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# **Beveridge Curve Shifts across Countries since the Great Recession**

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*Bart Hobijn (FRBSF, VU Amsterdam, and TI) and Ayşegül Şahin (FRBNY)*

# **BEVERIDGE CURVE SHIFTS ACROSS COUNTRIES SINCE THE START OF THE GREAT RECESSION**

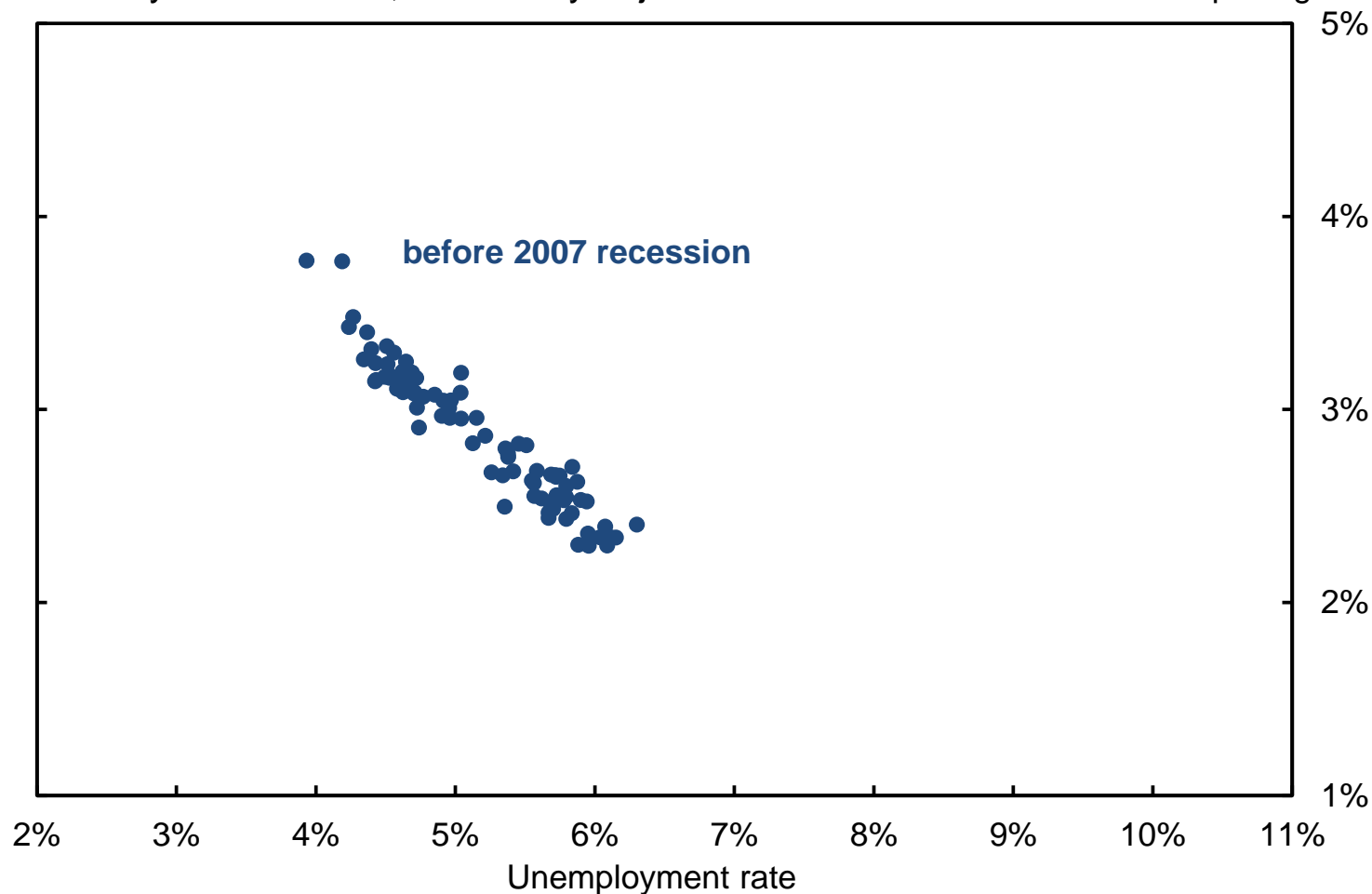
Disclaimer: The views expressed in this presentation are those of the authors and do not necessarily reflect those of the Federal Reserve Bank of San Francisco, the Federal Reserve Bank of New York, the Federal Reserve System as a whole, or any other institutions that they are affiliated with.

