

# Quantifying the benefits of labor mobility in a currency union

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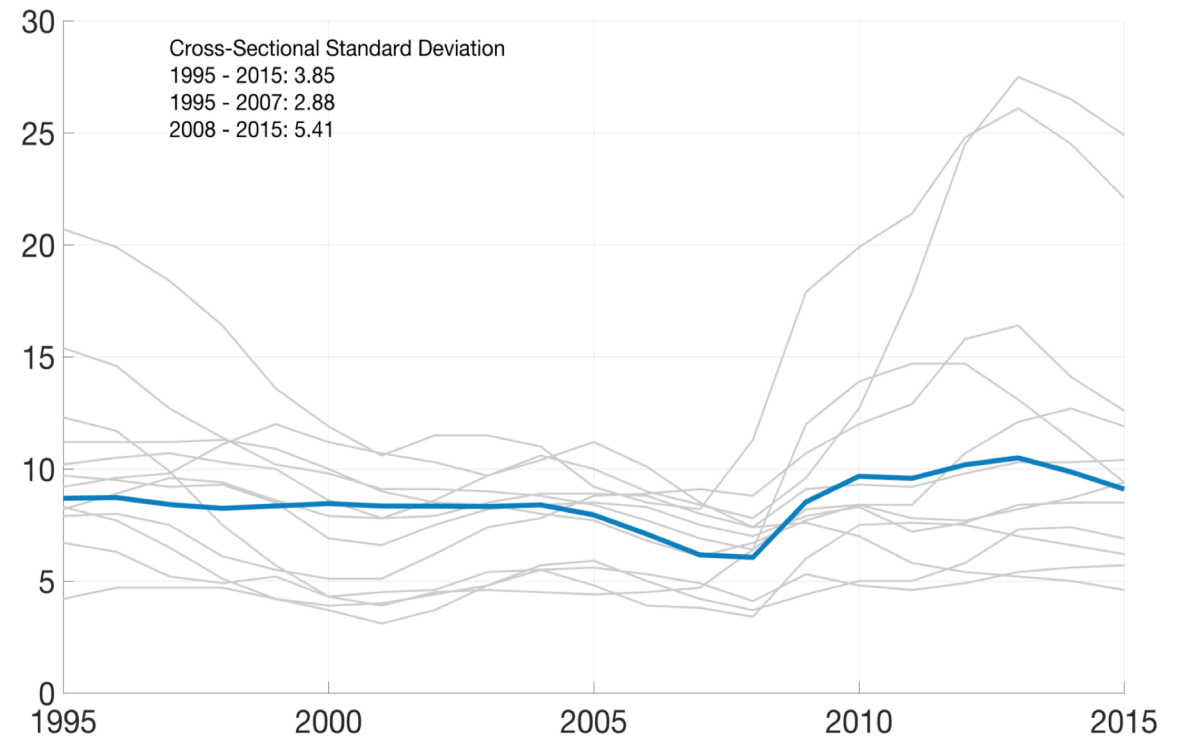
Presentation for the ECB biennial conference on “Fiscal Policy and EMU Governance,”  
19-20 December 2019, Frankfurt.

# Unemployment rates across Europe

Average rate of 8 % to 2005  
Increased to 12 % in 2011-13

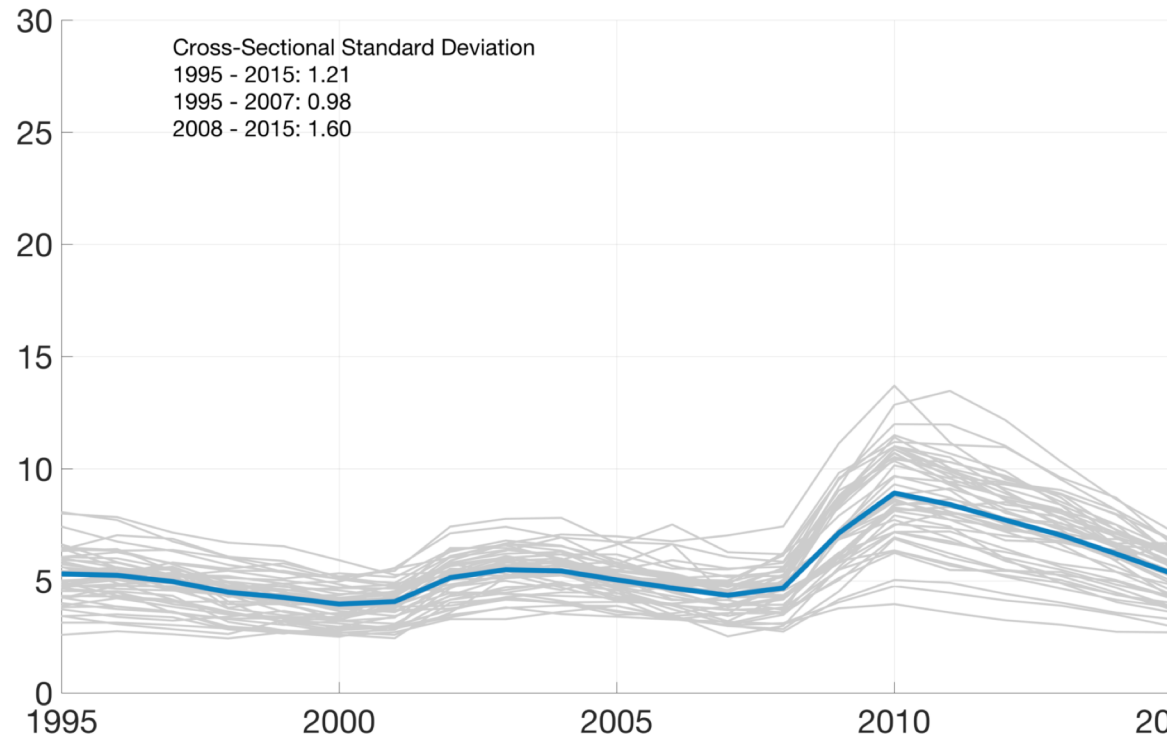
Wide dispersion in rates across euro area

