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Abstract

Geopolitical risks and tensions are nowadays regularly presented by policymakers and analysts as key conditioning factors of economic activity in both the short and the medium-run. Widely accepted operational measures of geopolitical risks tend to be based on counting the number of newspaper articles related to adverse geopolitical events, in particular following the ground-breaking paper of Caldara and Iacoviello (2022) in which they build their Geopolitical Risk (GPR) indexes. In this paper we propose one avenue to make further progress in the measurement of such risks. We provide a decomposition of GPR by exploiting the idea that the geopolitical risks that a country faces can be traced back to the countries or entities that are the source of those risks. In this regard, we exploit the idea that geopolitical risk linked to a specific geography or political entity can be interpreted as a "bilateral GPR", and that the aggregation of such bilateral GPRs provides a natural way of interpreting the overall GPR index. We show that our indexes add distinct information from the benchmark GPR, and together form a more accurate representation of the geopolitical tensions currently present between the major economies. We also show that the geographical origin of a given GPR shock determines its macroeconomic effect in a given economy (as computed from standard VAR models), both in terms of the intensity of such effect and even its sign (i.e. whether a particular GPR shock causes GDP to increase or decrease).

Keywords: geopolitical risk, geopolitical tensions, textual analysis.

JEL classification: C43, F51, H56.

Resumen

Los riesgos y las tensiones geopolíticas son, hoy en día, factores que los responsables de política económica y los analistas consideran como condicionantes claves de la actividad económica a corto y medio plazo. Las medidas operativas ampliamente aceptadas de los riesgos geopolíticos tienden a basarse en el conteo del número de artículos de prensa relacionados con los eventos geopolíticos adversos, en particular a raiz del influyente trabajo de Caldara y Iacoviello (2022), en el que construyen sus índices de riesgo geopolítico (índices GPR, en sus siglas en inglés). En este documento proponemos una vía para avanzar en la medición de estos riesgos. Proporcionamos una descomposición del GPR, aprovechando la idea de que los riesgos geopolíticos que enfrenta un país pueden rastrearse hasta los países o regiones que son la fuente de dichos riesgos. En este sentido, explotamos la idea de que el riesgo geopolítico vinculado a una geografía o entidad política específica puede interpretarse como un GPR bilateral, y que su agregación proporciona una forma natural de interpretar el índice GPR general. Mostramos que nuestros índices añaden información distinta del GPR de referencia y que, juntos, forman una representación más precisa de las tensiones geopolíticas actualmente presentes entre las principales economías. Además, también exponemos que el origen geográfico de una determinada perturbación de GPR determina su efecto macroeconómico en una economía dada (según se calcula a partir de modelos vectoriales autoregresivos estándar), tanto en términos de la intensidad de dicho efecto como incluso de su signo (es decir, si una perturbación de GPR provoca un aumento o una reducción del producto interior bruto).

Palabras clave: riesgo geopolítico, tensiones geopolíticas y análisis textual.

Códigos JEL: C43, F51, H56.

1 Introduction

Geopolitical risks and tensions are nowadays regularly featured by policymakers and analysts as key conditioning factors of economic activity in the short- and the medium-run. Just to quote a few recent examples, ECB's President Lagarde (2024) highlighted the risks of rising geopolitical tensions for inflation and economic growth in the euro area, while Federal Reserve Chair Powell warned of growing geopolitical risks to global financial system (Powell, 2023), and International Monetary Fund Managing Director Georgieva stressed the need for leaders to prepare for a range of scenarios, "especially given technological change and geopolitical shifts" (Georgieva, 2024). Over the past years geopolitical developments are seen as challenging the multilateral economic order based on the paradigm of "globalisation". There are mounting claims that geopolitical competition among major powers is leading to divergence in global policies and fragmentation in trade and finance against a background of changes in the economic weight of different countries and regions, while at the same time, political polarization, social unrest, conflict, and within-country wealth inequality are also often highlighted as factors contributing to tensions among countries (Ioannou et al. 2023; Aiyar et al. 2023).

According to the most influential work in the recent literature, geopolitical risk (henceforth GPR) can be defined as the "threat, realization, and escalation of adverse events associated with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations" (Caldara and Iacoviello (2022), C&I henceforth). To translate this concept into an operational measure C&I build a GPR index that reflects automated text-search results of the electronic archives of ten newspapers: Chicago Tribune, the Daily Telegraph, Financial Times, The Globe and Mail, The Guardian, the Los Angeles Times, The New York Times, USA Today, The Wall Street Journal, and The Washington Post. They calculate the index by counting the number of articles related to adverse geopolitical events in each newspaper for each month, as a share of the total number of news articles. A significant number of papers dealing with the macroeconomic and financial impact of GPR use the index by C&I: see among many others Lee et al. (2024), Ren et al. (2024), Kumar and Mallick (2024), Georgiadis et al. (2024), Segnon et al. (2024), and the references quoted therein. A related strand of the literature also relies on text to measure the somewhat related issues of social unrest (Barrett et al., 2022) and political conflict (Mueller and Rauh, 2022).

In the original paper, C&I not only construct a general GPR index, but also define what they call country-specific indices. The conceptual difference between the two is in the geographical focus of the underlying narrative: the general index expresses the extent of general concern about geopolitical risk, not limited to any area in particular. By contrast, the country-specific index is one where geopolitical risk is linked to a specific geography or political entity. The possible interpretations of the resulting index include a measure of conflict-like events suffered by the country, or that the country is deemed itself to be a risk, among others.

One feature of C&I is that their index "captures geopolitical risks as perceived and chronicled by the press in English-speaking countries, particularly in the United States".

But local perspectives of geopolitical risk are likely to be much more closely aligned to issues of importance for each nation, and as such might be much better indicators of any subsequent economic/political/social consequences. In this regard, Bondarenko et al. (2024) uses Russia as a case study to construct a monthly news-based geopolitical risk measure based on Russian local news, rather than on sources from the United States, United Kingdom, and Canada as in C&I. They show that a sudden rise in the local Russian GPR measure has strong adverse effects on the Russian economy, whereas a shock to the "anglosphere GPR" measure does not. They show that media bias plays a minor role for the transmission of geopolitical risk shocks in Russia. An independent media-based local GPR shock has marginally weaker adverse effects on the Russian economy than does a shock to the state-controlled news-based local GPR index.

Our paper builds on this literature and expands it. We provide a decomposition of GPR by exploiting the idea that the geopolitical risks facing a country can be traced back to the countries or entities that are the source of those risks, and can thus be interpreted as a "bilateral GPR". For example, GPR risks for the US that stem from tensions in the Middle East might have different economic implications than those that originate in Russia or in China. Following this idea, we identify the unique sources of GPR that originate in each relevant region (as inferred from the text database) for each recipient country. The aggregation of such bilateral GPRs provide a natural way to interpret the general GPR index. In addition, we follow Bondarenko et al. (2024) and compute our indexes paying special attention to narratives in local languages. Thus, we identify our "bilateral GPRs" from country-specific, local-language GPRs.

We cover the United States, China, Russia, the United Kingdom, Germany, and France, to have an ample representation of countries around the world that play a role in global international relations, although to a significantly different extent. We use Dow Jones' Factiva news aggregator, as building such indexes involves substantially expanding the dataset of newspapers along the country dimension.

Our resulting indices present significant variation, are broadly distinct both from each other and from the aggregate, benchmark GPRs of C&I, and together form a more accurate representation of the geopolitical tensions currently present between the major economies. In addition, we find that the region or country in which the GPR shock originates matters for the size and even in some cases the sign of the impact of such shocks on the GDP of the recipient country.

We elaborate further on these ideas in the rest of the paper. In Section 2 we explain in detail the construction of our indexes, compare them to the C&I benchmarks, and exploit the idea that local perspectives that rely on local news sources are valuable to measure geopolitical risks. Then, in Section 3, we develop the idea of the decomposition of aggregate GPRs into "bilateral GPRs", that reflect the country- and/or region-specific indexes in which the geopolitical risk originate, with a particular focus on resuts for the US, China, and Russia. Next, in Section 4, we show that the type of risks that emanate from different countries and/or regions yield somewhat different macroeconomic impacts. Finally, in Section 5 we provide some concluding remarks.

The paper contains a number of annexes with additional material. Appendix A presents the terms used in the search in each language to build the local-language GPRs, while Appendix B compares our indexes with C&I. In turn, Appendix C provides statistical analysis that back the robustness of the decomposition proposed, Appendix D includes some specific details about the bilateral decomposition, and Appendix E includes the bulk of our results for the UK, Germany, and France. Finally, appendixes F, G show the complete VAR model results, while in H we provide additional robustness material on the VAR-based empirical results.

2 Country-specific, local-language GPRs

2.1 Building country-specific local-language GPR indices

We wish to deconstruct the local narrative of geopolitical risk. The assumption behind this exercise is that the geopolitical risk narrative is by nature local, and varies from country to country. In this sense the original GPR index of Caldara and Iacoviello (2022) provides a representation of the risk from the point of the view of mostly the US, as the majority of the newspapers used to construct it are US sources. Indeed, that the GPR index represents a mostly "Anglo-Saxon view" of the risk is explicitly underlined by the authors in the original paper. Yet it is clear that the geopolitical risk perception can vary between countries. As already stated in the Introduction, the work by Bondarenko et al. (2024) shows that altering the sources does change the resulting GPR index, and that local indices more accurately represent the local perceptions of risk. Moving to this local perspective is key to its further deconstruction by the origin of risk.

We therefore construct local GPRs for several countries of interest: US, China, Russia, the UK, Germany and France. We employ the main newspaper sources for each country, and use their respective language, as displayed in Table 1. In Appendix A we show the geopolitical risk-related terms used in the search in each language. The procedure to construct the indices is standard for these dictionary-based approaches: for each country we obtain the time-dependent count of articles that come from any of the given sources and contain at least some of the terms in our dictionary. We then normalize them by the - also time-dependent - total count of articles coming from these sources. The resulting index thus represents the attention paid in the national newspaper narrative to issues related to geopolitical risk. Furthermore, if the aim is to compare the indices, we might normalize them by dividing by the mean during some time period and multiplying by 100. In other parts of the paper we will also explain how to construct various versions of the index, where we might vary the procedure slightly and not only look for certain specific terms, but also use pre-existing Factiva categories that classify articles based on their focal region.

An interesting side effect of having access to distinct quantitative geopolitical narratives is that the differences in these narratives could be quantified in a way that reflects the underlying geopolitical segmentation among countries. In this spirit we use the local-language geopolitical risk indices to define *geopolitical similarity* between pairs of countries.

Table 1: Newspaper sources

C & I sources
The Wall Street Journal, The Washington Post, The Los Angeles Times, The Chicago Tribune, The New York Times, USA Today, The Daily Telegraph, The Guardian, The Globe and Mail, The Financial Times
This paper's sources (from Factiva)
United States: The Wall Street Journal, The Washington Post, The Los Angeles Times, The Chicago Tribune, The New York Times, The Boston Globe, USA Today
China: South China Morning Post (HK), China Daily, Global Times
Russia: Kommersant, Vedomosti, Novaya Gazeta, Argumentu y Faktu
United Kingdom: The Times, The Guardian, The Independent, The Herald, The Economist
Germany: Süddeutsche Zeitung, Die Welt, Handelsblatt, Der Tagesspiegel, Die Tageszeitung, Börsen-Zeitung, Berliner Zeitung, Frankfurter AZ
France: Le Figaro, Les Echos, Le Monde, Liberación, La Croix, L'Opinión, La Tribune, L'AGEFI Quotidien

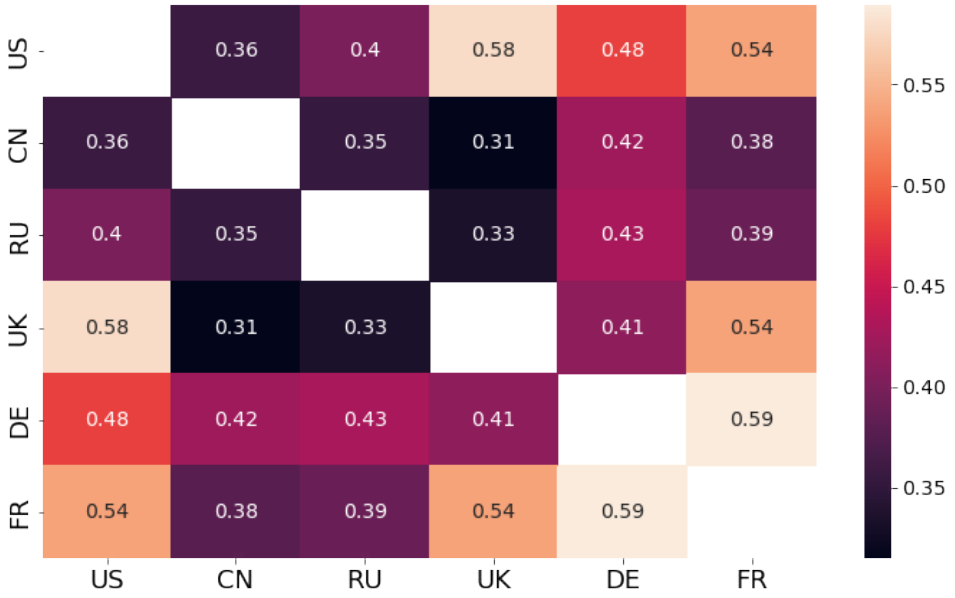
We do this by looking at the fraction of peaks shared between indexes of two countries. The details, as well as the resulting similarity values, are shown in Figure 1. It is clear that the results reflect the effective fragmentation along geopolitical lines. First, China and Russia show the lowest similarity values in the sample. They are the least similar to any other country, with the exception of Germany. Second, the highest similarity among the countries present is between Germany and France, and a close second is between the US and the UK. What is perhaps slightly surprising is the relatively low similarity between China and Russia, suggesting that the adage "the enemy of my enemy is my friend" might not necessarily hold here, at least taking the official narratives at face value.

2.2 Comparison with the index based on Anglo-Saxon (C&I) sources

In order to firmly link our indexes to the literature, in this section we compare our local-language, Factiva-based variables with the geopolitical risk index of C&I, given that the latter is the standard in the literature. In order to be able to do that we need to make sure that whatever differences we see in our local indices stem from the explicit changes we made to the sources and languages, and not as a result of creating them within our specific setup. Therefore, we first show that we are able to recreate the C&I geopolitical risk index within Factiva. This will provide us with a common benchmark that we can then modify in a controlled manner.

We use the sources already shown in Table 1, and the same methodology outlined in the previous Section (this methodology, in which one counts the articles across all the relevant newspapers as opposed to computing the index source by source, is the same one used in the original paper). Naturally enough, the particularities of Factiva's data

Figure 1: Pairwise geopolitical similarity



Notes: For each pair of countries i and j, the similarity is the average between asymmetric similarities. The asymmetric similarity from i to j is the fraction of peaks in i shared with j. Peaks are defined as values deviate 1 standard deviation from the mean, using a rolling window of three months.

coverage[1], the specifics of how its search engine functions[2], as well as the limiting factors of the query,[3] render perfect reproduction impossible.

However, we show that it is possible to obtain an index that is close enough in terms of several key factors. First, the indices are very similar, with a correlation of 0.82 (see Figure B.1). Additionally, for a given selected time frame, all but two events are picked up by two standard deviations in both series (see Table B.1). Finally, the indices give almost identical impulse response functions when placed in the original model of Caldara and Iacoviello (2022) (Figure B.2). Together, this gives us ample assurance that our replica GPR index is a reliable approximation of the original GPR index, capturing its most salient points. It establishes our replication index as a robust baseline, and in the remainder of the paper when we talk about differences to the C&I index we will mean our Factiva-based replica. The implication is that such differences could be confidently interpreted as reflective of the implicit differences from the original GPR index as well.

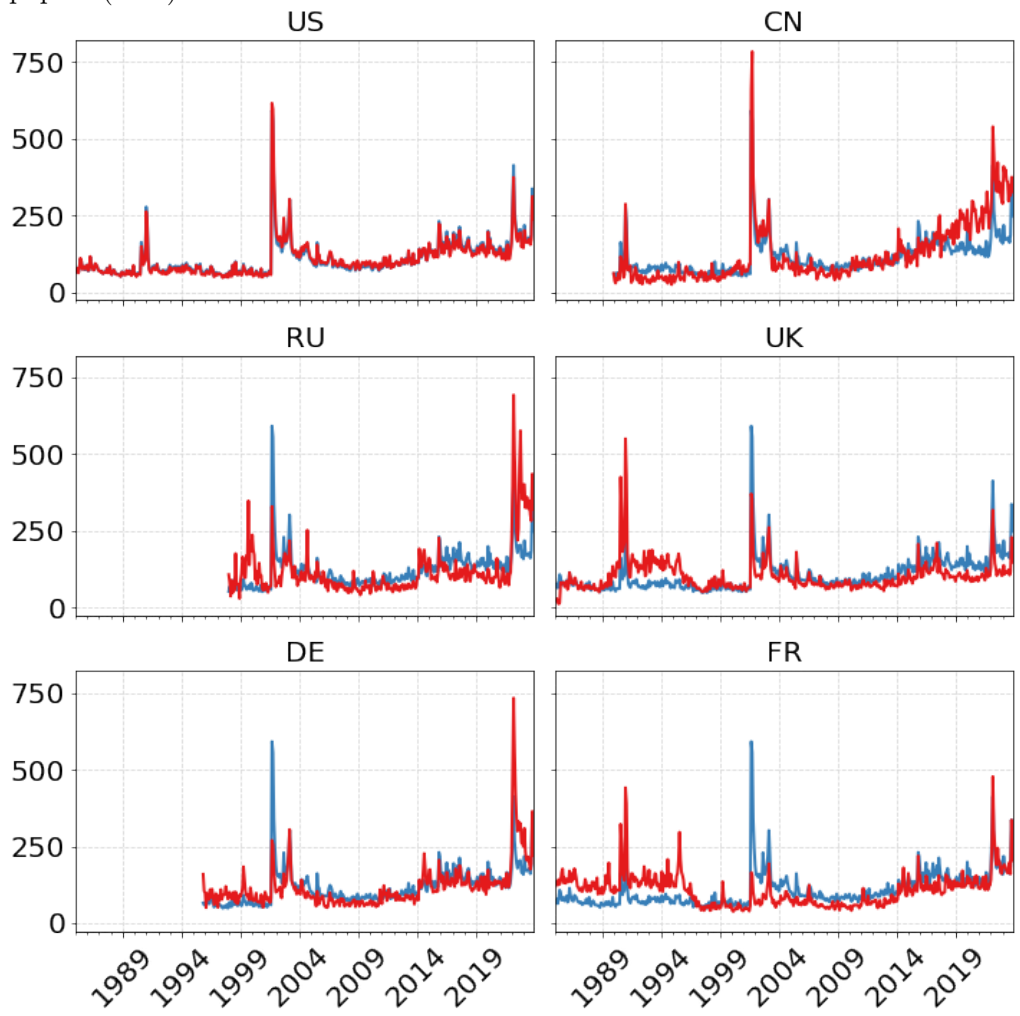
We now turn to examining the effects that result from moving to a local perspective. To do that, we compare the local GPR indices created in the previous section with the Anglo-Saxon benchmark (the GPR index recreated using Factiva). The results are shown in Figure 2.

[1]One implication being that two major news source used in C&I are absent from our sample: we do not use the Financial Times because it is absent from Factiva and we do not use the Daily Telegraph because we find that it has too many uncontrolled duplicates, which produces spubrious peaks.

[2]Factiva does not disclose whether techniques like lemmatization or stemming are used to search for words in articles. As a result, the same query applied to the same sources might yield different article counts depending on whether Factiva or another search engine is used.

[3]A limit on Factiva´s API query size is the major hurdle here; to counter that, we have had to not include the part of the original GPR query that explicitly excluded articles related to sports, entertainment, etc. This problem is exacerbated when "longer" languages are considered, see for example our solution for the Bilateral GPR for Germany in section C.1.

Figure 2: Different perspectives on GPR: local language newspapers versus Anglo-Saxon newspapers (C&I).



Notes: The General Geopolitical Risk Index of C&I recreated using Factiva, with Anglo-Saxon sources (blue), and each country local-language sources (orange). Both indices are normalized to have a mean of 100 between 1985 and 2019. The blue line is the same in all the sub-figures.

First, visually, the indexes share common dynamics, but also display differences. This can be exemplified by the correlation coefficients in each case that are 0.99 for the US, 0.87 for China, 0.60 for Russia, 0.64 for the UK, 0.74 for Germany, and 0.50 for France. For the case of China, that show the second highest correlation after the US, both series diverge in the last part of the sample, that coincides with the most recent period of geopolitical tensions associated with the trade confrontation at the time of the Trump administration, that continued later on, with particular intensity in the case of digital products and services. For more details on this, see Appendix B.

Second, the indices coincide in most of the significant events that are registered as such, as detailed in Appendix B. We complement the evaluation of the differences among indexes by focusing on the commonality of peaks between the GPR indices constructed using national newspapers and the sources behind C&I (Figure B.9). Peaks are defined as values above two standard deviations of the mean using a rolling window of three years, as in C&I's paper. We see that both strategies provide similar magnitudes of the number of peaks, although GPRs using local sources consistently give more peaks than the GPRs

of C&I. US, UK, France and China are the countries with the most peaks. Looking at the size of the peaks, most countries display peaks of similar magnitude between the indices, with Russia displaying the highest peaks in the local-language index.

Figure B.10 illustrates the fraction of events unique to each type of GPR index. The US and the UK exhibit a relative lack of events exclusive to their local indices, suggesting that these local indices are almost subsets of the original C&I index due to substantial overlap in sources. In contrast, for China and Russia, most peaks appear only in the original C&I index, with only about a quarter appearing in the local versions. This discrepancy may indicate that these countries have different perceptions compared to the Anglo-Saxon sphere. Finally, Germany and France fall somewhere in between, capturing more local events than China and Russia but also aligning more closely with the C&I index.

3 Bilateral GPRs

Now that we have the indices that correctly quantify the local perspective on geopolitical risk, we can start looking at the origin of that risk. Essentially, we want to know where the majority of that risk comes from and whether it is associated with some regions of the world more than others.

There are two separate aspects to solving this problem. First, we need a methodology that associates a (local) GPR with some particular external geographical region, something which we call Bilateral GPR.[4] Comparing such Bilateral GPRs stemming from the same country of origin but focusing on different regions would order the regions in terms of their relative importance to that country. However, due to the entangled nature of geopolitical conflict, these indices are more than likely to overlap, their sum by far exceeding the non-bilateral index by an amount that varies in time. So, while such Bilateral indices might be perfectly valid to assess the relative importance of the regions to the country of origin, they would not provide a proper decomposition into non-overlapping components. Developing a algorithm to obtain such a decomposition forms the second step of our methodology.

The dictionary-based methodology that is behind the GPR indices provides us with a very natural way of extending the local indices to create a Bilateral GPR. We can associate a particular external region to an existing index by simply supplementing the original query with terms relating to the external region in question. We interpret such an index, obtained using the sources and language of country i and mentioning region j, as the component of risk related to region j in the narrative of i. The Bilateral GPR is then the time-series of the counts of such articles normalized by, typically, the total number of articles. In the original Caldara and Iacoviello (2022) paper the authors introduce such bilateral indices but call them "country-specific" GPRs. They define such GPRs as the geopolitical risk associated to other respective countries. However, all their country-specific GPRs will be effectively the perception of risk associated with these countries from the same Anglo-Saxon perspectives. That is why we slightly depart from their terminology:

[4] We use the looser term "region" as as opposed to "country" not only because some conflicts are precisely related to geographical self-determination, but also because one might wish to consider broader categories when specifying risk location.

we wish to stress the importance of being clear with respect to the "focal point" of the index (j), and the narrative within which it belongs (the origin, i), which in our case will change depending on the country of origin.