# Stable pre-recession Beveridge curve...

## Actual Beveridge Curve

Monthly observations; seasonally adjusted

Job openings rate



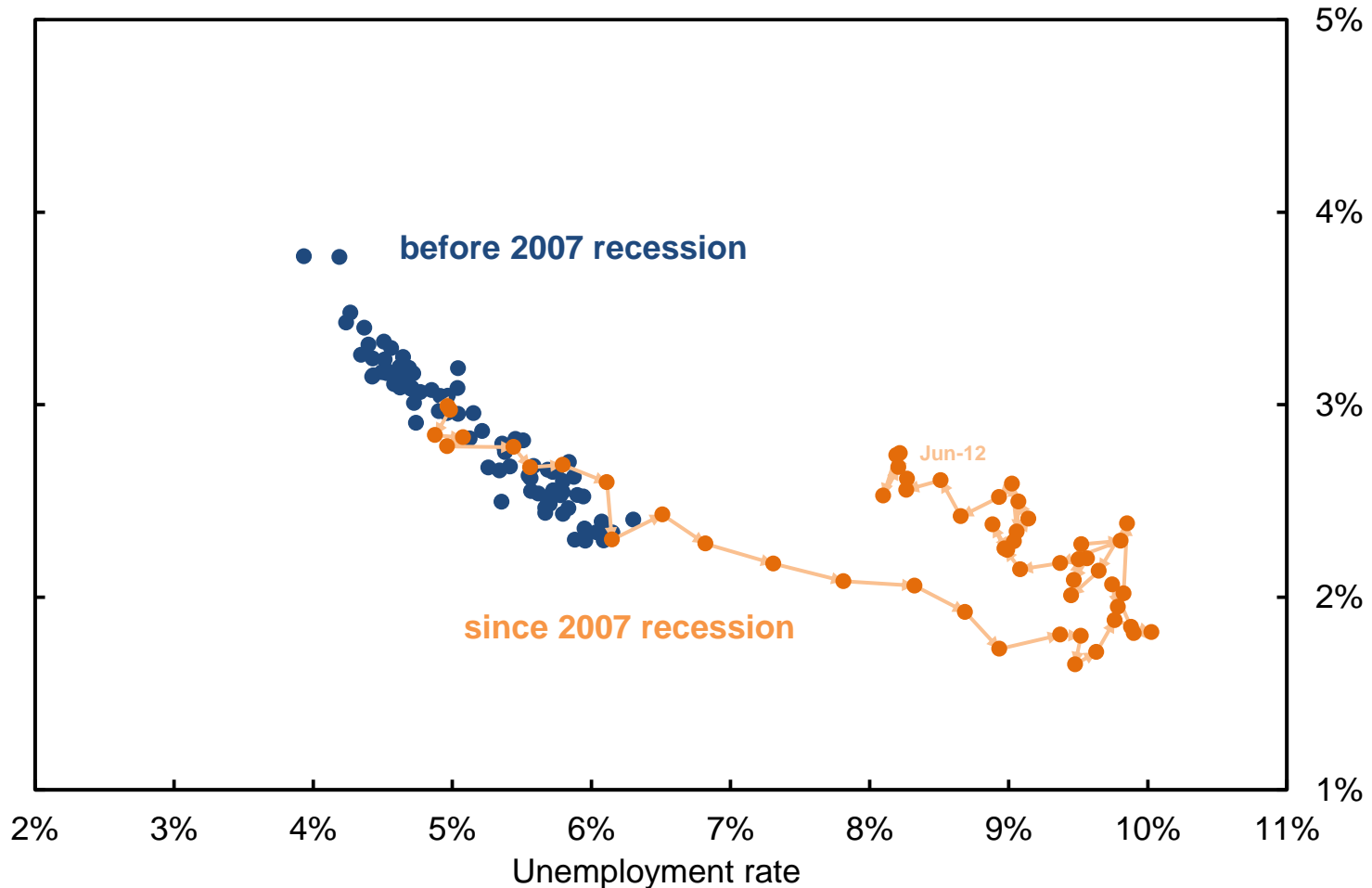
Source: JOLTS, CPS, and authors' calculations

# ... fell apart since Great Recession

## Actual Beveridge Curve

Monthly observations; seasonally adjusted

Job openings rate



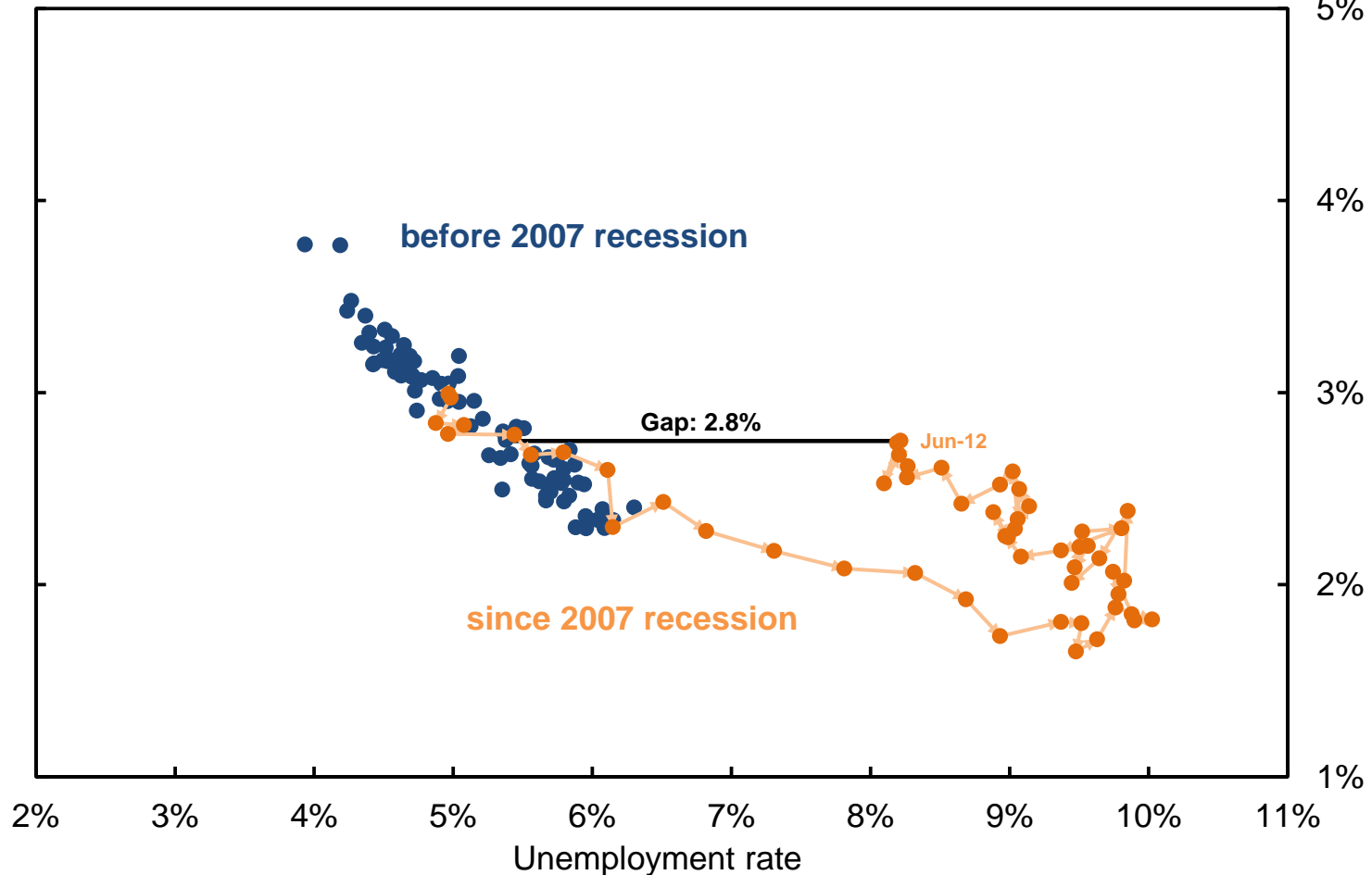
Source: JOLTS, CPS, and authors' calculations

