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Abstract

In recent years, major exporting economies experienced rising geopolitical risk. From the perspective of the US and the euro area, we employ detailed product data panels to study the consequences of trading-partner geopolitical risk shocks on bilateral imports. We find that these shocks lower import volumes and raise import prices. The decline in imports is stronger when the shocks hit countries that exhibit greater geopolitical distance to the US and the euro area, or when geopolitical risk shocks hit countries that are under US sanctions. Thus, increasing geopolitical risk triggers dynamics that are conducive to a fragmentation of global trade. A case in point are large effects for geopolitical risk shocks originating in China. We find that US and euro area imports from non-Chinese trading partners are also affected by such shocks, which also owes to US dollar and global oil price movements as well as trading-partner value chain linkages with China.

Keywords: Geopolitical risk, imports, United States, euro area.
JEL-Classification: F14, F41, F61, F62.

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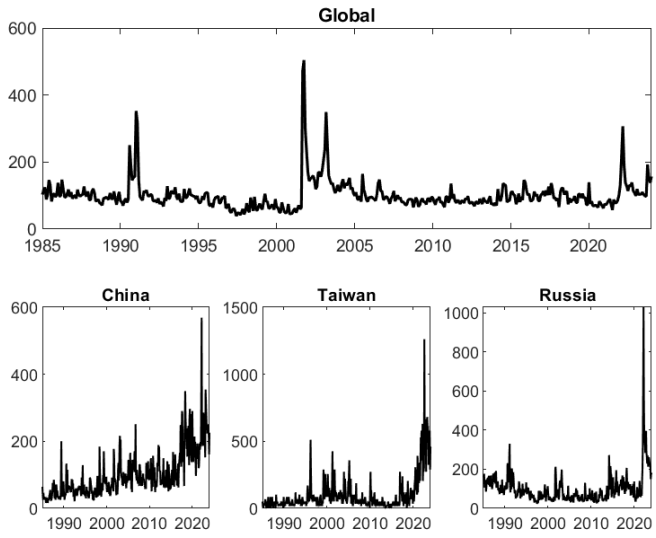
1 Introduction

In recent years, geopolitical tensions and associated risks have risen around the world. According to the news article-based measure by Caldara and Iacoviello (2022),[1] global geopolitical risk (GPR) surged after the Russian invasion of Ukraine (see Fig. 1, upper panel). At that time, the country-specific GPR indices spiked particularly strongly for Russia and its neighbouring countries. Moreover, in recent years GPR indices rose sharply in China and Taiwan (see Fig. 1, lower panels) due to the geopolitical rivalry between the US and China and mounting tensions around the political status of Taiwan. As some of these countries are key exporters in the global trade and production network, the question arises to which extent rising geopolitical tensions disrupt trade flows. The literature suggests that global and country-specific GPR shocks play a large role for domestic macroeconomic outcomes (see, amongst others, Caldara and Iacoviello 2022 and Caldara, Conlisk, Iacoviello, and Penn 2024). Yet little is known about the role of international trade as a potential key spillover channel in the transmission of such shocks.

Figure 1: Geopolitical Risk Index for selected regions



y-axis: Index points, 1985-2024=100, monthly data. Sources: Caldara and Iacoviello (2022) and Haver Analytics. Indices are based on the share of articles in major US and British newspapers that simultaneously mention geopolitical risks together with the name of the country.

In this paper, we use detailed customs data in a panel spanning 20 years to investigate the role of the import channel for the transmission of GPR shocks in trading partner countries. We examine this from the perspective of the US and the euro area, in particular, and study the effects on import volumes and import prices in response to shocks to

[1]The measure reports the ratio of articles that mention events associated to geopolitical risks to the total number of articles published in ten leading US and British newspapers. It is driven by both threats and realisations of adverse geopolitical events. Country-specific indices are available for 44 countries.

trading-partner GPR.

A priori, the trade spillovers from GPR shocks abroad are not clear. Insofar as they reflect conflicts or wars that disrupt production and trade routes, they act as negative supply shocks, lowering import volumes and raising import prices. A qualitatively similar effect on trade flows may arise, if GPR predominantly affects trade via rising risk premiums on trade finance or freight insurance. On the other hand, the threat of future disruptions to trade links with geopolitically risky trading partners may prompt firms in the US and the euro area to sever their ties to these countries, reducing demand for their goods and thus lowering both the volume and prices of imports. Even a short-run increase in demand for goods from trading partners that are hit by a GPR shock is possible, as firms in the US and euro area may want to increase their precautionary inventory of vital goods from these countries. Ex ante, it is also unclear how trade related to global value chains (GVCs) is affected by trading-partner GPR shocks and whether trading-partner GPR shocks have the same impact on US and euro area imports.

To explore the effects of trading-partner GPR shocks, we identify GPR shocks for US and euro area trading partners based on the country-specific measures of Caldara and Iacoviello (2022). Using local projections, we estimate the effect of these shocks on import volumes and prices (based on unit values) in a detailed panel of product-level data of bilateral import flows in the US and the euro area from 1990Q1 to 2019Q4.

Importantly, we identify the import channel for the transmission of GPR shocks by exploiting the cross-country dimension of our data set and focusing on the effects of trading-partner-specific GPR shocks. In addition, we shut off common factors that affect all imported products from all trading partners by including time-fixed effects in our regressions. This prevents our results from being driven by other developments that may affect the US or the euro area economy and alter their import flows. For instance, a global surge in GPR may change sentiment and uncertainty that affect the world economy as a whole (see, e.g., Caldara et al., 2024).

Our results indicate that in both regions (US and euro area), trading-partner GPR shocks act as import supply shocks. A shock that raises the GPR index of a US-trading-partner by roughly one standard deviation (50%) decreases US imports from this country by about 0.3% on average. At the same time, US import prices rise by around 0.15%. The effect of a GPR shock on US imports recedes after six quarters. For the euro area, the findings are of a similar magnitude. Overall, our results indicate that GPR shocks are quantitatively important.

Investigating the mechanisms that shape the transmission of GPR shocks, we find that imports from geopolitically distant countries are particularly sensitive to GPR shocks. Export volumes to the US and the euro area drop markedly in these cases. This finding suggests that rising trading-partner GPR supports the fragmentation of global trade along geopolitical lines. This also concerns the fragmentation of global supply chains

as we find that trading-partner GPR shocks reduce GVC-related trade by more than non-GVC trade. This indicates that GPR shocks support a shortening of bilateral value chains.

Another factor that amplifies the effects of GPR shocks is the US sanction regime. We find that GPR shocks have larger effects on US import volumes when they hit a country at a time in which it is under US import sanctions. Interestingly, euro area import volumes are also depressed to a stronger degree if trading-partner GPR shocks are associated with US sanctions. This may be because US sanctions are often followed by EU sanctions or pose a legal risk for companies that are not based in the US. Also, many companies are connected to the US through production networks.[2] Interestingly, the effects of trading-partner GPR shocks are comparatively small when the GPR shock hits in a period in which the trading-partner country is not under US sanctions. This suggests that derisking of firms without any policy intervention seems to play a limited role in the data.

Notably, euro area import prices (in euro) rise more than US import prices (in USD) in response to a GPR shock when the affected country is geopolitically distant or subject to US sanctions. The divergence of price responses on both sides of the Atlantic is likely the consequence of an appreciation of the US dollar in response to GPR shocks as euro area trade in these cases is largely invoiced in USD.

A case in point are large effects for geopolitical risk shocks in China. In particular, when GPR shocks hit China, the volumes of US and euro area imports from China drop markedly and to a much larger degree than in the average response to GPR shocks in the sample. Again, import prices in the euro area increase markedly, whereas US import prices do not show greater sensitivity to Chinese GPR shocks than to GPR shocks in other trading-partner countries.

We also study how US and euro area imports from non-Chinese trading partners are affected by Chinese GPR shocks and find that the USD exchange rate, global oil prices and non-Chinese trading-partner GVC linkages with China play an important role.

Related literature: This paper contributes to at least four strands of the literature. First, it adds to the nascent literature on the fragility of the global trade system. After decades of deepening trade intensity, globalisation slowed down in the 2010s.[3] The trade war between the US and China, triggered a wave of papers investigating the consequences of trade disputes and disruptions (see, e.g. Fajgelbaum, Goldberg, Kennedy, and Khandelwal, 2019; Fajgelbaum and Khandelwal, 2022; Flaaen and Pierce, 2019). In that context, Caldara, Iacoviello, Molligo, Prestipino, and Raffo (2020) document the

[2] As our sample has only few country-year observations with European sanctions, we limit our analysis to the US sanctions regime.

[3] Antràs (2021) argues that main drivers of the previous globalisation spur ran out of steam in the 2010s.

importance of trade policy uncertainty on the participation of firms in the export market.[4] Khalil and Strobel (2024) show that the rise in trade policy uncertainty caused the USD to appreciate probably owing to safe-haven flights into USD assets, acting for the US as a shock absorber in the case of trade tensions. The paper at hand contributes to this literature by demonstrating that geopolitical risk imposes a trade cost that lowers import volumes and raises import prices from affected countries. Thus, the trend towards deglobalisation from 2010 onward is not solely driven by new trade barriers and trade policy uncertainty. Our results suggest that rising geopolitical tensions have also contributed to the decline in international trade.

