manufacturing's share of output, suggesting that the forces of transformation in rich countries (whose manufacturing share peaked) outweighed the counterpart forces in rapidly growing emerging markets, where manufacturing shares rose. Manufacturing represented 27 percent of global value added in 1970 and about 16 percent in 2009 (figure 8). After 2009, the share stagnated; structural transformation at the global level stalled. It is possible that structural transformation in advanced economies was completed, with manufacturing settling at long-run equilibrium values that makes sectoral shares less immune to further change.

Figure 8: Global manufacturing activity, 1970–2021



Source: Authors' calculations based on data from UNCTAD *UNCTADstat* database.

The global reallocation of output has a key bearing on how much of global output tradable manufacturing accounts for. In 1992, China represented barely 3 percent of global manufacturing value added. That figure rose to 25 percent in 2014 and to 31 percent in 2021.

The European Union and the United States each account for about 15 percent of global manufacturing activity, with the rest of the world accounting for 40 percent.

China, India, and the incorporation of dynamic economies into the global trading system

Another explanation of deglobalization relates to China, India, and the incorporation of dynamic economies into the global trading system. The “hyperglobalization” period corresponds to this process—and would end once it is achieved. Once the world reached an optimal level of trade with China (after possibly overshooting a bit), the level was bound to stabilize. That it coincided with the post–GFC period could just be happenstance. Similarly, companies would have found their equilibrium level of value chain integration with emerging economies.

At the same, China gradually shifted its macroeconomic policy mix after its massive fiscal-as-monetary stimulus with a massive infrastructure boom, aiming at steadily (and successfully) reducing leverage and somewhat rebalancing its economy towards less tradable services. In short, beginning in the 1990s, globalization was significantly affected by the opening up of India and China and the incorporation of their vast labor pools into the global economy. Once that one-off event played out, trade had to stabilize or at least stop growing.

This explanation has merit, but it raises two questions. First, China continues to expand its global footprint. Second, trade responds to technology and continuing wage differentials. Bringing China and India into the trading system was the beginning of a process of trade responding to income differentials. Although these differentials have narrowed, they remain significant. China has moved up the value chain and become a major exporter of electric vehicles, out-competing Germany. India, which used to be a call center and location for cheap programmers and coders, has moved up the services chain by becoming a global capability center for international consulting and accounting firms. These dynamics will likely continue for some time.

The Demise of Disruptive Hecksher-Ohlin Trade

Gravity explains trade irrespective of comparative advantage. But hyperglobalization was also remarkable because it linked countries of different levels of income. Freeman (2006) famously argued that the embrace of the global trading system by China, India (which had started earlier), and Russia doubled the number of workers. These countries had lower productivity but a comparative advantage in labor-intensive production.

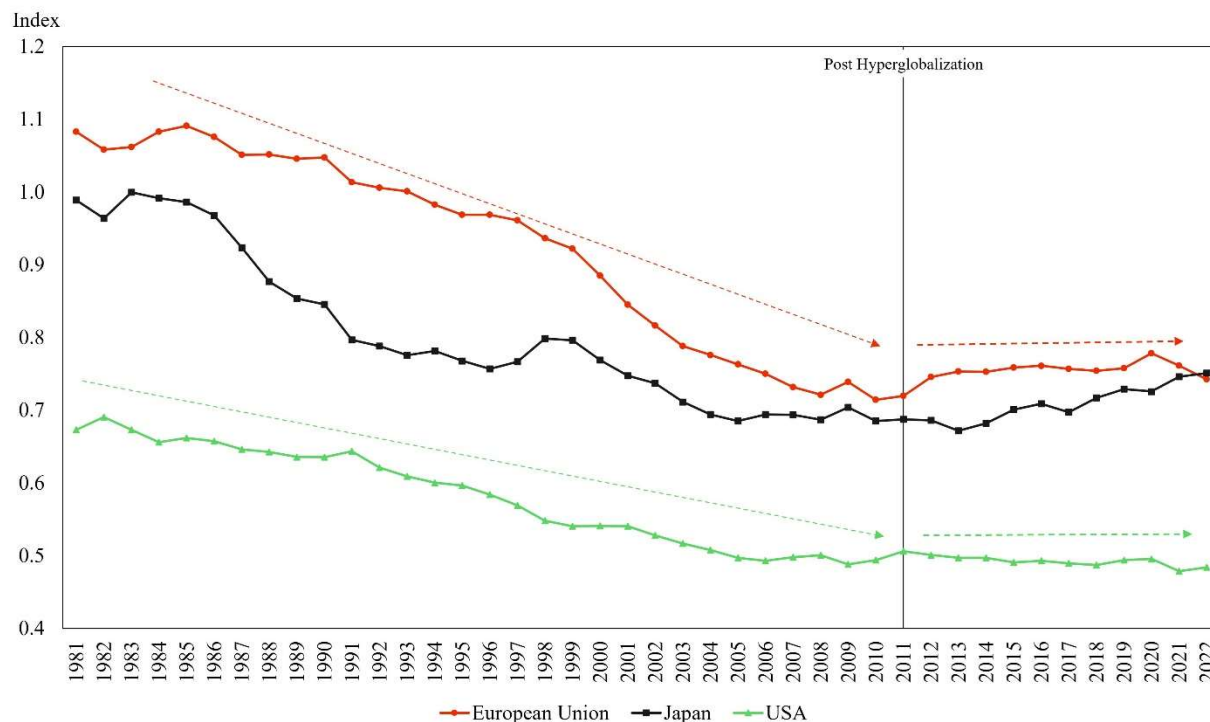
Hyperglobalization was a result of “Hecksher-Ohlin” forces: Countries with different factor endowments have different comparative advantages and thus trade more. In particular, developing countries export products that are relatively intensive in unskilled labor to rich countries, putting pressure on workers in sectors that compete with or are exposed to developing country exports. The trade and wage literature of the 1990s reflected the impact of this Hecksher-Ohlin trade.

The “China shock” literature was perhaps the most illustrative and telling example of Heckscher-Ohlin trade, with a twist. Instead of focusing on wages in rich countries, Autor, Dorn, and Hanson (2013) estimated the impact of Chinese imports on employment in the United States. In their original paper, imports from China accounted for about a quarter of the decline of employment in manufacturing. Updating their paper in 2021, they found that although the shock itself had stopped, its effects persisted—and even increased—over time, accounting for up to 55 percent of the decline.

At the global level, two separate evolutions are occurring. For advanced economies, trade with lower income countries is stagnating, but the relative income of trading partners is increasing, as income levels tend to converge. This combination of effects leads to a moderation—and even a slight reversal in the case of Japan—of Heckscher-Ohlin dynamics.

Figure 9 plots the average income level of manufactured imports into the European Union, Japan, and the United States. The per capita GDP level of each source country (measured relative to that of the importing country) is weighted by its share in total manufactured imports of the reporting country. Especially in the European Union and the United States, imports from the early 1990s were sourced progressively from poorer countries, suggesting an increase in competition from lower-wage countries. In the European Union, for example, the average income level of imports dropped from 110 percent to around 70 percent of the European level of income.

Figure 9: Relative income level of manufacturing exporters to the European Union, Japan, and United States, 1981–2022



Note: The measure represented here is the weighted average income level of exporters in manufactures (commodities in SITC categories 5–8, excluding division 68) to the European Union, Japan, and the United States, excluding oil exporters (as defined by the International Monetary Fund) and small countries (countries with less than 1 million people). Because of the specific characteristics of Comtrade data – which do not have information for countries that were part of larger state formations (i.e., Yugoslavia and the Soviet Union) until their dissolution—the European Union represents EU-15 countries throughout the sample irrespective of accession or exit years. Income level is real GDP per capita in 2011\$ using the *gdppc* measure in the Maddison Project Database 2020. For years 2019–22, GDP per capita is computed using purchasing power parity GDP per capita growth rates from the World Bank’s World Development Indicators. For example, if we call this index $RI_{eu,t}$ for the European Union, it is computed as $RI_{eu,t} = \sum_i \left(\frac{GDP_{i,t}}{GDP_{eu,t}} \right) * \left(\frac{M_{i,eu,t}}{\bar{M}_{eu,t}} \right)$ where $M_{i,eu}$ is imports by the European Union from i and $\bar{M}$ is total imports by the European Union. $RI_{jp,t}$ and $RI_{us,t}$ are computed in the same minor for Japan and the United States. Appendix C provides the same measure computed using data for all goods.

