Discussion of Imbs & Pauwels (2023):
A Simple Approximation of the Effects of Trade Sanctions with an application to Russia

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Summary

Summary: Data-driven methodology to approximate the effects sanctions

- evaluation of the approximation against the model

- evaluation against a simpler approximation (direct trade)

- detailed results from the application to the case of Russia

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Conclusion $\Rightarrow$ very nice paper, many interesting results !

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Full model is available – why not use it?

Approximation relies on two assumption:

- CPI does not change

- demand for products from other countries does not adjust

    - no GE effects, pure IO calculation

Some arguments in favour of the model

- sanctions are an important issue, so it is worth running the full model

- model needs calibration, but

  - New Quantitative Trade Theory shows how to structurally estimate the elasticities, using the same data as the calibration + a cost shifter

- approximation makes an **implicit** assumption about the elasticities

  - perfectly inelastic demand for the goods from other countries / sectors

Some arguments against the model

In my view, the model is not well suited to describe the effects of sanctions

i) elasticities of substitution identical across countries *and* sectors

$$C_i = \left[\sum_j \sum_s (\nu_{ji}^s)^{\frac{1}{\rho}} (C_{ji}^s)^{\frac{\rho-1}{\rho}} \right]^{\frac{\rho}{\rho-1}}$$

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ii) CPI is hardly affected by simulated embargo $\rightarrow$ by (CES) assumption
- with a Leontief structure for "heating" vs. other consumption, CPI could go to infinity

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iii) embargo as trade cost shifter and $\rho, \epsilon < 1$

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iv) input shares in IO tables are in basic prices (excluding trade cost)

v) model solution is exact for small changes around the steady state, sanctions are a big change

Possible solution

Evaluate against data instead?

- there are several example of sanctions / embargoes from the past that
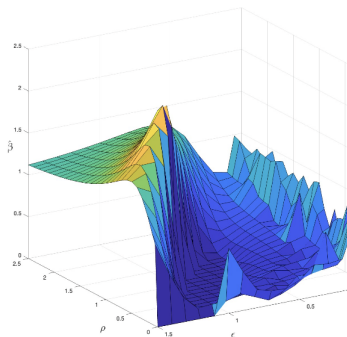 could be used

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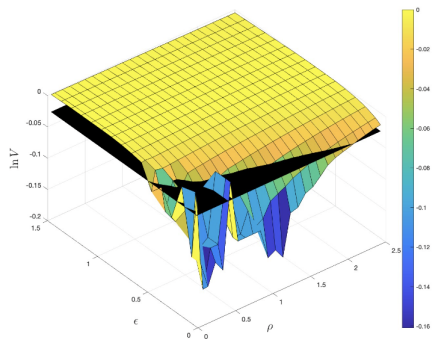
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- the approximation approximates **any** model with IO-based GVCs

Other comment I: Simple vs double approximation

$$\ln \boldsymbol{V} \approx \ln \frac{\alpha\psi}{\psi+1} \ln \boldsymbol{PY} \approx \frac{\alpha\psi}{\psi+1} \ln \widetilde{\boldsymbol{PY}} \; (HOT)$$

(a) $\hat{\beta}$ from regressing $\ln \mathbf{V}_t$ on $\frac{\alpha^r \psi}{1+\psi} \ln \mathbf{PY}_t$

(a) Simulated $\ln \mathbf{V}_t$ vs. HOT implied approximation

Looks like double approximation works better than simple approximation ?

Other comment II: Comparison of direct trade with HOT

Table 1: Comparing direct and indirect trade under an embargo on Russian Petroleum (in %)

Country	HOT	Direct Exports	Ratio	Country	HOT	Direct Exports	Ratio
CZE	0.35	0.01	40.63	HRV	0.05	0.01	4.05
SVK	0.36	0.03	14.32	BEL	0.64	0.16	4.02
LTU	0.29	0.03	9.00	AUT	0.06	0.02	3.93
BGR	0.70	0.08	8.72	DNK	0.96	0.27	3.56
MLT	0.01	<0.01	7.68	IRL	0.24	0.07	3.50
LUX	<0.01	<0.01	6.35	GRC	1.55	0.48	3.23
FIN	0.79	0.15	5.36	EST	0.13	0.04	3.18
POL	2.09	0.40	5.27	ROU	0.38	0.12	3.08
HUN	0.66	0.13	4.96	SVN	0.07	0.03	2.79
SWE	0.84	0.17	4.87	FRA	2.21	0.80	2.76
NLD	1.02	0.24	4.20	DEU	5.79	2.27	2.55
ITA	1.97	0.47	4.19	ESP	0.70	0.28	2.52
PRT	0.25	0.06	4.19	GBR	3.19	1.39	2.30
LVA	0.09	0.02	4.10	CYP	0.01	<0.01	2.10

- very large ratios

- suggest that indirect effects through GVCs are really important

- could be stressed more!

Conclusion

- very nice paper!

- stress more the quantitative importance of accounting for GVC linkages

- evaluate approximation against data?

Appendix: A few additional minor comments to the authors

Additional suggestions and minor comments

pXpY means page X paragraph Y

- p6: P_i in display lacks superscript c ?

- Eq. (3): is α a scalar? Given that it occurs as α^s previously, I believe it should show up as a diagonal matrix here.

- α^s is never officially introduced, same for η^r

- p12: second to last word should be "indirect" ?

- p18p5: to what time period does "historically" refer?