Second, this paper contributes to the literature on international trade and supply chain disruptions. The COVID-19 pandemic highlighted the dependence of US and EU industries on foreign intermediate inputs and the fragility of these supply chain linkages. Several papers document the adverse effect of production plant lockdowns in China on its exports to advanced economies and the reduction of industry production in sectors with elevated dependency on Chinese intermediate goods in these countries (see, e.g., Khalil and Weber, 2022; Kilian, Nomikos, and Zhou, 2023; Meier and Pinto, 2024). Similar to the effect of Chinese lockdowns, our results suggest that geopolitical risk shocks in China trigger sizable reductions of import flows in advanced economies.

Third, the paper adds to the debate on re-shoring (or friend-shoring) and strategic autonomy. Calls for re-shoring or friend-shoring of production and for bolstering strategic autonomy grew louder among policymakers against the background of trade disruptions during the pandemic and with geopolitical tensions rising.[5] A particular focus of these arguments are the rising tensions between China and neighbouring countries such as Taiwan and the Philippines. The Russian war against Ukraine and the consequent western sanctions on Russian trade further sparked calls for a decoupling from geopolitically distant countries. Some papers measure whether trade fragmentation is actually taking place. Fernández-Villaverde, Mineyama, and Song (2024) construct a trade fragmentation index (based on a bundle of uncertainty and risk indicators, trade measures, conflicts, trade openness, FDI, etc.) and argue that geoeconomic fragmentation is already well underway. By contrast, Blanga-Gubbay and Rubínová (2023) do not yet detect a significant fragmentation of trade along geopolitical lines in customs data. Gopinath, Gourinchas, Presbitero, and Topalova (2024) find signs of a moderate trade fragmentation in geopolitical blocs (East and West, based on UN voting patterns) after Russia invaded Ukraine. Beyond descriptive statistics, several studies using gravity models find that geopoliti-

[4]Whereas trade policy and geopolitical risk may appear jointly in an environment of ongoing trade fragmentation, the news-based measures of global trade policy uncertainty and global geopolitical risk do not display a high correlation. This helps us to identify the effect of GPR separately from the effect of trade policy uncertainty.

[5]Janet Yellen announced in a speech at the Atlantic Council (13.April 2022) that friend-shoring would be integral to US trade strategy. In the European Union, similar debates are taking place under the umbrella of Open Strategic Autonomy. For a critical evaluation of this EU policy, see ECB (2023).

cal distance dampens predicted bilateral trade (see, e.g., Blanga-Gubbay and Rubínová, 2023; Niemann, 2023; Gopinath et al., 2024; ECB, 2024). Our paper contributes to this strand of literature by analysing the effects of geopolitical risk shocks on trade flows. Importantly, instead of comparing steady states, we analyse dynamics induced by rising geopolitical risk that may eventually lead to more fragmented trade. We find that GPR shocks especially reduce US and euro area import volumes from geopolitical distant countries. Thus, we identify rising geopolitical risk as an exogenous source of increasing trade fragmentation.

Finally, this paper contributes to the literature analyzing the macroeconomic effects of geopolitical risk shocks. Our paper is not the first to gauge the economic effects of geopolitical risks relying on the news-based measure by Caldara and Iacoviello (2022). Caldara and Iacoviello (2022) show that adverse GPR shocks lower investment and labour input in the US, raise financial uncertainty and lower stock and oil prices. In addition, they find that an increase in country-specific GPR predicts lower GDP and TFP growth as well as higher military spending. Wang, Wu, and Xu (2023) confirm the drop in investment in response to GPR shocks using firm-level data. Caldara et al. (2024) find that both global GPR shocks and country-specific GPR shocks raise inflation. In addition, their results point toward a dampening effect of GPR on international trade. We complement their paper by investigating the effects of trading-partner GPR shocks in a detailed product data set, which allows us to distil the role of the trade channel. Whereas US GPR shocks have no significant effect on US trade in their VAR framework, we find that GPR shocks to US trading partners significantly lower US imports and raise bilateral import prices from the affected countries.

For the sake of completeness, we briefly cover other investigations of the effects of GPR shocks. Baur and Smales (2020) highlight the differences of the effects of GPR shocks from other measures of economic, financial and political risk. Krenz and Verma (2024) use bank-level data to document spillovers of GPR to systemic risk in the European financial system. As a caveat to this literature, Bondarenko, Lewis, Rottner, and Schüler (2024) raise the point that geopolitical risk perceptions differ from country to country. They construct a GPR index for Russia and show that whereas GPR shocks identified from English-language news sources do not have significant adverse effects on economic activity in Russia, GPR shocks derived from Russian-language news sources do.

In the remainder of the paper we proceed as follows: Section 2 describes our data and the econometric approach. Section 3 shows our baseline results covering the full sample of imports of the US and the euro area. In Section 4, we zero in onto the role of geopolitical distance, US sanctions and FDI, and discuss the implications of GPR shocks for GVC-related trade. In Section 5 we discuss the special case of trade with China. Moreover, we study the transmission of Chinese GPR shocks via non-Chinese trading partners. Section 6 concludes.

2 Data and empirical approach

Taking the perspective of the US and the euro area, we employ granular import data panels, for which we provide details in the following. We also discuss the identification of trading-partner GPR shocks and our baseline econometric specification building on local projections.

2.1 Product-country panels for US and euro area imports

We use US and euro area customs data on import volumes, and unit values, as provided by Trade Data Monitor.[6] The data are available from 1990Q1 onwards in the detailed product categories of the 6-digit Harmonized Systems Code (HS6). We aggregate the data to quarterly averages by HS6 and country. Because the HS6 codes are revised every five years by the World Customs Organization, a concordance of the HS6 codes over time is required. We follow Pierce and Schott (2009) in concording the data from 1990Q1 up to 2021Q4. The extensive 2022 revision makes concordances beyond 2021 infeasible. The method links all goods connected by revisions into one product group. The resulting data are thus consistent over the period (1990-2021), albeit at the cost of losing some information about single HS6 product imports. Throughout the paper, we further restrict our sample to 1990Q1 to 2019Q4, excluding the very volatile episode of the pandemic. We create a price measure for the newly created product groups stemming from Pierce and Schott (2009)'s concordance method, by creating value weighted unit values for each new group, country and time. We detrend the trade variables log-linearly to generate percentage point deviations from trend by country-product group. To ensure that outliers do not exercise an undue effect on our estimation results we winsorize all trade variables to three standard deviations from their mean by country-product group.

2.2 Identification of geopolitical risk shocks

The geopolitical risk shock measure used in this paper builds on the newspaper-based measure from Caldara and Iacoviello (2022). In detail, Caldara and Iacoviello (2022) construct a geopolitical risk measure by creating a ratio of articles that mention geopolitical tensions and events to the total number of articles published in ten leading English language newspapers.[7] We use their country-specific geopolitical risk (GPR) measures,

[6] The aggregate for the euro area reflects the current member country composition excluding Croatia, as Croatia was not member of the currency area during the sample period.

[7] Caldara and Iacoviello (2022) define geopolitical risk as "the threat, realization, and escalation of adverse events with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations."

which are available for 44 countries and territories.[8]

To identify country-specific GPR shocks, we compute the first differences of the log of the country-specific indices. The GPR indices are by construction unrelated to economic news and developments. Thus, this simple transformation suffices to create orthogonal innovations.[9]

2.3 Econometric baseline specification

We use the local projection method à la Jordà (2005) to estimate the average response of country-specific geopolitical risk shocks. In particular, we estimate at every horizon h the following panel local projection regression:

$$X_{c,i,t+h} = \delta^{t+h} + \delta_{c,i} + \beta_0^{t+h} GPR_{c,t} + \sum_{j=1}^{4} (\beta_j^{t+h} GPR_{c,t-j} + \gamma_j^{t+h} X_{c,i,t-j}) + \epsilon_{c,i}^{t+h}$$

$$h \in \{0, ..., 12\}, \quad (1)$$

where $X_{c,i,t+h}$ is either the volume or the price (unit value) of good i imported from country c at time horizon $t+h$, δ^{t+h} are time-fixed effects and $\delta_{c,i}$ is a product-country-specific fixed effect. $GPR_{c,t}$ is the country-specific geopolitical risk shock at time t. The regression coefficients β_0^{t+h} measure the effect of the GPR shock in t at projection horizon h. We control for four lags of the GPR shock and of the dependent variable. We employ clustered standard errors, which relax the requirement that observations be independent within product classes or within source countries.[10]

Merging the data for country-specific GPR indices with import data for country-product groups and dropping any country-product-group with fewer than 10 observations gives us 6.6 million observations across 102,818 country-product groups, for an average of 64.1 quarters worth of observations per group in US import data. Our country-product-groups thus span on average a little over half the time horizon from 1990Q1 to 2019Q4. The euro area import data contain just under 12 million observations across 232,916

[8] Argentina, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Denmark, Egypt, Finland, France, Germany, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, Norway, Peru, Philippines, Poland, Portugal, Russia, Saudi Arabia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, UK, Ukraine, USA, Venezuela, Vietnam.