Common currency limits the set of possible policy responses

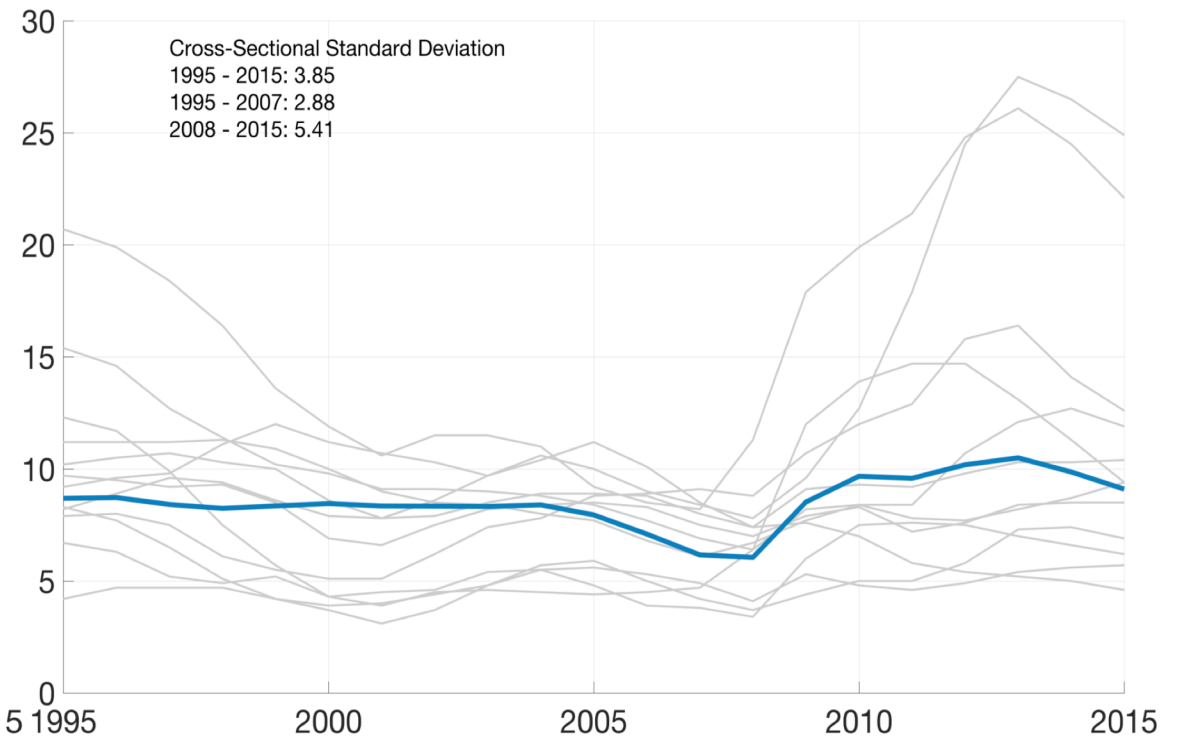


Euro area economies, 1995-2015, Eurostat

# Unemployment rates in the U.S vs. Europe



48 U.S. states



Euro area economies

Mundell (1961): *“If factors are mobile across national boundaries then a flexible exchange rate becomes unnecessary.”*

- Gains from economic unification and ultimately a common currency are potentially large. BUT
- Costs due to loss of autonomous monetary policy.
  - Costs large if:
    - Inflexible labor and product markets
    - Asymmetries in market structure
    - Country-specific shocks
- Belief/hope?
  - With greater market integration, countries will become more similar
  - **Where is Europe now on this path to integration?**
  - **How does integration of euro area compare to integration across US states?**

# Outline

- Present some data contrasting Europe with the U.S.
- Describe a model that captures key characteristics of Europe
- Perform some "what if" experiments:
  - Greater labor mobility in Europe
  - Vs. flexible exchange rates

## U.S. and euro area as integrated economies

- Common currency
- Integrated (but not fully complete) capital markets
- Labor migration within the union
- Trade in goods and services
- Central and state/member level fiscal policy
- Political institutions
- Culture/language

## Unit of analysis: States (U.S.) and Countries (Europe)

- Measurement
- Level of policy responses
- Meaningful boundaries (in Europe)

# Data

## United States

- Trade data
  - Commodity flow survey
- Macro data
  - BEA, BLS
- Migration data:
  - IRS, # tax returns that migrate
  - 48 states, 1977-2015

## Europe

- Trade data
  - OECD, national sources
- Macro data
  - Eurostat, national sources
- Migration data:
  - Eurostat, national sources
  - Euro core: 12 countries
  - Europe: 29 countries
  - 1995-2015



# Less migration in Europe than in the US

Migration rate for state  $i$  at time  $t$

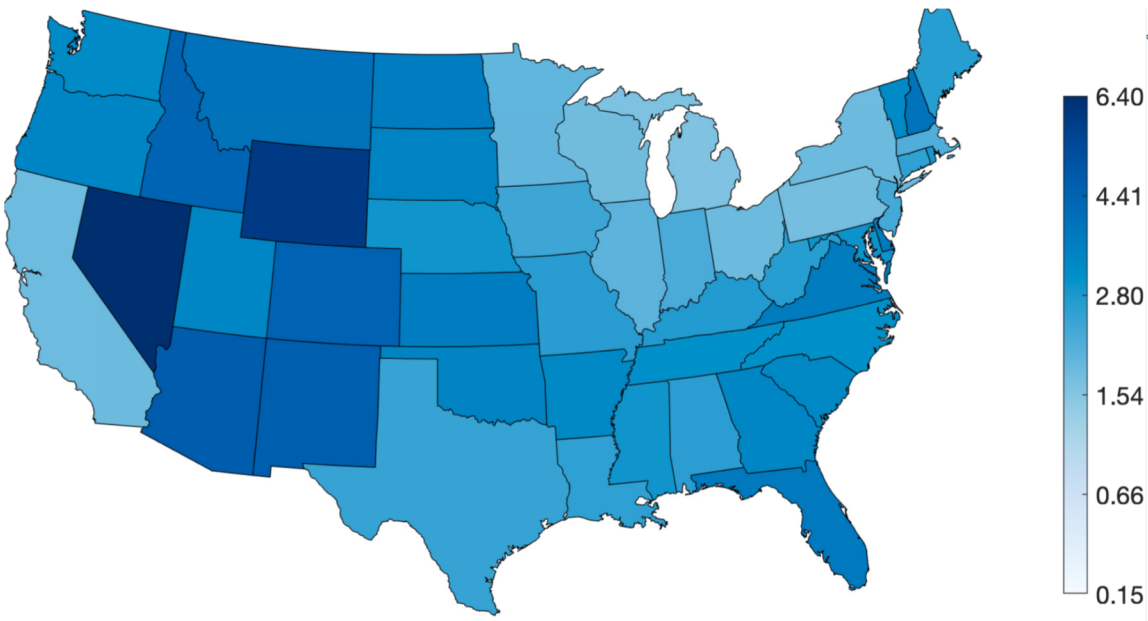
$$\text{Migration rate}_{i,t} = \frac{1}{2} \frac{\text{In-Migr}_{i,t} + \text{Out-Migr}_{i,t}}{\text{Pop}_{i,t}},$$

	Unit	US	Canada	Europe	Euro
Regions	#	48	10	29	12
Population	m	5.57	2.94	17.30	26.28
Migration rate	%	3.23	1.96	0.73	0.64

