Patterns of invoicing currency in global trade in a fragmenting world economy*

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Abstract

This paper presents new evidence on global trade invoicing currency patterns with particular focus on the role of geopolitical alignment. Constructing the most comprehensive and up-to-date panel dataset on global trade invoicing currencies—including new coverage of the Chinese renminbi—we document four key findings. First, the US dollar remains the dominant invoicing currency with broadly stable global shares. Second, renminbi use has grown steadily and expanded beyond Asia, while remaining modest. Third, countries not geopolitically aligned with the US continue to rely on the dollar even as this reliance has declined in a few key economies. Fourth, the correlation between a country's invoicing currency choice and its geopolitical distance from the currency issuer has become more negative since 2021, reflecting growing geopolitical polarization. Taken together, Russia's war in Ukraine marks a turning point for invoicing, even if the changes are modest for most countries.

Keywords: Trade invoicing currency, dominant-currency paradigm, geopolitical alignment.

JEL-Classification: F14, F31, F44.

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1 Introduction

Several secular trends and distinct events since 2020 have significantly reshaped the global trade landscape. In particular, the rise of China and other emerging market economies, the COVID-19 pandemic with associated supply chain disruptions, and growing geopolitical fragmentation following Russia's invasion of Ukraine have profoundly altered global trade relationships (Alfaro & Chor 2023, Freund et al. 2024, Bonadio et al. 2024, Gopinath et al. 2025*a*). While earlier literature has firmly established the dominance of a few currencies in global trade invoicing over recent decades, evidence on the evolution of global trade invoicing currency patterns—particularly in relation to geopolitical realignments—is scarce.

We address this gap by providing new evidence on recent developments in global trade invoicing currency patterns, with particular focus on the role of geopolitical alignment. To do so, we update and extend the dataset of Boz et al. (2022) on trade invoicing currencies—and thereby earlier work by Kamps (2006), Goldberg & Tille (2008), Ito (2014), and Gopinath (2015). The dataset compiled by Boz et al. (2022) represents the most comprehensive and up-to-date panel on invoicing currencies currently available. However, its coverage ends in 2019, and while the dataset includes invoicing shares for the US dollar, the euro, and home currencies, it does not report data for the Chinese renminbi. We expand the original dataset to include observations for the period 2020–2023, which allows us to analyze shifts in invoicing behavior in the context of heightened geopolitical tensions. In addition, we incorporate data on the renminbi, which allows us to examine whether there has been a shift in trade invoicing away from the US dollar toward currencies of countries that are less closely aligned with the US. Our updated and extended dataset is an unbalanced panel comprising invoicing currency shares in imports and exports for 132 countries from 1990 to 2023. It covers the US dollar, the euro, and the renminbi, and, for many countries, their respective home currencies.

Our dataset and analysis yield four key findings. First, trade invoicing currency shares have remained broadly stable at the global level, despite rising geopolitical tensions. The US dollar continues to dominate global trade invoicing. While the euro is used less frequently than the dollar, it is nonetheless used as a vehicle currency to some extent in trade among certain African and European countries outside the euro area.

Second, the renminbi continues to account for a modest share of global trade invoicing. At the same time, its role has expanded steadily since the early 2010s, in fact quite rapidly in recent years. Initially, the increase in renminbi invoicing was concentrated in Asia, but it has gradually extended to other regions, especially Europe and Latin America. In 2023, about 1.6% of trade captured in our dataset was invoiced in renminbi. While our dataset does not distinguish between renminbi invoicing

of trade with China as opposed to trade between third countries, the evidence suggests that renminbi is unlikely to be used widely as a vehicle currency. This inference is supported by the fact that the value of China's trade alone substantially exceeds the total value of global trade invoiced in renminbi captured in our dataset.

Third, countries least geopolitically aligned with the US tend to rely disproportionately on the dollar as a vehicle currency. However, because these countries account for a smaller share of global trade, the total value of their exports invoiced in dollars remains lower than that of countries most aligned with the US. The use of the dollar as a vehicle currency in exports of US least-aligned countries has been declining since the early 2010s, driven primarily by a few economies—most notably Russia—rather than reflecting a broad-based shift over this longer time span. In contrast, the euro's role as a vehicle currency in trade of euro area least-aligned countries is much smaller.

Fourth, geopolitical distance emerges as an increasingly important correlate of currency choice in trade invoicing. Over the full span of our sample period, the use of the US dollar and the euro in trade invoicing has not been systematically correlated with geopolitical alignments, at least after controlling for other determinants of invoicing currency patterns such as trade linkages and commodity trade shares. In contrast, the renminbi has been more commonly used by exporters that are geopolitically closer to China over the full span of our sample period. However, since Russia's invasion of Ukraine in 2022, patterns for the dollar and the euro have changed: the correlation between the use of the dollar and especially the euro on the one hand and geopolitical distance from their respective issuers on the other hand has become more negative. Overall, we find that as countries have moved geopolitically away from the US or the euro area, they have increasingly substituted the dollar and the euro with the renminbi, their own currencies, or third-country currencies. Conversely, since 2022, countries that have distanced themselves from China have shown greater reliance on the dollar, while reducing reliance on their own or other third-party currencies. These developments point to a fragmentation in global trade invoicing currency patterns along geopolitical lines, as countries that have moved closer to the US have typically distanced themselves from China.

We focus on invoicing currencies to inform the design of workhorse open-economy models in international macroeconomics. A striking empirical regularity in global trade is that most transactions are invoiced in just a few currencies—primarily the US dollar and, to a lesser extent, the euro—regardless of the countries involved in the transaction (Goldberg & Tille 2008, Gopinath 2015, Boz et al. 2022). This regularity has prompted a shift in international macroeconomics away from the traditional open-economy framework, where export prices are set in the producer's currency, toward a dominant-currency paradigm. In this alternative framework, export prices are typically set in a single dominant currency, most often the US dollar (Gopinath et al. 2020, Gopinath & Itskhoki 2022).

Dominant-currency pricing implies markedly different responses to exchange rate fluctuations compared to producer-currency pricing, with important ramifications for international spillovers, optimal monetary and fiscal policy, and international policy coordination (Egorov & Mukhin 2023, Basu et al. 2025). While other functions of international currencies——such as for payments or settlement, or as units of account—are related and complementary to their role in invoicing, this paper focuses specifically on invoicing currencies (Eichengreen et al. 2017).

Related literature. Our study contributes to the long-standing debate on the future of dollar dominance in the international monetary system (Portes & Rey 1998, Chinn & Frankel 2008, Posen 2008, Eichengreen 2011, Ito 2017, Eichengreen & Lombardi 2017, Eichengreen et al. 2017). By analyzing trends in global trade invoicing in dollars, euros, and renminbi over time, we shed new light on the evolution of one important dimension of the international monetary system. We find that while the dollar remains unchallenged as the dominant currency for global trade invoicing, the renminbi has been gaining ground rapidly and across most regions. Furthermore, we provide novel evidence that trade invoicing currency patterns are increasingly shaped by geopolitical alignment. In doing so, our paper also contributes to the broader literature on dominant currencies (for an overview, see, e.g., Eichengreen, 2011; Rogoff, 2025).

Our paper further contributes to the important and rapidly expanding literature on geoeconomics (for a survey, see Clayton et al. 2025, Mohr & Trebesch 2025). Clayton et al. (2026) develop a framework in which geoeconomic power is defined as a hegemon's capacity to coordinate threats across diverse trade relationships and a coalition of countries to advance geopolitical or economic objectives; Liu & Yang (2025) present a related analysis of bilateral geoeconomic power exposures through trade and countries' *ex ante* strategic behavior. Clayton et al. (2024) and Becko & O'Connor (2025) discuss how target countries internalize a hegemon's incentives to coerce them and therefore try to reduce their exposure to its geoeconomic power *ex ante*. Broner et al. (2025) and Becko et al. (2025) explore how the hegemon uses trade policy threats to discourage geopolitical realignments by target countries when a challenger great power emerges. Focusing on the nexus between geoeconomics and currency dominance, Chahrour & Valchev (2024) study how geopolitically motivated trade and financial policies by the US and China could affect the relative role of the US dollar and the renminbi. In a similar spirit, Bianchi & Sosa-Padilla (2025) study how the use of financial sanctions for geopolitical motivations can undermine the US dollar's hegemonic reserve currency status. And Pflueger & Yared (2024) as well as Kim (2025) explore the complementarity between military might and debt capacity in determining currency dominance. We contribute to this literature by providing empirical evidence on the relationship between geopolitical alignment and the choice of invoicing currencies in global trade.

Our paper also relates to the literature on the impact of sanctions on trade invoicing currency

patterns. Berthou (2023) documents that US sanctions following Russia's annexation of Crimea in 2014 prompted French exporters to reduce their reliance on dollar invoicing. Chupilkin et al. (2023) show that the share of Russia's imports invoiced in renminbi increased significantly after the invasion of Ukraine, displacing both the euro and the dollar. Relatedly, Jiao & Wei (2025) provide evidence suggesting that switching to non-Western currencies enabled Russian trade to circumvent financial sanctions. Similarly, Corsetti et al. (2024) find that Turkish exporters shifted toward invoicing in Turkish lira at the expense of the dollar as trade with Russia surged after its invasion of Ukraine. While these studies focus on individual country cases, our analysis takes a broader perspective by examining how geopolitical alignment shapes invoicing currency patterns in global trade.

We also contribute to the growing literature on renminbi internationalization (for surveys, see Eichengreen & Kawai 2014, Cheung 2023, von Beschwitz 2024). Bahaj & Reis (forthcoming) and Song & Xia (2020) provide evidence that swap lines extended by the People's Bank of China (PBoC) promote renminbi use in cross-border payments. Perez-Saiz & Zhang (2023) further show that cross-country variation in renminbi usage is correlated with geographic and political proximity to China, trade linkages, and the presence of renminbi clearing banks. Our contribution lies in shifting the focus from settlement to invoicing: we provide new data on renminbi invoicing across a large sample of countries and and try to gauge whether settlement data for China's trade is a reliable proxy for invoicing. Georgiadis et al. (2021) analyze the effectiveness of PBoC policy initiatives using data collected, but not published, by Boz et al. (2022) for a much smaller country sample than we compile in our paper. Chowdhry (2024) uses French customs data to document a steady rise in renminbi invoicing in exports to China over the past 15 years. Jiao et al. (2024) document that South Korean firm and product-level exports to China have been growing faster for transactions invoiced in renminbi. Our paper adds a global perspective, showing how renminbi invoicing trends relate to dollar and euro usage, as well as to countries' geopolitical alignment with the US and China.

Finally, our paper also contributes to the literature on trade invoicing currency transitions. While invoicing patterns tend to be persistent at the aggregate level, theory suggests that transitions can occur rapidly in response to extraordinary events (Mukhin 2022). Consistent with this, Crowley et al. (2024) and Garofalo et al. (2024) document a swift and substantial shift from British pound to US dollar invoicing in UK trade following the Brexit vote in 2016. Similarly, Benguria & Wagner (2024) show that the introduction of the euro area led to a rapid and sizable increase in the share of Chilean exports invoiced in euros. More recently, Benguria & Novy (2025) find that the establishment of a swap line with the PBoC during a severe dollar shortage in 2023 triggered a sharp—albeit temporary—replacement of dollar by renminbi invoicing in Argentina's imports from China. Beyond trade invoicing, Arslanalp et al. (2022) describe the gradual decline of the dollar as a dominant reserve

currency. We extend this literature by examining whether the geopolitical fragmentation following Russia's invasion of Ukraine has been associated with broader transitions in global trade invoicing currency patterns.

The remainder of the paper is organized as follows. Section 2 provides background on the invoicing currency data and describes our data collection efforts. Section 3 presents stylized facts on trends in invoicing currency patterns in global trade. Section 4 examines the relationship between geopolitical alignment and invoicing currency patterns. Section 5 concludes.

2 Updated and expanded dataset of trade invoicing currencies

2.1 Background

Establishing patterns in invoicing currency in global trade is challenging as the relevant information is not readily available in standard cross-country datasets. For example, Comtrade (compiled by the United Nations, UN) and the Direction of Trade Statistics (compiled by the International Monetary Fund, IMF) include detailed information on bilateral goods trade, but do not provide information on invoicing currencies. The seventh edition of the IMF's Balance of Payments Manual (BPM) published in March 2025—the primary set of guidelines coordinating global accounting standards for external sector statistics—encourages countries to report information on trade invoicing currency as a supplementary item, but only from 2029-30 onward.

Invoicing currency information is generally recorded in customs declarations. However, customs declaration forms generally differ across countries and time depending on national legislation. For example, disclosure of invoicing currency is not always mandatory, and may not even be requested at all. Moreover, even if the information is provided in customs declaration forms, it might not be stored or processed by customs authorities, or transmitted to other authorities, such as national statistics offices or central banks. Overall, there is large cross-country heterogeneity in the reporting and processing of trade invoicing currency information. Only few countries routinely publish official data on trade invoicing currency.[1]

2.2 Updating and expanding the dataset of Boz et al. (2022)

For EU countries, we rely on four different data sources. First, as in Boz et al. (2022), we draw on the annual data collection exercise on trade invoicing currency carried out for the ECB's annual report on the *International Role of the Euro* (IRE; see, e.g., European Central Bank 2025). Second, again

[1]Data on trade finance currency or trade payment currency from the Society for Worldwide Interbank Financial Telecommunication (Swift) are sometimes used as proxies for trade invoicing. See Boz et al. (2022) for a discussion.

as in Boz et al. (2022), we use data saved in non-public ECB archives that are no longer reported by national authorities in the context of past annual IRE data collection exercises and that were never published. Third, again as in Boz et al. (2022), we draw on data from Eurostat. Fourth, going beyond Boz et al. (2022), we request invoicing currency information—especially for the renminbi (CNY), which has not been reported in the ECB IRE report data collection exercises—from national central banks through the Eurosystem's Working Group of External Statistics. A key challenge associated with trade invoicing currency data for EU countries is that they are typically available for different trading-partner compositions, both across countries and within a country over time, mainly due to changes in definitions and reporting procedures. Boz et al. (2022) provide a detailed discussion of the complications in piecing together consistent trade invoicing currency time series for EU countries.

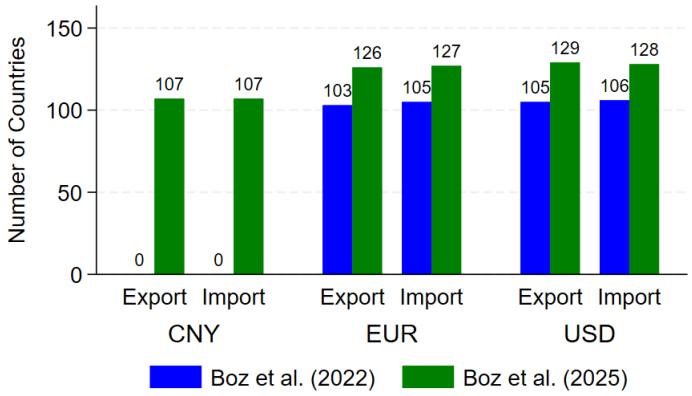
For non-EU countries, we first search online for publicly available, official information on trade invoicing currency. If such data are not available—which is the case for most countries—we request the data from national authorities for their respective jurisdictions. A challenging component of the data requests is identification of the relevant counterparts and establishing contact. This step is not straightforward, despite the extensive inter-institutional relationships between the IMF/ECB and national authorities. To overcome this challenge, we leverage a broad set of formal and informal contacts at the ECB, the IMF, and other international organizations, including the European Bank for Reconstruction and Development, the African Development Bank, the African Association of Central Banks, the Asian Development Bank, the Bank for International Settlements, and the South East Asian Central Banks Centre.

Eventually, we contact national authorities of around 120 countries between June 2024 and July 2025. In particular, we contact governors' offices and senior officials in the statistics, payments and international departments of non-EU central banks with a formal request for information on their country's trade invoicing currency patterns. We first contact central banks because they are the IMF's and especially the ECB's most natural counterparts. If we do not receive a response, or if the invoicing currency data is not available from central banks, we turn to statistics offices, and subsequently to ministries of finance and customs/revenue authorities. If the invoicing currency data is not readily available, we ask national authorities to compile it for us, drawing on raw customs records. The data for more than half of the countries in our dataset are obtained through such requests. Table B.9 in Appendix B provides detailed information on the data for each country in our dataset.

Figure 1 compares the country coverage of our updated and expanded dataset with that of Boz et al. (2022). Figure 1 documents that we have information on US dollar and euro invoicing patterns for about 20% more countries in our new dataset compared to Boz et al. (2022), with additional information for 2020-23 for almost all countries. Moreover, and importantly, compared to Boz et al.

(2022) we have information on renminbi invoicing for more than 100 countries.

Figure 1: Country and currency coverage relative to Boz et al. (2022)



Note: The figure presents a comparison of the country coverage of the dataset of Boz et al. (2022, blue bars) and our new dataset (green bars) by currency and trade flow. Our dataset includes invoicing currency information for a total of 132 countries. The maximum number of countries that report invoicing currency information on either US dollar, euro or renminbi shown in the figure is lower, because some countries only report, for example, import invoicing shares but not export invoicing shares. In this case, this country enters the import but not the export count show in the figure. The reverse case in which a country reports export but not import invoicing shares also exists. This then drives a wedge between the overall country count of 132 and the export/import country counts shown in the figure.

2.3 Data properties and definitions

Lack of harmonized data is another challenge in assembling a dataset of global trade invoicing currency patterns. In particular, it would be ideal if the data from different countries were consistent regarding the statistical methodology of data collection, the coverage of currencies, trade transactions in terms of goods or services and trading partners, and the definition in terms of trade invoicing rather than settlement currency. Unfortunately, until the publication of the seventh edition of the IMF BPM in March 2025—which encourages countries to report information on trade invoicing currency from 2029-30 onward—there was no global standard that would ensure a harmonized reporting of trade invoicing currency data. Lack of harmonized data across countries and over time has also afflicted earlier efforts that assembled cross-country data sets of invoicing currencies.

As a result, the precise definition of "invoicing currency" can differ across countries and even within a country over time (see Table B.9 in Appendix B for country details). For example, based on findings for selected individual countries (Friberg & Wilander 2008), previous work on global trade invoicing currency patterns (e.g., Gopinath 2015) has used trade settlement currency as a proxy for trade invoicing currency when the latter data are not available.[2] In Boz et al. (2022) we document that for the few countries for which there is both invoicing and settlement currency data, the two

[2]In fact, the seventh edition of the IMF BPM also recommends reporting settlement currency as a proxy for invoicing currency. Information on trade settlement currencies is typically recorded by central banks in the context of compiling balance-of-payments statistics.

measures are reasonably similar. In this vein, Figure A.1 shows that also for Russia, for which we now also have both invoicing and settlement currency data, they are reasonably similar.

An important special case in this context is China, given its prominent role in global trade and the policy measures adopted to promote the international use of the renminbi (People's Bank of China 2012, Eichengreen & Kawai 2014, Cheung 2023, von Beschwitz 2024). As in Boz et al. (2022) we do not include China's trade settlement currency as a proxy for trade invoicing currency in our updated and expanded dataset. There are two reasons for this. First, for current account transactions, the data does not distinguish between exports and imports but instead only report overall trade. Second, plausibility checks comparing renminbi settlement shares in China's trade and renminbi invoicing shares for the countries in our dataset point to non-trivial differences. Taken together, these factors prevent us from concluding that settlement currency is a useful proxy for invoicing currency in China's trade (see Appendix C for details).

2.4 Country and time-series coverage of the updated and expanded dataset

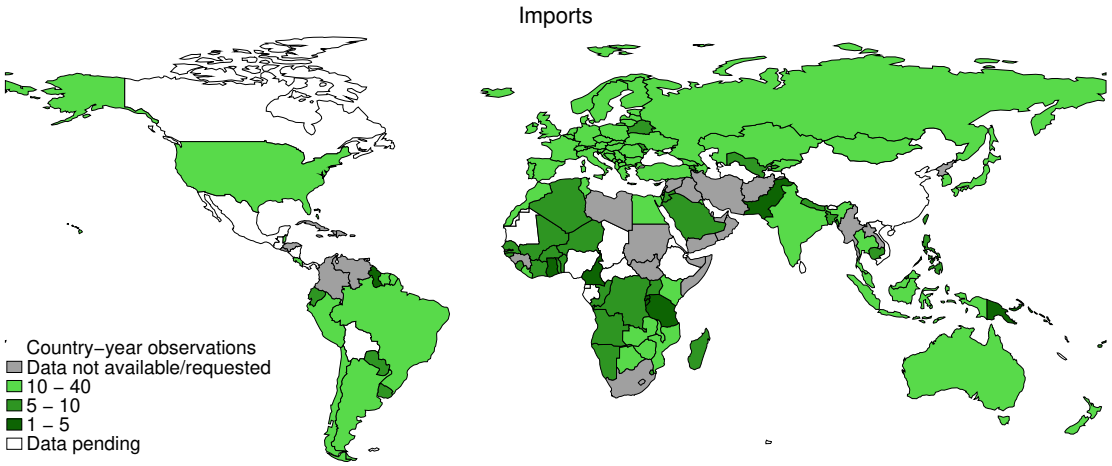
Our dataset is an unbalanced panel of invoicing currency shares in imports and exports of 132 countries from 1990 to 2023. The invoicing currency shares in general refer to goods trade.[3] Figure 2 illustrates the country coverage of the dataset for US dollar import invoicing shares. The coverage of euro and renminbi invoicing shares and that of exports is not shown, but is similar. While our dataset provides information on trade invoicing currency shares primarily for dollar, euro and renminbi, for many countries we also have information on the share of trade invoiced in home currency.

As in Boz et al. (2022), our dataset excludes several important advanced and developing countries for various reasons. First, in some countries customs authorities do not record invoicing currency or do not record it with sufficient accuracy to allow publication and we have not been able to obtain settlement currency information as a proxy (e.g., Hong Kong, Singapore, Mexico).[4] Second, for some countries we are not able to establish contact with the relevant authorities (e.g., Nigeria, Vietnam). In particular, Central America and Sub-Saharan Africa stand out as regions for which we have relatively limited information. This is an important shortcoming because, for historical reasons, the euro could be playing a leading role as a vehicle currency in some African countries, and because China has been relatively active geoeconomically in many African countries (Horn et al. 2023). Third, for some countries we only have information from Boz et al. (2022) for years prior to 2020, as we are not able to obtain updates (e.g., Ghana, Malawi, Tanzania). Finally, as in Boz et al. (2022), for some countries

[3] Since goods transit through customs, the recording of those transactions is relatively easy compared to services trade. See Amador et al. (2024) and Li & Meleshchuk (2024) for analyses of invoicing currency in services trade.

[4] In Mexico, disclosure of the invoicing currency is not mandatory in customs declaration. In Hong Kong and Singapore, invoicing currency is not recorded according to local customs authorities.

Figure 2: Country coverage of US dollar import invoicing data



Note: The figure shows the global country coverage of our dataset on dollar import invoicing shares. Different shades of green indicate the number of annual observations available. For the countries marked in black, data are either unavailable (as confirmed by national authorities) or have not been requested. Countries marked in white are those for which data requests are pending. Drawn borders are meant to be illustrational and do not represent official recognition.

we have information only for earlier years and are unable to obtain data for recent years (e.g., Canada, India, Pakistan).[5]

The country coverage of our data set generally improves over time. The maximum country coverage for data on countries' imports invoiced in US dollars in any given year is 121 which is achieved in 2019 (see Figure A.2). The dashed lines in Figure A.2 show that our data set covers as much as two-thirds of world imports for the dollar and the euro since the early 2000s, while the coverage for renminbi reaches those levels only for the recent years.

Depending on the type of analysis, changes in country coverage over time can be problematic as countries go in and out of the sample. Hence, we also produce a version of our data where we linearly interpolate between missing observations and backpolate before the first available observation, and use that version of the data to document aggregate trends. Note that we do not extrapolate the data to cover recent years so we do not bias our results toward not finding changes in trends. For backpolation, we identify the earliest available observation and assume previous observations had the same value. After interpolation and backpolation, our dataset covers around 75% of global imports (right panel in Figure A.2). EU countries account for roughly one-third of the share of global imports covered by our dataset. The evolution of the coverage for the euro and the renminbi as well as for exports is not reported but is similar.