# 2.8 percentage points rightward shift

## Beveridge Curve and shift

Monthly observations

Job openings rate



Source: JOLTS, CPS, and authors' calculations

# Is this shift unprecedented?

- Use cross-country evidence to put recent shift in U.S. Beveridge curve in global and historical perspective

# No, it is not...

- Use cross-country evidence to put recent shift in U.S. Beveridge curve in global and historical perspective
- Current U.S. Beveridge curve shift fits **standard profile** (across countries and over time)
  - Deep recession leads to large displacement of workers, resulting in mismatch.
  - Policy response of increased UI generosity to alleviate burden of displacement.

Part 1:

# BEVERIDGE CURVE AS LABOR TURNOVER STEADY-STATE CONDITION

Barnichon, Elsby, Hobijn, and Şahin (2012)



# Unemployment and labor turnover

Unemployment rate constant when

Hires rate

=

Separations rate

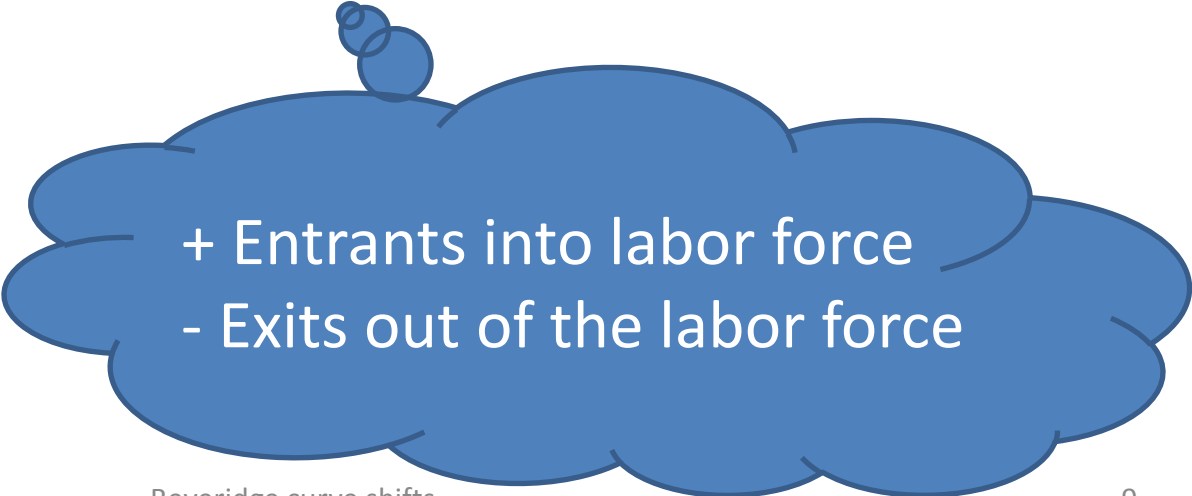
# Unemployment and labor turnover

Unemployment rate constant when

Hires rate

=

Separations rate



+ Entrants into labor force  
- Exits out of the labor force

# Beveridge curve as steady-state condition

Unemployment rate constant when

Hires rate

=

Separations rate

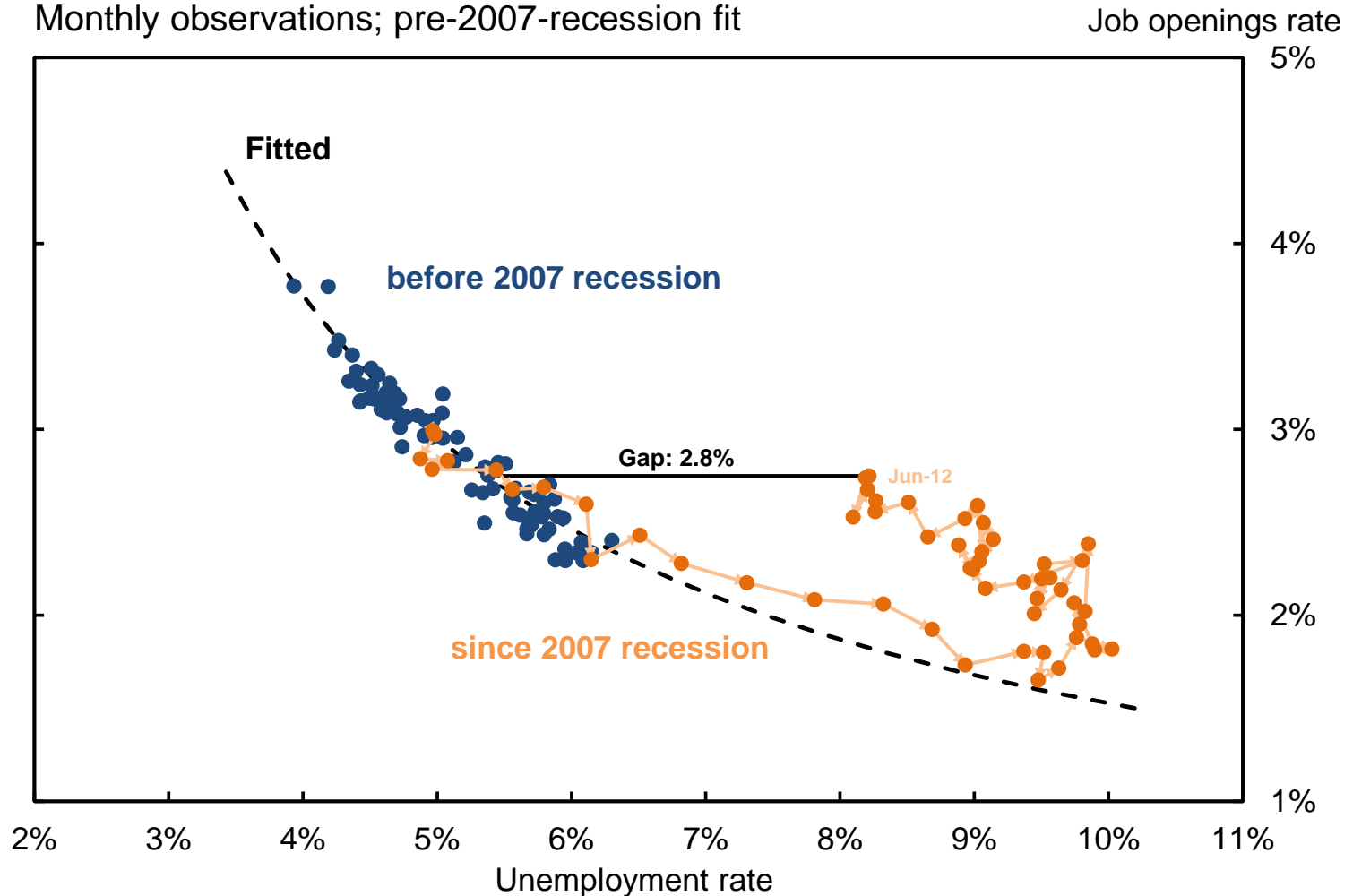
## **Beveridge curve:**

For every unemployment rate, find the vacancy rate at which above equation holds.

# Fitted Pre-Recession U.S. Beveridge curve

## Actual and fitted Beveridge Curve

Monthly observations; pre-2007-recession fit



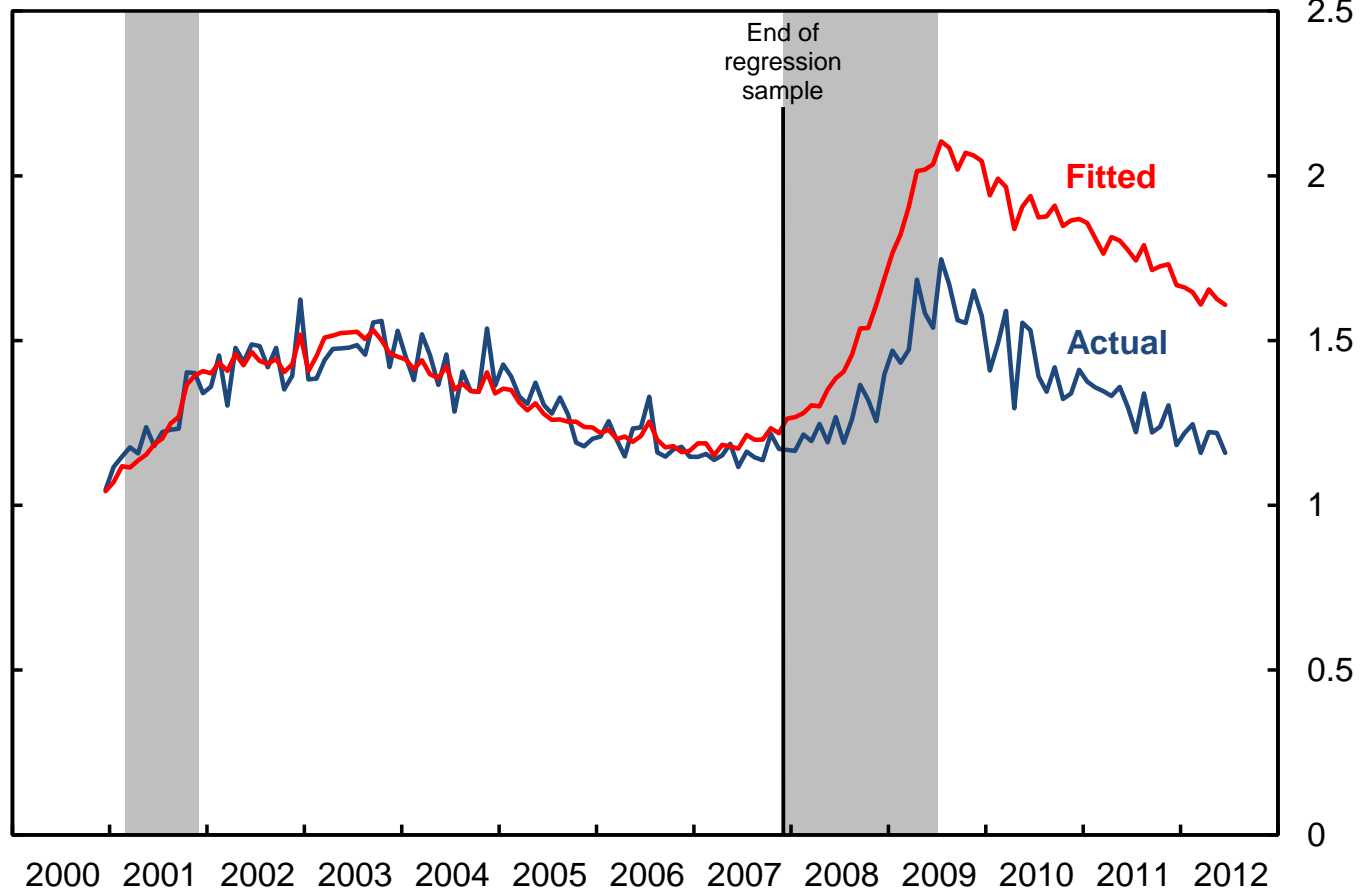
Source: JOLTS, CPS, and authors' calculations

