

# Brothers in Arms: The Value of Coalitions in Sanctions Regimes

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**Switzerland**

## Switzerland adopts wholesale EU sanctions against Russia

**Measures do not undermine neutrality principle as Switzerland says it is acting in defence of international law**



## Research questions

- What is the economic cost of using sanctions to pursue geopolitical objectives?
  - non-trivial: global value chains
- How are these costs distributed?
- What is the impact of jointly imposing sanctions through coalitions?
  - On costs imposed on sanctioned states
  - On costs incurred by sanctioning states

## What we do

- Setting: 2012 Iran and **2014 Russia sanctions**
- Evaluate cost under actual and hypothetical setups of sanctions coalitions
  - Economic cost as changes in aggregate welfare from imposed sanctions
- “Dual use” of gravity
  - Sectoral gravity to estimate changes in trade *costs*
  - GE simulations to compute changes in trade *flows* and welfare
- Caveats – (i) exogenous coalitions (ii) not evaluating success (e.g. regime change)

## **Methodology**

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## Model of the global economy à la Caliendo and Parro (2015)

- Multi-country multi-sector with input-output linkages
  - Production: Labour and composite of intermediates
  - Preferences: Cobb-Douglas utility across and CES utility within sectors
  - Trade in final and intermediate goods
- Trade costly due to bilateral frictions
- New equilibrium is solved in changes following Dekle et al. (2008)

## Data for estimation and simulation

- Gravity - estimating trade cost shocks
  - Trade flows from UN Comtrade, IEA Oil and Natural Gas Information Statistics
    - Flows from origin ( $o$ ) to destination ( $d$ ) in (GTAP) sector ( $s$ ) and time ( $t$ )
    - Coverage: 20 years (2000 – 2019), 10 million observations
  - CEPII Gravity database (FTA, WTO membership)
- GE model – simulating sanctions scenarios
  - GTAP 10 Database
    - Tariffs, consumption shares, input coefficients
    - 65 sectors and 141 countries/regions
  - Tariff elasticities from Fontagné et al (2022)

## **Sectoral gravity**

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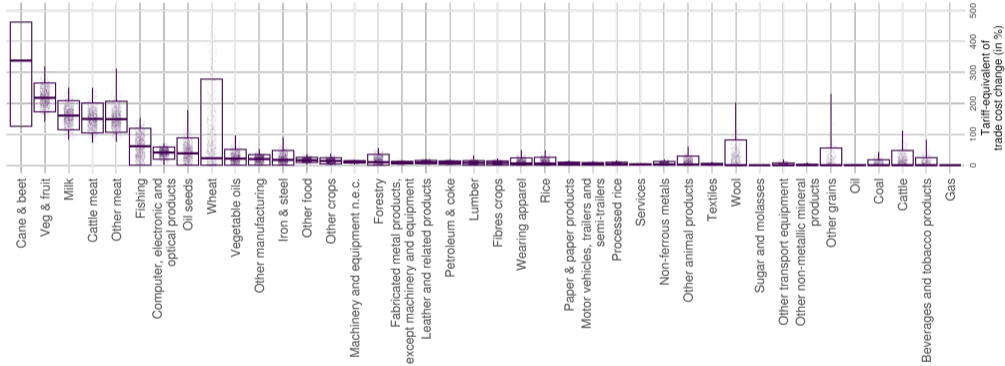
## Specification