A somewhat tangential but important point to mention is that instead of simply adding regional terms to the Factiva query in order to find relevant articles, we rely on the specific classification scheme used by Factiva to categorize articles as being focused on a particular region (the "re" filter). The particular algorithm by which Factiva assigns the "re" classification to an article is proprietary, but by trial and error we infer that it is more restrictive than a simple mention of the country or its capital. Nevertheless, making such use of these filters is considered standard methodology and has been used to compute for example the Economic Policy Uncertainty indices in a number of papers. Using such filters instead of country mentions has its own advantages and drawbacks which we will highlight in the following section as they become more pertinent; meanwhile, in Appendix C.1 we provide the validation exercises necessary to be able to rely on the classification as a method for complete coverage.

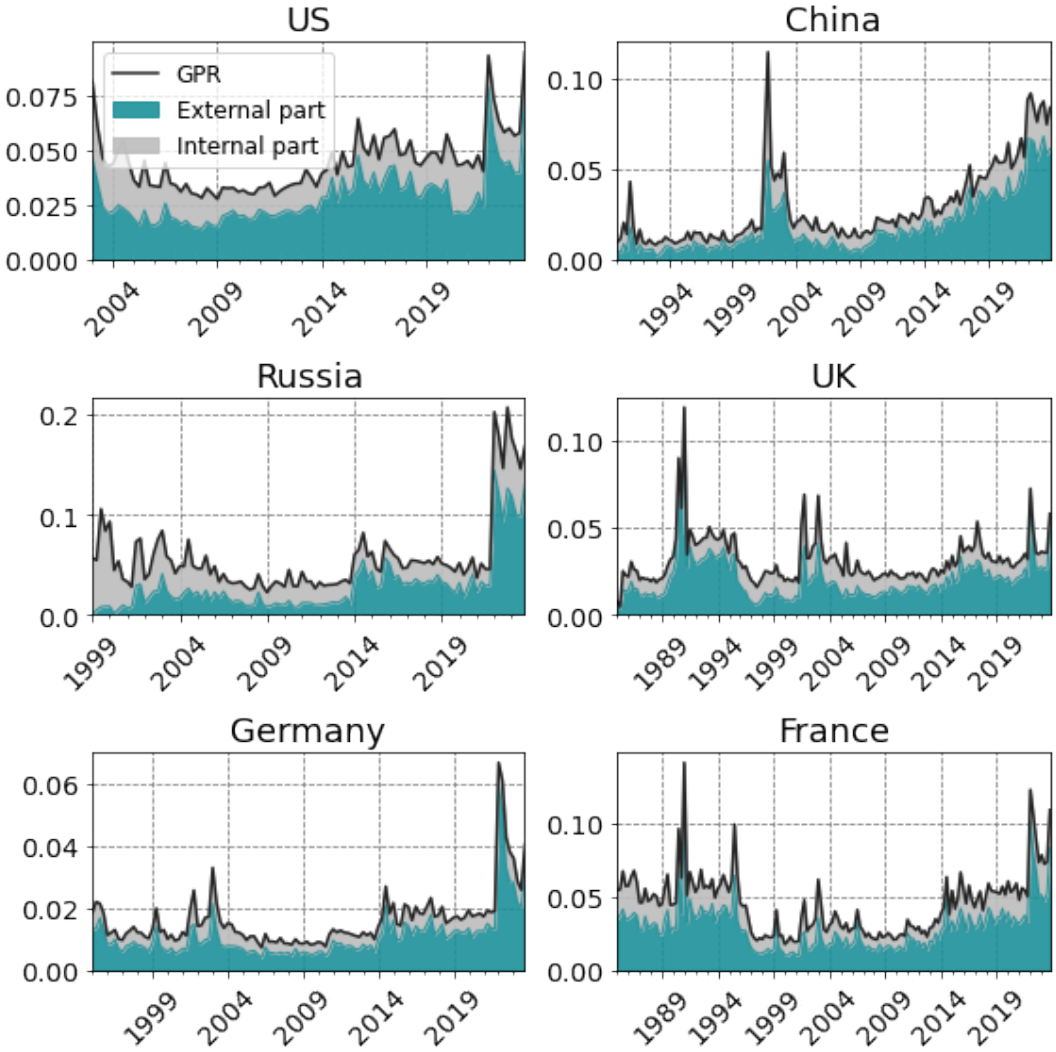
3.1 Decomposing GPRs into non-overlapping components

Fundamentally, the GPR index counts the number of articles related to geopolitical risk. If an article also mentions some particular region, it will contribute to the Bilateral GPR associated to that region. There will also be a substantial number of articles mentioning more than one region, in which case they will contribute to several distinct Bilateral GPRs. This brings us to our first result that is worth noting, which is that for every country there will be a fraction of the articles making up the bulk of the GPR narrative that cannot be attributed to any other country other than the country of origin.[5] We label this as the "Internal" component of the GPR. Figure 3 shows that it occupies a non-negligible fraction of each country's narrative, for example, 57% of the discussion in the case of Russia, and 37% of the discussion for the US. The majority of articles in this category make passing references to war or geopolitical events, although this is not their main focus. Instead, the articles tend to center on the consequences of these events for the general life in the country in question, or even only mention the geopolitical event in passing. In Appendix C.2 we list the possible reasons an article might not mention any foreign country, and yet contribute towards the GPR index. Now, given that we want to decompose the geopolitical risk by regions, and because *a priori* we understand this risk to be related to external regions, we will interpret this non-contributing part as noise.

We will therefore focus on decomposing the complementary, external fraction of the GPR, and not the GPR index as such. What this means in practice is that the denominator

[5] It is worth noting that a missing classification by Factiva is not one of the reasons an article can be considered "Internal". Section C.1 shows the dates from which almost all the articles contain the "re" category, that is, no article is left unclassified by Factiva. This allows us to separate the fraction of articles that only talk about the country of origin, and the other articles that have some focus to the outside world. Now, it is possible that such internal articles *do* mention some foreign region, just not enough for it to be picked up by the "re" filter. That is a limitation of our methodology, though given that we assume the filter is applied homogeneously across the countries of origin in our sample, we can still assume our results are representative of the underlying phenomena.

Figure 3: Decomposition of GPR into External and Internal components



We show the Internal part of the GPR layered on top of the External part, so that the final outline is the (local) Geopolitical Risk Index.

of the Bilateral GPRs is no longer necessarily the total count of the articles stemming from the given sources of origin, but rather the count of those articles that, additionally, focus on at least one external region.

Now, suppose that apart from our local country whose sources we are considering, the world consists of only two other regions, A and B. In all likelihood, if we were to compute the Bilateral GPRs from the local country to region A and to region B, their numerator would sum up to more than the external component of the local GPR. That is due to a non-negligible chance of overlapping coverage. This happens when there are articles that refer to both A and B and hence contribute to the counts of both the Bilateral GPRs. Given the highly interconnected nature not only of geopolitical conflict, but also of its reporting, such overlaps cannot be neglected. The solution to this issue is the key to our methodological contribution.

The way we propose to decompose the GPR is by considering extensive region combinations. Consider the example above, of only two other regions apart from the country of origin. Geopolitical risk would then consist of the risk associated solely with region A, solely with region B, and with both regions together (and the risk not related to either A or B is the internal component or noise we mentioned previously). In other words, what we need to consider are not the simple, non-exclusive Bilateral GPRs that in this framework are more accurately labeled as marginals, but the GPRs that explicitly specify the presence and absence of all the regions considered (thankfully the particulars of the Factiva search query does allow for such a Boolean logical step through the use of "not"). What this procedure is doing in practice is creating a partition of the set of all relevant articles such that each article contributes to one and one only exclusive Bilateral series. The sum of the numerators of such series then corresponds to the external component of the GPR.

Having to consider region combinations brings with it several challenges. The first one is computational: if the number of external regions is n, the number of combinations to consider is 2^n (each combination either includes or excludes each of the regions). The second issue, and something that is not resolvable with enough computational resources, is the limitation that Factiva places on its query length. Adding more than a few regions, whether with the aim of including or excluding them, will surpass that limit. To resolve both issues we consider broad geographic agglomerations. This allows us to get both a global picture of the risk that is comparable across countries, and understand its underlying narrative[6]. In Section C.1 we check whether the particular set of regions considered for each country provides a good enough coverage of the External part of the GPR.

For each country of origin, we partition the rest of the world into a small number of regions based on whether we consider those regions to have distinct geopolitical relation to that country; but also to have a good enough narrative coverage of the world's economies. Consequently, the principal regions that we examine, and which are present in all the countries under consideration, are the Middle East and North Africa (MENA) –which we abbreviate as the Middle East –, "Asia Other", a variant of the "Western bloc", and either China/Russia or its neighbors. The precise zoning by regions is displayed in Table 2 for the US, China and Russia, and Table E.1 in the Appendix for the UK, Germany and France. Section C.1 provides the checks carried out to ensure the specific zoning for each country gives sufficient data coverage.

Our methodological approach is as follows. For each country of origin, we first identify the relevant geopolitical risk regions as detailed above. We then compute the number of articles associated with the GPR query supplemented by each of all the possible combinations of those regions (so, for example, if there are five regions, we must account for $2^5 = 32$ combinations). We then rank the resulting combinations by the total associated article count and select the top N combinations whose cumulative count exceeds 80% of all articles related to the external GPR component. These selected N combinations are

[6] That is also one of the reasons we use the "re" filter and not country mentions. This filter is nested, which allows for selective variation of the boundary of each region.

then used to compute the high-frequency exclusive, non-marginal Bilateral GPR indexes that form the core of our analysis. This method provides an efficient partitioning of the geopolitical risk space, preventing double-counting while preserving the most important risk narratives. As a result, we can isolate key geopolitical risk discussions and gain a clearer understanding of direct geopolitical relationships.

3.2 Discussion of the main results

In this section we describe our main results for the three major geopolitical players: the US, China, and Russia. Our results are summarized in Figure 4 and Table 3. Figure 4 shows the most significant contributions to the geopolitical risk, while Table 3 traces both the exclusive and the marginal Bilateral contributions of the main regions for each country

Table 2: Regional Composition for US, CN, and RU

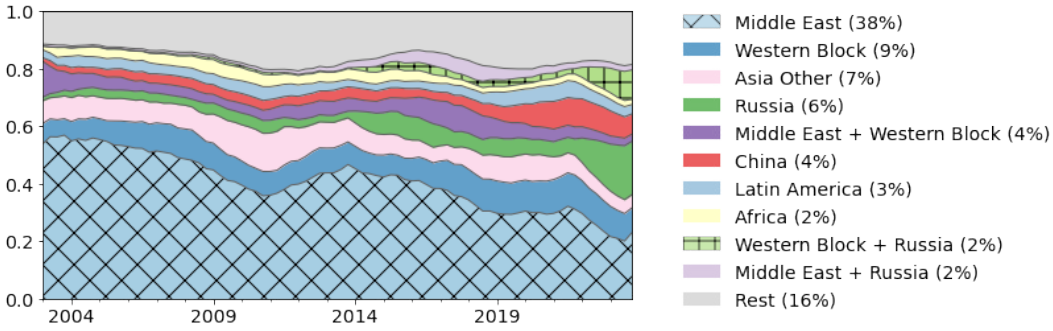
Region	Constituents	FACTIVA codification
United States (7)		
Middle East	Cyprus, Egypt, Israel, Jordan, Kurdistan, Lebanon, Palestine, Persian Gulf countries, Syria, Turkey, Yemen, Afghanistan, Islamic State (ISIS)	re=(nafrz or meastz or AFGH) or ISIS or Islamic State
Asia Other	Japan, India, Pakistan, Malaysia, Indonesia, Thailand, South Korea	re=(SKOREA or INDIA or PAKIS or MALAY or INDON or THAIL or JAP)
Western Bloc	Canada, European Union, Nordic countries, United Kingdom	re=(CANA or EECZ or NORDZ or UK)
Russia	Russia	re=(RUSS)
China	China	re=(CHINA)
Africa	African countries excluding North Africa	(re=africaz not re=nafrz)
Latin America	Mexico, South America and the Caribbean	(re=(caribz or lamz))
China (5)		
Middle East	Cyprus, Egypt, Israel, Jordan, Kurdistan, Lebanon, Palestine, Persian Gulf countries, Syria, Turkey, Yemen, Afghanistan, Islamic State (ISIS)	re=(nafrz or meastz or AFGH) or ISIS or Islamic State
Asia Other	India, Pakistan, Malaysia Indonesia, Thailand	re=(INDIA or PAKIS or MALAY or INDON or THAIL)
Western Bloc	United States, European Union, Nordic countries, Canada, Australia, New Zealand, United Kingdom	re=(CANA or USA or EECZ or NORDZ or UK or AUSNZ)
Russia	Russia	re=(RUSS)
China Neighbours	Japan, North Korea, Taiwan, South Korea	re=(NKOREA or TAIWAN or SKOREA or JAP)
Russia (5)		
Middle East	Cyprus, Egypt, Israel, Jordan, Kurdistan, Lebanon, Palestine, Persian Gulf countries, Syria, Turkey, Yemen, Afghanistan, Islamic State (ISIS)	re=(nafrz or meastz or AFGH) or Исламское or Государство or Даеш or ИГИЛ
Asia Other	Japan, India, Pakistan, Malaysia, Indonesia, Thailand, South Korea	re=(SKOREA or INDIA or PAKIS or MALAY or INDON or THAIL or JAP)
Western Bloc	Canada, United States, European Union, Nordic countries, UK	re=(CANA or USA or EECZ or NORDZ or UK)
China	China	re=(CHINA)
Russia Neighbours	Ukraine, Belorusia, Georgia, Armenia	re=(UKRN or BYELRS or GRGIA or ARMEN)

Notes: The number next to the country of origin refers to the number of external regions considered. For the region denominated as "Western Bloc", depending on the country of origin, that country is absent from the list of countries that make up the bloc.

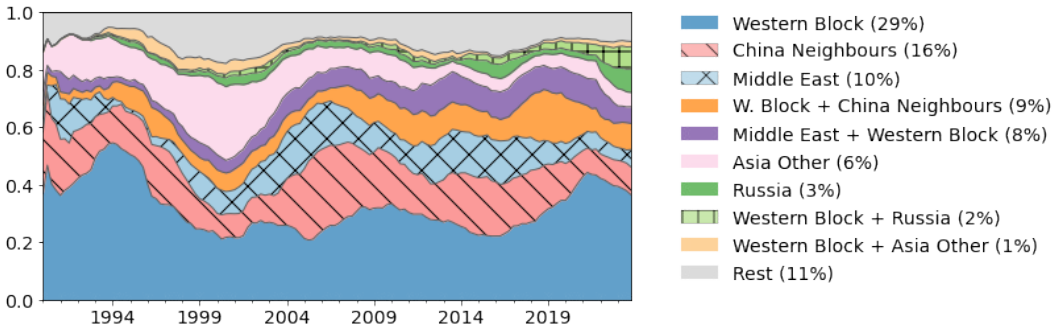
by decade, allowing for a more exact numerical comparison.[7]

Figure 4: Sources of Geopolitical Risk

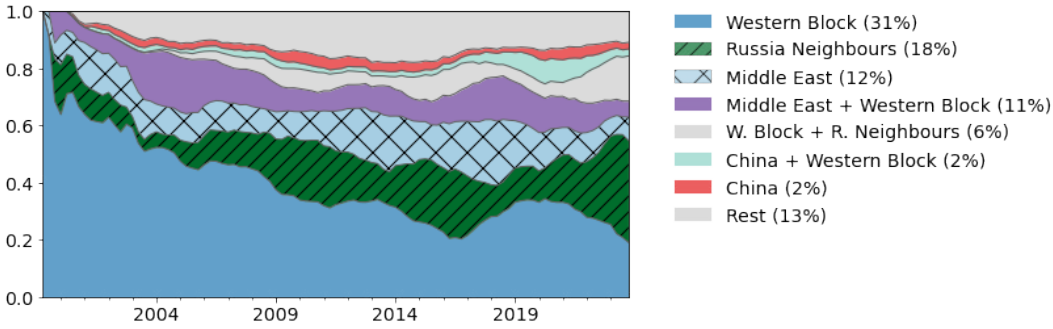
(a) **US**



(b) **China**



(c) **Russia**



Notes: The decomposition of the Geopolitical Risk. Shown are the top non-overlapping components of the external, outward-looking part of the GPR index of each of the three countries. The values are quarterly averages with a subsequent rolling mean of three years. The constituents of each region, which depends on the country of origin, can be found detailed in Table 2. Each plot area corresponds to the fraction of the external part of the GPR index limited to only the zone specified, with the exclusion of all the other zones detailed in Table 2. To facilitate cross-country comparison, we show in brackets the fraction of External component starting from the year 2003, when the decomposition for all the countries becomes available. These fractions are annual averages, and the ordering of the contributions is according to these values. Note that the earliest date for which the decomposition becomes defined is different for the three countries - it is determined by the quality of the "re" filter of Factiva, and is the reason why for the US the results are only robust starting from 2003 (see the discussion in section C.1 for more details).

[7]Note that the numbers given in Table 3, and in the brackets of Figure 4, are annual averages. This is important since Factiva's coverage is not homogeneous in time; the number of articles available grows over the years. Averaging yearly contributions allows us not to underestimate the importance of regions peaking in the early decades like the Middle East - or, conversely, not to overestimate the role of Russia. However, we have verified that computing a single decade-long fraction results only in minor fluctuations and does not change our argument.

Before we shift our focus to individual countries, we would like to underline that regional combinations frequently emerge in our analysis as significant decomposition components, comparable to those focused on single regions (Figure 4). In fact, for the given regional splitting, the fourth or at most the fifth Bilateral that contributes most to the External GPR is a combination of two regions. This suggests that such combinations

Table 3: Decomposition of external risk by origin of the risks, for US, China and Russia

	US			**China**				**Russia**		
	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023	2000-2009	2010-2019	2020-2023
China	2%	4%	8%	—	—	—	—	2%	2%	2%
- plus any other	6%	9%	14%	—	—	—	—	6%	11%	8%
Russia	3%	5%	15%	1%	2%	2%	6%	—	—	—
- plus any other	6%	13%	30%	2%	4%	7%	17%	—	—	—
Western block	8%	9%	9%	34%	28%	27%	38%	45%	29%	20%
- plus any other	17%	21%	25%	50%	47%	55%	65%	68%	56%	47%
Middle East	47%	37%	26%	7%	12%	11%	5%	11%	16%	8%
- plus any other	58%	54%	37%	13%	23%	26%	15%	27%	33%	21%
Asia other (a)	9%	8%	4%	17%	10%	4%	5%	2%	2%	1%
- plus any other	16%	15%	10%	22%	15%	8%	10%	6%	7%	3%
China neighbors	—	—	—	13%	18%	15%	9%	—	—	—
- plus any other	—	—	—	21%	27%	29%	20%	—	—	—
Russia neighbors	—	—	—	—	—	—	—	11%	15%	33%
- plus any other	—	—	—	—	—	—	—	17%	25%	53%

The table shows the percentage of the External part of geopolitical risk devoted to a region (in rows), for the three countries (in columns). The first row counts the relative number of articles featuring only the given region to the exclusion of any other region; the "plus any other" row counts the number of articles that mention the given region (and which might or might not refer to other geographies). Numbers given for each decade are annual averages. The difference between the two numbers is thus made up of articles that contain the given region in combination with other regions. Note that for any given country of origin we only consider the regions explicitly specified in the Regional Decomposition Table (Table 2). As an example, when considering the US we do not explicitly include Ukraine in any category. That means that Ukraine is not specifically excluded when we compute the exclusive component for Russia (first row) - only the regions stated in Table 2 will be excluded.
(a) The composition of this category differs across the three countries considered: see Table 2.

function as similar to ontological geopolitical entities, whose surrounding narrative might differ from the one focused on a single region only, and might as such influence the risk dynamics in distinct ways. For example, when looking at the risk as perceived by China, a Russia-only GPR component might fluctuate with news covering the detailed developments of the Ukraine war. In contrast, a "Russia plus Western block" component might reflect discussions centered on the broad implications of that conflict for Russia's relationship with Western countries.

We now focus on the narrative of our results for individual countries.

United States Currently, Middle East is the main source of geopolitical risk for the US. This has also been the dominant region driving it historically, accounting for nearly 40% of all historical discourse. Over the past two decades, however, its prominence has steadily declined. By the 2020s, Middle East-related geopolitical risk is referenced only about half as frequently as in the years following the Iraq invasion, signaling a shift in US threat perception.

The second most important geopolitical risk factor for the US is Russia. Russia's role has increased fivefold over the past two decades, now accounting for 15%–30% of the External risk category. In other words, almost a third of all the geopolitical risk articles make significant mentions of Russia. The growth in the discourse focused on Russia in conjunction with other countries reflected Russia's deepening involvement in regional power shifts, strategic alliances, and global conflicts. For instance, articles discussing shifts in missile defense strategy often focus on tensions between the US, Russia, and countries near its borders, reflecting heightened security concerns. Another key driver is the political fallout of Russia's annexation of Crimea in 2014, which intensified its confrontation with European nations beyond the US as, for example, coverage of Ukrainian President Poroshenko signing the Ukraine-EU Trade Pact in June 2014. On the other hand, the increase in the attention paid to Russia alone[8] was driven by the invasion of Ukraine, with articles that focus directly on Russia's actions as well as the specificities of the operations on the ground (and the majority of articles centering on Ukraine after the start of the conflict are almost certain to include Russia).

Now, while China has historically played a smaller role in US perceptions of geopolitical risk compared to the Middle East and, more recently, Russia, its presence in the discourse has steadily expanded over the past two decades. Mentions of China alone have increased fourfold since 2003, doubling in both the 2000s and 2010s. Meanwhile, references to China in conjunction with other countries have also grown, though at a slower pace, suggesting that concerns about China's geopolitical risk are increasingly centered on China itself rather than its regional interactions. This shift likely reflects wider anxieties over China's global influence, particularly in the context of US-China relations, trade tensions, and technological competition, rather than traditional security conflicts. Yet, despite this growth, China's share of the overall geopolitical risk discourse remains relatively modest: as of the 2020s, all China-related mentions (including those involving other countries) account for just 14% of US discourse, with China alone at 8%. In contrast, Russia's presence has grown more sharply from a similar baseline, reinforcing that while concerns about China have risen, they still do not carry the same perceived urgency as those surrounding Russia.

The share of US geopolitical risk discourse that focuses exclusively on the Western

[8] By that we mean the other countries in the regional decomposition of the world according to the US. Given that Ukraine does not explicitly appear in any Bloc, articles relating solely to Russia and excluding other countries will not explicitly exclude Ukraine.