[5] Because Canada no longer stores the invoicing currency information used in Devereux et al. (2017), our data is limited to one observation for the year 2001 obtained from Kamps (2006). In the case of India, the technical infrastructure in which the invoicing currency information is stored has changed so that retrieval has become resource intensive, and so we do not have information after 2014. In the case of Pakistan, we are not able to establish contact with authorities, and so the information in our dataset is limited to 2001-2003 provided by Kamps (2006).

3 Stylized facts

3.1 The US dollar and the euro

Figure 3 compares the evolution of the share of global imports from the US, the euro area, and all other destinations (left panel) with the share of global imports invoiced in US dollars, euros, and other currencies (right panel). Figure A.3 provides a similar charts for exports.

The top row focuses on dollar and euro invoicing shares as well as import shares from the US and the euro area, and uses the data for all countries in our dataset. As in Gopinath (2015) and Boz et al. (2022), we exclude the US.[6] The vertical lines mark the year 2019, which is when the dataset compiled by Boz et al. (2022) ends. Three observations stand out. First, the combined share of dollar and euro invoicing has remained fairly stable over time. Second, the comparison of the right and left panels illustrates the role of the dollar as the dominant vehicle currency in global trade. The share of imports invoiced in dollars far exceeds the share of imports from the US.[7] In contrast, the share of global imports invoiced in euros is about as large as the share of global imports from the euro area. This is consistent with the euro being used mainly in trade with the euro area, but not as a vehicle currency in third-country trade.[8] Third, there are no significant shifts in dollar and euro invoicing shares at the global level from 2020 to 2023—the four additional years in our dataset compared to that of Boz et al. (2022).

We next exclude euro area countries in addition to the US. Treating the euro area and the US symmetrically facilitates assessing the relative importance of the euro and the dollar as vehicle currencies, as the euro's share in global import invoicing is not inflated by its use in intra-euro area trade. The middle row in Figure 3 shows that when euro area countries and hence intra-euro area trade are excluded, the share of the dollar in global import invoicing becomes an even greater multiple of the share of global imports from the US. On the other hand, the share of the euro in global import invoicing is halved and only—at best—about as large as non-euro area countries' imports from the euro area. This is consistent with the euro being used mostly for imports of non-euro area countries from

[6] We account for invoicing in currencies pegged to the dollar or the euro in Figure 3 and the rest of the paper. In particular, we add invoicing in home currency to invoicing in dollar/euro for countries whose currencies are pegged to the dollar/euro. To classify pegs, we proceed as follows. First, we classify a currency as being pegged in a given year if the fine assessment of Ilzetzki et al. (2019) is "1: No separate legal tender or currency union", "2: Pre-announced peg or currency board arrangement", "3: Pre-announced horizontal band that is narrower than or equal to +/-2%", or "4: De facto peg". Then, we classify a currency as having been pegged over our full sample period if it was pegged for every year since 2005 until 2023. The countries in our dataset for which we add home currency to dollar invoicing shares are Bahrain, Brunei Darussalam, Curacao, Jordan, Macao, Maldives, Saudi Arabia and Sint Maarten; except for Saudi Arabia, the home currency shares are low. The countries for which we add home currency to euro invoicing shares are Bosnia and Herzegovina, and the Republic of Congo.

[7] Figure A.4 reveals that the dollar's dominance continues to hold even when commodity imports—conventionally assumed to be invoiced in dollars—are excluded.

[8] Figure A.5 documents that the dominant vehicle-currency role of the dollar for global trade invoicing applies to all countries and not just to a few large importers, while the euro is indeed used as vehicle currency just by a few countries.

the euro area rather than as a vehicle currency in third-country trade. Dropping euro area countries from the sample also reveals that global euro invoicing and imports from the euro area have been converging, indicating an increasing importance of the euro over time. This growth in euro invoicing can be traced to European countries that are not or had previously not yet been part of the euro area (Boz et al. 2022).

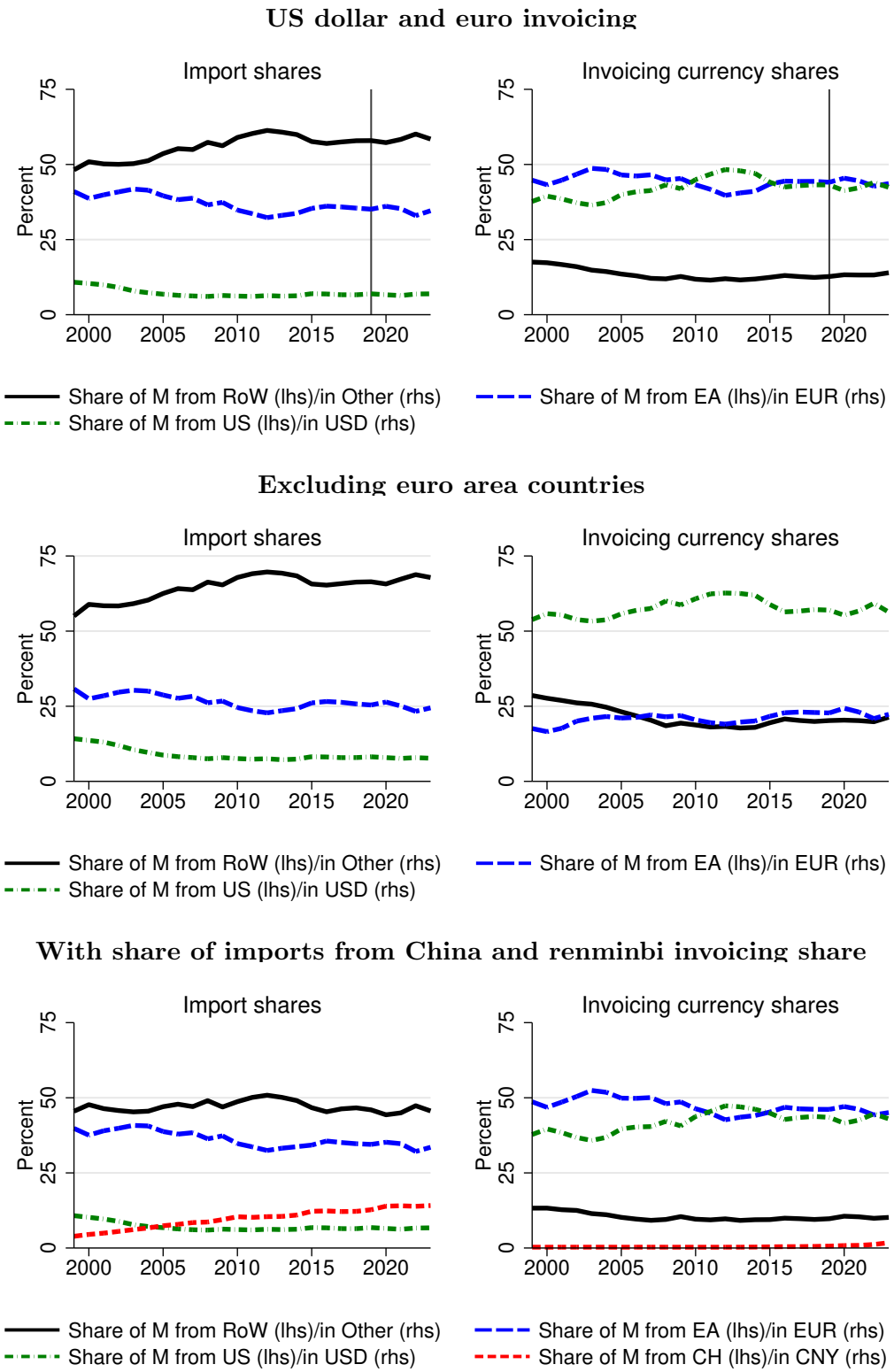
3.2 Enters the renminbi

With our new dataset we can assess developments in renminbi invoicing for a comprehensive sample of countries for the first time.[9] The bottom row in Figure 3 plots the evolution of global import and invoicing currency shares, now isolating imports from China from other destinations and the reminbi from other currencies. We reintroduce euro area countries because we have a lot of information on renminbi invoicing for them; Figure A.6 is the analogue of the bottom row in Figure 3 but without euro area countries. We only include countries for which we have information on dollar, euro and renminbi invoicing shares. The left panel reveals that the share of global imports from China has increased strongly since 2000, surpassing the share of imports from the US. However, the share of global imports invoiced in renminbi is hardly visible when plotted on the same scale as the dollar and the euro. As of 2023, about 1.6% of trade captured in our dataset was invoiced in renminbi.

Figure 4 zooms in on the evolution of the share of global trade with China and invoiced in renminbi, respectively. Here we use the raw rather than the interpolated and backpolated renminbi invoicing shares as in Figure 3, because especially backpolation might lead us to understate recent and strong growth in renminbi invoicing; for consistency with Figure 3, the panels in the top row in Figure A.7 are plotted using interpolated and backpolated data. The top left panel in Figure 4 shows that China has become an increasingly important import source for countries in all regions, especially in Asia, Africa, and Latin America. The top middle panel shows that while renminbi invoicing was hardly visible until 2010, since then it has increased across countries in most regions, particularly in Asia and more recently also in Europe and Latin America. At the same time, despite this recent strong increase in renminbi invoicing, it remains significantly below the share of global imports from China. Finally, the top right panel suggests that for imports the rise in renminbi invoicing in Latin America and Europe is primarily driven by Argentina and Russia, respectively. For exports, the bottom right panel shows that Russia seems to stand out in terms of its renminbi invoicing. Figure A.7 documents that the conclusions from zooming on renminbi invoicing across regions are very similar when looking at unweighted averages across countries as well as when excluding euro area countries.

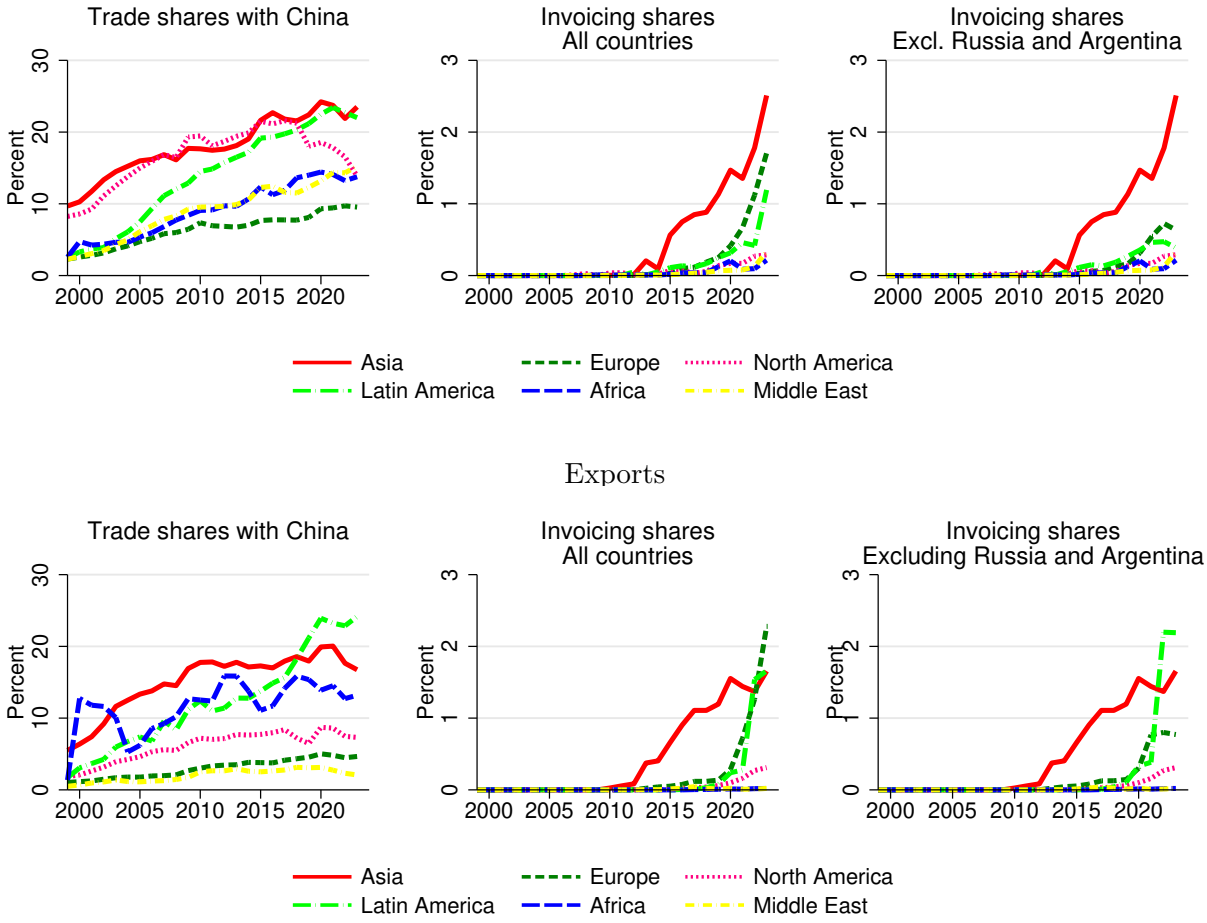
[9] Georgiadis et al. (2021) use renminbi invoicing information for a much smaller number of countries and time periods received in the data collection of Boz et al. (2022) by some national authorities even though this information was not requested.

Figure 3: Global trade and invoicing currency shares over time



Note: The left panels depict the evolution of the share of imports from the US, the euro area, the rest of the world, and in the last row also from China in total global imports. The right panels depict the share of global imports that are invoiced in dollar, euro, other currencies, and in the last row in renminbi. In the first row we include all countries for which we have information on dollar and euro import invoicing shares in our dataset except for the US (as in Gopinath 2015, Boz et al. 2022), in the second row we exclude euro area countries, and in the last row we include all countries for which we have information on dollar, euro and renminbi import invoicing shares in our dataset. The graphs are based on interpolated and backpolated data, but no extrapolation.

Figure 4: Zooming in on renminbi invoicing



Note: In the top row, the left panel shows the share of a region imports sourced from China, the middle panel the share of imports that is invoiced in renminbi, and the right panel the share of imports that is invoiced in renminbi for all countries except for Russia and Argentina. The second row shows analogous trends for exports. We use the raw renminbi invoicing shares rather than interpolated and backpolated data as in Figure 3.

4 Invoicing currency patterns and geopolitics

4.1 Theoretical considerations and existing empirical evidence

Standard models emphasize *inter alia* the role of exogenously given export patterns, input-output linkages, and competition with foreign and local producers in destination markets as determinants of exporters' choice of invoicing currency (see, for instance, Engel 2006, Gopinath et al. 2010, Mukhin 2022). The intuition is that exporters choose the currency in which their optimal price is expected to be most stable—that is, deviations of optimal re-set from optimal pre-set prices are least volatile—considering future shocks to demand and input costs. Against this background, shifts in geopolitical alignment may influence country-level, aggregate export invoicing currency patterns through changes in export destination patterns, intermediate input import patterns, and currency choice in other contexts.

First, tariffs, subsidies, moral suasion, or outright trade sanctions imposed for geopolitical reasons can alter export destination and thereby export invoicing currency patterns, if competitors in new destination markets invoice in different currencies. For instance, a country may redirect exports previously destined for the US and invoiced in US dollars toward the euro area, where most competitors invoice in euros. At the country level, such a shift may reflect either a reorientation of individual firms' export destinations or a relative decline in the growth of firms exporting to the US and invoicing in dollars compared to those exporting to the euro area and invoicing in euros. This channel may be particularly relevant empirically more recently, given new trends in trade fragmentation associated with geopolitical realignments (European Central Bank 2023, Bonadio et al. 2024, Gopinath et al. 2025*a*). In the regressions below, we control for the share of a country's exports destined for issuers of invoicing currencies to account for changes in invoicing patterns that are driven by shifts in the composition of export destinations, as we are interested in changes in invoicing currency patterns for *given* destinations.

Second, trade barriers motivated by geopolitical considerations may influence export invoicing currency patterns even when export destinations do not change. This can occur through the marginal cost channel, as such barriers may prompt a reconfiguration of global value chains into more fragmented, regionally aligned blocs in a process of "friend-shoring" (for evidence see, e.g., European Central Bank 2023, Gopinath et al. 2025*b*). For example, a country may replace intermediate inputs sourced from the US and invoiced in dollars with inputs from the euro area invoiced in euros. This substitution strengthens the incentive to invoice exports in euros, as it reduces the volatility of desired prices stemming from exchange rate fluctuations. At the aggregate country level, this shift may again reflect either firm-level substitution of intermediate input sources and corresponding invoicing practices, or

differential growth between firms that rely on US inputs and dollar invoicing and those that source from the euro area and invoice in euros. Geopolitical realignment might also affect invoicing currency patterns through "re-shoring" of value chains, including when domestic firms reduce their dependence on imported inputs through innovation (Han et al. 2024, Alfaro et al. 2025, Flynn et al. 2025, Liu et al. 2025).

Third, geopolitics may influence invoicing currency patterns through spillovers from currency choice in other contexts. For example, theory highlights complementarities between trade invoicing currency and safe asset or financing currency (Gopinath & Stein 2021, Chahrour & Valchev 2022, Bahaj & Reis forthcoming, Abadi et al. 2026). For example, as central banks rebalance their foreign exchange reserves towards assets denominated in currencies of geopolitically aligned countries (OMFIF 2024), complementarities may favor analogous switches in trade invoicing currency. Complementarities with trade invoicing currency choice may also exist in other contexts that have so far received less attention in the literature on trade invoicing, but that are increasingly salient in policy discussions. One example is the choice of trade settlement currency. In fact, Berthou (2023), Chupilkin et al. (2023) and Corsetti et al. (2024) point to the increase in direct and indirect costs for cross-border payments—such as punitive measures and penalties associated with sanctions—as a key reason for their finding of reduced dollar trade invoicing in trade with Russia.

We next leverage our dataset to explore the relationship between geopolitics and trade invoicing currency patterns at the global level.

4.2 Invoicing currencies and geopolitical alignment

We start by presenting long-term trends in global trade split by invoicing currency *and* geopolitical alignment. Following *inter alia* Gopinath et al. (2025*a*) and Trebesch et al. (2025), we measure geopolitical alignment using the ideal point distance metric developed by Bailey et al. (2017) based on voting patterns in the United Nations (UN) General Assembly.[10] As in Gopinath et al. (2025*a*), we define the upper (lower) 25% percentile in the distribution of the distance to the US in 2023 across the countries in our dataset as *US most-aligned* and *US least-aligned* countries, respectively.[11] In addition to US most-aligned and least-aligned country groups there is a *US neutral* group that accounts for 50% of the countries in our dataset. With this classification, 34% of world exports in our country sample originate from US most-aligned countries, 8% from US least-aligned countries, 9% from the

[10] Bailey et al. (2017) use statistical techniques derived from item response theory to estimate one-dimensional state preferences that are comparable over time based on votes in the UN General Assembly. In particular, they use a dynamic ordinal spatial model to estimate state ideal points on a single political ideology dimension that reflects state preferences towards a hypothetical US-led liberal order. They use resolutions that are identical over time to account for agenda change and thereby make state ideal point estimates comparable over time.

[11] While the classification approach of Bailey et al. (2017) does not necessarily imply that US least-aligned countries are aligned with China, in practice this is typically the case.

US itself, and 49% from US neutral countries.

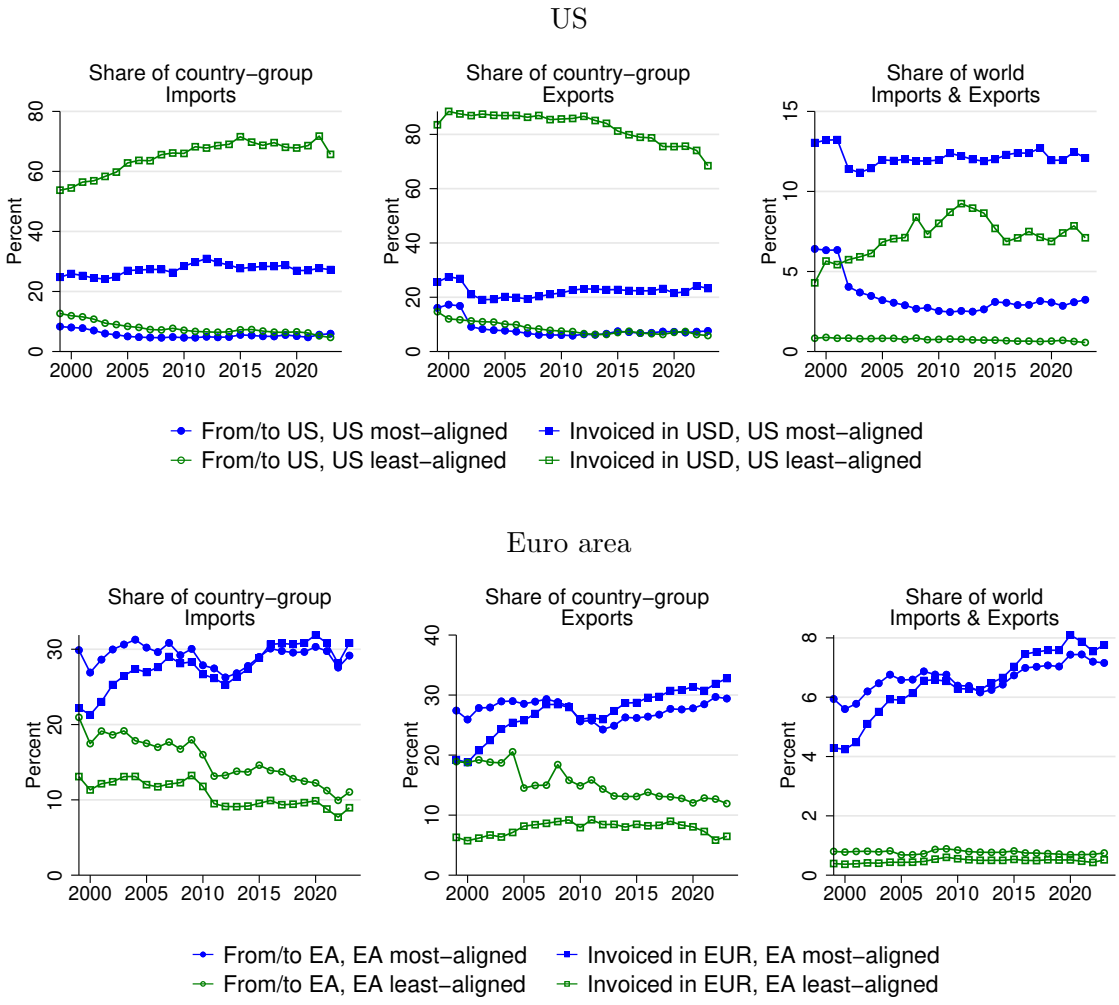
The panels in the top row of Figure 5 illustrate the evolution of world imports and exports invoiced in dollars for US most-aligned (blue line, filled square markers) and US least-aligned (green line, hollow square markers) countries as a share of total imports from and exports to the respective country group (i.e., US most-aligned or US least-aligned). The lines with circle markers represent the corresponding shares of imports from and exports to the US, respectively.

Three observations stand out. First, the first two panels in the top row reveal that US least-aligned (green line, hollow square markers) countries invoice a significantly larger share of their trade in dollars to US most-aligned (blue line, filled square markers) countries, despite both groups exhibiting similar shares of trade with the US (circle markers). This finding suggests that the dollar plays a more prominent role as a vehicle currency in countries less aligned with the US. It is also noteworthy that US least-aligned countries are predominantly emerging market and developing economies, which tend to invoice in dollars more frequently than advanced economies. Since using an invoicing currency may be more readily abandoned in third-country trade than in bilateral trade with the currency issuer (Mukhin 2022), this finding suggests that there is greater potential for a shift away from the dollar towards a challenger currency in US least-aligned countries. That said, structural factors may make it less likely that US least-aligned countries can reduce their reliance on the dollar for invoicing in practice.