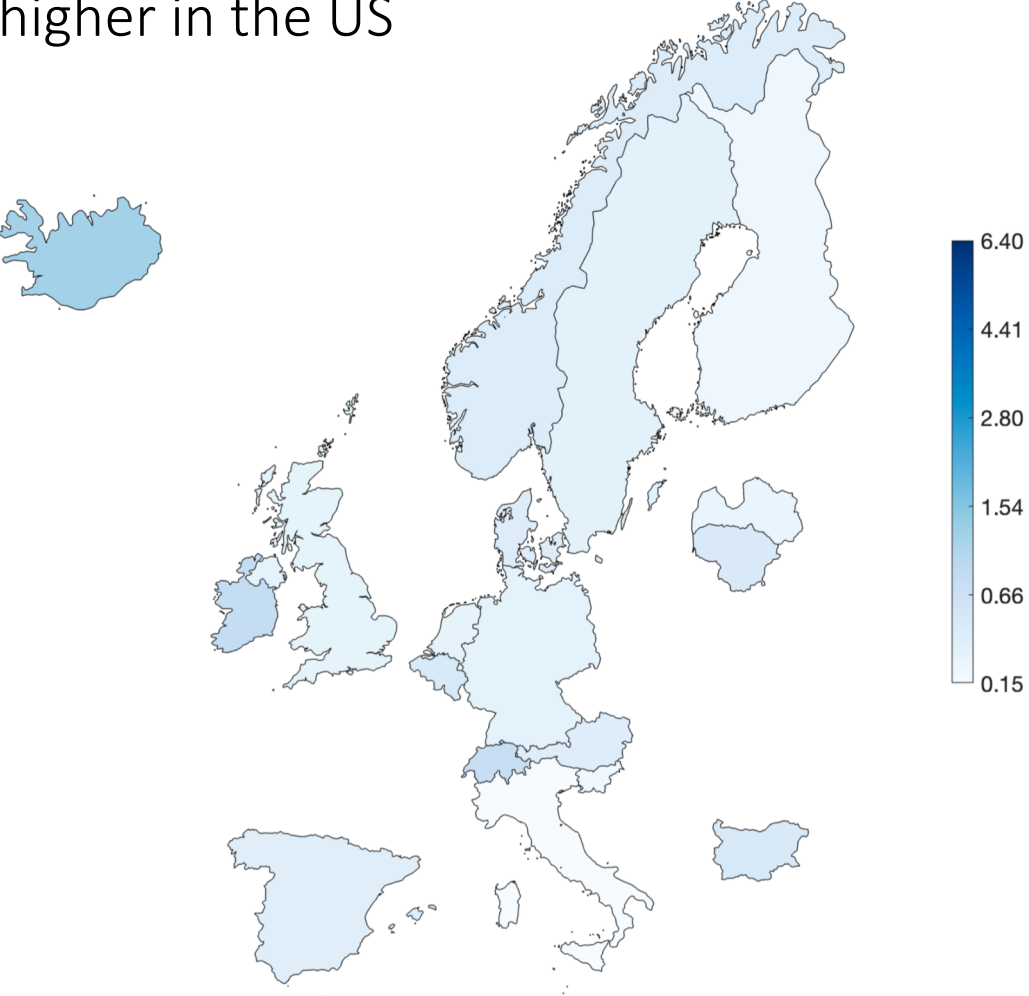
*Note:* US & Canada: 1977 - 2015, Europe: 1995 - 2015 (unbalanced).

