Geopolitical Risk in the Euro Area: Measurement and Transmission*

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December 22, 2025

Abstract

Geopolitical risk is a key concern for the Euro Area, yet most available measures reflect a US perspective. This paper introduces a new indicator of geopolitical risk tailored to the Euro Area, based on newspaper coverage from local European sources. We show that shocks to this index have significant recessionary and inflationary effects in the Euro Area. Using a counterfactual exercise, we estimate the macroeconomic impact of the Russo-Ukrainian War on the Euro area economy in 2022, quantifying both output losses and inflationary pressures. We complement our analysis with two news-based measures of sanctions intensity and shortages, which we construct specifically for the Euro Area.

Keywords: Euro Area, geopolitical risk, inflation, sanctions, shortages

JEL classification: E31, E32, F42, F51.

1 Introduction

Geopolitical risk (GPR) is on the rise worldwide, playing a critical role in shaping macroeconomic and financial developments. To track GPR, policymakers and economists often rely on the seminal and widely used index of Caldara and Iacoviello (2022), which counts references to war, conflict, and terrorism in a set of leading English-language newspapers. While often treated as a global measure, the GPR index reflects an "Anglosphere" or US-centric perspective, as it is constructed from six major US outlets, alongside three UK newspapers and one Canadian source. Although this represents a major and widely recognized contribution, the index may not fully capture region-specific geopolitical concerns.[1] Instead, a local perspective may be essential, as the exposure to geopolitical risk depends on the degree of a nation's involvement or stake in a specific conflict, which shapes its economic responses to geopolitical events, as emphasized in Bondarenko et al. (2024).

For this reason, this paper explicitly focuses on the measurement and transmission of geopolitical risk in the euro area – one of the largest economic blocs and substantially exposed to geopolitical tensions stemming from the Russo-Ukrainian War. Specifically, we introduce a new targeted measure: the Euro Area geopolitical risk (EA GPR) indicator.[2] By relying entirely on European newspapers for its construction, the index is tailored to the Euro Area. We show that EA GPR shocks significantly depress output and raise inflation in the Euro Area. This combination of falling output and rising prices suggests that the geopolitical risk shocks act as an adverse supply shock. In contrast, the Anglosphere GPR shock has weaker, statistically insignificant effects on Euro Area GDP and prices. Thus, our findings highlight the importance of a European perspective to accurately capture GPR as it is perceived within the Euro Area. Using our measure, we then calculate a "No-War" counterfactual to isolate the effect of the Russo-Ukrainian War on the Euro area economy in 2022, estimating a 0.8% reduction in GDP by July 2022. Finally, we complement our measurement of geopolitical risk by constructing two news-based indices capturing sanctions intensity and shortages in the euro area, which allows us to study the transmission channels of geopolitical risk.

We construct our Euro Area geopolitical risk indicator based on newspaper coverage in the five largest Euro Area economies: Germany, France, Italy, Spain, and the Netherlands. We select these countries to strike a balance between a sufficiently long span of local newspaper availability and coverage of the Euro Area. The aim is to measure how often terms related to war, conflict, and terrorism appear in leading local newspapers and to use this information to track perceptions of geopolitical risk over time. By focusing on local media sources, the indicator is designed to capture Europeans' perceptions of geopolitical

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[1]Media outlets might frame or emphasize threats differently – the same event can be portrayed in starkly different terms across countries.

[2]The EA GPR indicator, together with a sanctions and a shortages indicator for the Euro Area, is available at `https://github.com/YvesSchueler/GeopoliticalRiskPerceptions/raw/refs/heads/main/EA_GPR_Paper.xlsx`.

threats and events, rather than relying exclusively on the Anglosphere perspective. While the indicator evolves quite similarly in the 2000s and 2010s, we observe a disconnect once Russia launched its full-scale invasion of Ukraine in 2022. Specifically, there is a continued level shift in the EA GPR index, unlike its US-centric counterpart. We also show formally that the historical co-movement changes at this point. This finding underlines the practical necessity for such a tailored indicator. On a more general note, potential shifts in the alignment of geopolitical risk could result in even larger discrepancies in the future.

To study the macroeconomic implications of a GPR shock, we estimate a Bayesian VAR for the Euro Area that incorporates a correction for the COVID-19 pandemic. This adjustment allows us to jointly analyze a long pre-pandemic sample, including events such as the Kosovo War, the 9/11 terrorist attacks, the Iraq War, and the entire period of the ongoing Russo-Ukrainian War, starting with the annexation of Crimea in 2014 and the major escalation in 2022 in the post-pandemic period, without distorting the VAR dynamics. Specifically, our monthly data span from January 1998 to June 2025, i.e., the period begins one year before the launch of the euro.

Our estimates show that geopolitical risk has a substantial effect on the Euro Area economy. An EA GPR shock significantly lowers output and increases inflation. This combination of falling output and rising prices is consistent with historical evidence that wars act as adverse supply shocks, causing economic activity to contract amid strong inflationary pressure, see Federle et al. (2024). Our VAR indicates that interest rates increase, in line with monetary policy responding to inflationary pressures instead of pursuing a look-through approach.

Comparing our results with those obtained with an Anglosphere GPR indicator, we see substantial differences. In this case, the effect on output is statistically insignificant. Similarly, the effect on inflation is weaker, and in the case of the broad CPI measure, it is insignificant as well. We also show that the EA GPR shock accounts for substantially more of the fluctuations in these key variables, as shown by a forecast error variance decomposition. Therefore, we find that the measurement of GPR has important economic implications, as the effect of a GPR shock is underestimated when ignoring the European perspective.

We use our framework to conduct a "No-War" counterfactual to isolate the effect of Russia's full-scale invasion for the Euro area economy. This simulation provides us with an estimate of the macroeconomic dynamics that would have prevailed absent that source of geopolitical risk. More specifically, we keep the Euro Area GPR index fixed at its December 2021 level through July 2022 to remove the sharp and persistent rise in geopolitical risk following this geopolitical escalation. Relative to the "No-War" scenario, GDP is around 0.8% lower by July 2022 in the Euro Area. Also, inflation is substantially higher, as both the CPI and Core CPI increase by around 0.4% more because of the war. The policy rate responds with a delay, with rates being around 0.5 percentage points higher in July 2022. Our results suggest that the Russian invasion had an economically important impact in shaping the economic dynamics in the Euro Area.

We complement our study by examining two potential key transmission channels through which geopolitical risk shocks may affect the macroeconomy: (i) the sanctions channel, and (ii) the shortages channel. We focus on these two channels, as geopolitical risks often trigger economic sanctions and can lead to shortages or supply disruptions, for instance, through damaged infrastructure, disrupted trade routes, or precautionary stockpiling. Additionally, we use this opportunity to extend the set of relevant indicators for studying geopolitical risk in the Euro area by constructing a sanctions-intensity index and a shortages index based on local European news sources.

To assess the sanctions channel, we develop a news-based sanctions intensity index for the Euro Area. Note that we also provide an Anglosphere sanctions index for completeness, as such a measure has been absent. In doing so, we build on the work of Laudati and Pesaran (2023) and Bondarenko et al. (2024), who develop such a sanctions indicator for Iran and Russia, respectively. In particular, we construct a monthly sanctions indicator using the same countries and the same local newspapers that underlie our EA GPR index and the Anglosphere GPR index, respectively. Using a counterfactual exercise, we show that the sanctions channel has only a very limited impact on the transmission of GPR shocks to the Euro Area economy.[3]

To evaluate the shortages channel, we construct a shortages indicator tailored to the Euro Area. Specifically, we follow Caldara et al. (2025), who define a shortage as a situation in which supply fails to meet demand at prevailing prices, and construct a monthly indicator using major English newspapers. We base our measure on news coverage from the same set of EA countries and local newspapers as before, allowing us to incorporate an explicit Euro Area perspective. Using a counterfactual exercise, we show that shortages constitute an important propagation channel through which GPR shocks generate persistent inflationary pressures. We also find that the shortages channel amplifies and prolongs the GDP contraction, even though the quantitative magnitude of the effect remains modest.

Our paper contributes to the literature on geoeconomics, which studies the links between geopolitics and economics, and is surveyed in Mohr and Trebesch (2025). More specifically, it is related to the measurement and the macroeconomic effects of geopolitical risk, a literature spearheaded by the seminal contribution of Caldara and Iacoviello (2022). In their study, they introduce a GPR index based on newspaper coverage and document its effects on economic activity. Importantly, they construct their index using English-language newspapers. As a result, it reflects a predominantly Anglosphere – and in particular U.S.-centric – perspective on geopolitical risk developments. Bondarenko et al. (2024) argue that accounting for a local perspective is crucial to capture the underlying geopolitical risk perceptions of a country or region.[4] They propose constructing GPR measures directly from local news

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[3]Note that we focus here only on the effect of sanctions on the Euro Area, which has been a sender country. The economic effects on target countries, such as Iran and Russia, are studied, for example, in Laudati and Pesaran (2023) and Bondarenko et al. (2024), respectively.

[4]The importance of accounting for different risk perceptions is also emphasized in the theoretical geoeconomics framework of Clayton et al. (2023) with hegemonic and non-hegemonic countries.

sources and show that a GPR index based on Russian-language newspapers has substantially stronger effects on the Russian economy.[5] Building on this approach, we construct a novel GPR indicator for the Euro Area, enabling an analysis of geopolitical risk from a Euro Area perspective. We document a divergence between the EA and Anglosphere GPR indices following the escalation of the Russo–Ukrainian war in 2022. More broadly, our paper contributes to the strand of literature that proposes refinements to the measurement of geopolitical risk (e.g., Hassan et al., 2019; Fernández-Villaverde et al., 2024; Alonso-Alvarez et al., 2025; Clayton et al., 2025).

While a growing literature evaluates different facets of geopolitical risk in the Euro Area, e.g. Bouoiyour et al. (2019), Brignone et al. (2024), Dieckelmann et al. (2024), Pinchetti (2024), these papers usually rely on the Anglosphere GPR measure. Our paper contributes to this literature by constructing a Euro Area specific measure and showing that it implies stronger and statistically significant macroeconomic effects. Regarding macroeconomic outcomes, the literature tends to find that output contracts (Caldara and Iacoviello, 2022; Bondarenko et al., 2024) and inflation rises (Hodula et al., 2024; Caldara et al., 2026).In other words, GPR shocks act as adverse supply shocks, in line with historical evidence from Federle et al. (2024). Gorodnichenko et al. (2025) show that European households expect a fall in output combined with elevated inflation for a prolongation of a geopolitical conflict. Our results confirm these findings and expectations, and our "No-War" counterfactual points to a sizable economic cost for the Euro Area since 2022.

More generally, a growing body of empirical work studies various channels through which geopolitical risk affects economic outcomes (e.g. Grebe et al., 2024; Kilian et al., 2024; Federle et al., 2025; Luetticke et al., 2025). We focus here on the role of sanctions and shortages in the transmission of geopolitical risk shocks to the Euro Area economy. Both the sanctions channel and the shortages channel materialize as supply disruptions, depressing output and pushing up prices. For our analysis, we construct two new newspaper-based indicators, namely a Euro Area sanctions intensity index based on work of Laudati and Pesaran (2023) and Bondarenko et al. (2024), and a Euro Area shortages index based on Caldara et al. (2025). In this way, we provide a comprehensive toolset to conduct geopolitical risk analysis for the Euro Area. We illustrate that geopolitical risk shocks propagate beyond the sanctions and shortages channel, which have only limited impacts. These findings connect directly to the recent theoretical literature on sanctions, which studies their design and effects (e.g., Bianchi and Sosa-Padilla, 2023, 2024; Becko, 2024; Ghironi et al., 2025; Lewis and Puangjit, 2025).

The remainder of the paper is structured as follows. Section 2 explains how we con-

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[5]While Caldara and Iacoviello (2022) provide also country-specific GPR measures by conditioning their search on country names or capitals, the underlying perspective remains unchanged, as these indices are derived from the same Anglosphere news sources. This can result in substantial measurement errors, as illustrated for the case of Finland by Ambrocio et al. (2025). The "Anglosphere-centric" Finnish GPR index spikes due the Helsinki summit in 2018, where US president Donald Trump and Russian president Vladimir Putin met, driven by the interest of the English media instead of a meaningful change in Finnish GPR.

struct our geopolitical risk indicator for the Euro Area. We show the resulting time series and compare it with the Anglosphere geopolitical risk index introduced by Caldara and Iacoviello (2022). Section 3 presents our baseline vector autoregression (VAR) results. We then construct a "No-War" counterfactual to evaluate the economic costs associated with the surge of geopolitical risk in 2022 associated with the Russo-Ukrainian War. Section 4 introduces newly constructed indicators of sanctions intensity and supply shortages in the Euro Area, which we use to assess the potential transmission channels of geopolitical risk. Section 5 concludes.

2 A geopolitical risk indicator for the Euro Area

We construct our Euro Area geopolitical risk (EA GPR) indicator based on newspaper coverage in the five largest Euro Area economies: Germany, France, Italy, Spain, and the Netherlands. We choose these countries to strike a balance between a sufficiently long span of local newspaper availability and coverage of the Euro Area.[6] The idea is to measure how often terms related to war, conflict, and terrorism appear in leading local newspapers and to use this information to track perceptions of geopolitical risk across time. By focusing on local media sources, the indicator is designed to capture how Europeans themselves perceive geopolitical threats and events, rather than relying exclusively on the Anglosphere perspective.

Methodologically, our approach builds on Caldara and Iacoviello (2022), who develop a newspaper-based index of geopolitical risk. Their English-language search query is adapted to the Factiva database and translated into German, French, Italian, Spanish, and Dutch. To account for the specifics of the different languages, we create translated search queries using a combination of professional translators and large language models, and verify them with native-language economists. The precise wording of the search query in each language is documented in Appendix A.

Table 1 shows the list of newspapers, while further information on each newspaper is provided in Appendix B. Employing the Dow Jones Factiva global news repository, we select the newspapers with the highest circulation, subject to their availability in the database, to have a broad press coverage.[7] We exclude tabloids and regional papers to ensure comparability. We then construct country-specific GPR indicators by sourcing information from the local newspapers in their native country. An alternative approach is to use the entire set of newspapers available in Factiva, as done, for instance, by Meinerding et al. (2022). The resulting indices based on the selected newspapers as well as the entire universe of

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[6]We focus on the largest five countries as we do not have access to a sufficiently long time span of newspapers in each member state. For instance, for the geopolitically very exposed Euro Area countries Estonia, Latvia, and Lithuania, we only have in our database access to articles starting from the year 2021, 2022, and 2021, respectively.

[7] Unfortunately, we lack access to four major Dutch newspapers: Algemeen Dagblad, De Telegraaf, Trouw, and De Volkskrant.

Table 1: Newspaper sources underlying Euro Area geopolitical risk index

Country	Sources
Germany	Frankfurter Allgemeine Zeitung, Süddeutsche Zeitung, Handelsblatt, Die Welt, taz - die tageszeitung
France	Le Monde, Le Figaro, Les Echos, La Tribune
Italy	Il Sole 24 Ore, Corriere della Sera, La Repubblica, La Stampa, Italia Oggi, Milano Finanza
Spain	El País, El Mundo, ABC, La Vanguardia, Expansión, Cinco Días
Netherlands	ANP Binnenland, Reformatorisch Dagblad, Dutch Government News, ANP Economie, De Groene Amsterdammer

country-specific newspapers provide very similar dynamics. Appendix C compares the two approaches.

For each country, we then compute the monthly share of articles that get selected through the local language geopolitical search phrase relative to the total number of articles in the same set of newspapers. This yields five country-specific indices that reflect local reporting of geopolitical risk in each country.

To obtain a single measure for the Euro Area, we aggregate the five country indices using their respective GDP weights, reflecting the relative economic importance of each economy within the group. This weighting ensures that the aggregate indicator is representative of the Euro Area as a whole. The construction of the index can be summarized as:

$$\text{EA GPR}_t = \sum_{i \in \mathcal{C}} \omega_{i,t} \frac{\text{GPR articles}_{i,t}}{\text{total articles}_{i,t}} \times sc_i, \qquad \mathcal{C} = \{\text{DE, FR, ES, IT, NL}\}, \qquad (1)$$

where ω_i is country i's respective GDP weight in month t, GPR articles$_{i,t}$/total articles$_{i,t}$ gives the country-specific share of articles related to geopolitical risk snd sc_i is a scaling factor that normalizes all country shares to 1 in January 2010. This month lies close to the midpoint of our sample and does not coincide with any major geopolitical shocks, providing a neutral reference point that is not distorted by exceptional events. Our sample period starts in January 1998, one year prior to the introduction of the euro, and runs until June 2025. We continuously update our indicators.

Figure 1 shows the monthly Euro Area GPR index (blue) from January 1998 until June 2025. Our indicator captures major global events such as the Kosovo War, the Iraq War and the Paris Terrorist Attacks. We observe the largest spike in the indicator for the major escalation of the Russo-Ukrainian War in February 2022. We also observe that this event triggered a level shift in geopolitical risk, as GPR has stayed elevated since.