- Separability: Gravity model estimated for each of the 65 sectors

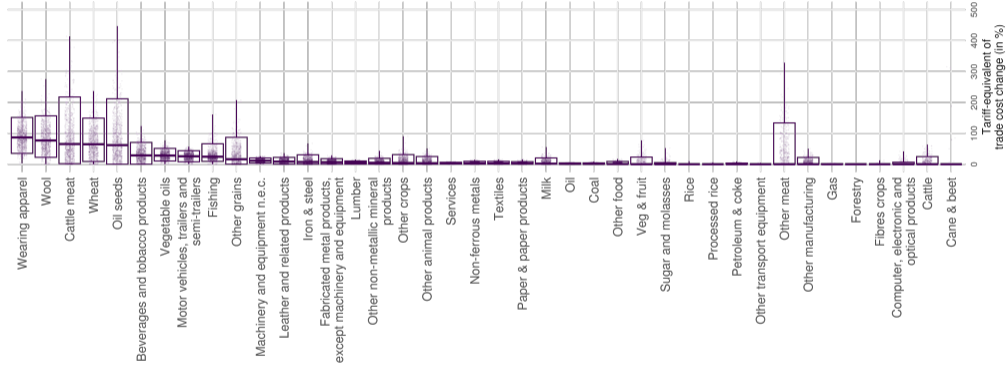
$$X_{odt}^j = \exp \left( [\text{SANCTIONS}_{odt}]' \delta^j + [\mathbf{z}_{odt}]' \beta^j + \xi_{ot}^j + \nu_{dt}^j + \mu_{od}^j \right) + \varepsilon_{odt}^j.$$

- $\text{SANCTIONS}_{odt}$  set of dummies for sanctioning countries' flows to/from target
- $\mathbf{z}_{odt}$  time-varying bilateral trade cost variables
- Fixed effects purge all origin  $\times$  time, destination  $\times$  time and bilateral characteristics
- Estimated with Poisson pseudo-maximum likelihood (PPML)
- Back out trade cost changes:  $[\exp(-\hat{\delta}^j / \theta^j) - 1] \times 100\%$
- Bayesian bootstrap procedure – delivers CI for trade cost changes

# Trade cost shocks: Exports to Russia



# Trade cost shocks: Imports from Russia



## **Simulations: 2014 Russia Sanctions**

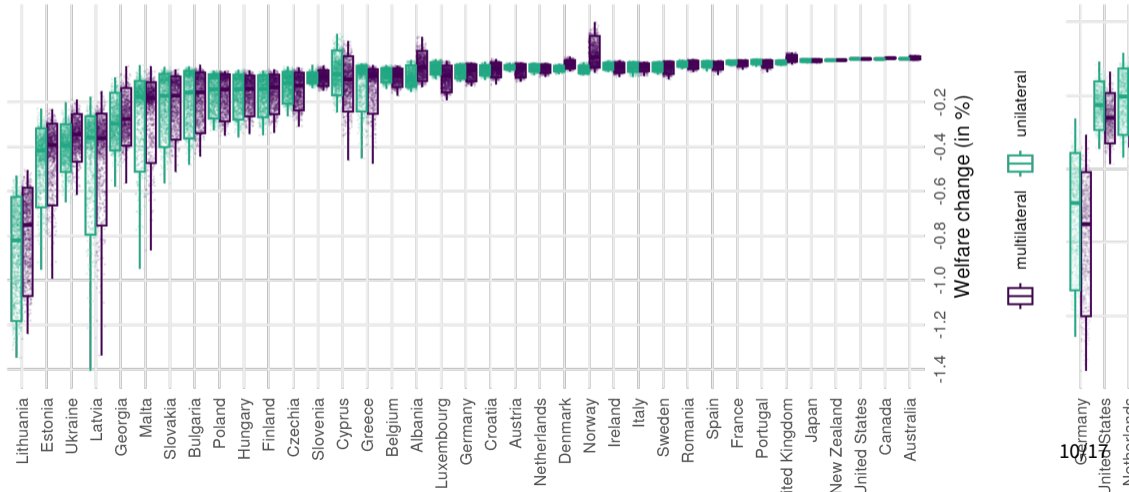
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## Contribution of coalition members

- Contribution: welfare loss incurred and imposed
- Compare contributions if sanctions are enacted uni- or multilaterally
- **Unilateral** case:
  - Starting from baseline with no sanctions
  - Compute series of counterfactuals with unilateral sanctions
- **Multilateral** case:
  - Starting with sanctions imposed by Coalition<sub>-j</sub>
  - Compute counterfactual of  $j$  joining

# Individual contributions

(a) Welfare loss incurred



## Burden sharing mechanism

- Welfare loss incurred is unevenly distributed
- Question: What if coalition members agree to face the same burden?