Bloc —Western-aligned nations excluding the US — has remained stable over decades, averaging 9% of all historical articles. While it may seem counterintuitive that the US perceives its allies as risky, these articles often address financial market reactions, political developments, and security concerns within Western nations. Economic discussions frequently link investment flows and currency volatility to geopolitical uncertainty (e.g., an article noting how the US dollar benefited from rising geopolitical concerns in 2022). Political events are also framed through this lens, with elections in key Western Bloc countries often interpreted as geopolitical risk factors (e.g., David Cameron justifying the "Remain" campaign by arguing that, in times of heightened terrorist threats, stronger European ties were more critical than ever). Security concerns, particularly domestic terrorism and military alert levels, further contribute to this category (e.g., any article covering terrorist attacks within the Bloc, as long as the focus remains internal). It is also worth noting that any acts labeled as terrorism by authorities - regardless of their relevance to geopolitical risk - are incorporated into this narrative (e.g., the assassination of Jo Cox in the run-up to the Brexit referendum). Finally, the structure of an article's narrative can influence its classification under the Western Bloc category. For instance, coverage of Donald Trump labeling immigrants a terrorist threat may include references to anti-immigration rhetoric across Europe, linking domestic US discourse to broader Western Bloc concerns.[9]

By contrast, the share of geopolitical risk discourse referencing the Western Bloc together with other countries has increased steadily over time. This category expanded in both the 2000s and 2010s, and by the 2020s, about a quarter of all geopolitical risk-related articles contained mentions of Western Bloc countries in conjunction with other nations. Whether through military engagements, economic sanctions, or broader geopolitical strategies, other Western Bloc nations are increasingly perceived as direct players in shaping geopolitical risk rather than merely being affected by it.

China China's geopolitical discourse has historically been dominated by the Western Bloc, with nearly a third of all risk-related articles focusing exclusively on its constituent countries over the years. This share dropped in the 2000s and remained steady over time until 2018, when it elevated by almost 30%. Narratives involving the Western Bloc alongside other regions have also expanded at a similar rate, though more gradually. The biggest drivers of this increase are the Western Bloc's interactions with China's neighbors, the Middle East, Russia, and Asia Other.

The most significant of these — Western Bloc and China's Neighbors — have historically occupied 10% of the risk discourse, and is overwhelmingly centered on the US (94% using bulk averaging). Its more general narrative[10] saw two major peaks: first in 2017–18, driven by rising tensions on the Korean Peninsula, with China closely following Western responses to North Korea's nuclear tests, US-South Korea military exercises, and high-level summits. The second peak, in 2022–2023, is linked to Taiwan, particularly the Fourth Taiwan Strait Crisis, which escalated following US Speaker Nancy Pelosi's visit to Taipei, reinforcing China's perception of Western interference in its regional sphere.

[9] A fuller categorization is provided in Appendix D.

[10] Here we are describing the marginal Bilateral, without explicitly excluding other regions

The other two categories of the Western Bloc's relation to both Russia and the Middle East are in line with expectations, its Bilaterals experiencing the surges following the Gulf Wars etc, reinforcing the prominence of traditional conflict-related geopolitical risks. The final flagged up category, that of the Western Bloc's relation with the Far East, reflects a different dynamic, focusing on strategic shifts in power, particularly in relation to China's regional positioning and influence. Approximately two thirds of that discourse is related to India and Pakistan, with the majority (84%) specifically focuses on the US, indicating that discussions about the Western Bloc's involvement in the region are primarily framed around Washington's role (the numbers are bulk averages). This emphasis reflects the broader geopolitical balancing act in the Asia-Pacific, where the US has sought to strengthen its strategic partnership with India, while China has reinforced its ties with Pakistan as a counterweight.

The significance of China's geopolitical discourse on Asian countries excluding China's immediate neighbours has declined over time, with its prominence in the 2020s now comparable to that of the Middle East. Even when combined with other regions, its role remains secondary, accounting for only 10% of all geopolitical risk narratives. This suggests that broader geopolitical tensions between China and the wider Asian region were far more pronounced in the 1990s but have since waned, reflecting a shift away from broader Asia-related concerns

China's geopolitical risk discourse on its neighbors - Taiwan, Japan, South Korea, and North Korea - peaked in the 2000s, but has since waned. In the 2020s, attention to these countries rivaled that paid to Russia. However, when combined with other regions, especially the US, that narrative remains significant (the second highest marginal Bilateral after the Western bloc), mainly due to the Taiwan and North Korea-related rhetoric. As noted earlier, their strategic role in the US-China relations continues to shape their presence in geopolitical discussions.

Russia's contribution to China's geopolitical risk perception has historically been small, averaging just 3%. Since the invasion of Ukraine, however, it has tripled to 6% (or 17% if marginal cases are included), making it currently the third-most important region for China. The Ukraine war also more than doubled the attention paid to Russia in conjunction with other countries, with the biggest driver being the category "Russia plus Western Bloc" (the US dominates that discourse with 80%, using bulk measurement), whose share also quadrupled post-invasion. This narrative is largely shaped by geopolitical negotiation and enforcement rhetoric, covering treaties, sanctions, and compliance disputes. It peaked in 2014 with Crimea, again in 2018–2019 with cases like the INF Treaty and Nord Stream 2-related sanctions, and once more in 2022. Beyond reporting the tangible repercussions of sanctions, some of these articles echo the Kremlin rhetoric, portraying Western actions as an attempt to break Russia apart and framing US policies as part of a new Cold War against Russia.

Russia Historically, the most significant direct source of geopolitical risk related to Russia came from the Western Bloc, with on average about a third of all geopolitical risk articles referencing its constituent countries. However, its relevance has steadily and sig-

nificantly declined over the past three decades. In the 2000s, exclusive references to the Western Bloc were more than twice as frequent than they are today, indicating that it is no longer a primary driver of geopolitical risk in Russian discourse. While it remained a dominant factor up until the Ukraine war, it has since been overshadowed by the direct focus on Ukraine itself.

Currently, the most significant direct source of geopolitical risk related to Russia comes from its immediate neighbors—Ukraine, Belarus, Georgia, and Armenia. That category grew slightly in the 2010s with the annexation of Crimea, and then more than doubled following the invasion of Ukraine. Ukraine as a focus overwhelmingly dominates this trend, consistently being the largest contributor. The second-most important contributor has been Belarus. Beyond Ukraine-related events, a major peak occurred in 2020 with Belarus's sixth presidential election, triggering widespread protests and media discourse. Much of this coverage centered on the Lukashenko government's rhetoric, which framed the protests as a coup attempt, invoked threats of NATO intervention, and emphasized internal security concerns. This extended into 2021 with international incidents such as the forced landing of a Ryanair flight in Belarusian airspace to detain an opposition journalist. The other two key contributors —Georgia and Armenia — were nearly equal in their share of geopolitical risk discussions. Georgia saw a sharp peak in 2008 during the Russia-Georgia war, largely focused on the conflicts in Abkhazia and South Ossetia. Armenia's geopolitical prominence, on the other hand, was shaped by the Nagorno-Karabakh conflicts, first with the 2016 Four-Day War, then the full-scale 2020 war, followed by the 2022 blockade and the 2023 Azerbaijani offensive.

The third most significant contributor to Russia's geopolitical discourse is currently the Middle East, though historically, its prominence has been only half that of the Western Bloc. Its peak in Russian geopolitical discourse occurred in the 2010s, largely driven by the Syrian conflict, where Russia played a central role, both militarily and diplomatically, in supporting the Assad regime and shaping the regional balance of power. Since then, however, its importance has dropped by more than half, reflecting the changing priorities of the Putin government.

We now say a few words about the internal component of Russia's geopolitical risk discourse, the highest of all the countries considered in this analysis. This Russia-centered narrative, independent of external influences, has remained relatively steady over time, with two major peaks standing out. The first occurred in 1999, with articles covering the apartment bombings that propelled Putin into power and reignited the Chechen conflict. The second, far stronger, peak is linked to the internal repercussions of the Ukraine invasion, including but not limited to sanctions, economic fallout, supply chain disruptions, and anti-war protests. A significant part of the discourse is centered on the military, with articles focusing on everything from conscription, the sentencing of those refusing to take part in the "Special Military Operation", to lauding the workers of a forest-felling industry for their contributions to the war effort made by supplying wood to heat army tents. More broadly, geopolitical tension and conflict have permeated everyday narratives and become the new normal - and so articles on everything from the Belgorod region limiting New Year fireworks to a slow movement of housing stock cite geopolitical instability, reinforcing how deeply the conflict rhetoric has embedded itself in Russian media.

Europe The UK, Germany, and France share the main drivers of geopolitical risk discourse, which supports the view that there is a broadly representative European perspective on geopolitical risk (see Appendix E for details). In all three countries, the Middle East is the primary component, accounting for a quarter of all articles, with the Western Bloc following closely behind. Additionally, discussions combining the Middle East and the Western Bloc occur at about half the frequency of those focused on either one alone. Given that the vast majority of Western Bloc-related articles focus on the US, the prevalence of this category suggests that Europe perceives Middle Eastern instability not only as a regional issue but also as something closely linked to US foreign policy and strategic decisions. In contrast, the Western Bloc as a standalone category is small in US discourse, and the combination of Western Bloc plus Middle East is even smaller, suggesting that the US does not perceive European nations as key geopolitical actors in the same way that Europe views the US. This difference highlights how the US perceives geopolitical risk as a direct and immediate concern, shaping its discourse independently rather than in relation to its allies. Finally, The US geopolitical risk discourse is highly imbalanced, with the Middle East accounting for nearly 38%, making it by far the most dominant focus and reflecting the long-standing US engagement in the region. On the other hand, while the Middle East remains a major focal point in European discourse (around 27% in the UK, Germany, and France), its share is much more balanced with other regions.

4 The macroeconomic impact of Bilateral GPR shocks

4.1 Model

To evaluate the macroeconomic impact of GPR shocks, we broadly follow the approach of Caldara and Iacoviello (2022).[11] We jointly model a vector of five time series for each country: $Y_t = [GPR, VIX, 5Yyield, P_{oil}, GDP]$, where: (i) GPR represents either the local GPR or the Bilateral GPR index, as discussed in the previous Section.[12]; (ii) VIX is the VIX index provided by CBOE, which measures equity market volatility common to all countries in the sample; (iii) $5Yyield$ is the yield on 5-year government bonds for advanced economies; for Russia and China, we use the JPM EMBI Global Diversified indices.[13]; (iv) P_{oil} is a measure of real oil prices derived from the average Brent crude prices, obtained from Refinitiv, and deflated by each country's consumer price index; Brent prices enter the model in log-levels. Brent prices are used for all countries in the sample except the US, where we use West Texas Intermediate (WTI) crude oil prices as the reference. Both series are closely correlated; (v) Finally, GDP represents the real domestic product, expressed in year-on-year changes.

[11] Due to data limitations in the cases of China and Russia, we use a simplified version of C&I's approach, with fewer variables and a slightly altered order in the Cholesky decomposition.

[12] To be more specific, the indices are exclusive Bilateral GPRs, but normalized by the total external component (as shown in figure E.1). As such they represent the fraction of the external geopolitical risk index. As a robustness check, we also evaluate the impact of non-exclusive bilateral GPRs, which are indices calculated based on any mention of the country or region of interest.

[13] Yields enter the model in levels, as the Hausman test suggests they are stationary.

The empirical model we use is of the Structural Vector Auto Regression (SVAR) type. Our main specification includes two lags and quarterly data from 1985Q1 and 2019Q4,[14] following C&I. The structural form representation of the model is standard $A_0 Y_t = B(L)Y_{t-1} + \epsilon_t$, where the matrix A_0 includes the contemporaneous interaction among the endogenous variables, $B(L)$ is a matrix polynomial of lag-length L, and ϵ_t is a vector of structural disturbances. The reduced form representation of the model is the following: $Y_t = C(L)Y_{t-1} + u_t$, where $u_t = A_0^{-1}B(L)$ and $C(L) = A_0^{-1}B(L)$. The reduced form residuals have a full rank covariance matrix, $\Sigma = A_0^{-1}A_0^{-1\prime} = DD'$.

In order to identify the structural shock of interest (the GPR shock), we rely on the Cholesky identification, following Caldara and Iacoviello (2022) and Bondarenko et al. (2024). This approach involves imposing restrictions by assuming that certain structural shocks have no contemporaneous effects on specific endogenous variables. The Cholesky decomposition results in a matrix D, which is identified as a lower triangular matrix, such that $DD = \Sigma$, with Σ a symmetric matrix. However, an important restriction of this method lies in the ordering of variables. The sequence in which variables appear affects the interpretation of the shocks. Specifically, the first variable in the ordering is impacted contemporaneously only by its own shock, while subsequent variables are influenced by both their own shocks and any preceding shocks. Therefore, the choice of variable order can significantly impact the results obtained through Cholesky identification. We follow the approach used by C&I and assume that the GPR shock is an external shock that affects the VIX, yields, oil prices and macroeconomic indicators such as GDP. A similar approach, using monthly data, has also been proposed by Bondarenko et al. (2024). Additionally, we conduct various robustness checks, and the results remained robust despite changes in the ordering of variables and the inclusion of additional variables such as CPI, net trade, capital flows, or metal prices.[15]

4.2 Results

We present in figures 5, 6, and 7 the main results for the US, China, and Russia, respectively.[16] The complete results for all the variables in the models are included in appendices F and G. The results for the UK, Germany, and France are only briefly commented in this Section for the sake of brevity, but full model results are available upon request.

The following results are worth highlighting.

First, as widely acknowledged in the literature, general GPR shocks tend to have a negative impact on GDP, regardless of the country affected (see panel (a) in figures 5, 6, and 7). For the US, a two-standard deviation GPR shock is associated with a 0.4 percent decline in GDP over the first year, along the lines of what is found by C&I. A similar

[14] Due to data availability, the data for some countries start later, as mentioned in the footnote of each figure.

[15] Results are available under request.

[16] It is worth highlighting that the results are robust to the use of non-exclusive bilateral indexes. As shown in Figures 5 and 6, the macroeconomic impacts of non-exclusive bilateral indexes (blue lines) and exclusive bilateral indexes (red lines) are very similar, both qualitatively and quantitatively. The differences are not statistically significant, underscoring the relevance of our proposed classification of regions. Although non-exclusive bilateral indexes represent only a fraction of all articles, they seem to effectively capture the bulk of the risks originating from these areas.

effect is observed for China. In the case of Russia, the impact is stronger, resulting in a 0.5 percent decline in GDP over the first year. This latter result aligns with the evidence presented by Bondarenko et al. (2024).

Second, Bilateral GPR shocks generate in most cases negative GDP impacts that are heterogeneous in its intensity. For instance, for the US, the negative impact of a GPR shock originating in Russia is twice as large as one originating in China: a GPR shock in the former case causes a drop in US GDP of 0.4% after a year, while in the latter it amounts to a fall of 0.2% (even thought this impact is not statistically significant in this second case). As regards China, the shocks that impact more adversely its economy are the ones originating in Russia: a GPR shock in the Bilateral index between China and Russia is associated with a drop in China's GDP of 0.4%. In the case of Russia, the GPR shocks that most adversely affect its economy are those originating in Ukraine and neighboring countries, such as Belarus, Georgia, and Armenia. A GPR shock from these countries tends to reduce Russia's output by 1%. Moreover, this shock is more persistent, lasting almost two years. It is important to recall the reader that these results do not include the most recent war in Ukraine, as the sample period used in the estimation ends in 2019. Finally, for the UK, Germany, and France, GPR shocks also present negative effects with a somewhat different intensity depending on the country of origin.

Third, in some cases, we find that the sign of a GPR shock originating in certain regions has a *positive* effect on the GDP of the recipient country. There are four clear cases. First, a two standard deviation shock that occur in the Middle East is associated with a 0.8% increase in US GDP over the first year (panel (e) in Figure 5). Second, China's GDP increases by a similar amount after a similar shock that originates in its neighboring countries (Japan, Taiwan, South Korea, and North Korea) (panel (c) in Figure 6). Finally, in the case of Russia, there are two instances: a GPR shock with origin in the Western bloc is associated with a 2.5% increase in its GDP after a year, with effects that are quite persistent (panel (f) in Figure 7), while a geopolitical risk shock in the Middle East also pushes its GDP up (panel (e) in Figure 7).

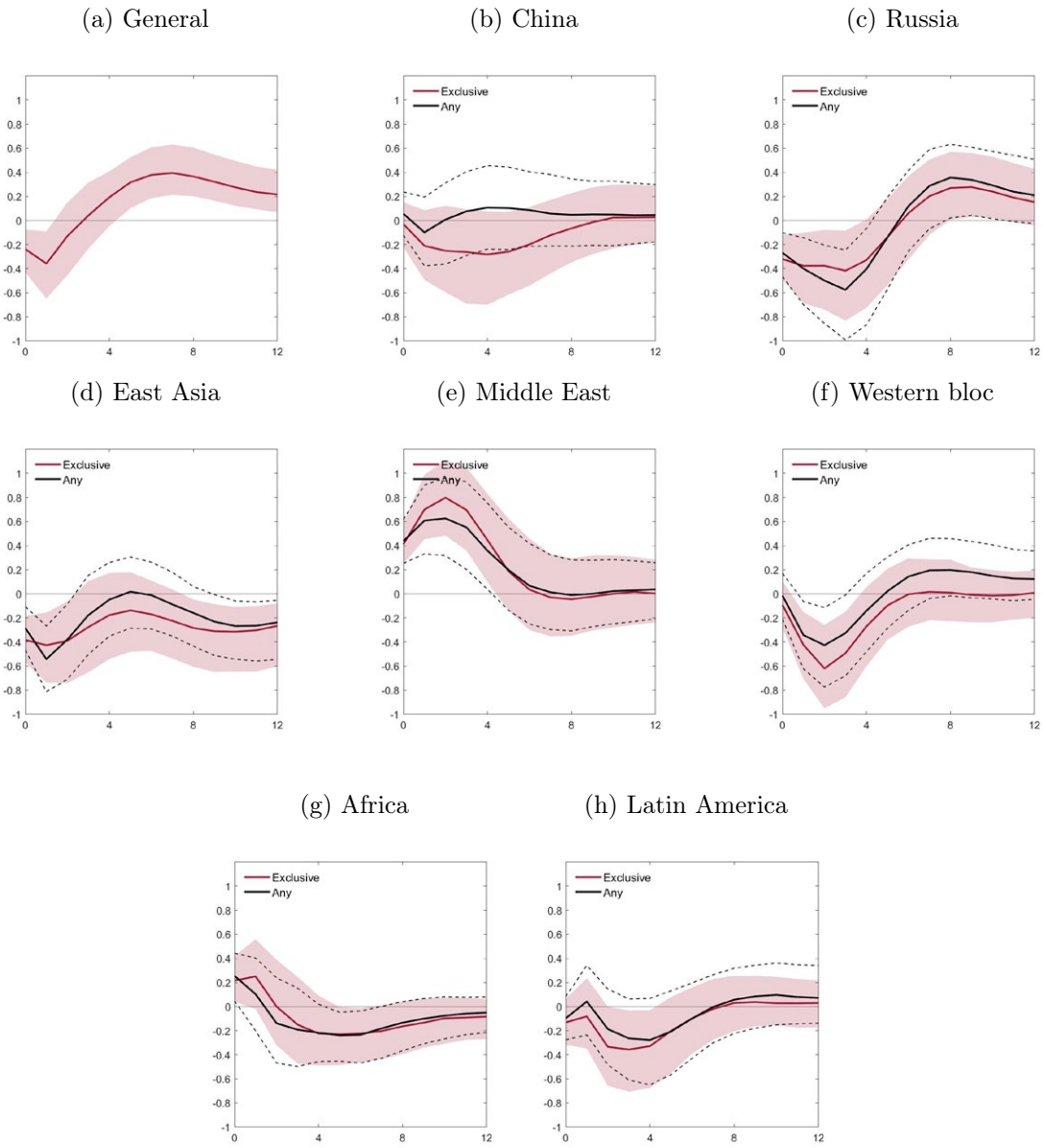
These seemingly counter-intuitive results deserve some attention. In the next paragraphs we provide a discussion of possible explanations that support their plausibility.

From a theoretical point of view, a GPR shock may impact the economy through a number of channels. A geopolitical risk shock tends to be associated with an increase in economic uncertainty, that would depress economic activity by depressing consumers' confidence and deterring investment. In addition, in certain cases, GPR shocks can resemble cost-push shocks, that would also typically depress economic activity. For example, take the case of a GPR shock that originates in a major energy-producing and exporting region: it can lead to a spike in energy prices and subsequently increase production costs for businesses in that region and other regions worldwide. A case with a similar adverse macroeconomic impact is one in which a conflict disrupt global supply chains. Now, while these channels might yield negative impacts in most economies, in certain cases they can also generate positive returns, as for example in those countries that are energy-producing and exporting and that at the same are not directly affected by the source of the shock (for example, due to geographical distance). These countries may benefit if there are generalized increases in energy prices and/or if there is an increase in the demand for their energy

products. The latter is conceivable if economic agents that imported those products from the region-country in which the original GPR shock took place are forced to divert their orders out of that region-country to other providers.

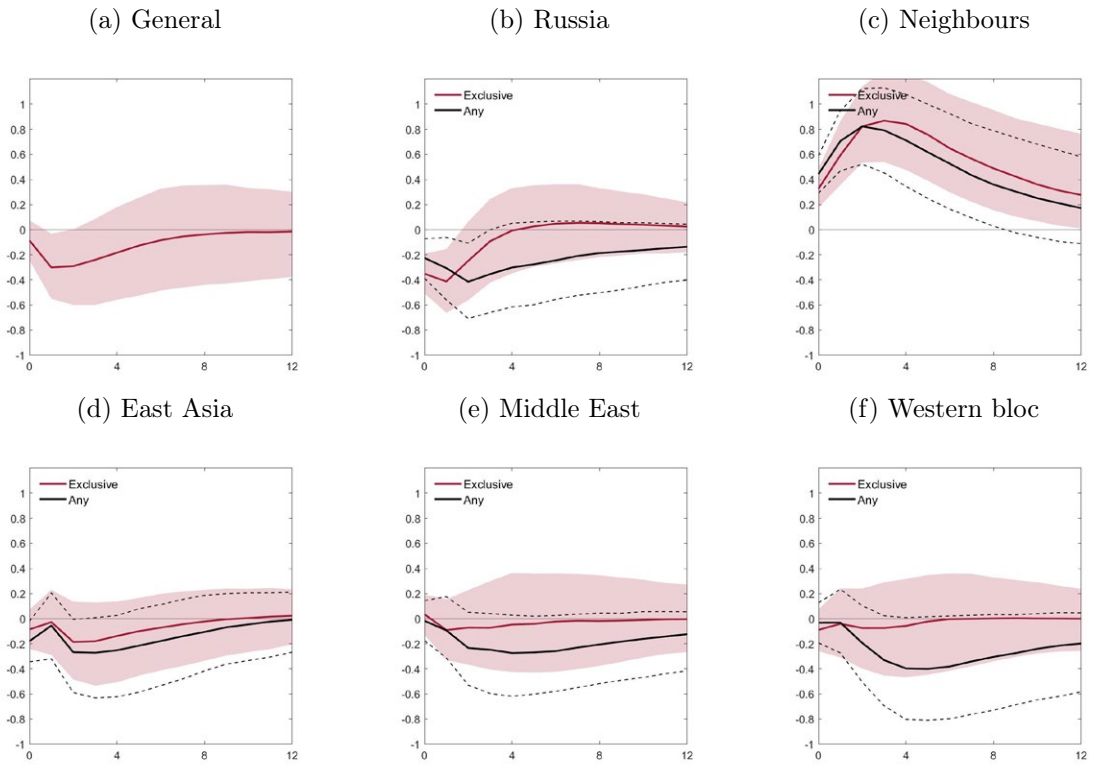
Bringing this example to our case at hand, it is worth noting that the US, China and Russia are key players in commodity markets. The US and Russia are relevant producers: in 2024, these two countries were the two largest producers of crude oil, accounting for 20% and 11% of global production, respectively. Indeed, the US became a net exporter of crude and petroleum products in the late 2010s. This decade was transformative for the US energy sector, as the country emerged as a top oil producer due to the surge in shale oilfield production and the lifting of the crude oil export ban in 2015. In turn,

Figure 5: The impact on US GDP of GPR shocks



Note: Each subplot shows the effect of a 2 standard deviation shock of bilateral GPRs on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: general/bilateral GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1 to 2019Q4. Dotted and blue lines represent bilateral indices constructed when there is any mention of the specific area specified in the chart. In contrast, dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not of other areas.

