

Natural gas prices and macroeconomies: Evidence from importing and exporting countries

天然ガス価格とマクロ経済：輸出国と輸入国からのエビデンス

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Motivation

- The impact of energy prices differs between importers and exporters, as widely demonstrated in studies on oil markets.
- However, similar research on the economic effects of natural gas is still lacking.
- We are also interested in whether the macroeconomic effects of natural gas prices change over time.

Background

- Global warming is one of the most critical challenges facing the world, and natural gas is recognized for its clean and efficient properties.
- The share of natural gas in global primary energy consumption has increased significantly, now accounting for 24% (BP2022).

Data

Dataset spans

1997 Q1~2024 Q2.

Exporting Countries

Norway; Australia; USA

Importing Countries

South Korea; Japan; Germany

Key variables

GDP; CPI; policy rate; gas price

Methodology

VAR (Vector Autoregression)

In this study, VAR helps determine whether natural gas prices influence macroeconomic indicators.

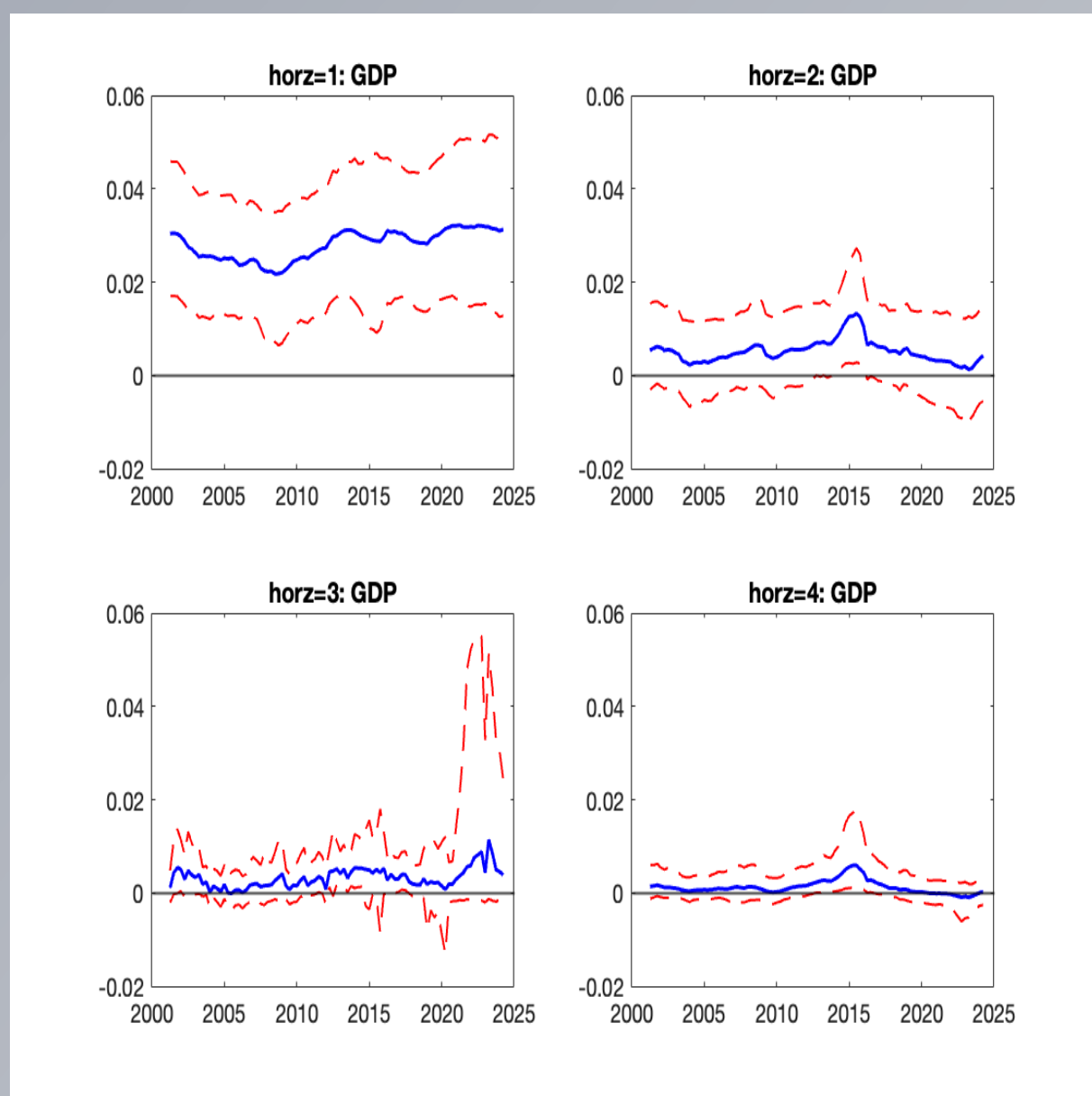
TVP-VAR (Time-Varying Parameter VAR)

- An advanced version of VAR
- This model allows us to track how the impact of natural gas prices on macroeconomic variables changes over time.

