How Do Political Tensions and Geopolitical Risks Impact Oil Prices?⋆

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Abstract

This paper assesses the effect of US-China political relationships and geopolitical risks on oil prices. To this end, we consider two quantitative measures, the Political Relationship Index (PRI) and the Geopolitical Risk Index (GPR), and rely on structural VAR and local projection methodologies. Our findings show that improved US-China relationships, as well as higher geopolitical risks, drive up the price of oil. In fact, unexpected shocks in the political relationship index are associated with optimistic expectations of economic activity, whereas unexpected shocks in the geopolitical risk index also reflect fears of supply disruption. Political tensions and geopolitical risks are thus complementary causal drivers of oil prices, the former being linked to consumer expectations and the latter to the prospects of aggregate markets.

Keywords: Oil prices, political relationships, geopolitical risk, China.
JEL: Q4, F51, C32

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1. Introduction

The last two decades have been characterized by impressive changes in the oil market at the global level. Although the role of the Chinese economy in the oil market was negligible before China's entry into the WTO, the situation dramatically evolved afterward. Indeed, China has become a significant player in the oil market, with 16.4% of global consumption in 2021.[1] Turning to the US, it is the first largest consumer (19.9% of world oil consumption) and producer (16.8% of world oil production). Given the weight of these two countries, the evolution of their political relationships could therefore strongly affect the dynamics of oil prices, in addition to geopolitical risks.

This paper tackles this issue by investigating the impact of political tensions and geopolitical risks on oil prices. While various articles have tried to capture these effects using proxy variables (Chen et al., 2016; Lee et al., 2017; Miao et al., 2017; Caldara and Iacoviello, 2018; Perifanis and Dagoumas, 2019; Abdel-Latif and El-Gamal, 2020; Qin et al., 2020), Cai et al. (2022) is the first study that relies on a quantitative measure of political relations to investigate their possible impacts on oil prices.

In the present paper, we go further than the previous literature by relying on two complementary quantitative measures. First, we use an index built by the Institute of International Relations at Tsinghua University to measure the political relationships between China and its major trading partners (see Yan (2010) for a discussion). This Political Relationship Index (hereafter PRI), ranging between -9 and 9, indicates whether the countries are rivals (between -9 and -6), in a tense relationship (between -6 and -3), in a bad relationship (between -3 and 0), in a normal relationship (between 0 and 3), in a good relationship (between 3 and 6), and friends (between 6 and 9). PRI fluctuates according to a scale similar to the Goldstein scale (Goldstein, 1992). Each month, bad or good events appearing in People's Daily and on the Chinese Ministry of Foreign Affairs website are included to update the index.[2] As shown in Figure 1, the political relationships between the United States and China dramatically deteriorated after the beginning of Trump's trade war.

Second, we use the China-specific bilateral version of the Geopolitical Risk Index (hereafter GPR) introduced by Caldara and Iacoviello (2018). GPR is a monthly index obtained by running automated text searches on the electronic archives of 11 newspapers that counts the percentage of articles related to adverse geopolitical events (wars, terrorist attacks, tensions between countries, etc.). The bilateral version of GPR refers to the percentage of articles in US newspapers dealing with adverse geopolitical events that concern one specific country, namely China in our case. This bilateral index uses three US newspapers: The New York Times, Chicago Tribune, and The Washington Post. As shown in Figure 1, the percentage of articles associated with China increased substantially after Trump's trade war started.

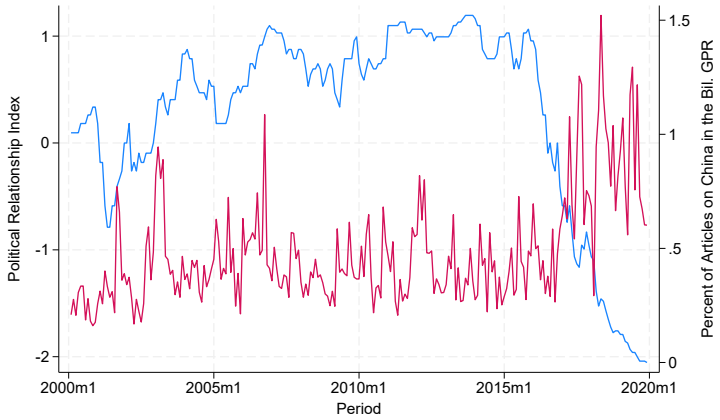
These two measures, the PRI and the China bilateral GPR index, can be seen as complementary proxies to assess the impact of US-China political relations on the oil market. Indeed, the bilateral

[1] Source: BP Statistical Review of World Energy 2022.

[2] See Section 2.

GPR does not focus on the relationship between the United States and China, but provides an overall picture of the geopolitical uncertainty for China. For example, the Sino-Japanese dispute over the Diaoyu/Senkaku Islands could be included in the GPR index specific for China as well as in the Sino-Japanese PRI, but not in the PRI for the relationship between the US and China, which is focused on the bilateral relationship between the two countries. In this respect, we contribute to the literature on the macroeconomic consequences of geopolitical risks (see Caldara and Iacoviello, 2022) considering the bilateral political relationships between the US and China due to the possible complementarities between the PRI and GPR indexes.

Figure 1: Political Relationship Index (left-hand scale) and Geopolitical Risk Index (right-hand scale)



Notes: the PRI (Political Relationship Index, in blue) and the bilateral GPR (Geopolitical Risk Index, in red) can be downloaded from the following websites: PRI, http://www.tuiir.tsinghua.edu.cn/imiren/info/1091/1320.htm; GPR, https://www.matteoiacoviello.com/gpr_country.htm. PRI is expressed as $\text{sgn}(x) * ln(|x|+1)$ and ranges between -2.30 and 2.30: rival countries between -2.30 and -1.95, in a tense relationship between -1.95 and -1.39, in a bad relationship between -1.39 and 0, in a normal relationship between 0 and 1.39, in a good relationship between 1.39 and 1.95, and friends between 1.95 and 2.30.

To decipher the differences between the impact of political tensions and geopolitical risks — two concepts that are related to each other but are not entirely substitutable — on oil prices, we use structural vector autoregressions (SVAR) and Local Projections (LP). Our findings show that improved political relationships between the United States and China, as well as proliferation geopolitical risks, drive up the price of oil.[3]

The remainder of the paper is organized as follows. Section 2 presents the data and methodology. Section 3 reports our empirical results and robustness checks. Section 4 explains the role of expectations. Section 5 concludes.

