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Growing in China's Shadow

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Abstract

This paper analyses how China's rapid expansion has affected growth in other developing economies through the trade channel. The empirical strategy is a shift-share design that exploits pre-determined variation across countries in the exposure of their exports to China's import demand and export supply in global markets, well before China became a dominant trader. The paper shows that China's rising demand for commodities and intermediate goods has had a favorable impact on other developing countries' growth, while intensified competition from its manufacturing exports has had an adverse effect. The former effect is stronger and therefore the net effect has been positive for most countries. The positive impact is, however, becoming weaker as China's growth slows down, and developing countries' longer term growth may also be influenced by the changes in their economic structures induced by China's trade expansion.

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I. Introduction

Over the past four decades, developing economies have undergone a remarkable transformation. The median GDP per capita growth rate rose from close to zero in the early 1980s to about 4 percent in the late 2000s, with a notable period of convergence of incomes with advanced economies in the 1990s and 2000s — coinciding with China's emergence as a dominant force in global trade.[1] [2] However, this impressive growth began to taper off around 2010, as China's unprecedented growth rates started to slow down.[3] This coincidence motivates the central question of this paper: whether, and through which channels, exposure to China's growth shaped developing-country economic performance.

We argue that China's rise has been a defining feature of the global economic environment for developing countries, creating powerful but conflicting forces that operate through global trade. The core intuition behind our analysis can be interpreted through the lens of classical trade theory: the growth of a dominant economy affects world prices which generates terms-of-trade externalities, raising the world price of the goods it demands and lowering the world price of those it exports. China's rapid growth generated, on the one hand, enormous demand for raw materials and intermediate inputs, boosting commodity prices and export revenues, especially for many resource-rich countries. On the other hand, China's expansion in global manufacturing markets increased competition in manufacturing, reducing export prices and displacing some producers. These two channels created opposing effects—demand enhancement versus export competition—that we aim to disentangle empirically.

We estimate the association between China's per capita GDP growth and growth in other developing countries between 1995 and 2019, conditioning on each country's export similarity with China's import (complementarity) and export (competition) baskets.

[1] These patterns of convergence were not limited to a few large developing economies and included many smaller economies (Diao et. al. 2019).
[2] See Patel et al. (2021) and Kremer et al. (2022). The observed catch-up aligns with the neoclassical convergence theory posited by Robert Solow's seminal work in 1956 which suggests that, given similar preferences and technology, poorer countries tend to grow faster and would eventually catch up to the per-capita GDP levels of wealthier economies.
[3] China's GDP per capita accelerated from about 4 percent in the early 1990s to nearly 10 percent by the late 2000s. But by the late 2010s, growth slowed to around 4 percent. The global convergence of incomes per capita has also recently stalled (See Figure 1).

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These indices, constructed from detailed product-level trade data, allow us to assess how a country's exposure to China affects its growth trajectory. Our specification has the structure of a shift-share (Bartik) design[4]: a common, time-varying China growth shift interacted with pre-determined, country-specific 1995 trade-similarity shares. Because China's growth is common across countries, its average effect is absorbed by year fixed effects; identification comes entirely from how China's growth affects countries differently according to their pre-determined exposure.[5]

Our results suggest that 1 percentage point increase in China's per capita GDP growth is associated with a 0.2 percentage point increase in per capita GDP growth on average in other developing economies. However, the average effect masks substantial heterogeneity across countries related to their trade structure. The more a country's export basket matches China's global import profile—as is the case, for example, for commodity exporters—the more it benefits from positive growth shocks in China. By contrast, the more a country's exports resemble China's global export profile, the more it is adversely affected by China's expansion. The overall impact of China's growth on a particular country therefore depends on the relative strength of these two channels. We find that a country is likely to gain from China's growth when the index of similarity of its exports to China's global import profile is at least half as large as index of similarity to China's global export profile. This condition is satisfied for most countries, implying that China's growth has a positive and statistically significant impact on their growth.

The results show that commodity exporters experience the largest benefit. For example, a one percentage point increase in China's GDP growth is associated with a 0.40 and 0.45 percentage point higher GDP growth of net commodity exporters Angola and Brazil, respectively. The gains are more modest for the exporters of basic manufactured goods. For example, a one percentage point increase in China's GDP growth is associated with

[4] Bartik (1991); Goldsmith-Pinkham, Sorkin, and Swift (2020); Borusyak, Hull, and Jaravel (2022).
[5] Identification therefore rests on the exogenous-shares assumption — that pre-1995 trade structure is uncorrelated with subsequent idiosyncratic growth shocks, conditional on the fixed effects (Goldsmith-Pinkham, Sorkin, and Swift, 2020).

GDP growth increases of only 0.1 percentage points in both Bangladesh and the Philippines.

Our findings help reconcile seemingly conflicting results in the literature. Prior studies have documented China's positive spillovers on other developing economies (Huidrom et al., 2020), including through its role in the commodity boom (Jenkins, 2011; Drummond and Liu, 2015).[6] [7] Others have argued that developing countries with established manufacturing sectors found themselves competing head-to-head with Chinese goods, often losing market share in industries such as textiles, apparel, electronics, and light manufacturing (Freund and Özden, 2006; Costa et al., 2016;).[8] [9]

We contribute to the literature by integrating these perspectives into an empirical framework that brings together the dual trade channels through which China's growth affects other economies. We utilize the Bastos (2020) measure of export and import similarities with China to show that the structure of a country's trade with China—whether complementary or competitive—helps explain variation in growth outcomes, and that China's influence extends far beyond its immediate trade partners.[10] While Bastos (2020) focuses on trade outcomes of the countries involved in China's Belt and Road Initiative, our paper integrates the similarity of export and imports with China in an

[6] By 2010, China accounted for about 20% of global non-renewable energy consumption, 23% of major agricultural crops, and 40% of world base metals consumption. Jenkins et al. (2008) estimates that China's demand between 2002 and 2007 alone raised Latin America's commodity export earnings by about $56 billion—three-quarters of which came from oil and copper.

[7] A few earlier studies have looked at the impact of competition from China on firms in specific developing countries (Garred and Pessoa, 2016; Alvarez and Claro, 2009; Iacovone et al., 2013).

[8] For example, Mexico—whose manufacturing exports had grown under NAFTA—saw its export growth stagnate in the early 2000s (Hanson 2010; Hason and Robertson, 2007, 2010). Costa et al. (2016) find that Brazilian regions more exposed to Chinese import penetration experienced significantly slower wage growth for manufacturing workers between 2000 and 2010, while regions specializing in China-demanded commodities (e.g., soybeans, iron ore) saw faster wage growth and rising formal employment during the same period. Lederman et al., 2008 studies the impact of China's exports in Latin American countries while Pavcnik et al., 2005 study the labor market impacts of trade liberalization in Colombia, and they report similar findings.

[9] A separate literature finds economically significant negative effects on US industries with greater exposure to trade with China (Bernard et al., 2006; Pierce and Schott, 2016; Acemoglu et al., 2016; Galle et al., 2023; Caliendo et al., 2019; Autor et al., 2013; Feler and Senses, 2017).

[10] Bastos (2020) studies the sectoral export response of Belt and Road (B&R) countries to China's demand and competition shocks—measured through export and import similarity indices. The response of a country's exports to China's demand shocks were stronger in more upstream industries, while those of competition shocks were stronger in industries that produce goods that are closer to final use.

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empirical framework that captures the broader macroeconomic spillovers of China's rise on a global sample of developing countries.[11]

We also document the evolution in developing economies' trade structures which coincided with China's rise. Many countries became more specialized in primary commodities and basic manufacturing rather than in more sophisticated products. In Latin America and Africa, for example, the 2000s saw a reversal of earlier diversification efforts, as commodities' share in exports and GDP surged in response to Chinese demand. Their exports to China shifted overwhelmingly to raw materials (ores, hydrocarbons, soybeans, etc.), while their imports from China were almost entirely of manufactured goods.

The remainder of the paper is structured as follows. Section II describes the data and empirical framework. Section III presents the results on the channels through which China's growth affects other developing economies. Section IV concludes.

II. Data and Empirical Framework

In this section, we describe the data used and the empirical specification.

a. Data

We assemble a panel of annual data to analyze how China's rise is associated with other countries' growth outcomes. Our primary macroeconomic indicators are drawn from the Penn World Tables (PWT) and the World Development Indicators (WDI). The estimation sample comprises 105 countries with population above one million for which 1995 product-level trade data allow construction of the similarity indices, yielding 2,625 country-year observations.

For trade data, we draw on two complementary datasets: the BACI International Trade Database and the International Trade Data (SITC Rev. 2). BACI, developed by CEPII, provides harmonized bilateral trade data from 1995 to 2022 and includes product-level classifications that support the identification of final versus intermediate goods based on the Broad Economic Categories (BEC) framework. To construct export similarity

[11] In addition, in our baseline results we adopt a different index of a country's export and import similarity with China that captures ordinal alignment and is less sensitive to extreme trade values or outliers. Results are robust to other measures of a country's export and import similarity with China, including Bastos (2020).

measures over a longer time horizon, we use the International Trade Data compiled by the Growth Lab at Harvard University, which spans 1962 to 2021. This dataset, based on UN-COMTRADE and cleaned by the Growth Lab, enables consistent analysis at the SITC 4-digit level.

In addition, we incorporate data on export complexity from the Growth Lab's 2019 Economic Complexity rankings, which summarize the sophistication of each country's export basket (based on the diversity of products exported and their ubiquity across countries). This will aid our discussion of how China's growth might influence not just the pace of growth abroad but the composition of economic activity.

A key innovation in our empirical approach is to quantify each country's exposure to China's growth through trade structure similarity indices. We construct two complementary indices that capture different channels. The *Export-Import Similarity (complementarity)* index measures how closely a country's export basket aligns with the goods that China imports. A higher export-import similarity means the country is effectively "supplying what China is demanding," which should confer positive spillovers in terms of higher export revenues and growth. The *Export-Export Similarity (competition)* index measures how similar a country's exports are to the goods that China itself exports. This captures the degree of overlap and thus competition a country faces from China in global markets. A higher export-export similarity indicates that the country is "exporting what China exports," implying greater exposure to competitive challenges from China.

By construction, the competition index measures overlap with China's export basket, which is overwhelmingly manufactures, while the complementarity index measures overlap with China's import basket, which is dominated by commodities and intermediate inputs. The competition channel is therefore primarily a manufacturing channel, whereas the complementarity channel is broader, operating through commodity and intermediate-input demand transmitted via world prices. The complementarity index is not, however, a proxy for commodity-exporter status. The two are related but distinct: the correlation between the continuous index and a commodity-exporter indicator is only 0.154, and 29 of the 53 countries above the median on complementarity are not commodity exporters.

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A country can score high on complementarity by exporting intermediate manufactured inputs and other non-commodity goods that China imports.