To put these dynamics into context, we compare our index to its Anglosphere counterpart provided by Caldara and Iacoviello (2022), displayed in red in Figure 1. We also normalize their index to 1 in January 2010. This procedure aligns the two indices on an identical starting point and thereby makes them comparable. To avoid the differences being driven
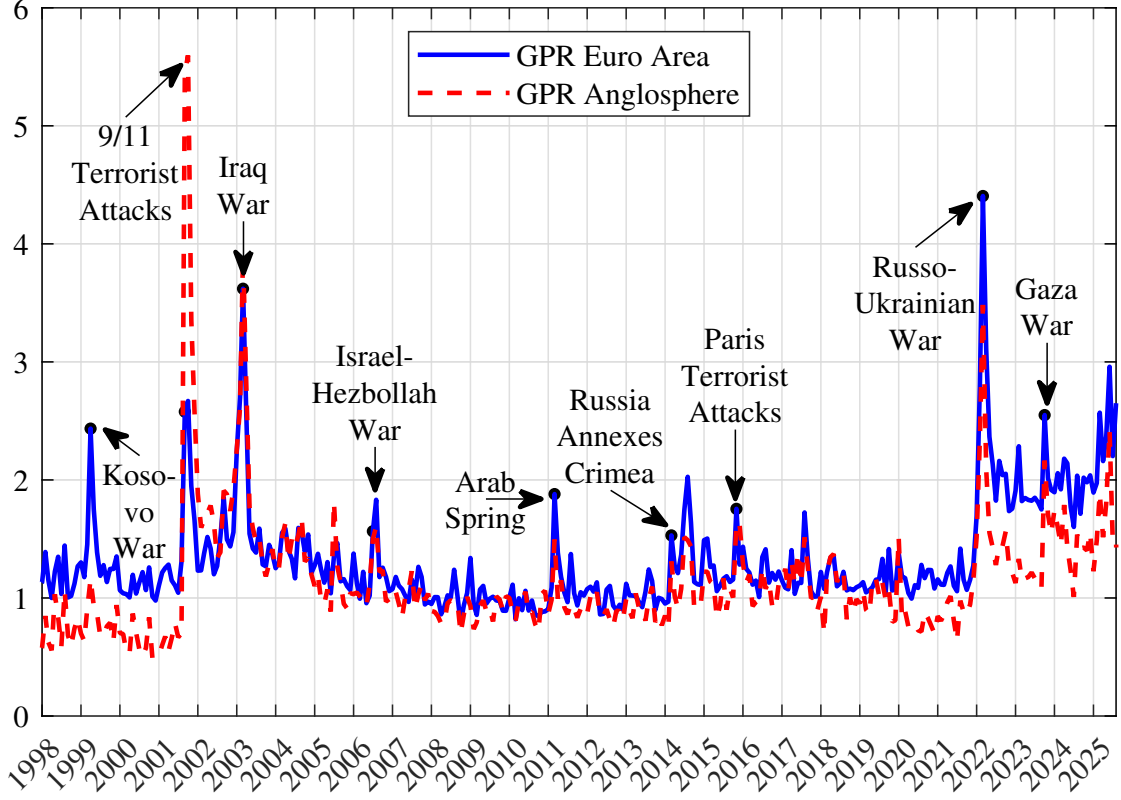
Figure 1: Geopolitical risk index: Euro area (blue) and Anglosphere (red)

Notes: The Anglosphere GPR index from Caldara and Iacoviello (2022) is a text-based measure using English-language newspapers. The Euro area GPR index is an aggregate of five country-level GPR indices based on local newspapers in the respective languages. For comparability, both indices are normalized to equal 1 in January 2010.

by using a different database, we also compare the EA GPR to an equivalent 'Anglosphere' measure from the Factiva database. The found similarities and differences are the same, as shown in Appendix G.2.

Although both indices exhibit common spikes around major global events, a comparison reveals notable differences in the evolution of geopolitical risk across regions. In particular, the Euro Area index rises relatively more for conflicts closer to Europe, e.g., the onset of the Russo-Ukrainian War in February 2022 and the Kosovo War. Figure 1 also suggests that GPR, from a European perspective, has remained much more elevated since the onset of the Russo-Ukrainian War in 2022. Europeans thus appear to have a distinct weighting of geopolitical events in their risk assessment, underscoring how geography and local narratives shape risk perceptions. This partly reflects a 'proximity penalty': conflicts impose a disproportionate economic toll on nearby economies (Federle et al., 2025). In fact, the Russo-Ukrainian War led to the largest rise in EA GPR, while from the US perspective, the peak in geopolitical risk was reached after the 9/11 terrorist attacks. Clearly, then, the two measures of GPR are very different.

Figure 2 formally summarizes the historical co-movement between the two indices. The purple line plots the standardized residuals from a regression of the Euro Area GPR index on

the Caldara and Iacoviello (2022) Anglosphere GPR measure and a constant. The regression coefficient is significantly positive, confirming that both indicators co-move on average. The residuals highlight episodes in which one index responds disproportionately relative to this historical relation. For example, the sharp negative spike around 9/11 reflects a much stronger reporting in Anglosphere media than would be expected given typical differences between the two measures. Most striking, however, is the sustained rise of the residuals toward the end of the sample. This indicates that geopolitical risk, as captured in Euro Area media, has remained persistently above what the historical relation with the Anglosphere index would predict. The residuals frequently lie outside the one-standard-deviation band (black dashed lines), pointing to an unusually large divergence between the two measures relative to historical norms after the onset of the Russo-Ukrainian War.
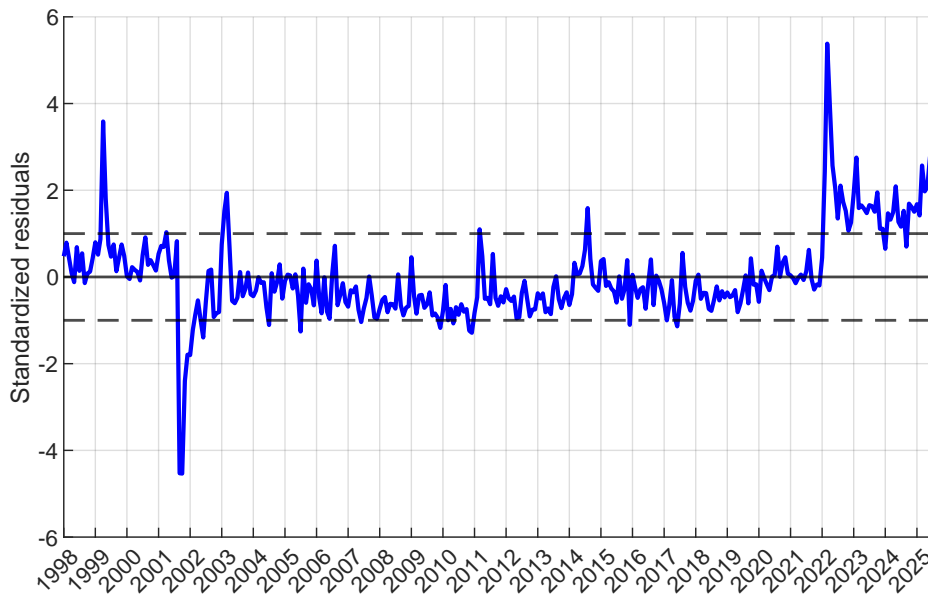

Figure 2: Regressing EA GPR on Anglosphere GPR

Notes: The figure shows the standardized residuals from a regression of the EA GPR index on the Anglosphere GPR index and a constant. The black dashed lines give the one-standard deviation band.

To summarize, by combining local perspectives into an integrated measure, the EA GPR index highlights the importance of the role of proximity to geopolitical risk in shaping perceptions, and provides a Euro Area complement to the Anglosphere GPR index of Caldara and Iacoviello (2022).

3 Geopolitical risk: Euro Area perspective matters

We now investigate in more detail how geopolitical risk shocks transmit to the Euro Area economy. To this end, we estimate a monthly vector autoregression (VAR) model for the sample period January 1998 until June 2025. We use our analysis to compare the impact of EA GPR shocks on the Euro Area with their Anglosphere counterpart. We also provide a

"No-War" counterfactual analysis of the major escalation of the Russian-Ukrainian war in 2022 to quantify the costs attached to it.

3.1 Method: Bayesian VAR with COVID-19 pandemic correction

We use a Bayesian VAR with COVID-19 pandemic correction to estimate the impact of GPR shocks, which allows us to include the entire time period of the Russo-Ukrainian war since the occupation and annexation of Crimea in 2014. The COVID-19 pandemic caused unprecedented fluctuations in many macroeconomic time series. A growing body of research shows that the extreme observations around the COVID-19 pandemic, coming from the unprecedented fluctuations in many macroeconomic time series, can distort VAR-based analyses, including both structural inference and forecasting; see, among others, Lenza and Primiceri (2022), Carriero et al. (2024), Hartwig (2024) and Schorfheide and Song (2024).

To identify and interpret GPR shocks, we adopt a parsimonious and transparent COVID-19 correction that mitigates the influence of pandemic-era outliers without disturbing its comparability to previous studies that use standard homoskedastic VARs. We follow Lenza and Primiceri (2022) and rescale the covariance matrix for observations within the pandemic period.[8] This variance correction attenuates the disproportionate impact of the pandemic's volatility spikes while preserving the remaining information content of the data.

Particularly, we estimate a modified standard VAR of the form

$$y_t = C + \sum_{l=1}^{p} B_l y_{t-l} + s_t \varepsilon_t, \quad \text{with} \quad \varepsilon_t \sim N(0, \Sigma),$$

where y_t is an $n \times 1$ vector of endogenous variables at time $t = 1, \ldots, T$, C a vector of constants, B_l coefficient matrices of size $n \times n$, and ε_t an $n \times 1$ vector of reduced form residuals. s_t scales the residual covariance matrix matrix and takes a value of 1 prior to the pandemic. From the onset of the pandemic, denoted as t^*, the model then assumes that $s_{t^*} = \bar{s}_0$, $s_{t^*+1} = \bar{s}_1$, $s_{t^*+2} = \bar{s}_2$, and $s_{t^*+j} = 1 + (\bar{s}_2 - 1)\rho^{j-2}$, where $[\bar{s}_0, \bar{s}_1, \bar{s}_2, \rho]$ is a vector of the unknown coefficients of the covariance adjustment.

The method uses prior distributions for the VAR coefficients of the conjugate Normal-Inverse Wishart type, defined through a set of hyperparameters. In our analysis, we use the standard Minnesota prior (Litterman, 1986), but relax the assumption of a random walk on the GPR indicator, assuming 0.5 instead for the value of the first lag. As a prior for $\bar{s}_0$, $\bar{s}_1$, and $\bar{s}_2$, we employ a Pareto distribution with scale and shape equal to one. Such a specification allows for possibly large increases in the reduced form residuals over the pandemic. For ρ, the model imposes a Beta prior, which we calibrate to the standard values proposed. Impulse responses are computed over a 12-month horizon, and we report median

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[8]An alternative approach would be to simply omit the extreme observations associated with the onset of the pandemic, specifically March, April, and May 2020. However, for the analysis of GPR shocks, excluding these months is particularly problematic, as they precede the Russian invasion of Ukraine and can contain valuable pre-crisis information.

estimates together with 68% confidence bands derived from the posterior distribution.

Finally, we identify structural shocks using a recursive ordering scheme based on the Cholesky decomposition of the reduced-form covariance matrix. The Euro Area GPR index is ordered first. This implies that innovations to geopolitical risk can contemporaneously affect all other macro-financial variables, whereas the latter respond only with a lag.

Conceptually, this corresponds to the internal instrument approach of Plagborg-Møller and Wolf (2021), in which an externally constructed shock proxy is placed directly inside the VAR as the first variable. Because the Euro Area GPR index is built from automated newspaper text searches based on predetermined keyword lists, its high-frequency variation is plausibly exogenous to contemporaneous macroeconomic conditions. In this sense, the GPR series functions as an internal shock instrument within the VAR. Additionally, this identification strategy is also standard in the geopolitical risk literature, ensuring interpretability and comparability of the resulting geopolitical risk shocks.

3.2 Data

Our data span from January 1998 to June 2025. We use a set of monthly macroeconomic and financial variables to capture the transmission of geopolitical risk shocks to the Euro Area economy. The baseline specification includes GDP, the broad harmonized index of consumer prices, the core harmonized consumer price index, the Wu-Xia Shadow ECB Rate for the effective lower bound period (Wu and Xia, 2017), equity prices as measured by the EuroStoxx 600, and residential property prices. GDP, house prices, and equity prices are deflated with the broad consumer price index and expressed in real terms. Variables are seasonally adjusted and log-transformed where appropriate. Quarterly GDP and house prices are interpolated to monthly frequency using a cubic-spline method. Appendix F provides detailed definitions, transformation procedures, and data sources.

3.3 Transmission of geopolitical risk shocks

Figure 3 displays the transmission of EA GPR shocks in the Euro Area over a 12-month horizon for GDP, broad and core consumer prices (CPI and Core CPI), and the interest rate (IR). Solid lines show the median responses, while the shaded areas mark the 68% credible intervals. Appendix G.1 contains the complete set of impulse responses.

We find that geopolitical risk shocks have significant adverse effects on the Euro Area economy. The peak impact on output for a one standard deviation shock is a fall of -0.042% percent in GDP after three months. The GPR shock also results in inflationary pressure. There is a strong and persistent increase in consumer prices following the shock, with the CPI and Core CPI going up by about 0.047% and about 0.056% one year after the event.

This combination of falling output and rising prices is consistent with historical evidence that wars act as adverse supply shocks, causing economic activity to contract amid strong inflationary pressure, see Federle et al. (2024). The shadow rate also increases as a result,
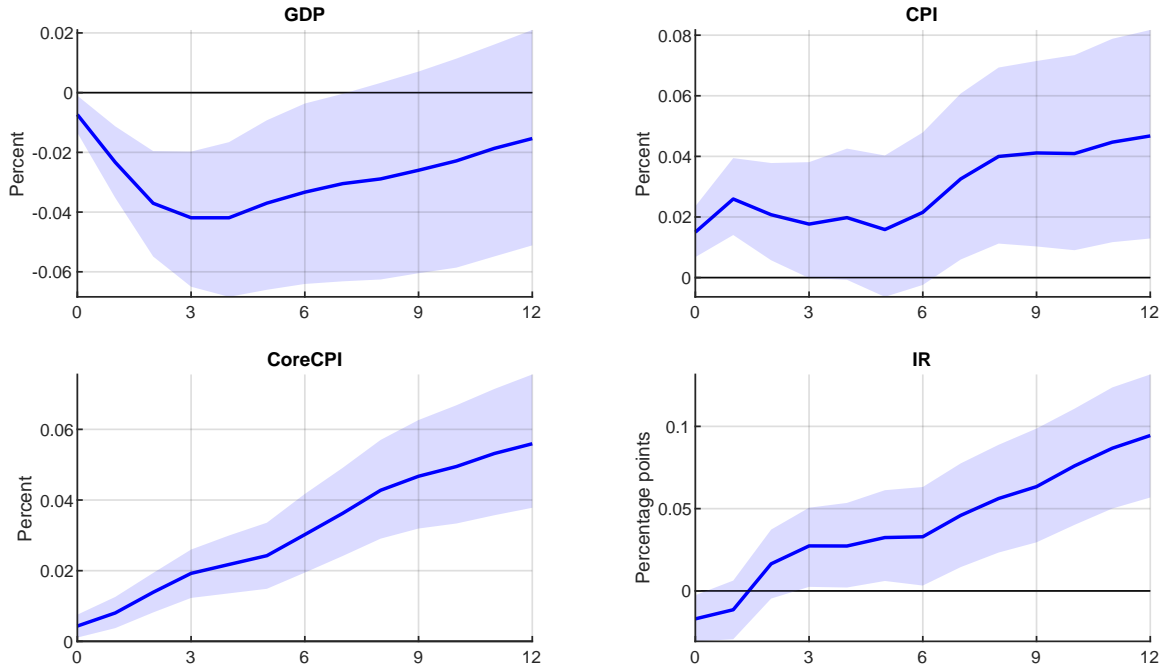
Figure 3: Impact of Euro Area geopolitical risk shocks on Euro Area economy

Notes: Impulse responses based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The VAR uses the Euro Area GPR index, which is ordered first in their respective VAR models. Solid lines denote median and shaded areas the corresponding 68% credible intervals.

three months after the shock, indicating that monetary policy responds to the increase in inflation, at least partially. This significant rise in prices explains the positive response of the interest rate, which reflects a monetary policy tightening by the European Central Bank.

As a next step, we analyze the implications of explicitly accounting for the Euro Area perspective for the transmission of the shock. For this reason, in Figure 4, we compare the Euro Area impact of a EA GPR shock to the one of an Anglosphere GPR shock as identified through the measure provided by Caldara and Iacoviello (2022). Even though the responses appear broadly similar on a first glance, there are important differences related the statistical significance and the overall effect. Specifically, the response of GDP and the broad CPI is not significant anymore when we use the Anglosphere index to identify the GPR shock. There is even a modest positive – though statistically insignificant – increase in GDP after 5 months. For core prices, we observe an increase. However, this rise is more muted when taking an Anglosphere perspective, reaching 0.046% after one year. The overall reaction of output and inflation is consistent with the more delayed response of the monetary authority, which raises interest rates later and less decisively after the shock, when taking an Anglosphere perspective.

For this analysis, we have used the GPR measure by Caldara and Iacoviello (2022). Importantly, our findings and takeaways are also robust to using the equivalent measure constructed from the Factiva database. The results for this case are shown in Appendix G.2. This exercise confirms that observed differences reflect genuine heterogeneity in risk
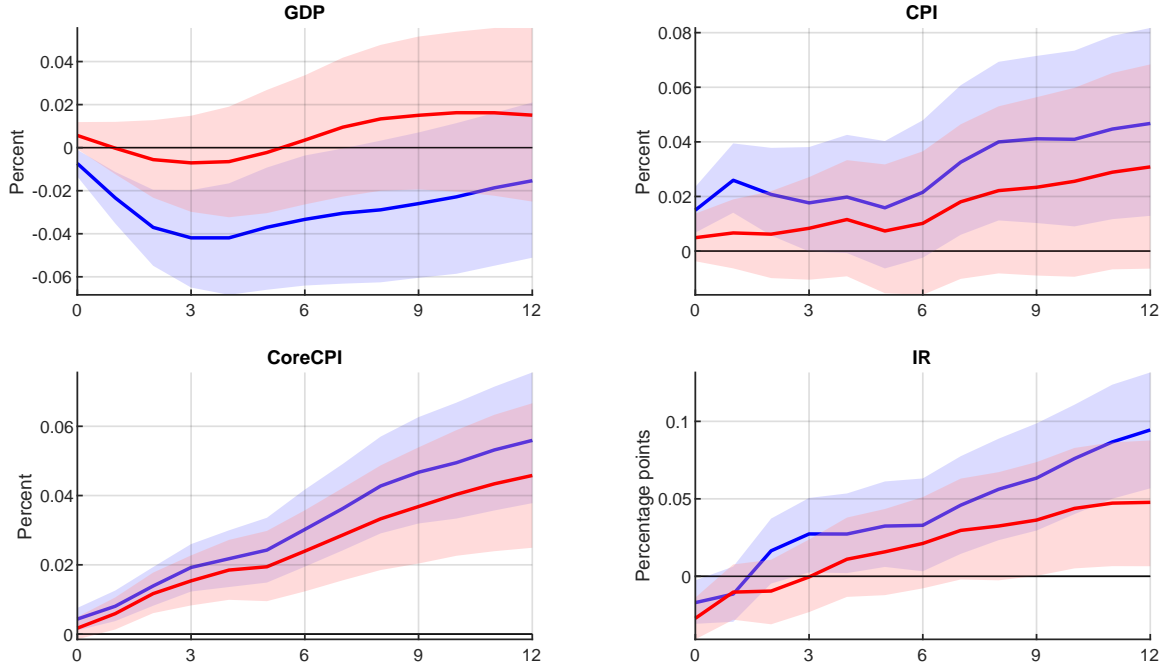
Figure 4: Impact of Euro Area (blue) and Anglosphere (red) geopolitical risk shocks on Euro Area economy

Notes: Impulse responses based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index and the second VAR the Anglosphere GPR index as provided by Caldara and Iacoviello (2022), which both are ordered first in their respective VAR models. Solid lines denote median and shaded areas the corresponding 68% credible intervals.

perception, rather than structural features of the datasets.