[3]Castillo et al. (2020) show that higher oil price volatility induces higher levels of average inflation. Thus, our results also have some implications in terms of monetary policy.

2. Data and methodology

Using monthly data from January 2000 to December 2019, we perform SVAR and LP analyses (Jordà, 2005) to evaluate how oil prices react to shocks in PRI and in the bilateral GPR index. We consider the following variables in the SVAR model: bilateral GPR for China (*gpr_cn*), oil supply (global oil production, million barrels/day, *lpro*), oil demand (OECD and six major non-member economies (Brazil, China, India, Indonesia, the Russian Federation, and South Africa) industrial production, *ldem*), oil prices (real WTI spot price, *lrpo*), and PRI between China and the US (*lpri_us*), respectively.[4] These oil-related variables are transformed into natural logs. For PRI, we use the log-modulus transformation, which is defined for zero and negative values.

As mentioned above, PRI is updated using the news published in People's Daily and on the website of the Chinese Ministry of Foreign Affairs. Specifically, the formula used to update PRI is given by:

$$PRI_t = \frac{\left(\frac{N-PRI_{t-1}}{N} EV^+ + \frac{N+PRI_{t-1}}{N} EV^-\right)}{5} + PRI_{t-1} \tag{1}$$

where N denotes the half of the range of the PRI index, EV^+ is the level of good events, and EV^- is the level of bad events during the current month, respectively.[5] The first term after the equal sign is rounded to the smallest increment 0.1.

Following Lütkepohl (2005), the SVAR specification is given by:

$$\mathbf{A}\mathbf{y}_t = \mathbf{A}_1\mathbf{y}_{t-1} + \mathbf{A}_2\mathbf{y}_{t-2} + \cdots + \mathbf{A}_p\mathbf{y}_{t-p} + \mathbf{B}\varepsilon_t \tag{2}$$

where $\mathbf{y}_t$ is the vector of endogenous variables, $\mathbf{A}, \mathbf{A}_1, \mathbf{A}_2, \cdots, \mathbf{A}_p$ denote the structural coefficients, and ε_t are the unobserved orthonormal structural innovations, $\varepsilon_t \sim (0, I_K)$. We can rewrite Equation (2) as follows:

$$\mathbf{y}_t = \mathbf{C}_1\mathbf{y}_{t-1} + \mathbf{C}_2\mathbf{y}_{t-2} + \cdots + \mathbf{C}_p\mathbf{y}_{t-p} + u_t \tag{3}$$

where $\mathbf{C}_\mathrm{i} := \mathbf{A}^{-1}\mathbf{A_i} \quad (i = 1, 2, \ldots, p)$.

The reduced-form error u_t can be expressed by:

$$\mathbf{A}u_t = \mathbf{B}\varepsilon_t \tag{4}$$

$$u_t = \mathbf{A}^{-1}\mathbf{B}\varepsilon_t = \mathbf{S}\varepsilon_t \tag{5}$$

$$\mathbf{E}\left(u_t u_t'\right) = \Sigma_u = \mathbf{A}^{-1}\mathbf{B}\mathbf{B}'\mathbf{A}^{-1'} = \mathbf{S}\mathbf{S}' \tag{6}$$

with $\mathbf{S} = \mathbf{A}^{-1}\mathbf{B}$. To recover $\mathbf{S}$, we rely on the recursive identification scheme by using Cholesky decomposition to obtain a lower triangular matrix. According to recent literature (Caldara and Iacoviello, 2022), the identified shocks of PRI for the US or GPR for China contemporaneously impact oil-related variables, but the reverse effects of other oil shocks take time.

[4] All the oil-related variables are taken from: https://sites.google.com/site/cjsbaumeister/. More details can be found in Baumeister and Hamilton (2019).

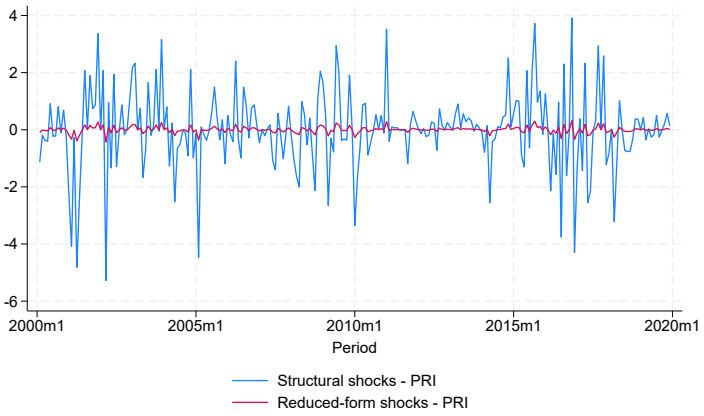
[5] The formula used to update PRI gives less weight (i) to bad events when the relation deteriorates, and (ii) to good events when the relationship is good.

3. Empirical evidence: baseline results and robustness checks

3.1. Baseline results

Figures 2 and 3 report the reduced form and structural shocks for PRI for the US and GPR for China, respectively. Figure 2 shows that unanticipated negative shocks (deterioration of political relations) are more frequent during Trump's trade war. Similarly, Figure 3 reveals a rise in the frequency of unexpected positive shocks (an increase in articles related to China in US newspapers) during the same period of trade war.

Figure 2: Structural and reduced-form shocks for PRI



Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. PRI: Political Relationship Index.

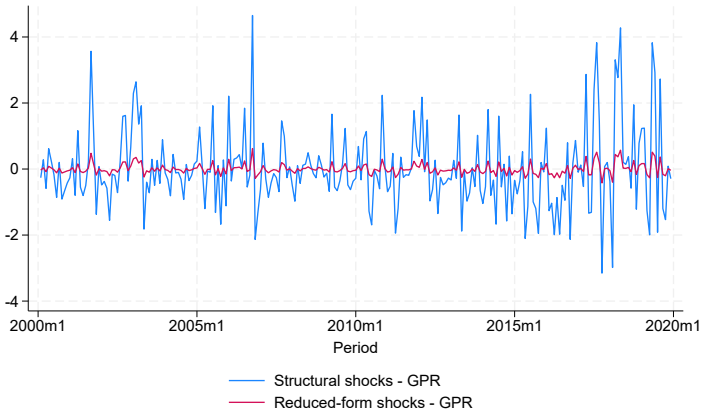
To compare the results of VAR and LP, we present the dynamic multipliers in Figures 4 and 5. Dynamic multipliers measure the impact of a unit increase in an exogenous variable on endogenous variables over time. The contemporaneous effect of the exogenous variable (the structural shocks on PRI for the US and on GPR for China) is not constrained to 1. A regression of endogenous variables at time $t + h, \mathbf{y}_{t+h}$, on exogenous variables today, $\mathbf{x}_t$, gives the dynamic multiplier at horizon h:

$$\mathbf{y}_{t+h} = \mathbf{D}^h \mathbf{x}_t + u_{t+h} \tag{7}$$

The matrix $\mathbf{D}^h$ contains the dynamic multipliers at horizon h. For exogenous variables, $\mathbf{x}_t$, we focus on the structural shocks, ε_t, identified in the SVAR for the variables PRI and GPR, respectively. Finally, we concentrate on the real price of oil for the endogenous variables, $\mathbf{y}_{t+h}$.