We quantify each similarity index using two complementary methods – one rank-based and one value-based – to ensure robustness. Our primary measure is a Spearman rank correlation coefficient comparing the country's export profile with China's trade profile. Formally, the rank correlation coefficient between the exports structure of country i and China's global market footprint is defined as:

$$\sigma(i, China) = \text{corr}\Big(\text{R}(X(i), R\big(\text{GX}(China)\big)\Big) \qquad (1)$$

where $R(\text{X}(i))$ represents the rank of export values for country i across products (at the SITC 4-digit level), and $R(\text{GX}(China))$ denotes the rank of China's global exports (or imports) market share in each product.

For the export-import index, we rank the importance of each product in the country's export basket and in China's share in global imports (using detailed product-level data, e.g. at the 4-digit SITC level or equivalent). The Spearman correlation between these two rankings yields an index between –1 and +1. A value near +1 indicates that the products which dominate the country's exports are largely the same products for which China's import share is highest – a strong positive alignment. Conversely, a negative correlation would imply the country's top exports correspond to products that China imports relatively little (or vice versa). We rescale this measure to lie between 0 and 1 in the empirical estimates. We construct an analogous rank correlation for export-export similarity, ranking products by their share in the country's exports and in China's share in global exports and then correlating the two lists.

The appeal of the rank-based measure is that it captures ordinal alignment and is less sensitive to extreme trade values or outliers. In other words, even if China's scale is enormous in an absolute sense, what matters for this index is the pattern of specialization. It tells us whether a country is specializing in the types of goods China heavily buys (or produces), regardless of absolute volumes. This helps capture the notion of indirect exposure through global prices: for example, if China's surge in demand drove up prices

of oil and copper, then a country highly ranked in those exports will score high on the export-import similarity index and likely saw a terms-of-trade boost.

As a complementary metric, we also compute the *Finger–Kreinin Similarity Index* based on Finger and Kreinin (1979) for each pair of trade profiles. This is a more traditional value-share overlap measure, employed also by Bastos (2020). It essentially sums the minimum of each product's share in two trade baskets, producing an index between 0 and 100 (100 indicating identical composition of trade, and 0 indicating no overlap at all). For example, if 10% of a country's exports consist of product X and 10% of China's imports also consist of product X, the overlap contribution for that product is 10%. We examine this across all products to gauge overall similarity. We calculate one such index comparing a country's export shares to China's import shares (for the export-import similarity), and another comparing a country's export shares to China's export shares. A higher Finger–Kreinin index means a greater overlap in trade patterns by value. This measure gives more weight to the magnitude of trade in each product, as opposed to just the rank.[12]

The two measures tend to tell a consistent story.[13] For the regression analysis, our baseline similarity indices are constructed for an initial year (1995) to capture the country's pre-existing trade structure before China became a dominant global trader. By fixing the similarity measures at the level in the mid-1990s, we avoid conflating the subsequent influence of China with adjustments countries may have made in response to China's growth. However, we have also verified that using time-varying indices yields similar qualitative results (we discuss this further in the robustness checks).

Table 1 reports descriptive statistics for all key variables. All growth variables are expressed in percentage points.

[12] See also Bastos et al. (2020).
[13] Appendix A2 provides country rankings based on the two indices.

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Table 1. Descriptive statistics of key variables

	N	Mean	SD	P25	Median	P75
GDP per capita growth	2,625	2.400	5.405	0.492	2.631	4.666
GDP per capita growth (lag)	2,625	2.310	5.728	0.450	2.582	4.696
GDP per capita growth of China	2,625	5.689	2.705	3.505	6.057	8.118
export-China import similarity (1995)	2,625	0.496	0.034	0.472	0.498	0.518
export-China export similarity (1995)	2,625	0.561	0.050	0.527	0.558	0.592
Commodity exports (% of GDP)	2,603	14.484	14.471	5.252	9.620	18.383
Manufacturing export share of GDP (%)	2,603	10.68	12.62	2.17	6.32	14.57

Note. Descriptive statistics of key variables from the analysis sample.

b. Empirical Framework

To study the effect of China's growth on developing countries' growths through trade similarities, we estimate the following shift-share specification:

$$\Delta y_{i,t} = \alpha + \gamma_1 \sigma_i^{import} \Delta x_t^{China} + \gamma_2 \sigma_i^{export} \Delta x_t^{China} + \theta \Delta y_{i,t-1} + \delta_i + \delta_t + u_{i,t} \qquad (2)$$

where σ_i^{import} and σ_i^{export} represent indices of country i's export similarity to China's imports and exports at the beginning of the period (1995), respectively. The interaction terms capture how the effect of China's growth on a given country's growth depends on its trade structure. A developing country gains to the extent its exports are aligned with China's import demand and loses to the extent they compete with China's exports.[14] These two channels are captured by the two interaction terms: positive on the import-similarity coefficient (γ_1), negative on the export-similarity coefficient (γ_2).[15] $\Delta y_{i,t-1}$ is the one-year lag of the dependent variable, δ_i controls for country fixed effects, δ_t captures the year fixed effect, and $u_{i,t}$ is the idiosyncratic error term.

Specification (2) has the structure of a shift-share (Bartik) design (Bartik, 1991; Goldsmith-Pinkham, Sorkin, and Swift, 2020; Borusyak, Hull, and Jaravel, 2022): a common, time-varying shift — China's growth — interacted with pre-determined, country-specific shares — the 1995 trade-similarity indices. Identification of the

[14] As China's economy grows, it raises global demand and the price of the goods it imports. It also expands global supply of the goods it exports, lowering their price.

[15] Taking partial derivatives with respect to China's growth shows that a developing economy will benefit from China's growth $iff \frac{\sigma_i^{import}}{\sigma_i^{export}} > -\frac{\gamma_2}{\gamma_1}$. The ratio matters, not just absolute values – for example many countries in South-East Asia have high similarity in both exports and imports.

interaction coefficients comes entirely from the fact that, within a given year, China's growth is associated with differential growth across countries according to their pre-determined exposure. This design also captures general equilibrium effects operating through world prices and third-market competition, rather than direct bilateral trade links alone.

Following the exogenous-shares approach, the identifying assumption is that the 1995 trade structure is uncorrelated with subsequent idiosyncratic growth shocks, conditional on the country and year fixed effects. Fixing exposure in 1995 — well before most of China's rise — makes this assumption more plausible and rules out reverse causation from growth to measured similarity.[16] The small-open-economy assumption also matters here: because each developing country is a price-taker, its own growth does not feed back into world prices or into China's aggregate growth.

We estimate equation (2) by ordinary least squares with country and year fixed effects and a lagged dependent variable, reporting standard errors clustered by country. Year fixed effects absorb all shocks common across countries in a given year, including China's own growth path and global cycles. This framework allows us to test whether the gains from China's growth are concentrated among countries that supply goods China demands, and whether countries competing with China in global export markets experience dampened growth as a result of China's expanding export footprint. We interact time-invariant structural exposure (the share: 1995 similarity indices) with a time-varying global shock (the shift: China's growth). This interaction-based design allows us to go beyond average correlations and uncover the mechanisms through which China's rise has produced asymmetric spillovers across countries.

[16] We also report estimates using indices averaged over the first half of the sample (1995–2007), which address the concern that later trade structures may themselves respond to China's rise. Because misclassification of evolving trade relationships constitutes measurement error in the exposure variable, any resulting bias attenuates the coefficients toward zero; our estimates are therefore conservative.

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III. Empirical Findings: China as a driver of growth in developing economies

In this section, we first present some stylized facts about growth patterns in developing countries, and then more rigorously explore the role of trade-based links with China's growth.

a. Unconditional convergence and China's GDP growth

We begin by documenting patterns of economic growth and convergence between developing and advanced economies, following Patel, Sandefur, and Subramanian (2021). Most developing countries experienced a marked acceleration in GDP per capita growth beginning in the 1990s, narrowing the income gap with high-income countries. This convergence had significant momentum between the mid-1990s and late 2000s but has slowed over the past decade.

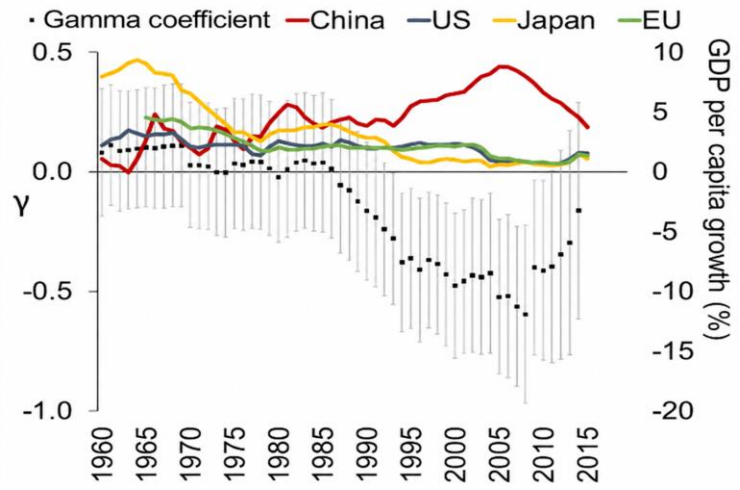
Figure 1 illustrates this trend plotting annual estimates of the unconditional convergence coefficient, Γ.[17] A negative Γ indicates convergence—i.e., poorer countries growing faster than richer ones. From the mid-1990s, Γ turns negative and statistically significant, signaling a period of rapid catch-up growth. However, after the Global Financial Crisis (GFC) of 2008–09, Γ weakens and loses statistical significance, suggesting a halt in convergence.

Notably, the convergence patterns align closely with China's growth trajectory. China's per capita growth accelerated from about 4 percent per year in the early 1990s to nearly 10 percent by the late 2000s, coinciding with the global convergence phase. Conversely, as China's per capita growth decelerated in the 2010s (back to 4 percent), global convergence slowed. We present this coincidence as a motivation for the paper's central question — whether, and through which channels, exposure to China's growth shaped developing-country outcomes — rather than as evidence that China caused the convergence during this period.

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[17] Estimation tests the equation, $\left(\frac{1}{T-t}\right) * log\left(\frac{y_{i,T}}{y_{i,t}}\right) = \alpha_c + \Gamma * log(y_{i,t}) + \varsigma_{i,t}$ where i represents the country, T the end year (2019), t the start year, $y_{i,T}$ the per capita GDP (PPP terms), and $\varsigma_{i,t}$ the error term. See Appendix A3 for details.

Figure 1. Patterns of convergence correlate with China's growth rates



Source: Penn World Tables 11

Notes: Black dots indicate annual unconditional convergence coefficients (Γ), with 95% confidence intervals. The yellow line represents China's 10-year moving average GDP per capita growth. Sample excludes oil-rich countries and includes countries with populations over one million.