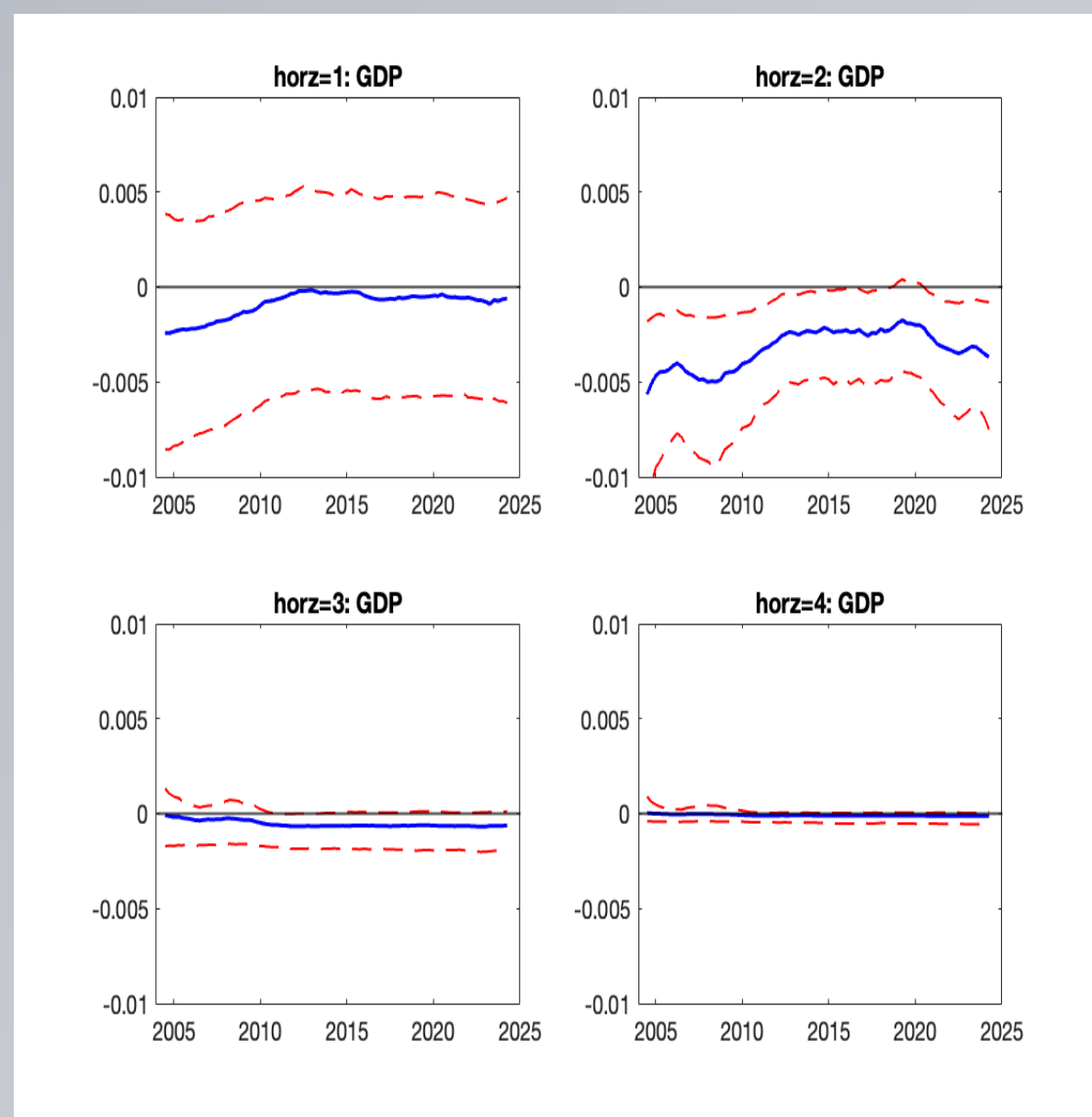


Key results

- Exporting countries (e.g., **Norway**) benefit from higher gas prices
- Importing countries (e.g., **South Korea**) suffer from higher gas prices



Norway



South Korea

Conclusions

- Fluctuations in natural gas prices affect importing and exporting countries differently, with a positive and significant impact on the GDP of exporters and a negative impact on the GDP of importers.
- The effect of natural gas price shocks weakens over time as markets and policies adjust.
- The TVP-VAR model effectively captures the changing impact of natural gas price shocks across different periods.

Tips

何か質問がございましたら、気軽にお聞きください。(日本語対応okです！)