To complement these results, Figure 5 depicts the forecast error variance decompositions (FEVDs), providing the shares of fluctuations explained by the EA and Anglosphere GPR shocks over the first year after the shock. The solid dot gives the median estimate, while the shaded areas provide the 68% credible intervals.

In line with the impulse response analysis, we find that the EA GPR shock accounts for considerably more fluctuations in Euro Area variables than the Anglosphere GPR shock. Across both shocks, we find that it is especially Core CPI that is affected by an exogenous shift in geopolitical risk.

Overall, the key message of this section is that EA GPR shocks have significant contractionary and inflationary effects in the Euro Area – effects that we would not see if our estimations relied solely on a GPR indicator based on English-language newspaper text.

Next, we zoom in on the start of the Russo-Ukrainian War via a "No-War" counterfactual. This counterfactual exercise helps to place the economic magnitude of Euro Area geopolitical risk shocks into perspective: while the one-standard-deviation shocks analyzed above establish statistical significance, the onset of the Russo-Ukrainian War provides an economically meaningful benchmark for the size and propagation of large, real-world geopolitical shocks.
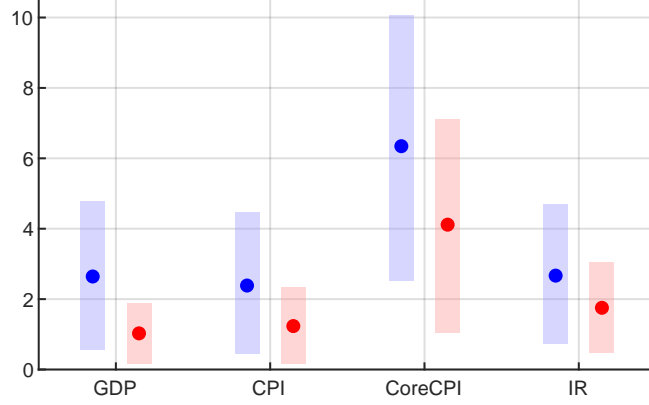
Figure 5: Importance of Euro Area (blue left bar) and Anglosphere (red right bar) geopolitical risk shocks for Euro Area economy

Notes: Forecast error variance decompositions over first year after the shock, in %. They are based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index and the second VAR the Anglosphere GPR index provided by Caldara and Iacoviello (2022), which both are ordered first in their respective VAR models. Solid dots denote medians and shaded areas denote the corresponding 68% credible intervals.

3.4 "No-War" counterfactual

In this section, we compute a "No-War" counterfactual in which the Euro Area GPR index is held fixed at its December 2021 level through July 2022. This removes the sharp and persistent rise in geopolitical risk that coincided with the Russian invasion of Ukraine. Operationally, we impose a flat path on the GPR index and allow the identified GPR structural shock to adjust endogenously so that the VAR reproduces this counterfactual trajectory. Figure 6 reports the results. of this analysis. The top-left panel shows the actual GPR path (solid black line) and the counterfactual path (orange dashed line). The remaining left panels compare the evolution of the actual macroeconomic variables (solid black line) to their counterfactual path. Given the Bayesian estimation framework, this procedure yields a full posterior distribution of counterfactual paths for all macroeconomic variables. Orange dashed lines mark median outcomes and orange shaded area mark the 68% credible intervals.

We interpret the resulting counterfactual as the macroeconomic baseline that would have prevailed *absent* the surge in geopolitical risk. To quantify the economic impact of the invasion, we compute a War vs. "No-War" path difference, defined as the deviation of the actual data from the corresponding "No-War" counterfactual. This comparison allows us to isolate the contribution of the rise in geopolitical risk due to the geopolitical risk shock, holding fixed all other structural innovations implied by the VAR. We report this exercise in the right panel of Figure 6, where the green solid lines denote the median differences and the green shaded areas are the corresponding 68% credible intervals.

Relative to the "No-War" baseline, GDP is about 0.76% lower (posterior median) by July 2022. Inflation rises markedly: broad CPI increases by roughly 0.4 percent and Core CPI by
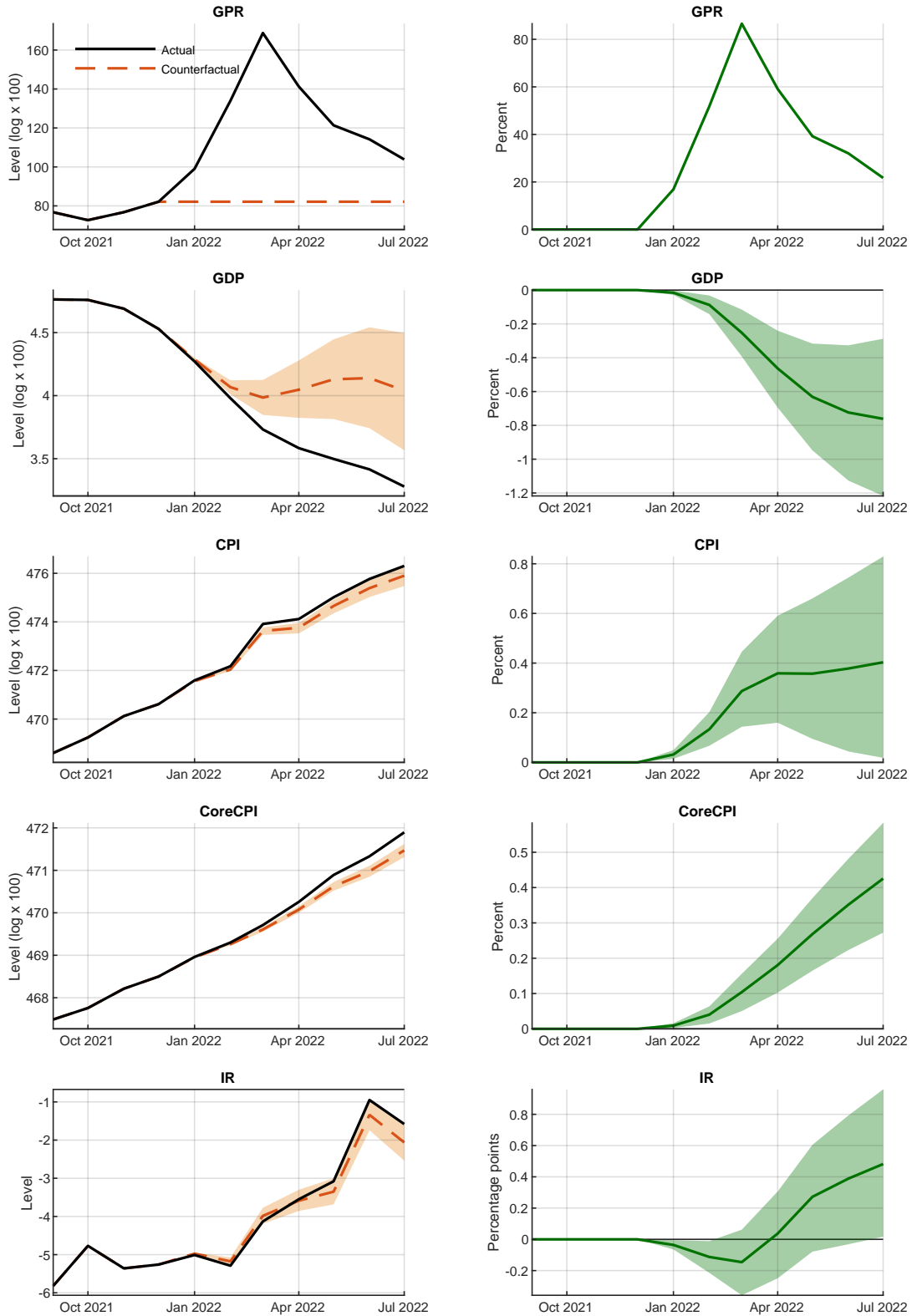
Figure 6: Left panel: "No-War" counterfactual path of GPR: original data (black) and counterfactual data (orange); Right panel: War vs. "No-War" path difference

Notes: Left panel shows the original data and the counterfactual path of the GPR index, assuming constant levels as of December 2021, achieved by adjusting the GPR shock. Right panel gives the deviation of the actual data minus the counterfactual data. The counterfactual data are based on a Bayesian vector autoregression (VAR) with Cholesky identification, ordering the Euro Area GPR index first. Shaded areas denote the 68% credible intervals.

approximately 0.43 percent. The policy rate responds with a delay, i.e., only by July 2022, raising short-term interest rates by about 0.48 percentage points above the counterfactual "No-War". These results indicate that the early months of the invasion induced sizable and rapidly transmitted macroeconomic effects, consistent with a deterioration in expectations, heightened uncertainty, and supply-side pressures. We report additional results of this exercise in Appendix G.4.

Taken together, the exercise shows that suppressing the exogenous rise in geopolitical risk yields a materially different and markedly less adverse economic path. This underscores that geopolitical risk shocks have not only statistically significant effects (see Section 3.3), but are also economically important in shaping macroeconomic outcomes, particularly when large geopolitical events occur. In the next section, we examine how sanctions and shortages govern this propagation in the Euro Area economy.

4 Consequences of GPR: sanctions and shortages

In the previous section, we provided evidence that geopolitical risk shocks generate a combination of falling output and rising prices, suggesting a supply-side contraction. Such pattern is also consistent with mechanisms typically associated with geopolitical risk. Geopolitical risks often trigger economic sanctions and can lead to shortages or supply disruptions, for instance, through damaged infrastructure, disrupted trade routes, or precautionary stockpiling. Motivated by this observation, we now examine two transmission channels through which geopolitical risk shocks may affect the macroeconomy: (i) the sanctions channel, and (ii) the shortages channel.

4.1 Sanctions

Sanctions are used by a 'sender' country to restrict or prohibit specific economic activities with a 'target' country with the aim of influencing its actions.[9] The sender country restricts economic relations with the target for a particular purpose, e.g. to end or prevent war. However, the sanctions can have unintended adverse effects on the sender's own economy, as e.g. Besedeš et al. (2021) and Bachmann et al. (2024) highlight. In addition, the target country may impose retaliatory sanctions that could hurt the original sender country. Thus, the impact of geopolitical risk on the Euro Area could be driven in part by sanctions.

A sanctions indicator for the Euro Area. To assess whether geopolitical risk shocks propagate through a 'sanctions channel', we develop a news-based sanctions intensity index for the Euro Area, and we also develop a similar index from an Anglosphere perspective. In doing so, we build on the work of Laudati and Pesaran (2023) and Bondarenko et al.

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[9]Eaton and Engers (1992) discuss how the toughness of the sender country and target country shape the success of sanctions.
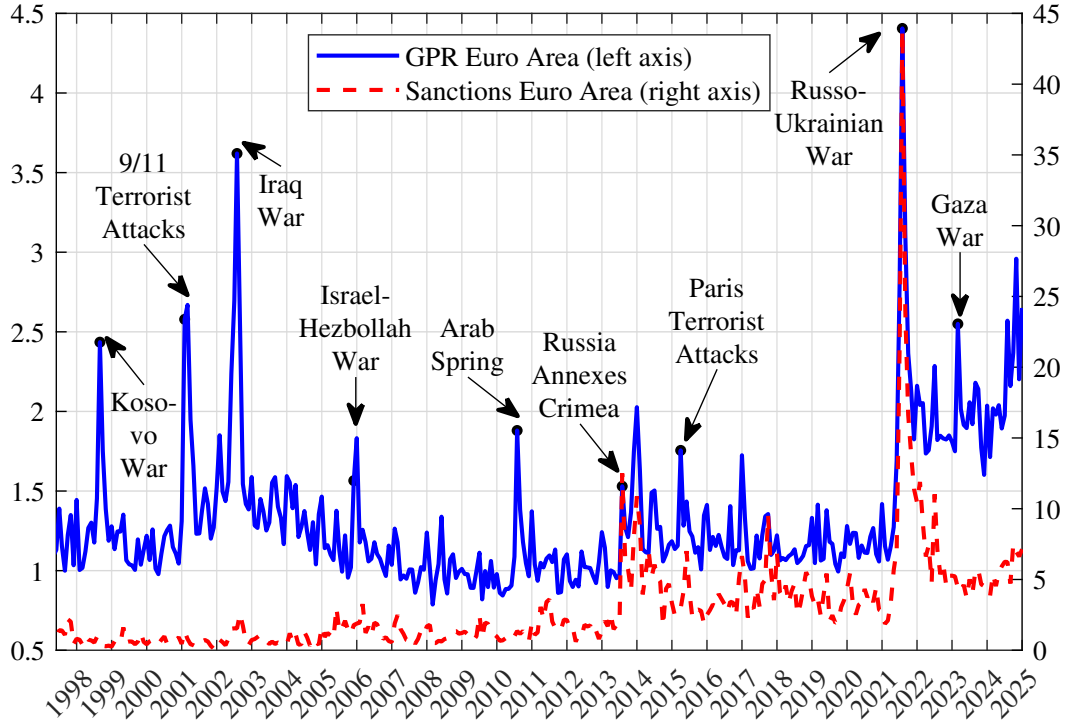
Figure 7: Euro Area Geopolitical Risk and Sanctions Intensity Indices

Notes: Sanctions intensity index is a news-based measure following Laudati and Pesaran (2023). Both indices have been rescaled to equal unity in January 2010.

(2024), who have developed such a sanctions indicator for Iran and Russia, respectively. In particular, we construct a monthly sanctions indicator using the same countries and same local newspapers that underlie our EA GPR index and the Anglosphere GPR index, respectively. We measure how often terms related to sanctions are mentioned in connection to either Russia, Syria, Iran, North Korea or Venezuela. Target country names are included to restrict the search to international sanctions rather than unrelated domestic uses of the term (e.g., labor market penalties). Details on the search queries for the different countries can be found in Appendix D. Notice that our search query entertains a broad definition of sanctions; it does not distinguish between financial sanctions, trade sanctions, travel restrictions and other kinds of sanctions.

Figure 7 presents the EA GPR index alongside the EA sanctions index over time. Note that until March 2014, when Russia illegally annexed Crimea, the EA sanctions index remains muted. The index hovers around zero, indicating that sanctions were not actively used as a policy tool to punish target countries or to respond to geopolitical tensions. After March 2014, however, the EA sanctions index became more prominent.

Figure 8 shows that the sanctions indices constructed from Euro Area newspapers and from English-language sources, respectively, are strongly correlated. At the two major peaks, in 2014 and 2022, the Euro Area index exhibits slightly higher intensity. This is natural, as European media tend to devote greater attention to sanctions imposed on Russia, a neighboring country with direct geopolitical and economic relevance for the region.
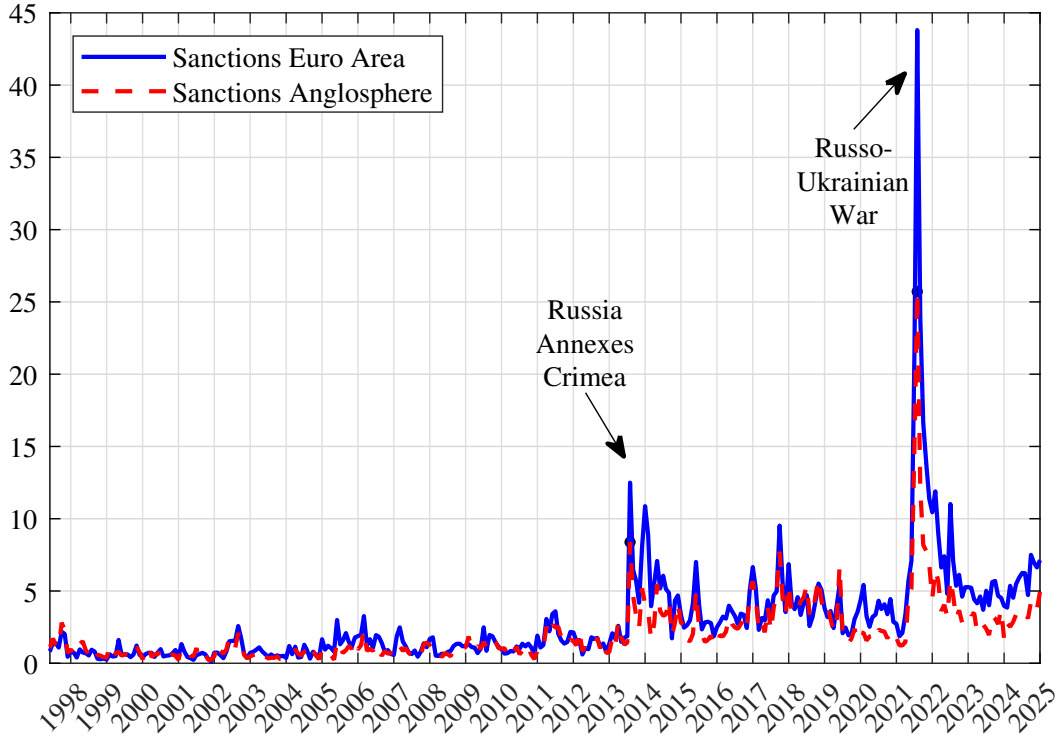
16

Figure 8: Euro Area and Anglosphere Sanctions Intensity Index

Notes: Sanctions intensity indices are news-based measures following Laudati and Pesaran (2023). Both indices have been rescaled to equal unity in January 2010.