China's rise combined with its sheer size has the potential to translate into significant spillovers for developing countries through both direct trade links and global prices. China's share of global GDP increased from 6 percent in 1970 to 18 percent by 2022. Between 1995 and 2023, China's share of global manufacturing exports rose from 5 percent to 23 percent and its share of global commodity imports climbed from 2 percent to 20 percent (Figure A2.1). These shares speak to China's dominance in absolute terms, not merely in growth rates: over this period China accounted for a larger share of the growth in world commodity and intermediate-goods imports than any other economy. This is consistent with recent evidence that China's spillovers on global output, inflation and commodity prices exceed those of other large emerging markets, whose effects are more regionally contained (Abdel-Latif and Popescu 2025; IMF 2016, 2024).

China's growth has been positively correlated with export prices of commodity exporting countries and negatively correlated with export prices of non-commodity exporting ones. For 42 developing economies from 1995 to 2024, after controlling for country and year fixed effects, the correlation of China's growth with growth in export prices of non-commodity exporters is about negative 0.6, whereas the correlation of its growth with the

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export prices of commodity exporting countries is about positive 0.5.[18] Higher export prices for commodity exporters suggest that through the price channel China's growth has bolstered terms of trade and economic activity in resource-rich economies.

b. Complementarity and competition: How China shapes growth in developing economies

We next examine the extent to which and the mechanisms through which China's growth affects GDP growth in other developing economies, focusing on the role of trade structure as captured by export similarity with China's imports and exports, following the specifications in Equation (2). The use of export similarity indices is empirically novel.[19] We calculate the similarity indices based on trade structures in 1995—well before the acceleration of China's export boom and its accession to the WTO in 2001. This timing is critical: using predetermined (baseline) trade patterns mitigates concerns of reverse causality, wherein China's growth might otherwise influence the composition of other countries' exports. As set out in Section II, this structure makes the specification a shift-share design: the year fixed effects absorb China's common growth shift, and identification comes from the interaction of that shift with countries' pre-determined 1995 exposure.

Panel regression results show that, on average, a 1 percentage point increase in China's GDP per capita growth is associated with a 0.2 percentage-point increase in per capita GDP growth across other developing economies (Table 2, column 1).[20] We report this average association as a descriptive benchmark only. Because China's growth is common across countries, its level effect is absorbed once year fixed effects are included (columns

[18] Table A2.1 reports significant positive correlations between China's GDP growth and commodity price increases between 1992–2024, with coefficients often above 0.3. Table A2.2 presents panel regression estimates linking China's growth to developing countries' export prices.

[19] Bastos (2020) studies the sectoral export response of Belt and Road (B&R) countries to China's demand and competition shocks—measured through export and import similarity indices but does not study the effects on aggregate growth.

[20] Column 1 reports the average correlation between China's per capita GDP growth and that of other developing countries using the specification: $\Delta y_{i,t} = \alpha_b + \beta * \Delta x_t^{China} + \Delta y_{i,t-1} + \delta_i + u_{b\,i,t}$, where all notations are consistent with those discussed in Equation (2)

3, 5 and 7) and is not separately identified; the estimates we interpret are the interaction terms in columns 6 and 7.

However, the impact is not uniform, and the effect varies based on export similarity. Countries whose exports closely resemble the goods China imports benefit more from China's growth (Table 2, columns 2–3). In contrast, countries whose export baskets are more similar to China's exports experience a negative impact on growth (Table 2, columns 4–5). This contrast highlights the dual nature of China's spillovers: complementarity boosts growth; competition constrains it.

Table 2. Export similarities and the impact of China's GDP growth on developing economies

	Dependent variable: GDP per-capita growth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
China's per-capita GDP growth	0.212***	-1.357***		1.285***		-0.284	
	(0.0312)	(0.522)		(0.355)		(0.712)	
[China's per-capita GDP growth] X [Export similarity with China's imports (1995)]		3.161***	3.170***			2.544**	2.552**
		(1.075)	(1.056)			(1.107)	(1.092)
[China's per-capita GDP growth] X [Export similarity with China's exports (1995)]				-1.913***	-1.919***	-1.367**	-1.371**
				(0.613)	(0.609)	(0.617)	(0.617)
Lag of GDP per capita growth	0.257***	0.255***	0.251***	0.255***	0.251***	0.254***	0.250***
	(0.057)	(0.057)	(0.058)	(0.057)	(0.058)	(0.057)	(0.058)
Constant	0.603***	0.607***	-7.130**	0.606***	7.946***	0.608***	-1.004
	(0.218)	(0.217)	(2.939)	(0.217)	(2.011)	(0.216)	(4.058)
Observations	2,625	2,625	2,625	2,625	2,625	2,625	2,625
R-squared	0.224	0.226	0.250	0.226	0.250	0.227	0.251
country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	No	Yes	No	Yes

Note: Regressions use annual data from developing economies countries available between 1995-2019, excluding countries with populations under one million (as of 2010). Export similarity to China's trade is measured using the baseline (1995) rank correlation index at the detailed 4-digit product level. Robust standard errors are in parentheses, with significance levels denoted as *** p<0.01, ** p<0.05, * p<0.1.

Importantly, even when accounting for these opposing channels, the net effect of China's growth remains positive and statistically significant (Table 2, columns 6–7). Our results suggest that 1 percentage point increase in China's per capita GDP growth is associated with a 0.2 percentage point increase in per capita GDP growth on average in other developing economies. However, the average effect masks substantial heterogeneity across countries related to their trade structure. The more a country's export basket matches

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China's global import profile—as is the case, for example, for commodity exporters—the more it benefits from positive growth shocks in China. By contrast, the more a country's exports resemble China's global export profile, the more it is adversely affected by China's expansion. The overall impact of China's growth on a particular country therefore depends on the relative strength of these two channels. We find that a country is likely to gain from China's growth when the index of similarity of its exports to China's global import profile is at least half as large as index of similarity to China's global export profile. This condition is satisfied for most countries, implying that China's growth has a positive and statistically significant impact on their growth (Table A3.1).[21]

The results show that commodity exporters experience the largest benefit. For example, a one percentage point increase in China's GDP growth is associated with a 0.40 and 0.45 percentage point higher GDP growth in net commodity exporters Angola and Brazil, respectively. The gains are more modest for the exporters of basic manufactured goods. For example, a one percentage point increase in China's GDP growth is associated with GDP growth increases of only 0.1 percentage points in both Bangladesh and the Philippines.

These results are robust to using growth in China's manufacturing exports and imports—in place of GDP growth (Table 3). The higher the similarity with China's imports the greater the growth benefits from China's rising manufacturing imports, and the higher the similarity with China's exports, the greater the drag on growth.

[21] For the countries in our sample, the average rank similarity index with China's exports is 0.558, whereas the average rank similarity index with China's imports is 0.498.

Table 3. Impact of China's manufacturing trade growth on developing country per capita GDP growth

Dependent variable: GDP per capita growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
China's manufacturing import growth	0.0395***	-0.356**					-0.354**	
	(0.00837)	(0.144)					(0.143)	
[China's manu. import growth] X		0.797***	0.798***				0.656**	0.657**
[Export similarity with China's imports (1995)]		(0.297)	(0.292)				(0.297)	(0.295)
China's manufacturing export growth				0.0661***	0.368***		0.324***	
				(0.00850)	(0.0848)		(0.0858)	
[China's manu. export growth] X					-0.538***	-0.539***	-0.417***	-0.418***
[Export similarity with China's exports (1995)]					(0.143)	(0.143)	(0.140)	(0.140)
Lag of GDP per capita growth	0.261***	0.260***	0.252***	0.259***	0.257***	0.251***	0.255***	0.250***
	(0.057)	(0.057)	(0.058)	(0.057)	(0.056)	(0.058)	(0.056)	(0.057)
Constant	1.372***	1.374***	-2.437	0.986***	0.990***	5.560***	1.000***	1.217
	(0.209)	(0.208)	(1.507)	(0.199)	(0.198)	(1.050)	(0.198)	(1.963)
Observations	2,625	2,625	2,625	2,625	2,625	2,625	2,625	2,625
R-squared	0.221	0.226	0.252	0.235	0.238	0.251	0.243	0.254
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	No	No	Yes	No	Yes

Note: Panel regressions use annual data from developing economies countries available between 1995-2019, excluding countries with populations under one million (as of 2010). Export similarity to China's trade is measured using the baseline (1995) rank correlation index at the detailed 4-digit product level. Robust standard errors are in parentheses, with significance levels denoted as *** p<0.01, ** p<0.05, * p<0.1.

Commodity-exporting countries experience particularly strong benefits from China's growth. Empirical estimates confirm that growth benefits from China's expansion are twice as big for commodity exporters compared to other countries (Table 4). Further, both China's manufacturing imports and exports have a positive and statistically significant effect on GDP growth of commodity exporting developing country, suggesting that both the direct import demand from China and the indirect linkages through China's own exports contribute positively and significantly to their growth performance. The complementarity index is not, however, a proxy for commodity-exporter status, as the two overlap only partially (Table A3.2).

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Table 4. Differential effects for commodity exporters

	Dependent variable: GDP per capita growth					
	(1)	(2)	(3)	(4)	(5)	(6)
China's per-capita GDP growth	0.151***					
	(0.0343)					
[China's per-capita GDP growth] X [Commodity exporters]	0.165**	0.167**				
	(0.0679)	(0.0672)				
China's manufacturing import growth			0.0267***			
			(0.0102)			
[China's manu. import growth] X [Commodity exporters]			0.0362**	0.0371**		
			(0.0176)	(0.0174)		
China's manufacturing export growth					0.0526***	
					(0.0102)	
[China's manu. export growth] X [Commodity exporters]					0.0398**	0.0405**
					(0.0179)	(0.0179)
Lag of GDP per capita growth	0.252***	0.248***	0.258***	0.249***	0.255***	0.248***
	(0.056)	(0.058)	(0.057)	(0.057)	(0.056)	(0.057)
Constant	0.594***	1.460***	1.367***	1.672***	0.974***	1.635***
	(0.213)	(0.207)	(0.206)	(0.178)	(0.196)	(0.180)
Observations	2,625	2,625	2,625	2,625	2,625	2,625
R-squared	0.224	0.249	0.222	0.250	0.236	0.250
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes

Note: Panel regressions use annual data from developing economies countries available between 1995-2019, excluding countries with populations under one million (as of 2010). "Commodity exporters" is a dummy indicating the countries with commodity rents greater than 30% of GDP as of 2010. Robust standard errors are in parentheses, with significance levels denoted as *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

We recognize the limitations of any observational cross-country panel in cleanly establishing causality. A primary endogeneity concern is that China's growth itself may be correlated with unobserved global factors—such as a worldwide commodity boom or synchronized global demand conditions—that also affect growth in other developing economies. In such cases, the coefficient on China's growth in a simple panel regression might conflate China-specific effects with broader global co-movements.