# Less migration in Europe than in the US

Gross migration across borders is three times higher in the US



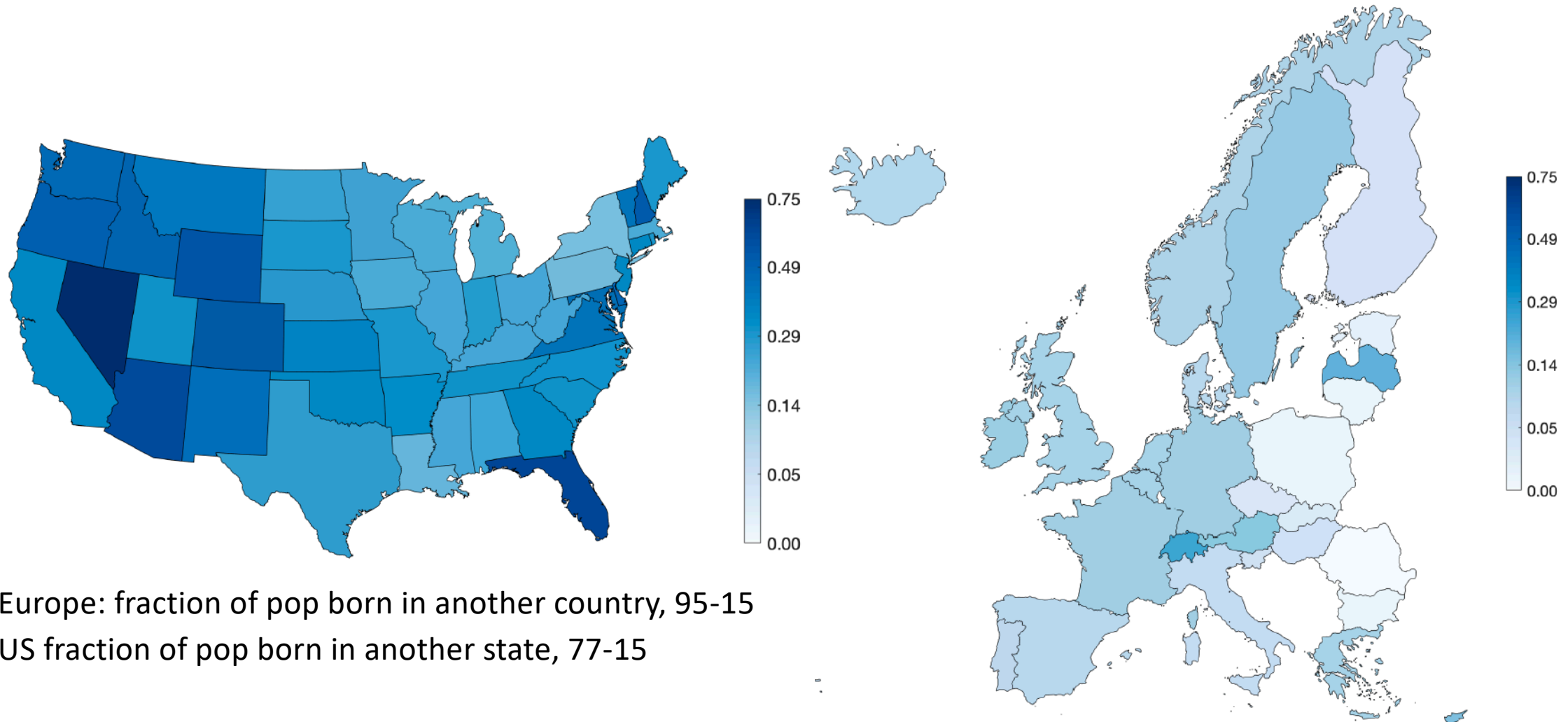
US: average internal migration 77-15



Europe: average internal migration 95-15

# Europeans more likely to stay where they were born.

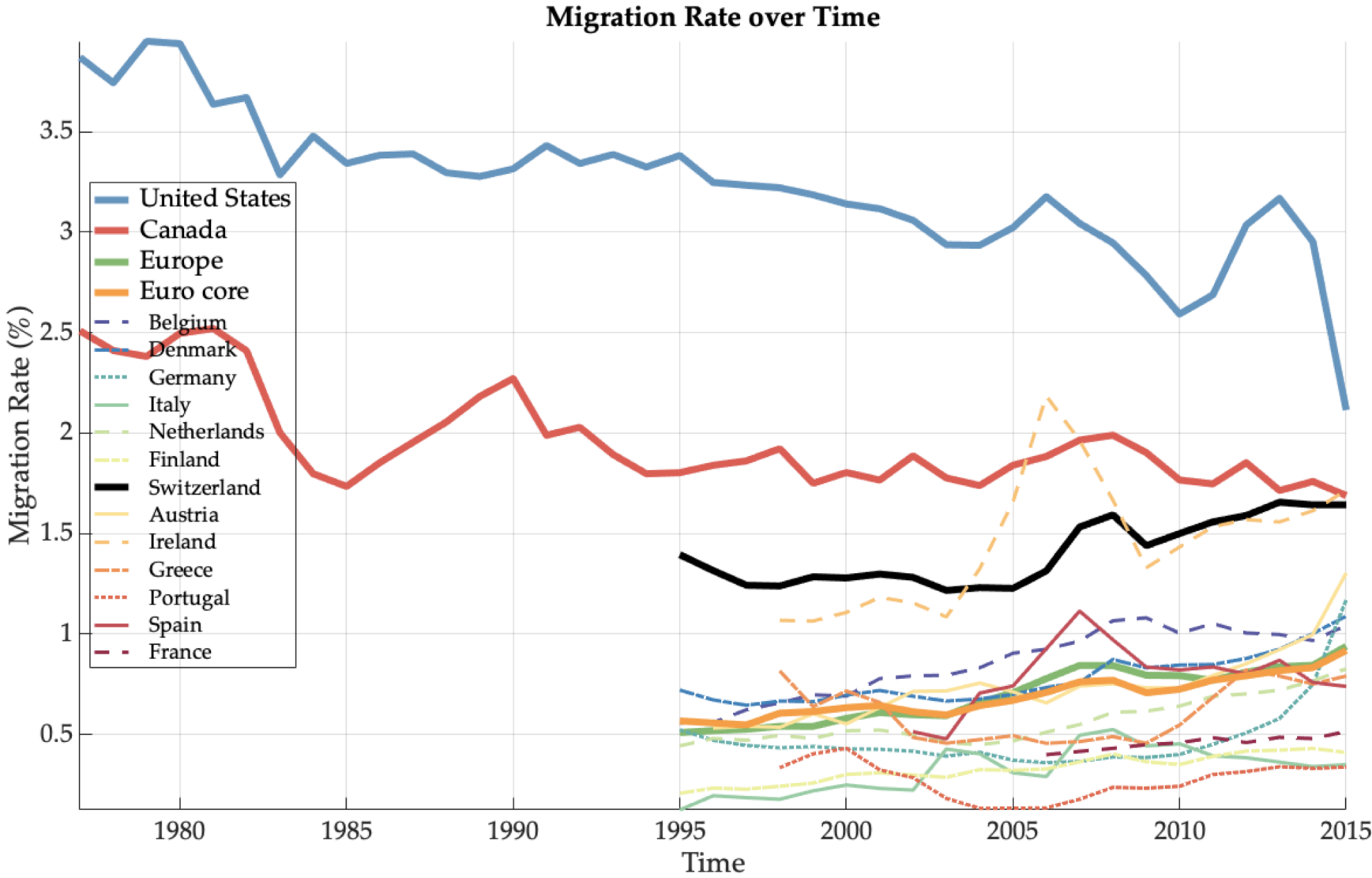
Fraction born in another state about three times higher in the US



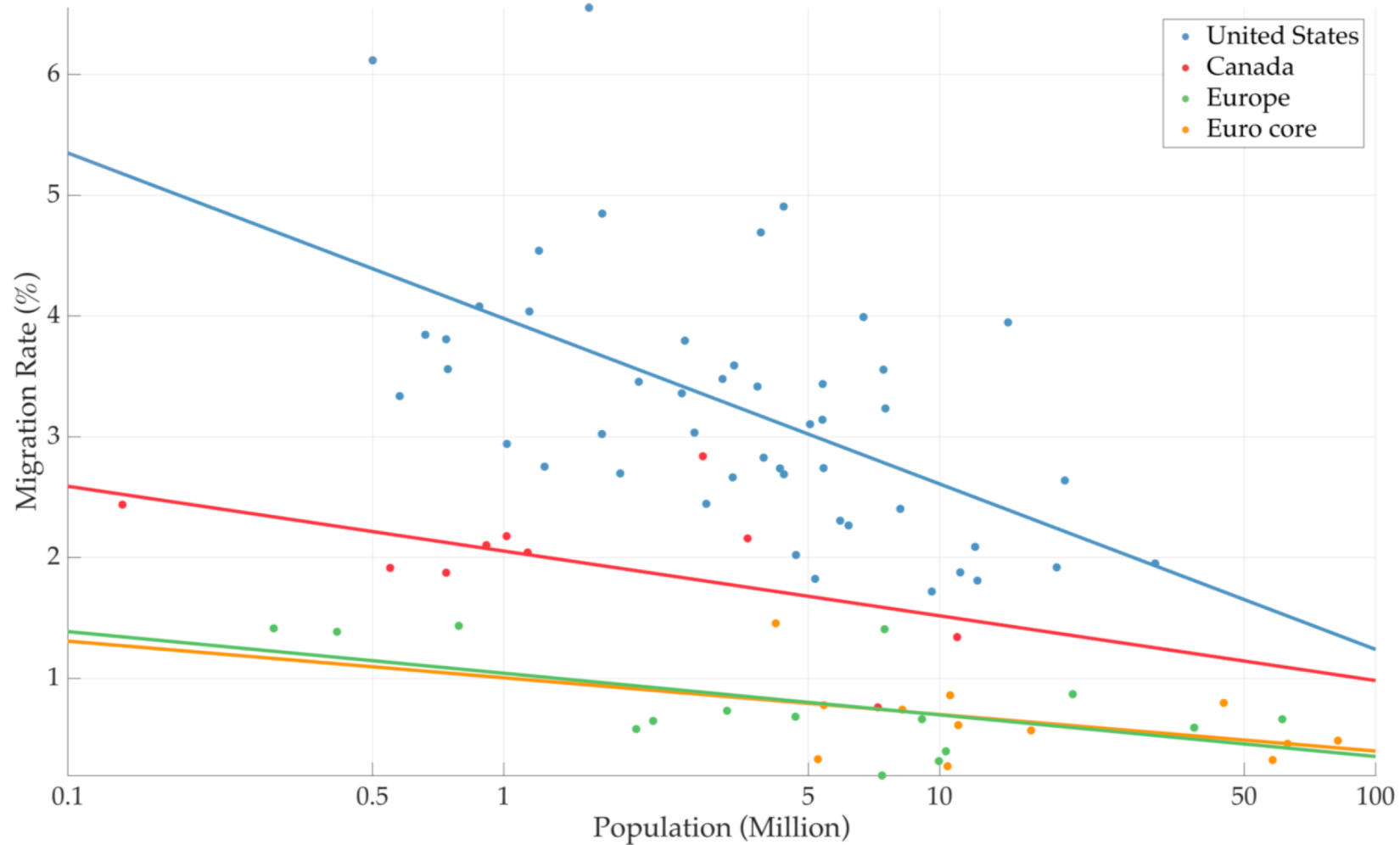
Europe: fraction of pop born in another country, 95-15

US fraction of pop born in another state, 77-15

# Migration is rising in Europe, but not to U.S. levels



# Migration is lower in Europe... ... even after controlling for country size



Do people move from high unemployment locations to low unemployment locations?