In Figure 4, the dynamic multipliers of the LP show that improving political relations positively affect the real price of oil after 13 months; this positive effect lasts about 10 months. Turning to the dynamic multipliers of the VAR, we observe (i) an initial drop that is not significant in LP and (ii) the absence of a significant positive effect. Overall, LP seems to capture short-run dynamics. These

Figure 3: Structural and reduced-form shocks for GPR



Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. GPR: Geopolitical Risk Index.

results are rather intuitive. An unanticipated improvement in the PRI for the US means a better relationship between the two major players in the world economy and in the oil market. Positive shocks on PRI are thus linked to the demand side and are associated with optimistic expectations, especially consumer expectations, about future economic activity, driving up oil prices.

In Figure 5, we consider the structural shocks in the GPR for China. The LP's dynamic multipliers results are very similar to those related to PRI for the US. Indeed, we observe a rise in the real price of oil after 8 months. This increase lasts around 18 months and is of higher magnitude than the shocks on PRI for the US. Regarding the dynamic multipliers of the VAR, the increase is not significant, as in Figure 4. Our result that higher geopolitical risks persistently drive oil prices is in line with the fact that there is a tendency to confound all geopolitical tensions with oil supply shocks provoked by geopolitical tensions in the Middle East (Caldara and Iacoviello, 2022). Thus, positive shocks on the GPR are linked to the supply side, notably aggregate markets' perspectives, and also reflect fears of oil supply disruption, pulling up oil prices.

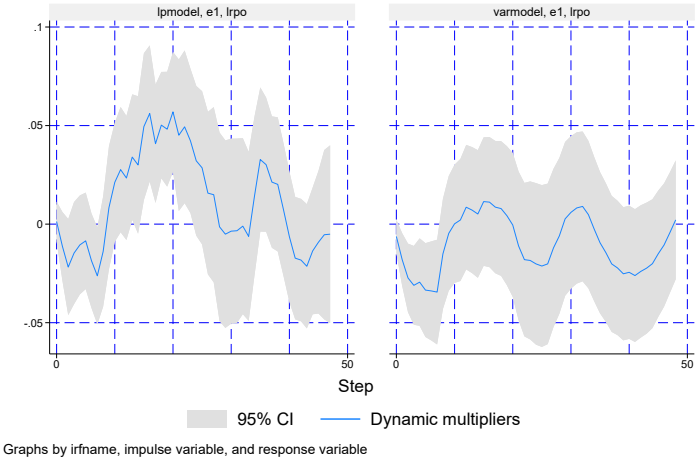
3.2. Robustness checks

In this section, we assess the robustness of our conclusions to (i) the choice of the proxy for world oil demand, and (ii) some specific key events.

3.2.1. Proxy retained for world oil demand

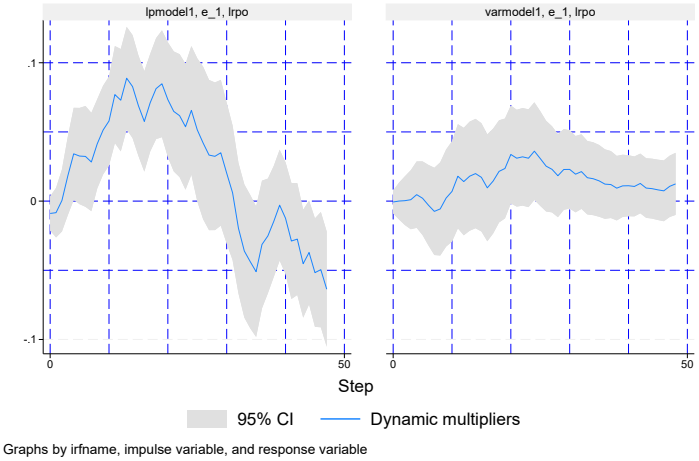
To assess the sensitivity of our findings to the proxy retained for oil demand, we rely on the index of global real economic activity in industrial commodity markets, as Kilian (2009, 2019) and Kilian and Zhou (2018) proposed. As shown in Appendix C and Appendix D, our findings remain similar, illustrating the robustness of our conclusions.

Figure 4: Dynamic multipliers for the real price of oil (shocks on PRI for the US)



Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks in the PRI for the US are not correlated (see Appendix A). PRI: Political Relationship Index.

Figure 5: Dynamic multipliers for the real price of oil (shocks on GPR for China)



Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on GPR for the US are uncorrelated (see Appendix B). GPR: Geopolitical Risk Index.

3.2.2. Sub-sample analyses and case studies

In the following, we run the same analyses with samples from January 1990 after the 1989 Tiananmen Square events, and from February 1985 where the recent GPR index is available. For the sake of completeness, we also extend our sample to include the COVID-19 pandemic. The results are largely similar to the baseline scenario, but they offer some evidence about the complementarity between the GPR and PRI indexes in the understanding of the macroeconomic consequences of geopolitical risks.

US bombing of the Chinese embassy in Belgrade. Let us first consider the sample which starts in January 1990, i.e., after the 1989 Tiananmen Square events. We focus on a specific event that has not been reported and perceived in the same way in the US and China, namely the US bombing of the Chinese embassy in Belgrade. On May 7, 1999, the Chinese embassy in Belgrade was bombed by the US during the NATO bombing of ex-Yugoslavia (see Ponniah and Marinkovic, 2019).