[9] We also conduct our analysis using an alternative GPR shock measure. To construct it, we regressed the country-specific GPR indices on country-specific economic policy uncertainty indices downloaded from policyuncertainty.com, measures of macroeconomic and financial uncertainty (Jurado, Ludvigson, and Ng 2015 and Ludvigson, Ma, and Ng 2021) as well as country-specific World Uncertainty Indices and World Trade Uncertainty Indices from Ahir, Bloom, and Furceri (2022). We then use the first difference of the fitted residual of this regression as the GPR shock. Since this alternative shock measure is highly correlated with our baseline shock measure, the differences in the results are negligible. This strengthens our argument that our baseline GPR shocks are exogenous to economic developments.

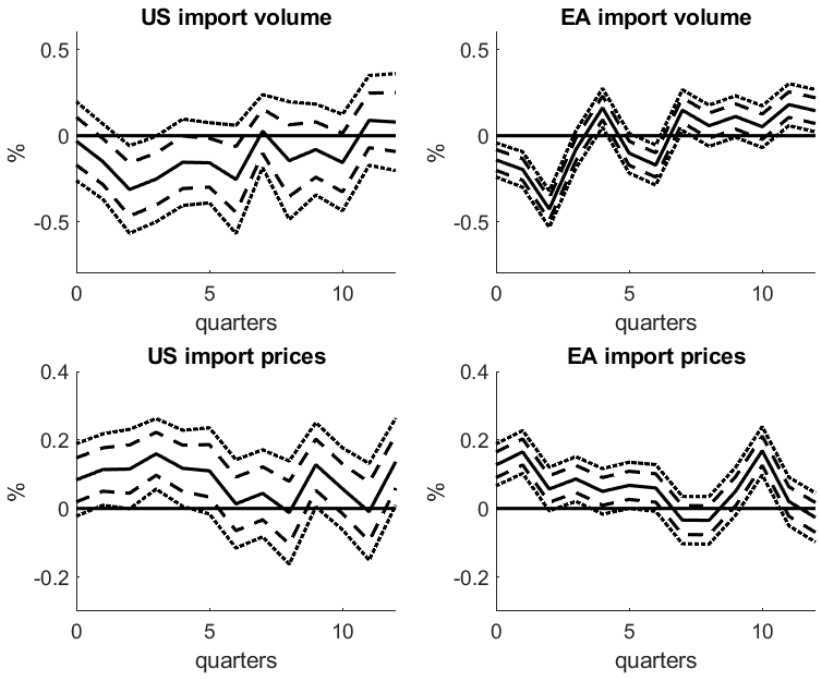
[10] Throughout the paper, we employ this clustering in all regressions that are estimated on product-level data.

country-product-groups after dropping those groups with fewer than 10 observations. Thus, we observe the average group for 51.5 quarters, or just under half of our estimation horizon of 1990Q1 to 2019Q4.

3 Import dynamics in response to geopolitical risk shocks

We find that, for both the US and the euro area, trading-partner GPR shocks act like supply shocks on average. For the US, a positive shock to a trading-partner's GPR index by 50% (which roughly corresponds to one standard deviation) decreases US imports from this country by up to 0.3% (Fig. 2). The average price of these imports increases by around 0.15%. After one and a half years, the effect of a trading-partner GPR shock on US imports from the affected trading partner fades out. For the euro area, the findings are similar. Import volumes decrease in the short run by up to 0.5% and import prices rise by roughly 0.15%. The effects are slightly less persistent for the euro area than for the US. Overall, these results indicate that GPR shocks matter quantitatively and that in isolation, the import channel of the transmission of GPR shocks affects the US and the euro area fairly similarly.

Figure 2: Average effect of trading-partner geopolitical risk shock on import volumes and prices in the US and the EA



Note: y-axis in %. Confidence intervals at the 68% level and the 90% level. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and trading partners with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Sample period: 1990Q1-2019Q4.

These findings imply that, if importers reduce demand from geopolitically risky countries at all, this reduction is not the dominant force driving the average response of imports. Instead, the increase of bilateral import prices suggests that — at least in the short run — importing firms lower import volumes as they are confronted with higher prices from imports from this country triggered by an increase in the geopolitical risk of this country. If the trading partner is involved in an internal or external conflict, this cost could come in the form of disruption of production or transport routes. The increase in import prices may also be related to rising risk premiums to trade finance or freight insurance.

4 What drives the transmission of GPR shocks

We will now dig deeper into driving forces and regional discrepancies that shape GPR shock spillovers: First, we show that the political distance of the affected trading partner from the US and the euro area amplifies the effect of GPR shocks. In this exercise, we show that bilateral cross-border value chains are shortened in response to GPR shocks as GVC trade is particularly affected. Second, we show that US and euro area imports are particularly sensitive to GPR shocks when this shock is related to US sanctions imposed on the trading partner. Third, we study the extent to which stronger FDI linkages can cushion the effects of GPR shocks.

4.1 The role of geopolitical distance

To gauge the role of geopolitical distance for the effects of GPR shocks, we group countries into three geopolitical blocs: "East", "West", and "Neutral". The categorisation of geopolitical blocs uses the methodology by the Eurosystem's International Relation Committee's trade expert network (see ECB 2024 for related work). In this approach, 25th and 75th percentile thresholds in the index of economic and political alignment of den Besten, Di Casola, and Habib (2023) reflect the blocs' assignments. The index itself is based on four dimensions of political alignment: sanctions (imposed by the US or China or Russia), the share of military imports from the US relative to military imports from China/Russia, participation in China's Belt and Road initiative, and voting patterns at the March 2022 UN resolution regarding Russia's invasion of Ukraine. Classifications for countries not covered in den Besten et al. (2023) are based on data from Capital Economics on splitting the world into two competing blocs (US- and China-aligned).[11] Our analysis is restricted to countries for which a GPR index is available. As a result, the "West" bloc consists of European countries, the US, Canada, Australia, Japan and South Korea; "East" consists of China, Hong Kong, Russia and Venezuela. "Neutral"

[11] See, https://www.capitaleconomics.com/fracturing-dashboard

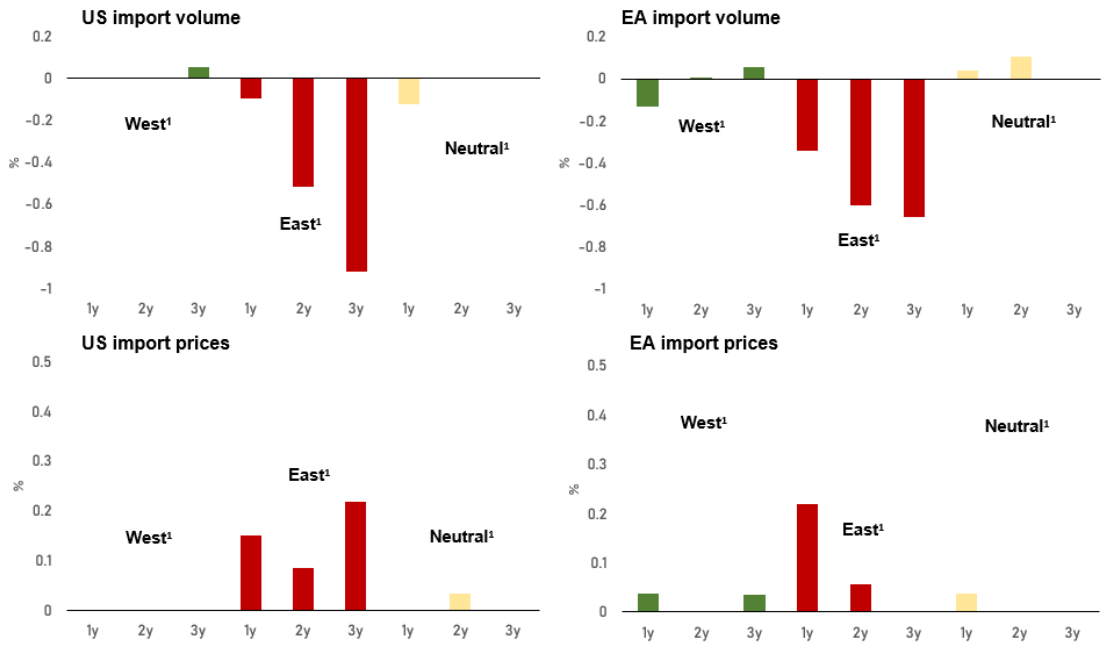
includes the remaining 16 emerging and low-income economies for which country-specific GPR indices are available.