Our focus is on the business cycle. We want to know how responsive workers are to cyclical unemployment differentials.

Detrending matters for what you conclude from the data.

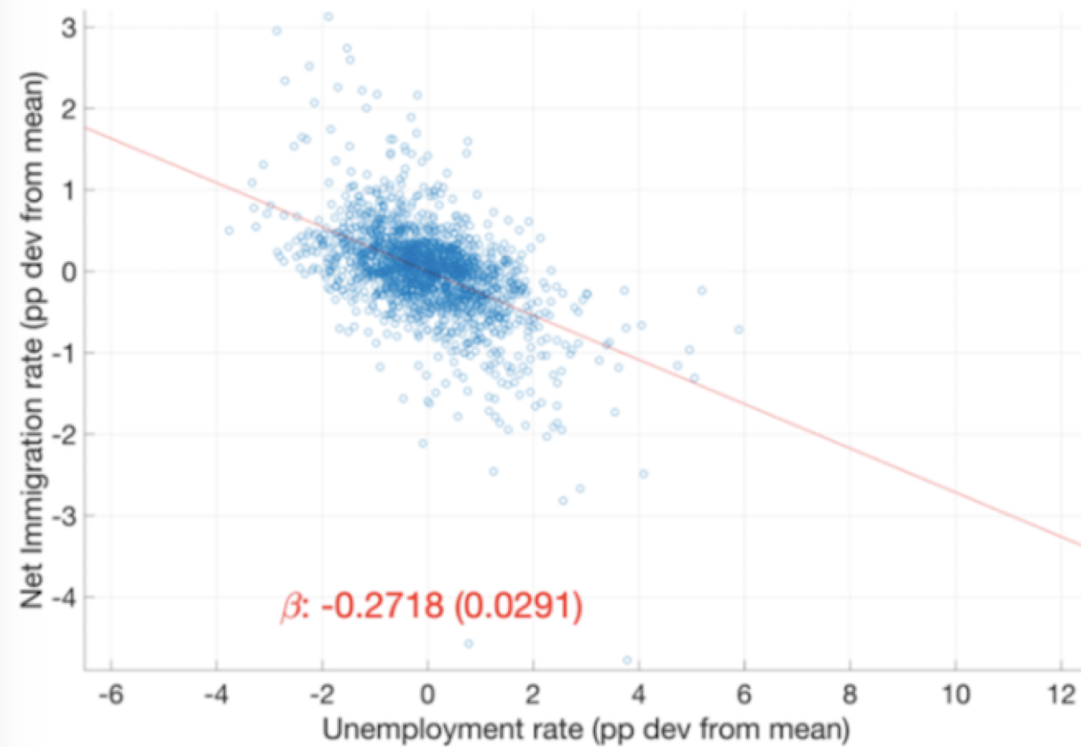
Example:

Studies point to the fall in migration after the Great Recession as evidence that people don't move in response to bad shocks.

This is a mistake: The places where people typically move (e.g. sunbelt) were particularly hard hit by the recession

# Does migration respond to economic conditions?

$$\widehat{netm}_{i,t} = \beta_0 + \beta \widehat{ur}_{i,t} + \epsilon_{i,t}$$



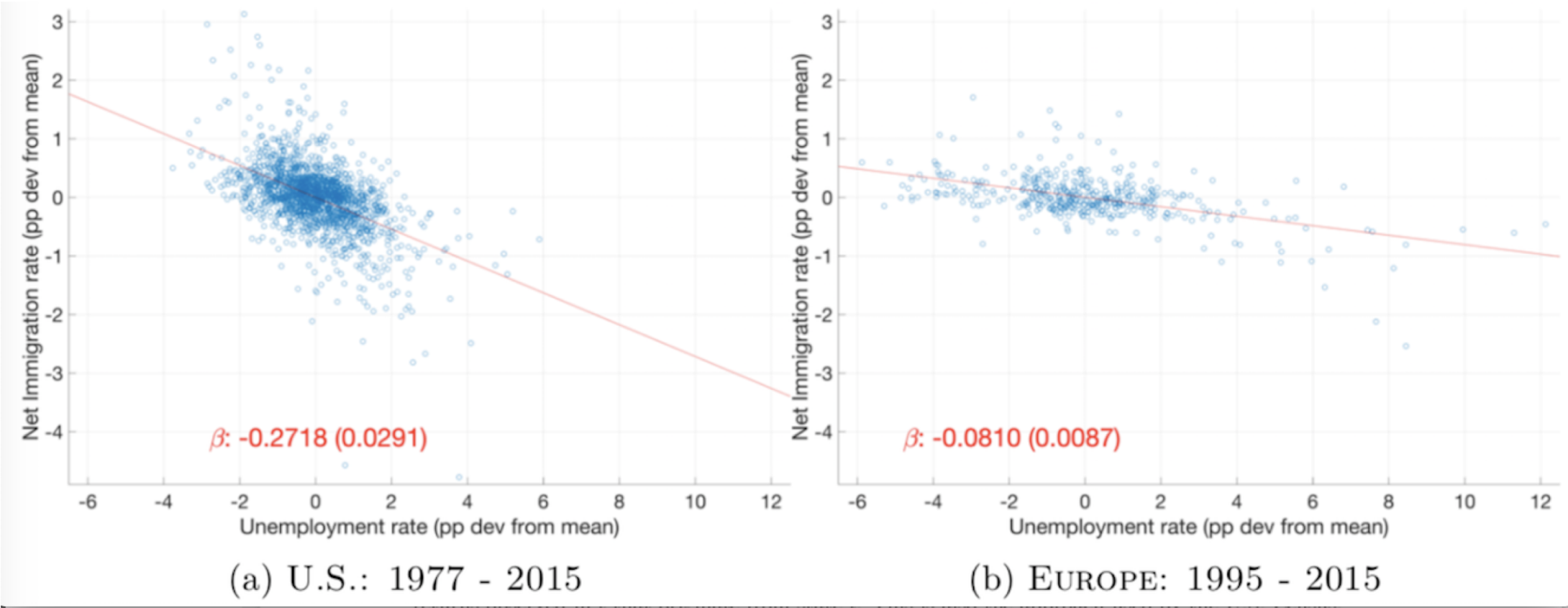
An increase of 100 unemployed workers in a state coincides with out-migration of 27 people from that state

(a) U.S.: 1977 - 2015

# Does migration respond to economic conditions?

$$\widehat{netm}_{i,t} = \beta_0 + \beta \widehat{ur}_{i,t} + \epsilon_{i,t}$$

European migration response is about one third of the size of US response





## Summing up

- Labor
  - More migration in US relative to Europe
  - Unemployment – higher and wider dispersion in Europe
  - Migration more responsive to unemployment differentials in US
  - Migration response is persistent, significant population reallocation
- Trade
  - More intra-US state trade than intra-Europe trade