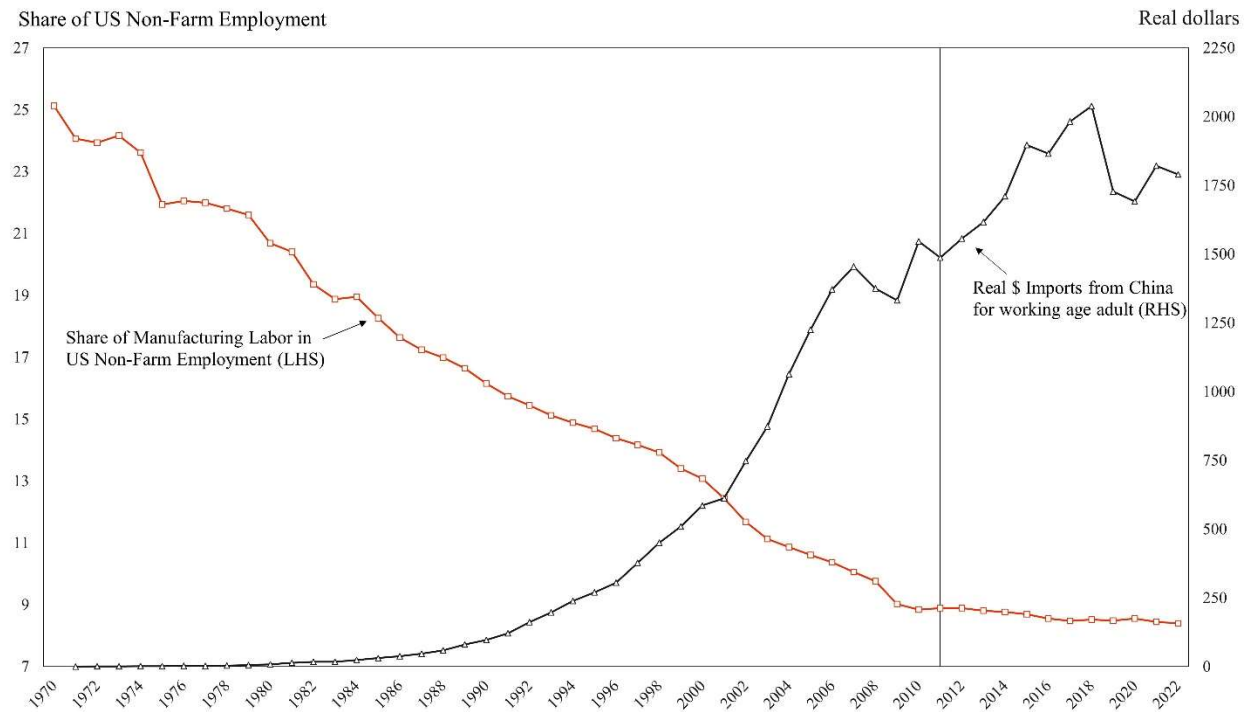
Sources: Authors’ calculations based on data from the *Maddison Project Database 2020*; UN *Comtrade* database; and the World Bank’s *World Development Indicators*.

After the GFC, this decline in the relative income plateaued in all major importing economies. It is not that Heckscher-Ohlin trade ceased, it is that it stabilized, placing less pressure on wages and employment in unskilled sectors in rich economies. It is in this sense that one can say that disruptive Heckscher-Ohlin trade has less salience today than it used to.

Turning to the China dimension of this trade, Autor, Dorn, and Hanson (2013) document strong effects on labor markets and real incomes at the local level; the overall share of manufacturing employment in the United States stagnated, even though its imports from China continued to rise until 2018, declining slightly thereafter. At the same time, the share of manufacturing in total employment stagnated after 40 years of steady decline. In other words, the China shock

continued after the GFC, but somehow its apparent macroeconomic impact on aggregate jobs no longer exists. This, too, is a puzzle. One possible explanation is that sectors in competition with low-wage imports have essentially hollowed out (Lawrence, 2017).

Figure 10: The China shock and US manufacturing employment, 1970–2022



Note: Real imports are total nominal imports deflated by the unit price of imports, in 2017 prices.

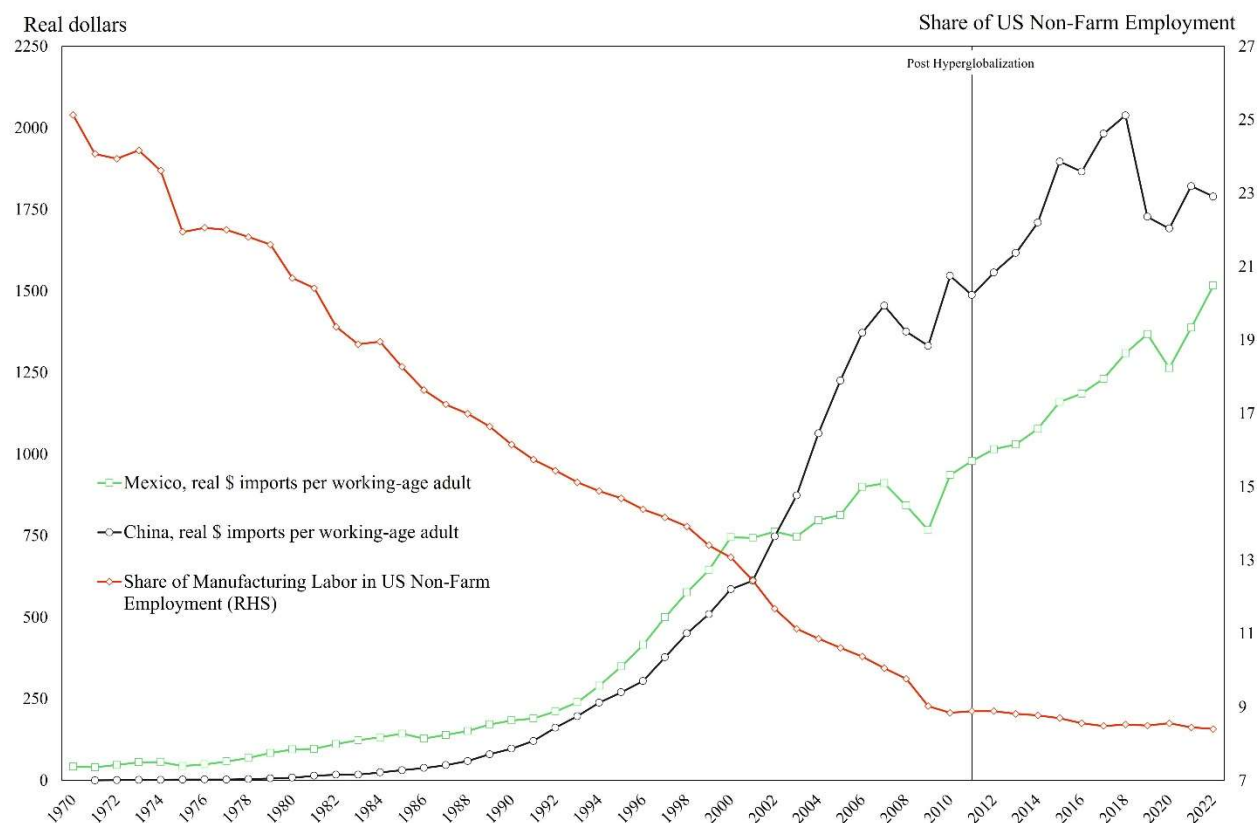
Sources: Authors, based on data from the IMF *Balance of Payments and International Investment Position Statistics* database for imports; the US Bureau of Labor Statistics via FRED St. Louis for the deflator (B021RG3A086NBEA series) and labor share (MANEMP_PAYEMS series); and the OECD's *Short-Term Labour Market Statistics* for the working-age population.

If the domestic impact of the China shock declined significantly after the late 2000s, the Trump phenomenon and the elevation of trade and China (and immigration) as salient political issues would represent the lagged, cumulative effect of events that occurred several years earlier.

Mutz (2018) and Noland (2020) present a complementary perspective: Trump did not lead voters to an anti-trade, anti-China stance but rather moved to where the voters already lived.

But the United States has also seen a remarkable increase in imports from Mexico, which have almost caught up with imports from China since 2016 (Figure 11). More than any other indicator, this increase reveals evidence of the trade war at the global level. The decline in trade with China has not necessarily reduced the exposure of the United States to trade; US trade has instead moved to other middle-income countries (Vietnam), neighbors (Mexico), and itself (onshoring), as Alfaro and Chor (2023) show.

Figure 11: Imports from Mexico and China and share of manufacturing labor in US nonfarm employment, 1970–2022



Note: Real imports are total nominal imports deflated by the unit price of imports, in 2017 prices.