To estimate the bloc-specific effect of trading-partner geopolitical risk, we adjust the local panel projections spelled out in Equation (1) by interacting the geopolitical risk shock with a bloc dummy variable $bloc_b$. Thus, we estimate the impact of GPR shocks within each bloc of countries ($b \in \{West, East, Neutral\}$) in the following regression:

$$X_{c,i,t+h} = \delta^{t+h} + \delta_{c,i} + \sum_{b \in \{W,E,N\}} \left(\beta_b^{t+h} GPR_{c,t} \times bloc_b\right) + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h} \qquad h \in \{0, ..., 12\}, \tag{2}$$

Note that $bloc_b$ only features in the interaction term of Equation (2) and not separately as an additional, non-interacted dummy. The reason is that we consider bloc membership to be a source of variation that is related to geopolitical risk. Instead of controlling for it, when investigating the bloc-specific effect of GPR shocks, β_b^{t+h}, we treat political bloc membership as a factor shaping the transmission of GPR shocks.

Figure 3: Effect of an increase in trading-partner geopolitical risk on US and EA import volumes and import prices from that country (by geopolitical bloc)



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and all trading partners within the bloc with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. **1** West: USA, Canada, Australia, Japan, South Korea and European countries. East: China, Hong Kong, Russia, and Venezuela. Neutral: 16 developing countries. Sample period: 1990Q1-2019Q4.

Fig. 3 shows the average quarterly effects of GPR shocks by geopolitical bloc over

the first three years after the shock.[12] GPR shocks have much larger effects when geopolitically distant trading partners are affected. For trading partners from the "East" bloc, an increase in trading-partner GPR of 50% lowers the quarterly average of US import volumes by almost 0.1% in the first year, 0.5% in the second year and almost 1% in the third year after the shock. For trading partners that are in the same geopolitical bloc as the US ("West"), the effects are even insignificant for the first two years. For "Neutral" countries, we find a mild decline in US import volumes in the first year. Similar to the US results, euro area import volumes decline much more sharply for GPR shocks that affect countries in the "East" bloc than for shocks that affect countries in the "West" bloc. In addition, import prices of the US and the euro area rise more in response to GPR shocks when they affect countries in the "East" bloc.

Taken together, the results imply that trading-partner GPR shocks are far more relevant when geopolitically distant countries are affected. Though our analysis focuses on the short to medium run, the fact that GPR shocks particularly reduce imports from countries in the "East" bloc suggests that these shocks may be conducive to a structural fragmentation of the global trade system. The results suggest that this comes with additional price pressures for US and euro area importers.

4.2 Shortening of bilateral cross-border value chains

The Broad Economic Categories (BEC) allow us to identify goods related to global value chains. In particular, we use the BEC to define GVC goods as processed intermediate goods that are specifically used in certain industries. To distinguish GVC-related and non-GVC-related imports in our sample, we extend regression (2) by interacting the trading-partner specific GPR shock, $GPR_{c,t}$, not only with the bloc dummy, $bloc_b$, but also with a dummy variable, I_G with $G \in \{GVC; nonGVC\}$, which indicates whether a product is a GVC good or not. The estimated regressions have the following structure:

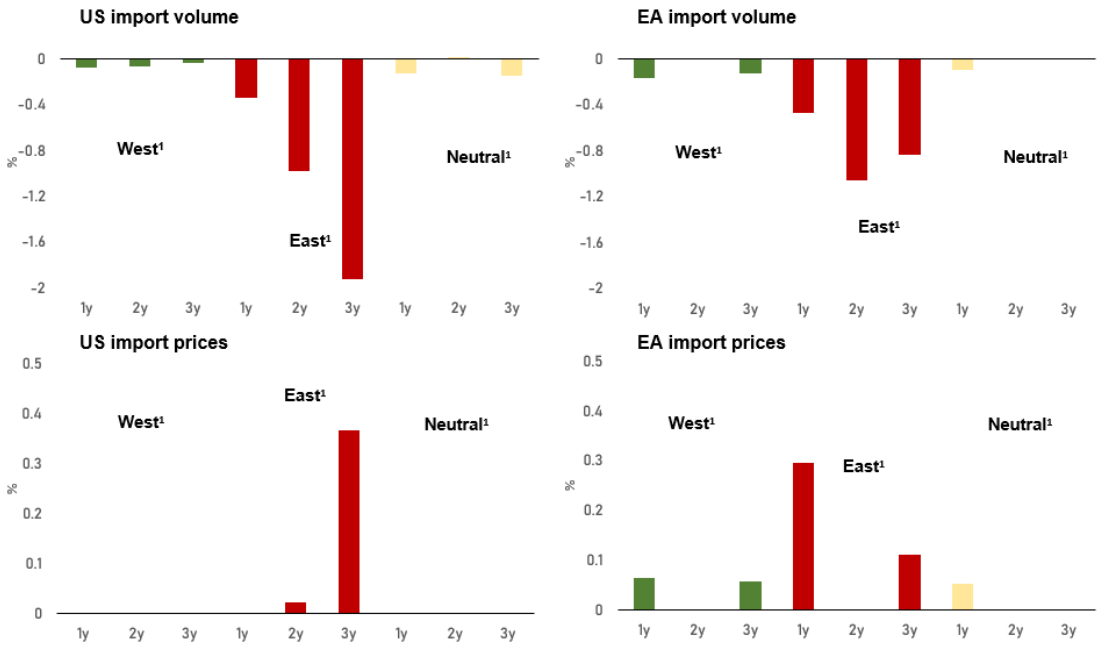
$$X_{c,i,t+h} = \delta^{t+h} + \delta_{c,i} + \sum_{G\in\{GVC,nonGVC\}} \sum_{b\in\{W,E,N\}} \left(\beta_{b,G}^{t+h} GPR_{c,t} \times bloc_b \times I_G\right) + \\ + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h} \qquad h \in \{0, ..., 12\}, \quad (3)$$

where the coefficients $\beta_{b,G}^{t+h}$ measure the bloc-specific effect of interest.

Figure 4 depicts the bloc-specific effects of trading-partner GPR shocks on import volumes and prices of GVC goods. Again, the results are shown as quarterly averages for the first three years after the shock (see Fig. 3.). Overall, we find similar results compared to the average bloc-specific responses in Fig. 3. However, the decline in GVC

[12] In the calculation of average quarterly effects, coefficients that lie outside the 68% confidence interval are set to zero.

Figure 4: Effects of trading-partner GPR shocks on US and EA GVC import volumes and import prices from that country (by geopolitical bloc)



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and all trading partners within the bloc with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. **1** West: USA, Canada, Australia, Japan, South Korea and European countries. East: China, Hong Kong, Russia, and Venezuela. Neutral: 16 developing countries. Sample period: 1990Q1-2019Q4.

import volumes from geopolitically distant countries is more pronounced for both the US and the euro area.

Our findings suggest that especially bilateral cross-border value chains with countries in the Eastern region are shortened as a consequence of rising country-specific geopolitical risk.

4.3 The role of US import sanctions

Increases in country-specific GPR partially coincide with US trade sanctions imposed on the same country.[13] For instance, in 2014, the hike in Russia's GPR index following the annexation of Crimea was accompanied by new US sanctions on Russia. Similarly, the US imposed trade sanctions on China from 2017 onwards, which coincided with an increase in the GPR index for China (see Fig. 1). We use the Global Sanctions Database (see Felbermayr, Kirilakha, Syropoulos, Yalcin, and Yotov 2020) to interact country-specific

[13] As we do not have many observations with euro area sanctions in our sample we do not investigate the role of euro area sanctions directly. Sometimes, however, sanctions are coordinated between the US and the euro area. For instance, some euro area countries imposed sanctions on Russia after 2014. By contrast, the euro area has not imposed sanctions on China.

GPR shocks with a dummy variable for when that country is subject to US import sanctions.