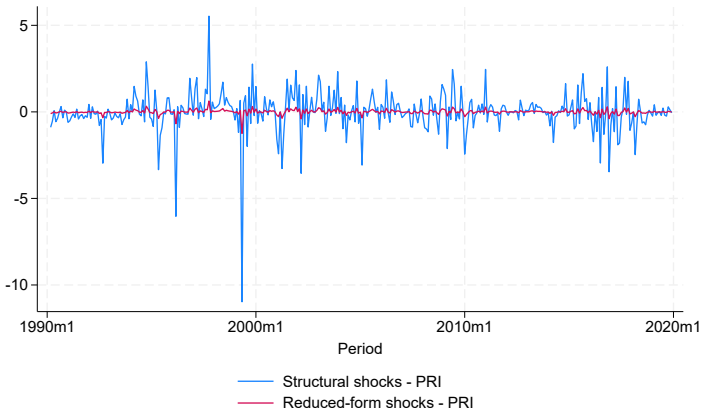
As shown in Figures 6 and 7, this huge negative shock can only be seen in the PRI index (Figure 6). This event has not been reported in the same way in the US press (Parsons and Xiaoge, 2001) and, thus, is invisible when considering the GPR index (Figure 7). These findings reflect that geopolitical risks cannot be universally measured, as recalled by Bondarenko et al. (2023). In a case study on Russia, they find that geopolitical risk shocks identified from English-language news sources do not have any impact on the Russian economy, contrary to Russian-language news sources.

The results regarding dynamic multipliers are in line with our baseline findings, as illustrated in Figures 8 and 9. In the LP's dynamic multipliers for PRI, the increase in the oil price comes a little bit later, after 22 months, and lasts 10 months as in the baseline scenario. The VAR's dynamic multipliers for PRI are also consistent with our baseline results. Besides, the findings are very similar for the GPR index.

1989 Tiananmen Square events. Let us now start with the sample in January 1985, when the GPR index is available. We focus on the 1989 Tiananmen Square events that took place between April 15 and June 4, 1989. In Figures 10 and 11, we do not observe the same discrepancy between bilateral GPR and PRI for the relationship between the United States and China as we find for the US bombing of the Chinese embassy in Belgrade. The rationale behind these results is simple: the international media coverage of the Tiananmen Square events is in line with the perceived deterioration in China of the relationship with the US.

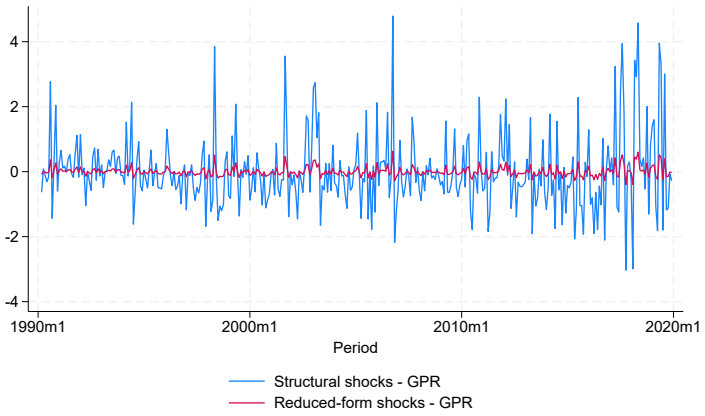
The results of the dynamic multipliers are qualitatively similar, as reported in Figures 12 and 13. As the estimation period is longer, we can note some differences in the LP's and VAR's dynamic multipliers for the real price of oil for PRI. In Figure 12, the increase in the oil price is obtained after 28 months and is shorter than in the baseline scenario. This finding is interesting since, before the 1990s, the Chinese economy had not a large influence on the world economy. Furthermore, as shown in Figure 13 related to the GPR index, the increase in the real price of oil after the shock comes a little later (10 months after the shock versus 8 months in the baseline scenario) and lasts longer (22 months versus 18). In general, these findings are consistent with the baseline results.

Figure 6: Structural and reduced-form shocks for PRI after the 1989 Tiananmen Square events



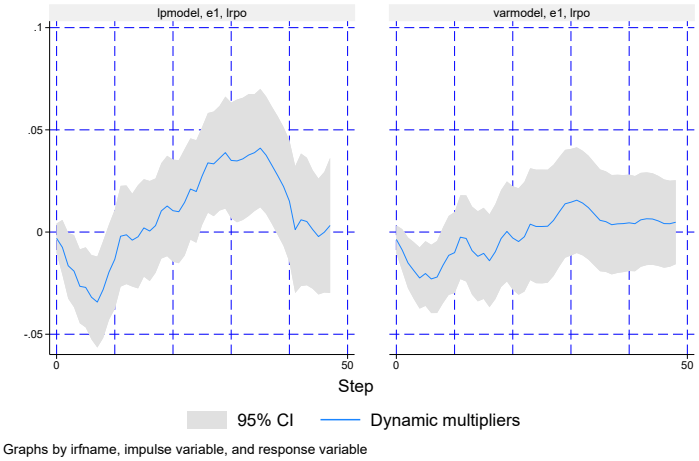
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. PRI: Political Relationship Index.

Figure 7: Structural and reduced-form shocks for GPR after the 1989 Tiananmen Square events



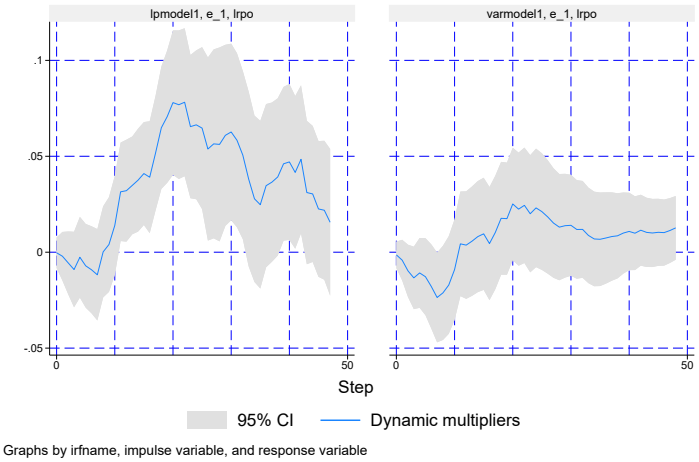
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. GPR: Geopolitical Risk Index.

Figure 8: Dynamic multipliers for the real price of oil (shocks on PRI for the US) after the 1989 Tiananmen Square events



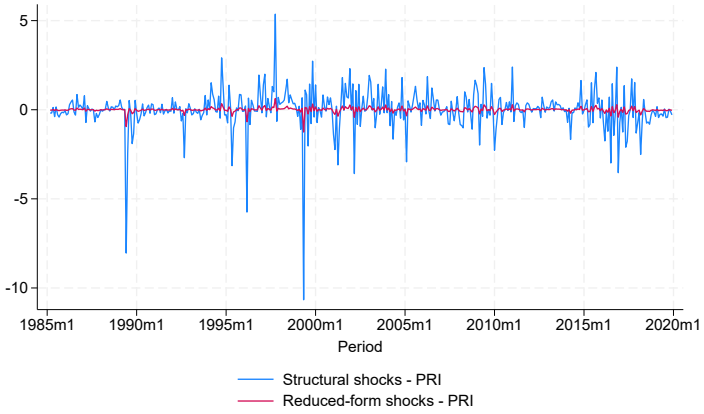
Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on the PRI for the US are not correlated. PRI: Political Relationship Index.