Second, the right panel in the top row—plotting the same invoicing currency data as the first two panels but using *world* rather than country-group trade in the denominator—confirms the more prominent role of the dollar as a vehicle currency in trade of US least-aligned compared to US most-aligned countries. The panel shows that US most-aligned countries account for a larger share of world trade invoiced in dollars than US least-aligned countries (square markers). At the same time, comparing the share of trade invoiced in dollars (square markers) with the share of trade with the US (circle markers) shows that US least-aligned countries (green lines, hollow markers) still rely on the dollar as a vehicle currency to a much greater extent than US most-aligned countries (blue lines, filled markers) also when invoicing shares are calculated relative to the world total rather than country-group trade.

Third, the top middle panel shows that dollar-invoiced exports have declined since the early 2010s in US least-aligned countries (green line, hollow square markers), while they have been stable in US most-aligned countries (blue line, filled square markers). Although exports from least-aligned countries to the US have also experienced a secular decline (green line, hollow circle markers), the magnitude of this decline has been smaller than the decline in their dollar invoicing (green line, hollow square markers). This supports the view that the observed decline in dollar-invoiced exports since the early

Figure 5: Trade with the US (euro area) and invoiced in dollars (euros) split by geopolitical alignment



Note: The panels in the top row depict the shares of imports (left), exports (middle), and total trade (right) invoiced in dollars (square markers), as well as the shares of imports from (left), exports to (middle), and total trade with (right) the US (circle markers), respectively, by US most-aligned (blue lines, filled markers) and US least-aligned (green lines, hollow markers) countries. In the first two panels we use as denominator in the shares calculation US most-aligned and US least-aligned country-group total imports and exports, respectively. In the third panel we use world trade as denominator. We define the upper (lower) 25% percentile in the cross-country distribution of difference between a country's and the US ideal point estimate of Bailey et al. (2017) based on UN General Assembly voting patterns as US most-aligned (least-aligned) countries. The panels in the bottom row present analogues for trade with the euro area and trade invoiced in euros. The graphs are based on interpolated and backpolated data as in Figure 3.

2010s in US least-aligned countries primarily reflects a reduction in their vehicle-currency-invoiced trade.

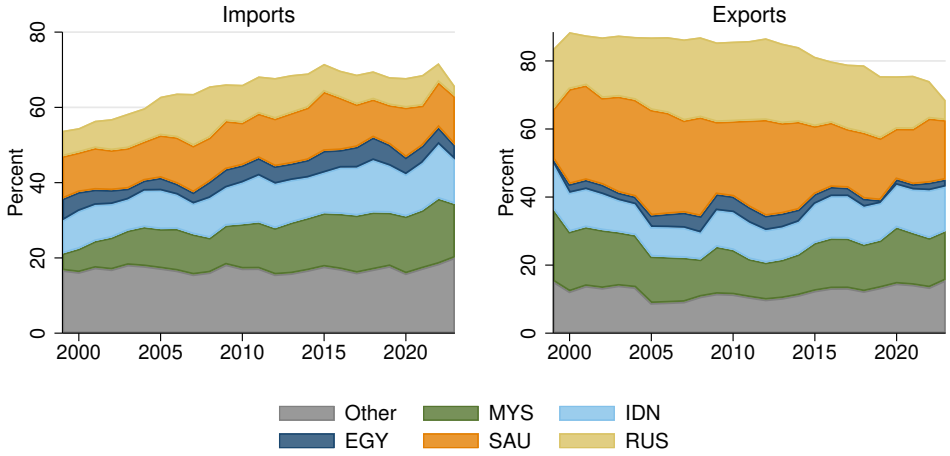
The panels in the bottom row of Figure 5 present analogous charts for the euro. Again, three observations stand out, all in contrast to the dollar. First, the share of trade invoiced in euros (square markers) is substantially lower in euro area least-aligned countries than euro area most-aligned countries. Second, comparing the share of trade invoiced in euros (square markers) with the share of trade with the euro area (circle markers) suggests that the euro plays no role as an invoicing—let alone as vehicle—currency in euro area least-aligned countries' trade.[12] Third, the share of trade invoiced in euros in euro area most-aligned countries (blue line, filled square markers) has been increasing, until around 2010 even faster than the corresponding share of trade (blue line, filled circle markers). This is again consistent with an increasing use of the euro in euro area and European Union neighboring countries (Boz et al. 2022).

Next, we return to the dollar and unpack the trends shown in the first two panels in the top row of Figure 5. To do so, we plot the share of imports and exports invoiced in dollars over time for individual US least-aligned countries. Figure 6 presents this decomposition for the five largest contributors. The left (right) panel shows each country's contribution to the overall share of imports (exports) invoiced in dollars in this group. The figure reveals that the decline in the group's dollar invoicing share shown by the green dashed line in the top middle panel in Figure 5 is driven primarily by Russia and Saudi Arabia. In the following subsection, we use regression analysis to further explore the role of developments in commodity trade and geopolitical alignment in the decline in dollar export invoicing.

It is also insightful to explore renminbi invoicing developments by geopolitical alignment. Figure 7 shows the evolution of the share of country-group imports from China and imports invoiced in renminbi by geopolitical alignment with the US. We consider imports rather than exports here because we have more and longer invoicing currency data than for exports, especially for some key countries like Russia; Figure A.9 shows that patterns are similar when considering exports. The left panel shows that China has been gaining importance as an import source, especially for US least-aligned countries. The divergence between US most-aligned and least-aligned countries has grown after the recovery from the drop in trade with China during the COVID-19 pandemic in 2020 and Russia's invasion of Ukraine in 2022. The right panel shows that renminbi invoicing has taken off in US least-aligned countries, while the increase in US most-aligned countries has been modest, and has even reversed since Russia's invasion of Ukraine in 2022. While the divergence in both import shares to China

[12] In line with this, Beck et al. (2025) document that foreign euro area government debt is disproportionately held by euro area aligned countries.

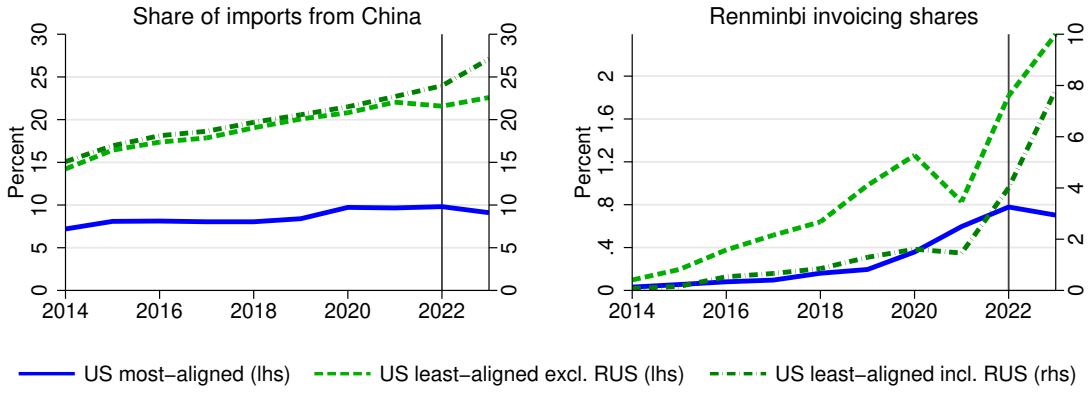
Figure 6: Decomposition of the evolution of the share of country-group imports and exports by US least-aligned countries invoiced in dollars



Note: The figure presents a decomposition of the evolution of the share of country-group imports and exports invoiced in dollars by US least-aligned countries over time shown in the top row of Figure 5 by country. The graphs are based on interpolated and backpolated data.

and renminbi invoicing shares are particularly stark when Russia is included in the US least-aligned country group (green dash-dotted lines, right-hand side axis), it is still clearly visible when Russia is dropped (green dashed lines, left-hand side axis). Figure A.8 decomposes the growth in renminbi invoicing at the US most-aligned and least-aligned country-group level into the largest contributions by individual countries, showing that among US most-aligned (least-aligned) countries the increase in country-group imports from China invoiced in renminbi has been mostly due to Russia. In the US most-aligned country-group, the growth in renminbi invoicing has been due to a more diverse set of countries.

Figure 7: Imports from China and renminbi invoicing by geopolitical alignment with US



Note: The left panel depicts the share of total country-group imports from China; we only include countries for which we have renminbi invoicing currency information in our dataset. The right panel shows the share of total country-group imports that is invoiced in renminbi. We use the raw renminbi invoicing shares rather than interpolated and backpolated data. The vertical lines indicate 2022.

The key takeaways from this subsection are five. First, US least-aligned countries tend to invoice

a larger share of their trade in dollars compared to US most-aligned countries. Second, because US least-aligned countries account for a smaller share of global trade, the value of their trade invoiced in dollars remains lower than that of US most-aligned countries. Third, while the share of exports by US least-aligned countries invoiced in dollars has been declining since the early 2010s, this long-term trend has not been broad-based and has been driven primarily by Russia and Saudi Arabia. Fourth, in contrast to the dollar, euro invoicing in global trade is predominantly by euro area most-aligned countries. Fifth, trade with China and renminbi invoicing have been growing faster for US least-aligned countries since 2014, and at least since 2021 not only due to Russia.

We next examine how invoicing currency shares and geopolitical distance have evolved at the country level. We explore in particular whether the role of geopolitics has broadened to other countries beyond Russia and Saudi Arabia since the invasion of Ukraine in 2022.

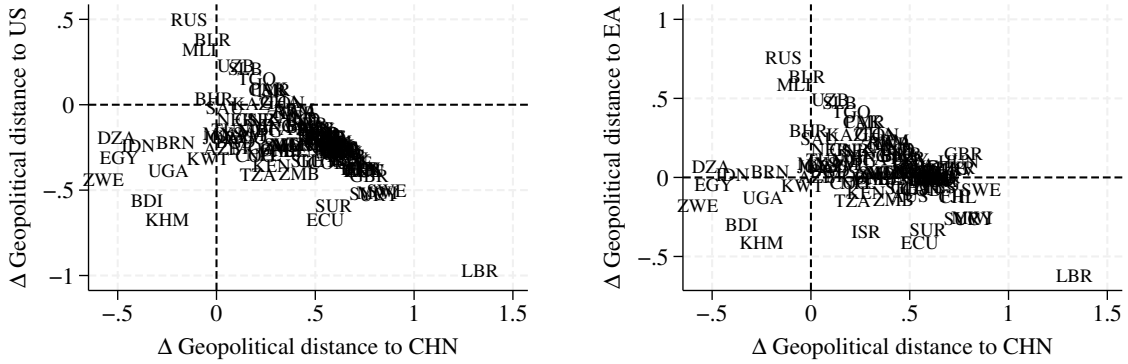
4.3 Changes in invoicing currency patterns and geopolitical distance

We first present evidence to establish trends in geopolitical alignments over time. Figure 8 shows changes in bilateral geopolitical distance between 2015-19 and 2022-23, with the latter capturing the period after Russia's invasion of Ukraine. We now use the continuous geopolitical distance measure of Bailey et al. (2017) rather than categorizing countries into most and least-aligned groups. The left (right) panel compares changes in countries' geopolitical distance to the US (euro area) and China, respectively. In each panel, countries in the bottom right quadrant have become more geopolitically distant from China and closer to the US or the euro area. Conversely, countries in the top left quadrant have moved closer to China, while becoming more distant from the US or the euro area.[13]

Figure 8 highlights notable shifts in global geopolitical alignments before and after Russia's invasion of Ukraine. First, the majority of countries in our dataset have moved closer geopolitically to the US and away from China, as indicated by their position in the bottom-right quadrant of the left panel. Second, a small group of countries in the top-left quadrant—including Russia and Belarus—have become more distant from the US and moved closer to China. Third, looking at both panels together suggests that among the countries that have moved closer to the US and away from China, most have also become more geopolitically distant from the euro area. Note that most countries that have moved closer to the US have in fact distanced themselves from the euro area (Figure A.12). Only few countries—among which Russia, Belarus, Kazakhstan, Uzbekistan and Mali—have distanced

[13]Figure A.10 presents the cross-country distribution of geopolitical distance to the US and China in 2013 before Russia's invasion of Crimea and in 2023 after its invasion of Ukraine. The growing geopolitical fragmentation—particularly after 2022—is evident in the widening distance between the two clusters of countries in terms of their geopolitical proximity to the US and China, respectively. Similarly, Figure A.11 shows that countries have increasingly clustered in terms of geopolitical distance around the US and China, respectively, between 2013 and 2023. Fernandez-Villaverde et al. (2024) build a global geoeconomic fragmentation index based on a dynamic hierarchical factor model and show that it has been rising since the Global Financial Crisis, especially for the sub-component of political fragmentation.

Figure 8: Changes in bilateral geopolitical distances between 2015-19 and 2022-23



Note: The figure shows changes in bilateral geopolitical distances between 2015-19 and 2022-23 for the countries in our dataset. Geopolitical distance is measured based on the ideal point distance of Bailey et al. (2017) and voting patterns in the UN General Assembly. In both panels, the horizontal axis depicts changes in geopolitical distance to China. In the left (right) panel the vertical axis depicts changes in geopolitical distance to the US (euro area). Geopolitical distance to the euro area is measured as the unweighted average of distances to individual euro area countries. We drop the US (euro area) countries in the left (right) panel.

themselves from both the US and the euro area.

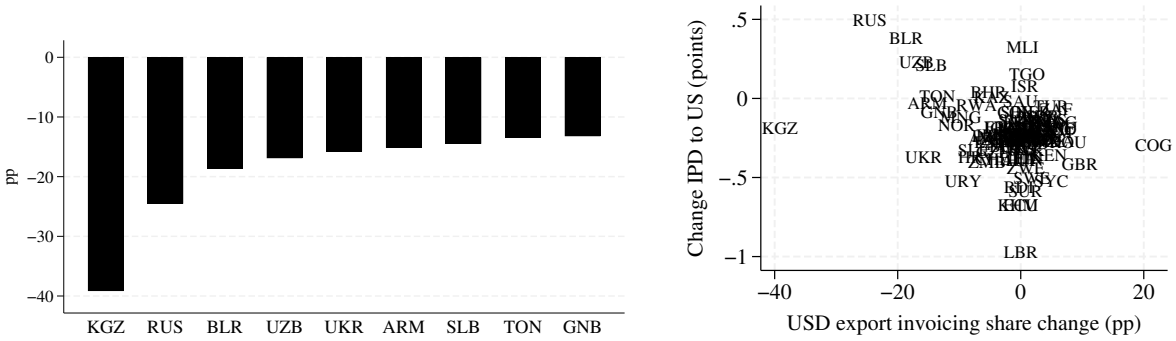
Next we connect changes in geopolitical alignments with changes in invoicing currency patterns. The left panel in Figure 9 shows that Kyrgyzstan, Russia, Belarus, and Uzbekistan experienced the largest declines in the share of exports invoiced in dollars in 2022-23 relative to the 2015-19 average.[14] The right panel compares changes in the share of exports invoiced in dollars with changes in geopolitical distance from the US across the full country sample. Overall, the figure reveals a negative association between geopolitical distancing from the US and the use of the dollar in export invoicing. Consistent with the left panel, Russia, Belarus, Kyrgyzstan, and Uzbekistan stand out as countries exhibiting particularly large shifts in both dimensions.

However, one cannot infer from Figure 9 the extent to which the observed decline in dollar invoicing reflects geopolitical considerations beyond bilateral trade patterns, as discussed in Section 4.1.

An illustrative example of the difficulty to distinguish between the different margins of adjustment at the country level is again Russia. In particular, Figure 10 shows that changes in renminbi and euro invoicing shares closely track shifts in bilateral trade shares; we use imports in this example due to the availability of a longer time series for renminbi invoicing shares. The figure suggests that the rise in renminbi invoicing in Russia primarily reflects a reorientation of imports from China and those imports being invoiced in renminbi. Conversely, the decline in euro invoicing corresponds to a

[14] Due to data limitations, for Russia, Belarus, Kazakhstan and Kyrgyzstan we use trade settlement rather than invoicing currency shares. As highlighted in the case of China in Appendix C, this distinction may be important. This distinction may also be important in the case of Russia, as there is evidence that the Central Bank of Russia drew from its swap line with the PBoC to provide renminbi liquidity to domestic banks so they could pay for imports from China and preserve dollar reserves (see Horn et al. 2023, Chupilkin et al. 2023). However, recall that the comparison between Russia's trade settlement currency data from the Central Bank of Russia in our dataset with trade invoicing currency data from Russia's customs in Chupilkin et al. (2023) and shown in Figure A.1 suggests that the two are either very similar or at least follow comparable trends over time for the dollar, euro and renminbi.

Figure 9: Changes in dollar import invoicing currency shares between 2015-19 and 2022-23 and changes in geopolitical distance to the US

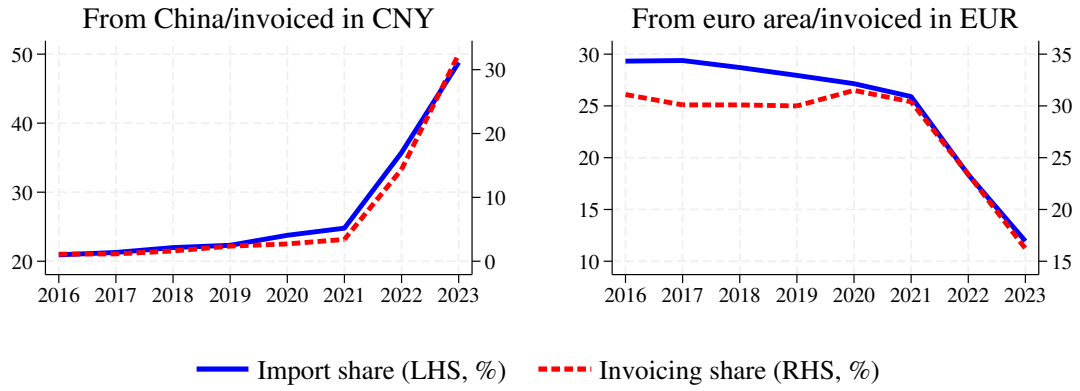


Note: The left panel shows the countries with the largest drops in dollar export invoicing currency shares in 2022-23 relative to the average over 2015-19. The right panel compares the changes in the share of exports invoiced in dollar to changes in geopolitical distance to the US for all countries. Geopolitical distance is measured based on the ideal point distance of Bailey et al. (2017) and voting patterns in the UN General Assembly.

reduction in euro-invoiced trade with the euro area.

Against this background, we next explore whether trade invoicing currency patterns across the countries in our dataset have shifted beyond compositional effects—that is independently of the real-location of trade flows following Russia's invasion of Ukraine.

Figure 10: Changes in invoicing currency and bilateral trade shares for Russia



Note: The blue solid lines depict the share of Russia's imports sourced from China (left panel) and the euro area (right panel). The data are taken from the IMF Direction of Trade Statistics. The red dashed line depicts the share of Russia's imports invoiced in renminbi (left panel) and euro (right panel). We use information on settlement currency as a proxy for invoicing currency. Comparing Russia's trade settlement currency data with trade invoicing currency data from Russia's customs used in Chupilkin et al. (2023) in Figure A.1 suggests that trade settlement currency is a useful proxy for trade invoicing currency for the euro and renminbi.

4.4 Evidence from panel regressions

We use panel regressions to estimate correlations between geopolitical distance and invoicing currency shares while controlling for compositional and mechanical factors, such as export destinations as well as price and exchange rate valuation effects. We focus on export invoicing, as standard theory assumes

the invoicing currency decision is made by producers (see, for instance, Engel 2006, Gopinath et al. 2010, Mukhin 2022). Following Novy (2006), Goldberg & Tille (2008), as well as Ito & Chinn (2014) we estimate:

$$s^c_{e,t} = \rho^c s^c_{e,t-1} + \boldsymbol{\beta}^{c\prime} \boldsymbol{w}^c_{e,t} + \alpha^c_e + \tau^c_t + u^c_{e,t}, \tag{1}$$

where $s^c_{e,t}$ denotes the share of exporter e's exports in period t invoiced in currency $c \in \{\$, €, ¥\}$, $\boldsymbol{w}^c_{e,t}$ a vector of control variables specified below, and α^c_e and τ^c_t exporter and time fixed effects, respectively.[15] We include the lagged dependent variable $s^c_{e,t-1}$ to mitigate concerns about spurious regression, given the persistence of invoicing currency shares in many countries. Note that the dependent variable, the export invoicing currency share $s^c_{e,t}$, refers to the share of total exports invoiced in each currency, as bilateral invoicing data is not available.

The vector of control variables, $\boldsymbol{w}^c_{e,t}$, includes as a compositional factor the share of exporter e's exports destined for the issuer of currency $c \in \{\$, €, ¥\}$, that is, the share of exports to the US, the euro area, or China, respectively. We also include the share of exporter e's exports to economies that peg their currencies to the issuer of currency $c \in \{\$, €, ¥\}$; for the renminbi we use the share of trade with ASEAN countries.[16]

Second, as another compositional factor $\boldsymbol{w}^c_{e,t}$ includes measures that capture the extent to which a country's exports consist of relatively homogeneous goods that are typically priced on organized exchanges or based on reference prices and invoiced in dollars (McLeay & Tenreyro 2025). To account for this, we use two indicators for the role of commodities in country exports. The first is the share of a country's exports accounted for by fuel, ores and metals, and agricultural raw materials, as reported in the World Bank's World Development Indicators. The second indicator we use is the share of exports accounted for by oil, based on data from the IMF's World Economic Outlook Database. While the broader commodity export share is generally the preferred measure for capturing trade in homogeneous goods, because of data gaps for key US least-aligned exporters we run all regressions with the oil export share as an alternative. Specifically, data for the commodity export share are missing for Algeria since 2018, for Saudi Arabia in 2017 and 2023, for Bahrain in 2021 and 2023, for Russia after 2022, and for Belarus after 2021.

Third, as a mechanical factor we include in $\boldsymbol{w}^c_{e,t}$ the bilateral exchange rate between exporter e's currency and the dollar, the euro, or the renminbi to account for within-country variation in invoicing currency shares reflecting valuation effects.[17] We use nominal bilateral exchange rate data

[15] Logit or probit fractional regressions as proposed by Papke & Wooldridge (1996) would account for the fact that invoicing shares are bounded by $[0, 1]$. However, it is well known that in non-linear panel data models incidental parameter problems due to fixed effects are more acute.

[16] We consider economies anchoring their currencies to the dollar or the euro when their exchange rate is not a "free float" and the corresponding "anchor currency" is the dollar, the euro or the renminbi according to Ilzetzki et al. (2019).

[17] To compute invoicing currency shares, export values denominated in foreign currencies must be converted into a

from the IMF's International Financial Statistics. Note that mechanical effects that are common across countries—such as fluctuations in US dollar-denominated commodity prices—are absorbed by the time fixed effects.[18]

For the regression analysis we focus on the period from 1999-2023. To regularize the data, we exclude observations when the first difference over time falls below the 1^{st} percentile or exceeds the 99^{th} percentile. Table 1 reports summary statistics.

