

Discussion of
International Trade and Macroeconomic Dynamics
with Sanctions
by Fabio Ghironi, Daisoon Kim, and Galip Kemal Ozhan

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Summary

- Analysis of dynamic effects of introducing sanctions into a two-sector two-country (three-country) model in the spirit of [Ghironi & Melitz \(2005\)](#):
 - Financial sanctions
 - Ban on energy (gas) trade
 - Sanctions on international trade (ban on some importers and / or exporters)
- Endogenous international trade patterns due to Melitz-type firm heterogeneity

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 - Sanctions on international trade (ban on some importers and / or exporters)
- Endogenous international trade patterns due to Melitz-type firm heterogeneity
- Able to quantify both macroeconomic and welfare effects of sanctions
- Some sanctions can hurt Home more than they hurt Foreign
- RoW typically benefits from sanctions of Home on Foreign, making it harder to achieve international sanction coordination
- Potentially large explanatory power regarding political economy issues

Key two-country model mechanisms

Home and Foreign produce energy (gas), but Foreign enjoys absolute advantage

Gas (some imported from Foreign) is used in production of differentiated goods

$$y_t(\omega) = z(\omega) \left[g_t(\omega) + \frac{g_t^F(\omega)}{\tau_{G,t}} \right]^\alpha l_t(\omega)^{1-\alpha}$$

Each firm ω draws upon entry its idiosyncratic $z(\omega) \in [z_{min}, \infty)$

Due to costs of exporting, only firms above certain threshold \tilde{z} decide to do so, giving rise to endogenous international trade patterns (and endogenous “TFP”)

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Sanctions affect relative prices, market size, terms of trade, exchange rate, etc.

They can also exogenously exclude certain firms from trading altogether

Gains from trade in the Melitz-type models

Liberalizing trade results in:

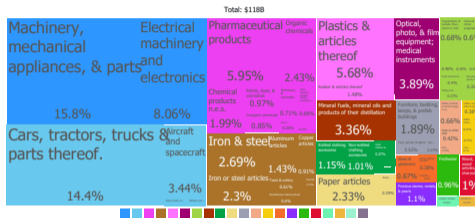
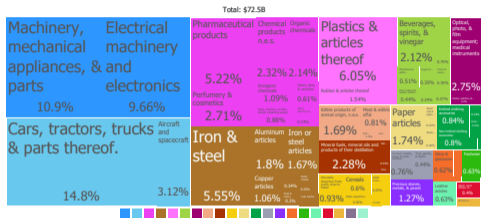
1. Reduction in number of active domestic firms / varieties
2. Increase in aggregate productivity and reallocation of factors of production toward more efficient uses
3. Substitution of low productivity domestic products with higher productivity imported products and increase in number of overall consumed varieties

In the long-run, positive welfare effects of 2 and 3 dominate over 1
(Baldwin & Forslid, 2010)

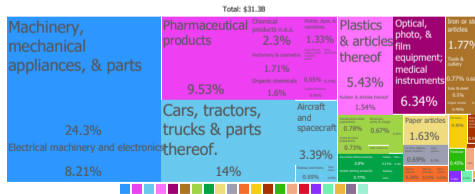
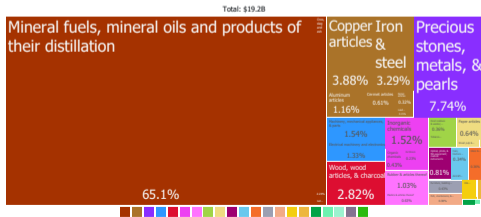
Sanctions result in (partial) reversal of the above effects

Limitations of the framework

Melitz (2003) type models capture well intra-industry trade (e.g. DEU-FRA)



Less applicable to inter-industry trade and endowment differences (DEU-RUS)



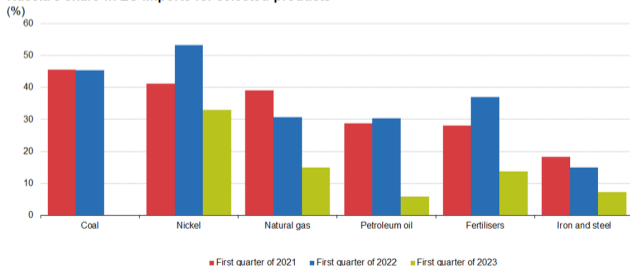
Remarks on baseline paper calibration

Home and Foreign almost symmetric (except for gas endowments and TFP levels)

Foreign too important a trade partner of Home compared to the data:
in 2021 trade with Russia accounted for 5.8% of EU total trade,
but trade with EU accounted for 37.3% of Russian total trade

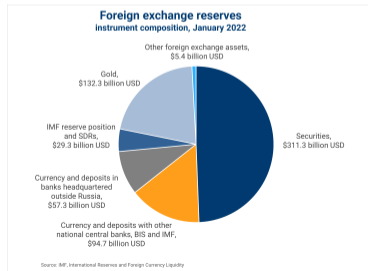
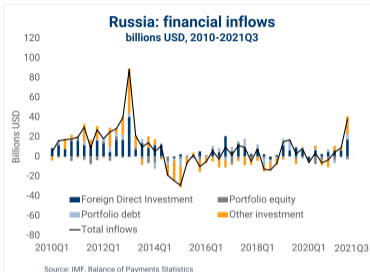
Share of energy imports from Russia to EU has not exceeded 50% in 2021

Russia's share in EU imports for selected products



The following HS codes were used: 2701, 271111 + 271121, 75, 2709 + 2710, 31 and 72
Source: Eurostat (online data code: DS-045409)

Remarks on financial sanctions



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Unlike most EMs, Russia prior to 2022 invasion accumulated positive IIP / NFA
FDI inflows to Russia decreased substantially after 2014, reflecting past sanctions
In the 2015-2021 period conscious accumulation of foreign reserve assets
Overall pre-invasion positive net position consists mainly of FX reserve holdings