We estimate the effects of trading-partner geopolitical risk that hits countries that are under US sanctions. To that end, we adjust the local panel projections spelled out in (1) by interacting the geopolitical risk shock with a sanction dummy variable $sanction_{c,t}$. The dummy variable takes the value one when the exporting country is subject to US import sanctions in that year. It should be noted that the import sanction is not imposed on specific products, but used as a general indicator of increased trade barriers. Furthermore, the GPR index — by construction — also includes information on sanctions. Thus, the interaction of the GPR shock with a sanction dummy allows us to distil the effect of sanctions from other drivers behind the GPR. The estimated regressions have the following structure:

$$X_{c,i,t+h} = \delta^{t+h} + \delta_{c,i} + \kappa^{t+h} GPR_{c,t} + \beta^{t+h} GPR_{c,t} \times sanction_{c,t} + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h}$$
$$h \in \{0, ..., 12\}, \quad (4)$$

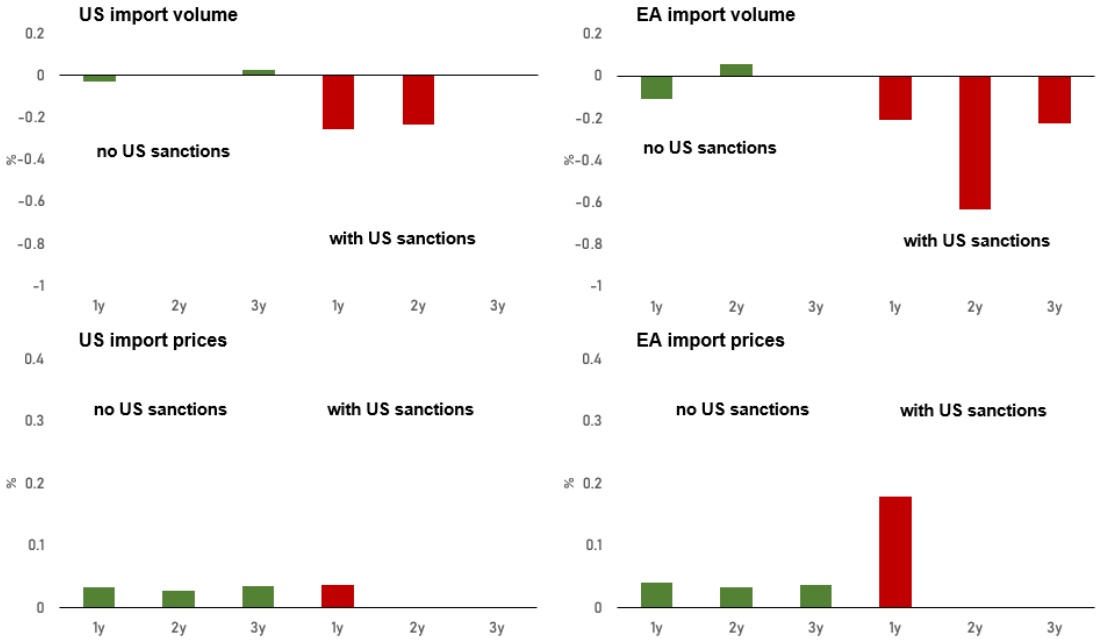
where κ^{t+h} measures the effect of GPR shocks on non-sanctioned countries and $\kappa^{t+h} + \beta^{t+h}$ measures the effect of GPR shocks on sanctioned countries.

According to our results, US sanctions indeed shape the effect of GPR shocks on US and euro area imports. Fig. 5 shows that under sanctions, the effects of GPR shocks are far more pronounced. Under US sanctions, a GPR shock of 50% lowers US import volumes by more than 0.2% in the first and second year compared to an effect of below 0.05% without sanctions. Euro area import volumes also decline more markedly in response to rising trading-partner GPR risk when the US imposes sanctions on that country. This could be due to coinciding EU sanctions or because European companies make efforts to avoid violating US sanctions. Moreover, many companies are connected to the US economy via production networks.

Notably, the reaction of import prices to GPR shocks differs between the US and the euro area when the GRP shock affects a country that is under US sanctions at the time the shock hits. Whereas euro area import prices rise, US import prices are relatively muted. A potential explanation may lie in the special role of the USD as a safe-haven currency. When GPR increases in a country that is already under US sanction, is more likely to find global attention, give rise to fears of an escalation and trigger safe-haven flows into the USD. In that case, an appreciation of the US dollar would dampen increases in US import prices.

In the US, the effects of trading-partner GPR shocks are not significant when no sanctions are imposed in the period in which the GPR shock hit. For the euro area, the effects are comparatively small. This result suggests that the effects of geopolitical risks

Figure 5: Effect of an increase in trading-partner geopolitical risk on US and EA import volumes and import prices from that country (by US sanction regime)



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 1990Q1-2019Q4.

are overwhelmingly related to sanctions. In other words, firms' derisking without any policy intervention seems to play a limited role.

4.4 The role of FDI linkages

The strength of FDI linkages of the US and the euro area with their trading partners might also determine the import response to GPR shocks. A higher stock of FDI of an investor country in a host country suggests that firms in the investor country have a higher interest in maintaining (trade) linkages with the host country, even in risky times.[14] Vertical FDI from multinational enterprises (say from the US or the euro area) in a host country are often linked to intra-firm trade and lead to rather specific intermediate goods exports from the host country to the investor country.[15] This might imply more stable trade relations.

To measure the strength of a country's FDI linkages with the US or the euro area, we take the ratio of the US (or euro area) outward FDI stock in a trading-partner country

[14] In general, an inflow of FDI in a country is associated with an increase in this country's exports (see, e.g., Zhang and Song, 2001; Pacheco-López, 2005; Sahoo and Dash, 2022).

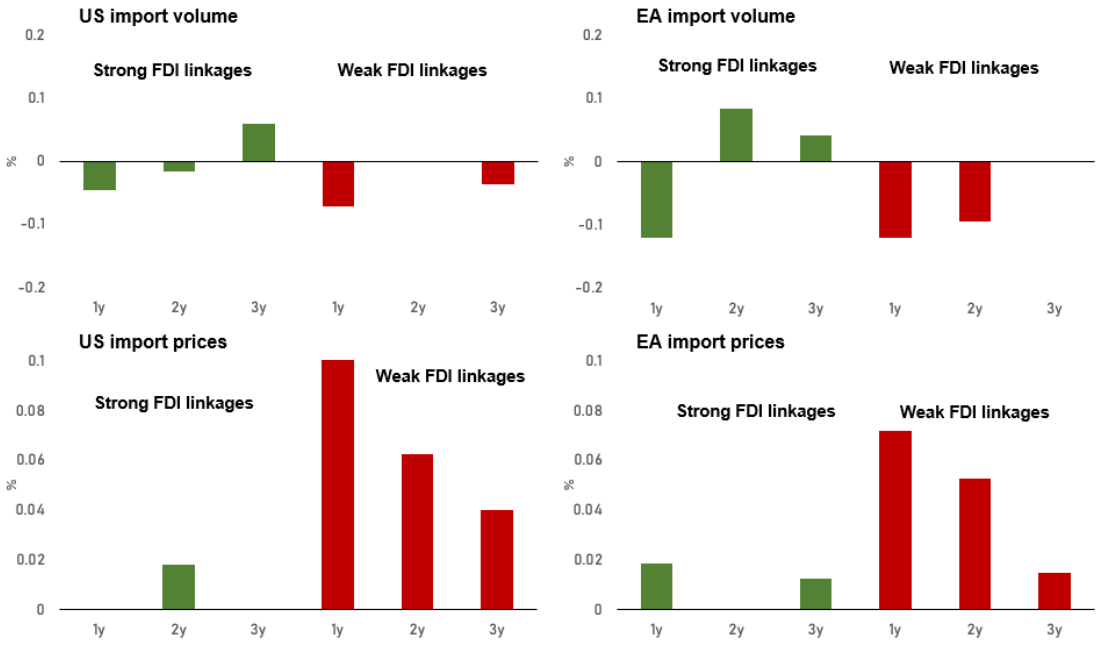
[15] Lanz and Miroudot (2011) highlight the importance of intra-firm trade, particularly in intermediate goods, with a focus on the OECD.

to the import volumes received from that country. We then construct dummies for every country-year-observation, $FDI_{c,t}$, that is 1 if the strength of a country's FDI linkage with the US (or euro area) is above the median in a given year and 0 if the measure is below the median in that year. To investigate the influence of the FDI linkage on the response of bilateral import flows to country-specific GPR shocks, we estimate the following extended version of regression (1)

$$X_{c,i,t+h} = \delta^{t+h} + \delta_{c,i} + \kappa^{t+h} GPR_{c,t} + \beta^{t+h} GPR_{c,t} \times FDI_{c,t} + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h}$$
$$h \in \{0, ..., 12\}, \quad (5)$$

where κ^{t+h} measures the effect of trading-partner GPR shocks in countries with weaker trade linkages to the US and the euro area, and $\kappa^{t+h} + \beta^{t+h}$ measure the effects of trading partner GPRs shocks in countries with stronger bilateral FDI linkages.

Figure 6: Effect of an increase in trading-partner geopolitical risk on US and EA import volumes and import prices from that country — by intensity of US (or EA) outward FDI linkages with the affected trading partner*



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). *For each year, the strength of the outward US FDI linkage with each trading partner is measured by the stock of US outward FDI in that country divided by import volume from that country. Trading partners with above-median FDI stock are labelled as those with "strong FDI linkage". For the euro area, the measure of FDI intensity is time invariant due to a lack of country-year coverage of FDI data. Estimates of average effects over all product categories and all trading partners within the bloc with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 1990Q1-2019Q4.

Figure 6 shows that whereas the bilateral FDI intensity does not strongly affect the response of import volumes to trading-partner GPR shocks, it does have an effect on the responses of import prices. In particular, there are no significant price effects for imports from countries with closer FDI linkages. A potential reason lies in a more prominent role of intra-firm trade, with firms importing from their own branches and having more influence on the stability of import prices. Overall, our results suggest that stronger FDI links reduce the sensitivity of import prices to GPR shocks.