Figure 6: The impact on China's GDP of GPR shocks

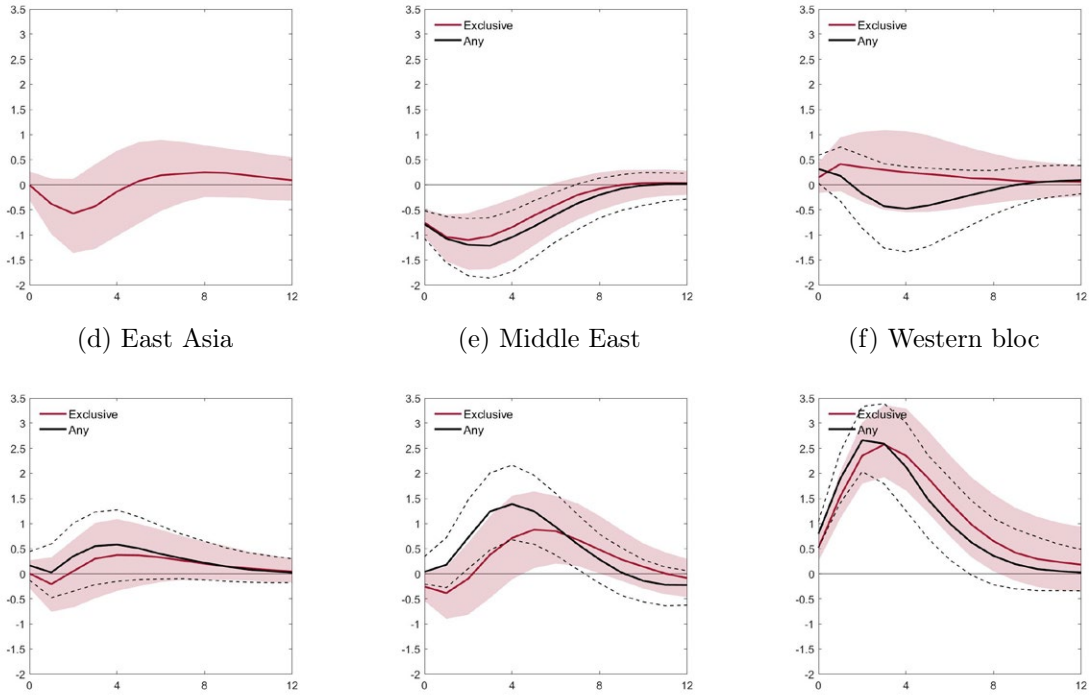


Note: Each subplot shows the effect of a 2 standard deviation shock of bilateral GPRs on China's GDP. The SVAR has been identified via Cholesky decomposition with the following order: general/bilateral GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1995Q1 to 2019Q4. Neighbours refer to North Korea, South Korea, Taiwan and Japan. Dotted and blue lines represent bilateral indices constructed when there is any mention of the specific area specified in the chart. In contrast, dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not of other areas.

Russia has always been a net oil exporter, heavily reliant on oil revenues from a fiscal perspective, with the energy industry representing around 17% of total GDP. As regards China, this country is a top consumer and producer of metals, being a net exporter of non-ferrous metals. In addition to this "commodity" channel, two other channels are worth exploring. To begin with, a military spending channel, as defense budgets may rise in response to perceived geopolitical threats and risks, and this may spur economic activity. This was evident, for example, in the aftermath of 9/11 when US military spending increased to fund operations in Afghanistan and Iraq. However, this increase was gradual and took more than a year to fully materialize. In addition, more broadly, there is no consensus in the literature about the direction of causality, as increased military spending can also lead to heightened geopolitical risk (Sweidan, 2023). Another channel to consider is heightened investor confidence in safe-haven assets after a GPR shock. This channel might be particularly relevant for the US. During periods of crisis, heightened uncertainty, or global risk aversion, investors typically seek refuge in safe haven assets. These assets include precious metals such as gold and silver, stable currencies like the US dollar (or the Swiss franc, among others), and US Treasuries.

Figure 7: The impact on Russia's GDP of GPR shocks

(a) General (b) Ukraine and neighbours (c) China



(d) East Asia (e) Middle East (f) Western bloc

Note: Each subplot shows the effect of a 2 standard deviation shock of bilateral GPRs on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: general/bilateral GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1999Q2 to 2019Q4. Ukraine and neighbours refer to Ukraine, Belarus, Georgia and Armenia. Dotted and blue lines represent bilateral indices constructed when there is any mention of the specific area specified in the chart. In contrast, dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not of other areas.

Guided by this, admittedly tentative, theoretical discussion about potential channels, in Appendix H we provide several additional empirical exercises with the aim of assessing the robustness of the IRFs that display a positive response of GDP after a GPR shock: panel (e) in Figure 5, panel (c) in Figure 6, panel (f) in Figure 7, and panel (e) in Figure 7. What we do is to expand the VARs used in the benchmark exercises with variables that proxy the aforementioned channels.

Starting with the US, Figure H.1 presents the different exercises for the aforementioned three potential channels. For the energy market channel, we incorporate the value added of the oil and gas extraction sector. For the military spending channel, we control for year-on-year real defense spending.[17] Finally, as to the safe haven channel, we include gross capital inflows into the US. These exercises yield two primary conclusions. Firstly, the effect on GDP is robust to the inclusion of the additional variables in the model. Secondly, while the oil and safe haven channels appear to have exerted a significant and positive

[17] We have also tried other variables, such as government consumption, total expenditure, and defense spending as a percentage of total government expenditure, and the results are the same

influence, the military spending channel is less pertinent during this period. Indeed, the results suggest that an increase in GPR shocks from the Middle East is associated with an increase in oil prices. This would be consistent with the fact that the US has become a net oil exporter, and thus GPR shocks with origin in the Middle East would have potentially benefited the US economy through increased investment in the shale oil industry as a result of increased oil prices, as indicated by an increase in the value added of the oil and gas extraction sector. Moreover, during periods of heightened geopolitical risks, the US tends to act as a safe haven, attracting foreign gross capital inflows, as illustrated in panel (c) of Figure H.1. This observation aligns with the literature, as suggested by Van Le Thi Thuy and Ha (2024), who demonstrates that the USD serves as a stable safe-haven asset during times of crisis. Finally, we do not find a significant role for military spending. In fact, defense spending tends to decline following a Middle East geopolitical risk shock. This result, while striking, is in line with recent evidence.[18]

The results for China are shown in Figure H.2, in which we explore the relevance of the commodity channel (by adding metal prices and the value added of the non-ferrous metal sector: see panels (a) and (b)), and the defense spending channel (panels (c) and (d)). The resulting IRFs confirm the robustness of the positive GDP response, and suggest that the commodity channel contributes to the positive macroeconomic effects of a GPR from neighboring countries, as evidenced by the positive impact of metal prices and value added. Conversely, the military channel is not significant and shows an opposite effect.

Finally, in the case of Russia, we control for the commodity channel by distinguishing between oil and metals, given Russia's status as a leading producer of both commodities, as well as the defense channel. The evidence presented in Figure H.3 suggests that both the commodity and defense channels are relevant for Russia. Specifically, a geopolitical risk shock from the Western Bloc appears to be associated with increases in oil and metal prices, leading to higher production. Since Russia exports a significant portion of its oil and metal products, this result in increased revenues, thereby boosting output. Additionally, Russia seems to respond to Western-originated geopolitical risks by increasing its military budget, which also positively impacts GDP. This result contrasts with the negative/non-significant effect of defense spending observed for the US. The difference can be attributed to Russia's position as the sixth-largest defense spender, with significant increases over the past decade aimed at modernizing its military capabilities. Furthermore, Russia is a major supplier of defense equipment (Khan et al., 2022). Therefore, the combined effects of commodity markets and defense spending could partially account for the substantial impact on Russia's GDP.

5 Concluding remarks

Geopolitical risks and tensions are nowadays regularly featured by policymakers and analysts as key conditioning factors of economic activity in the short- and the medium-run. Widely accepted operational measures of geopolitical risks tend to be based on counting

[18] Sweidan (2023) claims that geopolitical risks do not Granger cause military spending in the US, using a large sample from 1960 to 2011.

the number of newspaper articles related to adverse geopolitical events, in particular following the groundbreaking paper of Caldara and Iacoviello (2022), in which they build their GPR indexes. Our paper advances the measurement of geopolitical risks by introducing the concept of "bilateral GPR". This approach traces geopolitical risks back to their specific sources, providing a more nuanced and accurate representation of geopolitical tensions between major economies compared to the benchmark GPR. By decomposing the GPR into bilateral components, we capture the distinct influences of different geopolitical entities, offering valuable insights into the nature and origin of these risks. In addition, we also show that the geographical origin of a given GPR shock determines its macroeconomic effect in a given economy (as computed from standard VAR models), both in terms of the intensity of such effect and even its sign (i.e. whether a particular GPR shock causes GDP to increase or decrease).

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Appendix

A Local GPR: terms used in the search in each language

GPR Terms: EN (((war or wars or conflict* or hostilit* or revolution* or insurrection* or uprising* or revolt* or coup* or geopolitic* or terror* or guerilla* or hostage*) Near2 (threat* or warn* or fear* or risk* or concern* or danger* or doubt* or cris* or trouble* or dispute* or tension* or imminent or inevitable or menace* or brink* or scare* or peril*)) or ((peace or truce or armistice or treat* or parley) Near2 (threat* or menace or reject* or peril or boycott or disrupt*)) or ((military or troop* or missile* or arms or weapon* or bomb* or warhead*) and (buildup or build-up or sanction* or blockade* or embargo* or quarantine or ultimatum or mobiliz*)) or ((((nuclear or atomic) near1 (war* or bomb* or missile*)) or h-bomb* or thermo-nuclear or hydrogen bomb* or nuclear test* or nuclear weapon*) and (threat* or warn* or fear* or risk* or concern* or danger* or doubt* or cris* or trouble* or dispute* or tension* or imminent or inevitable or menace* or brink* or scare* or peril*)) or ((war or wars or conflict* or hostilit* or revolution* or insurrection* or uprising* or revolt* or coup* or geopolitic*) Near2 (begin* or start* or declare* or begun or began or outbreak or broke out or breakout or proclam* or launch*)) or ((allie* or enem* or insurgen* or foe* or army or navy or aerial or troop* or rebel*) Near2 (advance* or attack* or strike* or drive* or shell* or offensive* or invasion* or invad* or clash* or raid* or launch*)) or ((terror* or guerilla* or hostage*) Near2 (attack* or act* or bomb* or kill* or strike* or hijack*)))

GPR Terms: RU (((войн* or воен* or боев* or бой or бои or конфликт* or вражд* or революци* or восстани* or бунт* or переворот* or геополити* or террор* or партизан* or заложник* or столкновени* or противостояни* or конфронтаци*) Near2 (угроз* or предупрежден* or предостер* or боят* or бояз* or риск* or опасен* or опасн* or сомнен* or кризис* or проблем* or спор* or напряжен* or неминуем* or неизбежн* or трево*)) or ((мир or перемир* or договор* or переговор*) Near2 (угроз* or отклон* or опасност* or бойкот* or нарушен*)) or ((военн* or войск* or ракет* or оружие* or бомб* or боеголовк*) and (накоплен* or санкци* or блокад* or эмбарго* or карантин or ультиматум or мобилиз*)) or ((((ядерн* or атомн*) near1 (войн* or бомб* or ракет*)) or водородн* бомб* or термоядерн* or водородн* бомб* or ядерн* испытан* or ядерн* оружи*) and (угроз* or предупрежден* or предостер* or боят* or бояз* or риск* or опасен* or опасн* or сомнен* or кризис* or проблем* or спор* or напряженност* or неминуем* or неизбежн*)) or ((войн* or воен* or боев* or бой or бои or конфликт* or вражд* or революци* or восстани* or бунт* or переворот* or геополити* or столкновен*) Near2 (начин* or начал* or объяв* or начат* or вспышк* or вспых* or провозглаш* or эскал* or разжига* or обостр*)) or ((союзник* or враг* or повстанц* or противник* or арми* or флот* or войск* or повстанец* or мятежник* or сепаратист*) Near2 (продви* or атак* or удар* or наступлен* or обстрел* or наступат* or вторжен* or вторга* or столкновен* or рейд* or запущен*)) or ((террор* or партизан* or заложник* or боевик* or мятежник* or сепаратист*) Near2 (атак* or действ* or бомб* or убийств* or удар* or угон* or нападен* or захва* or акци* or акт*)) or теракт*)

GPR Terms: DE (((Krieg* or Konflikt* or Feindseligkeit* or Revolution* or Aufstand or Aufstände or Erhebung* or Revolte* or Putsch* or geopolitisch* or Terror* or Guerilla* or Geisel*) Near3 (Bedrohung* or warn* or Angst or Ängste or Risik* or Bedenken* or Gefahr* or Zweifel* or Krise* or Ärger* or Streit* or Spannung* or unmittelbar* or unvermeidlich* or Bedrohung* or Rand or Schrecken* or Gefahr*)) or ((frieden or waffenstillstand or waffenstillstände or waffenruhe or vertrag or verträge or gespräch*) Near3 (bedrohung* or ablehnen* or gefahr* or boykott* or stören*)) or ((militär or truppe* or rakete* or waffen or waffe* or bombe* or sprengkopf*) and (aufbau or sanktion* or blockade* or embargo* or quarantäne or ultimatum or mobilisierung*)) or ((((nuklear or atomar) near1 (krieg* or bombe* or rakete*)) or H-Bombe* or thermonuklear

or Wasserstoffbombe* or Nukleartest* or Nuklearwaffe*) and (Bedrohung* or warn* or Angst* or Risiko* or Bedenken* or Gefahr* or Zweifel* or Krise* or Ärger* or Streit* or Spannung* or unmittelbar* or unvermeidlich* or Bedrohung* or Rand* or Schrecken* or Gefahr*)) or ((Krieg* or Konflikt* or Feindseligkeit* or Revolution* or Aufstand or Aufstände or Erhebung* or Revolte* or Putsch* or geopolitisch*) Near3 (beginnen* or starten* or erklären* or begann or begonnen or Ausbruch or ausgebrochen or Proklamation* or start*)) or ((Verbündet* or Feind* or Aufständisch* or Gegner* or Armee* or Marine or Luft* or Trupp* or Rebell*) Near3 (vorstoßen* or vorstöße or angreifen* or schlagen* or treiben* or beschießen* or Offensive* or Invasion* or einmarschieren* or Zusammenstöße or Zusammenstoß or Überfall or Überfälle or starten*)) or ((Terror* or Guerilla* or Geisel*) Near3 (angriff* or akt* or bombe* or töten* or streik* or entführung*)))

GPR Terms: FR (((guerre* or conflit* or hostilité* or révolution* or insurrection* or soulèvement* or révolte* or coup d'état* or géopolitique or terror* or guérilla* or otage*) Near3 (menace* or avert* or peur* or risque* or préoccupation* or danger* or doute* or crise* or problème* or dispute* or tension* or imminent or inévitable or menace* or bord* or effrayer* or péril*)) or ((paix or trêve or armistice or trait* or pourparl*) Near3 (menace* or rejet* or péril* or boycott* or perturb*)) or ((militaire* or troupe* or missile* or armes or arme* or bombe* or ogive*) and (accumulation or sanction* or blocus* or embargo* or quarantaine or ultimatum or mobilisa*)) or ((((nucléaire* or atomique*) near1 (guerre* or bombe* or missile*)) or bombe* H or thermo-nucléaire* or bombe* à hydrogène or essai* nucléaire* or arme* nucléaire*) and (menace* or avert* or peur* or risque* or préoccupation* or danger* or doute* or crise* or problème* or dispute* or tension* or imminent or inévitable or menace* or bord* or effrayer* or péril*)) or ((guerre* or conflit* or hostilité* or révolution* or insurrection* or soulèvement* or révolte* or coup d'état* or géopolitique) Near3 (commenc* or début* or déclar* or éclat* or proclama* or lancer*)) or ((allié* or ennemi* or insurgé* or adversaire or armée or marine* or aérien* or troupe* or rebelle*) Near3 (avanc* or attaq* or frapp* or pouss* or bombard* or offensive* or invasion* or envahir* or affrontement* or raid* or lanc*)) or ((terror* or guérilla* or otage*) Near3 (attaqu* or acte* or bombe* or tue* or grève* or détournement*)))

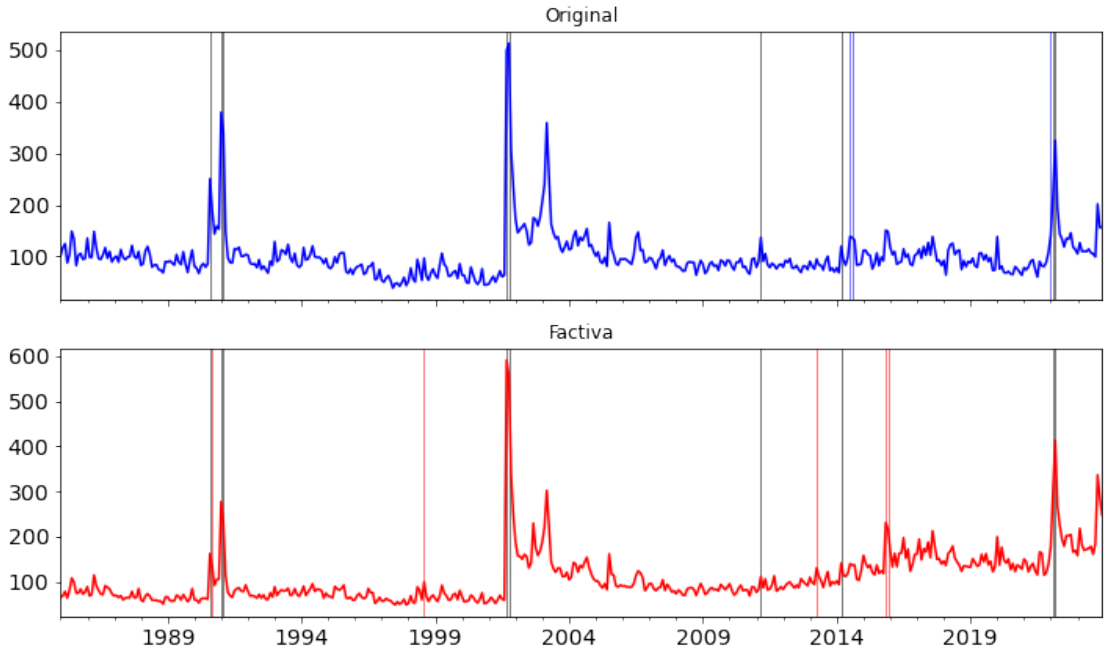
B Index Reconstruction and Comparative Analysis

The original C&I GPR index based on the Anglo-Saxon press (downloaded from `https://www.matteoiacoviello.com/gpr.htm`) and our reproduction using Factiva are displayed in Figure B.1. The two indices are very similar, the correlation between the two series is 0.82. We also created a table of incidences of events, shown in Table B.1, and demonstrate that most events are picked up by two standard deviations in both series. In turn, in Figure B.2 we show the effects of a GPR shock on the US economy following closely C&I, and illustrate that our index yields virtually identical responses to the ones resulting from using C&I index.

In Figures B.3 to B.8 and Tables B.2 to B.7 we show similar material for our local GPR indexes for the US, China, Russia, UK, Germany, and France, comparing them with our reproduction of the C&I index.

Finally, in Figure B.9 we show statistics of peaks in our reproduction of original GPR (C&I) versus each-country-press GPRs, and in Figure B.10 the narrative of events of our reproduction of the original (C&I) GPR (English-speaking press) versus each-country-press GPR (local language).

Figure B.1: GPR (English-language press): original index (C&I) and replication with Factiva



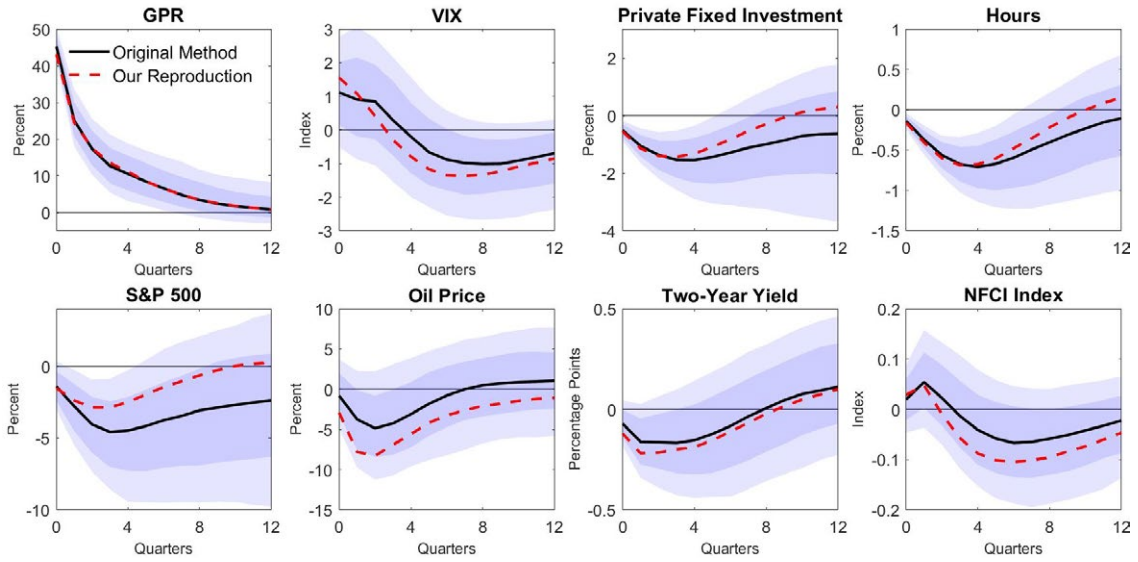
Notes: vertical lines mark the peaks defined as values over three standard deviations away from the mean, using a rolling window of 36 months (following C&I). Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the original GPR index as constructed by Caldara and Iacoviello (2022), and obtained from https://www.matteoiacoviello.com/gpr.htm, while the bottom plot displays our reproduction made using Factiva.

Table B.1: GPR (English-language press): narrative of events of original index and Factiva replication

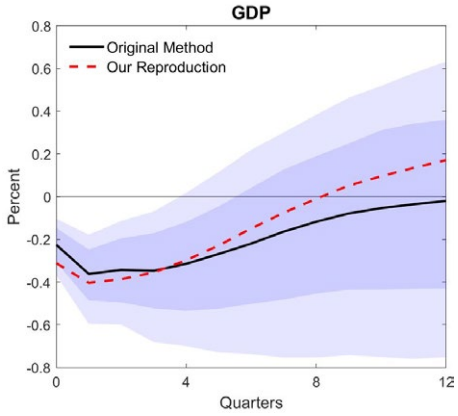
		Index Type			
Date	**Event Description**	3 SD	2 SD	1 SD	0.5 SD
Aug 1990	Iraq invades Kuwait	Both	Both	Both	Both
Sep 1990	Continued tensions (Iraq)	Factiva	Both	Both	Both
Jan-Feb 1991	The First Gulf War	Both	Both	Both	Both
Aug 1998	The US embassies bombings in Kenya and Tanzania by Al-Qaeda	Factiva	Both	Both	Both
Sep-Oct 2001	9/11	Both	Both	Both	Both
Mar 2011	Military interventions in Libya	Both	Both	Both	Both
Apr 2013	The Boston Marathon bombing	Factiva	Factiva	Factiva	Both
Mar 2014	Russia annexes Crimea	Both	Both	Both	Both
Jul-Aug 2014	The downing of MH17, Israel-Gaza conflict, fighting in Ukraine	Original	Both	Both	Both
Nov 2015	The Paris terrorist attacks	Factiva	Both	Both	Both
Dec 2015	The San Bernardino terrorist attack	Factiva	Both	Both	Both
Jan 2022	Rumours about upcoming invasion	Original	Original	Both	Both
Feb -Mar 2022	Russia invades Ukraine	Both	Both	Both	Both

Figure B.2: Effects of a GPR shock on the US economy: model in C&I run with the original GPR and Factiva's replica

(a) Model: GPR, VIX, Private Fixed Investement, Hours, S&P 500, Oil Price, Two-year yield, NFCI Index.