A key advantage of our newspaper-based sanctions intensity indicator is its high-frequency time series structure, which makes it directly usable within our VAR framework.[10] Moreover, newspaper coverage reflects not only the direct imposition of sanctions but also the indirect economic consequences arising from firms' efforts to adjust, circumvent, or anticipate these measures. Because such adjustment costs accumulate over time, our index provides a proxy for the time-varying intensity of sanctions. Importantly, it also captures the threat of future sanctions: firms and financial markets often react to the expectation of sanctions well before they are formally enacted.

The sanctions channel of geopolitical risk. How important are sanctions for the transmission of geopolitical risk shocks to the Euro Area economy? To answer this question, we carry out a counterfactual exercise with our baseline VAR, additionally including our newly constructed Euro Area sanctions intensity index. While Bondarenko et al. (2024) show that the sanctions channel is an important driver of the inflation response to geopolitical risk shocks in Russia, it is important to note that Russia has been a sanctions target, whereas the Euro Area is rather a sender country. The sanctions channel of GPR may well differ fundamentally between target countries and sender countries.

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[10]An alternative data source on sanctions is the Global Sanctions Database (Syropoulos et al., 2024), which documents sanction episodes together with information on senders, targets, and sanction types. While well suited for event study analysis, its lower frequency and episodic structure make it less compatible with the monthly VAR approach used here.
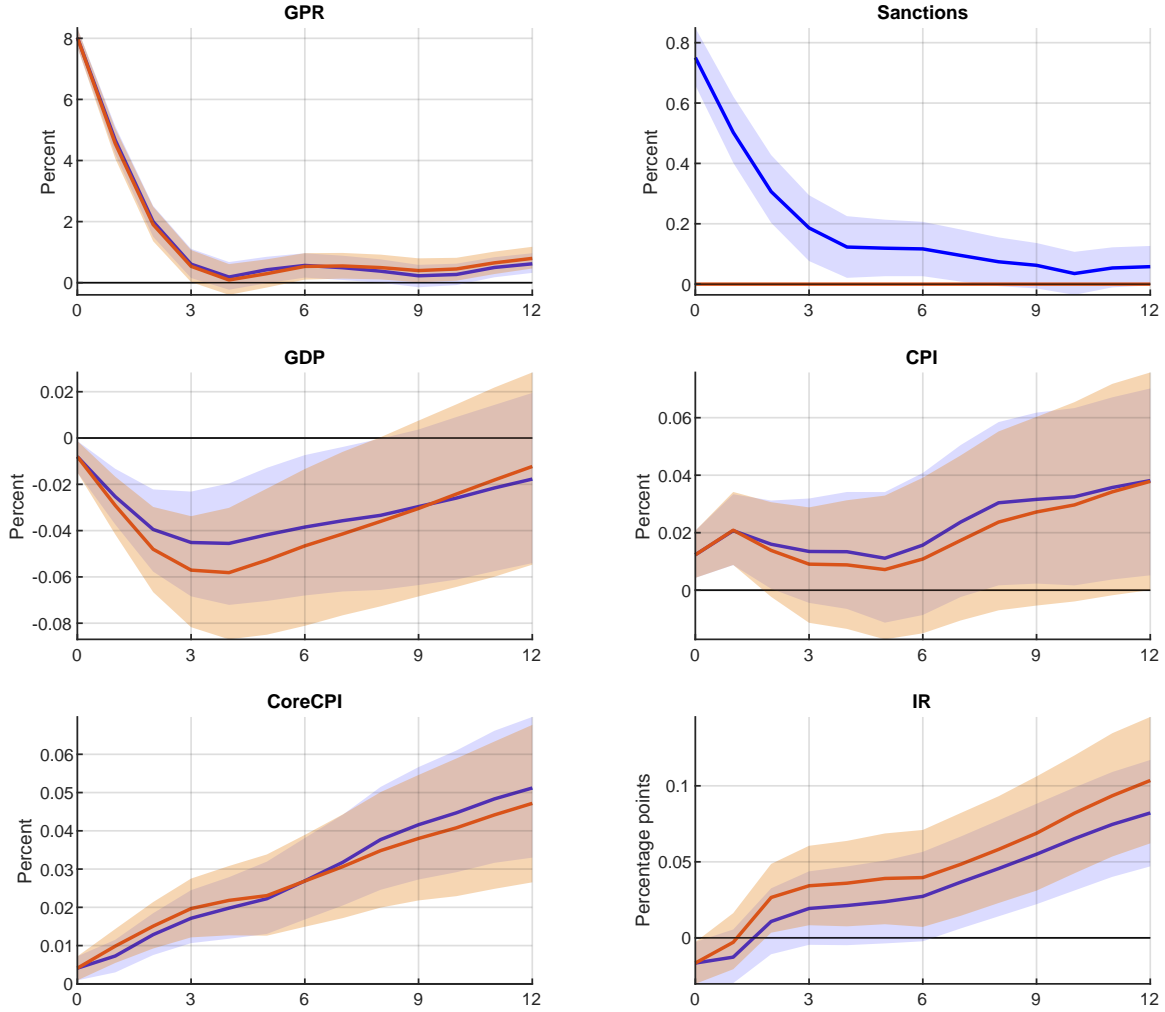
Figure 9: Impact of Euro Area GPR shock with sanctions channel: active (blue) and non-active (orange)

Notes: Impulse responses based on Bayesian vector autoregression (VAR) with Cholesky identification. The VAR uses the Euro Area GPR index and the Euro Area sanctions intensity index. Shaded areas denote 68% credible intervals.

To assess the role of sanctions, we modify the estimated VAR system ex post in a way that removes any transmission from the geopolitical risk shock to the sanctions intensity index. Concretely, we overwrite the contemporaneous mapping in the Cholesky factor so that a geopolitical risk shock no longer feeds into sanctions on impact. In addition, we suppress all dynamic feedback into the sanctions variable (also from other variables) by zeroing out the relevant lag coefficients. These adjustments effectively isolate the sanctions channel within the estimated structure of the VAR. That said, the counterfactual holds agents' behavioral relationships fixed and therefore abstracts from possible adjustments in private or policy decisions under an alternative sanctions regime, which makes the exercise subject to the Lucas critique.

Figure 9 shows that incorporating the sanctions channel does not fundamentally alter our

baseline results.[11] In particular, the output response to a geopolitical risk shock remains very similar when the sanctions channel is shut down, indicating that sanctions do not materially amplify the real effects of such shocks on GDP in the sanctioning economies (the Euro Area coalition). This finding is consistent with the broad consensus that the direct economic effects of sanctions on sender countries are limited (Bayard et al., 1983; Farmer, 2000; Besedeš et al., 2021).

At the same time, some differences emerge in the transmission of the shock to prices and interest rates. When the sanctions channel is shut down, the CPI response becomes less persistent and loses statistical significance at longer horizons. Moreover, interest rates adjust somewhat earlier relative to the baseline specification. These differences, however, are quantitatively modest and do not translate into a materially different propagation of output. Taken together, the results suggest that sanctions primarily affect the timing and persistence of inflationary dynamics rather than the overall magnitude of real economic responses.

4.2 Shortages

The escalation of geopolitical tensions may lead to supply shortages primarily through a disruption in trade linkages. For instance, Fernández-Villaverde et al. (2024) document increased trade fragmentation, and Tenreyro et al. (2024) analyze the consequences of fragmentation for inflation and monetary policy responses. Khalil et al. (2025) show empirically that geopolitical risk shocks reduce import volumes and raise import prices both in the US and in the Euro Area. Importantly, prices that have risen in response to shortages may not immediately return to their pre-shock levels, reflecting frictions in price setting, supply-chain modifications, and production adjustments. These considerations motivate us to examine whether and to what extent shortages propagate and amplify the macroeconomic impact of geopolitical risk shocks.

A shortages indicator for the Euro Area. Following Caldara et al. (2025), we define a shortage as a situation in which supply fails to meet demand at prevailing prices. Caldara et al. (2025) construct a monthly shortages index (hereafter, Anglosphere shortages index) from major English-language newspapers. Adopting their methodology, we develop a shortages index for the Euro Area. Similar to the GPR and sanctions indices, our measure is based on news coverage from the same set of countries and local newspapers.[12] In our context, "shortage" includes broad categories, including industrial, labor, energy, and food shortages.

Figure 10 compares the Anglosphere shortages index with our aggregated Euro Area measure.[13] Both series show elevated shortages levels during the COVID-19 pandemic and

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[11]Appendix H.1 contains the complete set of results.

[12]See Appendix E for more details on the search query underlying the EA shortages indicator.

[13]A plot of the shortages indices by Euro Area country is provided in Appendix H.2
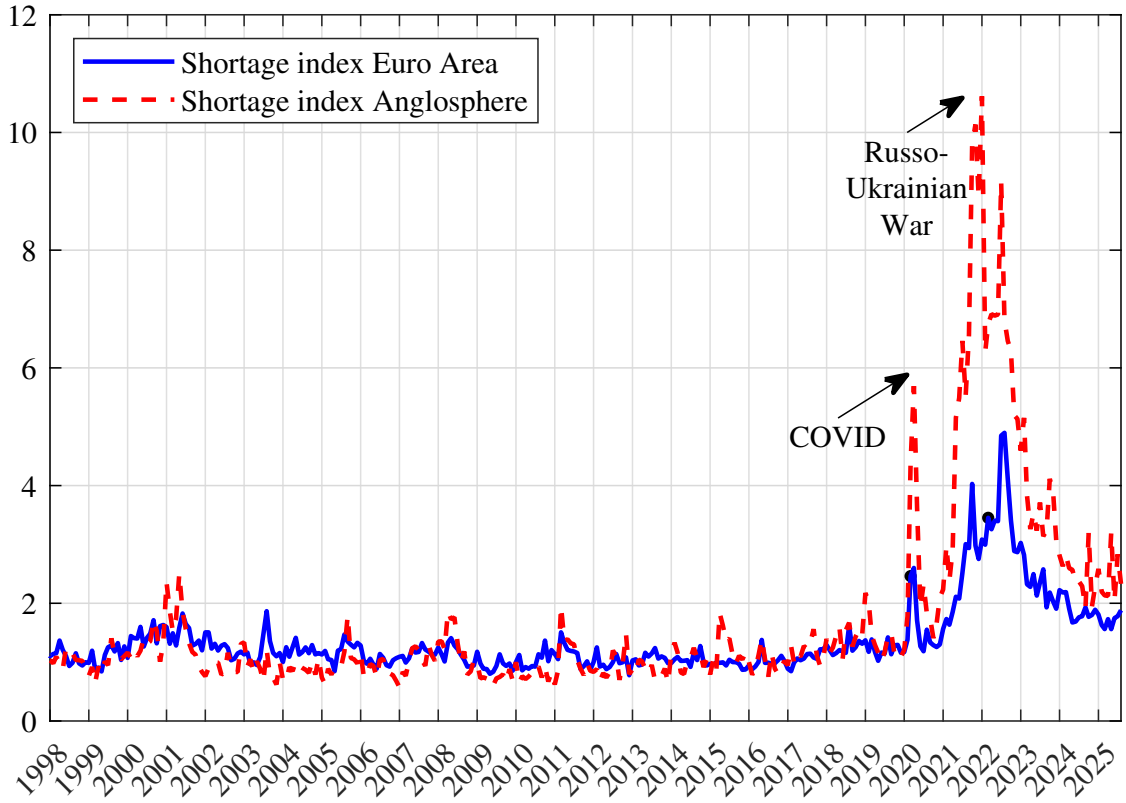
Figure 10: Euro Area Shortages Index and Anglosphere Shortages Index

Notes: Anglosphere Shortages Index based on the series provided by Caldara et al. (2025). Both series are standardized following the same methodology applied to our Euro Area GPR index, and for comparability are rescaled to equal 1 in January 2019.

the Russo-Ukrainian War, reflecting increased concern over supply-chain vulnerabilities. Indeed, three major sources of supply disruptions are pandemics, geopolitical risk shocks and natural disasters; these events typically reduce trade and/or production efficiency. Over the recent five years when shortages became particularly salient, US media have devoted greater attention to supply-disruption narratives than did Euro Area newspapers. Overall, the two indices are highly correlated, with a correlation coefficient of 0.9. This suggests that the shortages picked up by the two indices are equally important on both sides of the Atlantic.

To validate our measure, we draw on additional evidence on supply constraints in Europe. More specifically, we compute an aggregated measure of material and labor constraints, using quarterly data from the European Commission's Business and Consumer Surveys, which asks firms about the factors limiting their production. Figure 11 plots our Euro Area Shortages index together with the EU supply constraints measures by industry for the manufacturing and construction sectors. Reassuringly, the correlations between the EA shortages index and the sector-specific constraints measure for the manufacturing and construction industries are 0.88 and 0.84, respectively.
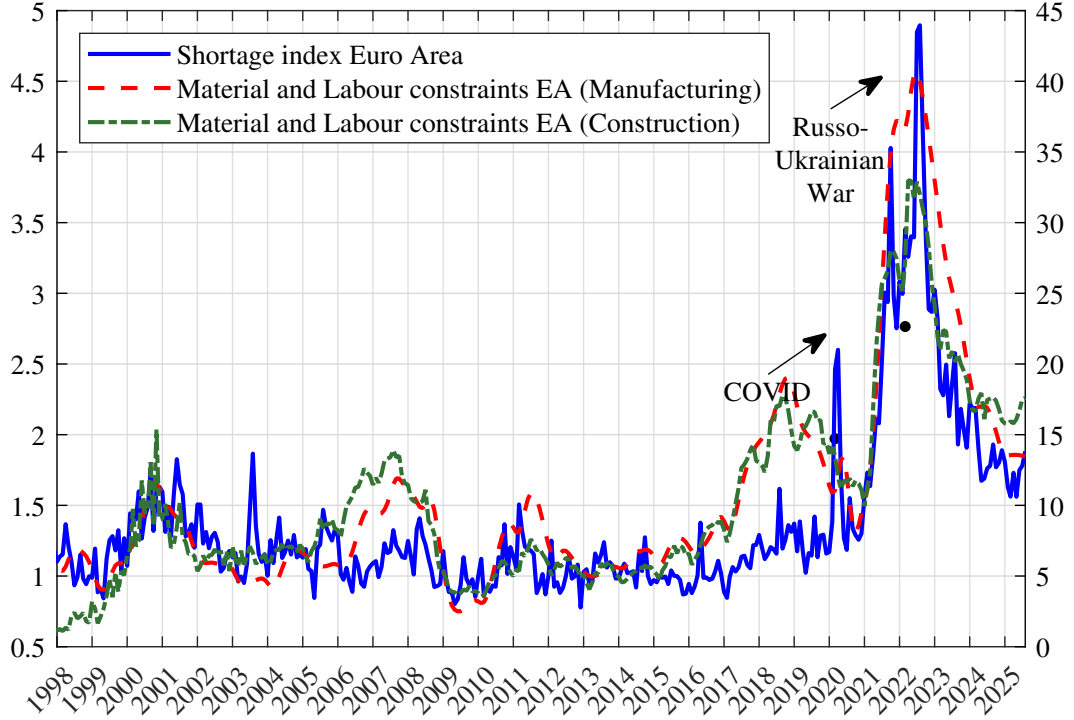
Figure 11: Euro Area Shortages Index and EU Supply Constraints Index

Notes: EU Supply Constraints Index is the average of two survey-based indicators from the European Commission: "Labour constraints" and "Material and/or equipment constraints". Quarterly data are converted to a monthly frequency by applying cubic spline interpolation. Details on the data are in Appendix H.3.

The shortages channel of geopolitical risk. Figure 12 compares the baseline VAR specification that includes the shortages index with a counterfactual in which the shortages channel is shut down.[14] For this counterfactual, we modify the estimated VAR system ex post again in a way that removes any transmission from the geopolitical risk shock to the shortages index, following the approach for the sanctions channel.

The figure shows that a GPR shock creates shortages, which in turn affects the transmission of the GPR shock, especially for prices. The response of shortages peaks around the fifth month, at which point a notable gap emerges between the scenarios with and without shortages. In fact, the shortages channel is a key element for inflationary effects of a GPR shock. The posterior median responses of CPI and Core CPI are lower at medium horizons, and inflation persistence declines markedly in the counterfactual path, in which shortages are muted. Core CPI reaches its peak after about nine months when the shortages channel is shut down, whereas it continues to rise beyond this horizon when shortages are allowed to respond endogenously. These results indicate that shortages constitute an important propagation channel through which GPR shocks generate persistent inflationary pressures. Note that GDP would also recover slightly faster in the absence of the shortages channel. These findings are intuitive, as the shortages measure captures supply-side pressures that are closely linked to inflation and output dynamics.