Figure 9: Dynamic multipliers for the real price of oil (shocks on GPR for China) after the 1989 Tiananmen Square events



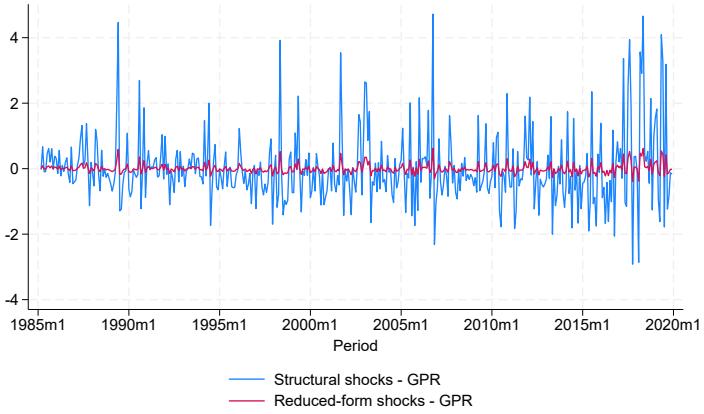
Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on the PRI for the US are not correlated. GPR: Geopolitical Risk Index.

Figure 10: Structural and reduced-form shocks for PRI before the 1989 Tiananmen Square events



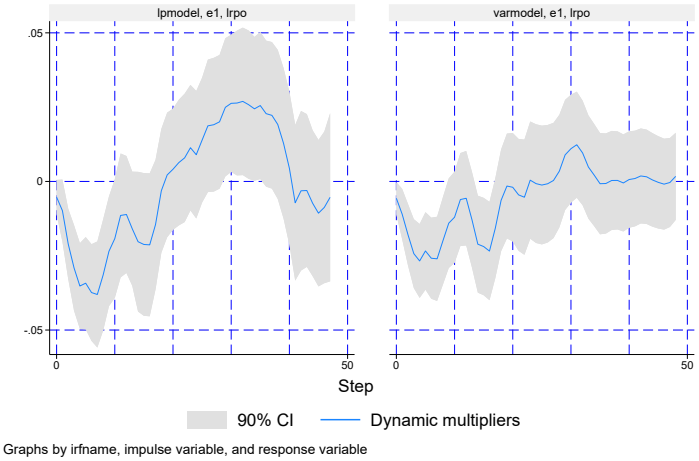
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. PRI: Political Relationship Index.

Figure 11: Structural and reduced-form shocks for GPR before the 1989 Tiananmen Square events



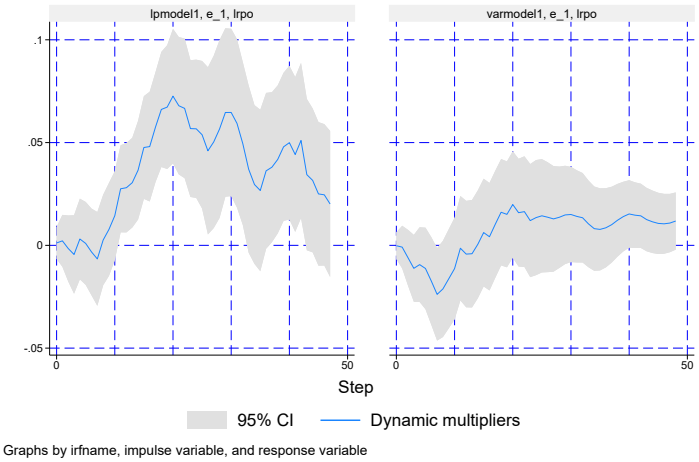
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. GPR: Geopolitical Risk Index.

Figure 12: Dynamic multipliers for the real price of oil (shocks on PRI for the US) before the 1989 Tiananmen Square events



Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on the PRI for the US are not correlated. PRI: Political Relationship Index.

Figure 13: Dynamic multipliers for the real price of oil (shocks on GPR for China) after the 1989 Tiananmen Square events



Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on the PRI for the US are not correlated. GPR: Geopolitical Risk Index.

Including the COVID-19 pandemic episode. Finally, we consider the effect of the COVID-19 pandemic by expanding our sample up to January 2022, i.e., before the start of the war in Ukraine.[6] It is worth mentioning that the results of this peculiar subsample analysis should be taken with caution, as the COVID outbreak constitutes a huge, and short-lived, structural break in many macroeconomic time series. However, it could be interesting to investigate how the model behaves when we include this specific event.

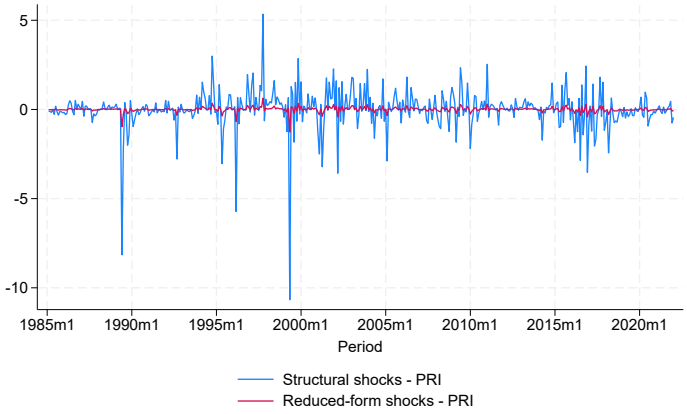
As shown in Figures 14 and 15, the PRI index between the US and China has not been known to experience any major shock during the COVID episode. The relation was in a rival state and remained stable (Figure 14). On the contrary, the GPR index exhibits several shocks (Figure 15). This gap is explained by the more general nature of the GPR index. As mentioned above, the GPR index captures the mention of geopolitical risk relative to China but is not focused on the bilateral relationship between China and the United States. In Figures 16 and 17, the effects on the dynamics of the oil price are qualitatively identical.