Table 1: Summary statistics

	mean	min	p5	p50	p95	max	sd	count
USD invoicing share	49.15	0.45	5.96	42.96	98.61	100.00	33.33	1,307
EUR invoicing share	41.24	0.00	0.29	39.44	91.94	99.46	35.26	1,303
CNY invoicing share	0.25	0.00	0.00	0.00	1.17	29.32	1.40	704
Share of trade with US	7.63	0.00	0.45	4.59	27.73	44.73	8.41	1,307
Share of trade with euro area	34.65	0.05	3.04	38.43	67.59	80.68	21.71	1,303
Share of trade with China	7.24	0.00	0.21	2.57	26.52	92.60	10.36	704
Share of trade with USD block (excl. China)	18.23	0.49	2.48	13.23	44.49	82.34	14.50	1,307
Share of trade with EUR block	11.19	0.00	0.73	8.44	30.50	83.40	11.11	1,303
Share of trade with ASEAN countries	4.42	0.00	0.09	1.37	20.38	57.08	7.25	704
Commodity trade share	23.40	0.02	2.87	14.04	74.80	98.58	22.69	1,250
Oil trade share	6.38	0.00	0.00	2.22	34.30	55.58	10.18	1,307
Bilateral exchange USD exchange rate (log)	440.52	111.37	366.41	449.91	476.33	498.24	39.29	1,307
Bilateral exchange EUR exchange rate (log)	446.33	104.41	374.18	460.49	480.86	607.15	37.81	1,303
Bilateral exchange CNY exchange rate (log)	418.04	94.33	335.11	430.00	462.53	485.69	41.15	704
IPD to US	2.19	0.10	1.21	1.87	3.40	4.18	0.79	1,307
IPD to euro area	0.73	0.08	0.11	0.33	1.82	2.50	0.66	1,303
IPD to China	1.13	0.00	0.07	1.25	2.37	3.37	0.77	704
IPD to US in 2023	1.95	0.22	1.00	1.61	3.21	3.76	0.83	1,307
IPD to euro area in 2023	0.77	0.15	0.16	0.34	1.83	2.41	0.66	1,303
IPD to China in 2023	1.35	0.01	0.18	1.69	2.31	3.08	0.83	704

Note: The table reports summary statistics of the variables used in the regression of Equation (1) and extensions thereof. For regressions in which the dollar export invoicing share is the dependent variable, we additionally report summary statistics for the oil and commodity export share variables, based on the subset of observations included in those specifications.

Table 2 presents results from estimating the regression specified in Equation (1), run separately for each invoicing currency $c \in \{\$, €, ¥\}$. Inference is based on Driscoll-Kraay standard errors robust to serial correlation and cross-section dependence. Among the compositional and mechanical correlates of export invoicing currencies, bilateral trade with the invoicing currency issuer and commodity/oil trade stand out; the latter is consistent with the prominent role of dollar invoicing in commodities trade documented for example in McLeay & Tenreyro (2025). First, the share of exports destined for the invoicing currency issuer is positively correlated with the share of exports invoiced in that currency. The estimated coefficients are largest for the dollar, smaller for the euro and smallest for the renminbi—consistent with the relative prominence of these currencies in global trade. Second, the share of exports accounted for by commodities or oil is positively correlated with dollar invoicing, but

common currency. If, for instance, shares are calculated based on export values converted into the exporter's domestic currency, an appreciation of the dollar against that currency mechanically increases the share of exports invoiced in dollars, even if trade volumes remain unchanged.

[18] Ideally, we would control for country-specific commodity price indices, as export bundles differ across countries. However, such data are not readily available. Juvenal & Petrella (2024) construct country-specific indices using sectoral export shares, global commodity prices, and disaggregated US producer price indices, but their sample covers less than half of the countries in our dataset.

negatively with invoicing in euros and renminbi. Table B.1 documents that results are similar when using *import* invoicing currency shares as the dependent variable. In the remainder of the analysis, we only report coefficient estimates for commodity and oil export share variables to save space.[19]

Table 2: Panel regressions for compositional/mechanical correlates of export invoicing shares

	USD		EUR		CNY	
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged invoicing currency share	0.73***	0.75***	0.80***	0.80***	0.92***	1.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Bilateral trade share with invoicing currency issuer	0.11***	0.06*	0.08***	0.09***	0.01***	0.01***
	(0.00)	(0.07)	(0.00)	(0.00)	(0.00)	(0.00)
Trade share with rest of invoicing currency block	0.02	0.06**	0.03	0.03	0.01**	0.01*
	(0.53)	(0.04)	(0.23)	(0.24)	(0.02)	(0.06)
Bilateral exchange rate against invoicing currency	-0.00	0.00	-0.01**	-0.00	0.00**	0.00*
	(0.87)	(0.97)	(0.03)	(0.29)	(0.04)	(0.08)
Commodity trade share	0.09***		-0.04**		-0.00	
	(0.00)		(0.04)		(0.74)	
Oil trade share		0.17***		-0.16***		-0.01**
		(0.01)		(0.00)		(0.04)
Year FEs	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.65	0.77	0.78	0.80	0.96
Observations	1298	1307	1322	1321	724	712
Countries	114	111	113	111	91	89

Note: The table reports results from regressions of Equation (1). In columns (1) and (2) we report results for US dollar export invoicing shares, in columns (3) and (4) for euro invoicing export invoicing shares, and in columns (5) and (6) for renminbi invoicing shares. Columns (1), (3) and (5) control for the commodity export share, and columns (2), (4) and (6) for the oil export share. See Table B.1 for analogous results for import invoicing currency shares. Inference is based on Driscoll-Kraay standard errors.

We next estimate an extension of Equation (1):

$$s^c_{e,t} = \rho^c s^c_{e,t-1} + \boldsymbol{\beta}^{c\prime}\boldsymbol{w}^c_{e,t} + \delta^c geopdist^{i(c)}_{e,t} + \gamma^c[geopdist^{i(c)}_{e,t} \times \mathcal{I}(t > 2021)] + \alpha^c_e + \tau^c_t + u^c_{e,t}, \quad (3)$$

where $geopdist^{i(c)}_{e,t}$ denotes economy e's geopolitical distance from the invoicing currency issuer $i(c)$ with $i(\$) = US$, $i(€) = EA$ and $i(¥) = CHN$, and $\mathcal{I}(t > 2021)$ is a dummy variable that indicates years since Russia's invasion of Ukraine in 2022. We include euro area countries in the regressions for euro invoicing and the role of geopolitical distance to the euro area, but in Table 4 below we report results without them.

Table 3 presents the results. The coefficient estimates reported for "geopolitical distance to invoicing currency issuer" in columns (1) to (4) suggest that, on average *over the entire sample period*, the

[19] Table B.2 reports results from pooled exporter-invoicing currency panel regressions

$$s_{e,c,t} = \rho s_{e,c,t-1} + \boldsymbol{\beta}'\boldsymbol{w}_{e,c,t} + \boldsymbol{\gamma}'\boldsymbol{z}_{e,c,t} + \gamma_{c,t} + u_{e,c,t}. \quad (2)$$

The results are consistent with those reported in Table 2. It is important to note that the specification in Equation (2) imposes homogeneous coefficients across invoicing currencies—a restriction that appears invalid, particularly in light of the heterogeneous effects of bilateral and currency-bloc trade shares observed in Table 2. As we show below, this assumption affects the estimated coefficients of other variables of interest, including geopolitical distance. For this reason, we focus on the currency-specific panel regressions in Equation (1), and report results from pooled exporter–invoicing currency panel regressions in Equation (2) only in the appendix.

use of the dollar and the euro for trade invoicing has not been systematically related to geopolitical distance. This is consistent with Figures 5 and 6, which suggest that dollar invoicing is in fact more prevalent in US least-aligned countries, and that the decline in dollar invoicing in least-aligned countries since the 2010s has not been broad based. At the same time, over the entire sample period, the results in especially column (5) suggest that the renminbi's use has tended to be smaller for exporters that are geopolitically more distant from China. This is consistent with Figure 7, which suggests that renminbi invoicing has been increasing from an earlier point in time in China most-aligned and US least-aligned countries.

Table 3: Panel regressions for export invoicing shares and geopolitical distance

	USD		EUR		CNY	
	(1)	(2)	(3)	(4)	(5)	(6)
Commodity trade share	0.09***		-0.04**		0.00	
	(0.00)		(0.04)		(0.42)	
Oil trade share		0.17***		-0.17***		-0.01*
		(0.01)		(0.00)		(0.06)
Geopolitical distance to invoicing currency issuer	1.06	-0.51	0.09	-0.28	-0.08**	-0.05
	(0.15)	(0.54)	(0.85)	(0.62)	(0.02)	(0.23)
Geopolitical distance to invoicing currency issuer × post-2021	-0.12	-0.36*	-0.44*	-0.77***	-0.05	-0.03
	(0.68)	(0.09)	(0.06)	(0.00)	(0.14)	(0.11)
Standard controls	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.65	0.77	0.78	0.83	0.96
Observations	1278	1307	1284	1303	696	704
Countries	113	111	111	110	89	88
p-value full effect	0.13	0.34	0.52	0.08	0.01	0.04

Note: The last line of the table "p-value full effect" reports the p-values for the overall effects.

The results presented in Table 3 also show how the relationship between invoicing currency choice and geopolitical distance has *changed* since Russia's invasion of Ukraine in 2022. The coefficient estimates for the interaction terms between geopolitical distance and the post-2021 dummy in columns (1) to (4) indicate that the correlation between dollar and euro invoicing and geopolitical distance to their corresponding issuers has become more negative. Focusing on columns (2) and (4), which control for the oil trade share, the *overall* correlation between invoicing currency use and geopolitics have become negative for both the dollar and euro (-0.51-0.36=-0.87 for the dollar and -0.28-0.77=-1.05 for the euro), though the overall effect is statistically significant at conventional levels only for the euro (see the *p*-value in the final row of the regression statistics). The results for the renminbi also suggest that the correlation between dollar and euro invoicing and geopolitical distance to their corresponding issuers has become more negative: while the correlation for the use of the renminbi and geopolitical distance from China was negative already over the full sample period when controlling for the commodity export share in column (5), it has turned even more negative since 2022, although

this is not very precisely estimated. When controlling for the oil export share in column (6), the correlation has turned negative statistically significantly since 2022 (see the last row in the regression statistics).

A set of robustness checks confirm the results from Table 3. Table B.3 suggests that when we use *import* invoicing currency shares as dependent variable and *trading-partner* average geopolitical distance to the invoicing currency issuer, the coefficient for geopolitical distance since Russia's invasion of Ukraine is highly statistically significant for the dollar and the renminbi; for the euro, the coefficient is negative even for the overall sample period. Figure A.13 explores systematically the time variation in the conditional correlation between export invoicing currency shares and geopolitical distance, confirming that is has become (more) negative only recently. Table B.4 documents that results for euro and renminbi export invoicing in Table 3 are not driven by Russia, Belarus or Uzbekistan, which stand out in Figure 9, while for dollar export invoicing shares the coefficient estimates of geopolitical distance to the US turn insignificant; note that data availability already limits the inclusion of some of these countries in the regressions in Table 3. Table B.5 documents that results for euro invoicing shares do not change when we use alternative definitions of geopolitical distance to the euro area.[20]

Although UN voting patterns are a widely used and informative proxy for measuring geopolitical alignment, they are not without limitations. For instance, votes are often symbolic and resolutions are nonbinding; states may strategically abstain to avoid antagonizing major powers; and, in certain cases, votes may reflect transactional considerations, such as the anticipation of foreign aid. Therefore, we re-estimate equation (3) using alternative measures of geopolitical distance.[21]

Specifically, we consider three alternative measures of geopolitical distance. First, we draw on the total number of US troops deployed by country, as compiled by Kane (2024) and available online at www.UStroopDeployments.com. Because it is not obvious how to scale the number of US troops in a country—for example, by population, country area, or proximity to geopolitical risk areas—and many countries host few troops, we simply use a dummy variable that equals one if the country is above the 75th percentile in the cross-country distribution of the hosted number of troops. We expect this dummy variable to indicate geopolitical alignment with the US. Thus, we expect it to be positively correlated with USD invoicing but negatively correlated with CNY invoicing; for the EUR,

[20]Table B.6 reports results for the coefficient estimate of geopolitical distance to the invoicing currency issuer from pooled exporter-currency panel regressions analogous to Equation (2). Results are overall similar to those in Table 3, with the exception of a counterintuitive positive coefficient estimate for geopolitical distance to China. However, recall that pooled exporter-currency panel regressions impose arguably invalid homogeneity assumptions on the coefficients; in the regressions underlying the results shown in Table B.6 it is assumed that, e.g., bilateral export shares have the same effect on the dollar, the euro and renminbi invoicing, respectively. Indeed, Table B.7 documents that if we allow the coefficients on the compositional/mechanical correlates to differ across invoicing currencies by interacting them with corresponding dummy variables (coefficient estimates not reported to save space), the coefficient estimates for geopolitical distance after 2021 are consistent with those in Table 3.

[21]Since we are particularly interested in the period 2022-23, we are limited by measures of geopolitical distance that are available for those years.

it is not clear what sign to expect. Second, we draw on data from Gallup World Polls on foreign (net) approval of the US', China's, and Germany's governments. We expect approval of the US' and China's governments to be positively correlated with USD and CNY invoicing, respectively. We also expect approval for Germany's government to be positively correlated with EUR invoicing, but the fact that we can only use approval of Germany's—and not of an overall euro area government—might introduce non-trivial measurement error. Third, we use the measure of "international power" proposed by Liu & Yang (2025). This measure captures a country's international power through bilateral asymmetries in import dependence. Specifically, a country with relatively inelastic demand for imports—particularly from trading partners with whom it runs large bilateral trade imbalances—is considered to possess limited international power.

Tables D.1 and D.2 report the results, using the commodity export shares and the oil export shares as control variables, respectively. Starting with the results on US troops presence, the coefficient for US troop presence exhibits an unexpected negative sign in the USD invoicing regressions as shown in column (2), which is statistically significant when the oil export share is controlled for in Table D.2. However, this finding is consistent with the literature on the composition of foreign exchange reserves. For instance, Goldberg & Hannaoui (2024) show that low geopolitical alignment with the US, as measured by UN voting, does not generally lead to a reduced US dollar share in official reserve portfolios. In fact, countries with lower voting alignment—or those subject to financial sanctions—often hold a higher share of US dollars, all else equal.[22] Focusing on the interaction terms capturing the change in the correlation of US troop presence post-2021, the regression suggests that the change in the correlation between US troop presence and USD (CNY) invoicing has become systematically positive (negative) after 2021, consistent with an increasing influence of geopolitical distance on invoicing currency choice. In fact, the change in the correlation post-2021 for USD invoicing results in a positive *overall* correlation between US troops presence and USD invoicing (-0.38+0.95=0.57 in Table D.1 and -0.71+1.48=0.77 in Table D.2 and statistically significant in the latter table). US troop presence is negatively correlated with EUR invoicing post-2021, reinforcing the finding of a stronger geopolitical impact of military presence on invoicing currency choices.

The findings for the case of foreign approvals of leadership as measured by Gallup are less conclusive. When foreign approval ratings of the US and Chinese governments are used as measures of geopolitical alignment, the coefficient estimates generally have the expected positive signs but are statistically significant at conventional levels in only one case. Surprisingly, the coefficient estimate for EUR invoicing is negative and statistically significant, reported in column (8); as previously discussed,

[22]However, this relationship changes when countries accumulate sufficient reserves to cover short-term external debt and allocate larger investment tranches within their portfolios.

this outcome may stem from measurement error, since we use the approval of Germany's government rather than that of the entire euro area.[23] Most of the level coefficients are estimated with considerable imprecision.

Using our third alternative measure of "international power," we find that countries are more likely to invoice their exports in CNY when China's international power vis-à-vis those countries is higher. Regression results controlling for oil trade shares, presented in column (14) of Table D.2, support this finding for the overall sample and point to a marked strengthening of the relationship after 2021. For other invoicing currencies, the evidence is less consistent, though we observe some statistically significant effects for the US dollar in the post-2021 period in column (4) Table D.2.

Finally, recognizing that no single measure of geopolitical distance is perfect, we conduct a principal component analysis (PCA) combining UN voting–based geopolitical distance, U.S. troop presence, approval of foreign governments, and international power, and use the first principal component in our regressions. Based on the signs of the estimated loadings, we interpret higher values of the principal component as indicating greater geopolitical distance. The results generally indicate a negative correlation between geopolitical distance to the invoicing currency issuer and the use of the invoicing currency post-2021 but most of the estimates are not statistically significant. CNY regressions, reported in column (12) are an exception where column (15) of both Table D.1 and Table D.2 reveal a statistically significant negative relationship between CNY invoicing and geopolitical distance from China, which has strengthened post-2021. In addition, even though the estimated coefficients for USD are insignificant on their own as shown in column (5) of each table, their combined effect is significant as reported in the last rows of the tables ("p-value full effect").

Since our findings suggest that countries with strong geopolitical ties to China have a higher share of trade invoiced in CNY, we explore this further by analyzing how China's economic policies correlate with CNY invoicing. In particular, we explore the possible role of access to PBoC swap lines, the presence of an RMB clearing bank in the country, the existence of a free-trade agreement with China, the amount of infrastructure investment received by China (scaled by host-country GDP), and whether a country is an RMB Qualified Foreign Institutional Investor (RQFII). Table E.1 presents results for CNY invoicing in exports, and Table E.2 for CNY invoicing in imports—we run regressions for both exports and imports, as some of these policies target CNY use more directly in one trade flow (e.g., imports in the case of PBoC swap lines, see Bahaj & Reis forthcoming). Overall, the results are inconclusive. Across export and import invoicing regressions, CNY use seems to be more positively correlated post-2021 with the existence of a free-trade agreement and participation in the RQFII

[23] Indeed, when euro area countries are excluded from the regressions, there is no systematic correlation between EUR invoicing and foreign approval of Germany's government.

program. At the same time, the presence of an RMB clearing bank is more negatively correlated post-2021. Moreover, some level coefficients are negatively correlated with CNY invoicing in at least one regression. Specifically, both access to a PBoC swap line and the presence of a free-trade agreement with China appear to be negatively correlated with CNY invoicing.

Having established that the correlation between an exporter's use of dollars (euros) for invoicing and its geopolitical distance from the US (euro area) has become more negative since 2022, we next examine how correlations have evolved with respect to geopolitical distance from countries that are *not* the corresponding invoicing currency issuer. For instance, we ask: has invoicing in dollars become more positively correlated with geopolitical distance from China? To answer these questions systematically, we estimate:

$$s^c_{e,t} = \rho^{c,i} s^c_{e,t-1} + \boldsymbol{\beta}^{c,i\prime} \boldsymbol{w}^c_{e,t} + \delta^{c,i} geopdist^i_{e,t} + \gamma^{c,i}[geopdist^i_{e,t} \times \mathcal{I}(t > 2021)] + \alpha^{c,i}_e + \tau^c_t + u^{c,i}_{e,t}, \quad (4)$$

separately for all combinations of invoicing currencies $c \in \{\$, €, ¥\}$ and invoicing currency issuers $i \in \{US, EA, CHN\}$. By running separate regressions for each combination, we avoid including geopolitical distance from exporter e to all invoicing currency issuers in the same regression. This is important because bilateral geopolitical distances are almost perfectly correlated, so including them simultaneously results in multicollinearity.[24]

Table 4 presents the results from estimating the specification in Equation (4); we provide a condensed, more easily accessible graphical presentation of these results below. Table 4 nests the results from Table 3, which correspond to the cases where geopolitical distance is measured from the country that issues the invoicing currency. Table 4 is organized to show specifications that control for commodity shares and oil shares, in the left and right part of each panel, respectively. The top, middle and bottom panels report changes in the correlation with geopolitical distance to the US, to the euro area and China, respectively. In addition to the dollar, the euro and the renminbi, we also report results for the exporter's home currency in columns (5)-(6) and (12)-(13). Specifically, columns (5) and (12) define home currency as the exporters' own currency, except for the euro for euro area economies—aligning with the treatment of the euro area economies in the regressions reported in columns (2) and (9)—and economies with an exchange rate peg to the euro. In contrast, columns (6) and (13) define home currency to include the euro for euro area economies and economies with an exchange rate peg to the euro, and correspondingly, columns (3) and (10) exclude euro area economies and economies with an exchange rate peg to the euro, thereby focusing on the role of the euro as a vehicle currency.

[24]For example, Figure A.14 shows that economies' geopolitical distance from the US and from China are almost perfectly negatively correlated. This is unsurprising: if a country is aligned with the US, and the US and China represent opposing geopolitical poles, then alignment with one necessarily implies misalignment with the other. As a result, geopolitical proximity to the US and to China is nearly perfectly negatively correlated across countries.

Finally, columns (7) and (14) report results for third-country currencies other than the dollar, the euro, renminbi and home currency. Note that we can calculate invoicing shares for the other currency category only for exporter-year observations for which we have information on dollar, euro, renminbi and home currency invoicing shares.

Table 4: Panel regressions for export invoicing shares and geopolitical distance across invoicing currency issuers

Geopolitical distance to the US

	Commodity share							Oil share						
	(1) USD	(2) EUR	(3) EUR (VCP)	(4) CNY	(5) Home	(6) Home (incl. EUR)	(7) Other	(8) USD	(9) EUR	(10) EUR (VCP)	(11) CNY	(12) Home	(13) Home (incl. EUR)	(14) Other
Geopolitical distance to US× post-2021	-0.12	-0.27	-0.30**	0.08**	0.24**	-0.24	0.70***	-0.36*	-0.47***	-0.47***	0.05***	0.24***	-0.19	0.60***
	(0.68)	(0.11)	(0.04)	(0.03)	(0.02)	(0.30)	(0.00)	(0.09)	(0.01)	(0.00)	(0.01)	(0.01)	(0.32)	(0.00)
Remaining standard controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.77	0.72	0.83	0.68	0.77	0.47	0.65	0.78	0.73	0.96	0.65	0.77	0.61
Observations	1278	1284	931	696	604	1138	361	1307	1303	949	704	604	1136	360
Countries	113	111	92	89	57	102	46	111	110	91	88	54	97	44

Geopolitical distance to the euro area

	Commodity share							Oil share						
	(1) USD	(2) EUR	(3) EUR (VCP)	(4) CNY	(5) Home	(6) Home (incl. EUR)	(7) Other	(8) USD	(9) EUR	(10) EUR (VCP)	(11) CNY	(12) Home	(13) Home (incl. EUR)	(14) Other
Geopolitical distance to EA × post-2021	0.15	-0.44*	-0.47**	0.10**	0.31***	-0.25	0.75***	-0.16	-0.77***	-0.79***	0.08***	0.30**	-0.25	0.77***
	(0.68)	(0.06)	(0.01)	(0.03)	(0.01)	(0.38)	(0.00)	(0.52)	(0.00)	(0.00)	(0.01)	(0.02)	(0.31)	(0.00)
Remaining standard controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.77	0.72	0.83	0.68	0.77	0.46	0.65	0.78	0.73	0.96	0.65	0.77	0.60
Observations	1278	1284	931	696	604	1138	361	1307	1303	949	704	604	1136	360
Countries	113	111	92	89	57	102	46	111	110	91	88	54	97	44

Geopolitical distance to China

	Commodity share							Oil share						
	(1) USD	(2) EUR	(3) EUR (VCP)	(4) CNY	(5) Home	(6) Home (incl. EUR)	(7) Other	(8) USD	(9) EUR	(10) EUR (VCP)	(11) CNY	(12) Home	(13) Home (incl. EUR)	(14) Other
Geopolitical distance to CHN × post-2021	0.40	0.11	0.20	-0.05	-0.36**	0.16	-0.55**	0.86***	0.26	0.32**	-0.03	-0.36**	0.07	-0.76***
	(0.25)	(0.55)	(0.22)	(0.14)	(0.02)	(0.53)	(0.02)	(0.00)	(0.14)	(0.05)	(0.11)	(0.02)	(0.78)	(0.00)
Remaining standard controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.77	0.72	0.83	0.68	0.77	0.47	0.65	0.78	0.73	0.96	0.65	0.77	0.61
Observations	1278	1284	931	696	604	1138	361	1307	1303	949	704	604	1136	360
Countries	113	111	92	89	57	102	46	111	110	91	88	54	97	44

Note: The tables report results from regressions of Equation (4) for all combinations of invoicing currencies $c \in \{\$, €, ¥\}$ and invoicing currency issuers $i \in \{US, EA, CHN\}$. The table in the top row reports results for geopolitical distance from the US, the middle panel for geopolitical distance from the euro area, and the bottom panel for geopolitical distance from China. In each table the columns report results for different invoicing currency shares as dependent variable. In columns (5) and (12) home currency is defined as the exporters' own currency, except for the euro for euro area economies and economies with an exchange rate peg to the euro. In columns (6) and (13) home currency includes the euro for euro area economies and economies with an exchange rate peg to the euro. In columns (3) and (10) euro area economies and economies with an exchange rate peg to the euro are excluded. Columns (7) and (14) report results for third-country currencies other than the dollar, the euro, renminbi and home currency. We can calculate invoicing shares for the other currency category only for exporter-year observations for which we have information on dollar, euro, renminbi and home currency invoicing shares.