## Multi-country model

- 29 countries + ROW [48 states + ROW]
- Trade between countries [states]
- Price rigidity – Taylor rule-driven monetary policy
- Financial flows between countries [states]
- Labor migration (Caliendo et. al.)
- Search unemployment (DMP)
- Shocks to relative demand for traded goods

# Migration

Population in country  $i$ :  $\mathbb{N}_{i,t} = \mathbb{N}^i + \mathbb{M}_{i,t}$

$\mathbb{N}^i$ : Natives (work, own capital stock, firms & bonds)

$\mathbb{M}_{i,t}$ : Migrants (workers, hand-to-mouth consumers)

*Share* of migrants relocating from  $i$  to  $j$ :  $n_{j,t}^i$

Law of motion for migrants  $\mathbb{M}_{i,t} = \sum_j n_{i,t}^j \mathbb{M}_{j,t-1}$

# Migration

Follows Caliendo, Dvorkin and Parro (2019)

Lifetime utility of a migrant living in country  $i$ :

$$e_{i,t}(\epsilon_t) = \max_j \left\{ U(w_{j,t}) + \frac{1}{\gamma} \epsilon_{j,t} - \tau_j^i + \beta \mathbb{E}_t(E_{j,t+1}) \right\}$$

- ▶  $\epsilon_t$ : vector of idiosyncratic preference shocks
- ▶  $\tau_j^i$ : cost of moving from  $i$  to  $j$
- ▶  $\mathbb{E}_t(E_{j,t+1})$ : expected value of living in  $j$  in  $t + 1$

## Migration

Assuming shocks are Type-I Extreme Value, share of migrants moving from  $i$  to  $j$  is:

$$n_{j,t}^i = \frac{\exp\left(U(w_{j,t}) - \tau_j^i + \beta E_{j,t+1}\right)^\gamma}{\sum_k \exp\left(U(w_{k,t}) - \tau_k^i + \beta E_{k,t+1}\right)^\gamma}.$$

Increase in expected lifetime utility in  $j$  attracts more migrants

Elasticity depends on  $\gamma$

$$\tilde{n}_{j,t}^i - \tilde{n}_{i,t}^i = \gamma \mathbb{E}_t \sum_{s=0}^{\infty} \beta^s (\tilde{w}_{j,t+s} - \tilde{w}_{i,t+s}) + \mathbb{E}_t \sum_{s=1}^{\infty} \beta^s \left[ (1 - \tilde{n}_{j,t+s}^j) - (1 - \tilde{n}_{i,t+s}^i) \right]$$

# Migration

1. Production of tradable, intermediate good

$$Q_{i,t} = Z_i(u_{i,t}K_{i,t})^\alpha L_{i,t}^{1-\alpha} = \sum_j Q_{i,t}^j$$

2. Production of final good

$$Y_{i,t} = \left( \sum_{j=1}^N (\omega_{i,t}^j)^{\frac{1}{\psi_y}} (Q_{i,t}^j)^{\frac{\psi_y-1}{\psi_y}} \right)^{\frac{\psi_y}{\psi_y-1}}$$

Relative demand shocks as in Itskhoki and Mukhin (2017)

$$\omega_{i,t}^j = \frac{\bar{\omega}_i^j \exp(\varepsilon_t^j)}{\sum_k \omega_{i,t}^k}.$$

# Was Mundell right? Does labor mobility substitute for flexible exchange rates?

Step 1: Fit the model to European data. Find the sequence of shocks that reproduces the observed paths for unemployment in each country.

Step 2: Use the model to run counterfactuals:

For a given series of shocks,  $\varepsilon_t^j$ , what would happen if...

Labor mobility in Europe were as high as in the U.S.?

vs.

Each country had a floating exchange rate?

## Cross-sectional variation in Europe

### Benchmark

Unemployment rate

2.46

GDP

2.05

Consumption per capita

1.75

Net migration

0.23

Net exports

1.74

Exchange rate

0

Model captures the cross-country dispersion in unemployment, output, trade and consumption



## Cross-sectional variation in Europe

	Benchmark	Labor mobility	
Unemployment rate	2.46	1.95	<u>If people can move:</u>  Reduces dispersion in unemployment but increases dispersion in GDP .
GDP	2.05	2.66	
Consumption per capita	1.75	1.43	
Net migration	0.23	0.63	
Net exports	1.74	1.63	
Exchange rate	0	0	

# Cross-sectional variation in Europe

	Benchmark	Labor mobility	Flexible exch rates
Unemployment rate	<u>Flexible exchange rates</u> smaller reduction in UE	1.95	2.19
GDP	differentials,	2.66	1.82
Consumption per capita	net export differentials	1.43	1.66
Net migration	are bigger,	0.63	0.23
Net exports	Less consumption risk	1.63	1.91
Exchange rate	sharing, Plus FX volatility	0	11.55

