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A simple model of geopolitical risk and sanctions


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Abstract

Geopolitical risks (GPR) and the sanctions they often trigger can disrupt economies, particularly in targeted nations. Using Russia as a case study, Lewis and Puangjit (2025) develop a simple economic model to understand how GPR shocks and sanctions affect the targeted country's output, inflation, and monetary policy. The authors explore how sanctions amplify the economic consequences of geopolitical tensions for Russia and assess the role of monetary policy in mitigating these effects.

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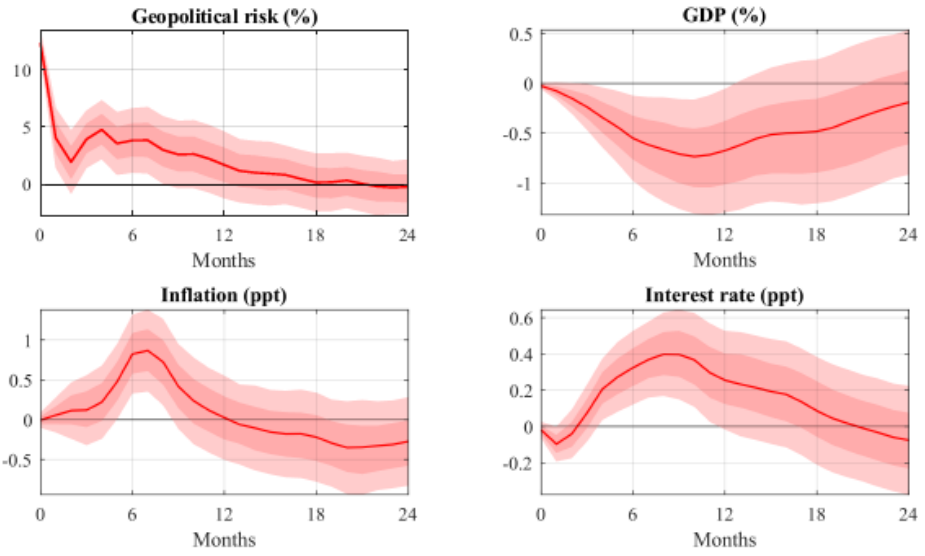
Geopolitical events such as conflicts or diplomatic crises can have profound economic consequences. These events often lead to sanctions, which further exacerbate economic disruptions. While previous research has examined the effects of geopolitical risk (GPR) on Western economies, this study focuses on the economic impact of GPR shocks on a sanctioned country, specifically Russia. We aim to answer two key questions: How do GPR shocks and sanctions affect the macroeconomy? And how should monetary policy respond to these shocks?

Geopolitical risk has large adverse effects on Russian economy

Figure 1 shows that a geopolitical risk shock in Russia is recessionary, pushes up inflation and leads to a monetary policy tightening by the central bank.

Figure 1. Estimated impulse responses to geopolitical risk shock in Russia



Notes: Figure shows impulses responses of Russian macroeconomic aggregates to a one-standard-deviation shock in the geopolitical risk index (based on Russian-language newspapers) up to 24 months after the shock. The estimation method is a Bayesian VAR identified with short-run zero restrictions. The estimation is based on data from 2002M7 until 2021M12 following the method and specification in Bondarenko et al (2024). See that paper for further details on the construction of the GPR index and the data sources. Shaded areas reflect 95% confidence bands.

For comparison, we carry out the same exercise for the US economy over the sample period 1985m1 -- 2024m12. The model specification and identification scheme is identical, while the GPR index is the 'global' index from Caldara and Iacoviello (2022). The dynamic responses to a geopolitical risk shock in the US are significantly recessionary and inflationary, as they are in Russia. However, there is an important difference in amplitude: the peak of the inflation response in Russia is roughly five times that in the US; likewise, at its trough, the contraction in Russian output is five times the contraction in US output.

To explain these strong effects, we employ a three-equation New Keynesian model tailored to a small open economy and calibrated using Russian data. In this framework, GPR shocks are treated as negative productivity shocks, while sanctions are modelled as import tariffs that act as cost-push shocks. The model incorporates other features such as consumption habits and inflation indexation to capture the persistent effects of shocks. To validate the model, we use a vector autoregression analysis of Russian macroeconomic data from 2002 to 2021, excluding post-2022 data due to reliability concerns. The model parameters are estimated by matching the empirical impulse responses of output, inflation, and interest rates to GPR shocks.

Theoretical Framework: Modelling Geopolitical Risk...

Economists largely agree that most geopolitical events are exogenous to the business cycle, and we can therefore treat them as shocks in our models. Our own work and other empirical evidence finds that GPR shocks -- in most countries and time periods -- result in a fall in output and a rise in inflation (Bondarenko et al, 2024; Caldara et al, 2026), a pattern that characterises negative supply shocks.

We thus conceptualise GPR shocks as disruptions to productivity. Ramey and Shapiro (1998) document that military buildups reduce output per hour, and Federle et al. (2024) present evidence that 'war shocks' significantly reduce total factor productivity in war sites. This result likely stems from resource misallocation when labour input is needed for the war effort, such that labour is no longer put to its most productive use.