Remarks on financial sanctions

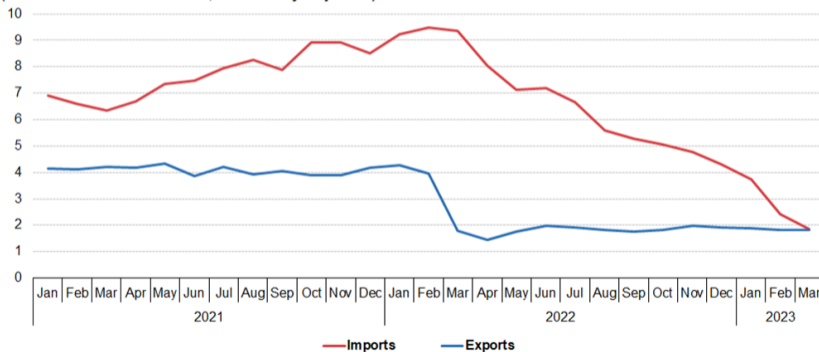
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Overall pre-invasion positive net position consists mainly of FX reserve holdings
Typical sanction mechanism: (partially) exclude an EM from international financial markets, increase in domestic real interest rate, costs of production, and costs of private and public financing, see e.g. [Bianchi & Sosa-Padilla \(2023\)](#)
This paper: exclude a fraction of Foreign households from holding Home bonds
Long-run effects: Foreign firms have easier financing, MC ratio (F/H) falls, rise in number of Foreign firms and exporters. Decline in Foreign welfare only due to long-run decline in consumption as IIP becomes less positive

Remark on baseline paper sanction effects

Large reduction in EU-Russia trade (comparable with effects of combined sanctions in the paper) accompanied by relatively minor macroeconomic effects

EU trade in goods with Russia, 2021 - 2023

(% share in extra-EU trade, seasonally adjusted)

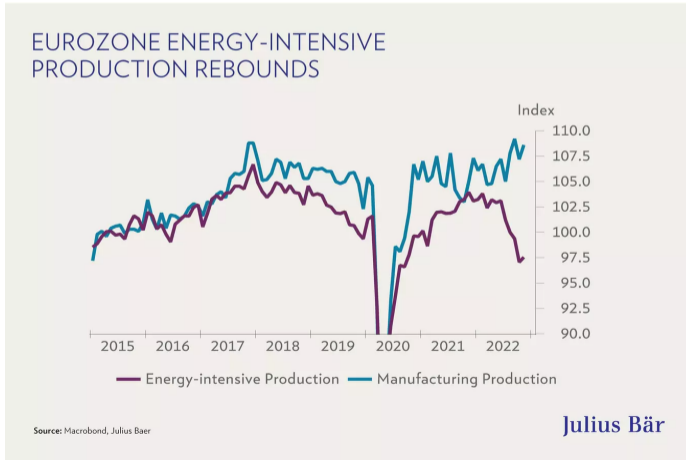


Source: Eurostat (online data code: ext_st_eu27_2020sitc)

eurostat

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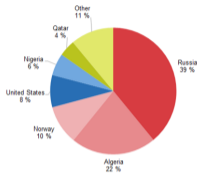
Improvements in *International Economic Sanctions and Third-Country Effects*

- Tighter and clearer introductory section
- Sanctions made explicit in model equations
- Much better calibration, more in line with e.g. [Bachmann et al. \(2022\)](#)
 - Shares of exporting activity of top firms
 - Relative country size of Foreign (Russia) – now 10% of Home GDP
 - Production function with additional degree of freedom (CD \rightarrow CES)
 - Improved composition of Russian trade (around 60% is energy exports)
- “Less ambitious” sanctions resulting more muted (realistic?) effects
- Explicit treatment of the third country (Rest of World)

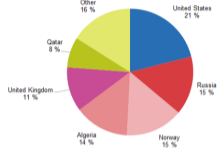
Why not let (extended) RoW to export gas (energy) to Home?

Main partners for extra-EU imports of natural gas

First quarter 2021



First quarter 2023

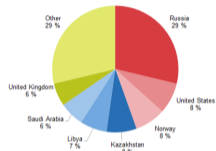


Source: Eurostat (online data code: DG-045409)

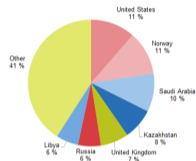
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Main partners for extra-EU imports of petroleum oil

First quarter 2021



First quarter 2023

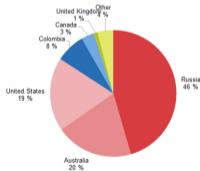


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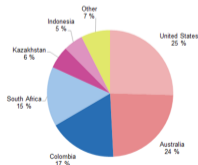
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Main partners for extra-EU imports of coal

First quarter 2021



First quarter 2023



Source: Eurostat (online data code: DG-045409)

eurostat

Suggestions for follow-up work

- Analyze effects of gas import tax from Foreign
- Introduce physical capital to allow for richer long-run effects and allow for more ways to introduce financial sanctions
- Introduce two “consumer” goods sectors: with high energy intensity α_H and low energy intensity $\alpha_L < \alpha_H$ to get richer factor and output reallocation dynamics
- Introduce two-stage production network of final goods and intermediates as in e.g. [Soo \(2018\)](#)
- Differentiate countries more wrt. their endowments. Can then model FDI flows as in e.g. [Helpman et al. \(2004\)](#), [Markusen \(2004\)](#) or [Bergstrand & Egger \(2013\)](#)
- Explore endogenous TFP growth via R&D as in e.g. [Melitz & Redding \(2014\)](#)

Thank you!

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