To address this issue (even if partially), we introduce specifications that include year

fixed effects, which control for common global shocks affecting all countries in a given year, including commodity price cycles, monetary conditions, and other global factors that may affect growth in all countries. These fixed effects allow us to isolate the differential effect of China's growth across countries based on their export structure, rather than picking up general global co-movements. We also experiment with other controls such as commodity prices and US interest rates and the results are similar (Tables A3.3-A3.5).[22]

Year fixed effects and global controls do not, however, dispose of a second concern: a commodity boom that differentially benefits commodity exporters is a country-time phenomenon, and if high-complementarity countries are disproportionately commodity exporters the complementarity interaction could be biased upward. We therefore add controls that vary on the same dimension as the confounding factor—each country's commodity exports as a share of GDP, and the interaction of the global energy price with that share. Both channels retain their signs and remain statistically significant (Table A3.7).

We also test the identifying assumption directly. Because identification rests on the match between a country and its pre-determined 1995 similarity shares, we implement a country-level permutation test that randomly reassigns those shares across countries and re-estimates the baseline under 1,000 draws, following the randomization-inference tradition in shift-share designs (Adão, Kolesár, and Morales 2019; Young 2019). The placebo distributions are centered near zero, and the estimated complementarity coefficient lies well in the tail of its placebo distribution, with the competition coefficient in the opposite tail, though more marginally so (Table A3.8; Figure A3.1). This provides further evidence that the interaction is likely driven by countries' genuine exposure to China rather than by the mechanical structure of the indices.

A natural question is whether these effects are specific to China or would arise for any

[22] The results are also robust to excluding commodity exporters and the top-10 resource-rich countries (Table A3.6).

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large economy. We repeat the exercise for the other two economies that independently account for more than 5 percent of world trade each—the United States and Germany. We construct analogous similarity indices for each and estimate their impact on developing economies in both separate and joint specifications.[23] Two results stand out. First, China's growth is weakly or negatively correlated with growth in the major advanced economies, so omitting them cannot mechanically inflate the estimated China effect (Table A3.9). Second, China is the only anchor for which both channels appear with the signs the framework predicts: for the other economies the export-similarity coefficient is positive, the opposite of a competition effect. China's coefficients are essentially unchanged when all anchors enter jointly (Table A3.10). China's role is therefore qualitatively distinct, not merely in scale.

Three further robustness checks address potential specification concerns. First, the framework implies two additional channels operating through import prices—the overlap of a country's imports with China's imports and with China's exports. Adding both leaves the export-side coefficients essentially unchanged, confirming that their omission does not bias our estimates; the import-side channels are themselves imprecisely estimated, as the two measures are strongly negatively correlated and carry little independent variation (Tables A3.11-A3.12). Second, to address the concern that large developing economies may themselves influence China's growth, we drop the largest emerging markets individually and jointly; the coefficients are essentially unchanged (Table A3.13). We also check the robustness of the results when limiting the sample to countries with populations smaller than 30 million people. Third, Because the specification includes a lagged dependent variable alongside country fixed effects, we examine whether the results are sensitive to dynamic-panel bias. Table A3.14 reports estimates using both a Blundell-Bond system-GMM estimator and the half-panel

[23] Based on WTO statistics for 2024, imports from the United States, China, and Germany comprised 13, 10, and 6 percents of world merchandise imports, while the corresponding contributions to world merchandise exports were 8, 15, and 7 percents, respectively. No other countries contributed over 5 percent of world imports or exports. IMF (2024) considers G20 emerging and G20 advanced economies as two groups and examines the spillovers on firms in other countries. They find a significant effect on export-oriented firm revenue growth of growth surprises in the G20 emerging market group, but larger effects from growth surprises in G20 advanced country group.

jackknife correction of Chudik, Pesaran, and Yang (2018). The signs of both interaction coefficients are preserved across estimators, and the lagged-growth coefficient changes little relative to the baseline fixed-effects specification, suggesting that dynamic-panel bias is unlikely to drive the main findings. Given the relatively long time dimension of the panel, we retain the fixed-effects estimator as our preferred specification.

We also report estimates using similarity indices averaged over 1995–2007, to control for the possibility that later trade structures may themselves respond to China's rise (Table A3.15). The core results hold when using alternative similarity indices (the Finger–Kreinin index; Table A3.16), when extending the sample to include additional (smaller) countries (Table A3.17), and post-COVID period (2020-23; Tables A3.18-A3.19).[24]

The magnitude of our estimated effect is consistent with existing estimates of China's spillovers (IMF 2016; Arora and Vamvakidis 2011).[25] Our contribution, however, is not the average magnitude but its decomposition — showing that this average masks two offsetting channels whose relative strength can be signed from each country s pre-determined trade structure. Our results also capture the structural weakening of spillovers. Two key risks emerge for developing countries going forward. First, a further slowdown in China's growth could substantially reduce the positive spillovers; for example, a one-percentage-point decline in China's growth could lower growth in other developing economies by 0.14-0.21 percentage points.[26] Second, if China's export growth continues to outpace its import growth, competitive pressures in global markets may outweigh the benefits of demand-driven trade, particularly for countries with overlapping manufacturing profiles.

[24] In the extended 1995–2023 sample the signs of both channels are preserved, but the competition channel is less precisely estimated—as expected, given that the pandemic-era disruptions of 2020–22 added considerable noise to growth rates. We therefore retain the pre-COVID 1995–2019 sample as the baseline.
[25] IMF (2016) finds that the GDP response to a one-percentage-point China growth shock builds to roughly 0.2 percentage points across a broad sample of economies, concentrated in Asia and commodity exporters.
[26] The benefits of China's growth appear to have diminished in recent years. Based on the back-of-an-envelop calculation using our baseline estimated coefficients, China's boom contributed approximately 0.4–0.5 percentage points to annual growth in developing economies during the 1995–2007 period. By 2008-19, this contribution had shrunk, primarily due to slower growth in China itself.

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Taken together, these trends underscore the growing importance for developing countries to diversify their sources of growth and reduce reliance on external demand from China. Structural reforms that enhance domestic productivity, innovation, and export sophistication will be increasingly critical for sustaining long-term growth in a changing global environment.

c. What does this all mean for longer-term growth in developing economies?

The previous sections argued that developing economies have benefited from supplying the intermediate goods and raw materials demanded by China's manufacturing sector. This integration into China-driven supply chains supported higher and more stable growth, particularly during the global convergence period of the 1990s and 2000s. However, this dependence has also introduced new vulnerabilities. As China's growth has slowed since the 2008–09 Global Financial Crisis (GFC), convergence has similarly decelerated, suggesting that developing economies are increasingly exposed to fluctuations in China's economic performance.

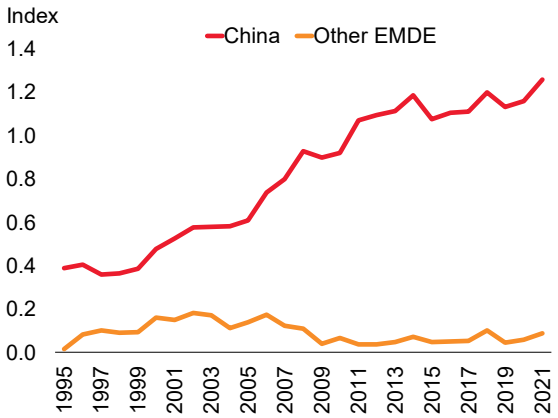
Trade integration with China has reshaped production and trade structures in many developing economies.[27] [28] Since the early 1990s, their exports to China have expanded dramatically—from negligible levels to over $600 billion (constant 2010 prices) at their peak in 2020—driven largely by intermediate goods (Figure A4.1).

These patterns reflect China's central role in global supply chains, particularly during its industrial boom. Developing countries—particularly those exporting commodities—benefited from China's resource demand, but their specialization has tilted toward raw and intermediate goods. The stagnation in export sophistication is evident in Figure 2. While China's economic complexity index (ECI) rose sharply, the ECI of other developing countries has remained flat or declined since the early 2000s. China's own ECI has plateaued only recently but remains far above that of most peers.

[27] Amiti and Freund (2010) study the changing structure of China's exports after its WTO accession.
[28] Additionally, there are very few goods that China does not export. About 80 percent of its export products hold a global share of more than 1 percent and about 60 percent of China's export products have a global share of more than 10 percent.

The stagnation in complexity among developing economies is consistent with limited progress in expanding production capabilities and innovation. This pattern is potentially important because specialization could influence future capability accumulation: countries pushed toward less complex production may experience slower growth in capabilities and productivity over time (Atkin, Costinot, and Fukui 2026). At the same time, the evidence in Figure 2 should be interpreted cautiously. Several forces beyond competition with China could account for it, including global automation and skill-biased technical change, the broad post-2000 slowdown in export diversification, and pre-existing differences in initial specialization.[29]

Figure 2. Economic complexity of developing economies' exports has generally been flat or declining, whereas that of China has been increasing.



Source: The Growth Lab at Harvard University, 2019, "Growth Projections and Complexity Rankings", Harvard Dataverse. Hidalgo and Hausmann (2009).
Note: GDP-weighted averages.

Heavy reliance on China's demand may also have slowed domestic reform momentum. Table 5 shows that countries with greater export intensity to China (especially in intermediate goods) tend to have slower progress on key domestic reforms. These include financial liberalization, product and labor market reform, and institutional development. This pattern is robust to controlling for lag exports (Table A5.1). We emphasize that this

[29] The complexity index is also partly relative, so one country's rise mechanically coincides with others' relative decline. We therefore present Figure 2 as consistent with, but not evidence for, a China-specific structural-transformation channel.

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is a correlation rather than evidence that China-linked growth caused reform slowdowns. Countries exporting primary and intermediate goods to China may have had weak reform institutions for reasons that predate China's rise, including resource-curse dynamics, institutional path dependence, and political-economy factors. We further control directly for commodity dependence and, separately, exclude the most resource-rich economies. The association attenuates but remains negative and statistically significant under the commodity control and is essentially unchanged when resource-rich economies are excluded (Table A5.2).