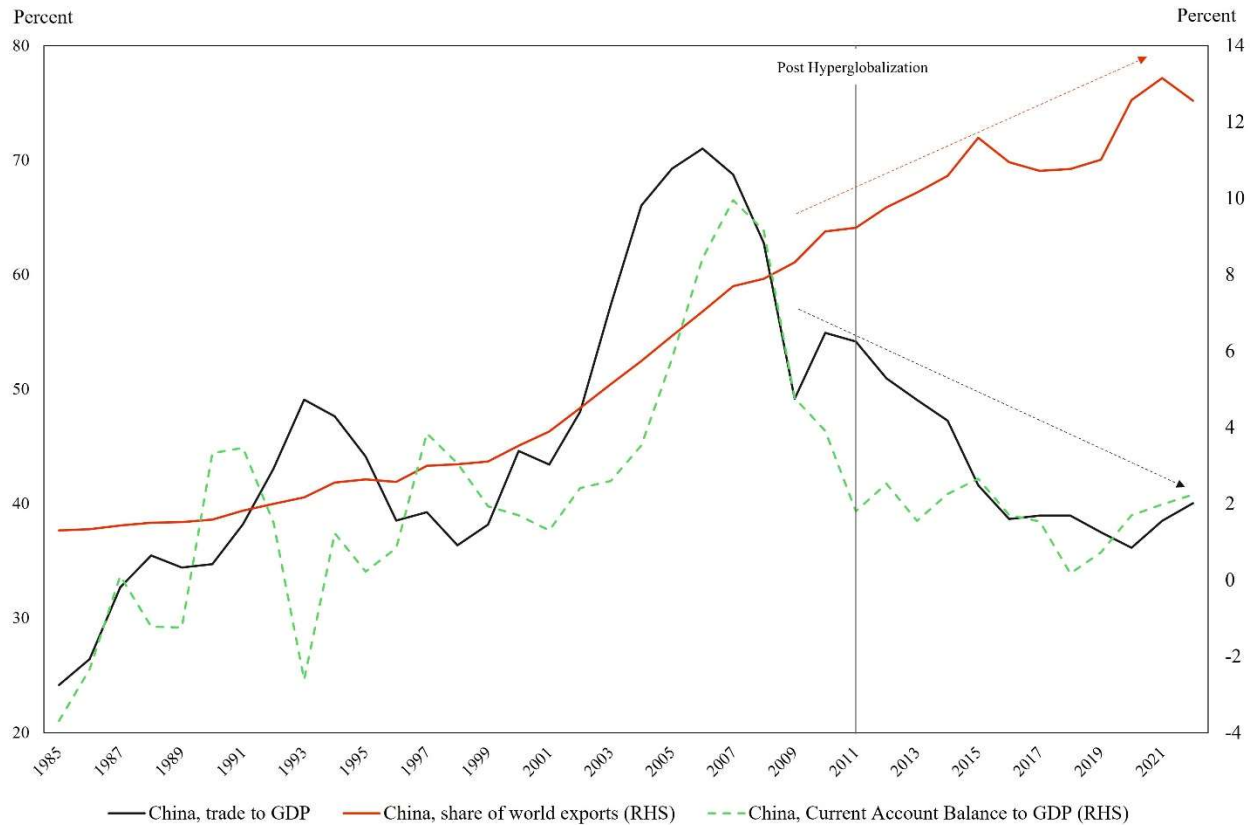
Sources: Authors, based on data from the IMF *Balance of Payments and International Investment Position Statistics* database for imports; the US Bureau of Labor Statistics via FRED St. Louis for the deflator (B021RG3A086NBEA series) and labor share (MANEMP_PAYEMS series); and the OECD's *Short-Term Labour Market Statistics* for the working-age population.

Sharp surges in imports are always a cause for anxiety; the “giant sucking sound” decried by Ross Perot might begin to reverberate again. However, the recent trade backlash against China has been more about national security concerns than its economic effects; those concerns do not apply to trade with Mexico.

China as Mega-Trader: A New Puzzle

In our original paper, and building on Subramanian (2011), we noted that the rise of China as a mega-trader was unique in history. China was an exceptional trader in two senses of the term. Its trade-to-GDP ratio rose dramatically during the era of hyperglobalization, from about 25 percent in 1985 to a peak of 71 percent just before the GFC. For a country of its size, this share was exceptionally large. The other sense in which it was a mega-trader was that the global market share of its exports soared to 7.5 percent (12.0 percent in the case of manufactured exports) just before the GFC (Figure 12).

Figure 12: China's trade-to-GDP ratio, share of world exports, and current account balance to GDP, 1985–2021



Note: Trade is the sum of exports and imports.

Sources: Authors' calculations based on trade data from the WTO *International Trade Statistics* database, IMF *Balance of Payments and International Investment Position Statistics* database for the current account, and the World Bank's *World Development Indicators* for GDP.

After the GFC, a puzzling wedge emerged. China's trade-to-GDP ratio plummeted by more than 30 percentage points, from 71 percent to a trough of about 35 percent. But its global export market share continued to rise at the same heady pace, reaching nearly 15 percent of total exports and 22 percent of manufactured exports by 2022 (table 1). Although China's trade relative to its own economy (its trade-to-GDP ratio) declined, its competitiveness vis-à-vis the world continued to soar, as its share of world exports show. The diverging magnitudes are stark: a nearly-halving of the trade-to-GDP ratio and a near doubling of global export market share. In the era of hyperglobalization, the two measures moved together.

Table 1: Merchandise exports as a share of world exports by mega-traders (1870–2022) and China’s share of manufacturing exports (2000–22)

Year	United Kingdom	Germany	United States	Japan	China	China (% Mfg Exports)
1870	24.3	13.4	5.0	0.1	2.8	
1913	18.5	18.0	9.0	0.8	2.0	
1929	12.2	13.3	11.5	1.7	2.4	
1950	13.3	4.5	14.6	1.2	2.1	
1973	5.6	11.5	10.3	5.6	0.7	
1990	5.3	12.0	11.3	8.2	1.8	
1998	5.0	9.9	12.4	7.0	3.3	
2000	4.4	8.5	12.1	7.4	3.9	4.7
2010	2.7	8.2	8.4	5.0	10.3	14.8
2012	2.6	7.6	8.4	4.3	11.1	16.7
2019	2.4	7.8	8.6	3.7	13.2	18.2
2022	2.1	6.6	8.3	3.0	14.4	21.7

Note: Until 1973 data are in constant prices (1990 dollars); after 1973, data are in current dollars. Data for the share of Chinese manufacturing exports in global manufacturing exports is also in current dollars.

Sources: Authors’ calculations based on data from Maddison (2006) and UNCTAD *UNCTADstat* database.

The contrast with the United States is interesting. Its trade-to-GDP and global export market shares rose during hyperglobalization. Afterward, both declined moderately.

The China wedge is odd and counterintuitive. At one level, the two can be reconciled. Externally, the productivity of China’s tradables increased more rapidly than its competitors, allowing it to gain global export market share. Internally, its trade-to-GDP ratio collapsed because, after the GFC, China embarked on a massive stimulus, which led to a real estate and infrastructure boom. Public spending led to a change in the composition of output toward nontradables.

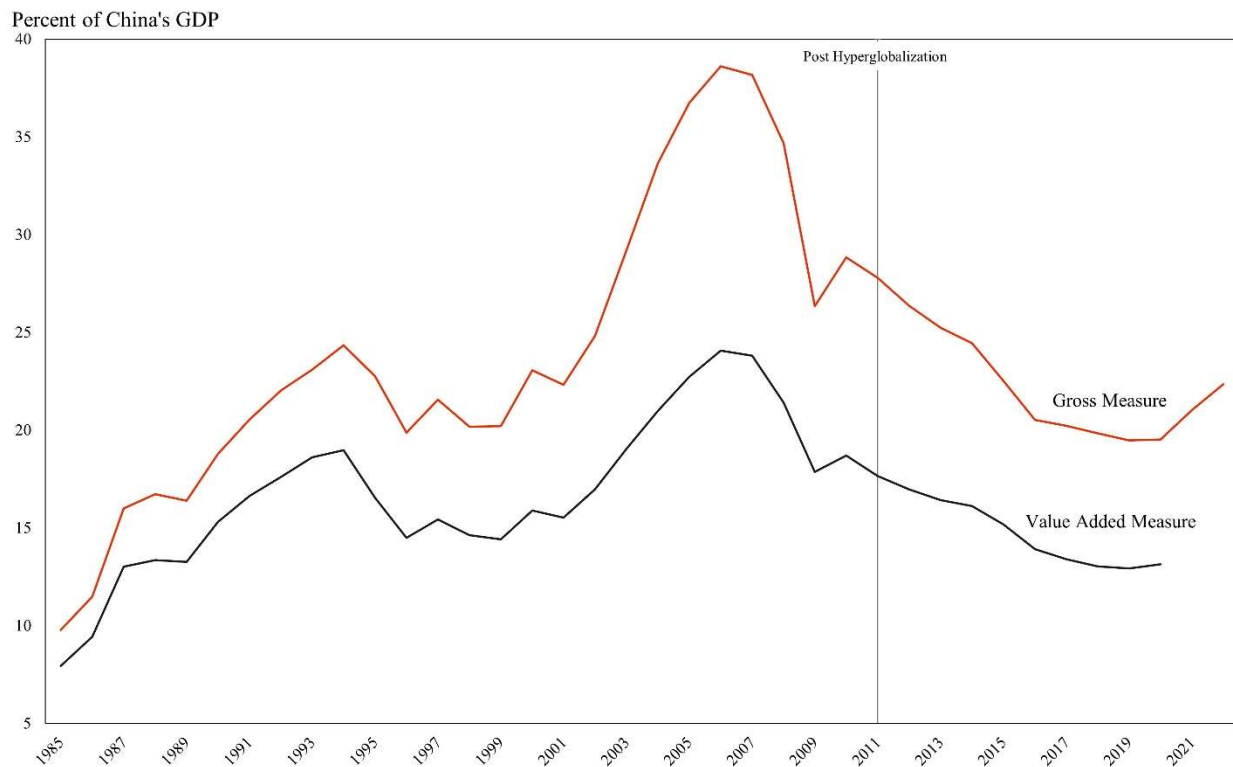
The problem is that external and internal developments and incentive structures have to be analytically consistent. The collapse of the trade-to-GDP ratio reflects either trade policy inwardness or a boom in nontradables relative to tradables. Trade policy inwardness should impede export competitiveness via Abba Lerner symmetry (“an import tax is an export tax”). And a relative boom in nontradables should have induced a Balassa-Samuelson reduction in the competitiveness of the tradable sector (via exchange rate and/or labor market effects).

Exports did not decline: China’s global export market share continued to soar, especially in manufacturing, as Table 1 shows, even after the GFC (China’s current account surplus did decline though). In the era of hyperglobalization, there was consistency between the internal and external aspects of trade outcomes: The trade-to-GDP ratio soared, thanks to a post-reform (in the late 1990s under Zhu Rongji) and post-WTO accession boom in the productivity of

tradables, which also led to an increase in China's global export market share and improvement in its current account balance.