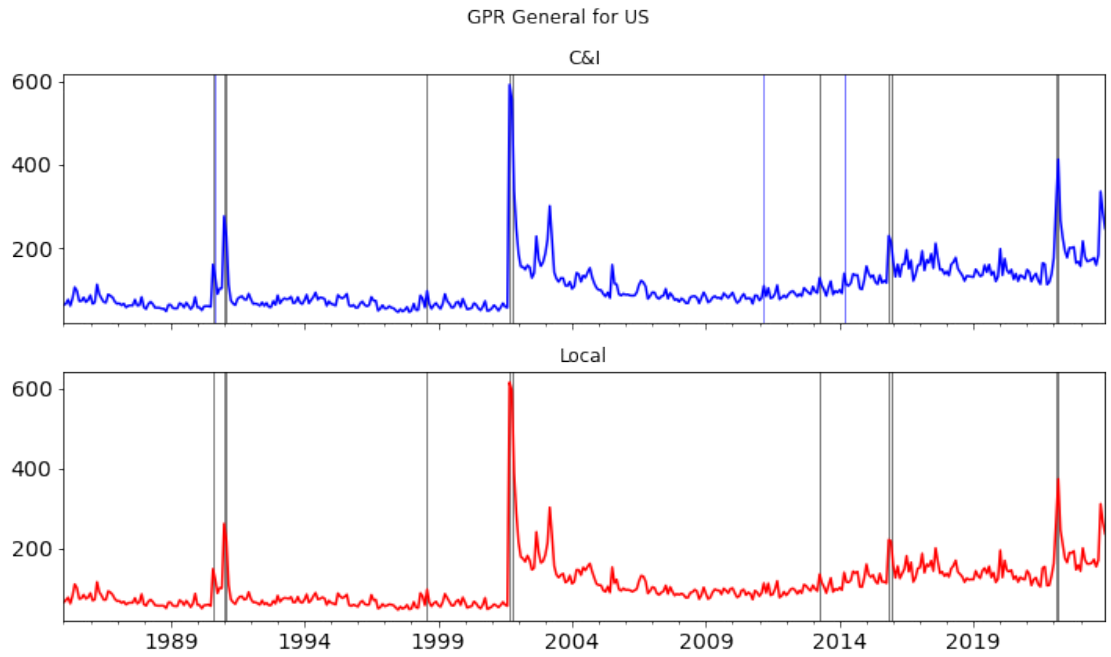


(b) Model: same as before but with GDP added after GPR



Notes: Median Impulse Response Functions of the main macroeconomic variables to a 2 standard deviation shock in the GPR, as given by the original C&I index ("Original Method"), and our reproduction using Factiva ("Our Reproduction"). The bands correspond to a 68% and 90% pointwise credible sets of the original data. We used the BVAR model specifications and codes as given in the Replication Material of C&I.

Figure B.3: US GPR

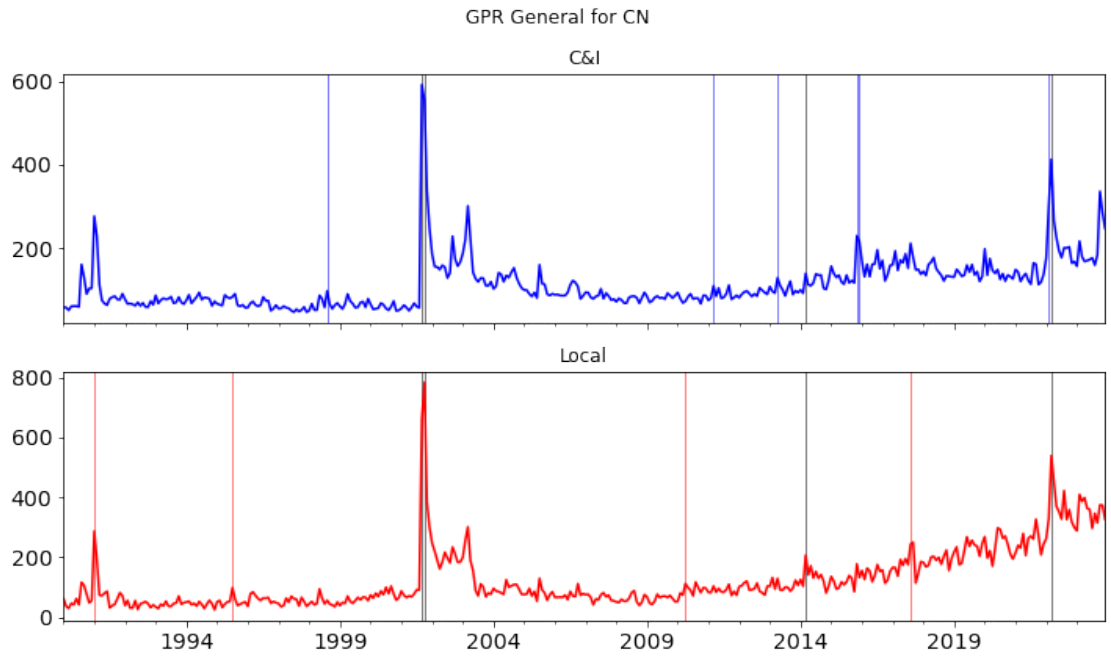


Notes: Vertical lines mark the peaks defined as values over 3 standard deviations away from the mean, using a rolling window of 36 months. Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the GPR index constructed using the sources of C&I (the equivalent of the original GPR index but reproduced in Factiva); the bottom plot displays the GPR index constructed using the local sources of the country.

Table B.2: Narrative of events of C&I GPR (English-speaking press) versus US media (local)

		Index Type	
Date	**Event Description**	3 SD	2 SD
Aug 1990	Iraq invades Kuwait (C)	Both	Both
Sep 1990	Continued tensions (Iraq) (C)	C&I	Both
Jan - Feb 1991	The First Gulf War (B)	Both	Both
Aug 1998	The US embassies bombings in Kenya and Tanzania by al-Qaeda (B)	Both	Both
Sep - Oct 2001	9/11 (D)	Both	Both
Mar 2011	Military intervention in Libya (B)	C&I	Both
Apr 2013	The Boston Marathon bombing (D)	Both	Both
Mar 2014	Russia annexes Crimea (C)	C&I	Both
Nov 2015	The Paris terrorist attacks (F)	Both	Both
Dec 2015	The San Bernardino terrorist attack (US) (D)	Both	Both
Feb - Mar 2022	Russia invades Ukraine (A)	Both	Both

Figure B.4: China GPR

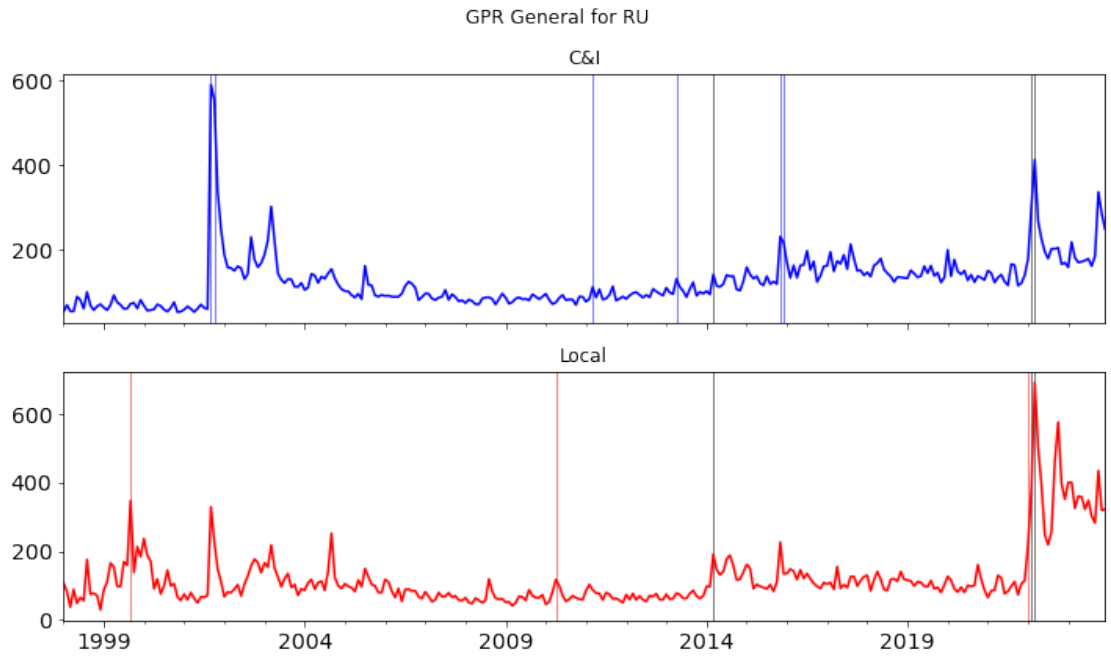


Notes: Vertical lines mark the peaks defined as values over 3 standard deviations away from the mean, using a rolling window of 36 months. Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the GPR index constructed using the sources of C&I (the equivalent of the original GPR index but reproduced in Factiva); the bottom plot displays the GPR index constructed using the local sources of the country.

Table B.3: Narrative of events of C&I GPR (English-speaking press) versus Chinese media (local)

		Index Type			
Date	**Event Description**	3 SD	2 SD	1 SD	0.5 SD
Jan 1991	The First Gulf War (C)	Local	Both	Both	Both
Jul 1995	Third Taiwan Strait Crisis (announcement) (B)	Local	Local	Local	Both
Aug 1998	The US embassies bombings in Kenya and Tanzania by al-Qaeda (F)	C&I	C&I	C&I	C&I
Sep - Oct 2001	9/11 (A)	Both	Both	Both	Both
Apr 2010	-	Local	Local	Local	Local
Mar 2011	Military intervention in Libya (C)	C&I	C&I	Both	Both
Apr 2013	The Boston Marathon Bombing (F)	C&I	Both	Both	Both
Mar 2014	Russia annexes Crimea (C)	Both	Both	Both	Both
Nov 2015	The Paris terrorist attacks (F)	C&I	Both	Both	Both
Dec 2015	The San Bernadino terrorrist attack (US) (F)	C&I	C&I	C&I	C&I
Aug 2017	The Doklam standoff between China and India in the Himalayas (B)	Local	Local	Both	Both
Feb 2022	Russia invades Ukraine (A)	C&I	Both	Both	Both
Mar 2022	Recent invasion of Ukraine by Russia (A)	Both	Both	Both	Both

Figure B.5: Russia GPR

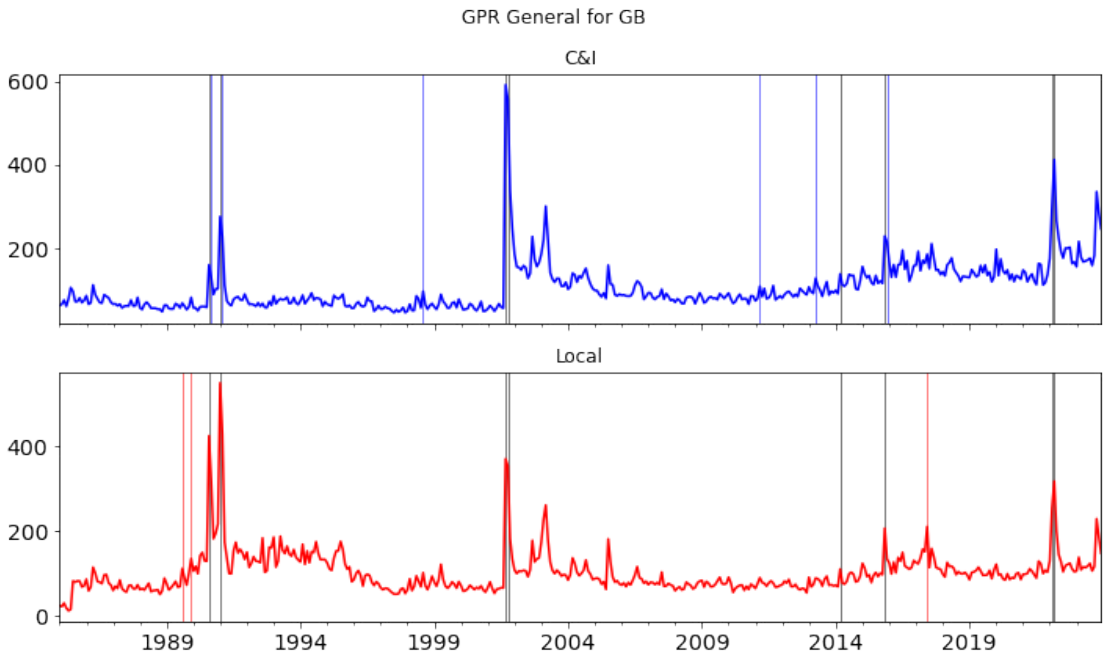


Notes: Vertical lines mark the peaks defined as values over 3 standard deviations away from the mean, using a rolling window of 36 months. Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the GPR index constructed using the sources of C&I (the equivalent of the original GPR index but reproduced in Factiva); the bottom plot displays the GPR index constructed using the local sources of the country.

Table B.4: Narrative of events of C&I GPR (English-speaking press) versus Russian media (local)

		Index Type			
Date	**Event Description**	3 SD	2 SD	1 SD	0.5 SD
Sep 1999	Moscow terrorist bombings (D)	Local	Local	Local	Local
Sep 2001	9/11 (A)	C&I	Both	Both	Both
Oct 2001	9/11 (A)	C&I	C&I	Both	Both
Apr 2010	Moscow metro terrorist attack (D)	Local	Local	Local	Local
Mar 2011	Military intervention in Libya (C)	C&I	C&I	C&I	Both
Apr 2013	The Boston Marathon bombing (F)	C&I	C&I	C&I	Both
Mar 2014	Russia annexes Crimea (B)	Both	Both	Both	Both
Nov 2015	The Paris terrorist attacks (F)	C&I	Both	Both	Both
Dec 2015	The San Bernardino terrorist attack (US) (F)	C&I	C&I	C&I	Both
Jan 2022	Rumours about upcoming invasion (D)	Local	Local	Both	Both
Feb - Mar 2022	Russia invades Ukraine (B)	Both	Both	Both	Both

Figure B.6: UK GPR

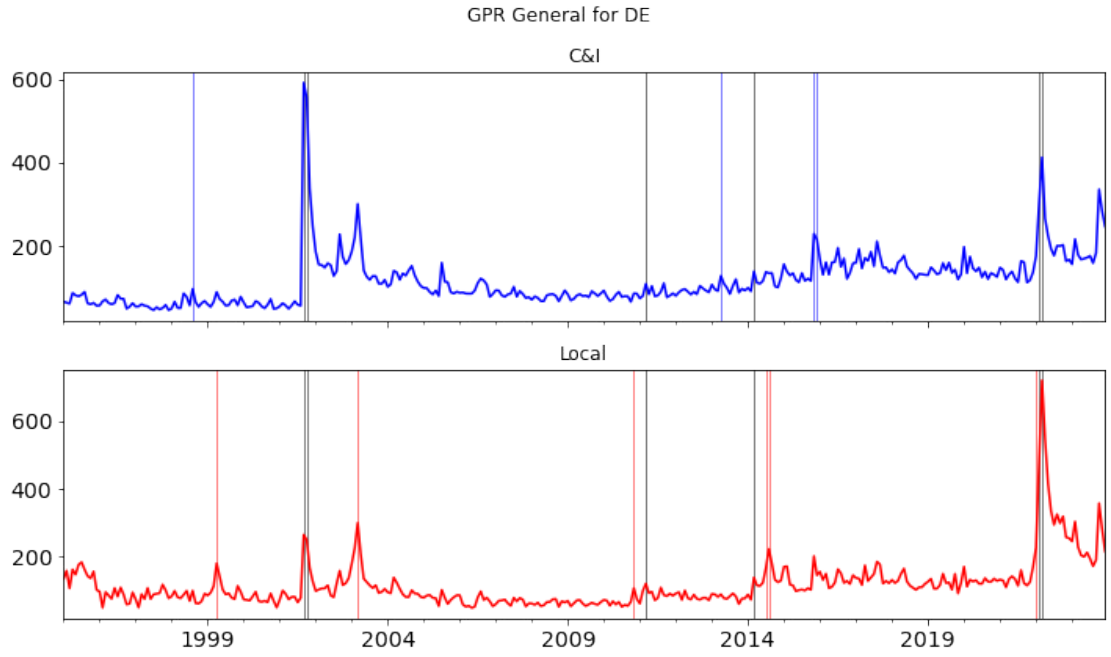


Notes: Vertical lines mark the peaks defined as values over 3 standard deviations away from the mean, using a rolling window of 36 months. Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the GPR index constructed using the sources of C&I (the equivalent of the original GPR index but reproduced in Factiva); the bottom plot displays the GPR index constructed using the local sources of the country.

Table B.5: Narrative of events of C&I GPR (English-speaking press) versus British media (local)

		Index Type		
Date	**Event Description**	3 SD	2 SD	1 SD
Aug 1989	Middle-East tensions (Sheik Obied and Lebanon hostage crises) (C)	Local	Local	Local
Dec 1989	US invasion of Panama (C)	Local	Both	Both
Aug 1990	Iraq invades Kuwait (C)	Both	Both	Both
Sep 1990	Continued Tensions (C)	C&I	Both	Both
Jan 1991	The First Gulf War (B)	Both	Both	Both
Feb 1991	The First Gulf War (B)	C&I	Both	Both
Aug 1998	The US embassies bombings in Kenya and Tanzania by al-Qaeda (F)	C&I	C&I	Both
Sep - Oct 2001	9/11 (A)	Both	Both	Both
Mar 2011	Military intervention in Libya (B)	C&I	C&I	Both
Apr 2013	The Boston Marathon bombing (F)	C&I	C&I	Both
Mar 2014	Russia annexes Crimea (C)	Both	Both	Both
Nov 2015	The Paris terrorist attacks (F)	Both	Both	Both
Dec 2015	The San Bernardino terrorist attack (US) (F)	C&I	C&I	Both
Jun 2017	Manchester concert bombing (May), London Bridge and Finsbury Park terrorist attacks (D)	Local	Local	Both
Feb - Mar 2022	Russia invades Ukraine (A)	Both	Both	Both

Figure B.7: Germany GPR

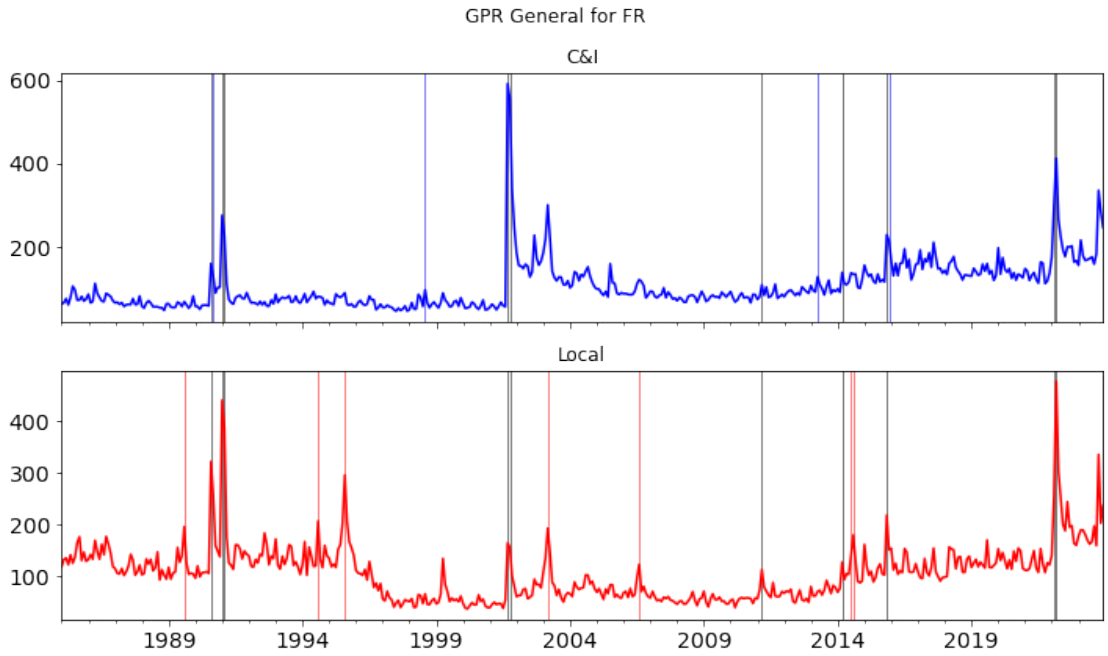


Notes: Vertical lines mark the peaks defined as values over 3 standard deviations away from the mean, using a rolling window of 36 months. Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the GPR index constructed using the sources of C&I (the equivalent of the original GPR index but reproduced in Factiva); the bottom plot displays the GPR index constructed using the local sources of the country.

Table B.6: Narrative of events of C&I GPR (English-speaking press) versus German media (local)

		Index Type			
Date	**Event Description**	3 SD	2 SD	1 SD	0.5 SD
Aug 1998	The US embassies bombings in Kenya and Tanzania by al-Qaeda (F)	C&I	C&I	C&I	C&I
Apr 1999	Nato bombs Yugoslavia (B)	Local	Both	Both	Both
Sep - Oct 2001	9/11 (A)	Both	Both	Both	Both
Mar 2003	The beginning of the Iraq war (A)	Local	Local	Both	Both
Nov 2010	Two package bombs intercepted by authorities in Britain and Dubai (F)	Local	Local	Local	Both
Mar 2011	Military intervention in Libya (B)	Both	Both	Both	Both
Apr 2013	The Boston Marathon bombing (F)	C&I	C&I	C&I	C&I
Mar 2014	Russia annexes Crimea (C)	Both	Both	Both	Both
Jul - Aug 2014	The downing of MH17, Israel-Gaza conflict, fighting in Ukraine (C)	Local	Both	Both	Both
Nov 2015	The Paris terrorist attacks (F)	C&I	Both	Both	Both
Dec 2015	The San Bernardino terrorist attack (US) (F)	C&I	C&I	C&I	Both
Jan 2022	The build-up of Russian forces in preparation for the invasion (C)	Local	Local	Both	Both
Feb - Mar 2022	Russia invades Ukraine (A)	Both	Both	Both	Both

Figure B.8: France GPR



Notes: Vertical lines mark the peaks defined as values over 3 standard deviations away from the mean, using a rolling window of 36 months. Both series are relative article counts normalized to 100 in the period 1985-2019. The top subplot shows the GPR index constructed using the sources of C&I (the equivalent of the original GPR index but reproduced in Factiva); the bottom plot displays the GPR index constructed using the local sources of the country.