The results are very similar to those reported when considering the January 1985-December 2019 sample. In Figure 16, the increase in the oil price is obtained after 28 months and is shorter than in the baseline scenario. Additionally, in Figure 17, the results are in line with our baseline findings displayed in Figure 5. The increase in the real price of oil lasts even longer (22 months versus 18 months in the baseline scenario).

Overall, our findings are robust to various subsample periods, and to the choice of the proxy for the world demand for oil. The results converge toward a positive causal influence of bilateral political relationships between China and the US and geopolitical risks for China over the short to medium run. However, these two quantitative indexes are not fully substitutable as they measure different dimensions of geopolitical relationships. As noted by Bondarenko et al. (2023), the perception of geopolitical risk in each country may matter to measure the influence of these risks on the economy. This last point has been illustrated with the US bombing of the Chinese embassy in Belgrade. In addition, PRI is more focused on the bilateral relationship between China and the US and reflects expectations of the world's demand for oil. The GPR index for China is more general and also reflects fears of supply disruptions.

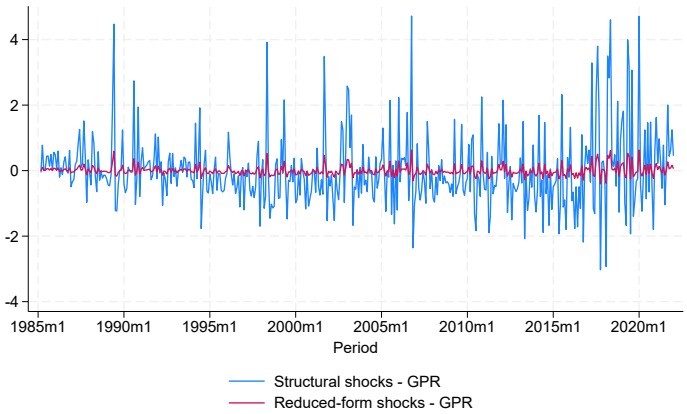
[6] As underlined by Baumeister (2023), the pandemic and the Russian invasion of Ukraine may have long-lasting effects on the global energy landscape.

Figure 14: Structural and reduced-form shocks for PRI with the COVID pandemic



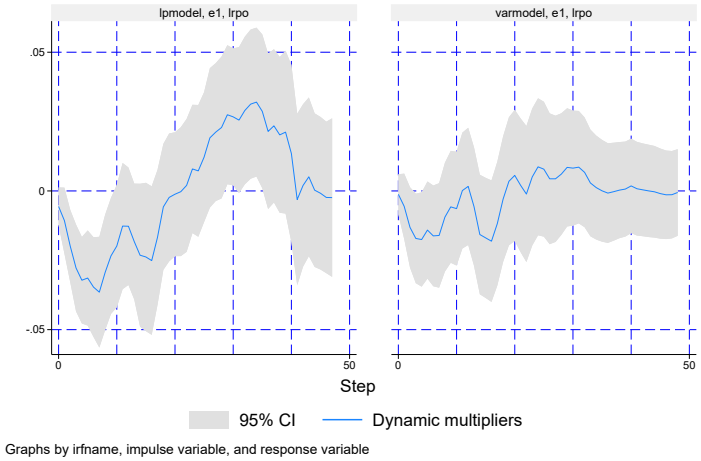
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. PRI: Political Relationship Index.

Figure 15: Structural and reduced-form shocks for GPR with the COVID pandemic



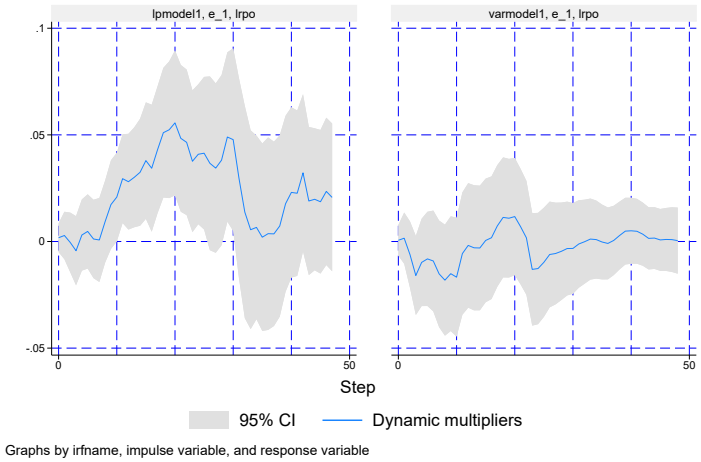
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. GPR: Geopolitical Risk Index.

Figure 16: Dynamic multipliers for the real price of oil (shocks on PRI for the US) with the COVID pandemic



Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on the PRI for the US are not correlated. PRI: Political Relationship Index.

Figure 17: Dynamic multipliers for the real price of oil (shocks on GPR for China) with the COVID pandemic



Notes: Left graph: LP, right graph: SVAR. As shown by Cai et al. (2022), the results are robust to different orderings. The real price of oil and the series of structural shocks on the PRI for the US are not correlated. GPR: Geopolitical Risk Index.

4. PRI, GPR, and expectations

According to Byrne et al. (2019), economic agents' expectations play an essential role in explaining the fluctuations in oil prices. Indeed, it is widely acknowledged that expectations of business leaders, consumers, and aggregate markets' perspectives will shape their economic behavior. In addition, Byrne et al. (2019) show that the impact of expectations on oil prices is variable over time. To assess this link, we follow the methodology used by Shi et al. (2020) and investigate the time-varying causality between PRI and the expectations of these three different types of economic agents. To this end, we use the consumer confidence indicator (CCI), business confidence indicator (BCI), and composite leading indicator (CLI) constructed by the OECD as proxies for the expectations of consumers, businesses, and market perspectives, respectively.[7]

We apply the time-varying Granger causality tests to disentangle the effect of political tensions and geopolitical risks on different types of economic agents' expectations. This will help us to better understand the mechanism through which geopolitical risks and political tensions affect the oil price. These tests are based on a lag-augmented VAR approach, where a series of bootstrapped Wald statistics is computed thanks to rolling window algorithms.[8]

As shown in sub-panel (a) of Figure 18, the PRI Granger causes, at conventional statistical levels, consumers' expectations (CCI) during the 2000s, while the causal impacts on the business expectations (BCI) and markets' expectations (CLI) are detected around the global financial crisis in 2008 (sub-panels (b) and (c) of Figure 18). Overall, the lags of the PRI index improve the forecasts for consumers' expectations more often than for business and aggregate markets' prospects.