One possible explanation for these facts could be that the decline in China's trade-to-GDP ratio was confined to gross trade and not value-added trade. It turns out, however, that the decline occurred both for gross and value-added exports, although the decline in value-added exports was about 15 percentage points, which is still significant and does not solve the puzzle (Figure 13).

Figure 13: China's gross and value-added exports as a percent of Chinese GDP, 1985–2021



Sources: Authors' calculations based on data from the World Trade Organization *International Trade Statistics* database for gross exports; data from Borin and Mancini (2019) and Borin, Mancini, and Taglioni (2021) for value-added exports; and data from the World Bank's *World Development Indicators* for GDP.

Another possible explanation for the post-GFC puzzle is that the level of tradable productivity was so high around the time of the GFC that despite deteriorating competitiveness at the margin because of the nontradables boom, productivity remained higher in China than in partner countries. Deterioration at the margin could not eliminate the substantial level differential.

Neither explanation is fully satisfactory. This China puzzle needs further understanding.

Trade and Mercantilism

Mercantilism in general and Chinese mercantilism in particular are back in the news. The freezing of Russian foreign exchange reserves after Russia invaded Ukraine raised doubts about the touted benefits of mercantilism. The acquisition of foreign exchange reserves and the self-insurance it was supposed to provide against financial crises were seen as explicit benefits of mercantilism. But if access to these reserves is denied by actions of the reserve currency country (the United States), the benefits of these reserves can evaporate.

Chinese mercantilism is once again resurfacing in debates, in part because of the influential work of Klein and Pettis (2020), who argue that it is a source of global deflation. If China runs current account surpluses, the argument goes, the United States must run counterpart deficits, which will reduce US domestic savings, via some combination of higher US unemployment, higher household debt, or larger fiscal deficits. It could also happen because the United States imposes trade restrictions to counter Chinese mercantilism— as Trump did—which would also be deflationary.

The policy implication of this position is that it is not good enough for the trading system to eliminate restrictions on trade alone; it must also impose obligations on countries not to run surpluses. Put crudely, at the global level, because $X - M$ (mercantilism) depresses $X + M$, it is necessary not only to eliminate barriers to $X + M$ (trade), as the WTO currently does; it is also necessary to encourage $X - M$ (mercantilism) via exchange rate policies (the WTO already prohibits export subsidies).

The tension, in this view, is that at the global level mercantilism on the one hand and trade and growth on the other have been positively correlated. Before the GFC, global surpluses surged (the famous Bernanke savings glut), but so did globalization and growth. After the GFC, surpluses, trade, and growth all declined (figure 14). The era of trade hyperglobalization was also the era of peak mercantilism, reflected in rising global current account surpluses (even excluding oil exporters). In this period, global growth boomed to all-time highs. After the GFC, trade hyperglobalization faded, mercantilism collapsed, and global growth slowed.

Figure 14: World economic growth and ratios of exports and current account surplus to GDP, 1994–2019



Note: Figure excludes 2009, a period of negative growth. Oil exporters are excluded from the computation of surplus.

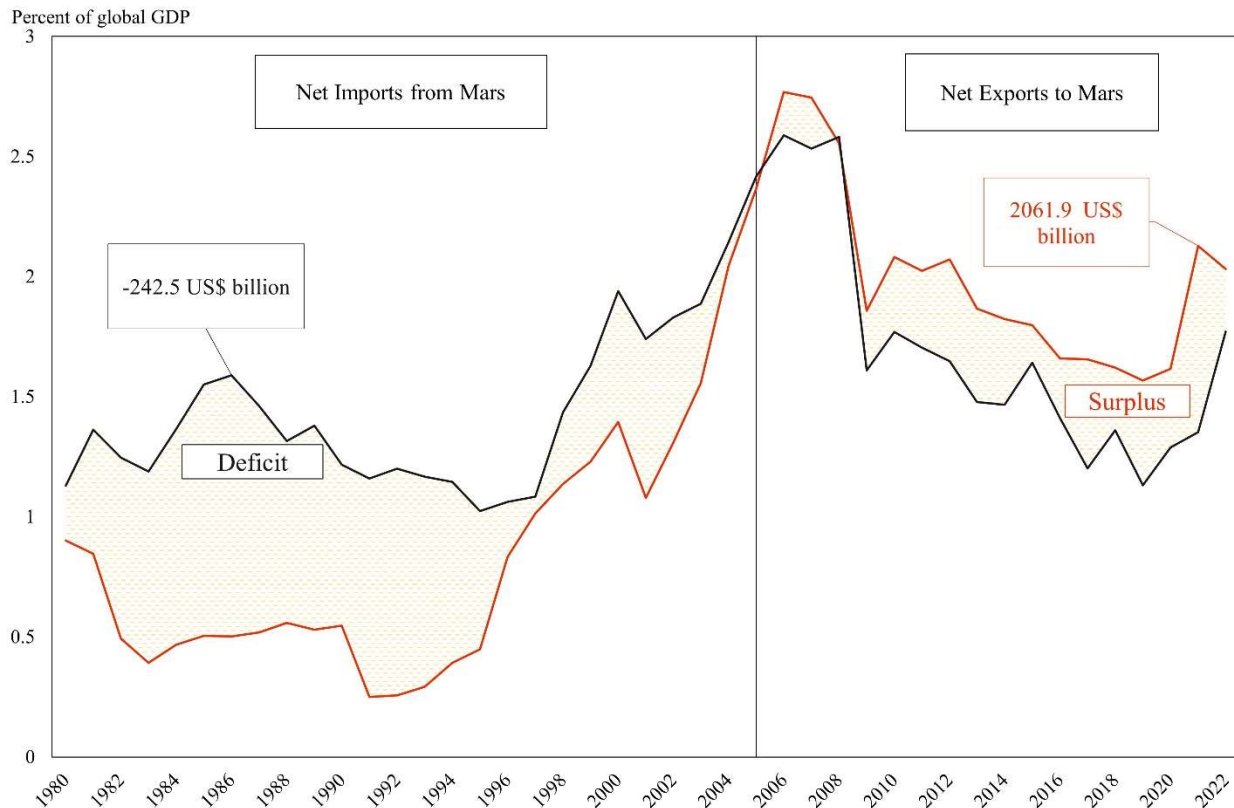
Sources: Authors' calculations based on data from the WTO *International Trade Statistics* database for exports, the IMF *Balance of Payments and International Investment Position Statistics* database for current account data, and World Bank's *World Development Indicators* for GDP data.

One way to reconcile the correlation with the Klein and Pettis contention is that such correlation depends on the underlying drivers. Before the GFC, Chinese surpluses were driven by a combination of rapid productivity growth (good for global growth) and mercantilism (deflationary). Advanced economies adopted expansionary policies, mostly monetary, which, combined with surging productivity growth, offset mercantilism. After the GFC, Chinese mercantilism waned but was offset by China's expansionary demand policies.

Measuring mercantilism

Are economists correctly measuring mercantilism? Before the GFC, global current account deficits consistently exceeded surpluses (the joke was that Planet Earth was a net importer from Planet Mars) (Figure 15). The GFC demarcated a dramatic swing, with global current account surpluses consistently exceeding deficits since it ended: Planet Earth has become a net exporter to Planet Mars. The excess deficit was \$240 billion (in nominal dollars) in the mid-1980s; in 2022 the excess surplus was over \$2 trillion, a swing of about 0.5 percent of global GDP.

Figure 15: World current account balance, 1980–2022



Note: The two data labels represent the nominal dollar value of the peak deficit (1986) and surplus (2021) between 1980 and 2022.

Source: Authors' calculations based on data from the IMF *Balance of Payments and International Investment Position Statistics* database for current account data and the World Bank's *World Development Indicators* for GDP data.

This large swing in the global current account balance discrepancy is a paradox, as imports statistics are widely considered to be more comprehensive than export statistics (because tariffs are measured on imports). A usual explanation is that import statistics do not capture services linked to intellectual property (Tørsløv, Wier, and Zucman 2023). For instance, Uber considers some of its activities as services from its subsidiary in Bermuda (established as part of a complex corporate tax structure intended to reduce the taxes it pays to the Organization for Economic Cooperation and Development [OECD]), but the OECD accounts for its activities as domestic. The role of tax havens is also important.

The fact that China may be underreporting its surplus compounds the puzzle.¹⁴ If it is, the global measurement discrepancy is even greater.

¹⁴ https://twitter.com/Brad_Setser/status/1716531762719834389

The Future of Globalization

Ten years ago, in our predecessor paper (*Is There Reason to Be Sanguine about Trade?*), we reflected on the future of globalization:

The cardinal sin of forecasting is to extrapolate the recent past, as Norman Angell, future Nobel Peace Prize winner, did in 1910, when he published *The Great Illusion*. This pamphlet-turned-book acquired cult status for propagating the view that Europe had become so interlaced economically through trade, credit, and finance that war was impossible. Twentieth century wars would be so economically devastating even to the aggressor that waging one would amount to self-inflicted folly. In the words of Lord Esher, Angell's most earnest disciple, the inevitable consequences of "commercial disaster, financial ruin, and individual suffering" would be "pregnant with restraining influences."