# Was Mundell right? Does labor mobility substitute for flexible exchange rates? yes... and no.

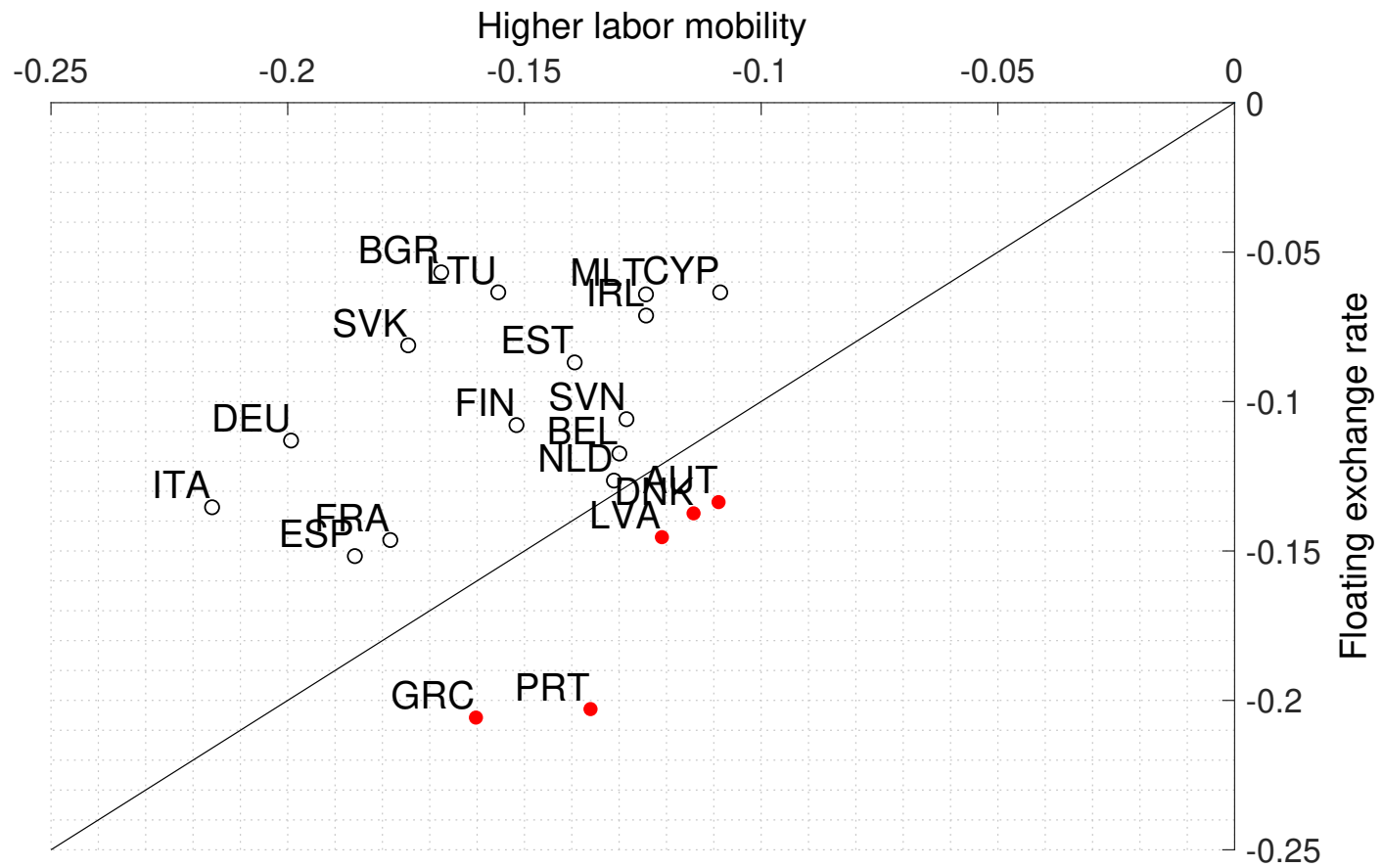
## Labor mobility

- People move to reduce differentials in unemployment
- Respond to shocks by adjusting supply
- This works best when:
  - Wages and prices are sticky
  - Demand for the country's good is *not* responsive to the exchange rate

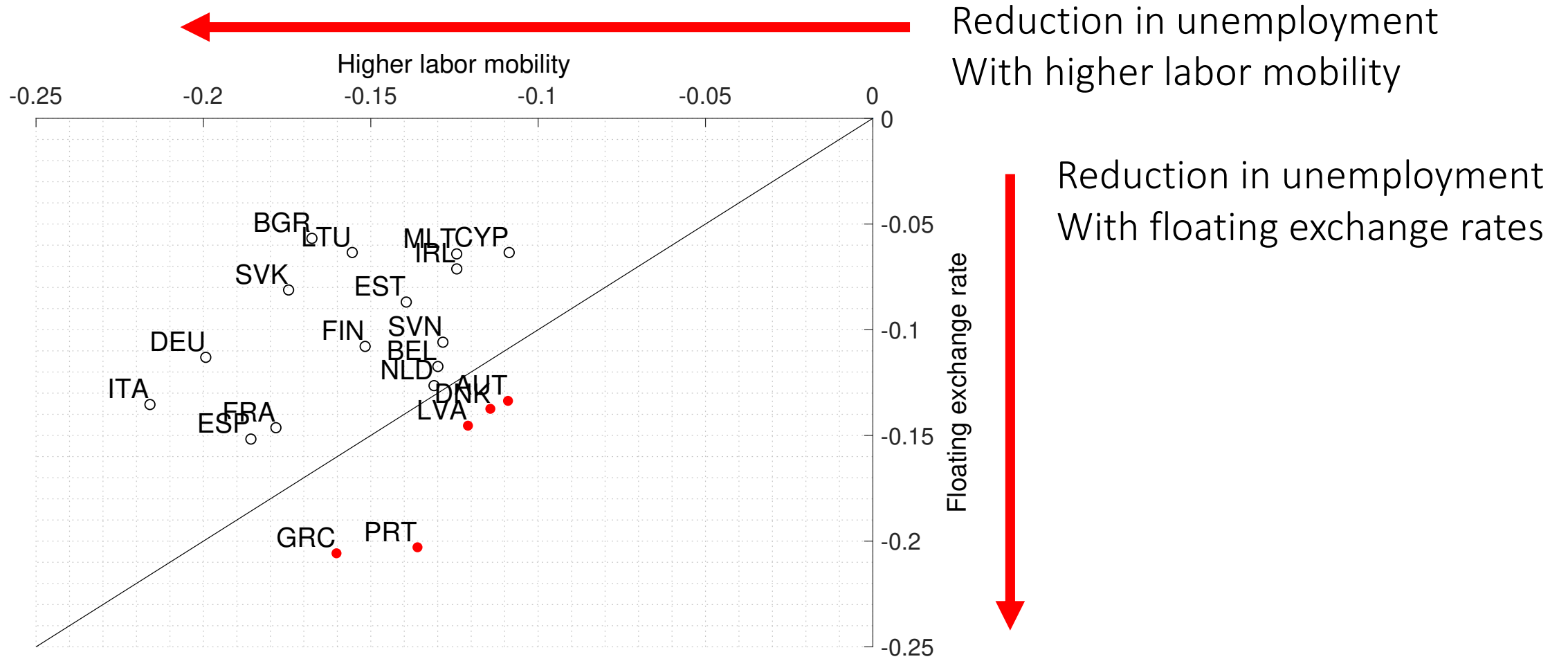
## Flexible exchange rates

- Exchange rate will adjust to counteract the underlying shock
- Respond to shocks by adjusting demand
- This works best when:
  - Wages and prices are flexible
  - Demand for the country's good *is* responsive to the exchange rate