4.5 Discussion: The transmission of GPR beyond the import channel

By exploiting the cross-country dimension and focusing on the effects of trading-partner-specific GPR shocks, as well as by shutting off factors that affect all imported products from all trading partners with time fixed effects, we isolate the import channel of the transmission of GPR.

However, beyond our identified import channel, other global and general equilibrium effects may alter the consequences of GPR shocks on import flows. Country-specific GPR can affect global GPR. In turn, shifts in global GPR may affect sentiment in global financial markets, global commodity prices and the USD (see, e.g., Caldara et al., 2024). In addition, countries are interconnected in global value chains. Thus, a shock in one country potentially also affects other countries. For the bilateral estimates, one should therefore keep in mind that the estimated response is always a comparison to a control group that is potentially — although to a smaller degree — also affected by consequences of country-specific GPR shocks. We tackle this issue with greater care when we zero in on the transmission of Chinese GPR shocks in Section 5.1.

5 The case of China

We now zoom in on the case of China. China is — according to the classification we use — politically distant to both the US and the euro area. Also, imports from China were subject to US sanctions for a number of the years in our sample. The case is also of special interest, because China is an important hub in the global production network and a major trading partner to both the US and the euro area.

To quantify possible import disruptions related to increased tensions in China, we extend our baseline regression by interacting the geopolitical risk shock with a China-specific dummy variables $china_c$ The adjusted regressions read

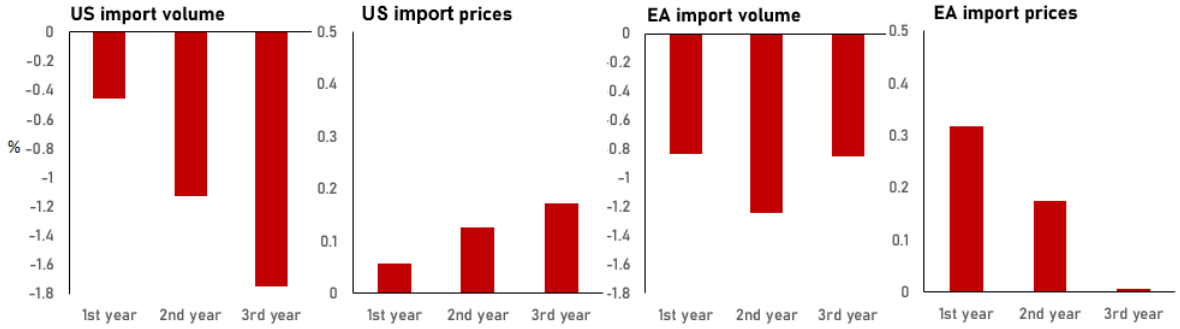
$$X_{c,i,t+h} = \delta^{t+h} + \delta_{c,i} + \kappa^{t+h} GPR_{c,t} + \beta^{t+h} GPR_{c,t} \times china_c + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h}$$

$$h \in \{0, ..., 12\}, \quad (6)$$

where $\kappa^{t+h} + \beta^{t+h}$ are the coefficients of interest.

We find that rising geopolitical tensions in China trigger especially large trade disruptions. In case of a shock that raises the Chinese GPR index by 50%, US imports from China drop markedly in the third year after the shock by more than 1.5% (Fig. 7). Euro area imports fall similarly sharply. The effect is far stronger than the average effect across countries (Fig. 2). Moreover, in the first and second year after the shock, import prices in the euro area rise more steeply than in the average sample.[16]

Figure 7: Effect of an increase in trading-partner geopolitical risk in China on EA and US import volumes and import prices from China



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and trading partners with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 1990Q1-2019Q4.

Note that the magnitude of the increase on US import prices in response to the Chinese GPR shock is roughly similar to the magnitude of the response to a GPR shock in an average trading partner, whereas euro area import prices increase more sharply. This is likely related to an appreciation of the US dollar in response to Chinese GPR shocks that we report in Section 5.1.1 and the fact that export goods are typically priced in

[16] In 2018 and 2019, the US administration imposed substantial tariffs on imports from China. To control for potentially conflating effects of US import tariffs, we employ tariff rates at a product level from US customs data for 2002-2019 (calculated duties divided by custom values as reported by the US census). In particular, we include in the regression for the US sample the first difference in the product level tariff rate as a control variable in regression 6. Importantly, the effects of a geopolitical risk shock remain more or less unchanged (see Appendix B.1). The magnitude differs slightly, owing to the fact that due to the availability of tariff data, the sample differs from the baseline sample (2002-2019 vs. 1990-2019). In this exercise, we can also assess the impact of tariffs on imports and find that at a product level, import volumes drop while import prices remain fairly stable. The latter result aligns with recent evidence finding limited pass-through of tariffs on import prices (see Amiti, Redding, and Weinstein 2019 and Khalil and Strobel 2021).

USD. To the extent that the rise of Chinese geopolitical risk finds global attention, it can trigger safe-haven flows into USD assets. Consistent with such a pattern, Caldara et al. (2024) find evidence for a mild appreciation of the US dollar in response to an increase in global GPR. In turn, a US dollar appreciation gives foreign exporters, who incur their own production costs mainly in local currency, room to lower their USD export prices. This holds particularly for the case of China (see Khalil and Strobel, 2021). For the euro area, however, a US dollar appreciation mechanically raises import prices (in euro) when imports are invoiced in US dollar. This is probably the case for the bulk of euro area trade with China.

5.1 Spillovers of Chinese GPR shocks via third-party trading-partners

We further delve into the transmission of Chinese GPR shocks. We study whether Chinese GPR shocks trigger spillovers to non-Chinese exporters in the form of a reaction of non-Chinese imports in the US and the euro area to Chinese GPR shocks. As China is a large economy and Chinese GPR shocks likely affect the global economy, in this exercise we also examine how Chinese GPR shocks affect global oil prices and the US dollar. Via these channels, producers around the world and thereby trade flows towards the US and the euro area may be affected. Third, as production in a lot of US and euro area trading partners is itself reliant on imports from China, we examine whether a country's GVC linkages with China play a role for US and euro area imports from this country in response to a Chinese GPR shock.

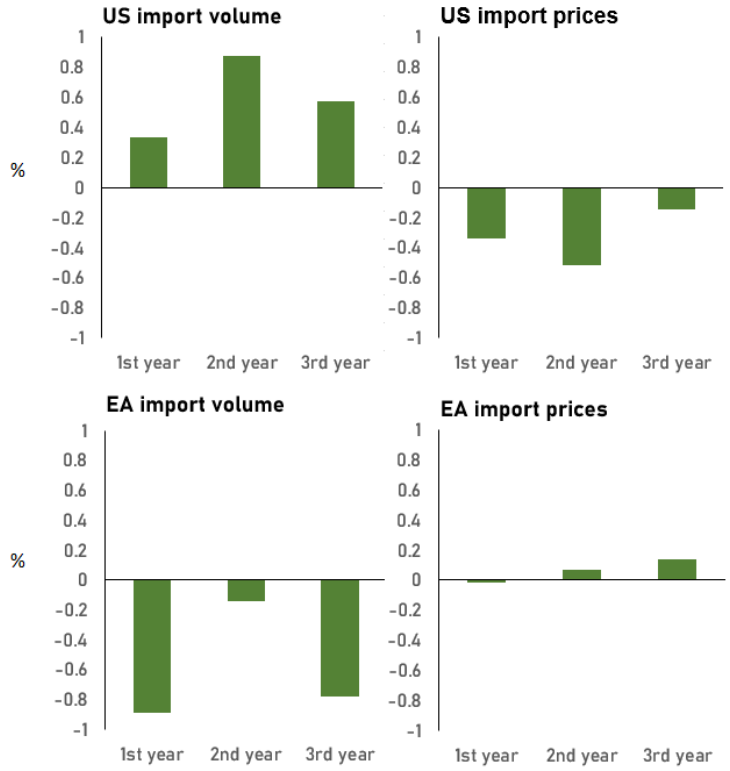
To estimate how import volumes and prices of non-Chinese trading partners respond to Chinese GPR shocks, we exclude China from the sample and augment Equation (6) by Chinese GPR shocks. In particular, we estimate

$$X_{c,i,t+h} = \delta_{c,i} + \beta^{t+h,China} GPR_t^{China} + \beta^{t+h} GPR_{c,t} + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h} \qquad h \in \{0, ..., 12\}. \tag{7}$$

In this specification GPR_t^{China} is a GPR shock originating in China and $\beta^{t+h,China}$ captures the effect of Chinese GPR shocks on non-Chinese import volumes and prices, while $GPR_{c,t}$ is a GPR shock originating in country c.

Figure 8 shows the results. Interestingly, a different pattern emerges across the US and the euro area. The upper panel shows that, in response to Chinese GPR shocks, volumes of US imports from non-Chinese trading partners increase for three years. At the same time, US import prices decline. The lower panel reveals basically the opposite pattern for the euro area: In response to Chinese GPR shocks, import volumes from non-Chinese trading partners decline while import prices are roughly unchanged in the first year and increase slightly in the second and third year.