Table 5. Correlation between exports to China and policy reforms

		Domestic reforms			External reforms	
	Reforms index (aggregate)	Product market reforms	Domestic finance reforms	Labor market reforms	Trade reforms	External finance reforms
	(1)	(4)	(5)	(6)	(2)	(3)
Exports of intermediate goods to China (% of GDP)	-0.00691***	-0.0280***	-0.0168***	-0.000128	0.000646	0.00799
	(0.00192)	(0.00390)	(0.00307)	(0.00159)	(0.00274)	(0.00696)
Constant	0.649***	0.479***	0.692***	0.699***	0.738***	0.627***
	(0.00214)	(0.00409)	(0.00306)	(0.00209)	(0.00292)	(0.00668)
Observations	1,138	1,155	1,155	1,151	1,141	1,155
R-squared	0.885	0.879	0.840	0.826	0.846	0.787
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: reform indices adopted from Alesina et al. (2020). Overall and sectoral reform indices are continuous indicators taking a value in the [0-1] interval. A higher value indicates greater degree of liberalization (lower intensity of restrictions). Trade reforms is a composite index capturing the degree of liberalization in tariffs and the current account. Domestic finances reform captures the degree of liberalization in credit and interest rate controls, banking entry and supervisions, privatization, and security markets. Product market reform captures the degree of liberalization in two representative sectors of electricity and telecommunication. Robust standard errors are in parentheses, with significance levels denoted as *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

In summary, while China's economic ascent has created significant opportunities for developing economies through trade linkages, it has also posed challenges that could hinder long-term development. The alignment of developing economies exports structures with China's demand, combined with stalled structural reforms, may create conditions which lead to persistently low complexity and limited diversification.

IV. Concluding remarks

China's rapid rise as a global manufacturing and export powerhouse has had far-reaching implications for developing economies. As China grew and its share of global trade expanded, so too did its influence on global demand, trade structures and growth dynamics of other countries. Many developing economies increasingly aligned their export baskets with China's import demand—primarily through the export of intermediate goods—and away from competing directly with China in final goods markets. As we showed, this pattern of trade specialization brought growth benefits, which were especially large for commodity and intermediate goods exporters. Developing countries on average experienced robust catch-up growth in the 1990s and 2000s.

Yet, the reliance on external demand—particularly from China—also presents risks. First, as China's growth decelerated through the 2010s, so did growth in developing economies, and a further slowdown in China's growth could imply even lower positive spillovers on other countries. Second, if China's export growth continues to outpace its import growth, competitive pressures may increasingly outweigh demand-side gains, particularly for countries with overlapping manufacturing profiles. Finally, overdependence on China as a growth engine may have delayed deeper domestic reforms, the implementation of which may be the most durable route for autonomous growth in the longer term.

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Appendix

Appendix A1. Indices of export-import similarity with China

Table A1.1 Countries with high Rank correlation coefficient with China

	Rank correlation with China's global share							
	Similarity with China's imports				Similarity with China's exports			
RANK	1995		2015		1995		2015	
1	Ukraine	0.16	Brazil	0.14	Viet Nam	0.39	Viet Nam	0.37
2	Kazakhstan	0.15	Malaysia	0.13	Pakistan	0.34	Bangladesh	0.30
3	Georgia	0.15	Korea, Dem.	0.12	Thailand	0.33	Cambodia	0.29
4	Korea, Dem.	0.14	Kazakhstan	0.10	Korea, Dem.	0.32	Korea, Dem.	0.28
5	Iraq	0.13	Bolivia	0.08	Bangladesh	0.32	Tunisia	0.28
6	Malaysia	0.11	Chad	0.08	Indonesia	0.32	Sri Lanka	0.26
7	Brazil	0.11	Guinea-Bissau	0.07	Sri Lanka	0.32	Mauritius	0.25
8	Belarus	0.10	South Sudan	0.07	India	0.30	El Salvador	0.25
9	Venezuela	0.09	Afghanistan	0.07	Philippines	0.29	Nepal	0.24
10	India	0.08	Nigeria	0.06	Haiti	0.29	Haiti	0.24
11	Eritrea	0.08	Timor-Leste	0.06	Madagascar	0.27	Lesotho	0.23
12	Thailand	0.06	Argentina	0.06	Nepal	0.27	Thailand	0.21
13	Angola	0.06	Thailand	0.05	Albania	0.25	West Bank & Gaza	0.21
14	Congo, Rep.	0.06	Philippines	0.05	Mauritius	0.24	Turkiye	0.21
15	Yemen	0.06	Sudan	0.05	Egypt	0.24	Indonesia	0.21
16	Azerbaijan	0.06	Libya	0.05	Tunisia	0.24	Albania	0.20
17	Libya	0.05	Congo, Rep	0.04	Myanmar	0.23	India	0.20
18	Peru	0.05	PNG	0.04	Morocco	0.22	Syria	0.20
19	Algeria	0.05	Guinea	0.03	Dominican Rep.	0.22	Morocco	0.19
20	Nigeria	0.05	Somalia	0.03	Syria	0.20	Pakistan	0.19
21	South Africa	0.04	South Africa	0.03	Tajikistan	0.20	Mexico	0.19
22	Iran	0.04	India	0.03	El Salvador	0.20	Armenia	0.18
23	Pakistan	0.04	Mozambique	0.03	Turkiye	0.19	North Macedonia	0.17
24	Indonesia	0.04	Myanmar	0.03	Guatemala	0.19	Philippines	0.17
25	Uzbekistan	0.04	Central Africa	0.03	Lao PDR	0.19	Ethiopia	0.17
26	Gabon	0.04	Mongolia	0.02	Jamaica	0.18	Jordan	0.16
27	Gambia	0.04	Gambia	0.02	Cambodia	0.18	Uzbekistan	0.16
28	Mauritania	0.03	Tanzania	0.02	Senegal	0.18	Sierra Leone	0.15
29	Turkmenistan	0.03	Venezuela	0.01	North Macedonia	0.18	Lebanon	0.15
30	Sudan	0.03	Tajikistan	0.01	Malaysia	0.17	Egypt	0.15

Source: Author's calculations, using Rank correlation coefficient of countries' export similarities with China's imports and exports.

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Table A1.2 Countries with high Finger-Krenin similarity index with China

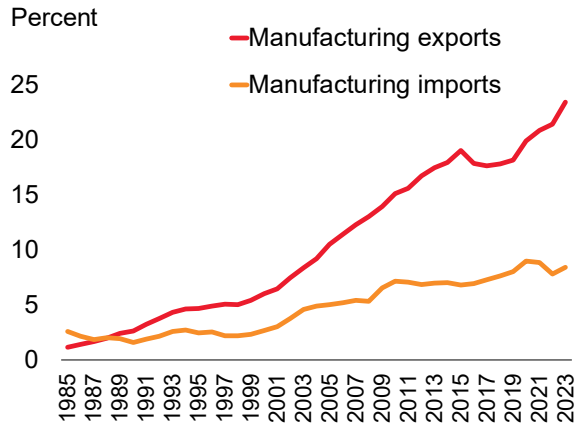
	Similarity with China's domestic share (FK)					
	Similarity with China's imports			Similarity with China's exports		
RANK	1995		2015	1995		2015	
1	Malaysia	37	Malaysia	47	Thailand	48	Viet Nam	55
2	Mexico	36	Thailand	45	Turkiye	41	Thailand	46
3	Brazil	35	Brazil	44	Philippines	40	Turkiye	44
4	Argentina	34	Philippines	40	Indonesia	38	Malaysia	42
5	Thailand	33	Mexico	38	India	38	Tunisia	38
6	Korea, Dem.	33	Indonesia	35	Mexico	37	Mexico	37
7	India	30	South Africa	35	Tunisia	35	Philippines	37
8	Indonesia	30	Turkiye	35	Malaysia	35	India	37
9	Belarus	29	India	34	Korea, Dem.	34	Indonesia	36
10	South Africa	28	Viet Nam	32	Viet Nam	34	Serbia	35
11	Turkiye	28	Argentina	32	Sri Lanka	33	Bosnia and Herzegovina	32
12	Ukraine	27	Serbia	31	North Macedonia	32	Egypt	28
13	Jordan	24	Colombia	31	Morocco	30	Lebanon	27
14	Tunisia	24	Egypt	30	Brazil	27	El Salvador	26
15	Philippines	23	Iran	29	El Salvador	27	Belarus	26
16	Colombia	21	Costa Rica	28	Pakistan	25	Morocco	25
17	North Macedonia	21	Georgia	27	Bosnia and Herzegovina	25	Moldova	25
18	Egypt	19	Belarus	26	Guatemala	25	Jordan	25
19	Venezuela	18	Tunisia	26	Dominican Rep.	25	North Macedonia	24
20	Bosnia and Herzegovina	18	Ukraine	26	Mauritius	25	Mauritius	24
21	Lebanon	18	Kazakhstan	25	Albania	25	Dominican Rep.	24
22	Zimbabwe	17	Lebanon	25	Costa Rica	24	South Africa	23
23	Kyrgyz Republic	17	Albania	25	Haiti	24	Sri Lanka	23
24	Georgia	17	Bosnia and Herzegovina	25	Bangladesh	24	Albania	23
25	Peru	16	Kyrgyz Republic	24	Egypt	23	Costa Rica	23
26	Togo	16	Peru	23	Lebanon	23	Ukraine	22
27	Kenya	15	Ghana	23	Belarus	22	Guatemala	22
28	Moldova	15	Ecuador	23	Colombia	22	West Bank and Gaza	22
29	Costa Rica	15	Dominican Rep.	22	Honduras	21	Kenya	21
30	Morocco	15	Mongolia	22	Madagascar	20	Brazil	21

Source: Author's calculations, using the Finger-Krenin index of countries' export similarities with China's imports and exports.

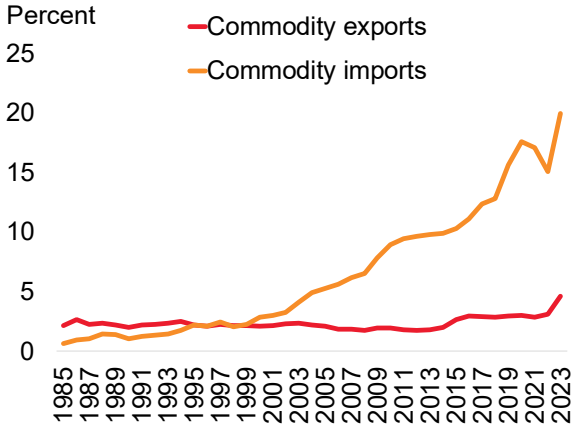
Appendix A2. China's growth, global prices, and China's role in global trade

Figure A2.1. China's growing role in global trade

A. China's share of global manufacturing exports and imports



B. China's share of global commodity exports and imports



Source: BACI.

Table A2. 1. China's GDP growth is correlated with commodity prices

	Correlation with China's GDP growth
Commodity index (weighted)	0.30
Energy	0.24
Non-energy	0.42
Agriculture	0.35
Beverages	0.17
Food	0.31
Oils & Meals	0.33
Grains	0.26
Other Food	0.18
Raw Materials	0.40
Timber	0.30
Other raw materials	0.38
Fertilizer	0.08
Metals & Minerals	0.44
Base metals (ex iron)	0.40
Precious metals	0.33

Source: World Bank Commodity Price data, Pink Sheet; World Bank Economic Monitoring Macroeconomic Data.
Note: Correlations are based on year-on-year growth rates of commodity prices and China's GDP growth.