The results in Table 4 suggest that while the use of the dollar for invoicing has become more negatively correlated with geopolitical distance from the US since 2021, it has become more *positively* correlated with distance from China. In particular, focusing again on the specifications that control for oil export share, in column (8), the estimated coefficient is larger in absolute value for geopolitical distance from China (0.86, bottom panel) than for distance from the US (-0.36, top panel). The results also indicate that the coefficient estimates for distance to the euro area (middle panel) have the same sign as those for distance to the US (top panel) across all columns except for column (1). In contrast, the coefficients for distance to China have the opposite sign. This pattern is intuitive, as the geopolitical distance data suggest that countries that have moved closer to the US have also tended

to move closer to the euro area while distancing from China. Our findings suggest that a similar polarization has manifested itself in the use of currencies in trade invoicing after 2021.

Given the large number of coefficient estimates in Table 4 (42 in total), we provide a graphical summary of the results in Figure 11 using color-coded matrices. The rows of the matrices show invoicing currency issuer, while the columns show invoicing currencies. A red cell suggests that we estimate the use of the corresponding invoicing currency has become more negatively correlated with geopolitical distance from the corresponding currency issuer. We only color cells when the corresponding estimates in Table 4 are statistically significant at the 10% level. The left and right hand side matrices are based on regressions that control for the commodity and oil export share, respectively.

The top left corner in the matrix to the right indicates that, conditional on compositional and mechanical factors, greater geopolitical distance from the US is correlated with a lower use of the dollar as an export invoicing currency post-2021 compared to pre-2022. In the same vein, the green cells in the top rows indicate that geopolitical distancing away from the US is correlated with a greater use of the renminbi, home and other third currencies (presumably that of the importer).[25] When controlling for the commodity export share, the results displayed in the matrix on the left are similar except that they suggest that dollar export invoicing tends to be uncorrelated with geopolitical distance to the US.

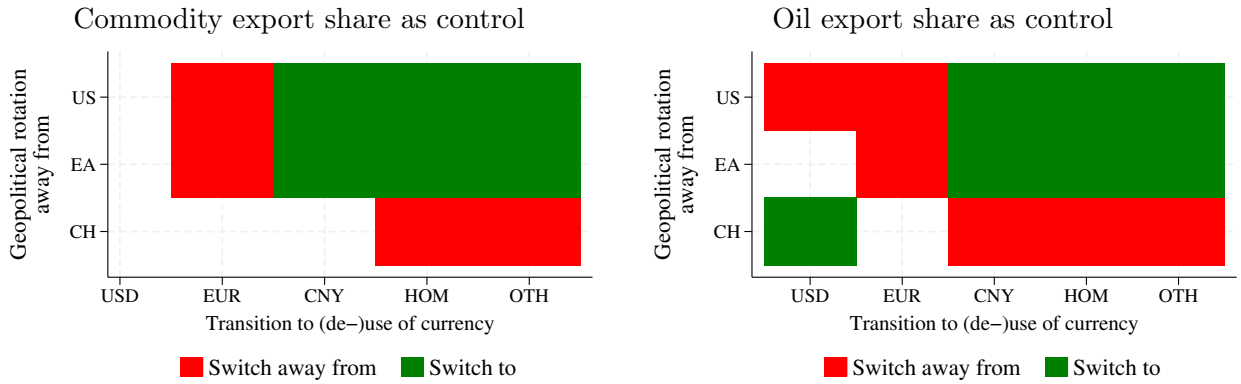
The results in the middle rows in the matrices in Figure 11 suggest that whether or not we control for commodity or oil export shares, geopolitical distancing from the euro area is correlated with a reduction in the use of the euro in export invoicing. As for the dollar, geopolitical distancing from the euro area is correlated with an increase in the use of the renminbi, home and other third currencies (presumably that of the importer).

Conversely, when controlling for oil export shares our results suggest that countries that move geopolitically away from China (bottom row) show a greater tendency to invoice in dollars, while use of their own or other third-party currencies declines; when controlling for commodity export shares dollar and renminbi use seem not to change with geopolitical distancing from China, at least based on conventional significance levels (see Table 4 for the p-values). Overall, our results in Table 4 and summarized in Figure 11 point to an intuitive shift in invoicing currency patterns along geopolitical lines since Russia's invasion of Ukraine in 2022.

Figure 12 presents results for *import* invoicing currency shares analogous to those in Figure 11

[25] Figure A.15 presents analogous results from pooled exporter-currency panel regressions. Because for home and other currencies we do not have observations on all compositional/mechanical correlates such as bilateral export shares, we only control for commodity/oil export shares and the lagged dependent variable. Results are consistent with those displayed in Figure 11.

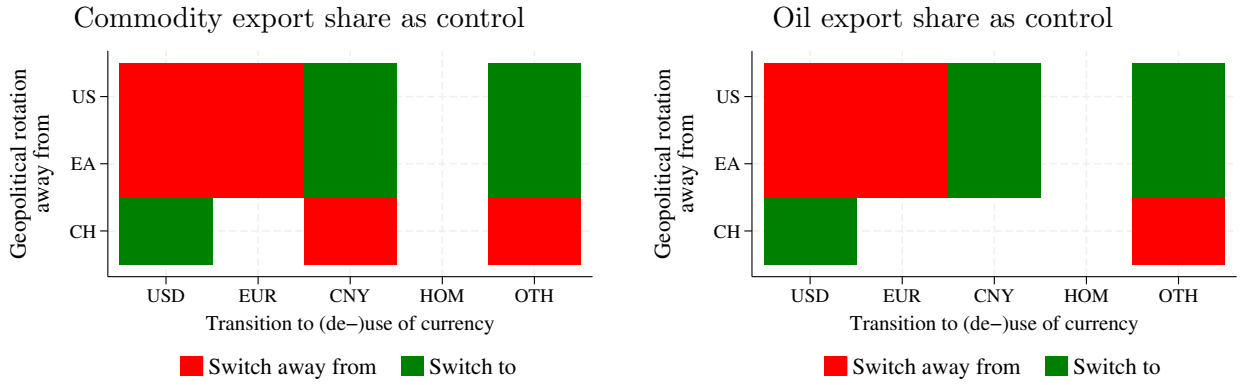
Figure 11: Geopolitics and export invoicing currency



Note: The figure presents qualitatively the coefficient estimates $\widehat{\gamma}^{c,i}$ in Equation (4). Rows indicate the invoicing currency issuer and columns the invoicing currency. A red cell indicates the use of the corresponding invoicing currency is (conditionally) negatively correlated with a geopolitical distancing away from the corresponding invoicing currency issuer. We only display estimates that are statistically significant at the 10% level. The left (right) panel presents results using the commodity (oil) export share in $\boldsymbol{w}_{e,t}^{c}$.

for export invoicing; in the underlying regressions we use the importer's average trading partners' geopolitical distance to the US, the euro area and China. Overall, the results are broadly consistent across export and import invoicing, with two notable exceptions. First, unlike in the case of export invoicing, we observe less of a shift toward home currencies for import invoicing. This is intuitive as switching from dominant-currency to local-currency pricing, which would need to occur in this case, is less likely. Most importers in our sample are small open economies, for which strategic complementarities with domestic producers are typically weaker than with foreign competitors serving the same market. In contrast, for exports, switching to home currency corresponds to a shift from dominant-currency to producer-currency pricing, which is more plausible given that domestic inputs generally account for a large share of total inputs (Mukhin 2022). Second, the rotation towards and away from dollar invoicing associated with geopolitical distancing from China and the US, respectively, is estimated much more precisely in case of import invoicing currency patterns.

Figure 12: Geopolitics and trade invoicing currency (imports)



Note: See the notes to Figure 11. Geopolitical distance refers to that of trading-partners.

5 Conclusion

This paper updates and extends the dataset on global trade invoicing currency patterns at the country level originally compiled by Boz et al. (2022). The key innovations in the new dataset include the extension of trade invoicing currency shares to cover the years 2020–2023 and the incorporation of data on the Chinese renminbi. In addition, we expand coverage to 132 countries and revise several earlier estimates. As a result, the new dataset constitutes the most comprehensive source on global trade invoicing currency patterns currently available in the literature.

Using the new dataset, we analyze recent trends in global trade invoicing currencies, with particular focus on the role of the Chinese renminbi and the influence of geopolitical alignment. At the global level, invoicing currency patterns have remained broadly stable in recent years. Nonetheless, our dataset reveals important shifts. Most importantly, although the renminbi's share in global trade invoicing remains modest, it has grown rapidly since the early 2010s. Initially concentrated in Asia, renminbi invoicing has since expanded in many regions.

Geopolitical distance emerges as an increasingly important correlate of invoicing currency choices, particularly following Russia's invasion of Ukraine in 2022. Over the full sample period, the use of the dollar and the euro exhibits little systematic relationship with geopolitical alignment, while the renminbi has been generally used more by countries geopolitically closer to China. However, since 2022, the use of the dollar and the euro are more negatively correlated with geopolitical distance from the US and the euro area. This effect extends beyond compositional changes in trade patterns. Specifically, the renminbi—along with home and third-country currencies—increasingly supplants the dollar and the euro in countries that have distanced themselves geopolitically from the US and the euro area. Similarly, in countries that have moved closer to China, the dollar is being replaced by home and third-country currencies. While these findings confirm the resilience of a dominant currency, they also point to an emerging fragmentation in invoicing patterns along geopolitical lines.

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Patterns of invoicing currency in global trade in a fragmented world economy

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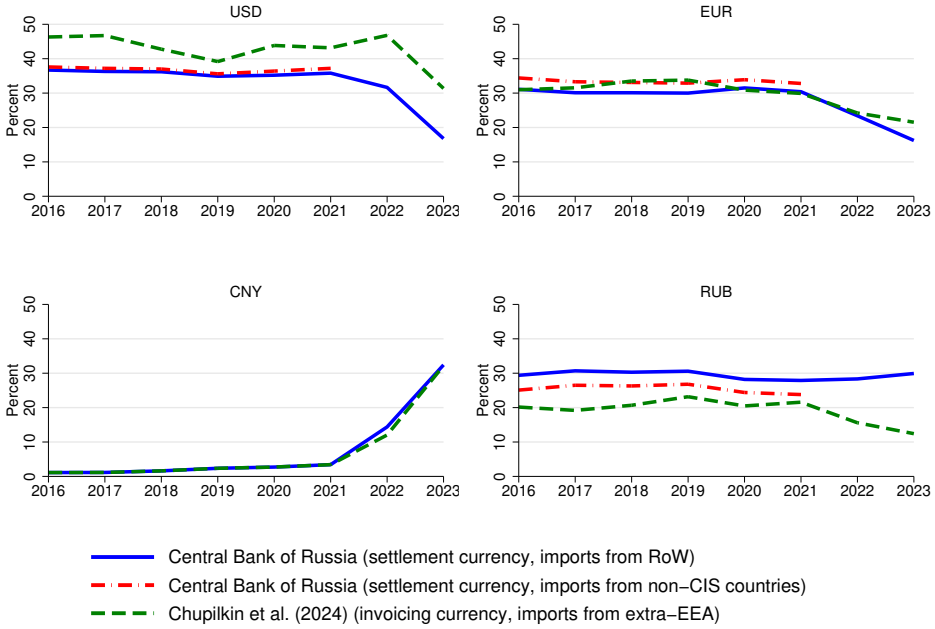
Georgios Georgiadis, Gita Gopinath, Arnaud Mehl

Online Appendix

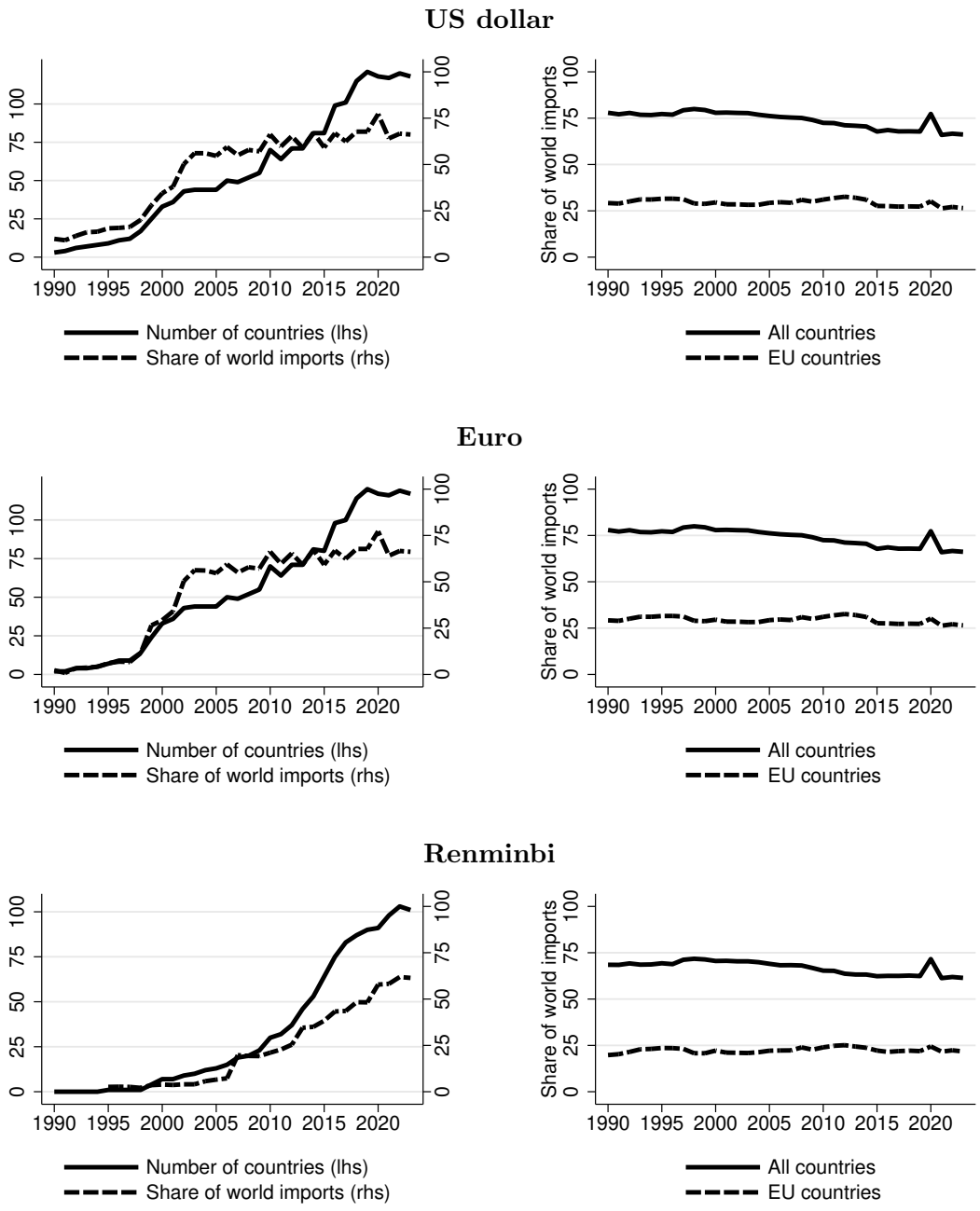
A Additional Figures

Figure A.1: Comparison of settlement and invoicing currency for Russia



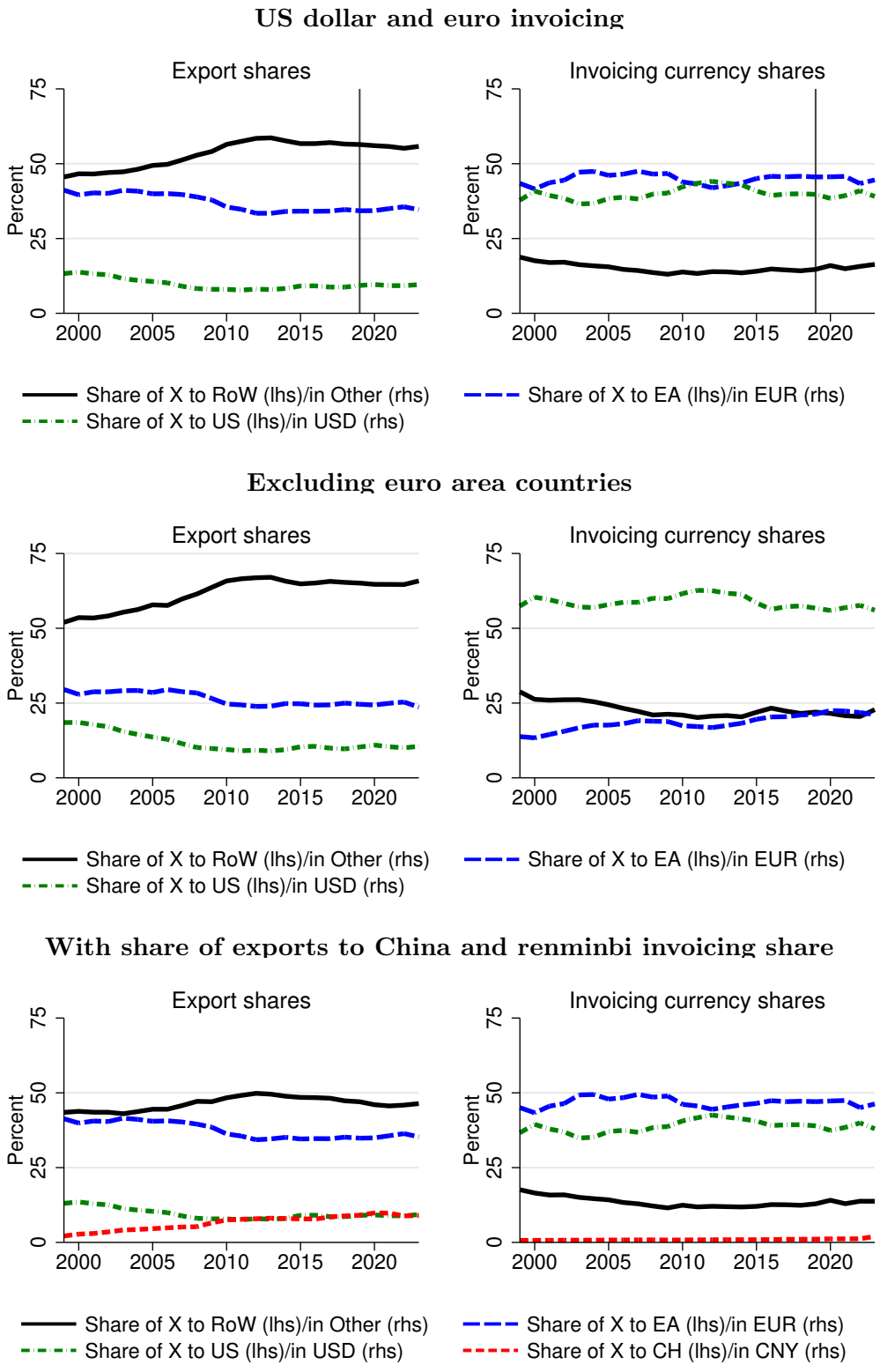
Note: The figure compares invoicing and settlement currency data for Russia. We take settlement currency information from Central Bank of Russia. Trade invoicing currency information is based on customs data and obtained from Chupilkin et al. (2023). The blue solid lines depict settlement currency shares in Russia's imports from the rest of the world. The red dash-dotted lines depict settlement currency shares in Russia's imports from countries in the rest of the world excluding countries Commonwealth of Independent States (Ukraine, Moldova, Georgia, Armenia, Azerbaijan, Belarus, Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan and Tajikistan). The green dashed lines depict invoicing currency shares in Russia's imports from the rest of the world excluding countries in the Eurasian Economic Union (Armenia, Belarus, Kazakhstan, Kyrgyzstan).

Figure A.2: Country and world import share coverage for invoicing currency data



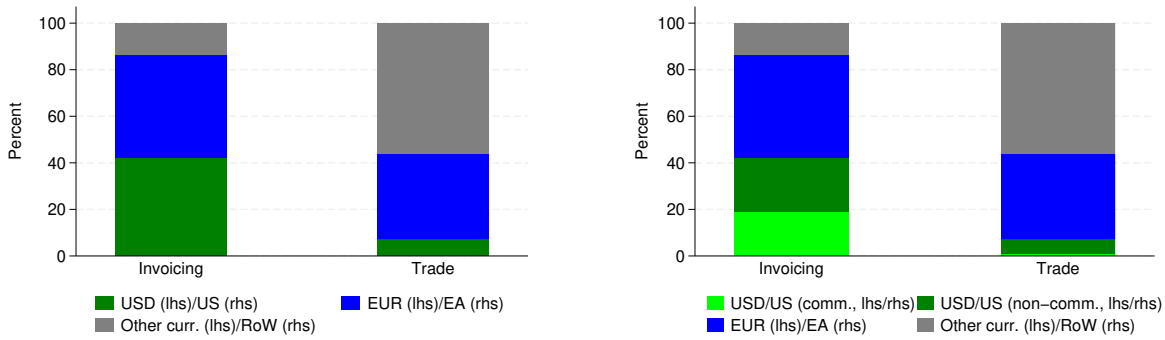
Note: The figure plots the coverage of the data on the invoicing currency shares of imports over time. The left panel shows the evolution of our country count and of the share of world imports covered in the raw data; the right panel shows the share of world imports that our data cover after interpolation and backpolation.

Figure A.3: Global trade and invoicing currency shares over time



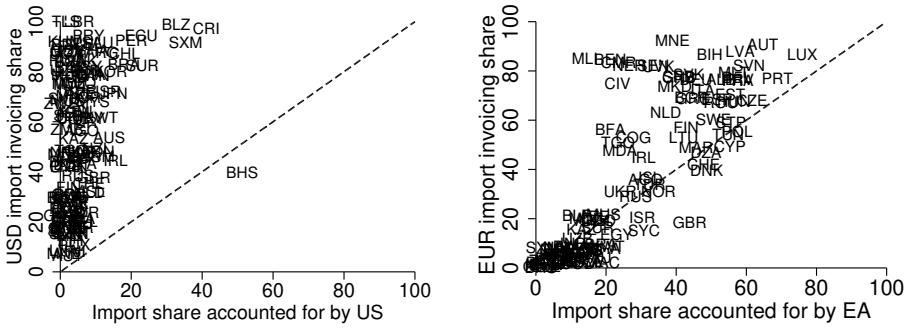
Note: The left panels depict the evolution of the share of exports to the US, the euro area, the rest of the world, and in the last row also to China in total global exports. The right panels depict the share of global exports that are invoiced in dollar, euro, other currencies, and in the last row in renminbi. In the first row we include all countries for which we have information on dollar and euro export invoicing shares in our dataset except for the US (as in Gopinath 2015, Boz et al. 2022), in the second row we exclude euro area countries, and in the last row we include all countries for which we have information on dollar, euro and renminbi export invoicing shares in our dataset. The graphs are based on interpolated and backpolated data.