Figure 8: Effect of an increase in trading-partner geopolitical risk in China on US and EA import volumes and import prices from third-party trading partners



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and trading partners with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 1990Q1-2019Q4.

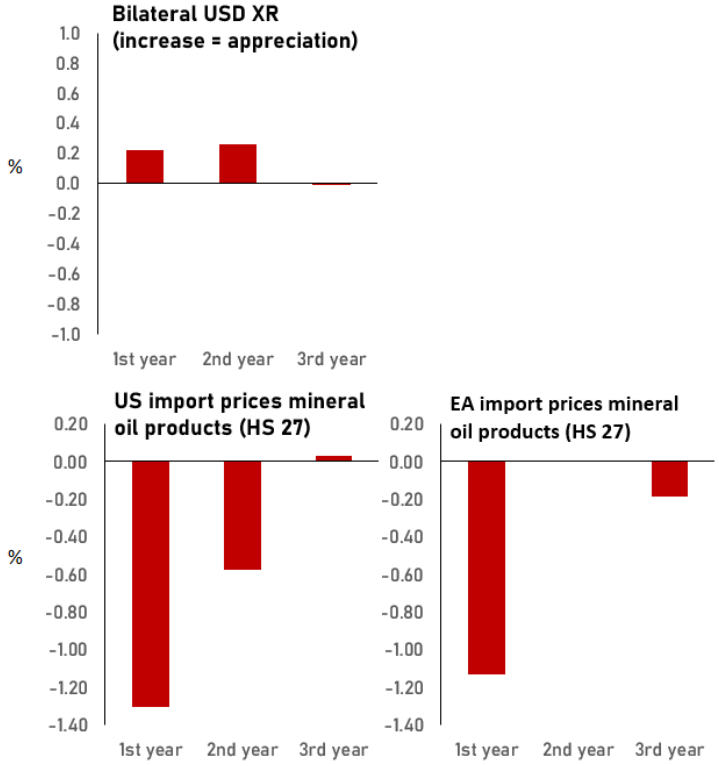
5.1.1 The role of the US dollar and global oil prices

A possible explanation for the asymmetric pattern across the US and the euro area is the role of the US dollar in the transmission of GPR shocks. In uncertain times, the dollar typically appreciates. In turn, an appreciation of the US dollar makes imports more affordable for US importers.[17] However, for the euro area — which largely relies on the US dollar for import invoicing — a US dollar appreciation leads to higher local-currency import prices. Thus, effects of global GPR shocks are more likely to exert additional price pressure on import prices in the euro area than in the US.

To test whether the USD indeed appreciates in response to geopolitical risk shocks we employ a monthly panel of bilateral USD exchange rates (1990-2019) and run the following local projections

[17] See Khalil and Strobel (2024), who point out the role of the US dollar as a shock absorber for the US in the case of trade tensions with China and other trading partners.

Figure 9: Effect of an increase in trading-partner geopolitical risk in China on bilateral USD exchange rates and US and EA oil import prices.



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Left panel: Monthly local projections of GPR shock on bilateral exchange rate of the USD. Sample period: 1990Q1-2019Q4. An increase indicates an appreciation. Right panel: Estimates of average effects over product category HS 27 (mineral oil and related products) across all trading partners with local panel projections. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 1990Q1-2019Q4.

$$XR_{c,t+h} = \beta_0^{t+h} GPR_t^{China} + \sum_{j=1}^{3} \beta_j^{t+h} GPR_{t-j}^{China} + \\ + \sum_{j=1}^{3} \gamma^{j,t+h} GPR_{c,t-j} + \sum_{j=1}^{3} \delta_j^{t+h} XR_{c,t-j} + \epsilon_{c,i}^{t+h} \qquad h \in \{0, ..., 12\}, \quad (8)$$

where $XR_{c,t+h}$ is the linearly detrended log bilateral exchange rate vis-a-vis the USD.[18] In these regressions, we control for the lags of country-specific shocks $GPR_{c,t-j}$ and of the Chinese GPR shock, GPR_{t-j}^{China}.

The upper panel in Figure 9 shows the result. It indicates that the USD appreciates

[18]The bilateral USD exchange rates are sourced via Haver Analytics from the OECD except for Egypt (Source: New York Times), Hong Kong, Malaysia and Thailand (Source: Federal Reserve Board), Peru and Tunisa (Source: IMF), Philippines (Source. Central Bank of the Philippines) and Vietnam (Source: Vietcombank). While, in principle, we have data on GPR for Saudi Arabia, Hong Kong and Venezuela, we exclude from this exercise the Saudi Arabian riyal and the Hong Kong dollar, which have very stable exchange rates with the USD and the Venezuelan bolivar, which faces an exceptionally volatile exchange rate with the USD in our sample period.

by roughly 0.2% in response to a Chinese GPR shock (standardised at 50%).

In addition to the US dollar, global oil prices may also react to Chinese GPR shocks. We can directly employ our panel of imported products to explore how prices of oil and related products respond to Chinese GPR shocks. As the United States and the euro area contribute a large fraction to global GDP, imported oil prices in those two regions reflect global prices well. We estimate regression (9) with imports of mineral oil and fuel products (HS 27) only and consider how import prices respond to Chinese GPR shocks.

The lower panel in Figure (9) shows that a 50% rise in Chinese GPR lowers oil prices by more than 1.2%. This appears rather plausible as Chinese GPR shocks likely depresses global trade and thus global production, resulting in reduced oil prices.[19]

Lower global oil prices affect producer prices around the world. Thus, the results in 8 are also shaped by this channel, which, ceteris paribus, depresses non-oil import prices in both the US and the euro area.

5.1.2 The role of trading-partner GVC linkages with China

An important channel for the transmission of Chinese GPR shocks to US and euro area imports may work via third countries from which the US and the euro area source imports. To the extent that these countries' global value chains are linked to China, Chinese GPR shocks would reduce their imports from China and in turn also their exports. As an example, consider the direct effects of Chinese GPR shocks on euro area imports as shown in Figure 7. To some degree, the reduction of euro area imports from China is likely to reduce production in the euro area and hence its own exports. As the euro area is itself an important trading partner of the US, US imports will be indirectly affected by the shock via the euro areas GVC linkages with China. The same holds for other third-countries as well, depending on the intensity of their GVC linkage with China.

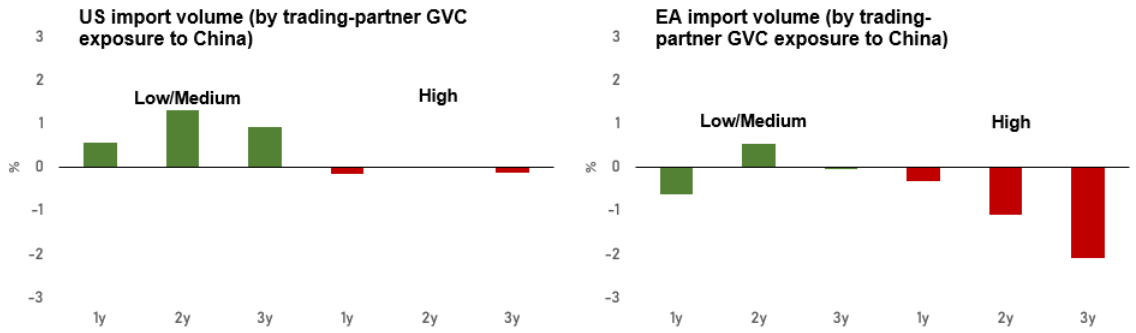
To identify the role of GVC linkages for the transmission of Chinese GPR shocks via third countries on US and euro area import volumes, we estimate regression (9) by interacting the Chinese GPR shock with a dummy variable indicating if a trading partner's production is particularly highly exposed to China via GVC (backward) linkages. In particular, we estimate

$$X_{c,i,t+h} = \delta_{c,i} + \kappa^{t+h,China} GPR_t^{China} + \beta^{t+h,China} GPR_t^{China} \times GVC_{c,t-4}^{China} + \beta^{t+h} GPR_{c,t} + \\ + \sum_{j=1}^{4} \gamma_j^{t+h} X_{c,i,t-j} + \epsilon_{c,i}^{t+h} \qquad h \in \{0, ..., 12\}. \quad (9)$$

In this specification GPR_t^{China} is a GPR shock originating in China and $\beta^{t+h,China}$ captures the effect of Chinese GPR shocks on non-Chinese import volumes and prices,

[19] See Khalil (2022) who relates the evolution in oil prices to global production and trade of manufactured goods.

Figure 10: Effect of an increase in trading-partner geopolitical risk in China on US and euro area import volumes from other trading partners (by trading-partner intensity of GVC linkages with China)



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and trading partners with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 1990Q1-2019Q4.

while $GPR_{c,t}$ is a GPR shock originating in country c. $GVC_{c,t-4}^{China}$ is a dummy variable indicating if the trading-partner country c is highly exposed to Chinese GVCs in the year before the shock.