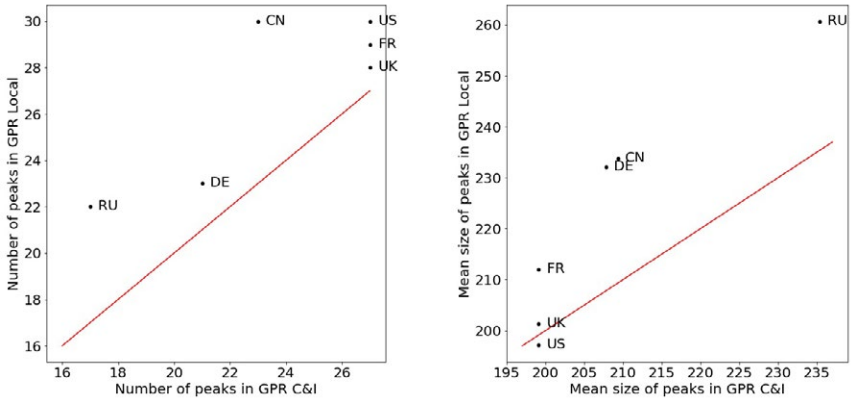
Table B.7: Narrative of events of C&I GPR (English-speaking press) versus French media (local)

		Index Type			
Date	**Event Description**	3 SD	2 SD	1 SD	0.5 SD
Aug 1989	Lebanon crisis (Syria attacks and hostage crisis) (C)	Local	Local	Local	Both
Aug 1990	Iraq invades Kuwait (C)	Both	Both	Both	Both
Sep 1990	Continued tensions in the Gulf (C)	C&I	Both	Both	Both
Jan - Feb 1991	The First Gulf War (B)	Both	Both	Both	Both
Aug 1994	Terrorist attack in Algiers, tension in the Balkans (C)	Local	Local	Local	Both
Aug 1995	Operation Storm (Croation War of Independence) (C)	Local	Local	Both	Both
Aug 1998	The US embassies bombings in Kenya and Tanzania by al-Qaeda (F)	C&I	C&I	C&I	C&I
Sep - Oct 2001	9/11 (A)	Both	Both	Both	Both
Mar 2003	The beginning of the Iraq war (A)	Local	Local	Both	Both
Aug 2006	The thwarting of the transatlantic aircraft plot (F)	Local	Local	Local	Both
Mar 2011	Military intervention in Libya (B)	Both	Both	Both	Both
Apr 2013	The Boston Marathon bombing (F)	C&I	C&I	C&I	C&I
Mar 2014	Russia annexes Crimea (C)	Both	Both	Both	Both
Jul - Aug 2014	The downing of MH17, Israel-Gaza conflict, fighting in Ukraine (C)	Local	Both	Both	Both
Nov 2015	The Paris terrorist attacks (D)	Both	Both	Both	Both
Dec 2015	The San Bernardino terrorist attack (F)	C&I	C&I	Both	Both
Feb - Mar 2022	Russia invades Ukraine (A)	Both	Both	Both	Both

Figure B.9: Statistics of peaks in original GPR (C&I) versus each-country-press GPR

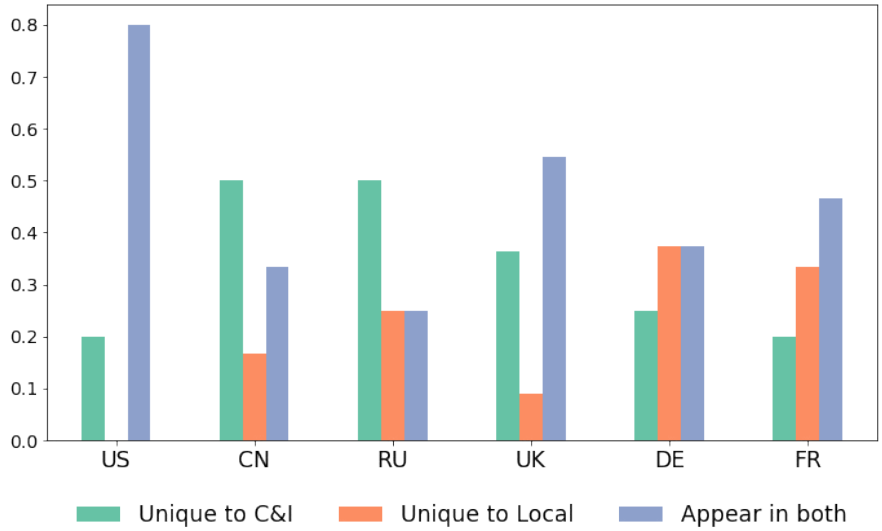
(a) Number of peaks

(b) Mean height of peaks



Notes: Comparison of peaks between GPR indices
defined as values above 2 standard deviations of the

Figure B.10: Narrative of events of original (C&I) GPR (English-speaking press) versus each-country-press GPR (local language)



Notes: Fraction of events appearing only the C&I, Local index, or both indices. To ease comparison between countries we only consider events after 1994. Events are defined as instance greater than 3 std. dev. away from the mean, using a rolling window of three years.

C Decomposing the GPR index

C.1 Zoning robustness

We now present the background statistical analysis carried out to ensure robustness of our decomposition, specifically with regards to the "re" classification of Factiva. The main issues here are whether Factiva is consistent in applying this classification, and whether the particular set of regions considered for each country provides a good enough coverage of the External, outward-looking part of the GPR. We follow the same methodology for each country. To illustrate our logic, we will go through the exercise for Russia, and report the results of the same exercise for all the six countries in table C.1.

First, we make a guess about the time period during which we are likely to have good Factiva filter coverage. Our first guess will correspond to the time period for which we have good newspaper coverage, which for Russia starts in 1999. We restrict all Factiva queries to this range (finishing at the end of 2023), so the results of this robustness exercise will be valid for this period. We then submit to Factiva the query to retrieve the number of articles corresponding to the GPR numerator. For Russia, there are 64248 articles that contribute to the GPR index. We then add to the query the condition that it feature at least one "re" classification, with our possible list of regions spanning the entire globe. It can be seen that for Russia almost no articles are left uncategorized, and in fact, for the final decomposition time span considered, all the six countries will have at least 96% of the articles referencing some region. Note that this includes the US from 2003, and than including earlier articles from US newspapers would drastically drive down the number. This reflects an important idiosyncrasy in Factiva´s coverage of the US: early US newspapers are inconsistently categorised in terms of region of focus. However, limiting the US coverage to 2003 onwards solves this issue.

We then compose a logical query that covers only those articles that contain a reference to any other region than the country of origin. For Russia, there are 37970 such articles. The implication is that these are the articles that make up the External part of the GPR: the other articles will only have references to Russia, and no other country or region. Since we know that the internal noise forms a significant and non-negligible part of the GPR index, we are not concerned that this number is smaller than the total GPR number. What we do want to ensure is that the query corresponding to such "other" regions is as extensive as possible, so as not to undercount the contribution to the external part of the GPR, and by extension misclassify truly external articles as internal. This "Other regions" time series will then function as an effective denominator when computing the various parts of the decomposition in Figure 4 and Figure E.1.

Finally, we split the world excluding the country of origin into a number of relevant regions (see the main text for a justification of this definition). We then compose a query that forms an effective union of these regions, and compare the result with the "Other countries" query above. For Russia, the union of our regions gives a 98% coverage of such "Other countries". That number, however, can be as low as 88%, as is the case for France. The implication is that there are other parts of the world not included in our selected regions that make up 12% of the external GPR.

We now give reasons why we cannot simply increase the regional coverage for each country so that the components contribute to 100% of the external GPR. This is intrinsically linked to the way Factiva labels its articles and organises its searches. The first point to note is that Factiva´s "re" regions are nested, and multiple "re" classification levels are assigned to the same article. To give an example, the UK by definition forms part of "Europe", meaning that each article classified as the UK is also classified as Europe. Therefore, if we want to make sure the article includes at least one other part of the Europe than the UK, we would need to list these countries explicitly. The reason why that might become a problem brings us to the second point, which is that Factiva´s queries are length-limited. And since our approach involves logical combinations of various regions (see main text) - that, combined with the original GPR query, means that only a certain number of regions can be considered, each region being defined by a relatively short list of constituent parts. What is more, the query length is independent of the language, and given that German, for example, comes with a much longer GPR query, it is much more likely to exceed the query length for the same regional split than, say, the UK. That is the reason why for the purposes of this exercise we revise the baseline GPR query for Germany, and get rid of the Nuclear War component. This only gets rid of a small 2% of all the articles (we remind the reader the sample ends in

2023), so while we cannot be certain that it does not remove or add any peak, we are reasonably sure the part removed is statistically negligible.

With this analysis we demonstrate that the “re" classification scheme is valid for the purposes of this exercise, and that the specific zoning for each country gives sufficient data coverage.

Table C.1: Zoning Robustness with Factiva

	US (1985-2002)	**US (2003-2023)**	**RU (1999-2023)**	**CN (1990-2023)**	**UK (1985-2023)**	**DE (1995-2023)**	**FR (1985-2023)**
GPR (article count)	335188	564308	64248	89876	510616	186377	304178
Categorised (article count)	201803	551910	63963	88127	501188	182101	293181
Fraction Categorised	0.60	0.98	1.00	0.98	0.98	0.98	0.96
Other countries (aka External component, article count)		378909	37970	61548	333730	131304	203450
Regions considered (article count)		360407	37268	58475	303859	120236	180378
Number of regions		7	5	5	6	6	6
Fraction of External component covered by regions (Web)		0.95	0.98	0.95	0.91	0.92	0.89
Fraction of External component covered by regions (API)		0.96	0.98	0.95	0.91	0.92	0.88
Number of combinations of interest		10	7	9	8	9	10
Fraction of External component coverered by these combinations		0.83	0.87	0.89	0.81	0.81	0.81

Notes: Queries are defined by modifying the local GPR queries with extra regional sets. Local GPR queries are given in A, where the query for Germany does NOT have the component related to Nuclear war (we also add to each query the list of newspapers associated with each country of origin). The "Categorised" query contains, in addition to the above, the following specification: *and (re=(ASIAZ or apacz or ausnz or USA or CANA or EURZ or africaz or caribz or lamz) or ISIS or Islamic State)*, where "ISIS" and "Islamic state" is given in the respective language of the country of origin. The query for "Other countries" and "Regions considered" changes depending on the country of origin. As an example, for the US, the addition to the former is *and (re=(ASIAZ or apacz or ausnz or CANA or EURZ or africaz or caribz or lamz) or ISIS or Islamic State)*, whereas for the latter addition is be *(re=(meastz or RUSS or AFGH or JAP or INDIA or PAKIS or MALAY or INDON or THAIL or SKOREA or PHLNS or VIETN or CHINA or CANA or EECZ or AUSNZ or uk or nordz or caribz or lamz or africaz) or ISIS or Islamic State)*. "Fraction categorised" is defined as "GPR" divided by "Categorised", and "Fraction covered by regions" as "Regions considered" divided by "Other countries". The number of regions is the number of regions the world is split into, for that country of origin, not counting the country of origin itself. The table is based on the "Results Found" results on Factiva, that is returned visually when sending a query from the Webapp. Whilst comparable amongst themselves, and hence valid for this comparative analysis, it is oftentimes slightly different to the results of the queries ("Documents Found"). Once the regions are established, we do the actual ordering of the regions with respect to the External component based on the actual results of the queries from the API.

C.2 Internal Component in the GPR

The following are some of the reasons articles might not be associated to region external to the country of origin:

- Use of geopolitical risk terms in unrelated contexts. Examples would be articles mentioning mobilizing the state police because a snow storm bombards the area; or articles talking about quarantines and looking for weapons against anxiety. The existence of these types of articles is an natural limitation of the dictionary methodology, and is impossible to avoid.
- Genuine internal acts of violence such as terrorism attacks. This part is the more genuine geopolitical risk that is truly internal to the country in question. Here articles would be talking about the acts, the perpetrators being sentenced, or any consequence suffered as a result of it. For example, a memorial service for the victims; or new measures put in place to prevent more attacks, like selective passport checks.
- Passing mentions. Given the number of wars or terrorist attacks suffered under the countries in question, a large fraction of articles will simple reference them without going into detail. Examples would be: an article about the aviation business, briefly mentioning that the sector has been hurt by terrorist attacks; an article about Brent falling, mentioning the fact that in October 2022, at the start of the Israel-Hamas conflict, Brent prices had risen (here even though a specific region is mentioned, there is not enough emphasis on it, and as such it does not get picked up by the "re" filter).
- General narrative. A number of countries have incorporated geopolitical narratives into their identity, or at least make multiple references to them in daily lives. Examples would be the War on Terror in the US, which can come up in any context, for example an article about next year´s budget. In Russia specifically the invasion functions as a time placeholder, and as such it is sometimes referenced in one way or another: for example, in an article about the local government mentioning that the last time it was changed was before the start of the "Special military operation". Additionally for Russia, another source of articles in this category would be memorial services for other wars. A large part of Russian identity is centered around the second World War, and references to it abound in the national narrative.
- General speculation: an article saying that this year retail prices fell because of "geopolitical concerns". This encompasses speculations about the future, mentioned in passing, about possible escalations of existing conflicts, or any new terrorist attacks. Even though individual countries or regions could be mentioned, the article is not attributed to any particular one, since that would not be its main focus.
- Methodological: there is a small number of regions that are excluded from our search terms for reasons of query sizes. Sometimes smaller economies make an appearance, but we are forced to not count them as belonging to the group of "other countries", which we have to specify explicitly.

D Types of articles contributing to the Western Bloc category (from Western-aligned nations)

- **Economic Impact and Market Reactions.** Geopolitical tensions and events lead to significant reactions in financial markets, such as fluctuations in commodity prices (e.g., gold) and sustained inflation pressures. Given the interconnectedeness of the economic and financial systems, articles mentioning these events are likely to contain amongst its geographic references the main Western Bloc elements.
- **Global Involvement and Influence.** The Western bloc, particularly the US, is a prominent player in international geopolitics, and is involved in various global conflicts and crises (e.g., Balkans, Yemen). Mentions of these conflicts are therefore quite likely to also involve mentions of the main Western Bloc players. To give an example, 50% of Western Bloc articles for the UK reference the US.
- **Internal Political Dynamics.** Political events within Western countries, such as elections and policy changes, are often narrated and interpreted with regard to their potential implications on geopolitical risk.
- **Terrorism and Security Threats.** Terrorist attacks and related security threats within Western countries directly contribute to the perception of increased geopolitical risk.
- **Global Interconnectedness and Spillover Effects.** Conflicts and crises in non-Western regions can have substantial indirect effects on Western economies and societies. Disruptions in global trade, resource supply chains, and migration flows due to wars and conflicts elsewhere can exacerbate the perceived geopolitical risk for the Western bloc.

E Decomposition: detailed results for the UK, France and Germany

E.1 Regional composition

Table E.1: Regional Composition for FR, DE, UK

Region	Constituents	FACTIVA codification
UK, Germany, France (6)		
Middle East	Cyprus, Egypt, Israel, Jordan, Kurdistan, Lebanon, Palestine, Persian Gulf countries, Syria, Turkey, Yemen, Afghanistan, Islamic State	re=(nafrz or meastz or AFGH) or Islamic State or ISIS*
China	China	re=CHINA
Russia	Russia	re=RUSS
Western Bloc	Canada, United States, Europe	re=(CANA or USA or FRA* or GFR* or UK* or SPAIN or ITALY or NETH or BELG or NORDZ or IRE or SWITZ or AUST or PORL or GREECE or POL or BALTST)
Asia Other	Japan, India, Pakistan, Malaysia, Indonesia, Thailand, South Korea	re=(SKOREA or INDIA or PAKIS or MALAY or INDON or THAIL or JAP)
Africa	African countries excluding North Africa	re=(souafrz or wafrz or eafrz or ceafrz)

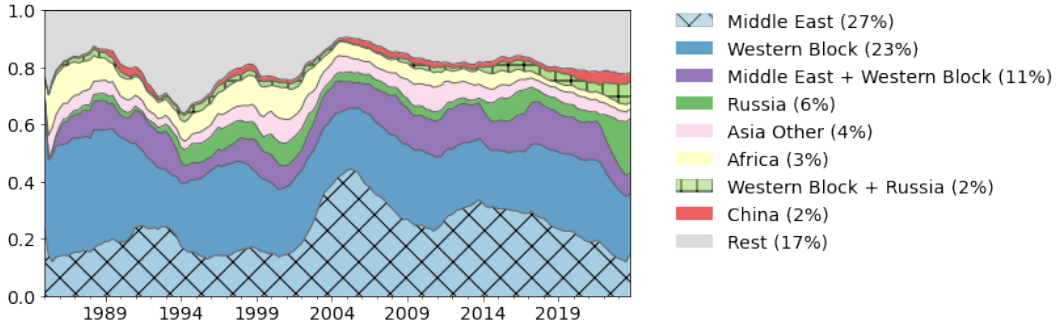
Notes: The numbers next to the country of origin refers to the number of external regions considered. The stars in the FR, DE, UK panel refer to: In the case of "Islamic State or Isis": the corresponding name(s) in the national language. For the Western Bloc, depending on the region of origin, that region is absent from the list of countries that are starred (as an example, Western Bloc for FR does not include FR).

E.2 Detailed results

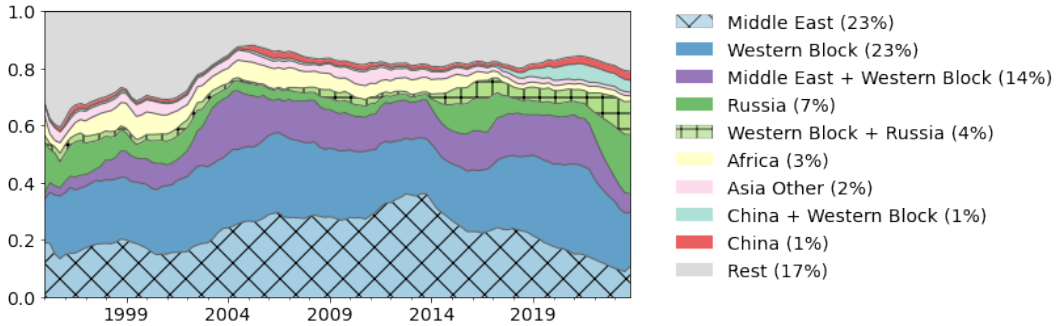
In Figure E.1 and Table E.2 we show the decomposition of geopolitical risk for three European countries. As already discussed in the main text, they share overwhelming similarities, reinforcing the idea that there is a broadly shared European perspective on geopolitical risk—or at least a common set of primary concerns. It is tempting to suggest that these countries are united by more than they are divided, at least in terms of risk discourse. The three major contributors to geopolitical risk are the same: the Middle East, followed closely by the Western Bloc, and then a combination of the two. The other components, however, vary in their importance according in line with national differences. First, Russia emerges as the next most important factor for both the UK and Germany. However, in the UK, this likely reflects broader transatlantic security concerns, whereas in Germany, the emphasis is more directly tied to geographic proximity, energy dependencies, and EU policy considerations. Interestingly, the Western Bloc + Russia category is significantly stronger for Germany than for France or the UK, suggesting that Germany is more likely to frame its analysis of Russia within the broader context of Western alliances and EU-Russia relations. Meanwhile, Africa appears as a much larger component in France's geopolitical risk discourse—twice as prominent as in Germany and the UK. This likely reflects France's historical, economic, and military ties to several African nations, particularly in North and West Africa.

Figure E.1: Sources of Geopolitical Risk

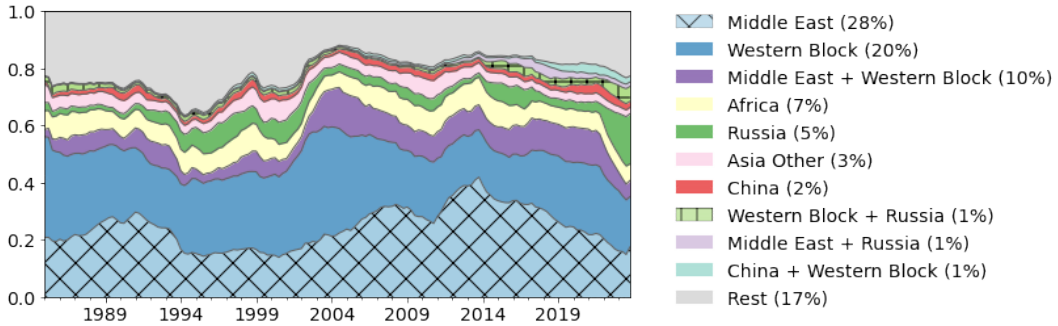
(a) UK



(b) DE



(c) FR



Notes: The decomposition of the Geopolitical Risk. Shown are the top non-overlapping components of the external, outward-looking part of the GPR index of each of the three countries. The values are quarterly averages with a subsequent rolling mean of three years. The constituents of each region, which depends on the country of origin, can be found detailed in Table E.1. Each plot area corresponds to the fraction of the external part of the GPR index limited to only the zone specified, with the exclusion of all the other zones detailed in Table E.1. To facilitate cross-country comparison, we show in brackets the fraction of External component starting from the year 2003, when the decomposition for all the six countries in our analysis becomes available. These fractions are annual averages, and the ordering of the contributions is according to these values.

Table E.2: Decomposition of external risk by origin of the risks for Europe

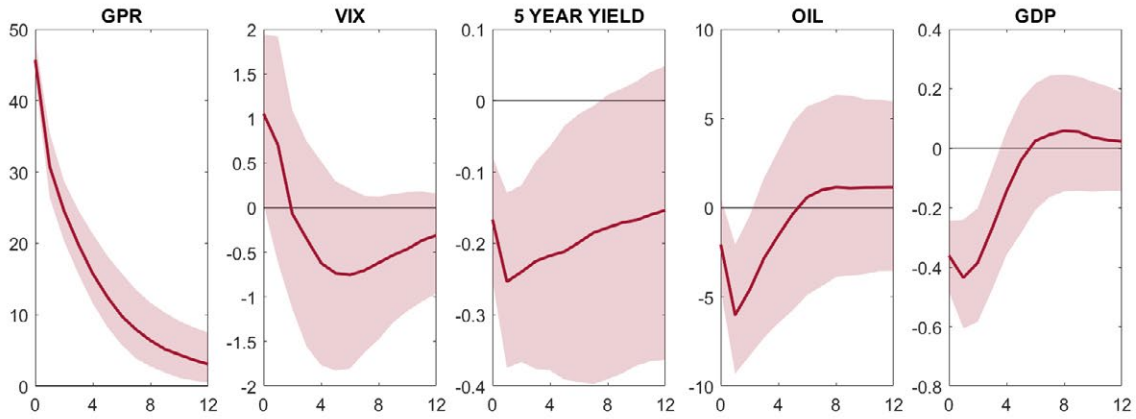
	UK				DE				FR			
	1990-2000	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023
Middle East	18%	31%	27%	15%	16%	24%	25%	11%	18%	24%	32%	19%
- plus any other	30%	46%	47%	30%	25%	42%	47%	27%	26%	38%	50%	33%
Western Bloc	24%	24%	23%	22%	21%	26%	23%	21%	23%	29%	18%	19%
- plus any other	40%	40%	46%	45%	34 %	48%	50%	51%	34%	44%	37%	37%
Russia	5%	3%	4%	15%	8%	4%	5%	17%	6%	3%	3%	14%
- plus any other	8%	5%	11%	26%	11%	7%	14%	34%	8%	5%	10%	23%
Asia Other	4%	6%	4%	3%	3%	3%	2%	1%	4%	4%	3%	2%
- plus any other	6%	9%	9%	7%	5%	5%	7%	4%	6%	7%	7%	5%
Africa	7%	5%	3%	2%	6%	5%	3%	1%	7%	6%	7%	5%
- plus any other	9%	6%	5%	4%	8%	7%	5%	4%	8%	7%	10%	8%
China	1%	1%	1%	3%	1%	1%	1%	2%	1%	1%	1%	2%
- plus any other	2%	2%	4%	9%	2%	2%	5%	12%	3%	2%	5%	7%

The table shows the percentage of the External part of geopolitical risk devoted to a region (in rows), for the three countries (in columns). The first row counts the relative number of articles featuring only the given region to the exclusion of any other region; the "plus any other" row counts the number of articles that mention the given region (and which might or might not refer to other geographies). The difference between the two numbers is thus made up of articles that contain the given region in combination with other regions. Note that for any given country of origin we only consider the regions explicitly specified in the regional decomposition Table (Table E.1). As an example, when considering Russia we do not explicitly include Ukraine in any category. That means that Ukraine is not specifically excluded when we compute the exclusive component for Russia - only the regions stated in Table E.1 will be excluded.