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Table A2.2. China's growth has supported export prices of commodity exporters

	Growth in export price			
	(1)	(2)	(3)	(4)
China's GDP growth	-0.360**	-0.619***		
	[0.141]	[0.142]		
China's GDP growth		1.110***		
* commodity exporter		[0.315]		
China's manufacturing export growth			0.0760*	-0.0783
			[0.0407]	[0.0511]
China's manufacturing export growth				0.522***
* commodity exporter				[0.108]
Constant	0.0698***	0.0719***	0.0338***	0.0394***
	[0.0108]	[0.0129]	[0.00452]	[0.00594]
Observations	2,895	2,540	2,895	2,540
R-squared	0.327	0.356	0.326	0.403
country FE	YES	YES	YES	YES
year FE	YES	YES	YES	YES

Source: Haver Analytics.

Note: Estimation tests the equation $\Delta p_{i,t} = \alpha_c + \beta \Delta y_t^{China} * commodity + \delta_i + \delta_t + u_{c_{i,t}}$, where $p_{i,t}$ denotes the export price of country i and time t (quarterly), y_t^{China} is the GDP (manufacturing export) in China in time t, commodity is a dummy variable for commodity exporters (commodity rents are greater than 30% of GDP), and u is the error term. Panel fixed effect estimation using quarterly data between 1995-2024. Growth is in year-on-year terms. The sample includes 42 emerging markets and developing economies.

Appendix A3. Robustness check of growth regressions

Table A3.1. Similarity ratio and net growth effect

Country	Ratio of similarity indices	Net growth effect	90% lower bound	90% upper bound	Country	Ratio of similarity indices	Net growth effect	90% lower bound	90% upper bound
Jamaica	0.68	-0.07	-0.23	0.08	North Macedonia	0.87	0.21	0.14	0.28
Vietnam	0.68	-0.03	-0.16	0.09	Tanzania	0.87	0.19	0.14	0.24
Sri Lanka	0.68	-0.04	-0.14	0.06	Zambia	0.92	0.22	0.14	0.30
Nepal	0.71	-0.01	-0.10	0.08	Bahrain	0.88	0.20	0.15	0.25
Haiti	0.72	0.01	-0.08	0.09	Croatia	0.88	0.22	0.16	0.27
Madagascar	0.72	0.02	-0.07	0.10	Uruguay	0.89	0.21	0.16	0.26
Dominican Republic	0.74	0.03	-0.06	0.11	Guinea-Bissau	0.89	0.22	0.16	0.27
Guatemala	0.75	0.04	-0.04	0.12	Colombia	0.89	0.22	0.16	0.27
Zimbabwe	0.81	0.09	-0.02	0.20	Bulgaria	0.89	0.24	0.16	0.32
Pakistan	0.77	0.12	-0.02	0.26	Mexico	0.89	0.22	0.17	0.27
Bangladesh	0.77	0.10	-0.01	0.21	Burundi	0.91	0.23	0.17	0.29
Benin	0.78	0.08	0.00	0.15	Hungary	0.89	0.23	0.17	0.29
Myanmar	0.76	0.07	0.01	0.14	Cameroon	0.91	0.23	0.17	0.29
Oman	0.81	0.10	0.01	0.19	Peru	0.91	0.26	0.18	0.35
Indonesia	0.79	0.14	0.01	0.26	Bosnia and Herzegovina	0.90	0.24	0.18	0.29
Thailand	0.80	0.16	0.01	0.31	Iran, Islamic Rep	0.91	0.26	0.18	0.34
Albania	0.77	0.08	0.02	0.15	Armenia	0.93	0.25	0.18	0.31
Honduras	0.81	0.10	0.02	0.18	Nigeria	0.92	0.27	0.19	0.35
Philippines	0.78	0.12	0.02	0.22	Niger	0.95	0.26	0.19	0.33
Burkina Faso	0.82	0.11	0.02	0.19	Liberia	0.92	0.25	0.19	0.31
Egypt, Arab Rep	0.77	0.09	0.03	0.15	Malaysia	0.95	0.33	0.19	0.48
Bolivia	0.81	0.10	0.03	0.18	Gambia, The	0.93	0.27	0.19	0.34
Malawi	0.79	0.09	0.03	0.16	Kyrgyz Republic	0.94	0.26	0.20	0.32
Central African Republic	0.87	0.15	0.04	0.27	Cote d'Ivoire	0.95	0.27	0.20	0.34
Lao PDR	0.79	0.10	0.04	0.15	Mongolia	0.94	0.27	0.20	0.34
Panama	0.79	0.11	0.04	0.18	Guinea	0.97	0.28	0.20	0.35
Syrian Arab Republic	0.79	0.10	0.04	0.15	Kenya	0.95	0.27	0.20	0.34
Mozambique	0.89	0.17	0.05	0.29	Qatar	0.95	0.29	0.21	0.36
Tunisia	0.79	0.11	0.05	0.18	Mauritania	0.95	0.29	0.22	0.37
Morocco	0.79	0.11	0.05	0.17	Jordan	0.96	0.29	0.22	0.36
Trinidad and Tobago	0.86	0.15	0.05	0.24	Rwanda	1.02	0.31	0.22	0.41
Chile	0.85	0.14	0.06	0.23	Uzbekistan	0.98	0.31	0.23	0.40
India	0.83	0.20	0.06	0.35	Chad	1.04	0.33	0.23	0.44
Nicaragua	0.89	0.17	0.06	0.29	Argentina	1.07	0.35	0.24	0.47
Sierra Leone	0.82	0.12	0.06	0.18	Gabon	1.02	0.34	0.25	0.44
El Salvador	0.80	0.12	0.07	0.17	Algeria	1.02	0.35	0.25	0.44
Togo	0.82	0.13	0.07	0.18	Azerbaijan	1.01	0.35	0.25	0.45
Costa Rica	0.82	0.13	0.08	0.19	Sudan	1.04	0.35	0.25	0.45
Moldova	0.86	0.15	0.08	0.23	Belarus	1.02	0.38	0.26	0.51
Senegal	0.81	0.13	0.08	0.18	Kuwait	1.03	0.37	0.26	0.47
Mauritius	0.82	0.17	0.08	0.25	South Africa	1.08	0.38	0.27	0.50
Lebanon	0.82	0.14	0.09	0.19	Iraq	1.06	0.42	0.27	0.57
Paraguay	0.83	0.15	0.11	0.20	Yemen, Rep	1.08	0.39	0.28	0.51
Ecuador	0.87	0.17	0.11	0.24	Saudi Arabia	1.08	0.40	0.28	0.52
Tajikistan	0.84	0.17	0.11	0.24	Congo, Rep	1.09	0.40	0.28	0.52
Poland	0.84	0.16	0.11	0.20	Venezuela, RB	1.07	0.41	0.29	0.53
Mali	0.84	0.16	0.11	0.20	Angola	1.09	0.40	0.29	0.52
Uganda	0.89	0.19	0.11	0.26	Ukraine	1.10	0.47	0.30	0.64
United Arab Emirates	0.85	0.17	0.12	0.22	Brazil	1.11	0.45	0.31	0.59
Ghana	0.87	0.18	0.12	0.24	Georgia	1.14	0.49	0.32	0.65
Turkey	0.85	0.19	0.12	0.25	Kazakhstan	1.18	0.51	0.34	0.68
Cambodia	0.85	0.19	0.13	0.25	Russian Federation	1.30	0.61	0.39	0.82
Ethiopia	0.88	0.19	0.13	0.25	**Average**	**0.89**	**0.21**	**0.13**	**0.30**

Note: Ratio of similarity indices refers to $\frac{\sigma_i^{import}}{\sigma_i^{export}}$ in equation (3).

Net growth refers to the estimated $\frac{\partial \Delta y_{i,t}}{\partial \Delta x_t^{China}} = \gamma_1 \sigma_i^{import} + \gamma_2 \sigma_i^{export}$.

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Table A3.2. Overlap between commodity-exporter status and high import-complementarity

Import-complementarity group	Non-commodity exporter	Commodity exporter	Total
Below median	34	18	52
Above median	29	24	53
Total	63	42	105

Note. Cells report the number of economies. Groups are defined by the 1995 import-complementarity index.

Table A3.3. Robustness check - Export similarities and the impact of China's GDP growth on developing economies (controlling for global macro indicators)

Dependent variable: GDP per-capita growth						
	(1)	(2)	(3)	(4)	(5)	(6)
China's per-capita GDP growth	0.213***		0.213***		-0.283	
	(0.0311)		(0.0311)		(0.715)	
[China's per-capita GDP growth] X		3.170***			2.548**	2.552**
[Export similarity with China's imports (1995)]		(1.056)			(1.109)	(1.092)
[China's per-capita GDP growth] X				-1.919***	-1.369**	-1.371**
[Export similarity with China's exports (1995)]				(0.609)	(0.619)	(0.617)
Energy price (index)	0.00504		0.00504		0.00509	
	(0.00338)		(0.00338)		(0.00336)	
US real interest rate	0.130*		0.130*		0.130*	
	(0.0721)		(0.0721)		(0.0718)	
Lag of GDP per capita growth	0.255***	0.251***	0.255***	0.251***	0.252***	0.250***
	(0.057)	(0.058)	(0.057)	(0.058)	(0.057)	(0.058)
Constant	-0.229	-7.130**	-0.229	7.946***	-0.229	-1.004
	(0.489)	(2.939)	(0.489)	(2.011)	(0.485)	(4.058)
Observations	2,625	2,625	2,625	2,625	2,625	2,625
R-squared	0.225	0.251	0.225	0.250	0.229	0.252
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	No	Yes	No	Yes

Note: Regressions use annual data from developing economies countries available between 1995-2019, excluding countries with populations under one million (as of 2010). Export similarity to China's trade is measured using the baseline (1995) rank correlation index at the detailed 4-digit product level. Robust standard errors are in parentheses, with significance levels denoted as *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

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Table A3.4. Robustness check - Impact of China's manufacturing trade growth on developing country per capita GDP growth (controlling for global macro indicators)

Dependent variable: GDP per capita growth						
	(1)	(2)	(3)	(4)	(5)	(6)
China's manufacturing import growth	-0.348**				-0.348**	
	(0.144)				(0.145)	
[China's manu. import growth] X	0.797***	0.798***			0.656**	0.657**
[Export similarity with China's imports (1995)]	(0.296)	(0.292)			(0.297)	(0.295)
China's manufacturing export growth			0.368***		0.319***	
			(0.0849)		(0.0863)	
[China's manu. export growth] X			-0.539***	-0.539***	-0.417***	-0.418***
[Export similarity with China's exports (1995)]			(0.143)	(0.143)	(0.140)	(0.140)
Energy price (index)	0.0122***		0.00601*		0.00313	
	(0.00329)		(0.00334)		(0.00381)	
US real interest rate	0.243***		0.121*		0.0650	
	(0.0690)		(0.0718)		(0.0735)	
Lag of GDP per capita growth	0.255***	0.252***	0.254***	0.251***	0.254***	0.250***
	(0.057)	(0.058)	(0.056)	(0.058)	(0.056)	(0.057)
Constant	-0.448	-2.437	0.130	5.560***	0.543	1.217
	(0.494)	(1.507)	(0.479)	(1.050)	(0.539)	(1.963)
Observations	2,625	2,625	2,625	2,625	2,625	2,625
R-squared	0.230	0.252	0.239	0.252	0.243	0.254
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes

Note: Panel regressions use annual data from developing economies countries available between 1995-2019, excluding countries with populations under one million (as of 2010). Export similarity to China's trade is measured using the baseline (1995) rank correlation index at the detailed 4-digit product level. Robust standard errors are in parentheses, with significance levels denoted as *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A3.5. Robustness check - Differential effect for commodity exporters

	Dependent variable: GDP per capita growth					
	(1)	(2)	(3)	(4)	(5)	(6)
China's per-capita GDP growth	0.145***					
	(0.0342)					
[China's per-capita GDP growth] X	0.170**	0.171**				
	(0.0689)	(0.0682)				
China's manufacturing import growth			0.0340***			
			(0.0105)			
[China's manu. import growth] X			0.0369**	0.0377**		
			(0.0178)	(0.0177)		
China's manufacturing export growth					0.0517***	
					(0.0105)	
[China's manu. export growth] X					0.0404**	0.0414**
					(0.0183)	(0.0182)
Energy price (index)	0.00656**		0.0134***		0.00694**	
	(0.00334)		(0.00330)		(0.00334)	
US real interest rate	0.126*		0.243***		0.123*	
	(0.0728)		(0.0705)		(0.0726)	
Lag of GDP per capita growth	0.248***	0.246***	0.251***	0.247***	0.251***	0.246***
	(0.057)	(0.058)	(0.057)	(0.058)	(0.057)	(0.058)
Constant	-0.263	1.488***	-0.510	1.706***	0.0662	1.667***
	(0.480)	(0.211)	(0.494)	(0.185)	(0.473)	(0.185)
Observations	2,700	2,700	2,700	2,700	2,700	2,700
R-squared	0.226	0.250	0.227	0.250	0.238	0.250
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes

Note: Panel regressions use annual data from developing economies countries available between 1995-2019, excluding countries with populations under one million (as of 2010). "Commodity exporters" is a dummy indicating the countries with commodity rents greater than 30% of GDP as of 2010. Robust standard errors are in parentheses, with significance levels denoted as *** p<0.01, ** p<0.05, * p<0.1.

Table A3.6. Robustness check–excluding commodity exporters and resource-rich economies

	Baseline	Excl. all commodity exporters	Excl. top-10 resource-rich
Complementarity (export–China-import similarity)	2.552**	2.119*	3.240***
	(1.092)	(1.128)	(0.866)
Competition (export–China-export similarity)	−1.371**	−1.202*	−1.201*
	(0.617)	(0.694)	(0.637)
Observations	2,625	1,575	2,375

Note: Top-10 resource-rich refers to the ten economies with the highest average commodity-export share of GDP over the sample (Kuwait, Congo Rep., Oman, Angola, Qatar, Gabon, Saudi Arabia, Iraq, Bahrain, and Trinidad and Tobago). "Commodity exporter" is a binary variable indicating countries whose fuel, ores and metal exports consist greater than 30% of all goods exports in 2010. All columns follow the baseline specification (Table 1, column 7, with country and year fixed effects and lagged GDP-per-capita growth). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

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Table A3.7. Commodity-price robustness

	Baseline model (Table 1)	Baseline + commodity share	Baseline + energy price × commodity share
China growth × export-China import similarity	2.552**	2.076*	2.100*
	(1.092)	(1.097)	(1.099)
China growth × export-China export similarity	-1.371**	-0.953*	-1.003*
	(0.617)	(0.576)	(0.579)
Commodity exports (% GDP)		0.0179	
		(0.0185)	
Energy price x commodity-export share			0.00423
			(0.0132)
Lagged GDPpc growth	0.250***	0.273***	0.273***
	(0.058)	(0.052)	(0.052)
Observations	2,625	2,603	2,603
R-squared	0.251	0.256	0.264

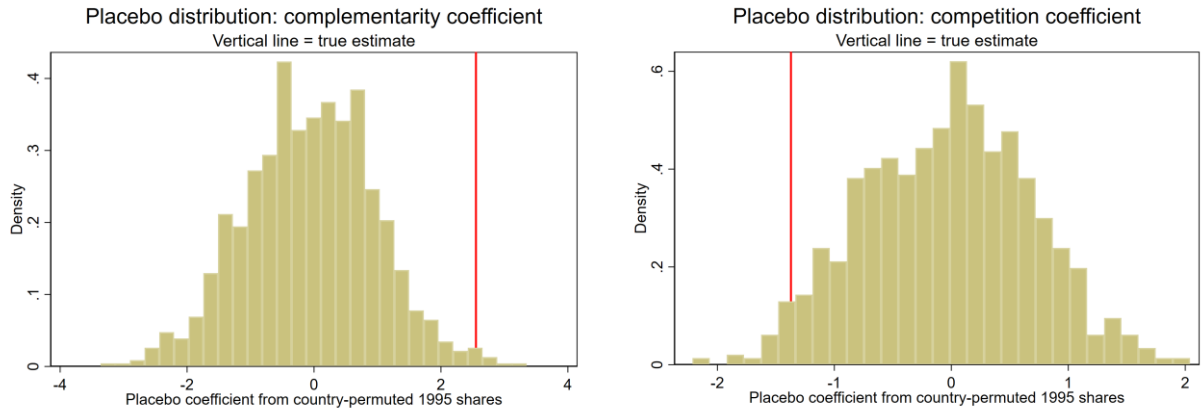
Note: The first row explains the specifications. Column 2 controls for time-varying commodity exports (as share of GDP) for each country. Column 3 allows common energy-price shocks to have differential effects through commodity-export exposure. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A3.8. Permutation/placebo test statistics

Channel	Baseline coefficient	Placebo mean	Placebo SD	Two-sided permutation p-value	Replications
Complementarity (export-China import similarity)	2.552	-0.064	1.025	0.012	1,000
Competition (export-China export similarity)	-1.371	-0.034	0.719	0.053	1,000

Note: Statistics from 1,000 country-level permutations of the 1995 similarity shares. The placebo mean is near zero for both channels, confirming the permutation introduces no mechanical bias.

Figure A3.1. Permutation/placebo distribution



Note: Placebo distributions of the interaction coefficients under 1,000 country-level permutations of the 1995 similarity shares. The red line marks the baseline estimate. Both placebo distributions are centered near zero; the baseline complementarity coefficient lies in the right tail (two-sided p = 0.012) and the competition coefficient in the left tail (p = 0.053).

Table A3.9. GDP per capita growth correlations among major economies (>5% of world trade)

	China	USA	Germany
China	1.000	−0.217	0.075
USA		1.000	0.532
Germany			1.000

Note: Source: Penn World Tables 10.2.

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Table A3.10. Major-economy growth effects through trade similarities

	China	USA	Germany	Horserace	(Horserace (residualized)
China growth × import-similarity	2.552**			2.559**	4.355***
	(1.092)			(1.116)	(1.188)
China growth × export-similarity	−1.371**			−1.438**	−2.194**
	(0.617)			(0.631)	(0.910)
USA growth × import-similarity		2.216		1.344	1.483
		(1.736)		(1.800)	(3.161)
USA growth × export-similarity		3.709		3.541	2.844
		(2.301)		(2.876)	(5.606)
Germany growth × import-similarity			−0.220	0.760	−0.437
			(1.463)	(1.905)	(2.660)
Germany growth × export-similarity			3.867***	3.085**	2.620
			(1.233)	(1.560)	(2.438)
Lagged GDP per capita growth	0.250***	0.251***	0.253***	0.249***	0.250***
	(0.058)	(0.059)	(0.058)	(0.059)	(0.059)
Observations	2,625	2,525	2,625	2,525	2,525
R-squared	0.251	0.250	0.251	0.256	0.255
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Note. Estimated growth effect of GDP per capita growth in each major economy (>5% of world trade, 2024), channeled through countries' trade similarities with that economy. All columns include country and year fixed effects and lagged GDP per capita growth. In column 5, each anchor's own growth is residualized against the other anchors' growth (an annual time-series regression) before being interacted, and each country's similarity index to an anchor is residualized against its similarity indices to the other anchors (separately for import- and export-similarity). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A3.11. Correlations among four China similarity measures (1995 similarity indices)

	export-China import similarity	export-China export similarity	import-China import similarity	import-China export similarity
export-China import similarity	1	-0.316	-0.033	-0.180
export-China export similarity		1	0.554	-0.075
import-China import similarity			1	-0.712
import-China export similarity				1

Note: Correlation between each of the 4 channels constructed following the description in the Data section.

Table A3.12. Four-channel specification: export-side estimates are stable to including the import-side channels

	(Export channels only (baseline)	Import channels only	All four channels
China growth × export–China-import similarity (complementarity)	2.552**		2.614**
	(1.092)		(1.088)
China growth × export–China-export similarity (competition)	−1.371**		−1.335**
	(0.617)		(0.611)
China growth × import–China-import similarity		−0.675	−0.672
		(1.028)	(1.014)
China growth × import–China-export similarity		−2.724	−2.726
		(1.689)	(1.672)
Observations	2,625	2,625	2,625
R-squared	0.251	0.250	0.252

Note. All columns include country and year fixed effects and lagged GDP-per-capita growth. The export-side coefficients are essentially unchanged between column 1 and column 3, indicating that omitting the import-side channels does not bias the headline estimates. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

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Table A3.13. Robustness check–excluding large emerging markets

	Baseline	**Drop India**	**Drop Brazil**	**Drop South Africa**	**Drop Indonesia**	**Drop Mexico**	**Drop all five countries**	**Pop < 30 mln**
export-China import similarity	2.552** (1.092)	2.617** (1.134)	2.533** (1.117)	2.553** (1.093)	2.324** (1.083)	2.566** (1.093)	2.371** (1.156)	2.814*** (1.069)
export-China export similarity	-1.371** (0.617)	-1.318** (0.646)	-1.364** (0.621)	-1.377** (0.631)	-1.634*** (0.577)	-1.363** (0.616)	-1.588** (0.622)	-2.216** (0.937)
N	2,625	2,600	2,600	2,600	2,600	2,600	2,500	1,925

Note: Each column drops one of the named large emerging markets; the final column drops all five simultaneously. All specifications follow the baseline (Table 1, column 7), including country and year fixed effects and lagged GDP-per-capita growth. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A3.14. Dynamic-panel diagnostics: FE, system-GMM, and half-panel jackknife

	Baseline (FE-OLS)	System GMM	Jackknife bias-corrected
China growth × export–China-import similarity	2.552**	2.746**	3.620
	(1.092)	(1.211)	(2.502)
China growth × export–China-export similarity	−1.371**	−0.713	−1.972
	(0.617)	(1.193)	(1.405)
Lagged GDP per capita growth	0.250***	0.249***	0.297**
	(0.058)	(0.064)	(0.126)

Note: Column 1 reports baseline fixed-effects OLS. Column 2 reports system-GMM (Blundell–Bond) estimates. Column 3 reports the half-panel jackknife bias correction (Chudik, Pesaran, and Yang 2018).