# Decline in match efficiency

## Actual and Fitted Vacancy Yield

Monthly data; seasonally adjusted; regression ends 11/2007

hires per vacancy



Source: BLS and authors' calculations

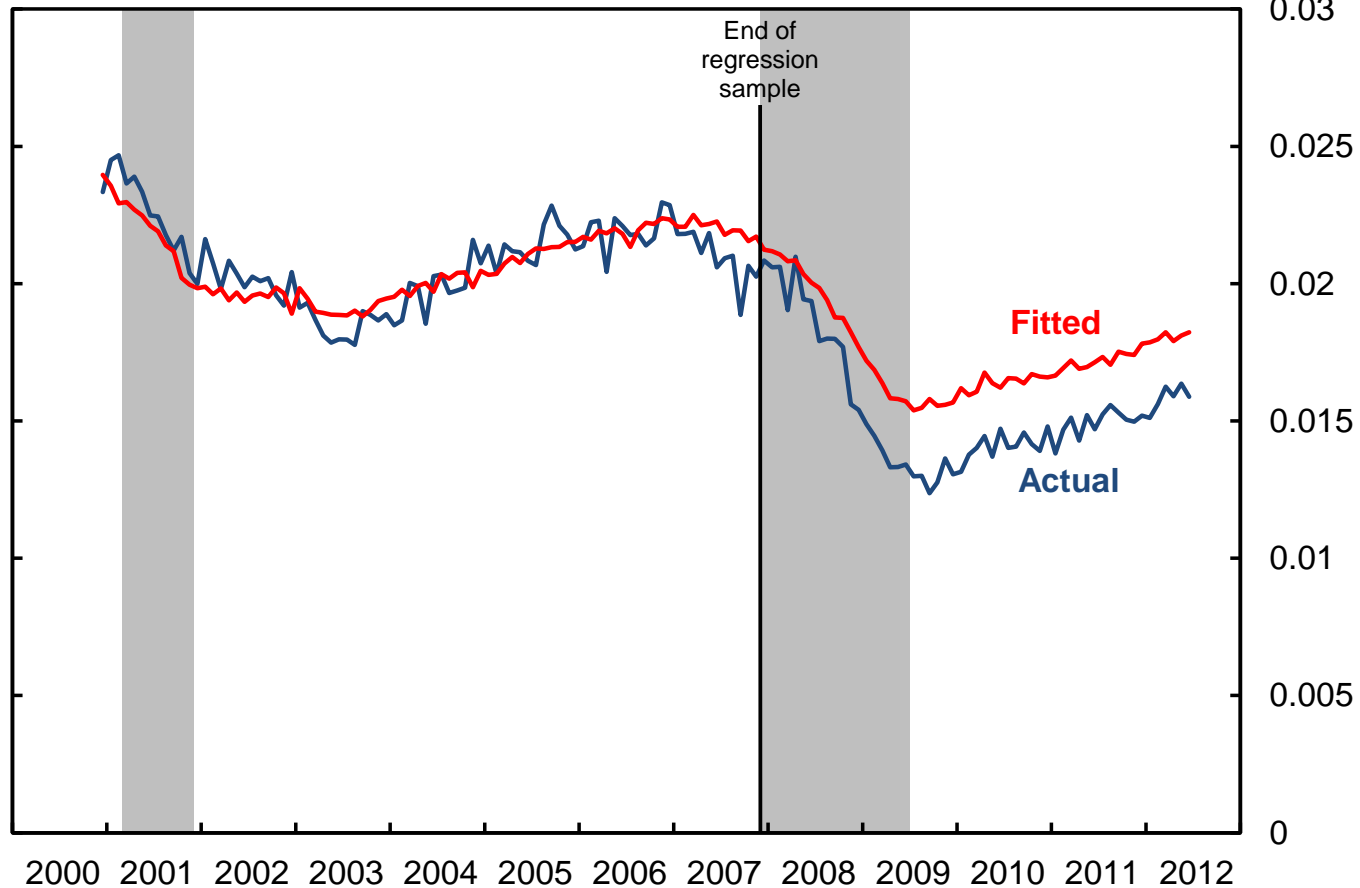
Borowczyk-Martins et al. (2011), Davis, Faberman, and Haltiwanger (2012), and Sedláček (2012)