In Figure 19 (sub-panels (b) and (c)), we detect that the GPR index Granger causes business expectations (BCI) and, more significantly, markets' expectations (CLI) from the 2000s to the end of our sample. Meanwhile, consumer expectations (CCI) are sporadically influenced by the GPR. After 2012, we do not detect a causal impact of GPR on CCI (sub-panel (a) of Figure 19). To sum up, our results show that the lags of the GPR index improve the forecasts for the business or aggregate markets more often than for consumers' expectations. As mentioned by Byrne et al. (2019), business leaders and aggregate markets are generally more informed than individual consumers. Therefore, they can consider other factors in their expectations, such as worries about supply disruptions caused by China's strategy. These findings support the more general nature of the GPR index.

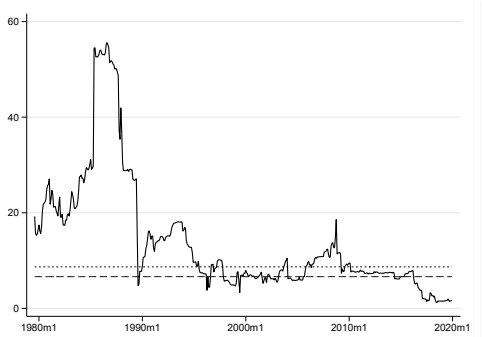
5. Conclusion

This paper presents new evidence on the impact of US-China political relationships and geopolitical risks on the oil market. Our findings show that an improvement in the US-China political relationships positively affects the oil market: positive shocks on PRI are associated with optimistic

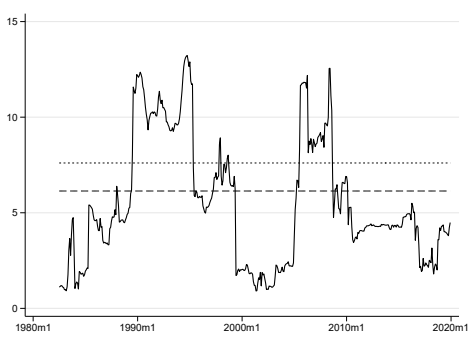
[7] We consider the G20 country group to have global coverage for expectations. The DBnomics codes for the OECD series are BSCICP03, CSCICP03, LOLITOAA for CCI, BCI and CLI, respectively. The data series are also available on the DBnomics website: https://db.nomics.world/OECD/MEI_CLI.

[8] There exists three main rolling window algorithms, namely, Forward expanding window (FE), Rolling-window (RW), and Recursive evolving window (RE). In line with the simulations of Shi et al. (2020), we present the results based on the RE algorithm due to its improved power performance compared to the others.

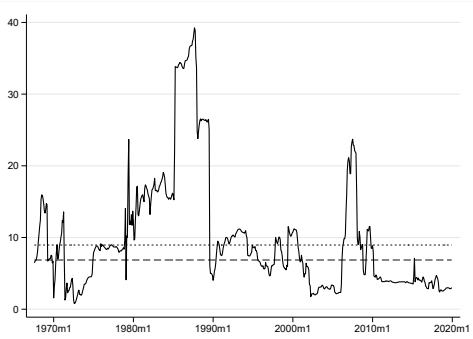
Figure 18: Political relations and expectations - Recursive Window



(a) CCI is Granger-Caused by PRI



(b) BCI is Granger-Caused by PRI



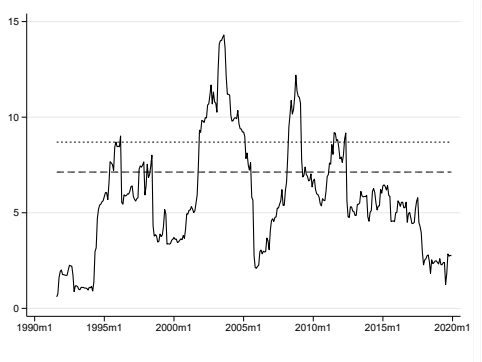
(c) CLI is Granger-Caused by PRI

Note: We select a minimum window size of 80 months. We include a trend in the underlying bivariate VAR model. The size of the tests is controlled for 60 months. These statistics are robust to heteroskedasticity. The dotted line indicates the 90th (lower line) and 95th (upper line) percentiles of the test statistics, where 499 bootstrap replications have been used. See Shi et al. (2020) for more details on the methodology. Source: Author's calculations.

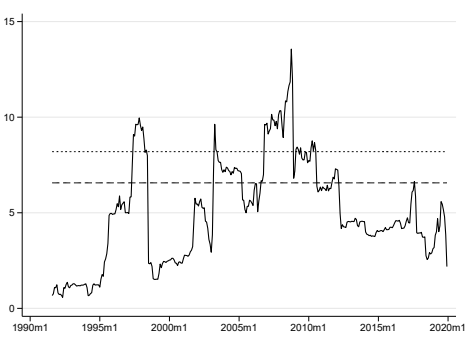
expectations regarding future economic activity, driving up oil prices. Similarly, we find that higher geopolitical risks increase oil prices, as positive shocks on the GPR also reflect fears of oil supply disruption, pulling up oil prices—the PRI being linked to consumers' expectations and the GPR to prospects of aggregate markets.

In general, our findings show that political tensions and geopolitical risks play a crucial role, illustrating that they are complementary rather than substitute factors in explaining the dynamics of oil prices. These findings could help policymakers understand the macroeconomic consequences of geopolitical risks by taking into account bilateral political relationships. In this perspective, considering bilateral political relations and geopolitical risk perceptions in the recent surge of inflation after the COVID pandemic and subsequent monetary developments would be an interesting avenue for future research, as witnessed by the recent empirical investigation of Caldara et al. (2023).

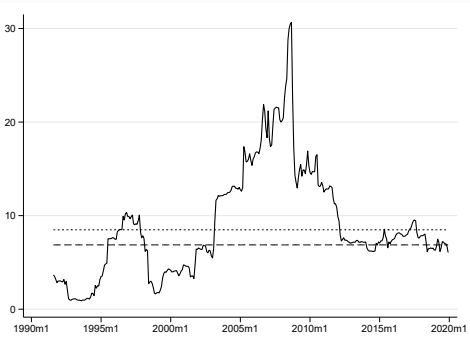
Figure 19: Geopolitical risks and expectations - Recursive Window



(a) CCI is Granger-Caused by GPR



(b) BCI is Granger-Caused by GPR



(c) CLI is Granger-Caused by GPR

Note: We select a minimum window size of 80 months. We include a trend in the underlying bivariate VAR model. The size of the tests is controlled for 40 months. These statistics are robust to heteroskedasticity. The dotted line indicates the 90th (lower line) and 95th (upper line) percentiles of the test statistics, where 499 bootstrap replications have been used. See Shi et al. (2020) for more details on the methodology. Source: Author's calculations.