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[14]Appendix H.4 contains the complete set of results for the shortages channel counterfactual exercise.
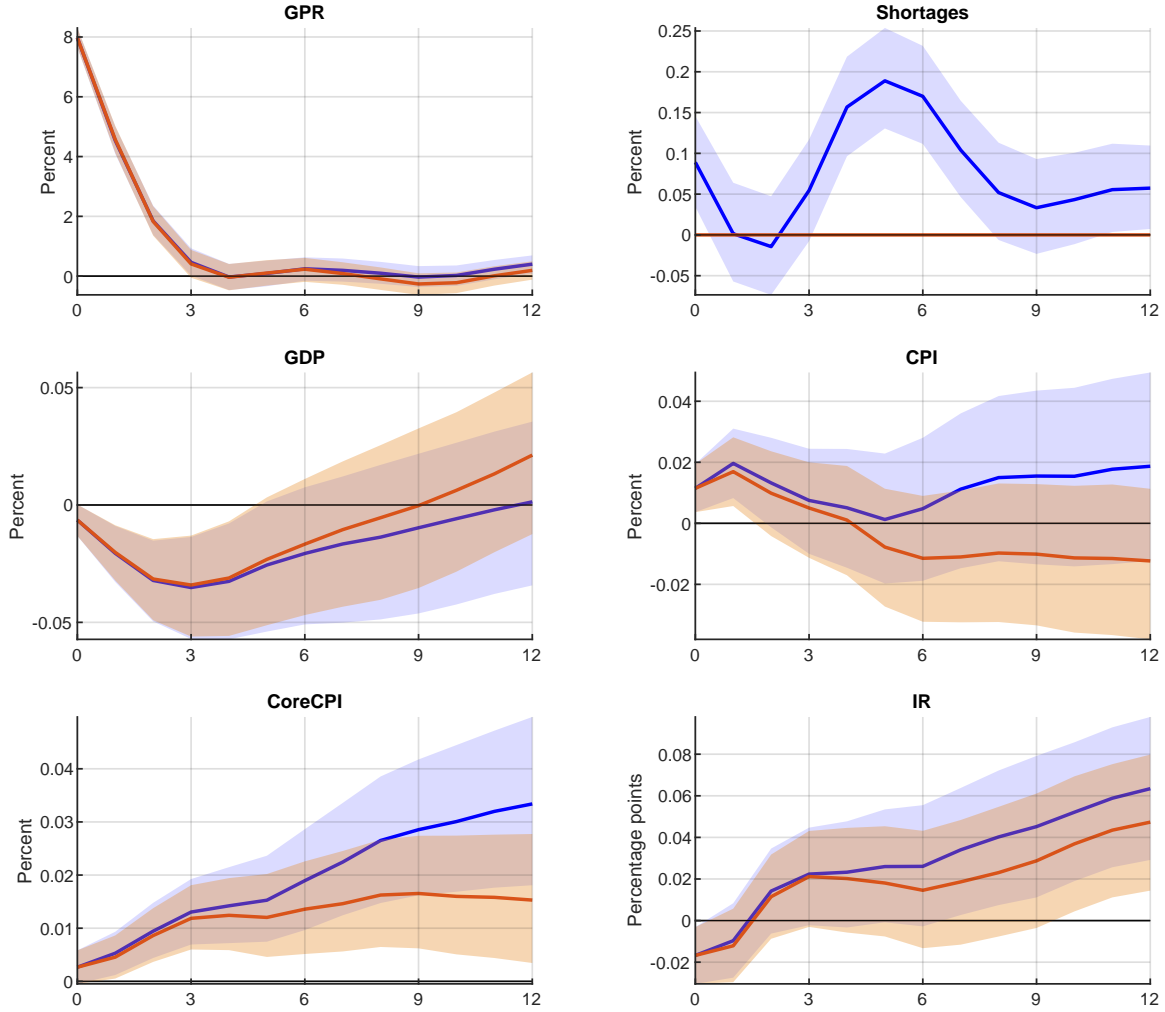
Figure 12: Impact of Euro Area GPR shock with shortages channel: Active (blue) and non-active (orange)

Notes: Impulse responses based on Bayesian vector autoregression (VAR) with Cholesky identification. The VAR uses the Euro Area GPR index and the Euro Area sanctions intensity index. Shaded areas denote 68% credible intervals.

5 Conclusion

We argue that the economic effects of geopolitical events are region-specific, even if those events are globally relevant. To quantify the effects of geopolitical risk (GPR) shocks, it is therefore important to take into account the risk perception of a particular country as conveyed by that country's media reporting. We construct a Euro Area geopolitical risk indicator, using local newspapers from five major Euro Area countries (Germany, France, Italy, Spain, and the Netherlands) to measure country-specific geopolitical risk. In particular, we count how often terms related to war, conflict and terrorism appear in major newspapers in the respective language. We then weight the associated GPR indicators using GDP to obtain an overall Euro Area measure. Armed with this new measure, we first demonstrate that there are dire economic effects of GPR shocks on Euro Area output. Secondly, we

uncover significant inflationary effects of geopolitical risk in the Euro Area, which only become visible once we view GPR through a European lens. In a "No-War" counterfactual analysis, we quantify the substantial economic costs for the Euro Area stemming from the Russo-Ukrainian War since 2022. Finally, we also provide Euro Area specific indicators for sanctions intensity and the level of shortages to assess potential transmission channels of geopolitical risk. Our key finding is that shortages play an important part in transmitting GPR shocks to prices in the Euro Area.

6 Conclusion

Geopolitical risk (GPR) is on the rise worldwide, with the Euro area and Europe particularly exposed due to the Russian-Ukrainian War. While Caldara and Iacoviello (2022) developed a seminal and widely used GPR index, their index has an Anglosphere-centric view due to its construction based on English-language newspapers. However, to measure and assess the macroeconomic impact of GPR shocks, we need to take a regional-specific lens. For this reason, we develop a Euro Area geopolitical risk indicator, using local newspapers from major Euro Area countries. We show that the historical co-movement between the EA GPR and Anglosphere GPR starts to diverge with the major escalation of the Russo-Ukrainian war in 2022. Geopolitical risk, as captured in Euro Area media, has remained persistently above what the historical relation with the Anglosphere index would predict.

Accounting for this local Euro Area perspective turns out to be key to estimating the macroeconomic effects. We first demonstrate that GPR shocks have severe economic effects on Euro Area output. Similarly, the EA GPR shock generates inflationary pressures, suggesting that the shock acts as an adverse supply shock. Importantly, the effects on output and inflation become visible only when we view GPR through a European lens. We then conduct a "No-War" counterfactual analysis to quantify the substantial economic costs for the Euro Area stemming from the major escalation of the Russo-Ukrainian War, indicating a 0.8% decline in GDP by July 2022. Finally, we also provide Euro Area specific indicators for sanctions intensity and the level of shortages to assess potential transmission channels of geopolitical risk. Our key finding is that shortages play an important role in transmitting GPR shocks to prices in the Euro Area, whereas the Euro Area economy is resilient to the transmission via the sanctions channel.

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A Search query for measuring geopolitical risk

We adjust the search query developed by Caldara and Iacoviello (2022) so that it complies with the technical limitations of the Factiva database following Bondarenko et al. (2024). A key constraint in Factiva is the maximum permitted query length of 2046 characters. Since the original query in Caldara and Iacoviello (2022) exceeds this limit, our primary objective is to condense it without substantially altering its informational content. To achieve this, we rely on the asterisk wildcard (*), which substitutes for any number of characters that follow it. All modifications involving the wildcard are documented in Table A1.

Table A1: Adaptation of search query to Factiva database

Search query in Caldara and Iacoviello (2022)	our adaptation
"nuclear war" OR "nuclear wars"	"nuclear war*"
"nuclear warhead" OR "nuclear warheads"	"nuclear warhead*"
"atomic war" OR "atomic wars"	"atomic war*"
"atomic warheads"	"atomic warhead*"
"nuclear missile" OR "nuclear missiles"	"nuclear missile*"
"nuclear bomb" OR "nuclear bombardment" OR "nuclear bomber" OR "nuclear bombers" OR "nuclear bombing" OR "nuclear bombs"	"nuclear bomb*"
"atomic bomb" OR "atomic bombing" OR "atomic bombings" OR "atomic bombs"	"atomic bomb*"
"hydrogen bomb" OR "hydrogen bombs"	"hydrogen bomb*"
"book" OR "books"	"book*"

When adapting the query, we also had to consider Factiva's specific syntax rules. Boolean operators such as AND, OR, and NOT match Factiva's internal syntax and thus remain unchanged. However, the operator NEAR/2 must follow Factiva's convention and be written as near2. Furthermore, Factiva does not require specifying document types within the query. Consequently, we remove the segment DTYPE(article OR commentary OR editorial OR feature OR front page article OR front page/cover story OR news OR report OR review), which also helps shorten the query.

In addition, we eliminated the term build-up* from the query because Factiva does not allow the wildcard to follow only two characters (e.g., up*). The database requires at least three characters before the asterisk. By contrast, the query used to count the total number of articles remains unchanged, as its structure is fully compatible with Factiva's search rules. The final adapted query is presented in Appendix A.1.

When translating the query into other languages, we account for cultural and linguistic nuances by selecting appropriate synonyms and evaluating the probability of their appearance within a geopolitical risk context. Specifically, we create translated search queries using a combination of professional translators and large language models, and verify them with native-language economists.

Finally, creating a query to capture the total number of articles cannot rely merely on translating the English version. Linguistic differences across languages make such a strategy impractical. Instead, we compile lists of the most frequent function words and retain only those that are likely to appear in nearly all texts.

When constructing the Geopolitical Risk Index for the Anglosphere, we follow the original approach of Caldara and Iacoviello (2022) by using the same set of news sources: The Guardian, The Daily Telegraph, The Financial Times, The Globe and Mail, Chicago Tribune, Los Angeles Times, The New York Times, USA Today, The Wall Street Journal, and The Washington Post. All of these newspapers are fully available in Factiva starting from 1 January 1985, which ensures consistency with the temporal coverage of the benchmark GPR index and guarantees comparability of results across studies.

A.1   Anglosphere

Search query for geopolitical risk: ((war OR conflict OR hostilities OR revolution* OR insurrection OR uprising OR revolt OR coup OR geopolitical) near2 (risk* OR warn* OR fear* OR danger* OR threat* OR doubt* OR crisis OR troubl* OR disput* OR concern* OR tension* OR imminen* OR inevitable OR footing OR menace* OR brink OR scare OR peril*)) OR ((peace OR truce OR armistice OR treaty OR parley) near2 (menace* OR reject* OR boycott* OR disrupt* OR threat OR peril)) OR ((military OR troops OR missile* OR "arms" OR weapon* OR bomb* OR warhead*) AND (buildup* OR blockad* OR sanction* OR embargo OR quarantine OR ultimatum OR mobiliz* OR offensive)) OR (("nuclear war*" OR "nuclear warfare" OR "nuclear warhead*") OR ("atomic war*" OR "atomic warfare" OR "atomic warhead*") OR ("nuclear missile*" OR "nuclear bomb*" OR "atomic bomb*" OR "h-bomb*" OR "hydrogen bomb*" OR "nuclear test*") AND (risk* OR warn* OR fear* OR danger* OR threat* OR doubt* OR crisis OR troubl* OR disput* OR concern* OR tension* OR imminen* OR inevitable OR footing OR menace* OR brink OR scare OR peril*)) OR ((terroris* OR guerrilla* OR hostage*) near2 (risk* OR warn* OR fear* OR danger* OR threat* OR doubt* OR crisis OR troubl* OR disput* OR concern* OR tension* OR imminen* OR inevitable OR footing OR menace* OR brink OR scare OR peril)) OR ((war OR conflict OR hostilities OR revolution* OR insurrection OR uprising OR revolt OR coup OR geopolitical) near2 (begin* OR begun OR began OR outbreak OR "broke out" OR breakout OR start* OR declar* OR proclamation OR launch* OR wage*)) OR ((allie* OR enem* OR foe* OR army OR navy OR aerial OR troops OR rebels OR insurgen*) near2 (drive* OR shell* OR advance* OR invasion OR invad* OR clash* OR attack* OR raid* OR launch* OR strike*)) OR ((terroris* OR guerrilla* OR hostage*) near2 (act OR attack OR bomb* OR kill* OR strike* OR hijack*)) NOT (movie* OR film* OR museum* OR anniversar* OR obituar* OR memorial* OR arts OR book* OR memoir* OR "price war" OR game OR story OR history OR veteran* OR tribute* OR sport OR music OR racing OR cancer).

Search query for the counting total number of articles: "the" AND "be" AND "to" AND "of" AND "and" AND "at" AND "in".

A.2 Germany

Search query for geopolitical risk: ((Krieg OR Konflikt OR Kampfhandl* OR Revolution* OR Aufstand OR Revolte OR Staatsstreich OR geopolitisch*) near2 (Risiko OR Warn* OR Sorge* OR Gefahr* OR Bed-roh* OR Zweifel* OR Krise OR Unruh* OR Auseinanders* OR Befürchtung* OR Spannung* OR Droh* OR unvermeid* OR erschreck*)) OR ((Friede* OR Waffenruhe OR Waffenstillst* OR Vertrag OR Verhandl*) near2 (droh* OR ablehn* OR boykott* OR unterbr* OR bedroh* OR Gefahr)) OR ((Militär* OR Truppen OR Rakete* OR Waffe* OR Bombe* OR Sprengk*) AND (Aufbau* OR Blockade* OR Sanktion* OR Embargo OR Quarantäne OR Ultimatum OR mobilis* OR Offensive)) OR ((Nuklear* OR "nukleare Krieg*") OR (Atomkrieg* OR "ato-marer Krieg*" OR Atomsprengk*) OR (Atomrakete OR Nuklearrakete* OR Nuklearbombe* OR Atombombe* OR H-Bombe* OR Wasserstoffbombe* OR Atomtest*) AND (Risiko OR Warn* OR Sorge* OR Gefahr* OR Bedroh* OR Zweifel* OR Krise OR Unruh* OR Auseinanders* OR Befürchtung* OR Spannung* OR Droh* OR unvermeid* OR erschreck*)) OR ((Terroris* OR Guerilla* OR Geisel*) near2 (Risiko* OR warn* OR Angst* OR Sorge* OR befürcht* OR Gefahr* OR gefährlich* OR bedroh* OR zweifel* OR Krise OR Unruh* OR Auseinandersetzung* OR Disput* OR Streit* OR Bedenken* OR Befürchtung* OR Span-nung* OR droh* OR unvermeidlich OR Schreck*)) OR ((Krieg OR Konflikt OR Kampfhandl* OR Revolu-tion* OR Aufstand OR Revolte OR Staatsstreich OR geopolitisch*) near2 (be-ginn* OR begann OR begonn* OR Ausbruch OR "brach aus" OR start* OR anfang* OR erklär* OR Verkündung)) OR ((verbündet* OR alliiert* OR feind* OR Gegner* OR Armee OR Streitkräfte OR Marine OR Luft* OR Truppen OR Rebellen OR Aufst*) near2 (bombard* OR vorrück* OR Vormarsch OR Einmarsch OR zusammenst* OR angr* OR überf* OR *schlag)) OR ((Terroris* OR Guerilla* OR Geisel*) near2 (Akt OR Tat OR Angriff OR Bombe* OR töt* OR *schlag OR angr* OR entführ*)) NOT (Kinofilm* OR Film* OR Muse-um* OR Jahrestag* OR Gedenk* OR Kunst OR Buch* OR Denkschrift* OR Biografie* OR Preiskrieg OR Spiel OR Geschichte OR Veteran* OR Ehr* OR sport OR Musik OR Rennen OR Krebs).

Search query for the counting total number of articles: (der OR dem OR den OR des OR die OR das) AND (sein OR ist) AND (zu OR zum OR zur) AND und AND (in OR im).

A.3 France

Search query for geopolitical risk: ((guerre* OR conflit* OR hostilités OR révolut* OR insur-rect* OR révolt* OR rébell* OR "coup d'État" OR géopolit*) near2 (risqu* OR avertisse* OR peur* OR danger* OR menace* OR doute* OR crise* OR agitat* OR désaccord* OR préoccup* OR tension* OR imminent* OR inévita* OR position OR bord OR crainte* OR péril*)) OR ((paix OR trêve* OR armistice OR traité* OR pourparl*) near2 (menace* OR rejet* OR boycott* OR interrup* OR péril)) OR ((militaire* OR troupes OR missile* OR arme* OR bombe* OR ogive*) AND (renforcem* OR blocus OR sanction* OR embargo OR quarant* OR ultimat* OR mobilisat* OR offens*)) OR (("guerre nucléaire" OR "conflit nucléaire" OR "ogive nucléaire") OR ("guerre atomique" OR "conflit atomique" OR "ogive atomique") OR ("missile nucléaire" OR "bombe nucléaire" OR "bombe atomique" OR "bombe H" OR "bombe à hydrogène" OR "essai nucléaire") AND (risqu* OR avertisse* OR peur* OR danger* OR menace* OR doute* OR crise*

OR agitat* OR désaccord* OR préoccup* OR tension* OR imminent* OR inévita* OR position OR bord OR crainte* OR péril*)) OR ((terroris* OR guérilla* OR otage*) near2 (risqu* OR avertiss* OR peur* OR danger* OR menace* OR doute* OR crise* OR agitat* OR désaccord* OR pré-occup* OR tension* OR imminent* OR inévitable* OR position OR bord OR crainte* OR pé-ril)) OR ((guerre* OR conflit* OR hostili* OR révolut* OR insurrect* OR révolte* OR rébell OR "coup d'État" OR géopolit*) near2 (début* OR commen* OR éclatem* OR éclaté OR declarat* OR proclama* OR lancement* OR engager*)) OR ((al-lié* OR ennemi* OR adver-sa* OR armée* OR marine OR aérien* OR troupes OR rebelles OR insurgé*) near2 (avanc-er* OR bombard* OR progress* OR invasion* OR envahir OR affrontem* OR attaque* OR raid OR lancem* OR frappe*)) OR ((terroris* OR guérilla* OR otage*) near2 (acte* OR at-taque* OR bombe* OR tuer OR frappe* OR enlever)) NOT (film* OR cinéma OR musée* OR annivers* OR nécrol* OR mémorial* OR art* OR livre* OR mémoire* OR "guerre des prix" OR jeu* OR histoire* OR vétéran* OR hommage OR sport OR musique OR course OR cancer).

Search query for the counting total number of articles: le AND est AND à AND de AND et AND en AND dans.