Figure A.4: Shares of global imports and invoicing currency



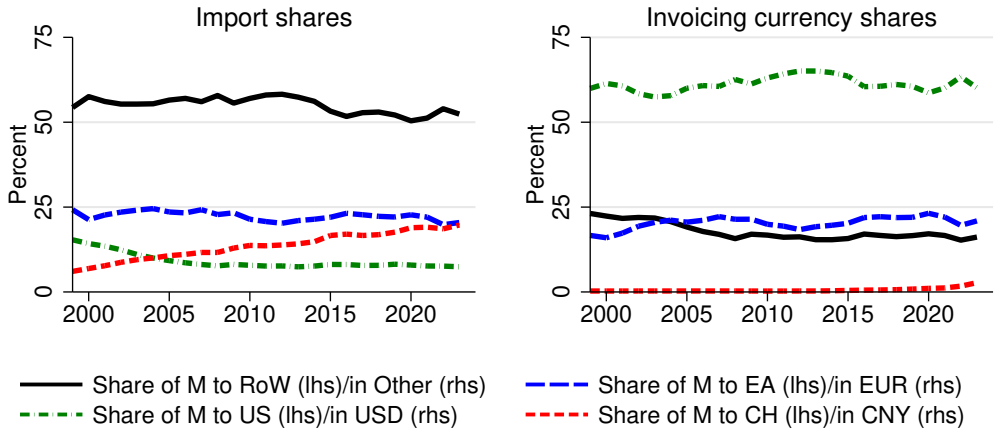
Note: The left-hand side panel plots the share of imports from the US, from euro area countries, and from the rest of the world as well as the share of imports that are invoiced in US dollars, euros, and other currencies. Only countries for which we have invoicing data are considered; hence the trade shares shown exclude the imports of several large countries, including China and Mexico. The figure corresponds to Figure 2 in Gopinath (2015). Interpolated and backpolated data are averaged over time from 1999 to 2023. The right panel presents the same information except that (i) imports from the US and (ii) imports invoiced in dollars are split into commodity and non-commodity imports. For (i), we use information on the share of commodities in total US exports. For (ii), we assume that all *commodity imports are fully invoiced in dollars and we use data on the share of imports due to commodities. Here commodity imports is measured as the sum of the shares of imports—obtained from the World Bank's "World Development" Indicators—due to agricultural raw materials, ores and metals, and fuels.*

Figure A.5: Trade and invoicing currency shares at the country level



Note: The figure presents scatter plots of the share of countries' total imports accounted for by the US and the share of total imports invoiced in US dollar (left panel) as well as the share of total imports accounted for by the euro area and the share of total imports invoiced in euro (right panel). The figure shows averages over 1990-2023. The averages are only calculated over years for which we have both import invoicing and import share data.

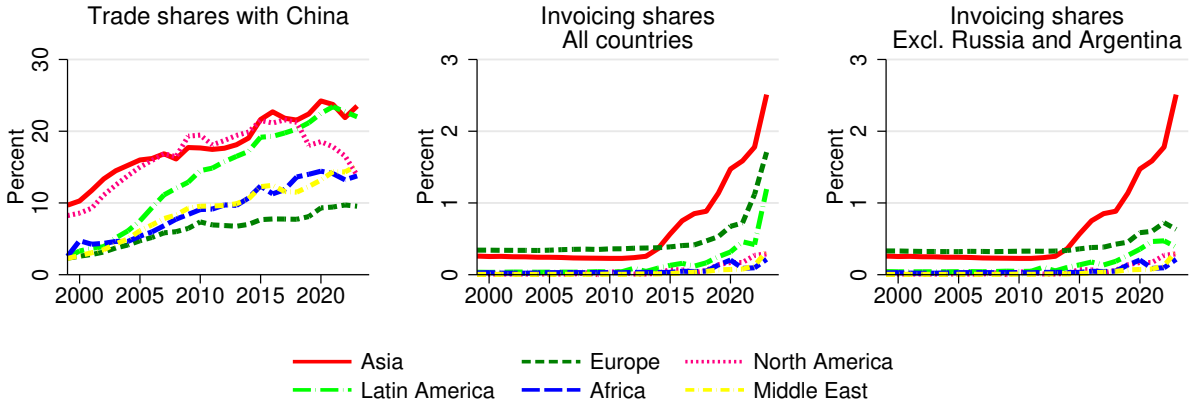
Figure A.6: Global trade and invoicing currency shares over time without euro area countries



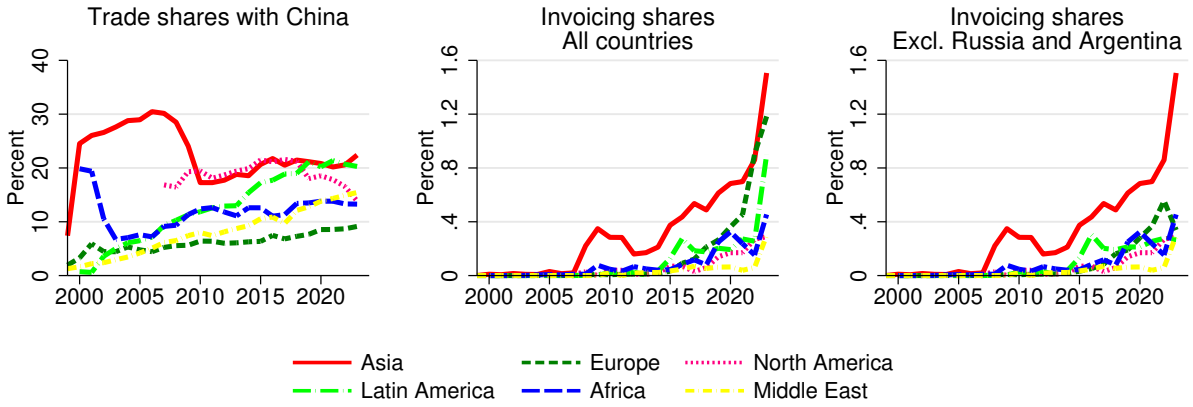
Note: The left panel depicts the evolution of the share of imports from the US, the euro area, China, and the rest of the world in total global imports; the right panel plots the share of global imports that are invoiced in US dollars, euros, renminbi, and other currencies. Only imports from countries for which we have invoicing data are considered. In contrast to the bottom row in Figure 3, euro area countries are excluded. The graphs are based on interpolated and backpolated data.

Figure A.7: Share of imports invoiced in renminbi for alternative specifications

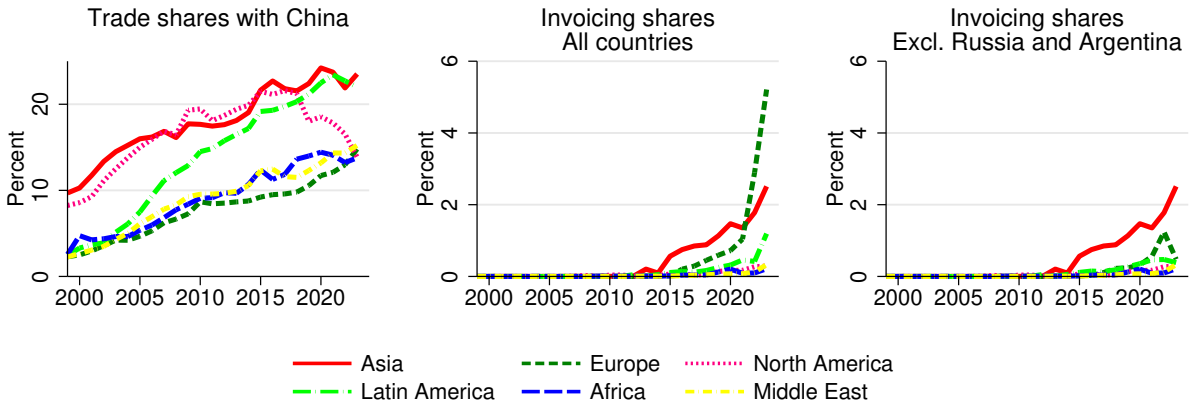
Using interpolated and backpolated renminbi import invoicing shares



Unweighted country averages

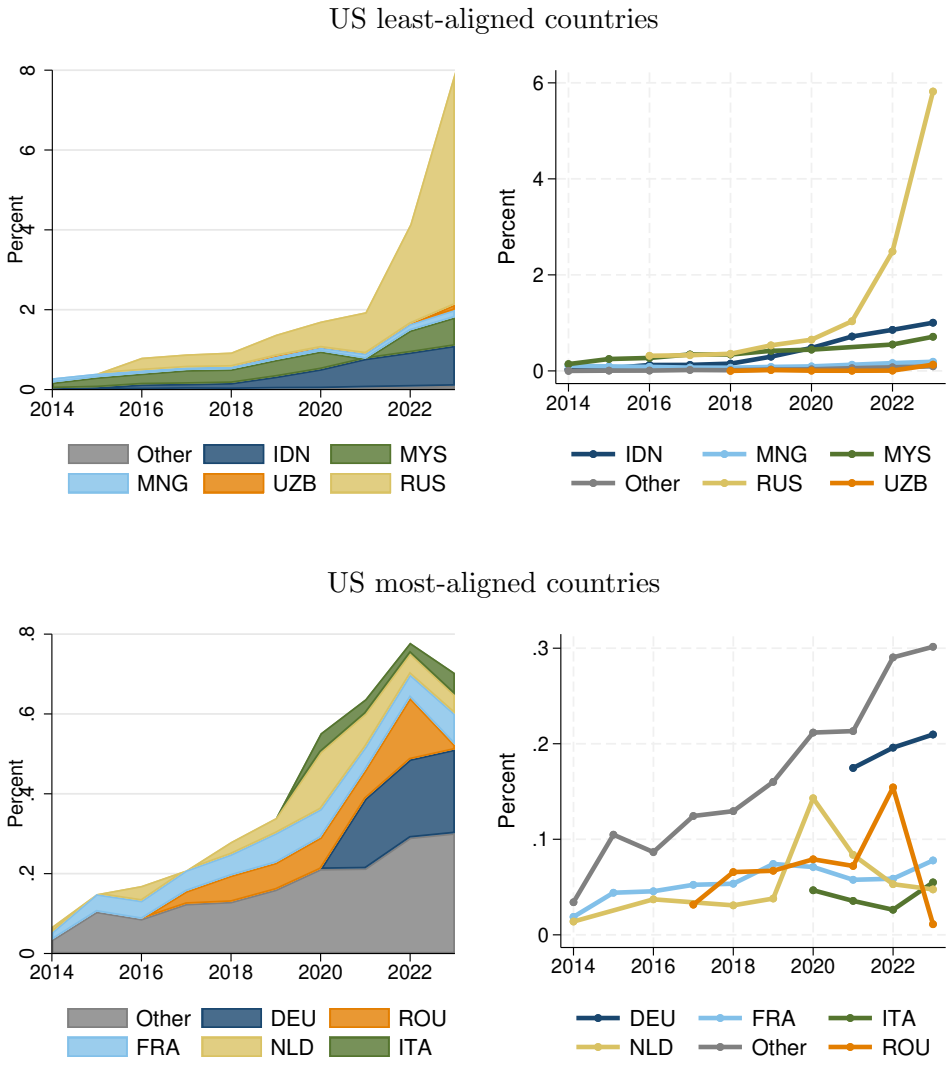


Without euro area countries



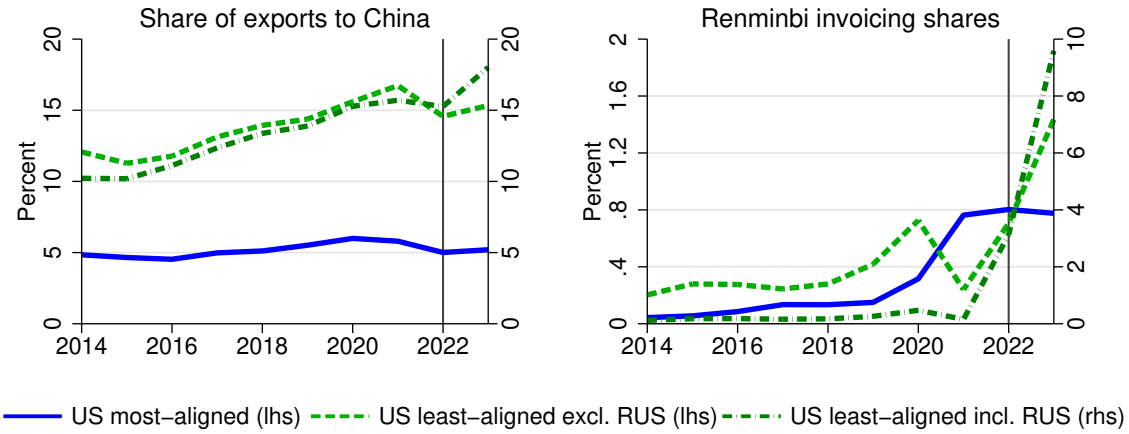
Note: The figure shows alternative versions of Figure 4. In the top row we use interpolated and backpolated renminbi invoicing shares. In the second row, the left panel shows unweighted renminbi invoicing shares, while the right panel shows the import-weighted invoicing shares as in the right panel of Figure 4. In the third row we exclude euro area countries.

Figure A.8: Decomposition of change in imports from China invoiced in renminbi



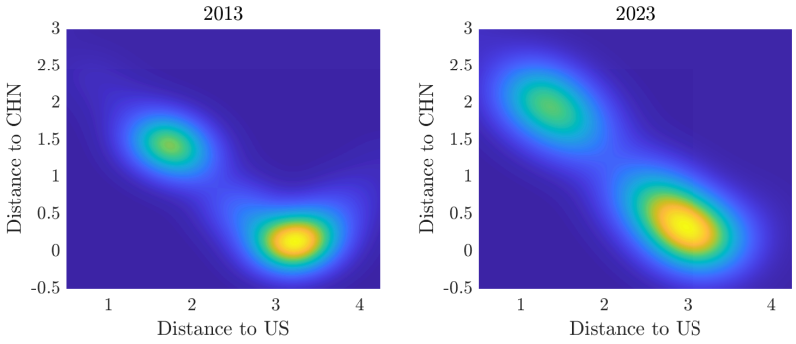
Note: The left panels break down the share of total imports from China invoiced in renminbi for the five largest countries within the group of US non-aligned countries (top row) and US aligned countries (bottom row), respectively. The right panels show the evolution of renminbi invoicing shares for these five countries, along with an aggregate of all remaining US aligned countries. We use the raw renminbi invoicing shares rather than interpolated and backpolated data. For further details, see the note to Figure 7.

Figure A.9: Exports to China and renminbi invoicing by geopolitical alignment with US



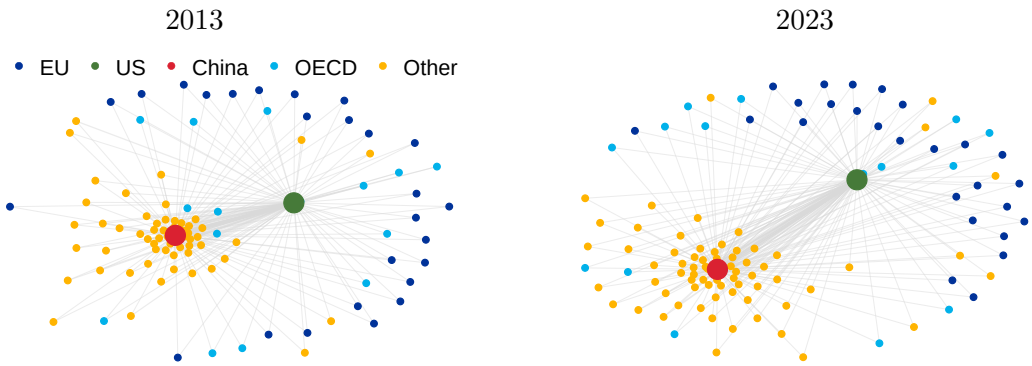
Note: The left panel depicts the share of total country-group exports that is destined to China; we only include countries for which we have renminbi invoicing currency information in our dataset. The right panel shows the share of total country-group exports that is invoiced in renminbi. The vertical lines indicate 2022.

Figure A.10: Cross-country distribution of geopolitical distance to China and the US



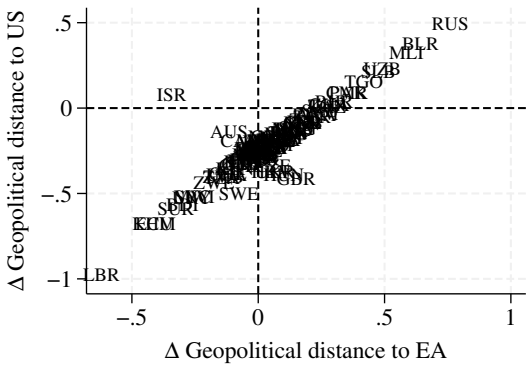
Note: The figure shows density plots for the bivariate cross-country distribution of geopolitical distance to the US (horizontal axis) and China (vertical axis) in 2013 and 2023. Geopolitical distance is take from Bailey et al. (2017). Brighter areas indicate a greater mass of countries.

Figure A.11: Network charts for geopolitical distance to the US and China over time



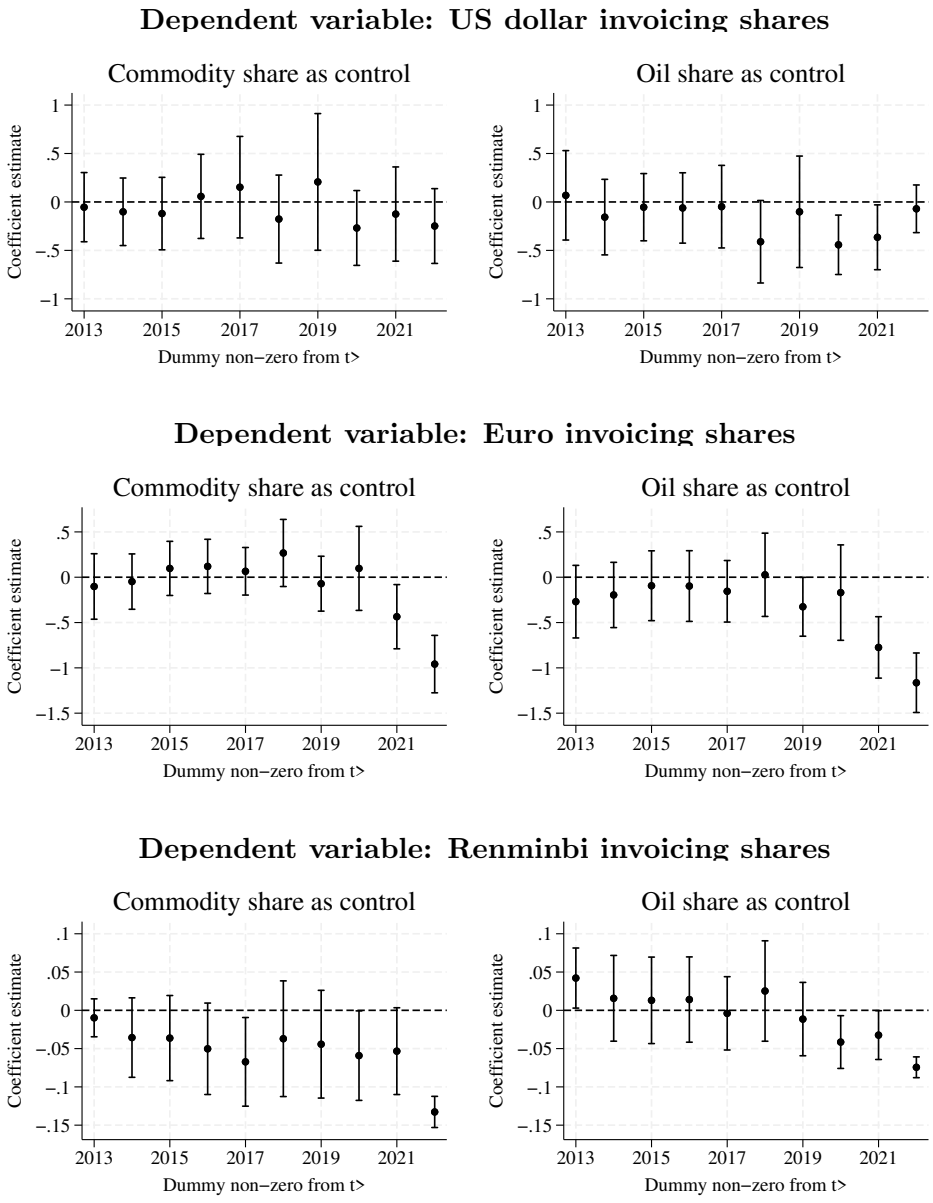
Note: The panels present country networks based on bilateral geopolitical distances to the US and China for 2013 and 2023. Geopolitical distance is given by the ideal distance point estimates from Bailey et al. (2017). Each node represents a country, and the length of each edge represents the estimate of a country's ideal point distance from the US and China, respectively.

Figure A.12: Changes in geopolitical distance to the US and the euro area between 2015-19 and 2022-23



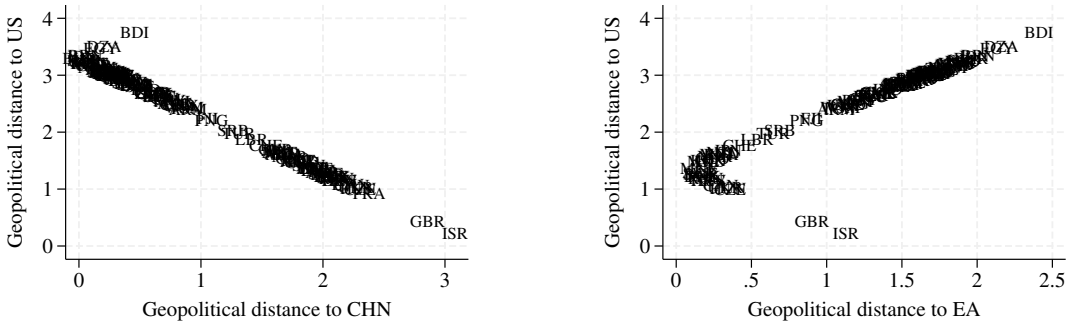
Note: The figure shows changes in bilateral geopolitical distances to the US and the euro area between 2015-19 and 2022-23 for the countries in our dataset. Geopolitical distance is measured based on the ideal point distance of Bailey et al. (2017) and voting patterns in the UN General Assembly. The horizontal axis depicts changes in geopolitical distance to the euro area and the vertical axis to the US. Geopolitical distance to the euro area is measured as the unweighted average of distances to individual euro area countries. We drop euro area countries.

Figure A.13: Panel regressions for export invoicing shares and geopolitical distance to the invoicing currency issuer post-2012



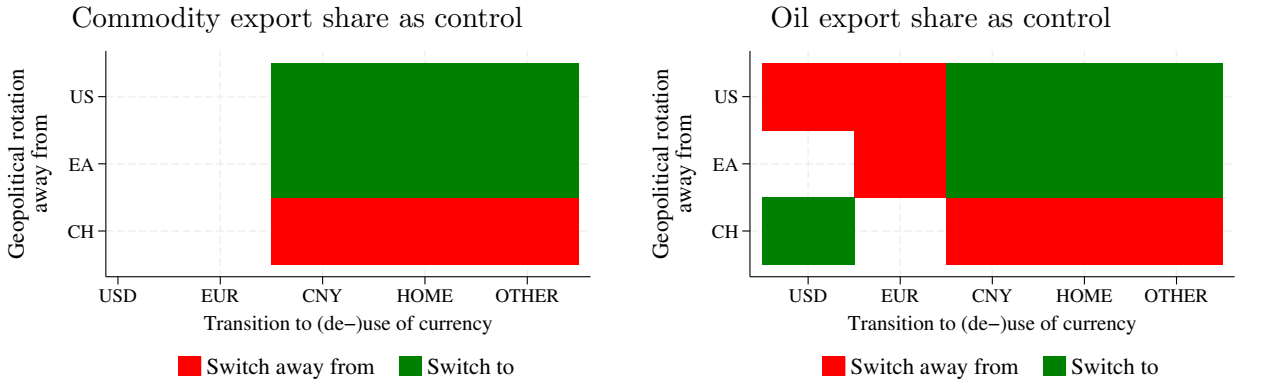
Note: The figure presents the coefficient estimate $\widehat{\gamma}^{c,i(c)}$ from Equation (3) for different choices of $\bar{t}$ in $\mathcal{I}(t > \bar{t})$. The dots represent the point estimate and the whiskers indicate the bounds of 90% confidence bands. The first row presents results for US dollar invoicing shares, the second for euro invoicing shares, and the third row for renminbi invoicing shares. Inference is based on Driscoll-Kraay standard errors..

Figure A.14: Bilateral geopolitical distance to the US, euro area and China in 2023



Note: The left (right) panel compares bilateral geopolitical distance to the US (euro area) and China in 2023.

