

Panel on geopolitical shocks and inflation

ECB Forum on Central Banking

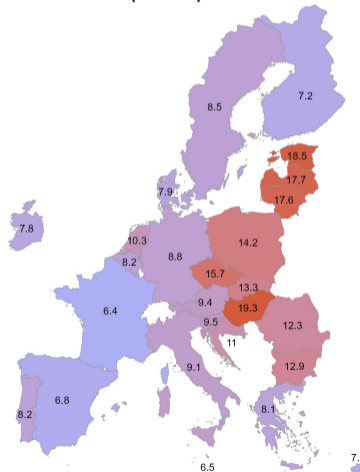
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Geographical dispersion of inflation after February 2022

Average monthly year on year inflation (HCPI)
 March 2022 - June 2023



Source: Eurostat

The issue

What is the macroeconomic impact of war?

- ▶ Wars bring death and economic destruction
- ▶ Many economic disasters associated with wars on country's own soil (Barro, 2006)
- ▶ Expansionary shocks to military spending (Baxter and King, 1993; Ilzetzki, 2022)

What about other countries? Do they pay a price for the war, too?

- ▶ Yes. The adverse economic impact of war spills over from war site
- ▶ Exposure of other countries depends on their distance from war site
- ▶ Nearby countries pay substantial price of war (even if not party to war)

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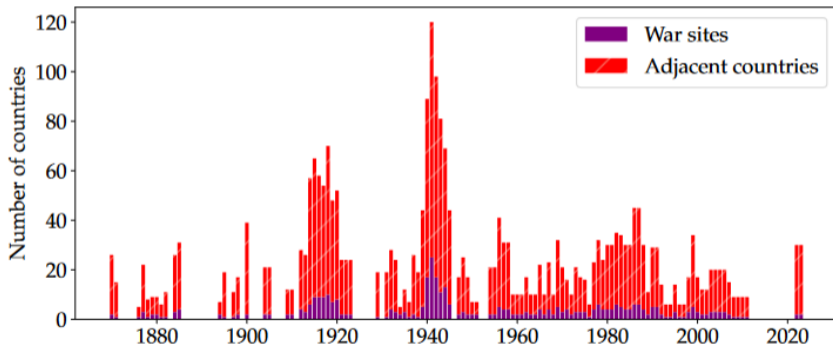
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Wars in neighborhood are historically not so rare ...

Interstate wars 1870–2022: unconditional prob. 8.5% v 1.3% for being war site



Source: Correlates of War Project (Stinnett et al., 2002), classification based on 2016 borders.

Determining the macroeconomic impact of war

Data for interstate wars since 1870, macro series for up to 60 countries

- ▶ Identify and geolocate war sites of interstate wars
- ▶ War coding from *Correlates of War project* (Sarkees Wayman, 2010), macroeconomic data from Macrohistory Base (Jorda Schularick Taylor)

Average effect of large wars (casualties > 10k)

- ▶ War site: GDP falls by 30%, inflation rises by 15 ppts
- ▶ Nearby countries: GDP falls by about 10%, inflation rises by 5ppts
- ▶ Distant foreign countries: GDP can even **increase**, inflation flat

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Empirical framework

Estimate dynamic effects in war site and foreign countries

$$x_{i,t+h} - x_{i,t-1} = \alpha_{i,h} + \gamma_h \text{Home}_{i,t} + \psi_h \text{Foreign}_{i,t} + \zeta_h \text{Controls}_{i,t} + u_{i,t+h}$$

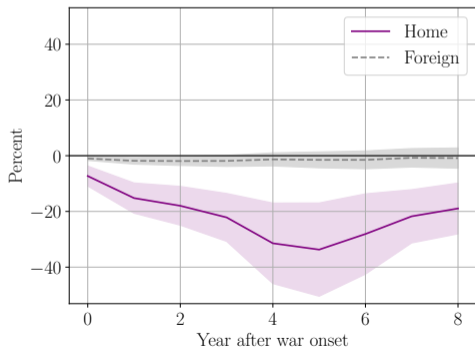
- ▶ $x_{i,t+h}$: output or inflation (baseline)
- ▶ Controls: 4 lags of dependent variable and regressors
- ▶ Capture average effect in/spillover from large war site (6% of world GDP)

for details, see Federle et al (2024), 'The Price of War', CEPR Discussion Paper No. 18834