. . . history's lesson is that we cannot be 100 percent certain that the enmeshing of interests will be strong enough to sustain the status quo. Nor is there a cast-iron guarantee that the current ideological embrace of markets as the predominant basis for organizing economic relations will survive the vicissitudes of intellectual fashion and the selective and self-serving interpretations of policymakers. There is tail-side risk (that is, a small, but nontrivial probability of catastrophic outcomes) that interests, ideology, and institutions, both domestic and international, will be inadequate to the task of preserving the current system. And then there is always the unforeseeable and the irrational. World War I, after all, did happen (Subramanian 2011, 170).

Section 5 discussed the factors that become serpents in the paradise of hyperglobalization. They include prolonged weakness in the West, a serious domestic shock in China that precipitates a retreat there, and the vacuum in international governance. The status quo power is in economic decline, and the rising power will prioritize domestic interests over international responsibilities to a greater degree than previous superpowers, because it is still only a middle-income country. *Another unforeseeable factor is the politics and projects of militarism and imperialism (for example, a conflict between China and Japan), which could set back globalization* [emphasis added].

We cautioned against a sanguine view of trade based on extrapolating recent trends and highlighted the possibility of unforeseeable factors—what Keynes famously called “the serpents in the paradise” of globalization.¹⁵ Some of those serpents—most notably US–China conflict, China's inward turn, and the Russian invasion of Ukraine and the West's responses to it—have indeed come back to bite. Changing ideas in favor of industrial policy and soft protectionism are also taking their toll. Recent events have undermined not just globalization but the belief that globalization and interconnectedness promote peace and reduce conflict.¹⁶

¹⁵ Obstfeld (2020) makes thoughtful reflections on the future of globalization and the policies and institutions needed to sustain it.

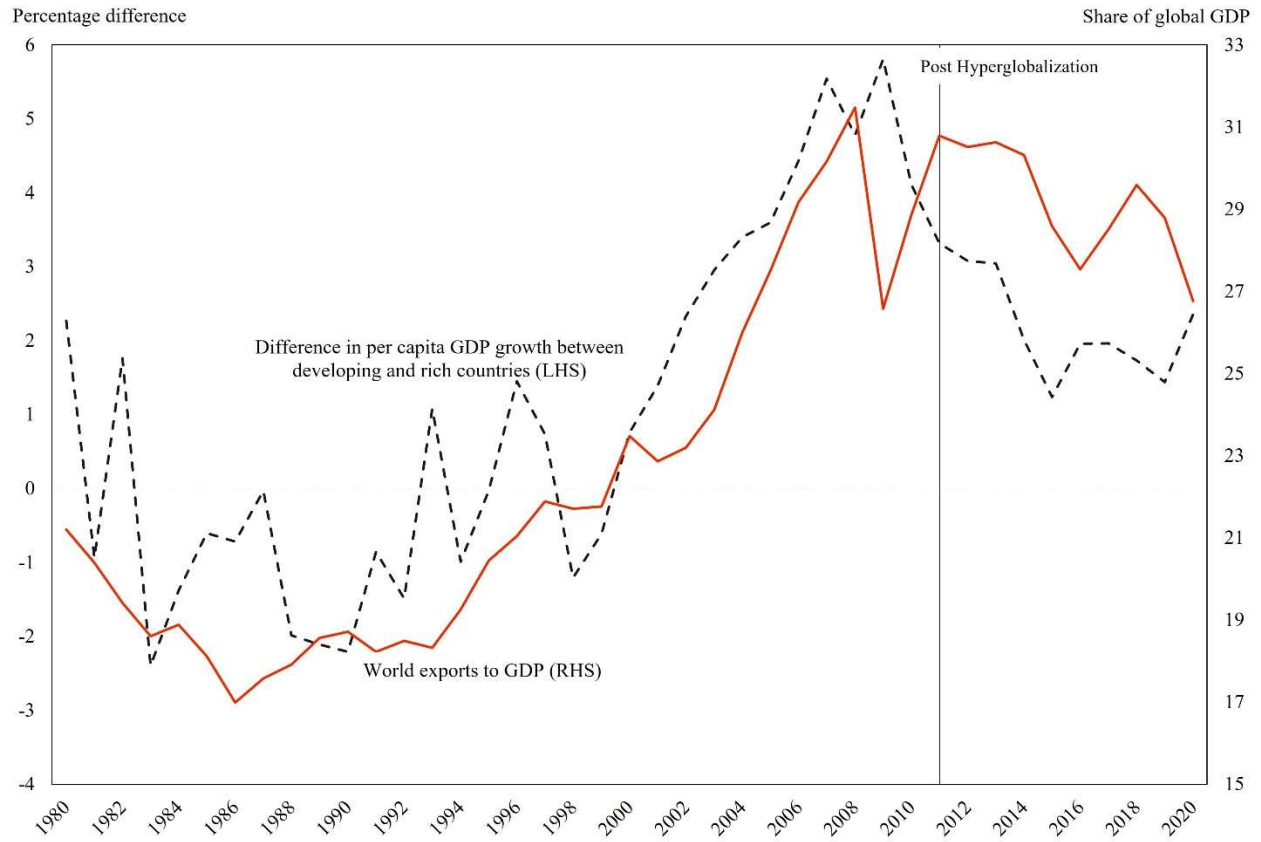
¹⁶ The use of trade policy for peace-building has a long, though not always successful, history. Trade was clearly not sufficient to prevent Russia from waging war on Ukraine.

Ten years on, we offer a counter-caution: to avoid extrapolating the prevailing pessimism about globalization and to recognize its still untapped potential. On a value-added basis, trade represents about 20 percent of world GDP. A simple frictionless gravity model predicts that the theoretical maximum should be substantially greater, close to 1.¹⁷ Even as the vicissitudes of geopolitics and the seductions of inwardness buffet trade, risk-hedging, technology, and commercial opportunities will continue nudging trade (especially in services) in the direction of that ideal (Antràs 2020; Baldwin 2022).

Even ideas are fickle and whimsical. The truth is just ideas going in and out of fashion, as Robert Solow famously said. Today the vanes of taste have veered in favor of inwardness masquerading as a legitimate response to the excesses of neoliberalism. But this trend too shall pass, not least because the era of hyperglobalization was also the golden age of poverty reduction and income convergence for developing countries—a point they should reiterate (figure 16). The disenchantment with globalization and the embrace of inwardness are, in their own way, forms of intellectual neo-imperialism.

¹⁷ This model suggests that the ratio of world trade to GDP should be 1 minus the sum of the squared shares of countries in world output. With convergence and a sufficiently large number of countries, the sum of squared shares should converge to zero, and the ratio of world trade to GDP should converge to one.

Figure 16: Globalization and GDP convergence, 1980–2020



Note: The GDP per capita growth rate is calculated using constant 2015 dollars.

Source: Authors' calculations based on data from the World Bank's *World Development Indicators* for GDP growth and World Trade Organization *International Trade Statistics* database for exports.

Appendix A Value-Added Data, Sources, and Specifications

In national accounts systems, trade is measured in gross terms, meaning that an export from a country is counted at its full value, whether that value was produced in the country or imported in part from another country (via purchases of intermediates). In addition, the country importing the product may not be the product's final destination. In traditional trade statistics, it is thus possible to count an output that crosses frontiers at multiple stage of its production several times.

This accounting lies in contrast to the way GDP is computed, which is in terms of value added. The value of the intermediates used in production is subtracted from the value of the final good.

This distinction between gross and value-added trade assumed significance in recent years with the diffusion of global value chains. With production increasingly sliced up across national borders, the divergence between gross and value-added trade flows widened considerably, increasing the importance of proper measurement.

Several attempts have been made to correct the discrepancy between the two measures and create a consistent index of value-added trade by linking trade data and input–output tables. The basic idea is to link the sources and uses of goods and services in order to trace the value added embodied in gross exports, which include both final outputs and intermediate inputs.

Several academic contributions have developed methodologies to assess the degree to which production is sliced up internationally. They include Hummels, Ishii, and Yi (2001); Johnson and Noguera (2012); Koopman, Wang, and Wei (2014); Borin and Mancini (2019); and Borin, Mancini, and Taglioni (2021).

This section outlines the data and computational approaches used to calculate value-added exports. (For a comprehensive discussion of the theoretical underpinnings of and differences in methodologies, see Antràs and Chor 2022.)

Throughout this paper we use the gross exports decomposition by Borin and Mancini (2019) and Borin, Mancini, and Taglioni (2021), which informed the analysis of the *World Development Report 2020: Trading for Development in the Age of Global Value Chains* (World Bank 2020).¹⁸ Their methodology isolates “directly absorbed value-added exports” (which they refer to as *traditional trade*), defined as the component of value-added exports that traverses a single border. This measure encapsulates value added that is either directly consumed in the initial destination country or employed as an input in production activities confined exclusively to that country. The difference between gross exports and directly absorbed value-added exports is

¹⁸ Available at <https://wits.worldbank.org/gvc/global-value-chains.html>.

thus the value of trade flows that cross at least two borders, which can be regarded as flows that are part of global value chains.

Data in the Value-Added dataset come from six sources:

- Eora26 (199.82 version) for 1990–2015
- World Input–Output Database (WIOD) 2013 version, for 1995–2011
- WIOD 2016 Version for 2000–14
- WIOD Long-run Version for 1965–2000
- OECD Trade in Value Added (TiVA) for 1995–2021
- the Asian Development Bank’s Multi-Regional Input-Output (MRIO) table 2019 Version for 2000 and 2007–21.