A.4   Italy

Search query for geopolitical risk: ((guerra* OR conflitt* OR ostilità OR rivoluzion* OR insurrezion* OR rivolt* OR ribellion* OR "colpo di stato" OR geopolitic*) near2 (risch* OR avvert* OR paur* OR pericol* OR minacc* OR dubb* OR crisi* OR disordin* OR disput* OR preoccup* OR tension* OR imminen* OR inevitab* OR destabilizz* OR panico OR sogli* OR allarm*)) OR ((pac* OR tregua* OR armi-stizio OR trattat* OR trattativ*) near2 (minacc* OR rifiut* OR boicott* OR interruz* OR pericol*)) OR ((militar* OR truppe OR missil* OR arm* OR bomb* OR testat*) AND (aument* OR blocco* OR sanzion* OR embar* OR quarant* OR ultimat* OR mobilitaz* OR offensiv*)) OR (("guerra nucleare" OR "conflitto nucleare" OR "testata nucleare") OR ("guerra atomica" OR "conflitto atomico" OR "testata atomica") OR ("missile nucleare" OR "bomba nucleare" OR "bomba atomica" OR "bomba H" OR "bomba all'idrogeno" OR "test nucleare") AND (risch* OR avvert* OR paur* OR pericol* OR minacc* OR dubb* OR crisi* OR disordin* OR disput* OR preoccup* OR tension* OR imminen* OR inevitab* OR destabilizz* OR panico OR sogli* OR allarm*)) OR ((terrori* OR guerrigl* OR ostagg*) near2 (risch* OR avvert* OR paur* OR pericol* OR minacc* OR dubb* OR crisi* OR disordin* OR disput* OR preoccup* OR tension* OR imminen* OR inevitab* OR destabilizz* OR panico OR sogli* OR allarm*)) OR ((guerra* OR conflitt* OR ostilità OR rivoluzion* OR insurrezion* OR rivolt* OR ribellion* OR "colpo di stato" OR geopolitic*) near2 (iniz* OR cominc* OR scopp* OR avven* OR dichiar* OR proclamaz* OR lanc* OR intraprend*)) OR ((alleat* OR nemic* OR avversar* OR esercit* OR marina OR aereo* OR truppe OR ribell* OR insorg*) near2 (avanz* OR bombar* OR invasi* OR scontr* OR attacc* OR raid OR lanci* OR colp*)) OR ((terrori* OR guerrigl* OR ostagg*) near2 (atto* OR attacc* OR bomb* OR uccid* OR colpir* OR dirott*)) NOT (film* OR cinema OR muse* OR anniversa* OR necrolog* OR memorial* OR art* OR libr* OR memor* OR "guerra dei prezzi" OR gioco* OR raccont* OR storia OR veteran* OR tribut* OR sport OR musica OR competizion* OR cancro).

Search query for the counting total number of articles: il AND di AND e AND su AND in.

A.5 Spain

Search query for geopolitical risk: ((guerra* OR conflic* OR hostilid* OR revoluc* OR insurrecc* OR levantam* OR revuelt* OR "golpe de Estado" OR geopolític*) near2 (riesg* OR advert* OR tem* OR miedo* OR peligr* OR amena* OR dud* OR crisis* OR disturb* OR disput* OR preocup* OR tensi* OR inminent* OR inevitab* OR desestabiliz* OR borde* OR espant* OR sust*)) OR ((paz OR tregua* OR armist* OR tratad* OR negociac*) near2 (amena* OR recha* OR boicot* OR interru* OR peligr*)) OR ((militar* OR tropas OR misil* OR arma* OR bomba* OR ojiva*) AND (acumulac* OR bloqu* OR sanci* OR embargo OR cuarenten* OR ultimátum OR mo-vili* OR ofensiv*)) OR (("guerra nuclear" OR "conflicto nuclear" OR "ojiva nuclear") OR ("guerra atómica" OR "conflicto atómico" OR "ojiva atómica") OR ("misil nuclear" OR "bomba nuclear" OR "bomba atómica" OR "bomba H" OR "bomba de hidrógeno" OR "ensayo nucle-ar") AND (riesg* OR advert* OR tem* OR miedo* OR peligr* OR amena* OR dud* OR cri-sis* OR disturb* OR disput* OR preocup* OR tensi* OR inminent* OR inevitab* OR desesta-biliz* OR borde* OR espant* OR sust*)) OR ((terrori* OR guerrill* OR reh*) near2 (riesg* OR advert* OR tem* OR miedo* OR peligr* OR amena* OR dud* OR crisis* OR disturb* OR disput* OR preocup* OR tensi* OR inminent* OR inevitab* OR desestabiliz* OR borde* OR espant* OR sust*)) OR ((guerra* OR conflic* OR hostilid* OR revoluc* OR insurrecc* OR levantam* OR revuelt* OR "golpe de Estado" OR geopolític*) near2 (comienz* OR comenz* OR inici* OR estall* OR brot* OR declar* OR proclamac* OR lanz* OR emprend*)) OR ((ali-ad* OR enemig* OR adversar* OR ejercit* OR marina* OR aére* OR tropas OR rebeld* OR insurg*) near2 (avan* OR bombarde* OR invasi* OR enfrent* OR ataqu* OR incurs* OR lanzam* OR golp*)) OR ((terrori* OR guerrill* OR reh*) near2 (acto* OR ataqu* OR bomb* OR mat* OR asesin* OR golp* OR secuestr*)) NOT (películ* OR cine OR muse* OR aniver-sar* OR obituar* OR memorial* OR art* OR libr* OR memor* OR "guerra de precios" OR jueg* OR cuent* OR histori* OR veteran* OR homenaj* OR deport* OR músic* OR carrer* OR cáncer).

Search query for the counting total number of articles: el AND es AND a AND de AND y AND en.

A.6 The Netherlands

Search query for geopolitical risk: ((oorlog* OR conflict* OR vijandig* OR revolut* OR opstand* OR muiter* OR "staatsgreep" OR geopolitiek*) near2 (risic* OR waarschuwing* OR angst* OR gevaar* OR bedreig* OR twijf* OR crisis* OR onrust* OR geschil* OR bezorgd* OR spann* OR dreig* OR onvermijd* OR destabilisat* OR paniek* OR drempel* OR alarm*)) OR ((vrede* OR wapenstil* OR verdrag* OR onderhandel*) near2 (bedreig* OR weiger* OR boycot* OR onderbrek* OR gevaar*)) OR ((militair* OR troep* OR raket* OR wapen* OR bom* OR kernkop*) AND (op-bouw* OR blokkad* OR sanct* OR embargo OR quarantaine OR ultimatum OR mobilisat* OR offensief*)) OR (("oorlog nucleair" OR "conflict nucleair" OR "kernkop nucleair") OR ("oorlog atoom" OR "conflict atoom" OR "kernkop

atoom”) OR (”raket nucleair” OR ”bom nucleair” OR ”bom atoom” OR ”bom H” OR ”bom waterstof” OR ”kernproef”) AND (risic* OR waarschuwing* OR angst* OR gevaar* OR bedreig* OR twijf* OR crisis* OR onrust* OR geschil* OR bezorgd* OR spann* OR dreig* OR onvermijd* OR destabilisat* OR paniek* OR drempel* OR alarm*)) OR ((terroris* OR guerrill* OR gijzel*) near2 (risic* OR waarschuwing* OR angst* OR gevaar* OR bedreig* OR twijf* OR crisis* OR onrust* OR geschil* OR be-zorgd* OR spann* OR dreig* OR onvermijd* OR destabilisat* OR paniek* OR drempel* OR alarm*)) OR ((oorlog* OR conflict* OR vijandig* OR revolut* OR opstand* OR muiter* OR ”staatsgreep” OR geopolitiek*) near2 (begin* OR start* OR uitbraak* OR verklaring* OR proclamatie* OR lancering* OR onderneem*)) OR ((bondgen* OR vijand* OR tegenst* OR leger* OR marine* OR luchtmacht* OR troep* OR rebel* OR opstandel*) near2 (vooruitg* OR bombard* OR invasie* OR confront* OR aanval* OR inval* OR lancering* OR slag*)) OR ((terroris* OR guerrill* OR gijzel*) near2 (daad* OR aanval* OR bom* OR dood* OR moord* OR slag* OR kaping*)) NOT (film* OR bioscoop* OR museum* OR jubileum* OR necrolog* OR herdenk* OR kunst* OR boek* OR memori* OR ”prijsoorlog” OR spel* OR verhaal* OR geschied* OR veteraan* OR eerbetoon* OR sport* OR muziek* OR wedstrijd* OR kanker).

Search query for the counting total number of articles: de AND het AND en AND van AND in AND te AND dat AND met AND is.

B Circulation, release frequency and first edition of media sources

Table B1: Media sources

Name of newspaper/magazine	Circulation	Release frequency	First edition
Germany			
Frankfurter Allgemeine Zeitung	144744	Daily	1949
Süddeutsche Zeitung	206643	Daily	1945
Handelsblatt	70575	Daily	1946
Die Welt	45454	Daily	1946
taz - die tageszeitung	35943	Daily	1978
France			
Le Monde	530000	Daily	1944
Le Figaro	354853	Daily	1826
Les Echos	139877	Daily	1908
La Tribune	531000	Weekly	1985
Italy			
Il Sole 24 Ore	119306	Daily	1965
Corriere della Sera	208000	Daily	1876
La Repubblica	137000	Daily	1976
La Stampa	110000	Daily	1867
Italia Oggi	n/a	Daily	1991
Milano Finanza	n/a	Daily	1989
Spain			
El País	52024	Daily	1976
El Mundo	68000	Daily	1989
ABC	85000	Daily	1903
La Vanguardia	84000	Daily	1881
Expansión	55971	Daily	1986
Cinco Días	25000	Daily	1978
Netherlands			
ANP Binnenland	n/a	Daily	1934
Reformatorisch Dagblad	42000	Daily	1971
Dutch Government News	n/a	Daily	2016
ANP Economie	n/a	Daily	1934
De Groene Amsterdammer	40000	Weekly	1877

Notes: The circulation is taken from the newspapers' and magazines' websites.

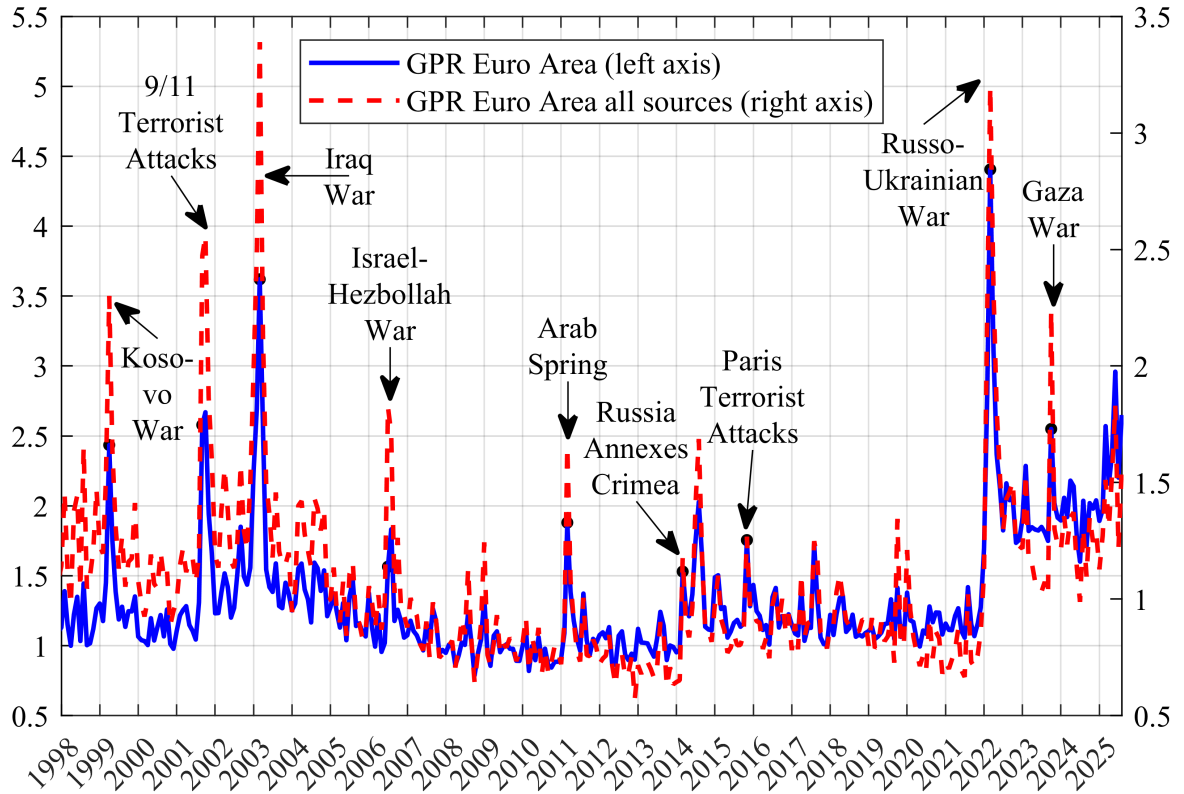# C Alternative measurement: Universe of newspapers

Figure C.1: Euro Area Geopolitical Risk Index: Baseline vs. All Factiva Sources

D Search query for measuring sanctions intensity

D.1 Anglosphere

Search query for Sanctions intensity index: (economic* AND sanction* AND (against OR concerning to) AND (Russia OR Syria OR Iran OR (North near1 Korea) OR Venezuela)).

D.2 Germany

Search query for Sanctions intensity index: (sanktion* AND (Russland OR Syrien OR Iran OR Nordkorea OR Venezuela)).

D.3 France

Search query for Sanctions intensity index: (économiqu* AND sanction* AND (contre OR concernant) AND (Russie OR Syrie OR Iran OR (Corée NEAR du Nord) OR Venezuela)).

D.4 Italy

Search query for Sanctions intensity index: (sanktion* AND (Russland OR Syrien OR Iran OR Nordkorea OR Venezuela)).

D.5 Spain

Search query for Sanctions intensity index: (económic* AND sancion* AND (contra OR sobre) AND (Rusia OR Siria OR Irán OR (Corea NEAR1 del Norte) OR Venezuela)).

D.6 The Netherlands

Search query for Sanctions intensity index: (econom* AND sanctie* AND (tegen OR betreffende) AND (Rusland OR Syrië OR Iran OR (Noord NEAR1 Korea) OR Venezuela)).

E Search query for measuring shortages

E.1 Anglosphere

Search query for Shortage index: ((shortage* OR bottleneck* OR scarcit* OR rationing* OR constraint*) near5 ((oil OR gas OR coal OR fuel* OR gasoline OR energy OR heating OR petroleum OR electricity OR refinery* OR pipeline* OR petrol) OR (food OR wheat OR meat OR milk OR crop* OR grain* OR agriculture OR farm* OR famine OR feed OR farmer* OR water OR fertilizer OR drought) OR (steel OR copper OR iron OR metal* OR automotive OR textile OR machinery OR equipment OR transportation OR railway OR airline OR freight OR shipping OR transit OR deliveries OR shipment* OR ship* OR chip* OR semiconductor* OR infrastructure OR materials OR distribution OR car* OR part* OR goods OR auto* OR computer* OR "supply chain" OR component*) OR (labor OR worker* OR job* OR employment OR manpower OR staff OR professional* OR technician* OR workforce OR personnel OR strike* OR union*)) AND (economic OR industr* OR production OR manufactur* OR economy OR trade OR commerce OR business OR budget OR tax OR fiscal OR corporation OR market OR price OR capacity OR company OR demand OR sales OR factory OR wages OR suppl*)).

E.2 Germany

Search query for Shortage index: ((Engpass* OR Mangel* OR Knappheit* OR Engpaess* OR Rationier* OR Rationierung*) near5 ((Öl* OR Gas* OR Kohle* OR Brennstoff* OR Benzin* OR Energie* OR Heizung* OR Erdoel* OR Strom* OR Raffinerie* OR Pipeline* OR Diesel* OR Tankstelle*) OR (Lebens-mittel* OR Nahrung* OR Weizen* OR Fleisch* OR Milch* OR Ernte* OR Getreide* OR Landwirtschaft* OR Hungersnot* OR Futter* OR Bauer* OR Bauern* OR Wasser* OR Du-enger* OR Duerre*) OR (Stahl* OR Kupfer* OR Eisen* OR Metall* OR Automobil* OR Tex-til* OR Maschinenbau* OR Ausruestung* OR Transport* OR Bahn* OR Fluglinie* OR Fracht* OR Schifffahrt* OR Transit* OR Lieferung* OR Sendung* OR Schiff* OR Chip* OR Halbleiter* OR Infrastruktur* OR Material* OR

Distribution* OR Auto* OR Computer* OR Lieferkette* OR Komponenten*) OR (Arbeit* OR Arbeitskraeft* OR Beschaeftigt* OR Job* OR Beschaeftigung* OR Personal* OR Fachkraeft* OR Belegschaft* OR Arbeitnehmer* OR Streik* OR Gewerkschaft*)) AND (wirtschaft* OR Industrie* OR Produktion* OR Fertigung* OR Handel* OR Geschaeft* OR Haushalt* OR Steuer* OR Fiskal* OR Unternehmen* OR Markt* OR Preis* OR Kapazitaet* OR Firma* OR Nachfrage* OR Verkauf* OR Fabrik* OR Lohn* OR Angebot*)).

E.3   France

Search query for Shortage index: ((pénurie* OR goulet* OR goulot* OR d'etranglement OR rareté* OR manque* OR rationne-ment*) near5 ((pétrol* OR gaz* OR charbon* OR carburant* OR combustible* OR essence* OR énerg* OR chauffage* OR électricité* OR raffinerie* OR pipeline* OR essence*) OR (aliment* OR blé* OR froment* OR viande* OR lait* OR récolte* OR céréale* OR ferme* OR exploit* OR agricult* OR famine* OR fourrage* OR agriculteur* OR cultivateur* OR eau* OR engrais* OR sécheresse*) OR (acier* OR cuivre* OR fer* OR métal* OR automobile* OR textile* OR machine* OR équipement* OR transport* OR chemin* OR "compagnie aérienne*" OR fret* OR expédition* OR transit* OR livraison* OR envoi* OR navire* OR ba-teau* OR puce* OR semi-conducteur* OR infrastructure* OR matériel* OR matériau* OR distribution* OR voiture* OR auto* OR pièce* OR composant* OR marchandise* OR ordi-nateur* OR "chaine d'approvisionnement") OR (travail* OR travailleur* OR employé* OR salarié* OR ouvrier* OR emploi* OR métier* OR poste* OR "main d'oeuvre" OR personnel* OR effectif* OR professionnel* OR technicien* OR compétence* OR grève* OR syndicat*)) AND (économ* OR industri* OR production* OR fabric* OR commerce* OR négoce* OR affaire* OR budget* OR impôt* OR taxe* OR fiscal* OR entreprise* OR société* OR mar-ché* OR prix* OR capacité* OR demande* OR vente* OR usine* OR salair* OR approvi-sionnement*)).