# Workers stopped quitting jobs

## Actual and Fitted Quits Rate (quits per employee)

Monthly data; seasonally adjusted; regression ends 11/2007

share of employed



Source: BLS and authors' calculations

Lazear and Spletzer (2012), Saint-Paul (1995)

# Effect on position of Beveridge curve

- At same unemployment and vacancy rate...
  - Fewer people get hired.
  - Fewer people quit their jobs.
- Hires effect dominates
  - For a given level of unemployment, we need more vacancies to keep unemployment constant
- Causes a rightward (upward) shift in Beveridge curve

Part 2:

## **CAUSES OF U.S. BEVERIDGE CURVE SHIFT**

Elsby, Hobijn, and Şahin (2010), Daly, Hobijn, Şahin, and Valletta (2012)



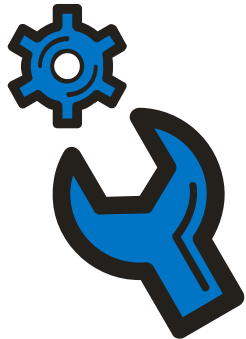
# Three main sources of shift



House lock



UI extensions



Mismatch

# Least evidence for house lock

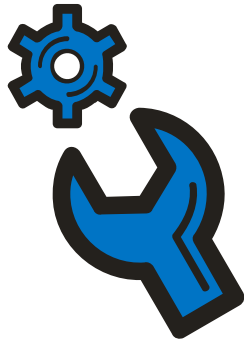


House lock  
*Unimportant*

Oswald (1997),  
Nickell et al. (2001)  
Schulhofer-Wohl (2010),  
Molloy, Smith, and Wozniak (2011),  
Valletta (2010), Sterk (2010),  
Karahan and Rhee (2012)



UI extensions



Mismatch

# UI extensions important but temporary



## House lock

*Unimportant*

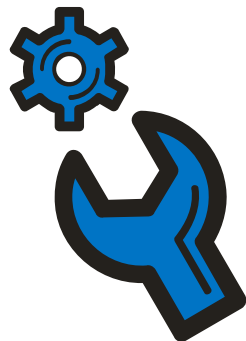
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## UI extensions

*Expected to expire*

Aaronson, Mazumder, and  
Schechter (2010), Valletta and  
Kuang (2010), Fujita (2010),  
Farber and Valletta (2011),  
Rothstein (2011), Nakajima (2012)



## Mismatch

# Mismatch most substantial factor



## House lock

*Unimportant*

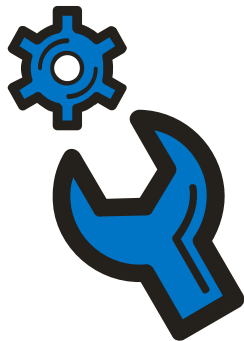
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## UI extensions

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Rothstein (2011), Nakajima (2012)



## Mismatch

*Largely transitory  
due to dynamics nature  
of U.S. market.*

Şahin, Song, Topa, and Violante  
(2011), Dickens and Triest (2012),  
Daly, Hobijn, Şahin and Valletta  
(2012), Foote (2012), Hobijn  
(2012), Lazear and Spletzer (2012)

Part 3:

## **LABOR TURNOVER BEYOND THE U.S.**

# No JOLTS data for other countries

- Most countries do not run a Job Openings and *Labor Turnover Survey*.
  - No direct measure of hires and separations.

# Alternative way to impute labor turnover

- Most countries do not run a Job Openings and Labor Turnover Survey.
  - No direct measure of hires and separations.
- Labor turnover can be imputed from data on employment by job tenure.
  - Construct annual time-series of hires and separations using new method.
  - Cyclicalities of turnover is what is important for our analysis