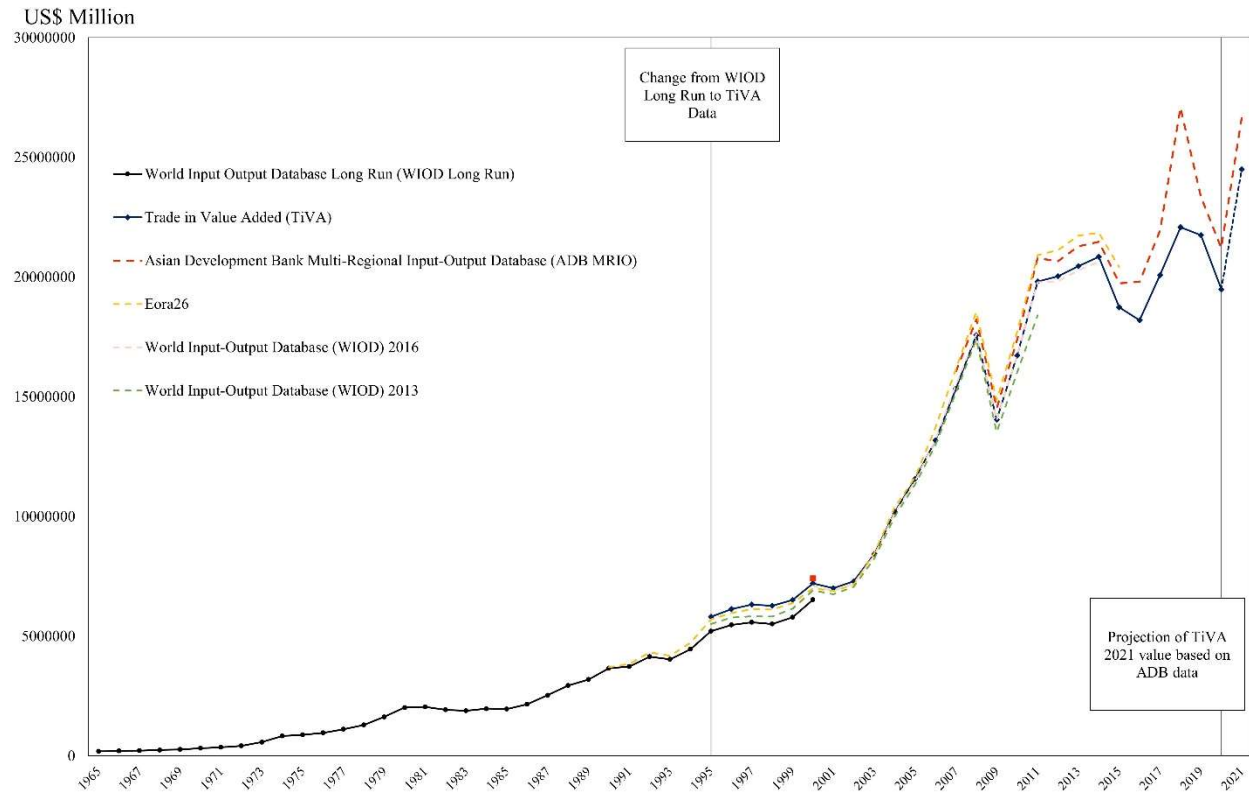
The decomposition of exports is performed at the country-by-industry-by-year level, with source-based accounting to avoid double-counting terms.

To cover as long a period as possible—and reduce, to the extent possible, discrepancies between different data sources—we use data from the WIOD long-run version for 1965–94 and OECD TiVA data for 1995–2020. We then compute the value for 2021 by projecting the values in the TiVA using growth rates computed with data from the Asian Development Bank (ADB). This choice stems from the need to reduce discrepancies between the data as much as possible (values from the ADB data tend to be much larger than values from the OECD TiVA, even for a smaller sample of countries).

From this recompiled dataset, we compute the share of value-added exports in gross exports at the sectoral level. We then multiply this share by gross exports from WTO statistics to compute the share of value-added exports in GDP, the tradability of goods and services, and the value of Chinese value-added exports.

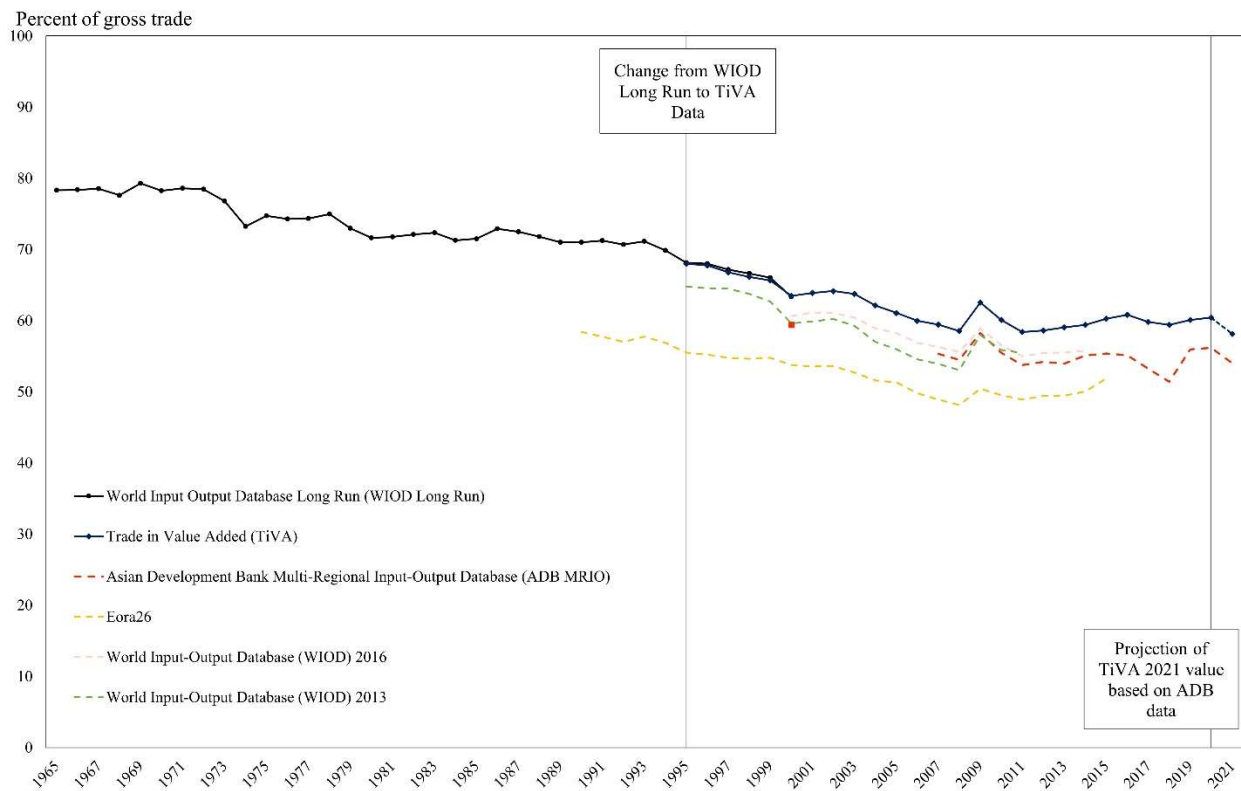
Figures A.1 and A.2 suggest that the various datasets are largely comparable in terms of both gross exports and the share of value-added in gross exports.

Figure A.1: Estimates of gross exports in different value-added datasets, 1965–2021
US\$ million



Source: World Bank (2020).

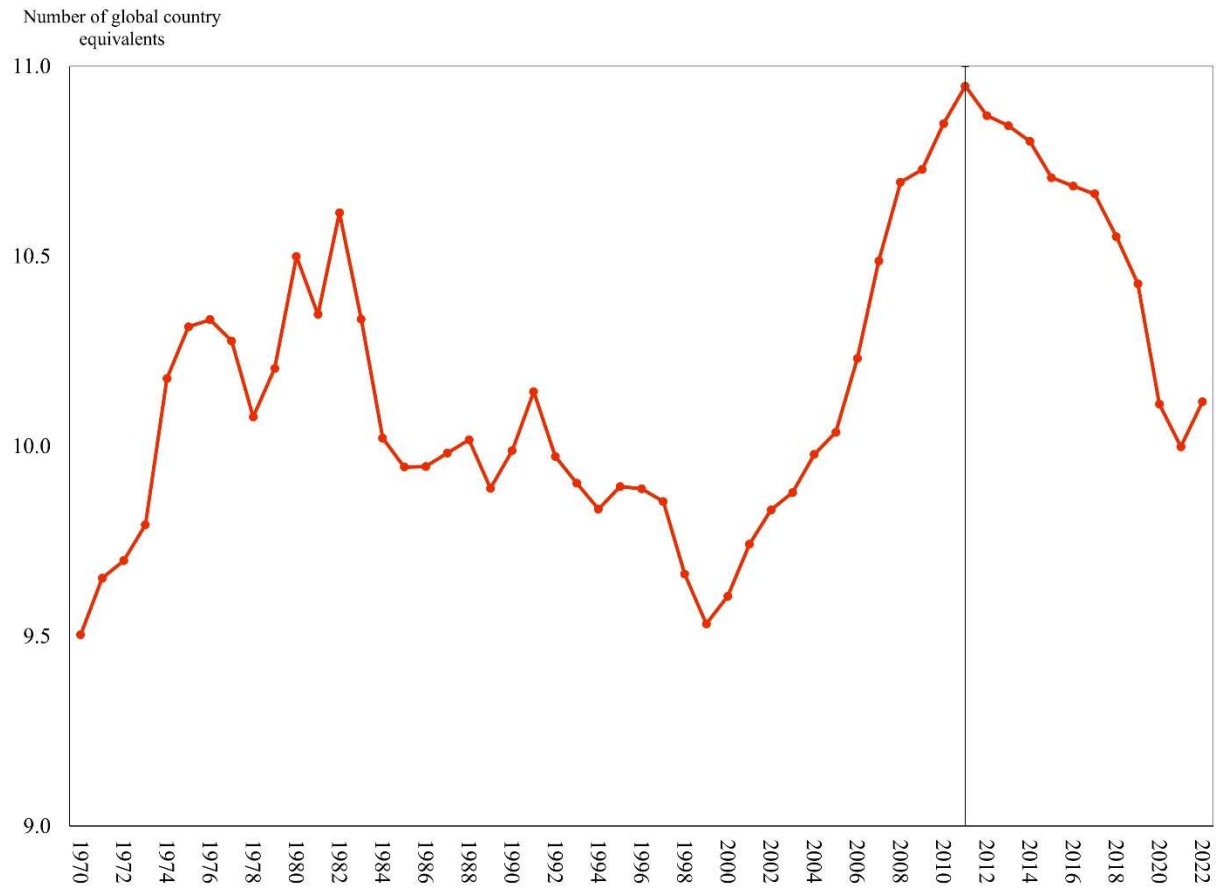
Figure A.2: Estimates of value added as a share of gross exports in different value-added datasets, 1965–2021