Figure A.15: Geopolitics and export invoicing currency, results from pooled economy-currency panel regressions



Note: The figure presents qualitatively the coefficient estimates $\widehat{\gamma}^{c,i}$ from pooled economy-currency panel regressions analogues of Equation (4). Rows indicate the invoicing currency issuer and columns the invoicing currency. A red cell indicates the use of the corresponding invoicing currency is (conditionally) negatively correlated with a geopolitical distancing away from the corresponding invoicing currency issuer. We only display estimates that are statistically significant at the 10% level. The left (right) panel presents results using the commodity (oil) export share in $\boldsymbol{w}_{e,t}^{c}$.

B Additional Tables

Table B.1: Panel regressions for compositional/mechanical correlates of import invoicing shares

	USD		EUR		CNY	
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged invoicing currency share	0.82***	0.81***	0.84***	0.84***	0.94***	0.97***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Bilateral trade share with invoicing currency issuer	0.05	0.09**	0.11***	0.14***	0.01***	0.02***
	(0.31)	(0.03)	(0.00)	(0.00)	(0.00)	(0.00)
Trade share with rest of invoicing currency block	0.03	0.04	0.05*	0.13***	-0.02	-0.01
	(0.38)	(0.22)	(0.06)	(0.00)	(0.10)	(0.14)
Bilateral exchange rate against invoicing currency	-0.00	0.00	0.00	0.00	0.00***	0.00**
	(0.35)	(0.99)	(0.24)	(0.14)	(0.01)	(0.01)
Commodity trade share	0.05**		-0.00		-0.00	
	(0.03)		(0.96)		(0.26)	
Oil trade share		0.14***		-0.05		0.00
		(0.01)		(0.11)		(0.52)
Year FEs	✓	✓	✓	✓	✓	✓
Within R-squared	0.75	0.75	0.81	0.82	0.90	0.92
Observations	1343	1327	1368	1348	808	793
Countries	113	110	113	111	96	92

Note: See the note to Table 2.

Table B.2: Pooled economy-invoicing currency panel regressions for compositional/mechanical correlates of export invoicing shares

	Commodity share	Oil share
	(1)	(2)
Lagged invoicing currency share	0.76***	0.78***
	(0.00)	(0.00)
Bilateral trade share with invoicing currency issuer	0.08***	0.07***
	(0.00)	(0.00)
Trade share with rest of invoicing currency block	0.01	0.04**
	(0.54)	(0.02)
Bilateral exchange rate against invoicing currency	-0.00	-0.00
	(0.15)	(0.46)
Commodity trade share	-0.04**	
	(0.01)	
Commodity trade share $\times\mathcal{I}(c = USD)$	0.11***	
	(0.00)	
Oil trade share		-0.09***
		(0.00)
Oil trade share $\times\mathcal{I}(c = USD)$		0.25***
		(0.00)
Within R-squared	0.71	0.71
Observations	3316	3309
Country-currency pairs	316	308

Note: The table reports results from pooled economy-invoicing currency panel regressions in which the dependent variable is $s_{e,c,t}$, i.e., the share of exporter e's exports invoiced in currency c in period t.

Table B.3: Panel regressions for import invoicing shares and geopolitical distance

	USD		EUR		CNY	
	(1)	(2)	(3)	(4)	(5)	(6)
Commodity trade share	0.05*		-0.00		-0.00	
	(0.05)		(0.99)		(0.46)	
Oil trade share		0.14***		-0.05		0.00
		(0.01)		(0.15)		(0.63)
Geopolitical distance to invoicing currency issuer	1.68	1.05	-1.75	-2.36***	0.16*	0.10
	(0.14)	(0.41)	(0.11)	(0.00)	(0.09)	(0.18)
Geopolitical distance to invoicing currency issuer × post-2021	-0.63**	-0.91***	-0.27	-0.17	-0.23***	-0.21***
	(0.04)	(0.01)	(0.41)	(0.51)	(0.01)	(0.00)
Standard controls	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Within R-squared	0.75	0.75	0.81	0.82	0.91	0.92
Observations	1343	1327	1368	1348	808	793
Countries	113	110	113	111	96	92
p-value full effect	0.25	0.89	0.03	0.00	0.28	0.07

Note: See the notes to Table 3. Geopolitical distance refers to that of trading-partners.

Table B.4: Panel regressions for export invoicing shares and geopolitical distance: Excluding Russia, Belarus and Uzbekistan

	USD		EUR		CNY	
	(1)	(2)	(3)	(4)	(5)	(6)
Commodity trade share	0.09***		-0.03*		0.00	
	(0.00)		(0.06)		(0.42)	
Oil trade share		0.16***		-0.16***		-0.01*
		(0.01)		(0.00)		(0.06)
Geopolitical distance to invoicing currency issuer	1.11	0.62	0.10	-0.03	-0.08**	-0.05
	(0.15)	(0.28)	(0.83)	(0.94)	(0.02)	(0.23)
Geopolitical distance to invoicing currency issuer × post-2021	-0.14	-0.10	-0.40*	-0.63***	-0.05	-0.03
	(0.65)	(0.63)	(0.07)	(0.00)	(0.14)	(0.11)
Standard controls	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Within R-squared	0.64	0.64	0.77	0.78	0.83	0.96
Observations	1261	1286	1266	1283	696	704
Countries	111	109	109	108	89	88
p-value full effect	0.13	0.36	0.55	0.14	0.01	0.04

Note: The table reports results from the regression of Equation (3) analogous to those reported in Table 3, but without Russia, Belarus and Uzbekistan. See also the note to Table 3.

Table B.5: Panel regressions for export invoicing shares and geopolitical distance: Alternative definitions of geopolitical distance to the euro area

	Baseline		Median		DE&FR		Trade-weighted	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Commodity trade share	-0.04**		-0.00		-0.00		-0.00	
	(0.04)		(0.41)		(0.42)		(0.41)	
Oil trade share		-0.17***		-0.17***		-0.16***		-0.17***
		(0.00)		(0.00)		(0.00)		(0.00)
Geopolitical distance to invoicing currency issuer	0.09	-0.28	-0.31	-0.18	-0.28*	-1.05**	-0.31*	-0.76
	(0.85)	(0.62)	(0.10)	(0.76)	(0.10)	(0.03)	(0.09)	(0.15)
Geopolitical distance to invoicing currency issuer × post-2021	-0.44*	-0.77***	-0.48*	-0.78***	-0.40*	-0.58***	-0.44*	-0.69***
	(0.06)	(0.00)	(0.06)	(0.00)	(0.06)	(0.00)	(0.06)	(0.00)
Standard controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.77	0.78		0.78		0.78		0.78
Observations	1284	1303	1284	1303	1284	1303	1284	1303
Countries	111	110	111	110	111	110	111	110
p-value full effect	0.52	0.08	0.00	0.13	0.00	0.00	0.00	0.01

Note: The table reports results from the regression of Equation (3) for euro export invoicing shares analogous to those reported in Table 3, but for different definitions of geopolitical distance to the euro area. Columns 1) and (2) report the baseline that uses an exporter's average geopolitical distance across euro area countries and which corresponds to columns (3) and (4) in Table 3. Columns (3) and (4) use an exporters median geopolitical distance across euro area countries, columns (5) and (6) the average geopolitical distance to France and Germany, and columns (7) and (8) the trade-weighted average geopolitical distance. See also the note to Table 3.

Table B.6: Pooled economy-currency panel regressions for export invoicing shares and geopolitical distance

	Commodity share		Oil share	
	(1)	(2)	(3)	(4)
Geopolitical distance to invoicing currency issuer	0.34		-0.08	
	(0.23)		(0.74)	
Geopolitical distance to invoicing currency issuer x post-2021	-0.08		-0.27***	
	(0.42)		(0.00)	
Geopolitical distance x $\mathcal{I}(c = \$)$		0.89		-0.39
		(0.21)		(0.62)
Geopolitical distance x $\mathcal{I}(c = \$)$ x post-2021		-0.01		-0.36**
		(0.98)		(0.05)
Geopolitical distance x $\mathcal{I}(c = €)$		-0.00		-0.06
		(0.99)		(0.92)
Geopolitical distance x $\mathcal{I}(c = €)$ x post-2021		-0.31		-0.49**
		(0.19)		(0.02)
Geopolitical distance x $\mathcal{I}(c = ¥)$		-0.01		-0.01
		(0.91)		(0.95)
Geopolitical distance x $\mathcal{I}(c = ¥)$ x post-2021		0.07		0.11**
		(0.20)		(0.01)
Within R-squared	0.71	0.71	0.71	0.71
Observations	3232	3232	3283	3283
Country-currency pairs	311	311	306	306

Note: The table reports results from pooled economy-invoicing currency panel regressions in which the dependent variable is $s_{e,c,t}$, i.e., the share of exporter e's exports invoiced in currency c in period t. To save space, all coefficient estimates except for those involving geopolitical distance to the invoicing currency issuer are not reported.

Table B.7: Pooled economy-currency panel regressions for export invoicing shares and geopolitical distance with heterogeneous effects for compositional/mechanical factors

	Commodity share		Oil share	
	(1)	(2)	(3)	(4)
Geopolitical distance to invoicing currency issuer	0.34		-0.10	
	(0.22)		(0.70)	
Geopolitical distance to invoicing currency issuer x post-2021	-0.12		-0.33***	
	(0.22)		(0.00)	
Geopolitical distance x $\mathcal{I}(c = \$)$		0.91		-0.44
		(0.18)		(0.59)
Geopolitical distance x $\mathcal{I}(c = \$)$ x post-2021		0.03		-0.36**
		(0.91)		(0.04)
Geopolitical distance x $\mathcal{I}(c = €)$		0.12		0.02
		(0.85)		(0.98)
Geopolitical distance x $\mathcal{I}(c = €)$ x post-2021		-0.34		-0.57***
		(0.12)		(0.01)
Geopolitical distance x $\mathcal{I}(c = ¥)$		-0.06		-0.03
		(0.10)		(0.29)
Geopolitical distance x $\mathcal{I}(c = ¥)$ x post-2021		-0.06*		-0.03*
		(0.08)		(0.09)
Within R-squared	0.71	0.71	0.71	0.71
Observations	3232	3232	3283	3283
Country-currency pairs	311	311	306	306

Note: The table reports results from pooled economy-invoicing currency panel regressions in which the dependent variable is $s_{e,c,t}$, i.e., the share of exporter e's exports invoiced in currency c in period t. To save space, all coefficient estimates except for those involving geopolitical distance to the invoicing currency issuer are not reported. In contrast to Table B.6, the regressions underlying the results reported in the table are run with heterogeneous coefficients for the trade shares with the invoicing currency issuer and its currency block, bilateral exchange rates and commodity/oil export shares for each invoicing currency.

Table B.8: Correlation between US dollar invoicing shares and commodity export shares for US non-aligned countries post-2021

	(1)	(2)	(3)
Commodity trade share	0.09***	0.10***	0.10***
	(0.00)	(0.00)	(0.00)
Commodity trade share × least-aligned × post-2021	-0.04	-0.04	-0.03
	(0.11)	(0.14)	(0.15)
Trade to GDP		-0.03	-0.03
		(0.14)	(0.14)
Standard controls	✓	✓	✓
Full set of interactions	✓	✓	✓
Year FEs	✓	✓	✓
Year × Least-aligned FEs	-	✓	✓
Within R-squared	0.65	0.66	0.65
Observations	1298	1274	1257
Countries	114	109	107

Note: Column (3) excludes Belarus and Russia relative to column (2).

Table B.9: Invoicing currency data overview

Country	Code	Currencies	Earliest datapoint	Latest datapoint	Type	Source
Africa						
Algeria	DZA	USD, EUR	2001	2010	Invoicing	Customs Authority
Angola	AGO	USD, EUR, CNY, Home	2015	2019	Invoicing	National Bank of Angola
Benin	BEN	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Botswana	BWA	USD, EUR, CNY, Home	2003	2023	Invoicing	Statistics Botswana
Burkina Faso	BFA	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Burundi	BDI	USD, EUR, CNY, Home	2020	2023	Invoicing	Banque de la Republique de Burundi
Cameroon	CMR	USD, EUR, CNY	2021	2023	Invoicing	National Institute of Statistics of Cameroon
Cote D'Ivoire	CIV	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Democratic Republic of Congo	COD	USD, EUR, CNY	2014	2019	Invoicing	Banque Centrale du Congo
Egypt	EGY	USD, EUR, CNY, Home	2010	2023	Settlement	Central Bank of Egypt
Eswatini	SWZ	USD, EUR, CNY, Home	2016	2023	Settlement	Central Bank of Eswatini
Gambia	GMB	USD, EUR, CNY, Home	2012	2016	Invoicing	Central Bank of the Gambia, Gambia Revenue Authority
Ghana	GHA	USD, EUR, CNY, Home	2017	2019	Settlement	Bank of Ghana
Guinea Bissau	GNB	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Kenya	KEN	USD, EUR, CNY, Home	2013	2023	Invoicing	Kenya Revenue Authority
Liberia	LBR	USD, EUR, CNY, Home	2000	2023	Invoicing	Central Bank of Liberia
Madagaskar	MDG	USD, EUR, CNY, Home	2015	2023	Invoicing	Central Bank of Madagascar
Malawi	MWI	USD, EUR, Home	2008	2019	Settlement	Reserve Bank of Malawi
Mali	MLI	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Mauritius	MUS	USD, EUR, CNY	2009	2023	Invoicing	Bank of Mauritius
Morocco	MAR	USD, EUR, CNY, Home	2003	2023	Invoicing	Office des Changes
Mozambique	MOZ	USD, EUR, CNY, Home	2011	2023	Invoicing	Banco de Mocambique
Namibia	NAM	USD, EUR, CNY	2017	2023	Invoicing	Bank of Namibia
Niger	NER	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union

Table B.9: Invoicing currency data overview (continued)

Country	Code	Currencies	Earliest datapoint	Latest datapoint	Type	Source
Republic Congo	COG	USD, EUR, Home	2017	2023	Invoicing	Institut National de la Statistique
Rwanda	RWA	USD, EUR, CNY, Home	2019	2023	Invoicing	National Bank of Rwanda, Rwanda Customs
Sao Tome	STP	USD, EUR, CNY, Home	2016	2023	Invoicing	Banco Central de S. Tome e Principe
Senegal	SEN	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Seychelles	SYC	USD, EUR, CNY	2015	2023	Settlement	Central Bank of Seychelles
Sierra Leone	SLE	USD, EUR, CNY, Home	2016	2023	Invoicing	Statistics Sierra Leone
South Africa	ZAF	USD, EUR, CNY, Home	2003	2024	Invoicing	South African Revenue Services, South Africa Treasury
Tanzania	TZA	USD, EUR, CNY, Home	2015	2019	Invoicing	Bank of Tanzania
Togo	TGO	USD, EUR	2018	2023	Invoicing	Central Bank of West African Currency Union
Tunisia	TUN	USD, EUR, CNY	1995	2024	Invoicing	Central Bank of Tunisia
Uganda	UGA	USD, EUR	2016	2023	Invoicing	Uganda Revenue Authority
Zambia	ZMB	USD, EUR, CNY, Home	2002	2023	Invoicing	Zambia Statistics Agency
Zimbabwe	ZWE	USD, EUR, CNY, Home	2009	2023	Invoicing	Reserve Bank of Zimbabwe
Asia & Oceania						
Australia	AUS	USD, EUR, CNY, Home	1997	2023	Invoicing	Australian Bureau of Statistics
Bangladesh	BGD	USD, EUR, CNY	2014	2023	Settlement	Bangladesh Bank
Brunei Darussalam	BRN	USD, EUR, CNY, Home	2021	2023	Invoicing	Ministry of Finance and Ecnomy
Cambodia	KHM	USD, EUR, CNY, Home	2015	2023	Settlement	National Bank of Cambodia
Fiji	FJI	USD, EUR, CNY, Home	2016	2023	Invoicing	Fiji Revenue and Customs Services
India	IND	USD, EUR, Home	1991	2014	Invoicing	Reserve Bank of India
Indonesia	IDN	USD, EUR, CNY, Home	1991	2023	Invoicing	Bank of Indonesia
Japan	JPN	USD, EUR, CNY, Home	1990	2023	Invoicing	Japan Customs
South Korea	KOR	USD, EUR, CNY, Home	1990	2023	Settlement	Statistics Korea
Macao	MAC	USD, EUR, CNY, Home	2000	2023	Invoicing	Monetary Authoriy of Macao
Malaysia	MYS	USD, EUR, CNY, Home	1995	2023	Settlement	Bank Negara Malaysia
Maledives	MDV	USD, EUR, CNY, Home	2017	2024	Invoicing	Maledives Customs Services

Table B.9: Invoicing currency data overview (continued)

Country	Code	Currencies	Earliest datapoint	Latest datapoint	Type	Source
Mongolia	MNG	USD, EUR, CNY, Home	2006	2023	Invoicing	Central Bank of Mongolia
Nepal	NPL	USD, EUR, CNY	2015	2023	Invoicing	Nepal Rstra Bank
New Zealand	NZL	USD, EUR, CNY, Home	2003	2023	Invoicing	Stats NZ
Pakistan	PAK	USD, EUR	2001	2003	Invoicing	State Bank of Pakistan
Papua New Guinea	PNG	USD, EUR, CNY, Home	2019	2024	Invoicing	Papua New Guinea Customs Service
Philippines	PHL	USD, EUR, CNY, Home	2014	2023	Settlement	Bangko Sentral ng Pilipinas
Samoa	WSM	USD, EUR, CNY, Home	2016	2023	Invoicing	Samoa Bureau of Statistics
Solomon Islands	SLB	USD	2015	2023	Settlement	Central Bank of Solomon Islands
Taiwan	TWN	USD, EUR, CNY, Home	2016	2023	Invoicing	Taiwan Customs Administration
Thailand	THA	USD, EUR, CNY, Home	1989	2023	Invoicing	Bank of Thailand
Timor-Leste	TLS	USD, EUR, CNY, Home	2002	2023	Invoicing	Banco Central de Timor-Leste
Tonga	TON	USD, EUR, Home	2016	2024	Settlement	National Reserve Bank of Tonga
Europe & Eurasia						
Albania	ALB	USD, EUR, CNY, Home	2010	2023	Invoicing	Central Bank of Albania
Andorra	AND	USD, EUR, CNY	2019	2023	Invoicing	Govern d'Andorra, Departament d'Estadística
Armenia	ARM	USD, EUR, CNY, Home	2015	2023	Invoicing	Armenia State Revenue Committee
Austria	AUT	USD, EUR, CNY, Home	2006	2023	Invoicing	ECB, nat. authorities, Eurostat
Azerbaijan	AZE	USD, EUR, CNY, Home	2012	2023	Invoicing	Central Bank of Azerbaijan
Belarus	BLR	USD, EUR, CNY, Home	2015	2023	Invoicing/ Settlement	Eurasian Economic Commission, National Statistical Committee
Belgium	BEL	USD, EUR, CNY, Home	2000	2023	Invoicing	ECB, nat. authorities
Bosnia	BIH	USD, EUR, CNY, Home	2010	2023	Invoicing	Central Bank of Bosnia and Herzegovina
Bulgaria	BGR	USD, EUR, CNY	1999	2023	Invoicing	ECB, nat. authorities, Eurostat
Croatia	HRV	USD, EUR, CNY, Home	1998	2023	Invoicing	ECB, nat. authorities, Eurostat
Cyprus	CYP	USD, EUR, CNY, Home	2003	2023	Invoicing	ECB, nat. authorities, Eurostat
Czech Republic	CZE	USD, EUR, CNY	1999	2023	Invoicing	ECB, nat. authorities
Denmark	DNK	USD, EUR, CNY	1999	2022	Invoicing	ECB, nat. authorities, Eurostat

Table B.9: Invoicing currency data overview (continued)

Country	Code	Currencies	Earliest datapoint	Latest datapoint	Type	Source
Estonia	EST	USD, EUR, CNY, Home	1999	2023	Invoicing	ECB, nat. authorities, Eurostat
Finland	FIN	USD, EUR, CNY, Home	2006	2023	Invoicing	ECB, nat. authorities, Eurostat
France	FRA	USD, EUR, CNY, Home	1999	2023	Invoicing	ECB, nat. authorities
Georgia	GEO	USD, EUR, CNY, Home	2010	2023	Invoicing	National Bank Of Georgia
Germany	DEU	USD, EUR, CNY, Home	2002	2023	Invoicing	ECB, nat. authorities, Eurostat
Greece	GRC	USD, EUR, CNY, Home	2001	2023	Invoicing	ECB, nat. authorities
Hungary	HUN	USD, EUR, CNY	1992	2023	Invoicing	ECB, nat. authorities
Iceland	ISL	USD, EUR, CNY, Home	1988	2023	Invoicing	Statistics Iceland
Ireland	IRL	USD, EUR, CNY, Home	2006	2023	Invoicing	ECB, nat. authorities, Eurostat
Italy	ITA	USD, EUR, CNY, Home	2001	2023	settlement before 2010, invoicing after 2010	ECB, nat. authorities, Eurostat
Kazakhstan	KAZ	USD, EUR, CNY, Home	2013	2023	Settlement	Eurasian Economic Commission
Kosovo	UVK	USD, EUR, CNY	2013	2023	Invoicing	Central Bank of the Republic of Kosovo
Kyrgyzstan	KGZ	USD, EUR, CNY, Home	2013	2023	Settlement	Eurasian Economic Commission
Latvia	LVA	USD, EUR, CNY, Home	2000	2023	Invocing	ECB, nat. authorities
Lithuania	LTU	USD, EUR, CNY, Home	1996	2023	Invoicing	ECB, nat. authorities
Luxembourg	LUX	USD, EUR, CNY, Home	2002	2022	Invoicing	ECB, nat. authorities, Eurostat
Macedonia	MKD	USD, EUR, CNY, Home	1998	2023	Invoicing	Eurostat, State Statistical Office
Malta	MLT	USD, EUR, CNY, Home	2010	2023	Invoicing	Eurostat
Moldova	MDA	USD, EUR, CNY, Home	2016	2023	Invoicing	National Bank of Moldova
Montenegro	MNE	USD, EUR, CNY, Home	2010	2023	Settlement	Central Bank of Montenegro
Netherlands	NLD	USD, EUR, CNY, Home	1998	2023	Invoicing	ECB, nat. authorities, Eurostat
Norway	NOR	USD, EUR, CNY, Home	1999	2023	Invoicing	Statistics Norway
Poland	POL	USD, EUR, CNY, Home	1994	2023	Invoicing	ECB, nat. authorities, Eurostat
Portugal	PRT	USD, EUR, CNY, Home	2000	2023	Invoicing	ECB, nat. authorities
Romania	ROU	USD, EUR, CNY, Home	1999	2023	Invoicing	ECB, nat. authorities

Table B.9: Invoicing currency data overview (continued)