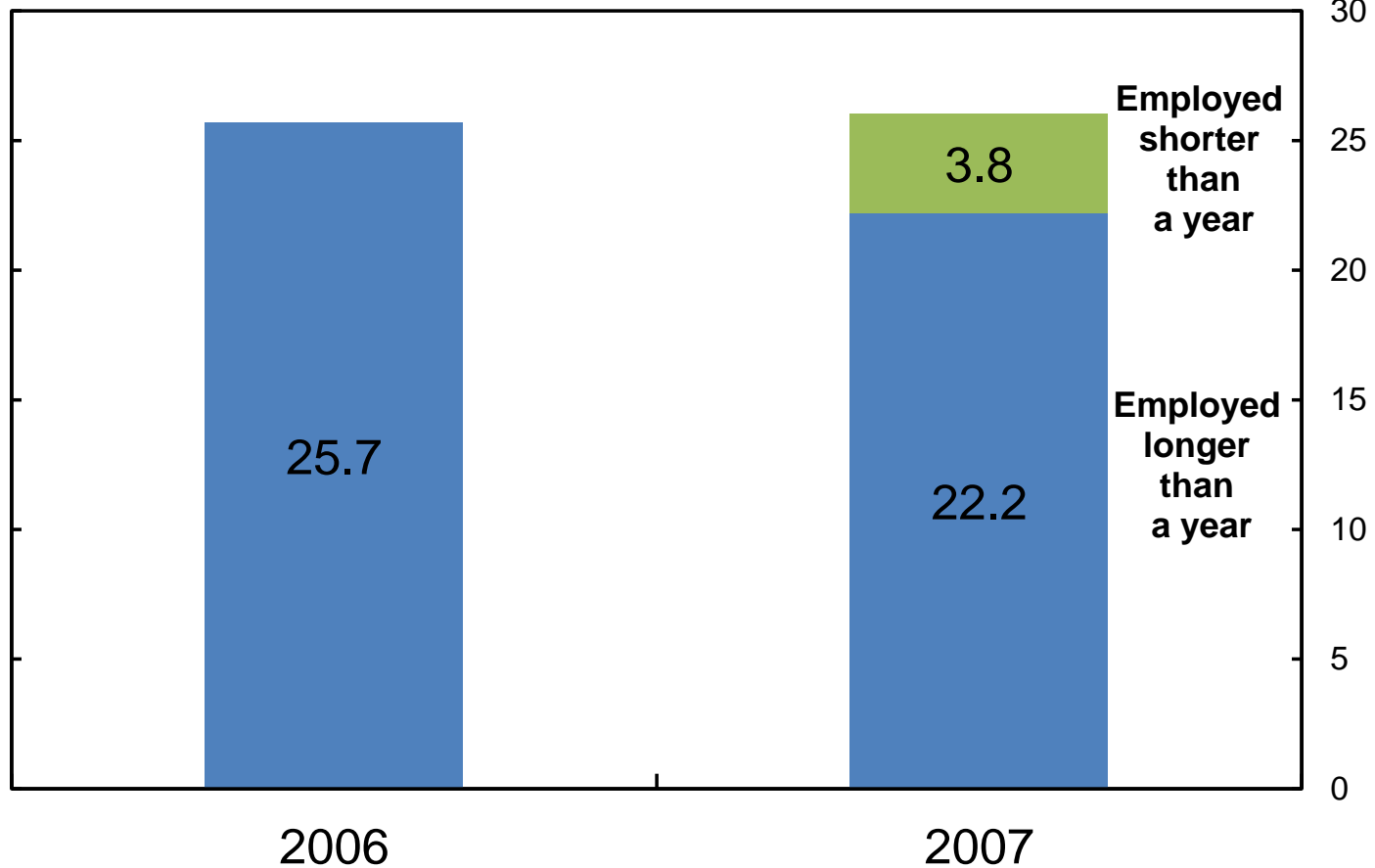
OECD (2009)

# Main intuition of imputation method

## Employment and labor turnover in France 2006

Millions of persons employed

Millions of persons



Source: OECD

Shimer (2005,2012), Elsby, Hobijn, and Şahin (2010)



# Hires derived from newly employed

## Employment and labor turnover in France 2006

Millions of persons employed

Millions of persons



Source: OECD

Shimer (2005,2012), Elsby, Hobijn, and Şahin (2010)

