# Discussion of "The Price of War" By Federle, Meier, Müller, Mutschler, and Schularick

Joao Monteiro EIEF

ECB-IMF Conference on Fiscal Policy and EMU Governance December 5, 2025

## The Paper

#### What is the cost of war?

Crucial object to quantify - sufficient statistic in models of rationalist war.

- Most of our understanding comes from WWII or UK/US.
- Biased towards rich developed countries.

How does the shock travel?

- 1. Contiguity: refugees, destruction.
- 2. Trade links: exports and imports.

The Paper: large dataset for 150 years and 60 countries.

- Data on war sites, belligerents, and trade links.

$$y_{i,t+h} - y_{i,t} = \zeta_h' X_{i,t} + \sum_{c \in \{S,B,T\}} \phi_{c,h}(\gamma_{i,c,t} \cdot \mathsf{Sites}_t)$$

$$+ \sum_{c \in \{B,T\}} \psi_{c,h}(\varepsilon_{i,c,t-1}' \cdot \mathsf{Sites}_t) + u_{i,t+h}$$

$$\underbrace{ \frac{\mathbf{y}_{i,t+h} - \mathbf{y}_{i,t}}{\mathsf{Country} \, \mathsf{x} \, \mathsf{Year} \, \mathsf{level} }}_{\mathsf{C} \in \{B,T\}} = \zeta_h' X_{i,t} + \sum_{c \in \{S,B,T\}} \phi_{c,h}(\gamma_{i,c,t} \cdot \mathsf{Sites}_t) \\ + \sum_{c \in \{B,T\}} \psi_{c,h}(\varepsilon_{i,c,t-1}' \cdot \mathsf{Sites}_t) + u_{i,t+h}$$

$$\begin{aligned} y_{i,t+h} - y_{i,t} &= \underbrace{\zeta_h' X_{i,t}}_{\mathsf{Controls}} + \sum_{c \in \{S,B,T\}} \phi_{c,h}(\gamma_{i,c,t} \cdot \mathsf{Sites}_t) \\ &+ \sum_{c \in \{B,T\}} \psi_{c,h}(\varepsilon_{i,c,t-1}' \cdot \mathsf{Sites}_t) + u_{i,t+h} \end{aligned}$$

$$y_{i,t+h} - y_{i,t} = \zeta_h' X_{i,t} + \underbrace{\sum_{c \in \{S,B,T\}} \phi_{c,h}(\gamma_{i,c,t} \cdot \mathsf{Sites}_t)}_{\mathsf{Direct} \; \mathsf{Effects}} + \sum_{c \in \{B,T\}} \psi_{c,h}(\varepsilon_{i,c,t-1}' \cdot \mathsf{Sites}_t) + u_{i,t+h}$$

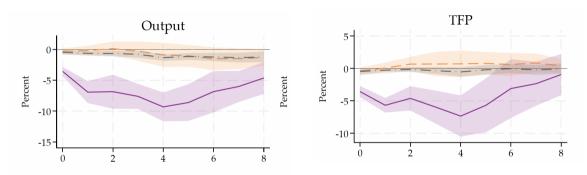
$$y_{i,t+h} - y_{i,t} = \zeta_h' X_{i,t} + \sum_{c \in \{S,B,T\}} \phi_{c,h}(\gamma_{i,c,t} \cdot \mathsf{Sites}_t) + \sum_{c \in \{B,T\}} \psi_{c,h}(\varepsilon_{i,c,t-1}' \cdot \mathsf{Sites}_t) + u_{i,t+h}$$
Effects via Trade Links

$$\begin{aligned} y_{i,t+h} - y_{i,t} &= \zeta_h' X_{i,t} + \sum_{c \in \{S,B,T\}} \phi_{c,h} (\gamma_{i,c,t} \cdot \mathsf{Sites}_t) \\ &+ \sum_{c \in \{B,T\}} \psi_{c,h} (\varepsilon_{i,c,t-1}' \cdot \mathsf{Sites}_t) + u_{i,t+h} \end{aligned}$$

- Local projections + joint estimation of direct effects and spillovers.
- Authors are careful not to give this a causal interpretation.
- But I will wars rarely take place because of economic conditions.
  - Best predictor of war today is war yesterday.

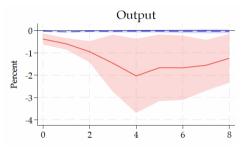
Benmelech and Monteiro (2025)

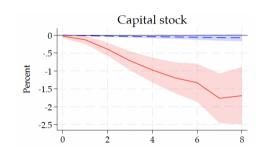
## Result 1 - war depresses real economy with slow recovery



- Output does not go back to pre-war level due to decline in *K*.
- CPI also jumps but stabilizes around year 6.
- Stock returns  $\downarrow$  and interest rates  $\uparrow$ .

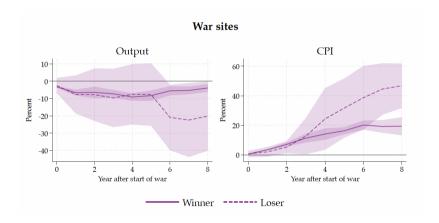
## Result 2 - exposure to war leads to large decline in real activity





- TFP increases.
- Exports and imports decline.