For each (US and euro area) trading partner country in our sample, we compute on a yearly basis the backward linkages to China as the share of Chinese value added in a country's gross export using the OECD TivA database. We then define periods of high exposure. As — due to the prominent role of China in the global production network — most trading partners (including the control group) are exposed to China, we use the 75th percentile in the overall sample. We thus identify trading-partners that are substantially exposed to intermediate inputs from Chinese such that substitution towards other countries and inputs is particularly difficult.

Figure 10 shows the results. In both cases (US and the euro area), Chinese GPR shocks have more negative effects on import volumes from countries with strong backward linkages with China. This indicates that GVC linkages are an important channel in the global transmission of local GPR shocks (at least those that originate in China). However, for the US, lower oil prices and a stronger dollar tend to cushion any negative consequences of Chinese GPR shocks.

6 Conclusion

In recent years, major exporting economies have experienced rising geopolitical risk. Taking the perspectives of the US and the euro area, we employ a detailed product-level panel covering 20 years of data to study the consequences of trading-partner geopolitical

risk shocks on imports.

We find that, on average, trading-partner geopolitical risk shocks lower import volumes and raise import prices. The decline in imports is particularly strong when geopolitical risk shocks hit countries that exhibit a greater geopolitical distance to the US or the euro area, or when geopolitical risk shocks coincide with import sanctions imposed by the US.

This is particularly true among geopolitical fault lines, bearing the risk of dissecting the world into trade blocs along political alignments. A case in point are large effects for geopolitical risk shocks in China.

Moreover, our findings suggest that geopolitical tensions may result in price pressures for US and euro area importers and therefore have important consequences for inflation dynamics.

References

Ahir, H., N. Bloom, and D. Furceri (2022). The world uncertainty index. Technical report, National Bureau of Economic Research.

Amiti, M., S. J. Redding, and D. E. Weinstein (2019). The Impact of the 2018 Tariffs on Prices and Welfare. *Journal of Economic Perspectives 33*(4), 187–210.

Antràs, P. (2021). De-globalisation? Global value chains in the post-covid-19 age. *2021 ECB Forum: "Central Banks in a Shifting World" Conference Proceedings*.

Baur, D. G. and L. A. Smales (2020). Hedging geopolitical risk with precious metals. *Journal of Banking & Finance 117*, 105823.

Blanga-Gubbay, M. and S. Rubínová (2023). Is the global economy fragmenting? WTO Staff Working Papers ERSD-2023-10, World Trade Organization (WTO), Economic Research and Statistics Division.

Bondarenko, Y., V. Lewis, M. Rottner, and Y. Schüler (2024). Geopolitical risk perceptions. *Journal of International Economics 152*, 104005.

Caldara, D., S. Conlisk, M. Iacoviello, and M. Penn (2024, April). Do geopolitical risks raise or lower inflation? *mimeo*.

Caldara, D. and M. Iacoviello (2022, April). Measuring geopolitical risk. *American Economic Review 112*(4), 1194–1225.

Caldara, D., M. Iacoviello, P. Molligo, A. Prestipino, and A. Raffo (2020). The economic effects of trade policy uncertainty. *Journal of Monetary Economics 109*, 38–59. SI:APR2019 CRN CONFERENCE.

den Besten, T., P. Di Casola, and M. M. Habib (2023). *The international role of the euro*, Chapter Geopolitical fragmentation risks and international currencies. European Central Bank.

ECB (2023). The EU's open strategic autonomy from a central banking perspective - challenges to the monetary policy landscape from a changing geopolitical environment. *European Central Bank Occasional Paper Series* (311).

ECB (2024). Navigating a fragmenting global trading system: Insights for central banks. *European Central Bank Occasional Paper, forthcoming*.

Fajgelbaum, P. D., P. K. Goldberg, P. J. Kennedy, and A. K. Khandelwal (2019, 11). The Return to Protectionism. *The Quarterly Journal of Economics 135*(1), 1–55.

Fajgelbaum, P. D. and A. K. Khandelwal (2022). The economic impacts of the US–China trade war. *Annual Review of Economics 14* (Volume 14, 2022), 205–228.

Felbermayr, G., A. Kirilakha, C. Syropoulos, E. Yalcin, and Y. V. Yotov (2020). The global sanctions data base. *European Economic Review 129*, 103561.

Fernández-Villaverde, J., T. Mineyama, and D. Song (2024, June). Are we fragmented yet? Measuring geopolitical fragmentation and its causal effect. Working Paper 32638, National Bureau of Economic Research.

Flaaen, A. and J. Pierce (2019). Disentangling the effects of the 2018-2019 tariffs on a globally connected U.S. manufacturing sector. *Finance and Economics Discussion Series 2019-086. Washington. Board of Governors of the Federal Reserve System*.

Gopinath, G., P.-O. Gourinchas, A. Presbitero, and P. B. Topalova (2024). Changing global linkages: A new cold war?

Jordà, O. (2005, March). Estimation and inference of impulse responses by local projections. *American Economic Review 95*(1), 161–182.

Jurado, K., S. C. Ludvigson, and S. Ng (2015). Measuring Uncertainty. *American Economic Review 105*(3), 1177–1216.

Khalil, M. (2022). Oil prices, manufacturing goods, and nontradeable services. *Journal of International Economics 134*, 103553.

Khalil, M. and F. Strobel (2021). US trade policy and the US dollar. *Deutsche Bundesbank Discussion Paper 49/2021*.

Khalil, M. and F. Strobel (2024). US trade policy and the US dollar. *Journal of International Economics 151*, 103970.

Khalil, M. and M.-D. Weber (2022). Chinese supply chain shocks.

Kilian, L., N. Nomikos, and X. Zhou (2023, March). Container Trade and the U.S. Recovery. *International Journal of Central Banking 19*(1), 417–450.

Krenz, J. and A. K. Verma (2024). Geopolitical risk and bank systemic risk: Does the macroprudential policy stance matter? *mimeo*.

Lanz, R. and S. Miroudot (2011). Intra-firm trade. (114).

Ludvigson, S. C., S. Ma, and S. Ng (2021, October). Uncertainty and business cycles: Exogenous impulse or endogenous response? *American Economic Journal: Macroeconomics 13*(4), 369–410.

Meier, M. and E. Pinto (2024). Covid-19 supply chain disruptions. *European Economic Review 162*, 104674.

Niemann, K. (2023). Political distance and international trade. *mimeo*.

Pacheco-López, P. (2005). Foreign direct investment, exports and imports in Mexico. *The World Economy 28*(8), 1157–1172.

Pierce, J. R. and P. K. Schott (2009). Concording U.S. harmonized system categories over time. Technical report, National bureau of economic research.

Sahoo, P. and R. K. Dash (2022). Does FDI have differential impacts on exports? Evidence from developing countries. *International Economics 172*, 227–237.

Wang, X., Y. Wu, and W. Xu (2023). Geopolitical risk and investment. *Journal of Money, Credit and Banking*.

Zhang, K. H. and S. Song (2001). Promoting exports: the role of inward FDI in China. *China Economic Review 11*(4), 385–396.

Appendix

A Data and descriptive statistics

A.1 Data sources

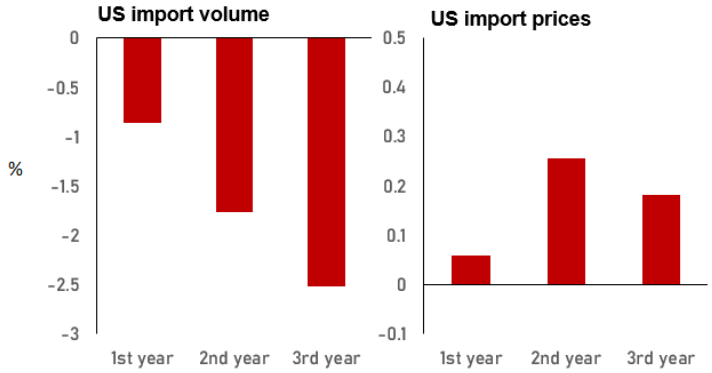
Time series	Data source	Sample period
US (euro area) import data from 43 (36) countries	Trade Data Monitor.	1990Q1-2019Q4
Geopolitical risk measure	Source: Caldara and Iacoviello (2022) https://www.matteoiacoviello.com/gpr.htm	1990Q1-2019Q4
UN HS translation tables	https://unstats.un.org/unsd/classifications/Econ	
Broad Economic Categories	https://unstats.un.org/unsd/trade/classifications/bec.asp	

Table A.1: Data sources.

B Further results

B.1 Robustness analysis: Controlling for bilateral US tariffs on imports from China

Figure B.1: Effect of an increase in trading partner geopolitical risk in China on imports from China (US; US import tariffs as control variable)



Note: y-axis: average quarterly effects for first three years after the shock in %. Shock size is 50% (roughly one standard deviation of GPR index in the overall sample). Estimates of average effects over all product categories and trading partners with local panel projections based on data by Caldara and Iacoviello (2022) and the Trade Data Monitor. Quarterly estimates that lie outside the 68% confidence interval are set to zero. Sample period: 2002Q1-2019Q4.