Source: World Bank (2020).

Appendix B Country Equivalents Analysis

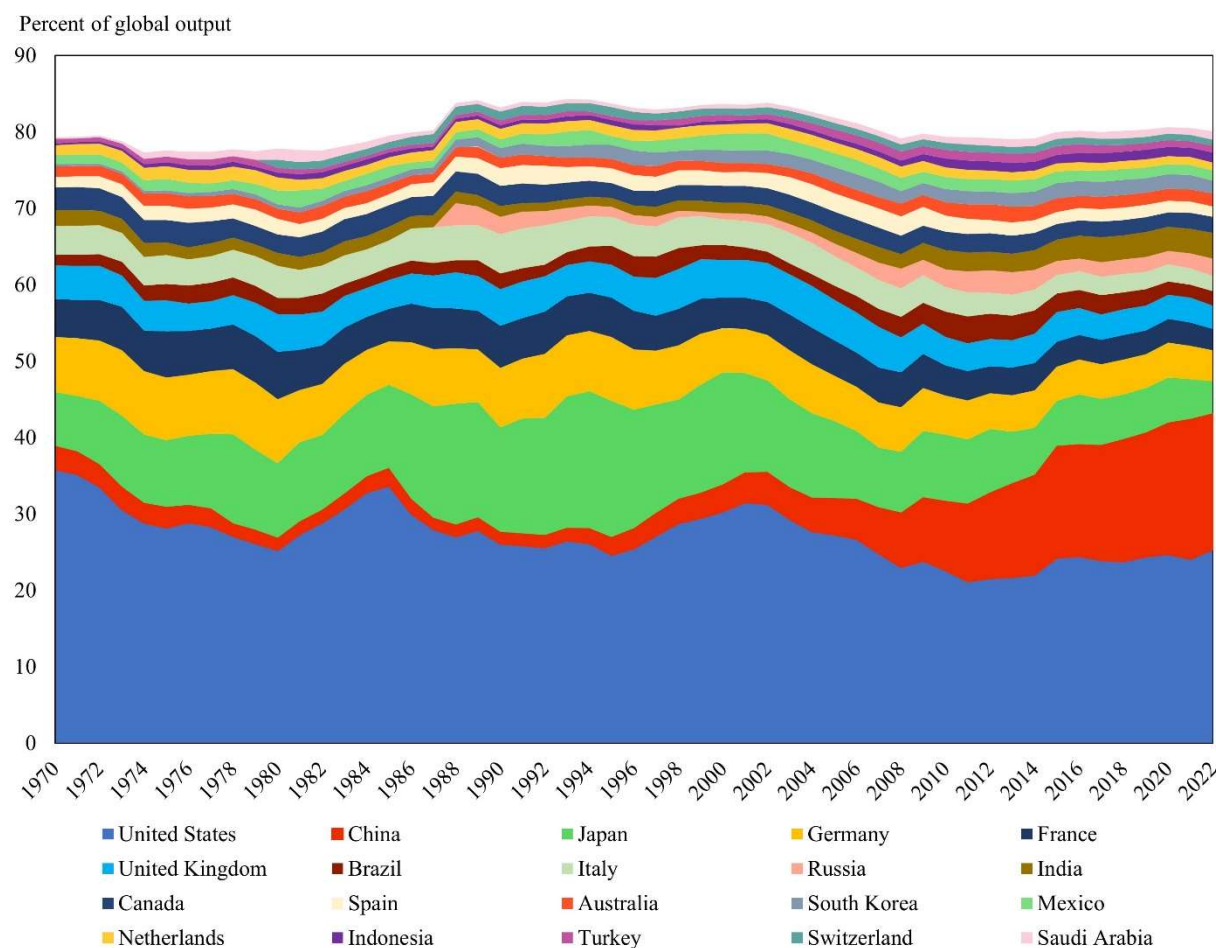
Figure B.1: Number of country equivalents assuming constant output, 1970–2022



Note: This figure is based on GDP in constant 2015 dollars.

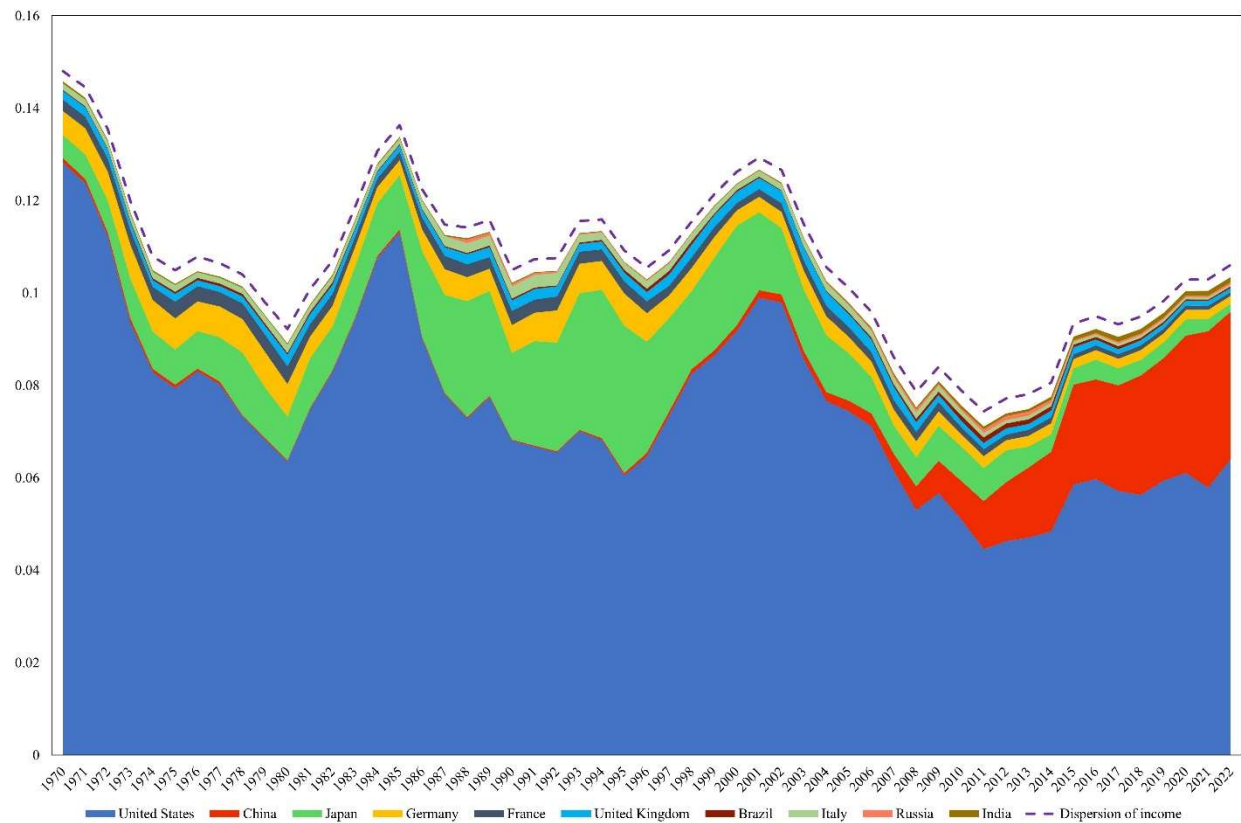
Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Figure B.2: Shares of global output of 20 countries with largest output shares in 2011, 1980–2022



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Figure B.3: Squared shares of global output of 10 countries with largest output shares in 2011 and dispersion of income, 1970–2022