Country	Code	Currencies	Earliest datapoint	Latest datapoint	Type	Source
Russia	RUS	USD, EUR, CNY, Home	2008	2023	Settlement	Central Bank of Russia
Serbia	SRB	USD, EUR, CNY, Home	2002	2023	Invoicing	National Bank of Serbia
Slovakia	SVK	USD, EUR, CNY, Home	1999	2023	Invoicing	ECB, nat. authorities
Slovenia	SVN	USD, EUR, CNY, Home	2000	2023	Invoicing	ECB, nat. authorities, Eurostat
Spain	ESP	USD, EUR, CNY, Home	1998	2023	Invoicing	ECB, nat. authorities, Eurostat
Sweden	SWE	USD, EUR, CNY	2010	2023	Invoicing	ECB, nat. authorities
Switzerland	CHE	USD, EUR, Home	2012	2023	Invoicing	Federal Customs Administration
Turkey	TUR	USD, EUR, CNY, Home	1996	2024	Invoicing	Turkish Statistical Institute
Ukraine	UKR	USD, EUR, CNY, Home	2001	2023	Settlement	National Bank of Ukraine
United Kingdom	GBR	USD, EUR, CNY, Home	1999	2023	Invoicing	ECB, nat. authorities, Eurostat, HM Revenue & Customs
Uzbekistan	UZB	USD, EUR, CNY, Home	2018	2023	Invoicing	Central Bank of the Republic of Uzbekistan
Latin America						
Argentina	ARG	USD, EUR, CNY, Home	2010	2023	Invoicing	National Institute of Statistics and Census
Bahamas	BHS	USD, EUR, CNY, Home	2009	2023	Invoicing	Central Bank of the Bahamas
Belize	BLZ	USD, EUR, CNY, Home	2000	2023	Settlement	Central Bank of Belize
Brazil	BRA	USD, EUR, CNY, Home	1997	2023	Invoicing	Secretaria de Comércio Exterior
Chile	CHL	USD, EUR, CNY, Home	2002	2023	Invoicing	Chile Customs
Colombia	COL	USD, EUR, CNY, Home	2007	2023	Invoicing	Banco de la República
Costa Rica	CRI	USD, EUR, CNY, Home	2005	2023	Invoicing	Banco Central de Costa Rica
Curacao	CUW	USD, EUR, Home	2019	2023	Invoicing	Centrale Bank van Curaçao en Sint Maarten
Ecuador	ECU	USD, EUR, CNY, Home	2015	2023	Invoicing	Banco Central del Ecuador, National Customs Service of Ecuador
Guyana	GUY	USD, EUR, Home	2019	2019	Invoicing	Guyana Revenue Authority
Paraguay	PRY	USD, EUR, CNY, Home	2014	2024	Invoicing	Dirección General de Relaciones Institucionales e Internacionales de Gerencia Ejecutiva
Peru	PER	USD, EUR, CNY, Home	2009	2024	Inovicing	Banco Central de Reserva del Peru

Table B.9: Invoicing currency data overview (continued)

Country	Code	Currencies	Earliest datapoint	Latest datapoint	Type	Source
Sint Maarten	SXM	USD, EUR, Home	2019	2023	Invoicing	Centrale Bank van Curaçao en Sint Maarten
Suriname	SUR	USD, EUR, CNY, Home	2010	2023	Invoicing	Central Bank of Suriname
Uruguay	URY	USD, EUR, CNY, Home	2015	2023	Invoicing	Customs Authority of Uruguay
Middle East						
Bahrain	BHR	USD, EUR, CNY, Home	2019	2023	Invoicing	Information & eGovernment Authority
Israel	ISR	USD, EUR, CNY, Home	1999	2023	Invoicing	Israel Central Bureau of Statistics
Jordan	JOR	USD, EUR, CNY, Home	2018	2023	Invoicing	Jordan Customs
Kuwait	KWT	USD, EUR	1989	2023	Settlement	Central Bank of Kuwait
Saudi Arabia	SAU	USD, EUR, CNY, Home	2018	2023	Invoicing	General Authority for Statistics
North America						
Canada	CAN	USD, Home	2001	2001	Invoicing	Murray and Powell (2002)
United States	USA	USD, EUR, CNY, Home	2003	2023	Invoicing	Bureau of Labour Statistics

C Assessing the usefulness of China's trade settlement currency as proxy for invoicing currency

China's authorities have adopted several measures to promote the international use of the renminbi, specifically in trade settlement (see, e.g., Chowdhry 2024, von Beschwitz 2024, for detailed discussions). For example, the PBoC launched a pilot program to promote the use of the renminbi for trade settlement in 2009, initially restricted to five cities from Chinese mainland in addition to Hong Kong, Macau and ASEAN members, and expanded in 2012 to cover all firms and their external trade. Moreover, offshore markets in renminbi have been developed in major financial centers, such as Hong Kong, London, and Singapore, to support cross-border renminbi transactions. The PBoC has furthermore signed several swap agreements with foreign central banks to provide (backstop) liquidity in renminbi with the stated objective to facilitate trade settlements in renminbi (see People's Bank of China 2012, Bahaj & Reis forthcoming). The Shanghai Petroleum and Natural Gas Exchange was launched in 2018, and China has started to use renminbi to settle oil imports from several key producers. The Belt and Road Initiative further aims to encourage use of the renminbi in infrastructure projects and trade by participating countries.

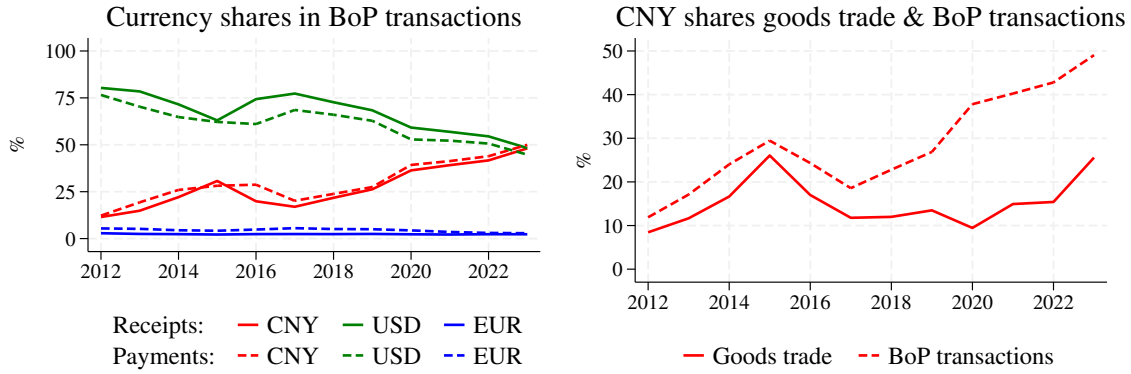
Testifying to the effectiveness of these policy initiatives, data from China's State Administration for Foreign Exchange (SAFE) reveal that the share of the country's balance of payments (BoP) receipts and payments settled in renminbi has risen strongly, reaching 50% in 2023, mostly at the expense of the US dollar, whose share declined from 90% to 50% (left panel in Figure C.1). At the same time, it is not clear whether the use of the renminbi for trade invoicing has increased to a similar extent as the currency of settlement need not coincide with the invoicing currency. Moreover, even if trade settlement currency may serve as a useful proxy for trade invoicing currency in some countries (as first shown for Sweden by Friberg & Wilander 2008), it is not clear that this applies to China, where policies have specifically promoted renminbi settlement (see also the discussion in Section 2). This uncertainty regarding the suitaiblity of settlement data as a proxy for invoicing currency was one of the reasons why China was not included in the dataset of Boz et al. (2022).

Our updated and expanded dataset allows us to shed more light on this question, though it cannot fully resolve it. In short: we compare the renminbi invoicing share for imports from China for all countries in our dataset, $s^{m,CNY}_{RoW,CHN}$, to China's renminbi exports settlement share, $\sigma^{x,CNY}_{CHN,RoW}$. The idea is that if China's export settlement currency share $\sigma^{x,CNY}_{CHN,RoW}$ is a useful proxy for its export invoicing currency share $s^{x,CNY}_{CHN,RoW}$ as $\sigma^{x,CNY}_{CHN,RoW} = s^{x,CNY}_{CHN,RoW}$, then we should also have $\sigma^{x,CNY}_{CHN,RoW} = s^{m,CNY}_{RoW,CHN}$.

Formally, denote China's renminbi (CNY) invoicing share in exports to the rest of the world as

$$s^{x,CNY}_{CHN,RoW} \equiv \frac{\sum_i X^{CNY}_{CHN,i}}{\sum_i X_{CHN,i}}, \tag{C.1}$$

Figure C.1: Evolution of the share of China's cross-border settlement currency



Note: The left panel shows the evolution of the shares of China's BoP transactions settled in renminbi (red solid/dashed), US dollar (green solid/dash), and euro (blue solid/dash). The data are obtained from SAFE. The right panel shows the evolution of the average renminbi settlement share in China's BoP payments and receipts (red dashed line), renminbi settlement share in China's goods exports and imports (solid red line). The settlement share data for China's trade are obtained from PBoC through CEIC.

and the rest of the world's renminbi (CNY) invoicing share in imports from China as

$$s^{m,CNY}_{RoW,CHN} \equiv \frac{\sum_i M^{CNY}_{i,CHN}}{\sum_i M_{i,CHN}}. \tag{C.2}$$

Under bilateral consistency $X^{CNY}_{CHN,i} = M^{CNY}_{i,CHN}$ and $X_{CHN,i} = M_{i,CHN}$, we have that $s^{m,CNY}_{RoW,CHN} = s^{x,CNY}_{CHN,RoW}$. Against this background, a necessary condition for China's renminbi export settlement share, $\sigma^{x,CNY}_{CHN,RoW}$, to be a useful proxy for its renminbi export invoicing share, $s^{x,CNY}_{CHN} = \sigma^{x,CNY}_{CHN}$, is that

$$\sigma^{x,CNY}_{CHN,RoW} = s^{m,CNY}_{RoW,CHN}. \tag{C.3}$$

In principle, we can check if Equation (C.3) is satisfied using data on renminbi settlement in China's exports ($\sigma^{x,CNY}_{CHN,RoW}$) from China's authorities and using data on renminbi import invoicing for China's trading partners in our dataset ($s^{m,CNY}_{RoW,CHN}$). Unfortunately, there are three practical complications that make this task difficult.

The first complication is that in our dataset we only have information on countries' *multilateral* imports invoiced in renminbi, $s^{m,CNY}_i$, and not information on renminbi invoiced *bilateral* imports from China, $M^{CNY}_{i,CHN}$, which is required to calculate $s^{m,CNY}_{RoW,CHN}$ in Equation (C.2) for Equation (C.3). To address this issue, we assume that renminbi invoicing only occurs in bilateral imports from China (see Chowdhry 2024, for evidence consistent with this based on French customs data), and hence to calculate $s^{m,CNY}_{RoW,CHN}$ in Equation (C.2) we can use $M^{CNY}_{i,CHN} = s^{m,CNY}_i M_i$. Note that this assumption stacks the deck in favor of China's settlement currency being a useful proxy, as it allocates the maximum possible amount of global renminbi import invoicing to imports from China.

The second complication is that in our dataset we do not have information on renminbi import

invoicing shares for *all* countries $i = 1, 2, \ldots, N$, and hence cannot calculate *global* renminbi-invoiced imports from China, $\sum_i M^{CNY}_{i,CHN}$, in Equation (C.2), which is required to calculate $s^{m,CNY}_{RoW,CHN}$ for Equation (C.3). This is either because some countries are not part of our dataset at all, or because for some country-year observations we have dollar but not renminbi invoicing information. As an alternative, we instead check under which *additional* assumption for renminbi-invoiced imports from China for those countries for which we do not have information in our dataset the condition in Equation (C.3) would hold, and then judge whether this additional assumption is plausible or not. Formally, denote the set of countries for which we have (do not have) renminbi import invoicing information in our dataset by $\mathcal{A}$ ($\mathcal{N}$). Then, Equation (C.2) can be rewritten as

$$\begin{aligned} s^{m,CNY}_{RoW,CHN} &= \frac{\sum_{i\in\mathcal{A}} M^{CNY}_{i,CHN}}{\sum_i M_{i,CHN}} + \frac{\sum_{i\in\mathcal{N}} M^{CNY}_{i,CHN}}{\sum_i M_{i,CHN}} \\ &= \frac{\sum_{i\in\mathcal{A}} M_{i,CHN}}{\sum_i M_{i,CHN}} \times \frac{\sum_{i\in\mathcal{A}} M^{CNY}_{i,CHN}}{\sum_{i\in\mathcal{A}} M_{i,CHN}} + \frac{\sum_{i\in\mathcal{N}} M_{i,CHN}}{\sum_i M_{i,CHN}} \times \frac{\sum_{i\in\mathcal{N}} M^{CNY}_{i,CHN}}{\sum_{i\in\mathcal{N}} M_{i,CHN}} \\ &= \omega^m_{CHN,\mathcal{A}} \times s^{m,CNY}_{\mathcal{A},CHN} + \omega^m_{CHN,\mathcal{N}} \times s^{m,CNY}_{\mathcal{N},CHN}. \end{aligned} \tag{C.4}$$

If China's renminbi export settlement share $\sigma^{x,CNY}_{CHN,RoW}$ is a useful proxy for its renminbi exports invoicing share $s^{x,CNY}_{CHN,RoW}$ so that Equation (C.3) holds, then Equation (C.4) implies that the renminbi import invoicing share for those countries for which we do *not* have information is

$$s^{m,CNY}_{\mathcal{N},CHN} = \frac{\sigma^{x,CHN}_{CHN} - \omega^m_{CHN,\mathcal{A}} \times s^{m,CNY}_{\mathcal{A},CHN}}{\omega^m_{CHN,\mathcal{N}}}. \tag{C.5}$$

We calculate $s^{m,CNY}_{\mathcal{N},CHN}$ by plugging in data for the right-hand side of Equation (C.5), and try to gauge whether this implied value is plausible.

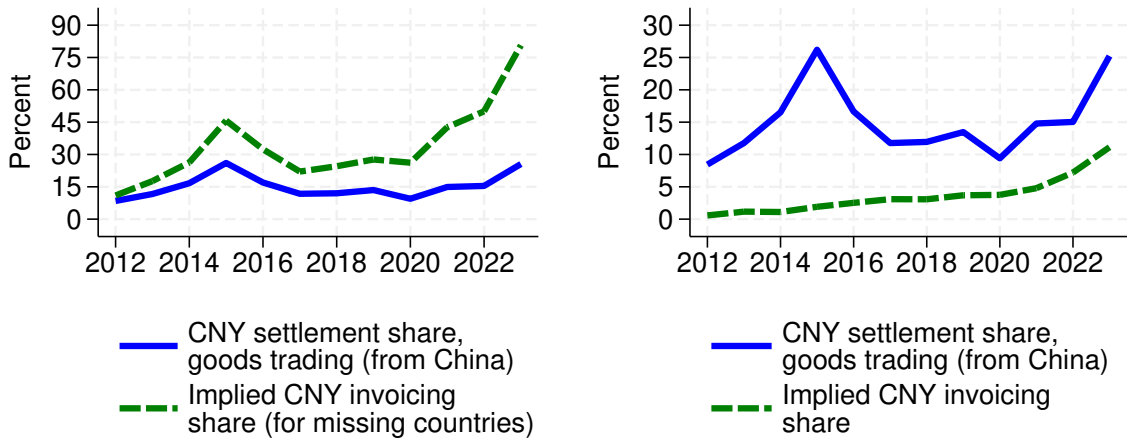
Unfortunately, there is a third practical complication. In particular, the SAFE data as depicted by the red solid line in the left panel in Figure C.1 indicates the share of renminbi in China's *total* BoP receipts including in the capital and financial accounts, rather than only goods export receipts. To the best of our knowledge, the only data available that reports renminbi settlement shares for goods trade is from PBoC (accessed through CEIC). However, this data is not available separately for imports (payments) and exports (receipts), but only for their sum. We thus have to do the calculations laid out above for the sum of imports and exports.

The intuition of our exercise can be illustrated with a simple back-of-the-envelope calculation for 2023: About 1.6% of total trade of the countries in our dataset are invoiced in renminbi, which amounts to about USD 464 billion. If China's trade settlement currency corresponded to trade invoicing currency, then USD 1,510 billion of China's trade would be invoiced in renminbi. This means that

USD 1,046 billion of trade of the countries that are not in our dataset must be invoiced in renminbi. This number seems implausibly large, as it would mean that $s^{m,CNY}_{\mathcal{N},CHN} = 81\%$ of these countries' trade, namely USD 1,744 billion of USD 2,163 billion, must be invoiced in renminbi. As a share of their trade with the world this would amount to 14%, which is much higher than the 1.6% for the trade of the countries in our dataset.

The green dashed line in the left panel in Figure C.2 presents the results for the implied renminbi import invoicing share for the countries and country-years not in our dataset, $s^{m,CNY}_{\mathcal{N},CHN}$ in Equation (C.5), for every year since 2010. If anything, implied import invoicing shares for the countries and country-years not in our dataset, $s^{m,CNY}_{\mathcal{N},CHN}$, become more implausible over time.

Figure C.2: Implied renminbi trade invoicing share for countries not in our dataset



Note: The solid blue lines depict the share of China's trade settled in renminbi according to PBoC data. In the left panel, the green dashed line depicts the implied import invoicing share for the countries and country-years not in our dataset, $s^{m,CNY}_{\mathcal{N},CHN}$, under the assumption that renminbi invoicing occurs only in bilateral trade with China. In the right panel, the green dashed line depicts the renminbi trade invoicing share for China under the assumptions that (i) all the countries not in our dataset invoice the same share of their trade in renminbi as the countries in our dataset and (ii) renminbi invoicing occurs only in bilateral trade with China. See Appendix C for details on the calculations.

A related exercise is to ask: What is the implied share of China's trade invoiced in renminbi if the countries not in our dataset invoiced the same share of their trade in renminbi as the countries in our dataset (again assuming renminbi invoicing only occurs in bilateral trade with China)? The right panel in Figure C.2 presents the answer to this question. For example, in 2023 China's implied renminbi trade invoicing share is 11%, which is much lower than the trade settlement share of 25% reported by the Chinese authorities. Overall, this exercise also suggests that China's implied renminbi trade share is likely to be noticeably smaller than the renminbi settlement share.

D Alternative measures of geopolitical distance

Table D.1: Panel regressions for export invoicing shares and alternative geopolitical distance measures controlling for commodity export shares

	USD					EUR					CNY				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Geopolitical distance	1.06					0.09					-0.08**				
	(0.15)					(0.85)					(0.02)				
US troops presence		-0.38					-0.18					-0.05			
		(0.15)					(0.48)					(0.16)			
Gallup net approval			-0.61					-0.10					0.09		
			(0.35)					(0.85)					(0.14)		
International power				-77.40					60.21					-7.36	
				(0.55)					(0.40)					(0.15)	
Geopolitical distance (PCA)					-0.70					0.53**					-0.09***
					(0.12)					(0.04)					(0.00)
Geopolitical distance × post-2021	-0.12					-0.44*					-0.05				
	(0.68)					(0.06)					(0.14)				
US troops presence × post-2021		0.95*					-0.83**					-0.06***			
		(0.06)					(0.04)					(0.00)			
Gallup net approval × post-2021			0.81					-1.60***					0.10**		
			(0.41)					(0.01)					(0.03)		
International power × post-2021				-0.81					13.18					14.25***	
				(0.99)					(0.66)					(0.01)	
Geopolitical distance (PCA) × post-2021					-0.40					-0.13					-0.05**
					(0.15)					(0.63)					(0.03)
Standard controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.65	0.54	0.51	0.51	0.77	0.77	0.64	0.53	0.52	0.83	0.80	0.83	0.83	0.86
Observations	1278	1298	981	745	605	1284	1322	961	749	589	696	724	578	499	381
Countries	113	114	96	85	69	111	113	96	84	69	89	91	78	67	53
p-value full effect	0.13	0.34	0.87	0.59	0.07	0.52	0.01	0.06	0.32	0.35	0.01	0.02	0.02	0.21	0.00

Note: The last line of the table "p-value full effect" reports the p-values for the overall effects.

Table D.2: Panel regressions for export invoicing shares and alternative geopolitical distance measures controlling for oil export shares

	USD					EUR					CNY				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Geopolitical distance	-0.51					-0.28					-0.05				
	(0.54)					(0.62)					(0.23)				
US troops presence		-0.71**					0.09					-0.00			
		(0.01)					(0.68)					(0.92)			
Gallup net approval			-0.38					-0.39					0.02		
			(0.57)					(0.37)					(0.86)		
International power				-34.72					-15.58					15.79*	
				(0.79)					(0.87)					(0.10)	
Geopolitical distance (PCA) × post-2021					-0.29					-0.23					-0.03***
					(0.22)					(0.29)					(0.01)
Geopolitical distance × post-2021	-0.36*					-0.77***					-0.03				
	(0.09)					(0.00)					(0.11)				
US troops presence × post-2021		1.48***					-0.71*					-0.05***			
		(0.00)					(0.05)					(0.00)			
Gallup net approval × post-2021			1.41					-0.98*					0.09		
			(0.15)					(0.06)					(0.11)		
International power × post-2021				69.45*					-9.40					4.67*	
				(0.06)					(0.67)					(0.08)	
Geopolitical distance (PCA)					-0.71					0.48**					-0.05*
					(0.15)					(0.01)					(0.08)
Standard controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.65	0.65	0.56	0.53	0.53	0.78	0.78	0.65	0.56	0.54	0.96	0.96	0.96	0.97	0.97
Observations	1307	1307	1001	758	624	1303	1321	982	752	609	704	712	587	491	390
Countries	111	111	95	82	68	110	111	96	82	69	88	89	78	65	53
p-value full effect	0.34	0.01	0.38	0.80	0.07	0.08	0.06	0.08	0.78	0.38	0.04	0.03	0.08	0.01	0.00

Note: The last line of the table "p-value full effect" reports the p-values for the overall effects.

E Correlates of CNY invoicing

Table E.1: Adding China policies: Export invoicing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-2021 dummy	-0.37**	-0.38*	-0.37**	-0.40**	-0.24**	-0.34**	-0.14	-0.36**
	(0.04)	(0.06)	(0.05)	(0.02)	(0.03)	(0.05)	(0.37)	(0.04)
Swap line with PBoC		0.02					-0.03*	
		(0.48)					(0.09)	
$\times\mathcal{I}(t > 2021)$		-0.01					-0.03	
		(0.81)					(0.62)	
RMB clearing bank			0.05*				0.07	
			(0.09)				(0.30)	
$\times\mathcal{I}(t > 2021)$			-0.02				-0.14***	
			(0.63)				(0.01)	
FTA with China enforced				-0.07			-0.09*	
				(0.14)			(0.06)	
$\times\mathcal{I}(t > 2021)$				0.10			0.12*	
				(0.11)			(0.08)	
Infrastructure investment from China					-0.00***		-0.01***	
					(0.00)		(0.00)	
$\times\mathcal{I}(t > 2021)$					0.00*		0.00**	
					(0.05)		(0.02)	
RQFII participant						0.07***	0.01	
						(0.01)	(0.92)	
$\times\mathcal{I}(t > 2021)$						0.02	0.18***	
						(0.62)	(0.00)	
China policies principal component								0.01
								(0.12)
$\times\mathcal{I}(t > 2021)$								0.00
								(0.81)
Standard controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Observations	712	712	712	712	712	712	712	712
Countries	89	89	89	89	89	89	89	89

Note: The last line of the table "p-value full effect" reports the p-values for the overall effects.

Table E.2: Adding China policies: Import invoicing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\mathcal{I}(t > 2021)$	-0.02	-0.02	-0.03	-0.05	-0.02	-0.05	-0.06*	-0.04
	(0.57)	(0.50)	(0.25)	(0.14)	(0.65)	(0.11)	(0.07)	(0.12)
Swap line with PBoC		-0.02					-0.05	
		(0.51)					(0.19)	
$\times\mathcal{I}(t > 2021)$		0.02					-0.01	
		(0.65)					(0.73)	
RMB clearing bank			0.03				-0.01	
			(0.15)				(0.67)	
$\times\mathcal{I}(t > 2021)$			-0.00				-0.09*	
			(0.85)				(0.07)	
FTA with China enforced				-0.06			-0.07	
				(0.17)			(0.10)	
$\times\mathcal{I}(t > 2021)$				0.22**			0.23***	
				(0.01)			(0.01)	
Infrastructure investment from China					0.00		0.00	
					(0.73)		(0.94)	
$\times\mathcal{I}(t > 2021)$					-0.00		0.00	
					(0.53)		(0.94)	
RQFII participant						0.05*	0.09**	
						(0.06)	(0.02)	
$\times\mathcal{I}(t > 2021)$						0.01	0.08*	
						(0.60)	(0.09)	
China policies principal component								0.00
								(0.42)
$\times\mathcal{I}(t > 2021)$								0.01
								(0.31)
Standard controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓
Within R-squared	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Observations	793	793	793	793	793	793	793	793
Countries	92	92	92	92	92	92	92	92

Note: The last line of the table "p-value full effect" reports the p-values for the overall effects.