Table A3.15. Robustness to similarity indices computed over the first half of the sample

	1995 similarity (baseline)	1995–2007 average similarity
China growth × export–China-import similarity (complementarity)	2.552**	1.640***
	(1.092)	(0.567)
China growth × export–China-export similarity (competition)	−1.371**	−0.484
	(0.617)	(0.307)
Lagged GDP per capita growth	0.250***	0.250***
	(0.058)	(0.058)
Observations	2,625	2,625
Country FE	Yes	Yes
Year FE	Yes	Yes

Note: Both columns use the identical baseline sample (2,625 country-years) and specification (Table 1, column 7, with country and year fixed effects and lagged GDP-per-capita growth); only the period over which the similarity indices are computed differs. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A3.16. Robustness check: different similarity-index measures

Dependent variable: EMDE's GDP per-capita growth		
	Finger-Kreinin similarities	
	(1)	(2)
China's per-capita GDP growth	0.187***	
	(0.0660)	
[China's per-capita GDP growth] X [Export similarity with China's imports (1995)]	0.0138***	0.0138***
	(0.00411)	(0.00395)
[China's per-capita GDP growth] X [Export similarity with China's exports (1995)]	-0.0107***	-0.0107***
	(0.00359)	(0.00353)
Lag of GDP per capita growth	0.256***	0.252***
	(0.057)	(0.058)
Constant	0.605***	1.677***
	(0.217)	(0.376)
Observations	2,625	2,625
R-squared	0.225	0.249
country FE	Yes	Yes
Year FE	No	Yes

Note: Panel regressions using annual data from EMDE countries where data are available, between 1995-2019. Export similarity to China's exports and imports are measured using time-varying rank correlation index with detailed product-level data at the 4-digit level. Description of rank correlation index. Whiskers represent 90-percent confidence intervals. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.

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Table A3.17. Robustness check: including countries with population less than 1 million

	Dependent variable: GDP per-capita growth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
China's per-capita GDP growth	0.188***	-1.375***		1.058***		-0.598	
	(0.0283)	(0.489)		(0.338)		(0.654)	
[China's per-capita GDP growth] X		3.162***	3.172***			2.755***	2.763***
[Export similarity with China's imports (1995)]		(1.007)	(0.988)			(1.026)	(1.011)
[China's per-capita GDP growth] X				-1.560***	-1.565***	-1.032*	-1.036*
[Export similarity with China's exports (1995)]				(0.590)	(0.587)	(0.588)	(0.589)
Lag of GDP per capita growth	0.270***	0.268***	0.264***	0.269***	0.265***	0.268***	0.263***
	(0.050)	(0.050)	(0.051)	(0.050)	(0.051)	(0.050)	(0.051)
Constant	0.666***	0.670***	-7.168***	0.668***	6.711***	0.671***	-2.734
	(0.196)	(0.194)	(2.744)	(0.195)	(1.909)	(0.194)	(3.718)
Observations	3,175	3,175	3,175	3,175	3,175	3,175	3,175
R-squared	0.219	0.222	0.248	0.220	0.246	0.222	0.248
country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	No	Yes	No	Yes

Note: Panel regressions using annual data from EMDE countries where data are available, between 1995-2019. Export similarity to China's exports and imports are measured using baseline (1995) rank correlation index with detailed product-level data at the 4-digit level. Description of rank correlation index. Whiskers represent 90-percent confidence intervals. Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A3.18. Robustness check - Export similarities and the impact of China's GDP growth on developing economies (sample expanded to post-COVID years)

	Dependent variable: GDP per-capita growth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
China's per-capita GDP growth	0.569***	-0.887		1.433***		-0.0930	
	(0.0428)	(0.681)		(0.471)		(0.893)	
[China's per-capita GDP growth] X		2.936**	2.867**			2.484*	2.430*
[Export similarity with China's imports (1995)]		(1.396)	(1.281)			(1.411)	(1.270)
[China's per-capita GDP growth] X				-1.539*	-1.495**	-1.016	-0.983
[Export similarity with China's exports (1995)]				(0.819)	(0.722)	(0.812)	(0.693)
Lag of GDP per capita growth	0.199***	0.198***	0.221***	0.198***	0.222***	0.197***	0.221***
	(0.049)	(0.049)	(0.054)	(0.049)	(0.054)	(0.049)	(0.054)
Constant	-2.409***	-2.407***	-8.870*	-2.408***	8.123***	-2.406***	-3.092
	(0.327)	(0.326)	(4.745)	(0.327)	(3.101)	(0.327)	(5.763)
Observations	3,074	3,074	3,074	3,074	3,074	3,074	3,074
R-squared	0.224	0.226	0.277	0.225	0.277	0.226	0.278
country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	No	Yes	No	Yes

Note: Regressions use annual data from developing economies between 1995-2023, excluding countries with populations under one million (as of 2010). Export similarity to China's trade is measured using the baseline (1995) rank correlation index at the detailed 4-digit product level. Robust standard errors are in parentheses, with significance levels denoted as *** p<0.01, ** p<0.05, * p<0.1.

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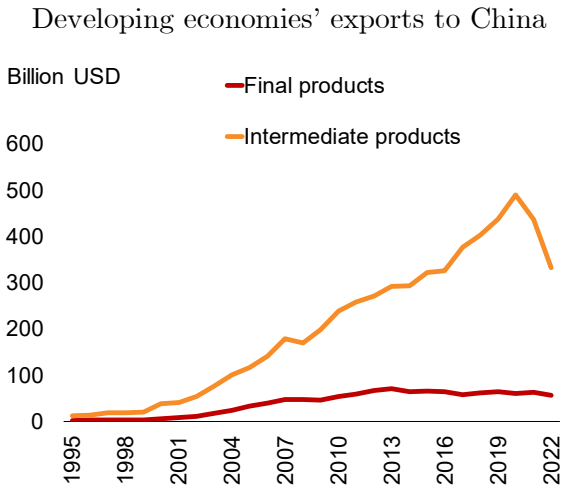
Table A3.19. Robustness check - Impact of China's manufacturing trade growth on developing country per capita GDP growth (sample expanded to post-COVID years)

Dependent variable: GDP per capita growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
China's manufacturing import growth	0.0442***	-0.322**					-0.345**	
	(0.00825)	(0.143)					(0.142)	
[China's manu. import growth] X		0.739**	0.741**				0.618**	0.618**
[Export similarity with China's imports (1995)]		(0.294)	(0.288)				(0.293)	(0.292)
China's manufacturing export growth				0.0771***	0.343***		0.313***	
				(0.00856)	(0.0884)		(0.0910)	
[China's manu. export growth] X					-0.473***	-0.477***	-0.363**	-0.366**
[Export similarity with China's exports (1995)]					(0.149)	(0.147)	(0.149)	(0.146)
Lag of GDP per capita growth	0.260***	0.259***	0.241***	0.257***	0.256***	0.240***	0.253***	0.240***
	(0.060)	(0.060)	(0.059)	(0.059)	(0.059)	(0.059)	(0.059)	(0.059)
Constant	1.171***	1.172***	-2.225	0.718***	0.721***	4.918***	0.741***	0.900
	(0.220)	(0.219)	(1.474)	(0.208)	(0.207)	(1.070)	(0.208)	(1.958)
Observations	2,756	2,756	2,756	2,756	2,756	2,756	2,756	2,756
R-squared	0.205	0.208	0.293	0.222	0.225	0.292	0.230	0.294
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	No	No	Yes	No	Yes

Note: Panel regressions use annual data from developing economies between 1995-2023, excluding countries with populations under one million (as of 2010). Export similarity to China's trade is measured using the baseline (1995) rank correlation index at the detailed 4-digit product level. Robust standard errors are in parentheses, with significance levels denoted as *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix A4. Exports relationship between China and developing economies

Figure A4.1. Developing economies export primarily intermediate goods to China, whereas China exports primarily final goods to other developing economies.



Source: BACI.
Note: Values deflated using global price indicators (constant 2010 price).

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Appendix A5. Exports to China and reforms

Table A5.1. Correlation between lag of exports of intermediate goods to China and policy reforms

	Reforms index (aggregate)	Domestic reforms			External reforms	
		Product market reforms	Domestic finance reforms	Labor market reforms	Trade reforms	External finance reforms
	(1)	(4)	(5)	(6)	(2)	(3)
Exports of intermediate goods to China (lag; % of GDP)	-0.00602***	-0.0281***	-0.0141***	-0.00105	0.000741	0.00989
	(0.00194)	(0.00377)	(0.00325)	(0.00153)	(0.00266)	(0.00711)
Constant	0.649***	0.479***	0.692***	0.699***	0.738***	0.627***
	(0.00214)	(0.00409)	(0.00306)	(0.00209)	(0.00292)	(0.00668)
Observations	1,091	1,101	1,101	1,100	1,092	1,101
R-squared	0.887	0.883	0.839	0.833	0.851	0.797
country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: reform indices adopted from Alesina et al. (2020) and discussed in detail in World Bank's East Asia and Pacific Economic Update April 2023. Overall and sectoral reform indices are continuous indicators taking a value in the [0-1] interval. A higher value indicates greater degree of liberalization (lower intensity of restrictions). Trade reforms is a composite index capturing the degree of liberalization in tariffs and the current account. Domestic finances reform captures the degree of liberalization in credit and interest rate controls, banking entry and supervisions, privatization, and security markets. Product market reform captures the degree of liberalization in two representative sectors of electricity and telecommunication. Robust standard errors are in parentheses, with significance levels denoted as *** p<0.01, ** p<0.05, * p<0.1.

Table A5.2. Reform regression: robustness to commodity dependence and exclusion of resource-rich economies

	Baseline	Commodity-share control	Exclude top-5 resource-rich
Intermediate exports to China (% GDP)	−0.007***	−0.004**	−0.008***
	(0.002)	(0.002)	(0.002)
Total commodity exports (% GDP)		−0.003***	
		(0.001)	
Observations	1,138	1,138	1,042
R-squared	0.885	0.889	0.897
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Note: The dependent variable is the domestic reform measure defined in Section III.c. Column 2 adds each country's total commodity exports as a share of GDP; column 3 excludes the five most resource-rich economies with reform data (N falls accordingly). Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.