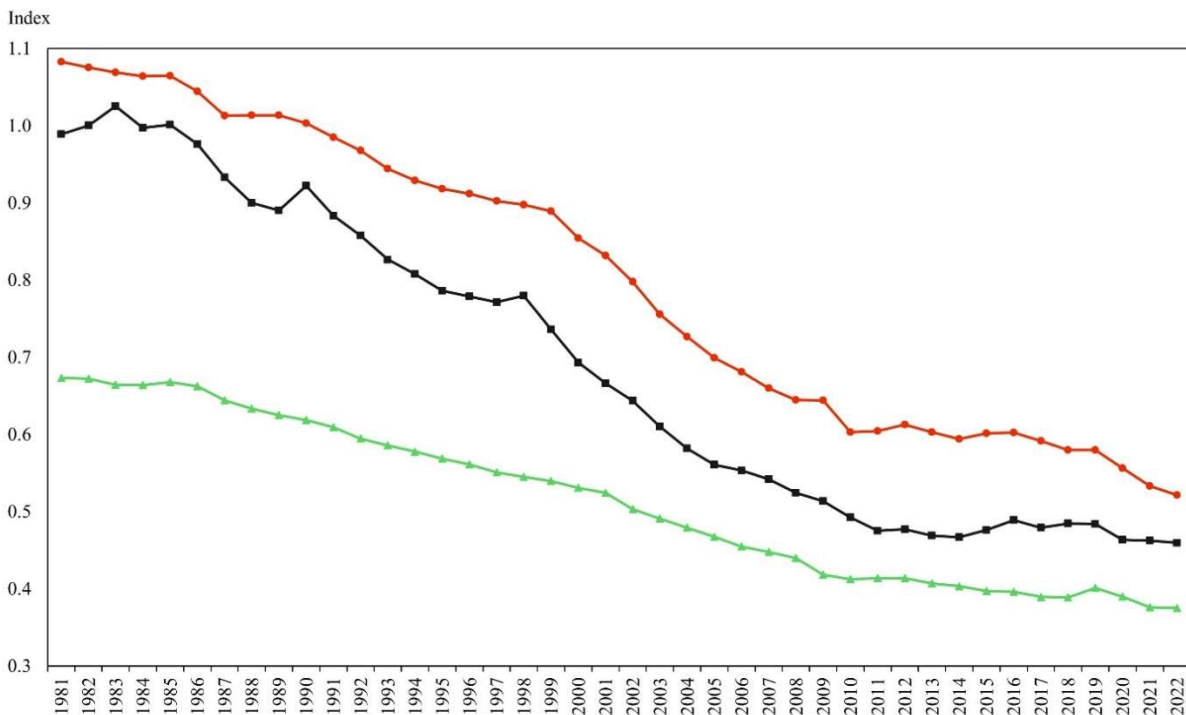
Note: The dispersion of income line shows the sum of the squared output shares at the global level.

Source: Authors' calculations based on data from the World Bank's World Development Indicators.

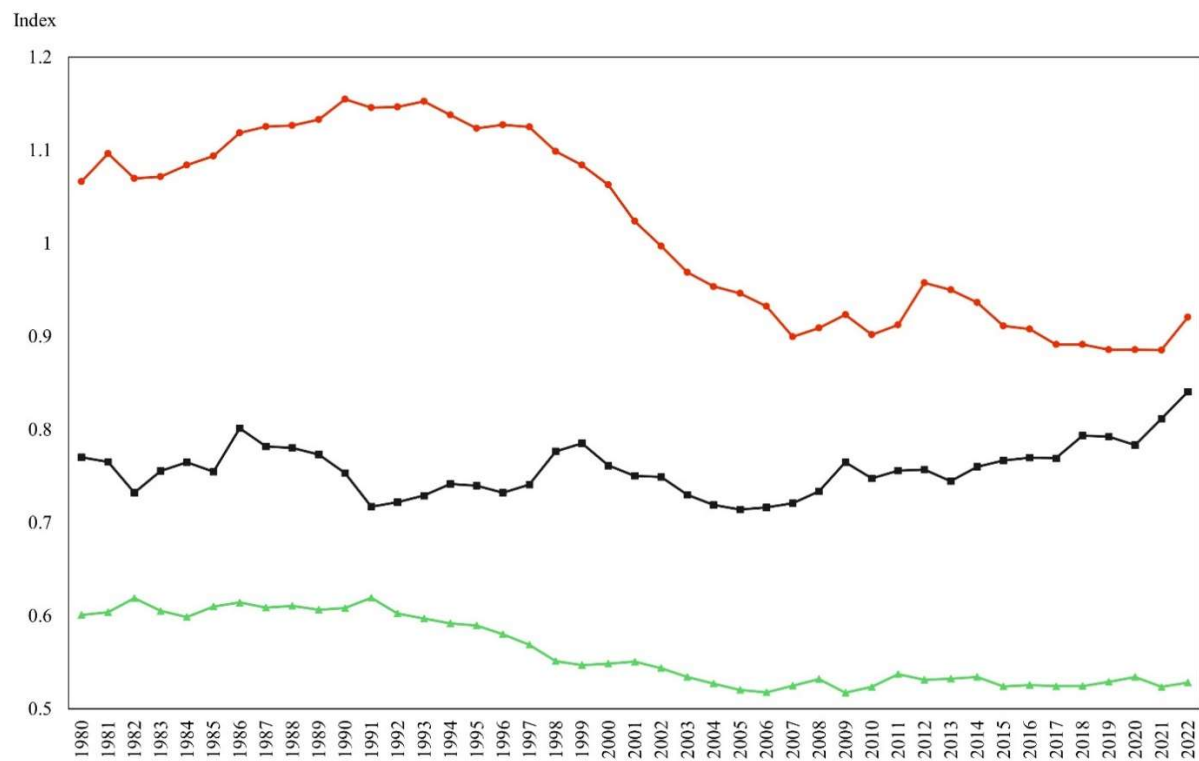
Appendix C Relative Income Level of Exporters to the European Union, Japan, and United States

Figure C.1 Relative income of exporters to the European Union, Japan, and the United States

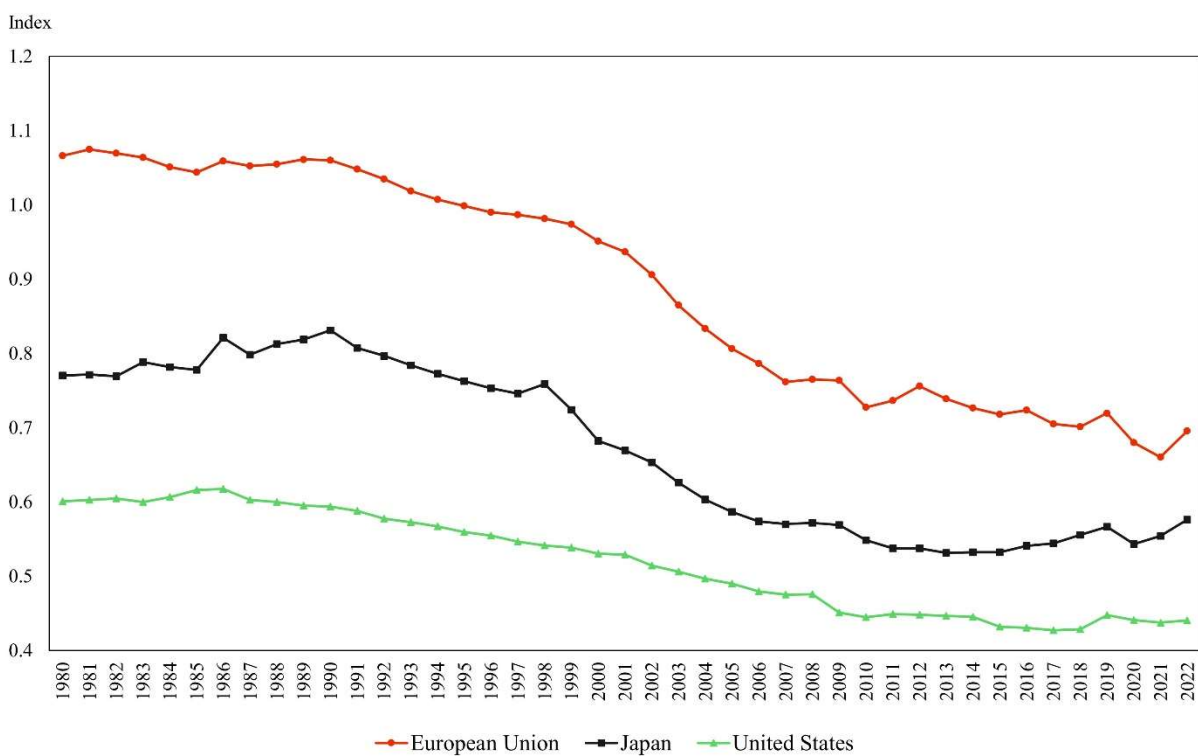
a. Manufactures only, 1981–2022: Fixed weight



b. All Goods, 1980-2022: Moving weight



c. All goods, 1980–2022: Fixed weight



Note: For Figure C.1.a: See note to figure 8. GDP weights are fixed to their initial 1981 value. The fixed-weight index becomes

$$RI_{eu,t} = \sum_i \left(\frac{GDP_{i,1981}}{GDP_{eu,1981}} \right) * \left(\frac{M_{i,eu,t}}{\overline{M}_{eu,t}} \right).$$

For Figures C.1.b and C.1.c the measure represented is computed identically to the measure of Figure 9. However, the sample of goods is not restricted to manufactures only. Moreover, the European Union is now defined as EU-28 all throughout the sample, irrespective of accession or exit years.

Sources: Authors' calculations based on *Maddison Project Database* 2020; UN *Comtrade* database (for Figure C.1.a); IMF *Direction of Trade Statistics* database for Figures C.1.b and C.1.c and World Bank's *World Development Indicators* for GDP data. .

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