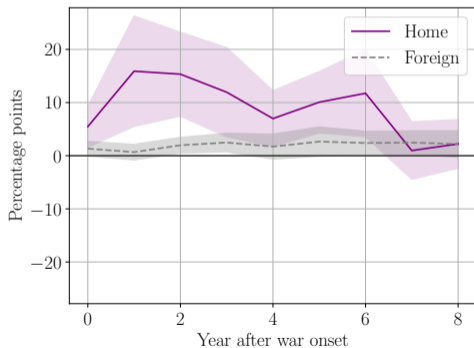
Strong adverse effect on war site, no spillovers on average

Linear model, point estimates and 90% confidence bounds based on Driscoll-Kraay SE

Output

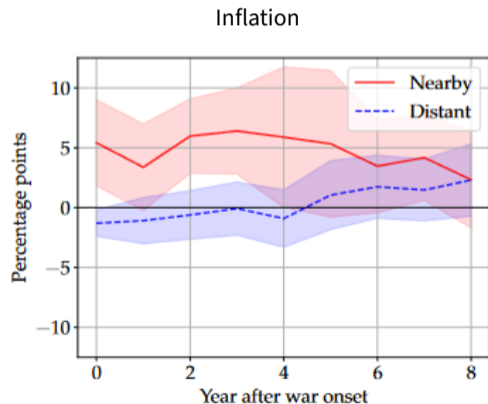
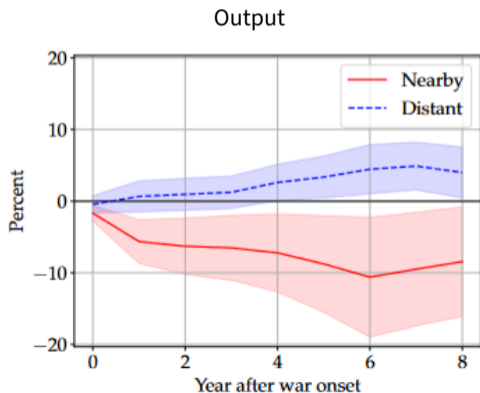


Inflation



Zooming in: condition spillovers on distance from war site

Allow spillovers on $Foreign_{i,t}$ to differ in distance from war site (nearby/distant)



Economic effects of wars

Peak effect over projection horizon for average large war (war site = 6% of global GDP)

	Output (in percent)	Inflation (in ppts)
Home	-33.9*** (10.1)	15.9** (6.3)
Nearby	-10.6** (5.1)	6.4*** (2.2)
Distant	4.9** (2.0)	2.3 (1.8)

Transmission channel

Multi-country model of the world economy (Gopinath et al 2020, Eichenbaum et al 2021)

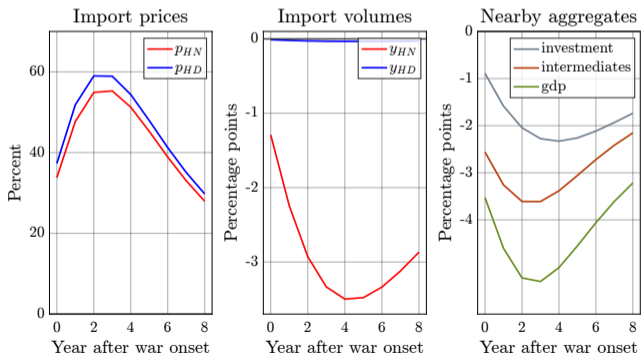
- ▶ Home is integrated with Nearby, much less with Distant
- ▶ War destroys capital stock & lowers productivity in war site
- ▶ Military spending increases globally but not homogeneously

Calibrated model accounts for data

- ▶ Adverse supply shock in war site spills over to neighbors through trade
- ▶ Endogenous investment contraction in Nearby as intermediate-goods trade falters
- ▶ Distant: positive output effect due to military spending/redirection of trade

Inspecting the mechanism: Supply side spillovers to Nearby

- ▶ Negative import response and higher prices in nearby due to higher trade integration
- ▶ Decreased supply of imported intermediates: investment and output fall in Nearby



The gravity of war

- ▶ Large adverse effects in war **site**, transmitted to the international economy
- ▶ Spillovers are large and long-lasting for nearby countries, smaller (or even positive) for distant countries

Mechanism

- ▶ Negative **supply shocks dominate in vicinity** of war site, but **decline with distance**, (partly): offset by trade rerouting and military spending
- ▶ Being close to war site gives rise to trade-off for monetary policy: fallout of war cannot be fully contained
- ▶ War effects are measurable over many years: difficult to "look through" the shock

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