(a) The composition of this category differs across the three countries considered: see Table E.1.

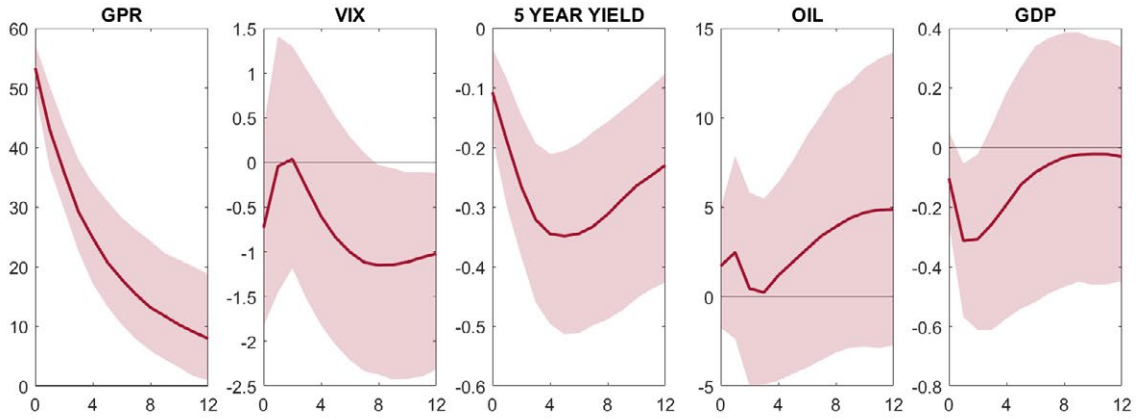
F The impact of a GPR shock: complete model results

Figure F.1: Effect of a GPR shock on the US



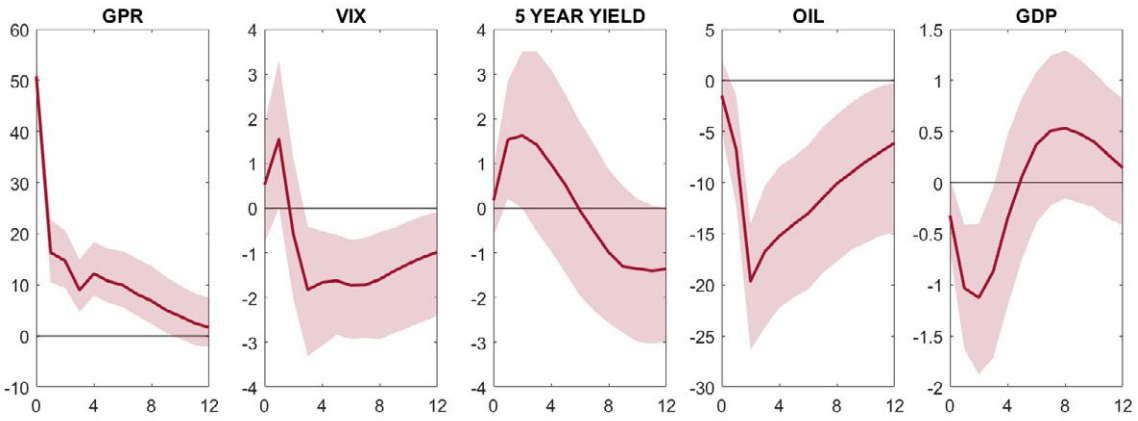
Note: Each subplot shows the effect of a 2 standard deviation shock of GPR (Caldara Iacoviello (2022) or Local) on the variable specified. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1986Q1-2019Q4..

Figure F.2: Effect of a GPR shock on China



Note: Each subplot shows the effect of a 2 standard deviation shock of GPR (Caldara Iacoviello (2022) or Local) on the variable specified. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1995Q1-2019Q4. .

Figure F.3: Effect of a GPR shock on Russia

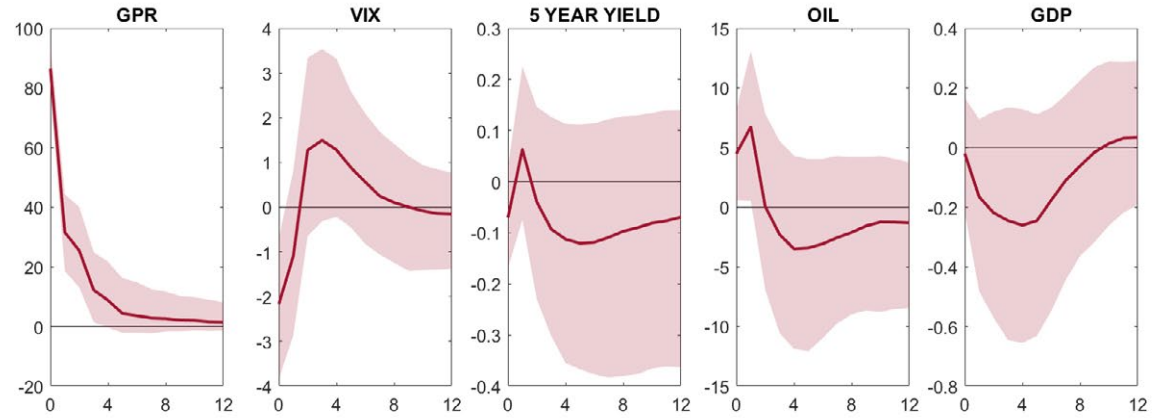


Note: Each subplot shows the effect of a 2 standard deviation shock of GPR (Caldara Iacoviello (2022) or Local) on the variable specified. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1998Q1-2019Q4. Dotted and blue lines refer to the C&I indices (as computed in Factiva), whereas dark red lines are indices computed using local sources.

G The impact of a bilateral GPR shock: complete model results

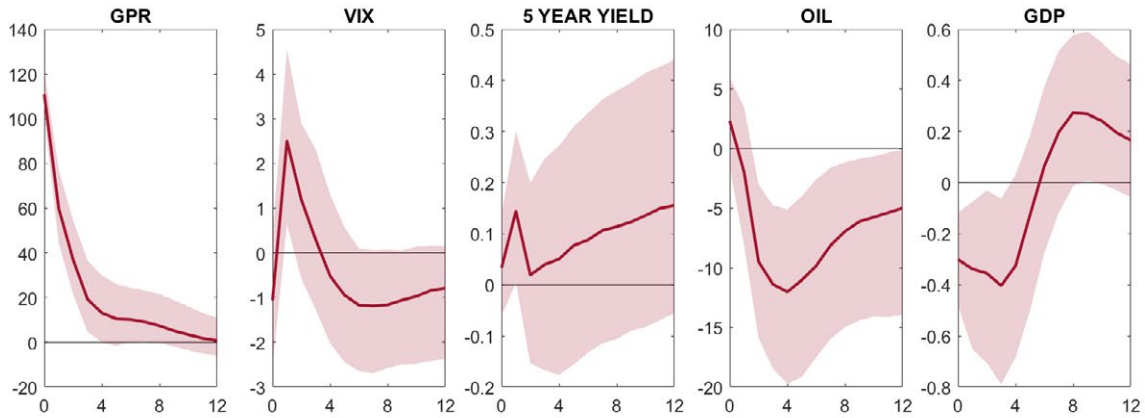
G.1 The impact on US GDP

Figure G.1.1: The impact on US GDP of a bilateral GPR shock from China



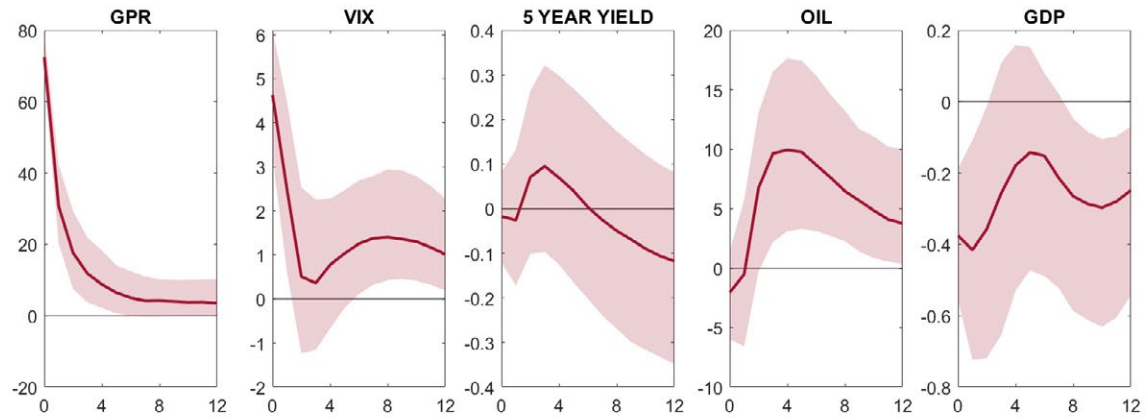
Each subplot shows the effect of a 2 standard deviation shock of China's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.1.2: The impact on US GDP of a bilateral GPR shock from Russia



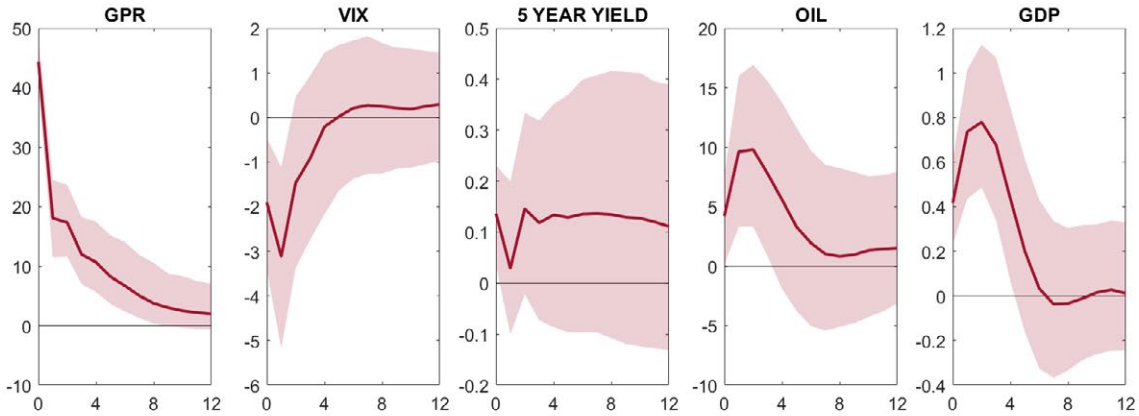
Each subplot shows the effect of a 2 standard deviation shock of Russia's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.1.3: The impact on US GDP of a bilateral GPR shock from East Asia



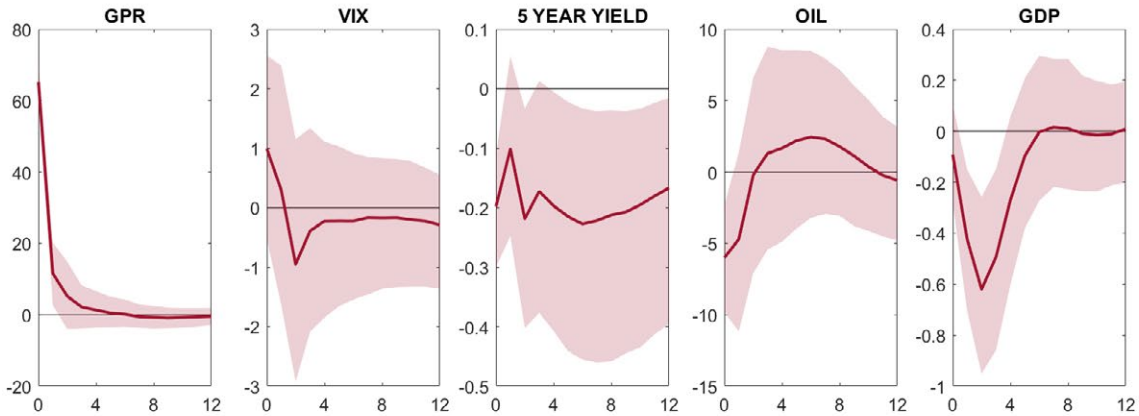
Each subplot shows the effect of a 2 standard deviation shock of East Asia's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.1.4: The impact on US GDP of a bilateral GPR shock from Middle East



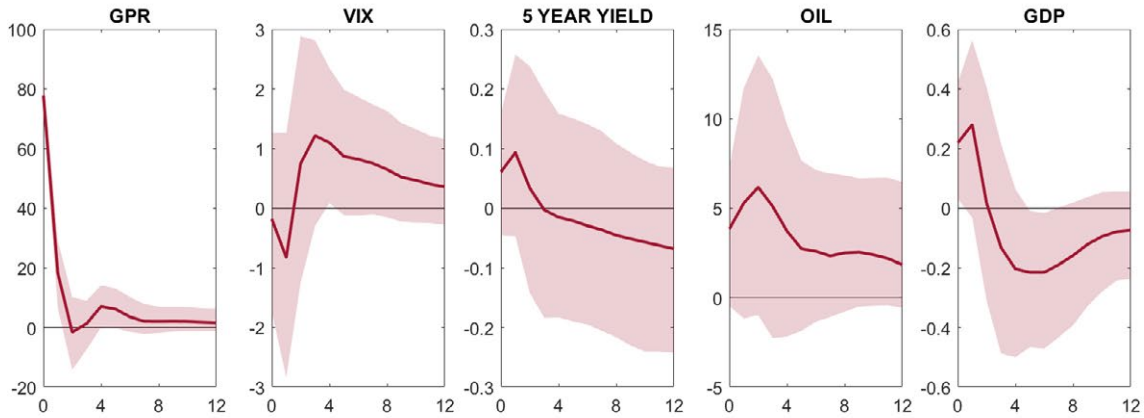
Each subplot shows the effect of a 2 standard deviation shock of Middle East's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.1.5: The impact on US GDP of a bilateral GPR shock from Western bloc



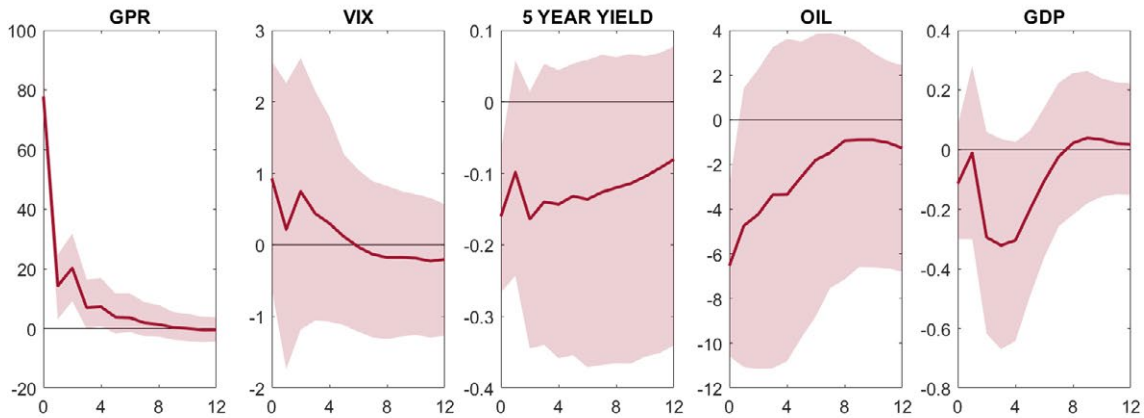
Each subplot shows the effect of a 2 standard deviation shock of Western bloc's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.1.6: The impact on US GDP of a bilateral GPR shock from Africa



Each subplot shows the effect of a 2 standard deviation shock of Africa's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

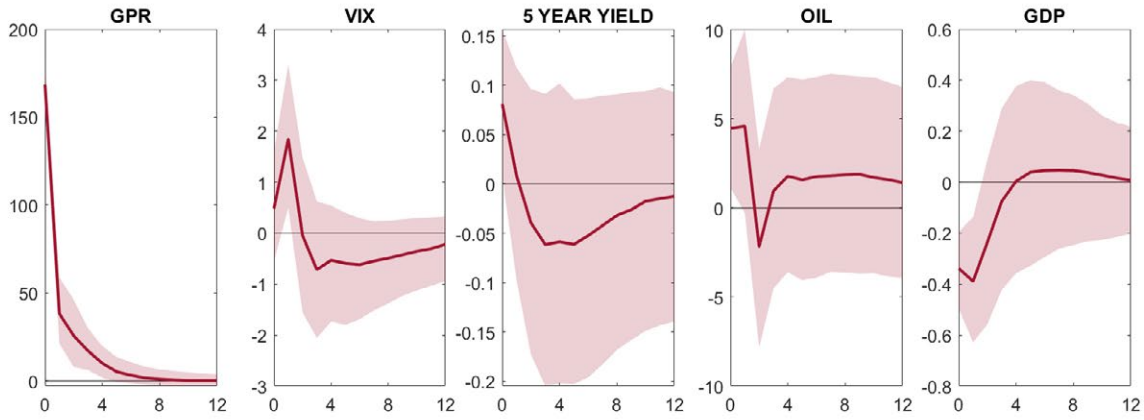
Figure G.1.7: The impact on US GDP of a bilateral GPR shock from Latin America



Each subplot shows the effect of a 2 standard deviation shock of Latin America's bilateral GPR on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 2003Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

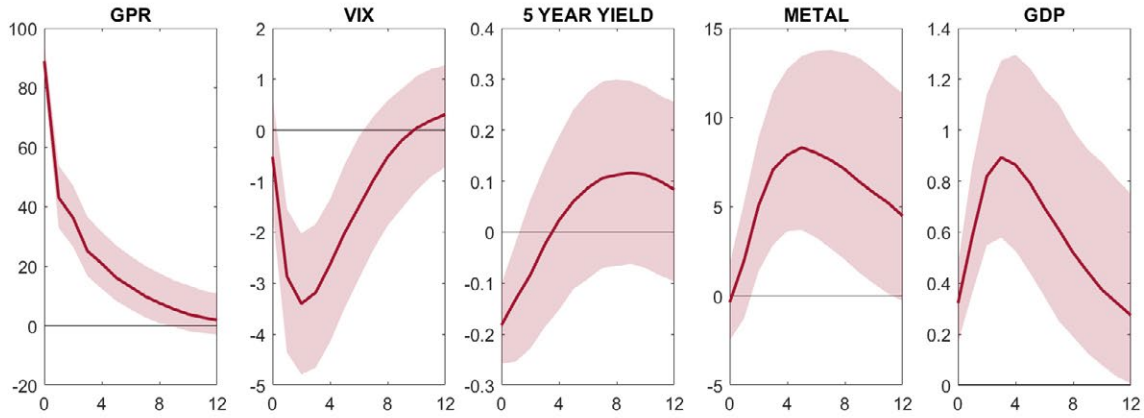
G.2 The impact on China's GDP

Figure G.2.1: The impact on China's GDP of a bilateral GPR shock from Russia



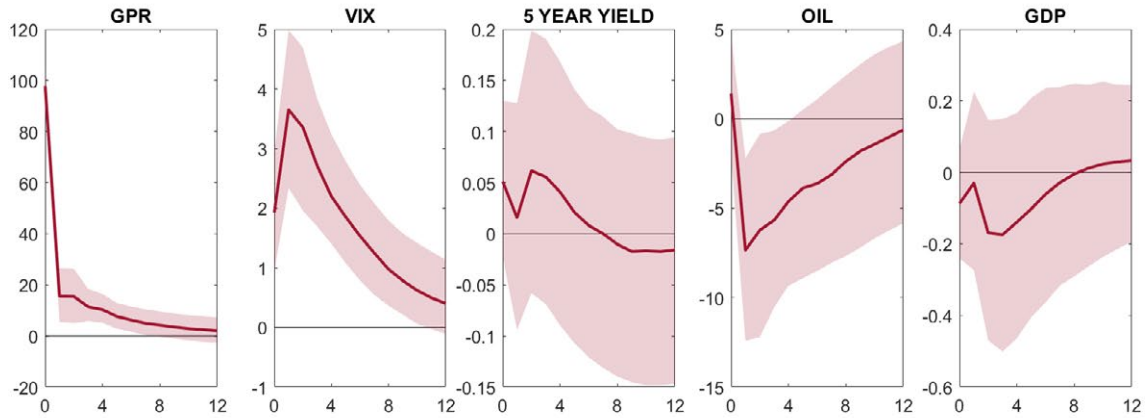
Each subplot shows the effect of a 2 standard deviation shock of Russia's bilateral GPR on China's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1995Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.2.2: The impact on China's GDP of a bilateral GPR shock from neighbours



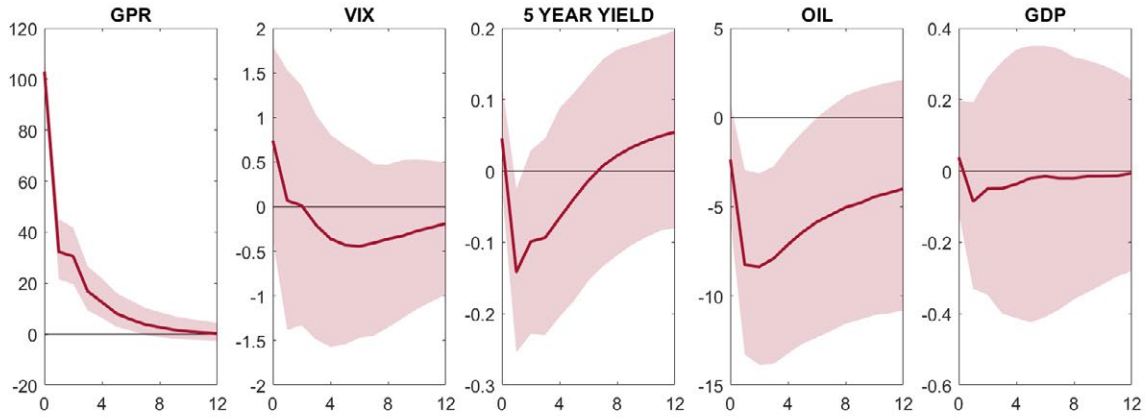
Each subplot shows the effect of a 2 standard deviation shock of North Korea, South Korea, Japan and Taiwan's bilateral GPR on China's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, metal prices and GDP. The data sample is from 1995Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.2.3: The impact on China's GDP of a bilateral GPR shock from East Asia