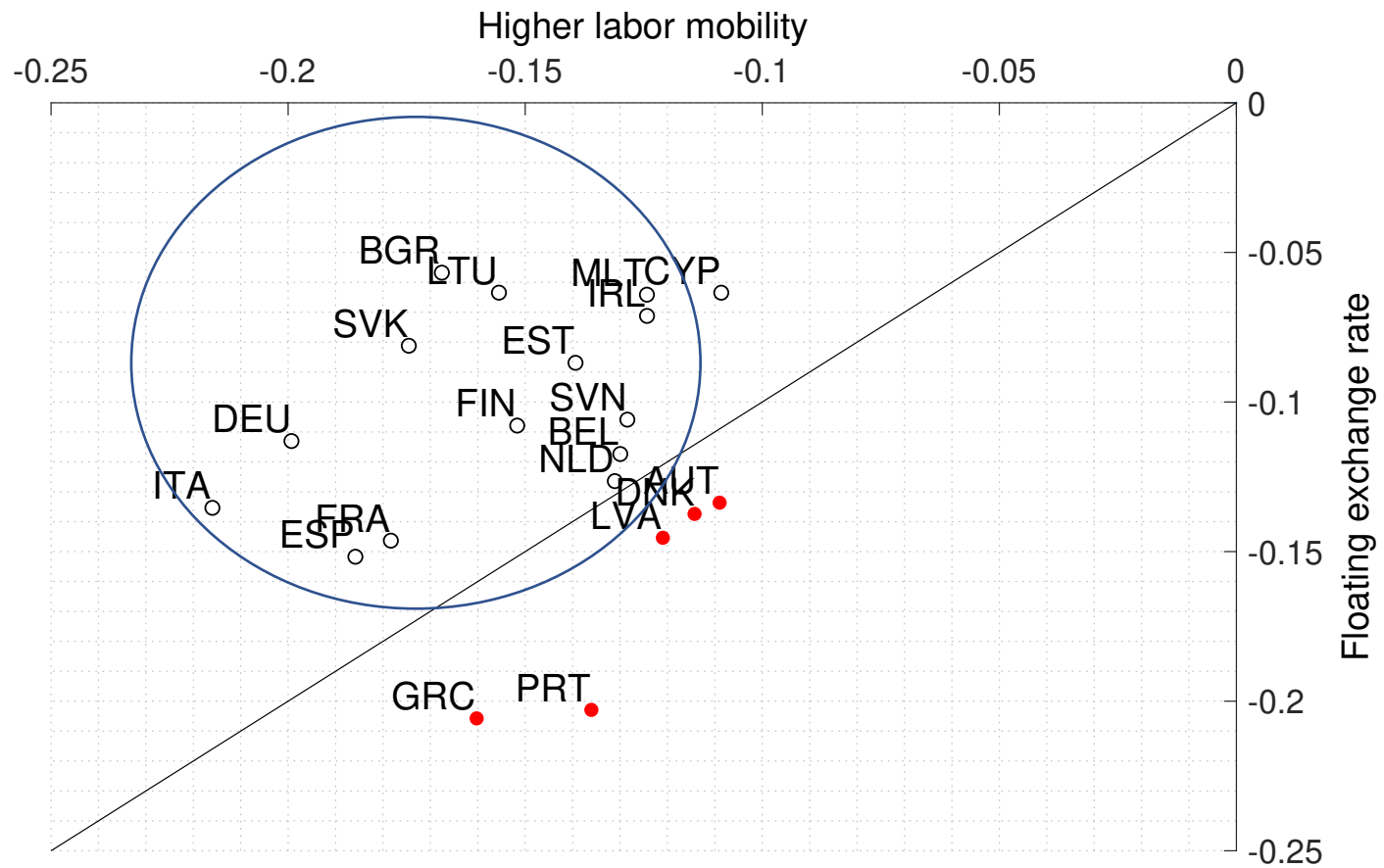
# Mundellian trade-off will differ across countries



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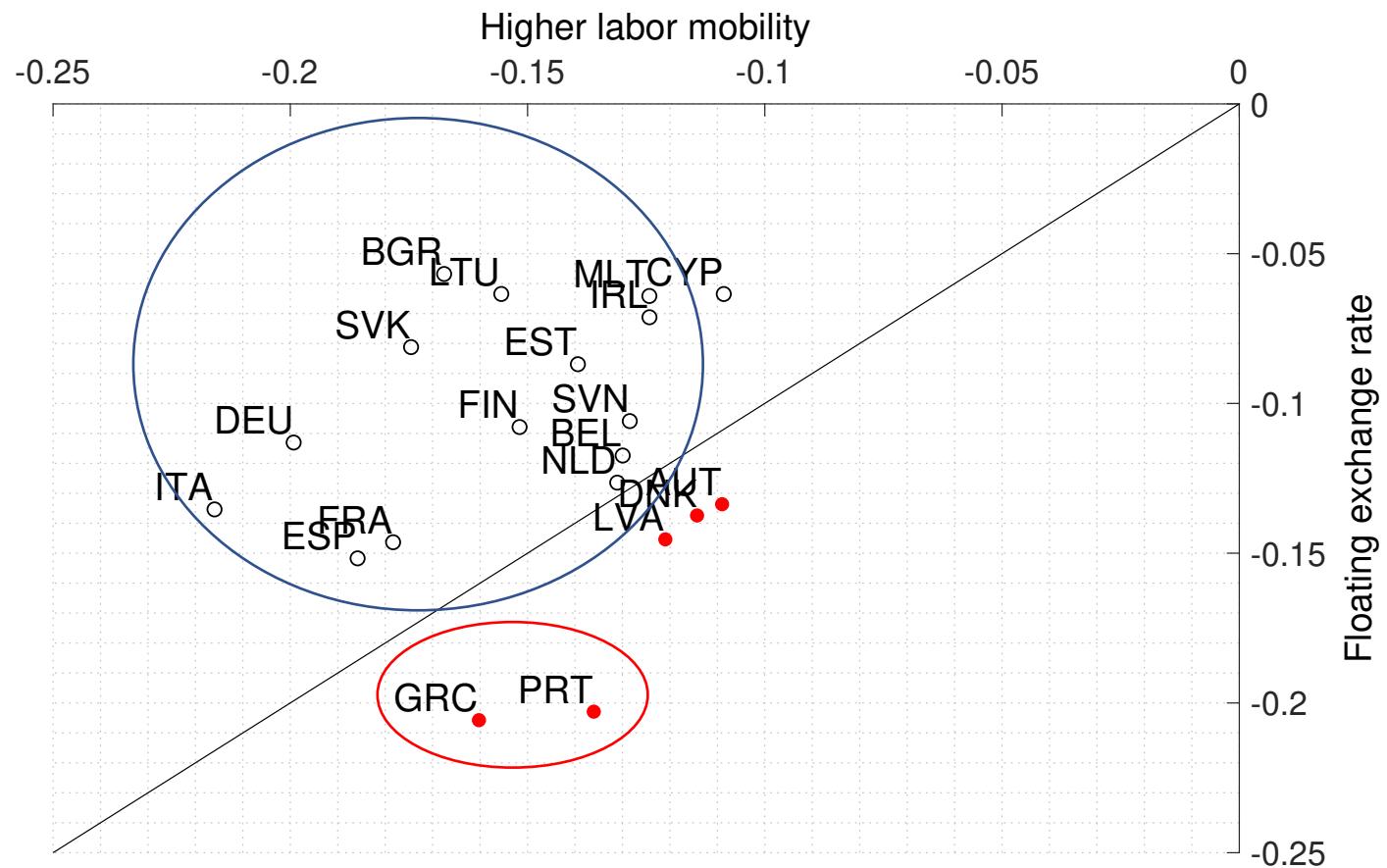


# Mundellian trade-off will differ across countries



Most countries in Europe have conditions for which labor mobility helps most to reduce unemployment

# Mundellian trade-off will differ across countries



Most countries in Europe have conditions for which labor mobility helps most to reduce unemployment

But not all!  
Greece and Portugal have conditions that favor flexible exchange rates.

## Why the difference?

Migration works better when

- The country is large
- There are frictions in the labor market
- The trade share is large



## Where are we vis-à-vis Mundell's trade off?

- Despite increased integration in capital, labor and goods markets, Europe remains far from US benchmark
- Labor market rigidities and smaller within-Europe trade linkages make adjustment to shocks difficult
- Shocks in Europe are relatively large and country-specific
- Under current conditions, exchange rate flexibility is not a good substitute for migration
- Suggests a possible role for fiscal policy –
  - Implications for fiscal policy remains for future work