## Result 3 - losers suffer more than winners



- Particularly when it comes to the price level.

## Spillovers - trade or distance?

Paper documents large effects on countries with trade links to war sites.

- Significant trade link  $\implies$  larger drop in output.

## Spillovers - trade or distance?

Paper documents large effects on countries with trade links to war sites.

- Significant trade link ⇒ larger drop in output.

But trade flows are shaped by geography:

- Distance, language, and historical ties all affect bilateral trade.
- Same variables can also affect independent spillovers.
- $\rightarrow$  Need to separate spillovers from trade from spillovers from geography.

**Solution:** control for the path of **distance spillovers**.

- Pick up exposure based on comparative advantage.

## Spillovers - why does the capital stock decline?

In trade models,

$$Y = \underbrace{A}_{\mathsf{TFP}} \times \underbrace{G}_{\mathsf{gains \ from \ trade}} \times F(K, L)$$

#### Effects on marginal product of capital:

- 1. TFP increases  $\implies$  MPK  $\uparrow \implies K \uparrow$ .
- 2. Imports decline  $\implies G \downarrow \implies \mathsf{MPK} \downarrow \implies K \downarrow$
- → Trade effect dominates.

#### Sharp evidence of why exposure to war matters:

- Disruption of trade links leads to drop in capital stock and in output.
- Consistent with investment rate below depreciation.

## Why does the price level increase?

#### My explanation: war leads to high deficits.

- War leads to expansion of military spending  $\implies G \uparrow$ .
- Lower economic activity lowers *T*.
- Real government debt also ↓.

Benmelech and Monteiro (2025)

## Why does the price level increase?

#### My explanation: war leads to high deficits.

- War leads to expansion of military spending  $\implies G \uparrow$ .
- Lower economic activity lowers *T*.
- Real government debt also ↓.

Benmelech and Monteiro (2025)

- $\implies$  P must increase to make the budget constraint hold.
  - Worse for losers as they capture no surplus.

This leads to a **nominal depreciation**.

- Effects on real exchange rate depend on passthrough.

Most wars are short (median duration is 2 years) but drop in output is **persistent**.

Most wars are short (median duration is 2 years) but drop in output is **persistent**.

#### **Possibility 1:** TFP exhibits a persistent drop.

- Not supported by data - TFP is back at zero after 5 years.

Most wars are short (median duration is 2 years) but drop in output is persistent.

**Possibility 1:** TFP exhibits a persistent drop.

Not supported by data - TFP is back at zero after 5 years.

**Possibility 2:** persistent/permanent drop in physical capital.

- Consistent with data: *K* is over 4% lower 8 years after war.
- Interesting pattern: *MPK* ↑ and investment does not increase.
- Moreover, equity returns  $\downarrow$  which should not happen in a recovery.

Most wars are short (median duration is 2 years) but drop in output is persistent.

**Possibility 1:** TFP exhibits a persistent drop.

Not supported by data - TFP is back at zero after 5 years.

Possibility 2: persistent/permanent drop in physical capital.

- Consistent with data: *K* is over 4% lower 8 years after war.
- Interesting pattern: *MPK* ↑ and investment does not increase.
- Moreover, equity returns ↓ which should not happen in a recovery.

Then, why does *K* remain low?

## Why is capital low after a war?

#### Persistent mechanisms that can slow reconstruction:

#### 1. Financial frictions

- Wars may cause a credit crunch.
- Value of collateral collapses and risk premia rise.

#### 2. External cost of borrowing is high

- Wartime financing leads to inflation which leads to nominal depreciation.
- Makes cost of foreign funds high, which raises cost of capital.

#### 3. Price of capital is high

- Reconstruction requires importing capital.
- Nominal depreciation makes cost of capital high.

#### How do countries recover from a war?

This is the "good news" - TFP recovers fast.

8 years after

$$\underbrace{d \log Y}_{-5\%} = \underbrace{d \log A}_{0} + \alpha \underbrace{d \log K}_{-5\%} + (1 - \alpha)d \log L$$

and so  $d \log L = -5\%$ .

But population only declines 0.1% and increase in military personnel dies out.

- 1. Decrease in labor force participation.
- 2. Human capital decline due to brain drain.
- 3. Also, depreciation + low investment in human capital.

## How do countries recover from a war?

This is the "good news" - TFP recovers fast.

8 years after

$$\underbrace{d \log Y}_{-5\%} = \underbrace{d \log A}_{0} + \alpha \underbrace{d \log K}_{-5\%} + (1 - \alpha)d \log L$$

and so  $d \log L = -5\%$ .

But population only declines 0.1% and increase in military personnel dies out.

- 1. Decrease in labor force participation.
- 2. Human capital decline due to brain drain.
- 3. Also, depreciation + low investment in human capital.

#### What are the consequences of war for human capital?

## **Final Thoughts**

#### I really like this paper!

- Unfortunately, a first-order question.
- Does everything: excellent data work, clever empirics, sharp analysis.
- Macro + Trade + Political Economy and all done well.

#### Main contribution: wars may be contained, but its consequences are not.

- War shock travels through trade links.
- And leads to persistent drop in capital stock.
- Opens the door to questions about the role of trade networks in conflict.