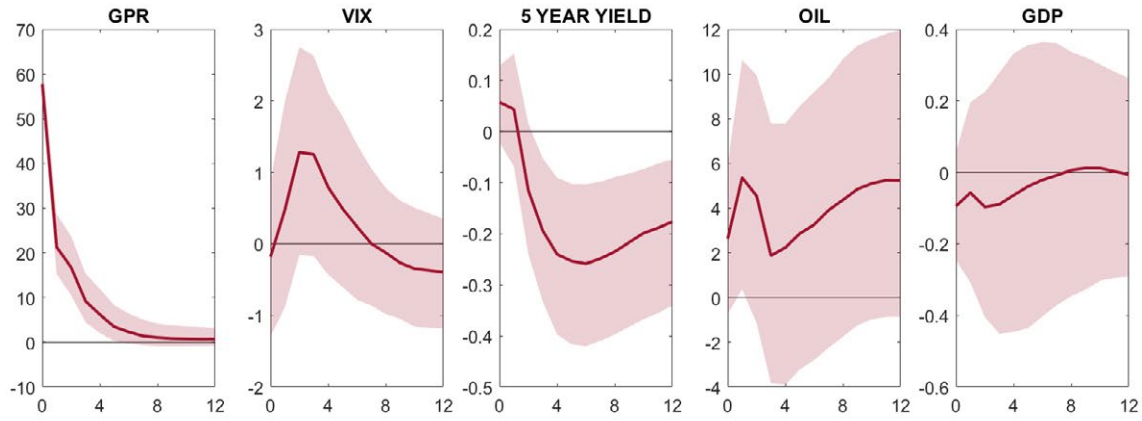
Each subplot shows the effect of a 2 standard deviation shock of East Asia's bilateral GPR on China's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1995Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.2.4: The impact on China's GDP of a bilateral GPR shock from Middle East



Each subplot shows the effect of a 2 standard deviation shock of Middle East's bilateral GPR on China's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1995Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

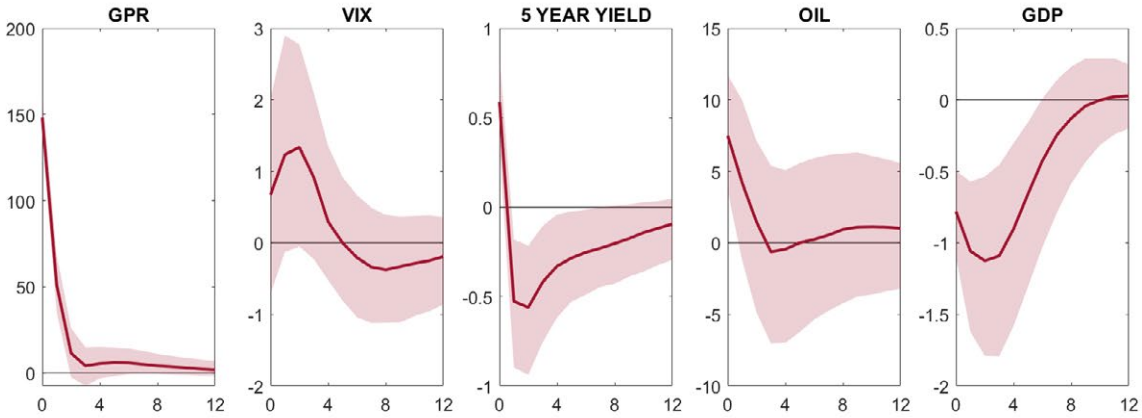
Figure G.2.5: The impact on China's GDP of a bilateral GPR shock from Western bloc



Each subplot shows the effect of a 2 standard deviation shock of Western bloc's bilateral GPR on China's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1995Q1-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

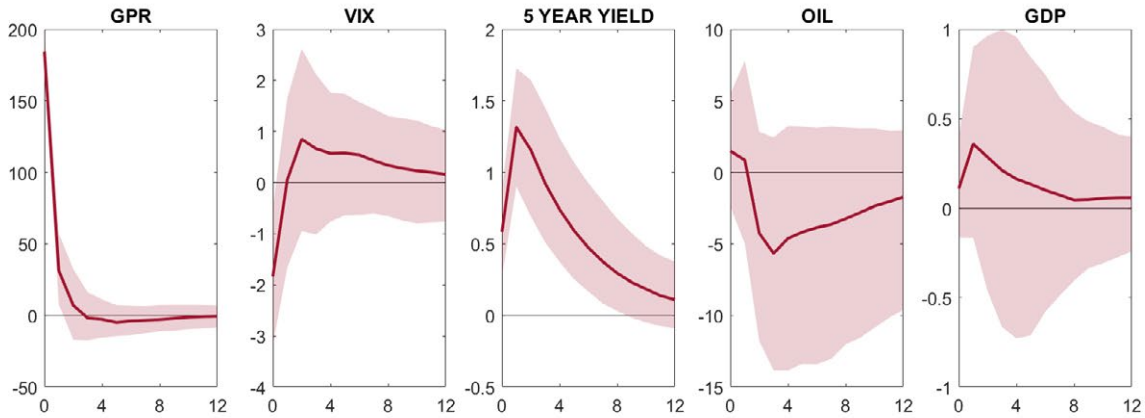
G.3 The impact on Russia's GDP

Figure G.3.1: The impact on Russia's GDP of a bilateral GPR shock from Ukraine and other neighbours



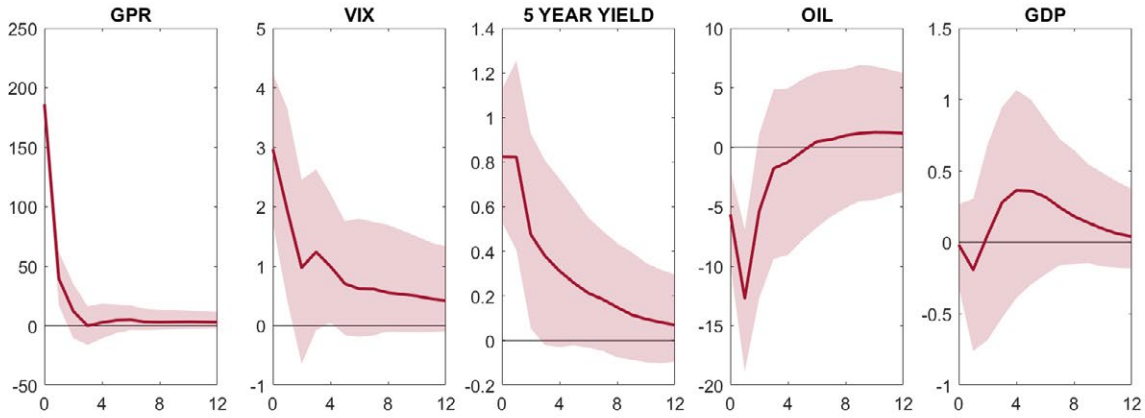
Each subplot shows the effect of a 2 standard deviation shock of Ukraine and other neighbours' bilateral GPR on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1999Q2-2019Q4.Ukraine and neighbours refer to Ukraine, Belarus, Georgia and Armenia. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.3.2: The impact on Russia's GDP of a bilateral GPR shock from China



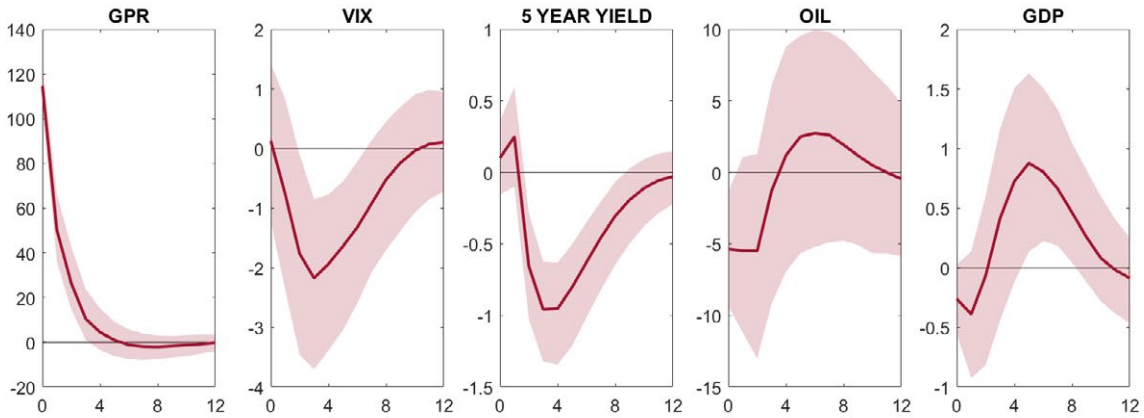
Each subplot shows the effect of a 2 standard deviation shock of China's bilateral GPR on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1999Q2-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.3.3: The impact on Russia's GDP of a bilateral GPR shock from East Asia



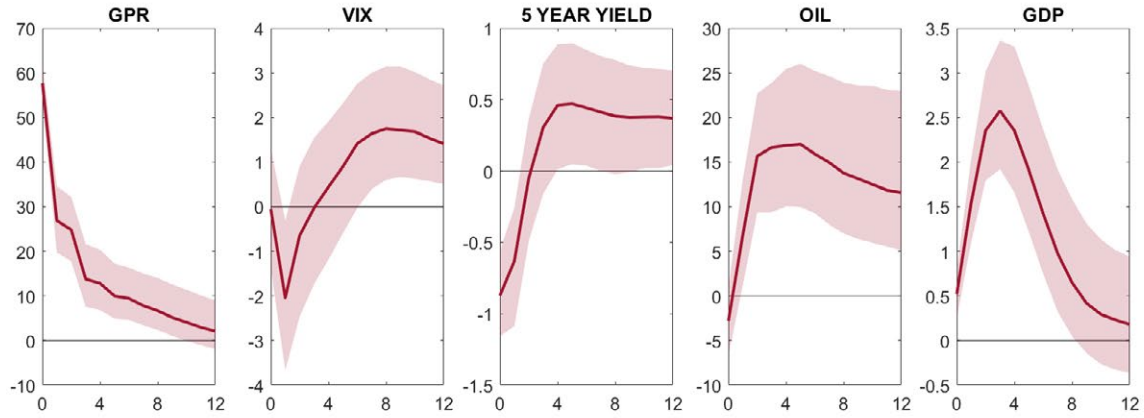
Each subplot shows the effect of a 2 standard deviation shock of East Asia's bilateral GPR on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1999Q2-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.3.4: The impact on Russia's GDP of a bilateral GPR shock from Middle East



Each subplot shows the effect of a 2 standard deviation shock of Middle East's bilateral GPR on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1999Q2-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

Figure G.3.5: The impact on Russia's GDP of a bilateral GPR shock from Western bloc

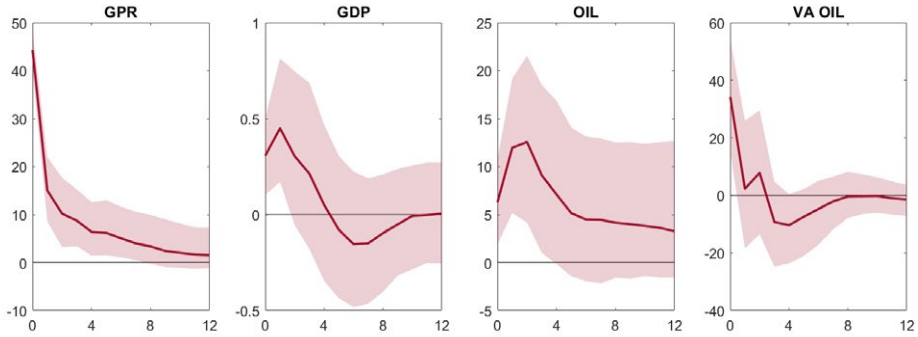


Each subplot shows the effect of a 2 standard deviation shock of Western bloc's bilateral GPR on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: GPR, VIX, 5 year yield, oil and GDP. The data sample is from 1999Q2-2019Q4. Dark red lines indicate bilateral indices built exclusively when there is a mention of this area but not other area.

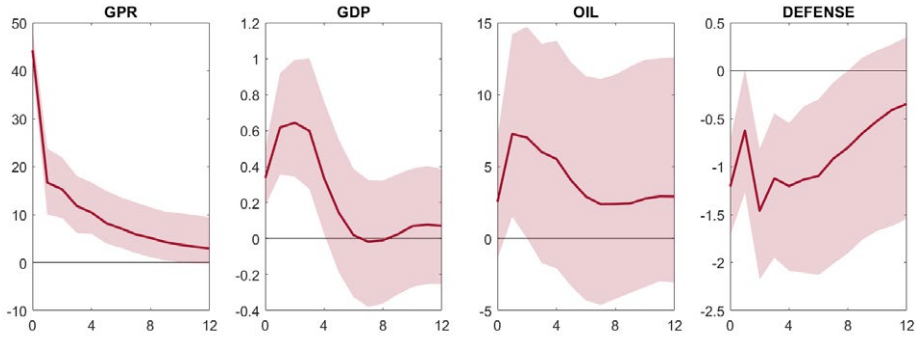
H Robustness of the IRFs that display positive responses of GDP after a GPR shock, and exploration of explanatory factors

Figure H.1: The potential channels of a geopolitical risk coming from the Middle East to the US

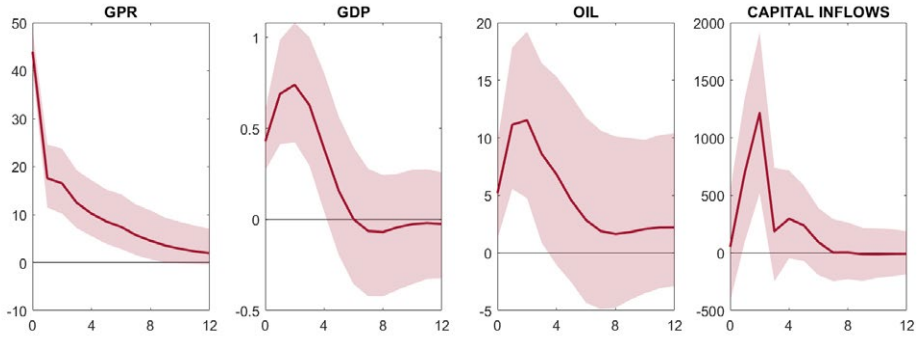
(a) Oil channel



(b) Military channel



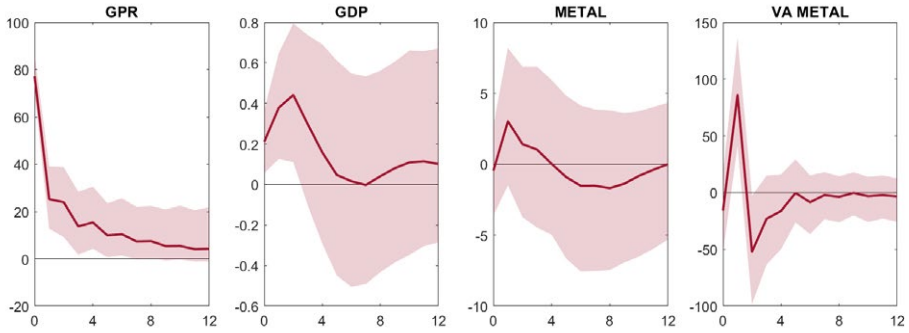
(c) Safe haven channel



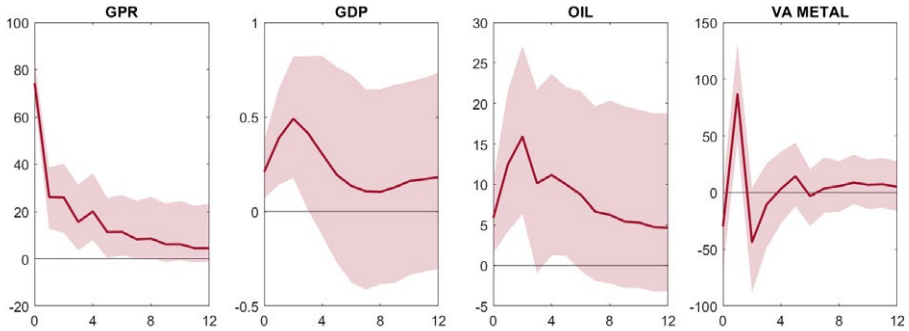
Note: Each subplot shows the effect of a 2 standard deviation shock of bilateral GPRs on US GDP. The SVAR has been identified via Cholesky decomposition with the following order: bilateral GPR, VIX, 5 year yield, oil prices and the last variable of each panel (VA oil for (a), military spending for (b) and gross capital inflows for (c). The data sample is from 2003Q1 to 2019Q4 except for panel (a) which is from 2005Q2 to 2019Q4.

Figure H.2: The potential channels of a geopolitical risk coming from China's neighbours to China

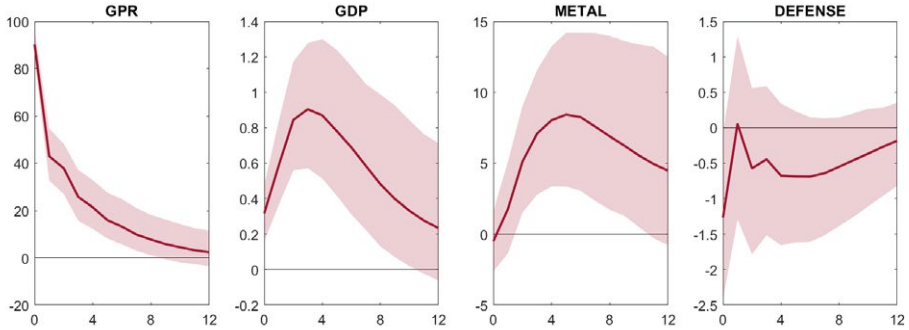
(a) Metal channel



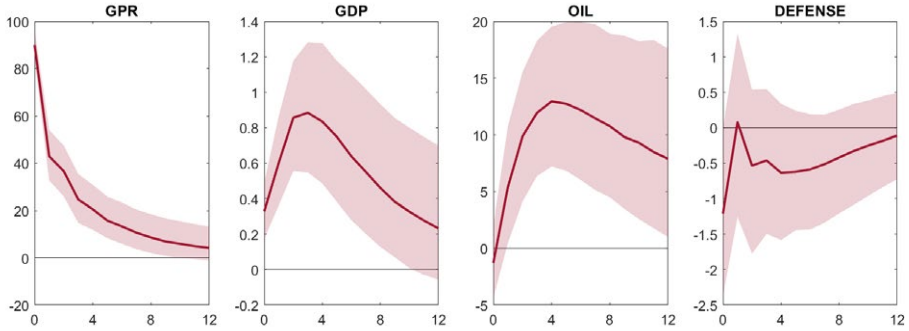
(b) Metal channel controlling for oil prices



(c) Military spending channel



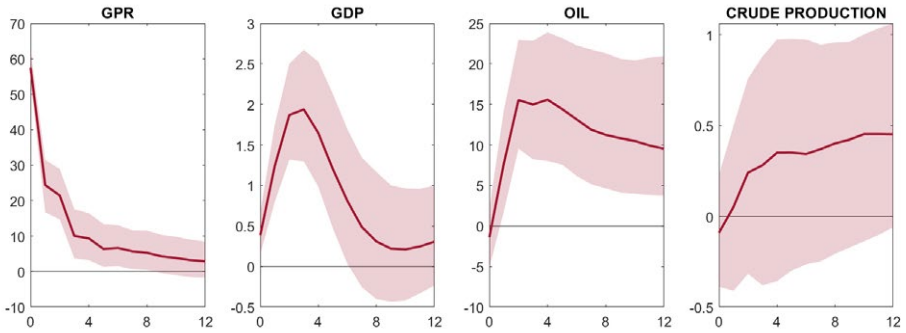
(d) Military spending controlling for oil prices



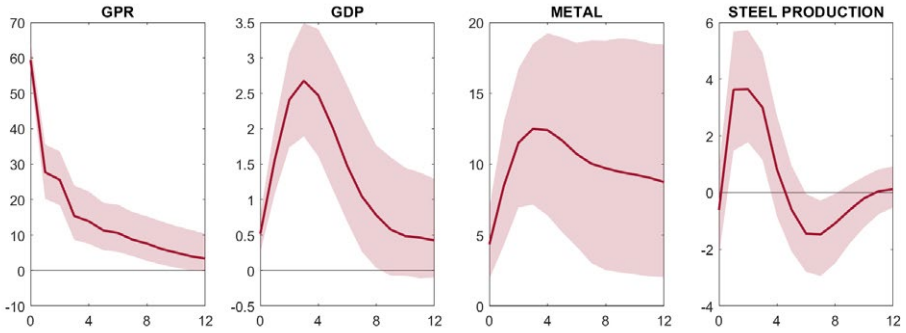
Note: Each subplot shows the effect of a 2 standard deviation shock of Neigbours' bilateral GPRs on China'a GDP. The SVAR has been identified via Cholesky decomposition with the following order: bilateral GPR, VIX, 5 year yield, oil/metal prices and the last variable of each panel (VA metal for (a) and (b), military spending for (c) and (d).The data sample is from 1995Q1 to 2019Q4 except for panels (a) and (b) which is from 2007Q1 to 2019Q4.

Figure H.3: The potential channels of a geopolitical risk coming from the Western Bloc to Russia

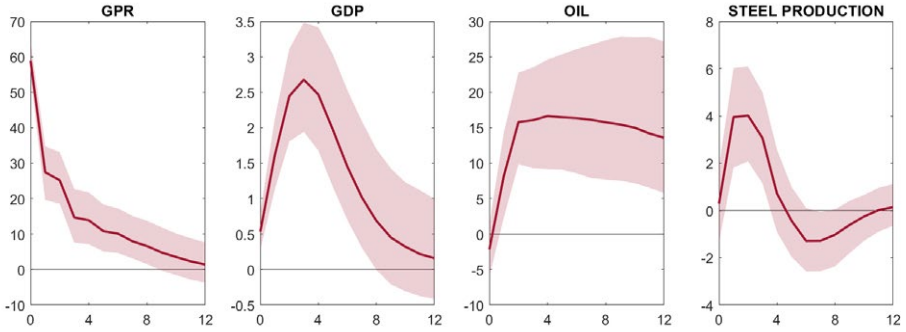
(a) Oil channel



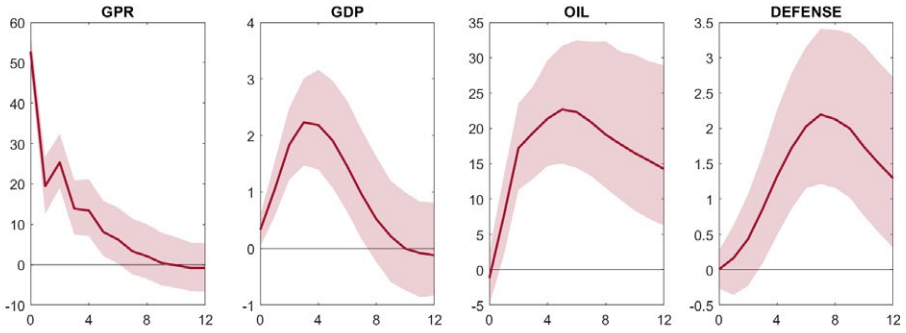
(b) Metal channel



(c) Metal channel controlling for oil



(d) Military spending channel



Note:Each subplot shows the effect of a 2 standard deviation shock of bilateral GPRs on Russia's GDP. The SVAR has been identified via Cholesky decomposition with the following order: bilateral GPR, VIX, 5 year yield, oil/metal prices and the last variable of each panel (crude production for (a), steel production for (a) and (b), military spending for (d). The data sample is from 1999Q2 to 2019Q4 except for panel (d) which is from 2000Q4 to 2019Q4.

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