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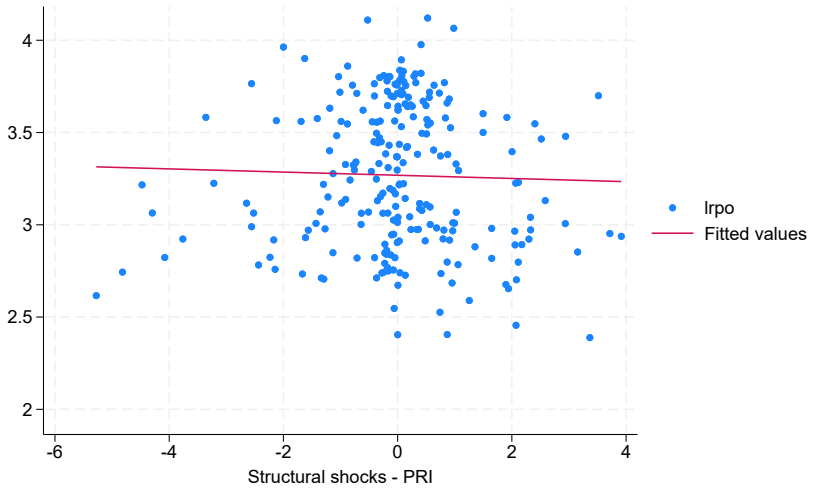
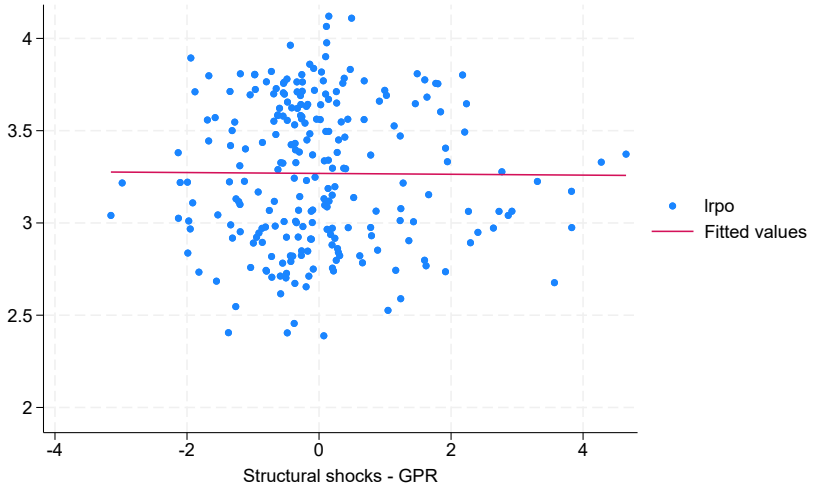
Appendix A. Correlation between structural shocks on PRI for the US and the real price of oil



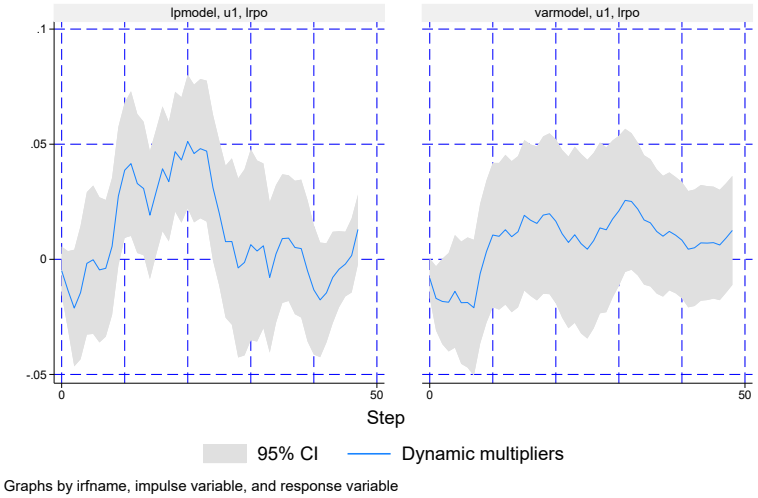
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. PRI: Political Relationship Index.

Appendix B. Correlation between structural shocks on GPR for China and the real price of oil



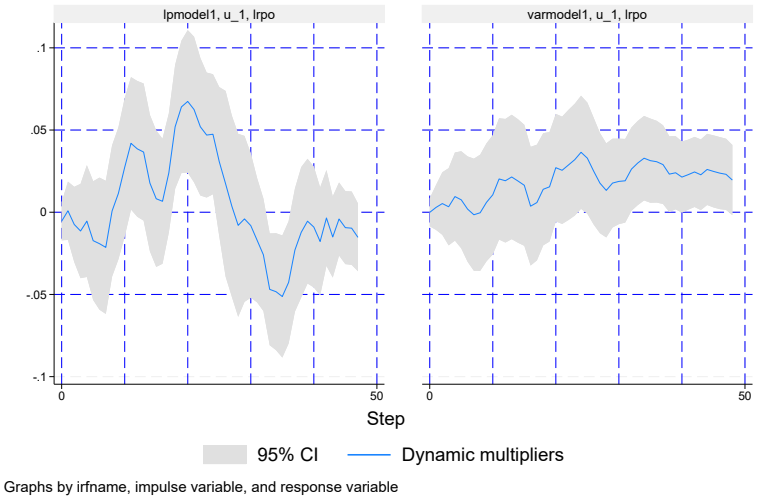
Notes: Structural shocks are obtained in the following way: $\mathbf{B}^{-1}\mathbf{A}u_t = \varepsilon_t$. GPR: Geopolitical Risk Index.

Appendix C. Robustness for the dynamic multipliers (shocks on PRI for the US)



Notes: Left graph: LP, right graph: SVAR. In this robustness exercise, we use an alternative proxy for oil demand introduced by Kilian and Zhou (2018): https://www.dallasfed.org/research/igrea. PRI: Political relationship index

Appendix D. Robustness for the dynamic multipliers (shocks on GPR for China)



Notes: Left graph: LP, right graph: SVAR. In this robustness exercise, we use an alternative proxy for oil demand introduced by Kilian and Zhou (2018): https://www.dallasfed.org/research/igrea. GPR: Geopolitical Risk Index.