E.4   Italy

Search query for Shortage index: ((carenz* OR mancanz* OR "collo di bottiglia" OR scarsit* OR razionament*) near5 ((petroli* OR gas* OR carbon* OR carburant* OR benzina* OR energi* OR riscaldament* OR elettric* OR raffiner* OR oleodott* OR gasdott* OR metanodott*) OR (cib* OR aliment* OR nutri-ment* OR viver* OR gran* OR carn* OR latt* OR coltur* OR raccolt* OR cereal* OR "azien-da agricola" OR fattori* OR tenut* OR agricoltur* OR caresti* OR mangim* OR agricoltor* OR contadin* OR acqu* OR fertilizzant* OR concim* OR siccit*) OR (acciai* OR ram* OR ferr* OR metall* OR automobil* OR tessil* OR macchinar* OR attrezzatur* OR trasport* OR ferrovi* OR "compagnia aerea" OR merci* OR spedizion* OR transit* OR consegn* OR nav* OR chip* OR semiconduttor* OR infrastruttur* OR material* OR distribuzion* OR auto* OR macchin* OR component* OR "pezzi di ricambio" OR part* OR merc* OR computer* OR filiera* OR "catena di approvvigionamento" OR "catena di fornitura" OR "catena logistica") OR (manodopera OR lavor* OR occupazion* OR impieg* OR personal* OR forza lavoro OR operai* OR dipendent* OR staff OR professionist* OR tecnic* OR competenz* OR capacit* OR abilit* OR "risorse umane" OR scioper* OR sindacat*)) AND (econom* OR industr* OR produzion* OR manifattur* OR costru* OR commerci* OR affar* OR impres* OR aziend* OR ditt* OR

budget* OR bilanci* OR stanziament* OR tass* OR fiscal* OR finanziar* OR societ* OR mercat* OR prezz* OR capac* OR domand* OR vendit* OR fatturat* OR fab-bric* OR stabiliment* OR salar* OR offert* OR offr*)).

E.5 Spain

Search query for Shortage index: ((escase* OR "cuello de botella" OR carencia* OR falta* OR racionamient*) near5 ((petróle* OR gas* OR carbón* OR combustible* OR gasolina* OR energ* OR calefacción* OR elec-tricidad* OR refiner* OR oleoduct* OR gasoduct* OR conduct* OR pipeline*) OR (aliment* OR trigo* OR carne* OR leche* OR cultiv* OR cosech* OR cereal* OR grano* OR agricult* OR hambrun* OR pienso* OR granjer* OR agu* OR fertilizant* OR sequí*) OR (acero* OR cobre* OR hierro* OR metal* OR automotriz* OR automovil* OR textil* OR maquin* OR equip* OR transport* OR ferrocarril* OR aerolíne* OR carg* OR "transporte marítimo" OR tránsito* OR entrega* OR suministro* OR envío* OR buqu* OR chip* OR semiconductor* OR infraestructur* OR material* OR distribucion* OR coche* OR automóvil* OR carro* OR pieza* OR parte* OR mercanc* OR bien* OR ordenador* OR computadora* OR "cadena de suministro" OR component*) OR (labor* OR trabaj* OR emple* OR "mano de obra" OR plan-till* OR personal* OR profesional* OR técnic* OR habilidad* OR competenc* OR "fuerza laboral" OR huelg* OR sindic*)) AND (econom* OR industri* OR produccion* OR manufac-tur* OR comerci* OR negoci* OR presupuest* OR impuest* OR fiscal* OR empres* OR mercad* OR preci* OR capacid* OR compañ* OR demand* OR vent* OR fabric* OR salari* OR sueld* OR suministr*)).

E.6 Netherlands

Search query for Shortage index: ((tekort* OR schaarst* OR gebrek* OR rantsoenering* OR knelpunt*) near5 ((olie* OR gas* OR steenkool* OR kol* OR brandstof* OR benzine* OR energie* OR ver-warming* OR el-ektriciteit* OR raffinaderij* OR pijpleiding* OR petroleum* OR diesel*) OR (voedsel* OR graan* OR vlees* OR melk* OR oogst* OR gewas* OR landbouw* OR hongersnood* OR voer* OR boer* OR water* OR meststof* OR droogte*) OR (staal* OR koper* OR ijzer* OR metaal* OR auto-industrie* OR textiel* OR machinebouw* OR apparatuur* OR transport* OR spoorweg* OR luchtvaartmaatschap-pij* OR vracht* OR scheepvaart* OR levering* OR zending* OR schip* OR chip* OR halfgeleider* OR infrastructuur* OR materiaal* OR dis-tributie* OR auto* OR computer* OR "toeleveringsketen*" OR component*) OR (arbeid* OR werknemer* OR werk* OR baan* OR personeel* OR arbeidskracht* OR beroepsbevolking* OR vakbond* OR staking* OR professional* OR technicus* OR vaardigheid*)) AND (econom* OR industri* OR productie* OR fabricage* OR economie* OR handel* OR bedrijf* OR begrot-ing* OR belasting* OR fiscaal* OR onderneming* OR markt* OR prijs* OR ca-paciteit* OR vraag* OR verkoop* OR fabriek* OR loon* OR aanbod*)).

F Data

This section describes the identifiers of the data we obtain from Haver. The identifiers are reported in brackets. "sa" means that we use the seasonal adjustment procedure implemented in Haver.

- Real Gross Domestic Product (C023GDPI@OECDMEI)

- Euro Area Harmonized Consumer Price Index (sa(N023PHPC@OECDMEI))

- Euro Area Core Harmonized Consumer Price Index (H023HOEU@EUDATA)

- Wu-Xia Shadow ECB Rate (I023SHDW@EUDATA)

- EuroStoxx 600 (S023TBU@EUDATA)

- Euro Area Residential Property Prices (sa(Q997ZTTW@BIS))

G   Additional results

G.1   Euro Area and Anglosphere GPR shock comparison
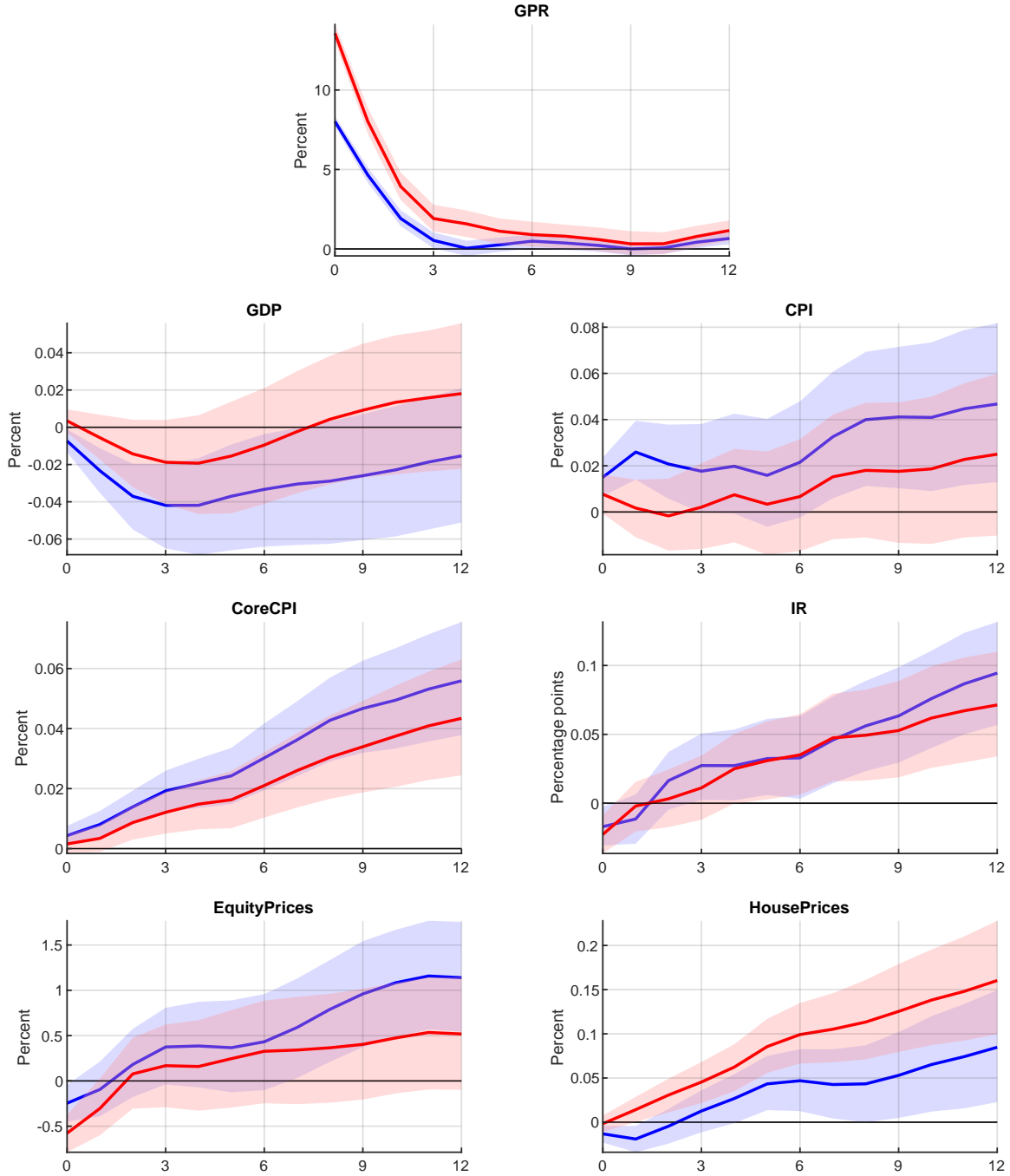

Figure G.1: Impact of Euro Area (blue) and Anglosphere (red) geopolitical risk shocks on Euro Area economy

Notes: Impulse responses based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index and the second VAR the Anglosphere GPR index as provided by Caldara and Iacoviello (2022), which both are ordered first in their respective VAR models. Solid lines denote median and shaded areas the corresponding 68% credible intervals.
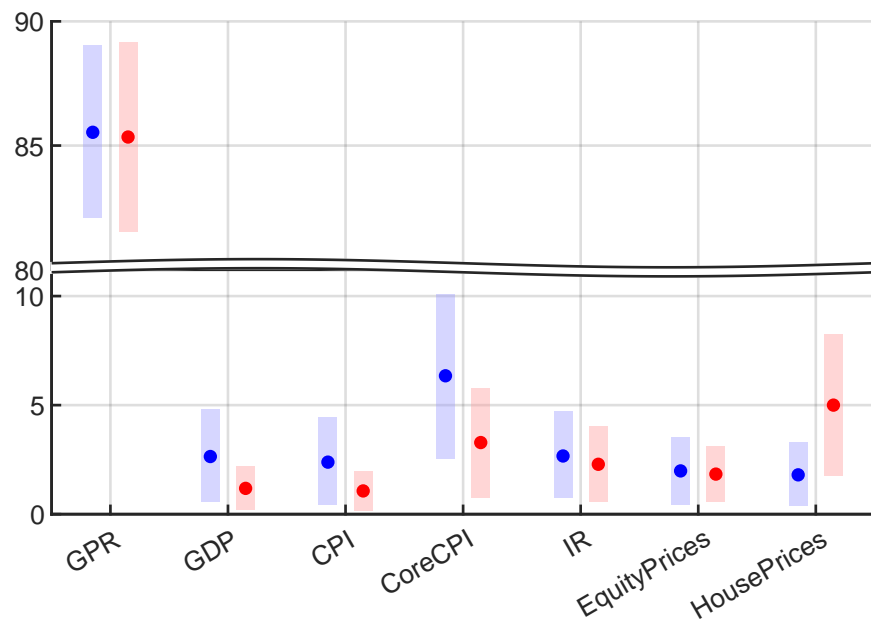
Figure G.2: Importance of Euro Area (blue) and Anglosphere (red) geopolitical risk shocks for Euro Area economy

Notes: Forecast error variance decompositions over first year after the shock, in %. They are based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index and the second VAR the Anglosphere GPR index as provided by Caldara and Iacoviello (2022), which both are ordered first in their respective VAR models. Solid dots denote median and shaded areas the corresponding 68% credible intervals.

G.2 Comparison to Anglosphere GPR index constructed from Factiva

Figure G.3: Impact of Euro Area (blue) and Anglosphere (red, from Factiva) geopolitical risk shocks on Euro Area economy

Notes: Impulse responses based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index and the second VAR the Anglosphere GPR index constructed from Factiva, which both are ordered first in their respective VAR models. Shaded areas denote 68% credible intervals.

Figure G.4: Importance of Euro Area (blue) and Anglosphere (red, from Factiva) geopolitical risk shocks for Euro Area economy

Notes: Forecast error variance decompositions over first year after the shock, in %. They are based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index and the second VAR the Anglosphere GPR index constructed from Factiva, which both are ordered first in their respective VAR models. Shaded areas denote 68% credible intervals.

G.3 Comparison to Euro Area GPR indicator using all sources
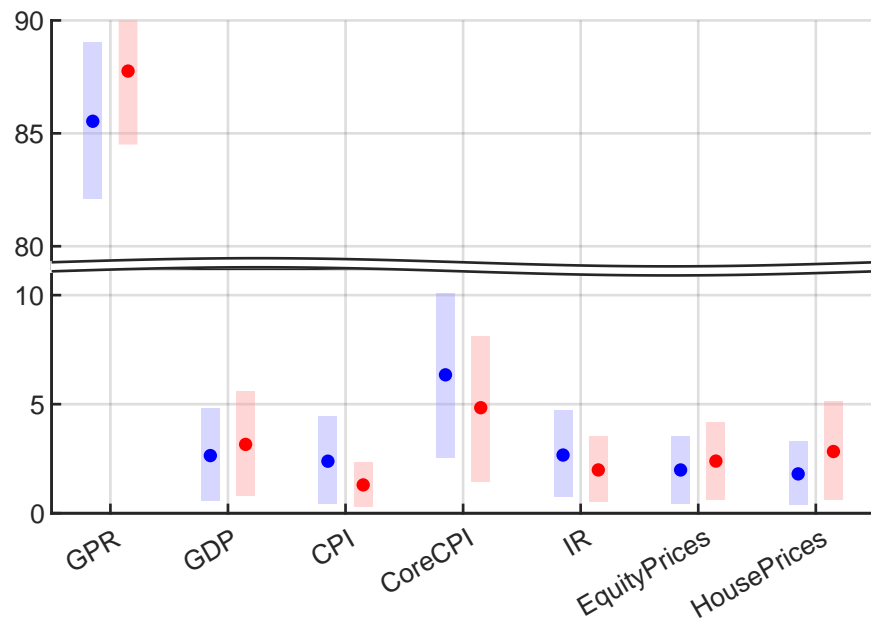

Figure G.5: Impact of Euro Area (blue, limited sources) and Euro Area (red, all sources) geopolitical risk shocks on Euro Area economy

Notes: Impulse responses based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index build from the mentioned set of media sources and the second VAR the Euro Area GPR index constructed from all sources available in Factiva for a specific country. Both indices are ordered first in their respective VAR models. Shaded areas denote 68% credible intervals.

Figure G.6: Importance of Euro Area (blue, limited sources) and Euro Area (red, all sources) geopolitical risk shocks for Euro Area economy

Notes: Forecast error variance decompositions over first year after the shock, in %. They are based on two Bayesian vector autoregressions (VAR) with Cholesky identification. The first VAR uses the Euro Area GPR index build from the mentioned set of media sources and the second VAR the Euro Area GPR index constructed from all sources available in Factiva for a specific country. Both indices are ordered first in their respective VAR models. Shaded areas denote 68% credible intervals.
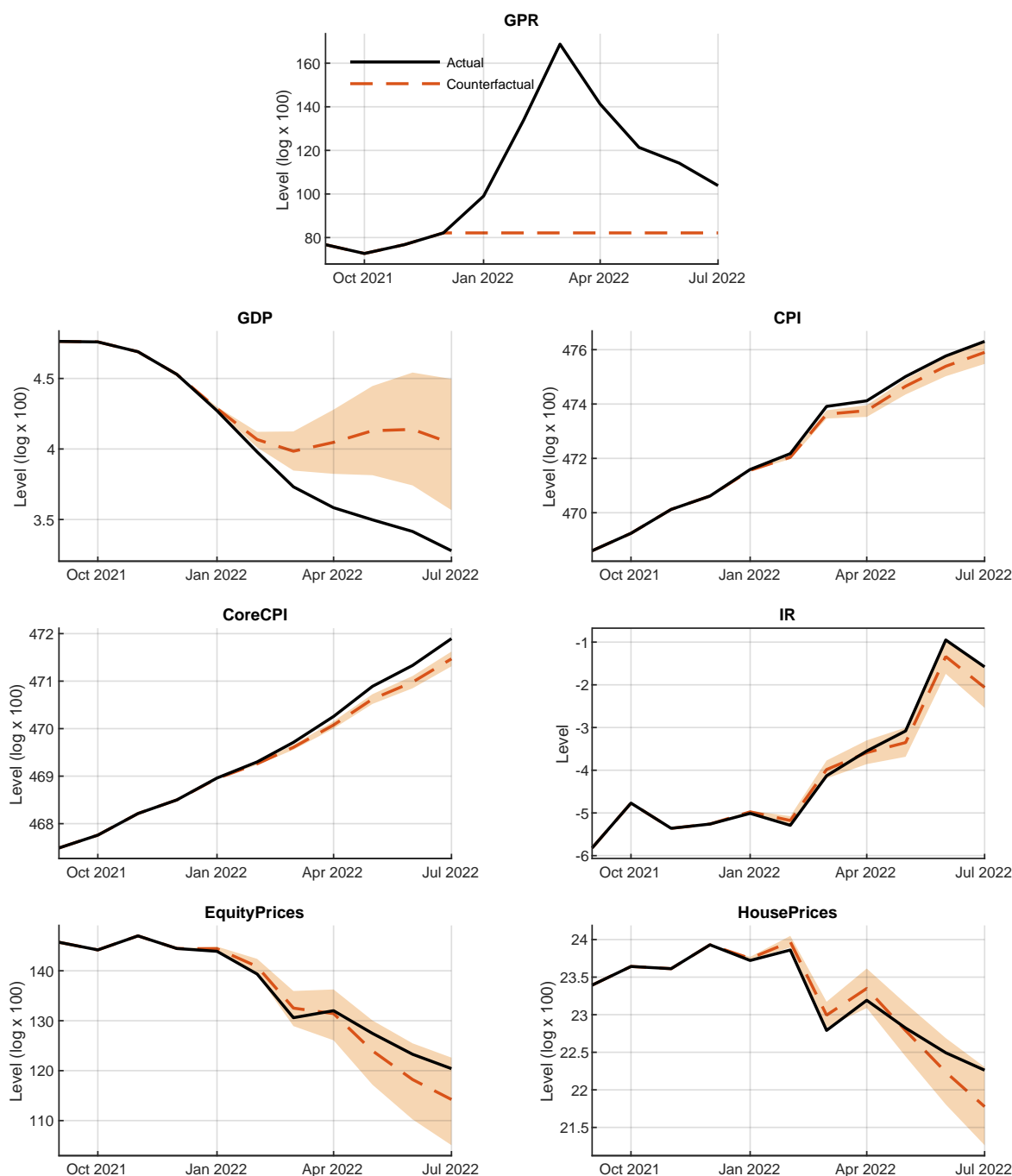
G.4 "No-War" counterfactual