... and Sanctions

Sanctions are policies that restrict or prohibit economic activities with another country. Itskhoki and Ribakova (2024) report that Russia's import share almost halved on impact as sanctions were imposed, while import and consumer price inflation spiked. To account for this, our model treats sanctions as akin to trade shocks that increase import prices. Such shocks act as cost-push shocks in the Phillips Curve, raising inflation and reducing output, particularly in the short run when trade elasticities are low.

Our model also incorporates a sanctions policy rule, where sanctions are imposed in response to increases in GPR. The sanctions imposed after Russia's annexation of Crimea in 2014 and after the Russian attack on Ukraine in 2022 were clearly triggered by those geopolitical events, see also Yalcin et al. (2025) and IMF (2025).

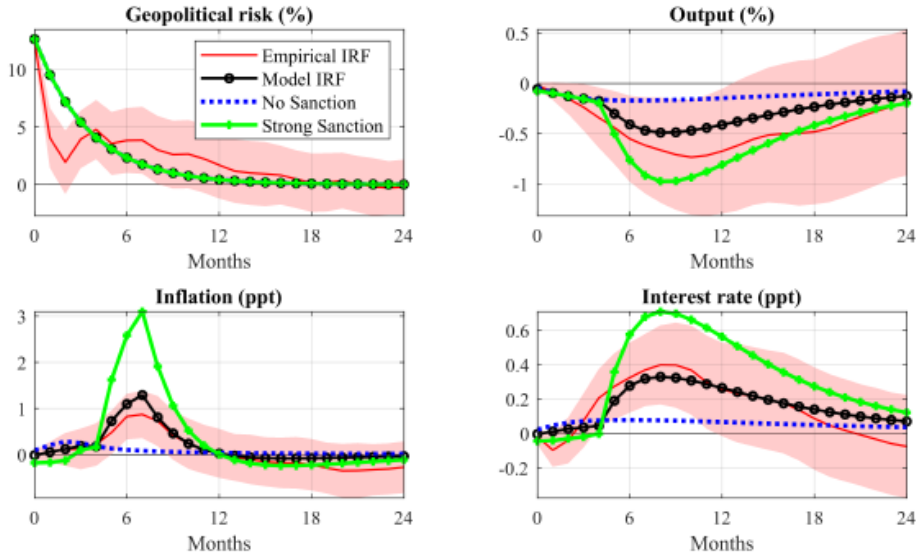
The resulting modelling approach allows us to analyze, in a very simple setting, the interaction between GPR shocks, sanctions, and monetary policy.

Key Findings: The Amplifying Role of Sanctions

The model reveals that GPR shocks alone have a modest impact on output and inflation. However, when sanctions are introduced, the economic effects become significantly more pronounced. Figure 2 illustrates our key findings, which include:

1. **Output and inflation dynamics**: GPR shocks reduce output and increase inflation, but sanctions amplify these effects, raising import prices and driving inflation higher. In the case of Russia, sanctions were found to be the primary driver of inflationary pressures following GPR shocks.
2. **Monetary policy responses**: The central bank responds to GPR shocks and sanctions by raising interest rates to contain inflation. However, this tightening exacerbates the decline in output, creating a policy trade-off. We find that Russia's monetary policy is more accommodative than the standard Taylor rule, likely reflecting the need to balance inflation control with output stabilization.
3. **Counterfactual analysis**: In a scenario without sanctions, the economic impact of GPR shocks is relatively mild, with only a small decline in output and a modest rise in inflation. Conversely, more severe sanctions lead to deeper recessions and higher inflation, underscoring the significant role that sanctions play in shaping economic outcomes.

Figure 2. Model impulse responses with sanctions policy



Notes: Figure shows empirical responses of Russian economy (in red), the model impulse responses with estimated sanction parameters (in black), the model impulse responses without sanctions (in blue) and the model impulse responses with strong sanctions pass-through (in green) to a one-standard-deviation shock in the geopolitical risk index. Shaded areas reflect 95% confidence bands.

Implications for Monetary Policy

Our findings highlight the complex trade-offs faced by central banks in sanctioned economies. Sanctions act as cost-push shocks, shifting the Phillips Curve upward and forcing central banks to choose between stabilizing inflation and supporting output. It appears that optimal monetary policy in this context would tolerate temporarily higher inflation to cushion the decline in economic activity. This observation aligns with recent theoretical work by Monacelli (2025) and Werning et al. (2025) suggesting that strict inflation targeting may not be appropriate in the presence of trade shocks such as sanctions.

Conclusion

This paper provides a novel framework for understanding the economic effects of geopolitical risk and sanctions. By modelling GPR shocks as productivity disruptions and sanctions as cost-push shocks, we capture the key dynamics observed in the Russian economy. The findings emphasise the amplifying role of sanctions in deepening economic contractions and driving inflation. They also highlight the importance of accommodative monetary policy in mitigating these effects. Future research could extend this framework to analyze sector-specific sanctions or the global spillover effects of sanctions on sender countries.

In sum, this study offers valuable insights for policymakers navigating the economic challenges posed by geopolitical tensions and sanctions. It underscores the need for nuanced monetary policy responses that balance inflation control with economic stability.

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