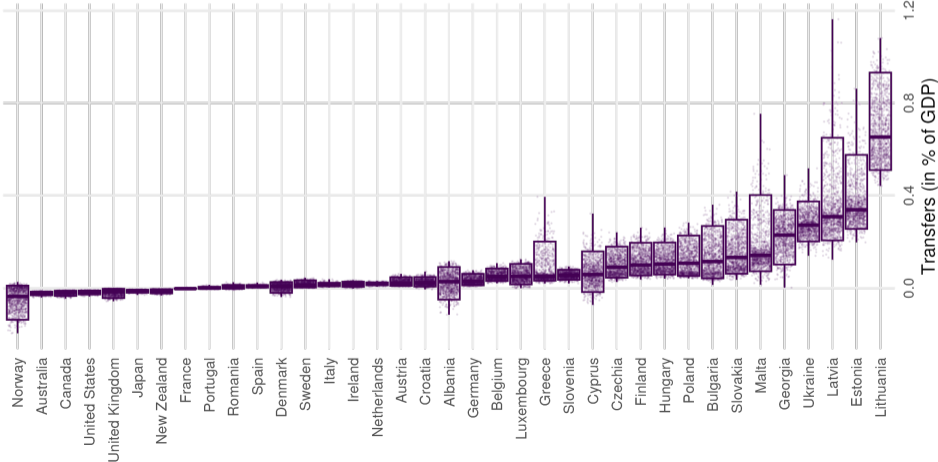
→ In model terms - identical aggregate welfare losses

- Allow for coalition members to send and receive transfers
- Hypothetical adjustment or solidarity fund
- Introduce two new conditions into the model

$$\frac{\hat{l}_d}{\hat{P}_d} = \frac{\hat{l}_{d'}}{\hat{P}_{d'}} = \bar{c} \quad \forall d, d' \in S \quad \text{and} \quad \sum_{d \in S} T_d = 0.$$

# Intra-coalition transfers

(a) Relative transfers

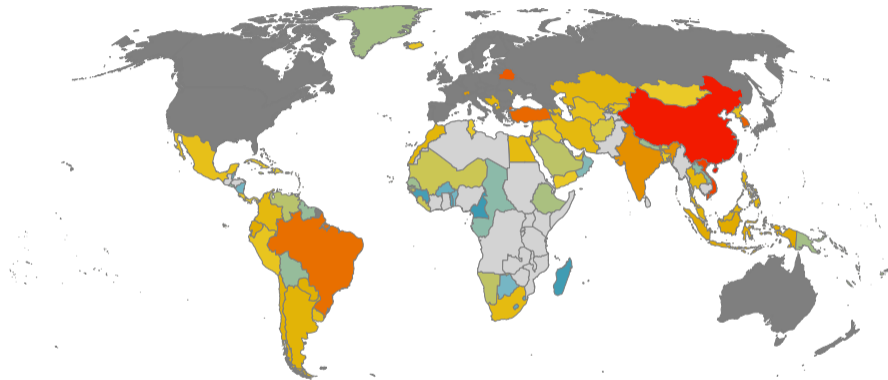




## Expanding the coalition

- Which countries would further increase the deterrent force of sanctions?
- Introduce one additional country (at a time, with replacement)
- Series of counterfactuals, one for each third-party country
- Assumption: Trade cost increase for new members same as existing coalition
- Rank new members by comparing additional welfare loss imposed on Russia

## Additional welfare loss imposed on Russia



Additional welfare loss (in percentage points)



## Benchmark for welfare losses

- Scenarios: (i) actual/global coalition; (ii) actual measures/hypothetical embargo
- Calculate welfare losses in Russia under these different set-ups

	Actual coalition	Global implementation
Actual measures	-1.44 % (0.29)	-2.49 % (0.41)
Complete embargo	-8.81 %	-15.24 %

## Conclusion

- Coalitions serve twin purpose of ↓ domestic costs and ↑ deterrent force
- Deterrence further magnified with third-party involvement, e.g. China, BRICS
- Costs unevenly distributed and hits smaller states e.g. Latvia, Lithuania
- Potential for burden sharing:
  - Compute transfers that equalize welfare loss within coalition
  - Size of hypothetical adjustment fund = USD 4.9 billion

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