Figure G.7: "No-War" counterfactual path of GPR: original data (black) and counterfactual data (orange)

Notes: Counterfactual path of GPR index, assuming constant levels as of December 2021, achieved by adjusting the GPR shock. The VAR uses the Euro Area GPR index, which is ordered first. The corresponding GPR shock is identified via a Cholesky decomposition.
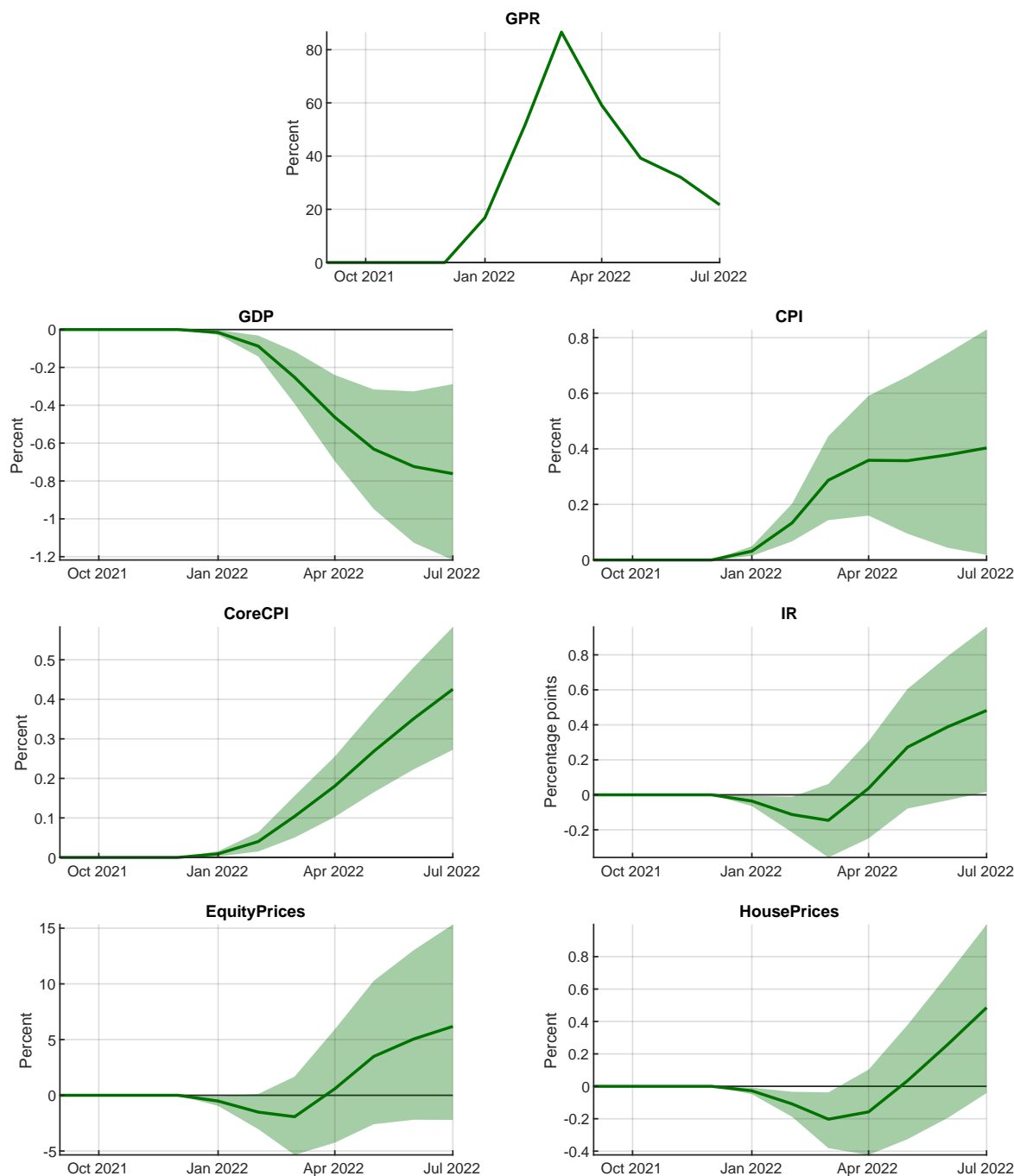
Figure G.8: War vs. "No-War" path difference

Notes: Figure shows the deviation of the actual data minus the counterfactual data, that assumes a constant level of the GPR index, starting from December 2021; see Figure G.7. The constant level assumes that the structural GPR shocks adjust such that the GPR index remains constant. The counterfactual data are based on a Bayesian vector autoregression (VAR) with Cholesky identification, ordering the Euro Area GPR index first. Shaded areas denote the 68% credible intervals.

H   Consequences of GPR: sanctions and shortages

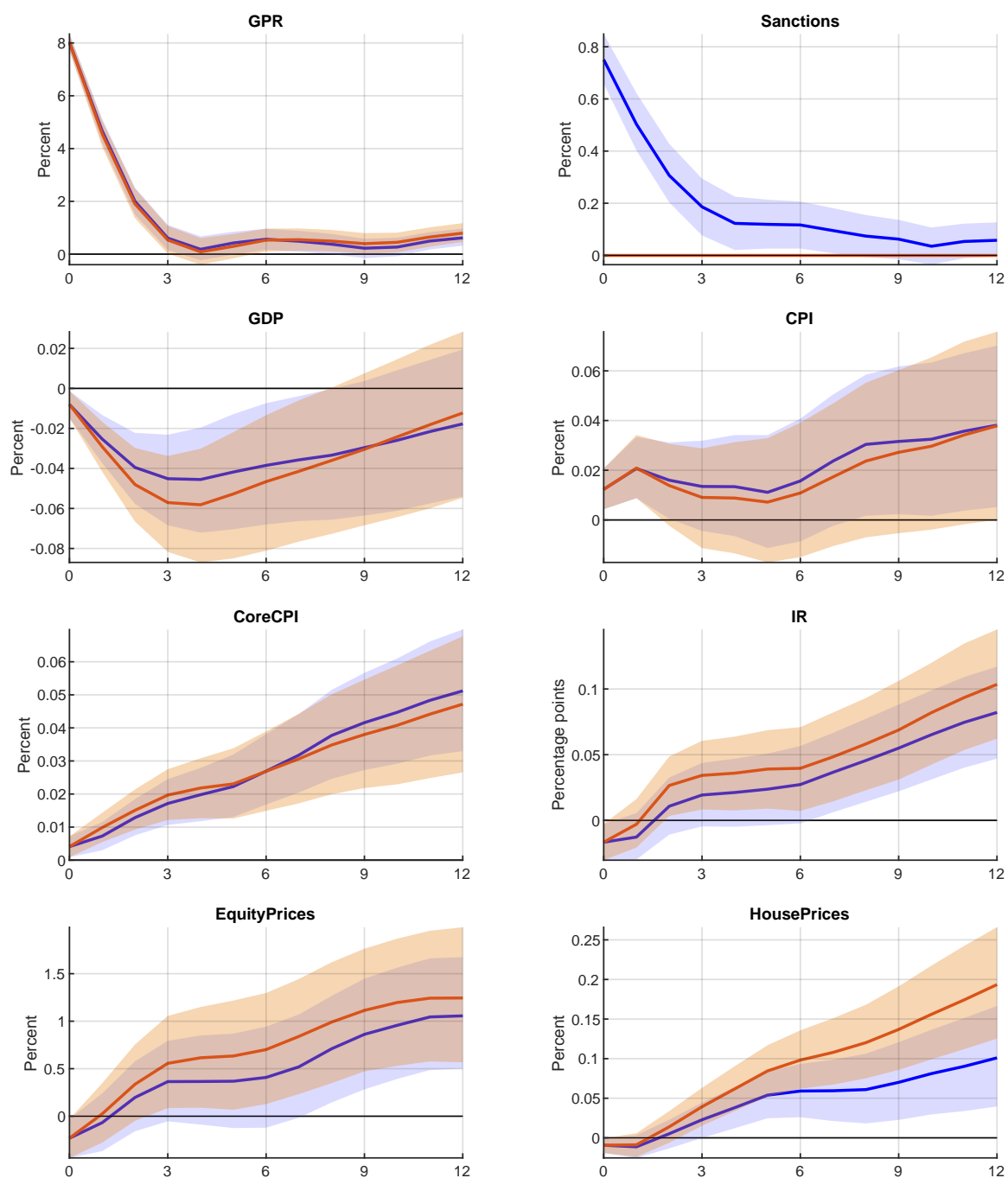## H.1   Impulse Responses to a GPR shock with sanctions channel

Figure H.9: Impact of Euro Area GPR shock with sanctions channel: active (blue) and non-active (orange)

Notes: Impulse responses based on Bayesian vector autoregression (VAR) with Cholesky identification. The VAR uses the Euro Area GPR index and the Euro Area sanctions intensity index. Shaded areas denote 68% credible intervals.

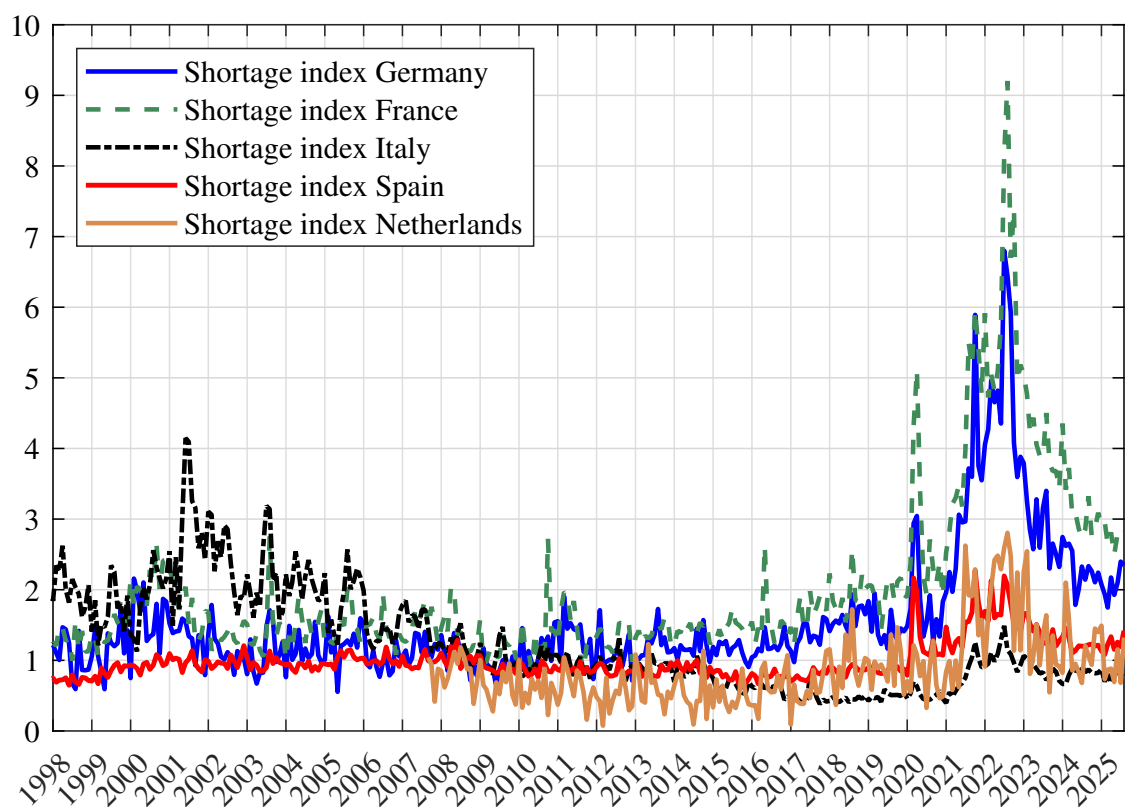## H.2 Shortages Indices for Five Euro Area Countries

Figure H.10: Shortages Index for five Euro Area countries

Notes: All series are standardized following the same methodology applied to our Euro Area GPR index, and for comparability are rescaled to equal 1 in January 2019.

H.3 European Commission Business Survey

The European Commission Business Surveys cover the manufacturing, construction, and services sectors and are conducted on a quarterly basis. Responses from the services sector are excluded, as data for this sector are only available starting in 2003Q3. Owing to this limited availability, we restrict our analysis to the manufacturing and construction sectors. Firms are asked to respond to the following questions.

Q8   What main factors are currently limiting your production?

- none
- insufficient demand
- shortage of labour force
- shortage of material and/or equipment
- financial constraints
- other factors

(a) Manufacturing Industry (Quarterly)

Q2   What main factors are currently limiting your building activity?

- none
- insufficient demand
- weather conditions
- shortage of labour force
- shortage of material and/or equipment
- financial constraints
- other factors

(b) Construction (Monthly)

Figure H.11: Survey Question

The EC releases sector-specific response shares expressed as percentages and reported in non-seasonally adjusted terms. We construct our measure by averaging the percentage of firms reporting "shortage of labour force" and "shortage of material and/or equipment" in the manufacturing and construction sectors.

Raw data are available here: https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en#all-surveys.

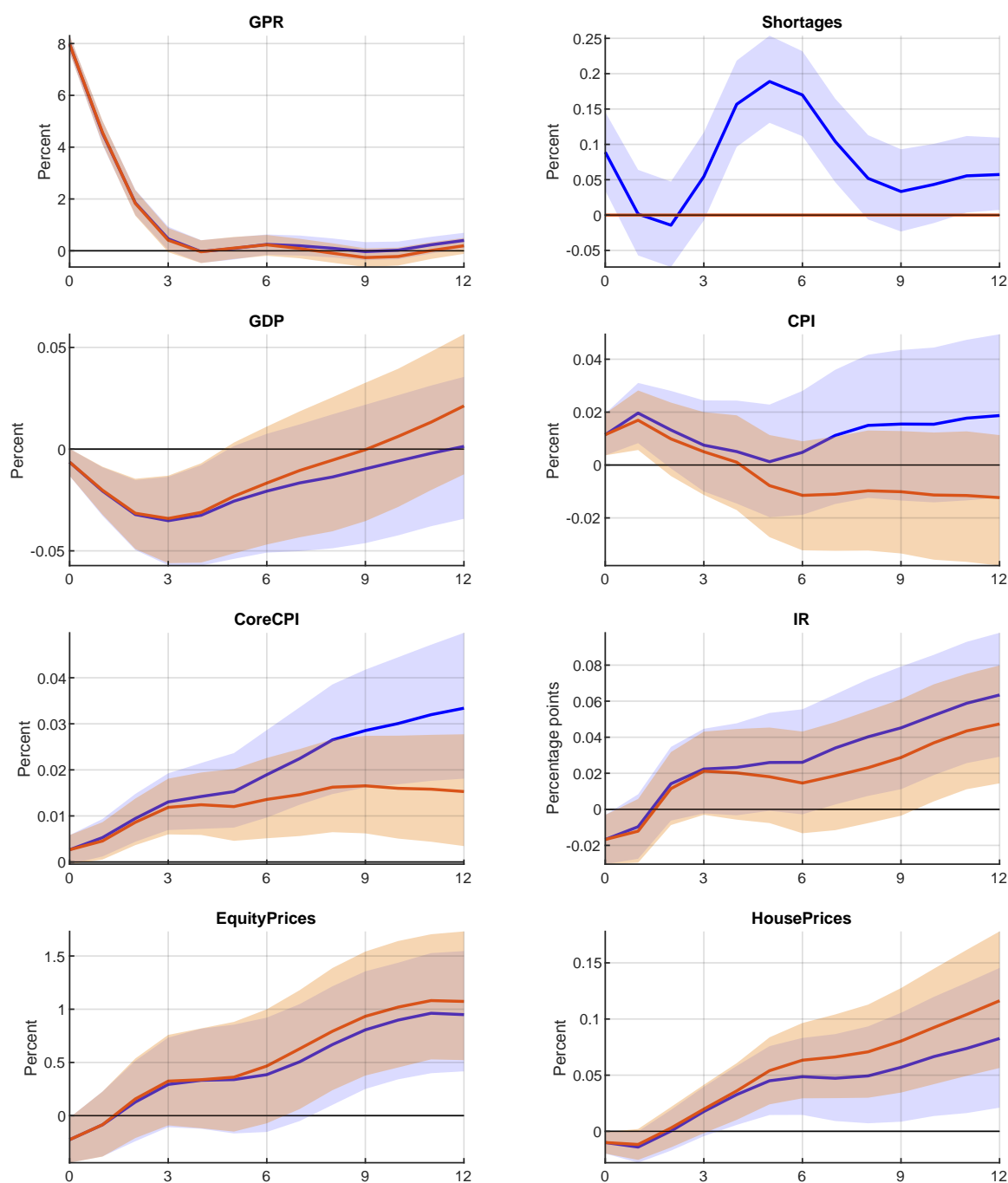## H.4 Impulse Responses to a GPR Shock with shortages channel

Figure H.12: Impact of Euro Area GPR shock with shortages channel: Active (blue) and non-active (orange)

Notes: Impulse responses based on Bayesian vector autoregression (VAR) with Cholesky identification. The VAR uses the Euro Area GPR index and the Euro Area sanctions intensity index. Shaded areas denote 68% credible intervals.