# Separations imputed from job leavers

## Employment and labor turnover in France 2006

Millions of persons employed

Millions of persons



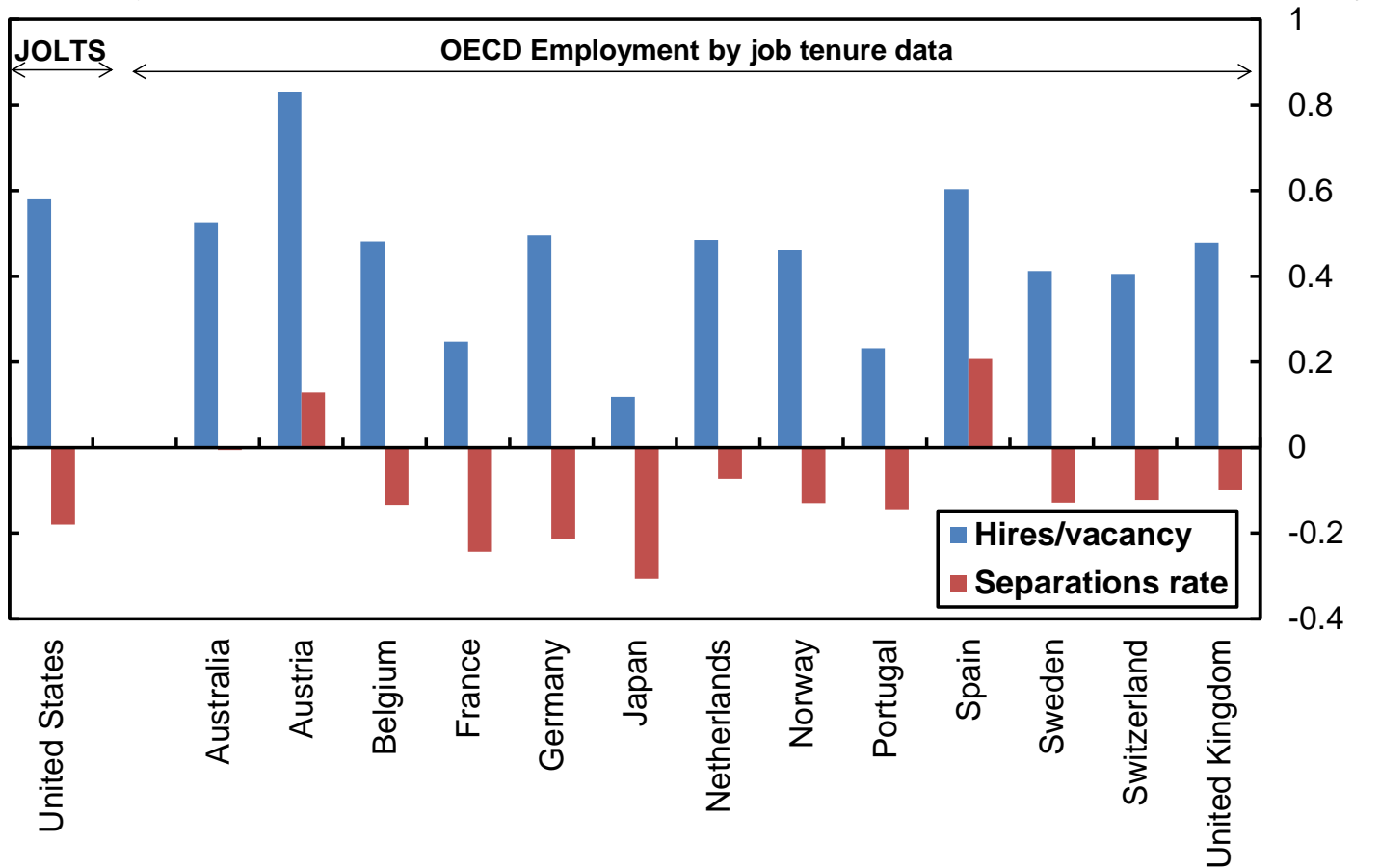
Source: OECD

Shimer (2005,2012), Elsby, Hobijn, and Şahin (2010)

# Similar cyclicality of turnover across countries

## Estimated Cyclicality of vacancy yield and separations rate

Elasticity of labor turnover with respect to  $(u/v)$ -ratio



Source: JOLTS, OECD, and author's calculations

Petrongolo and Pissarides (2001)

Part 4:

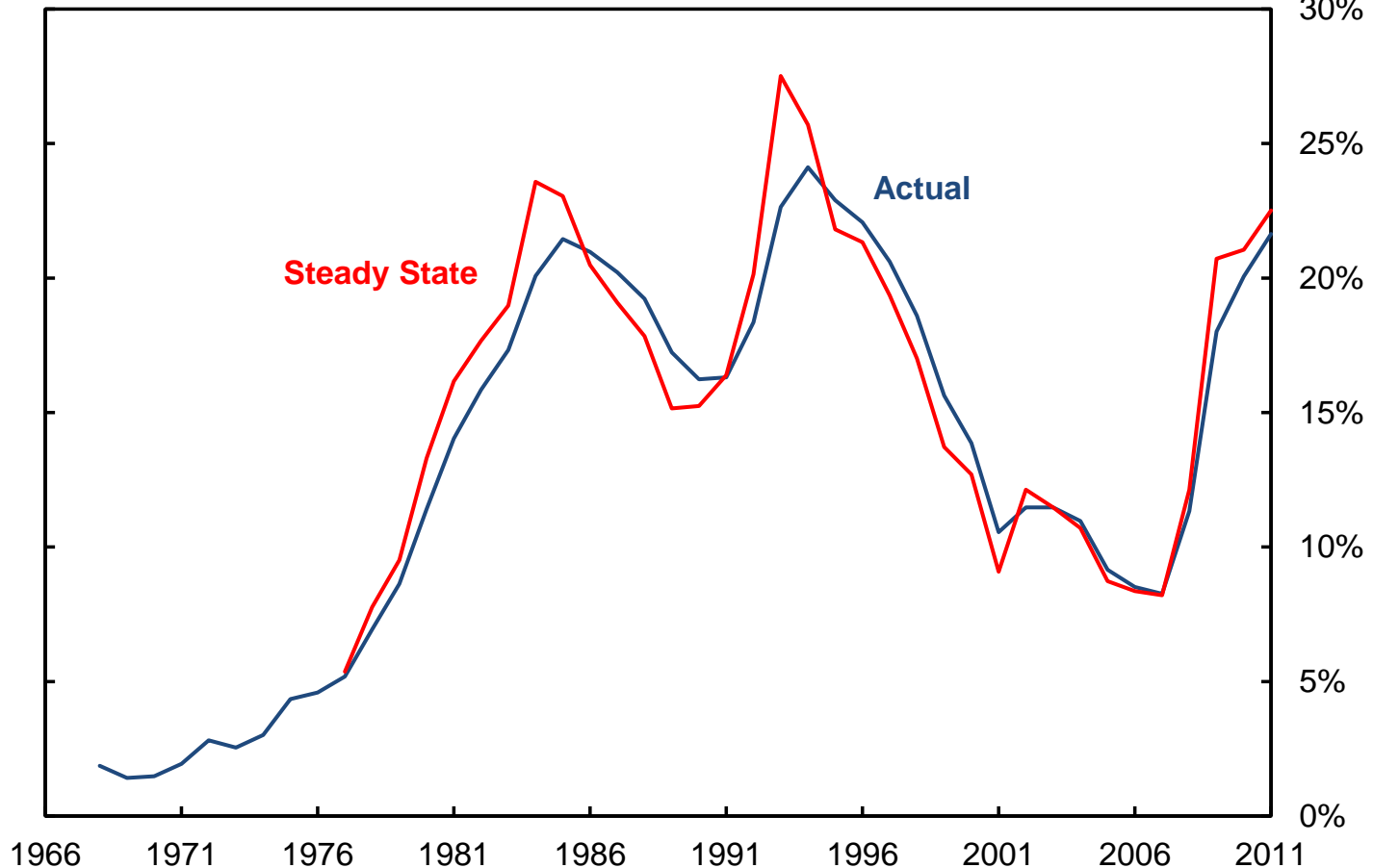
## **TWO PARTICULAR COUNTRIES: SPAIN AND GERMANY**

# Spain's slow dynamics...

## Spain: Actual and steady-state unemployment rates

Annual data

Share of labor force

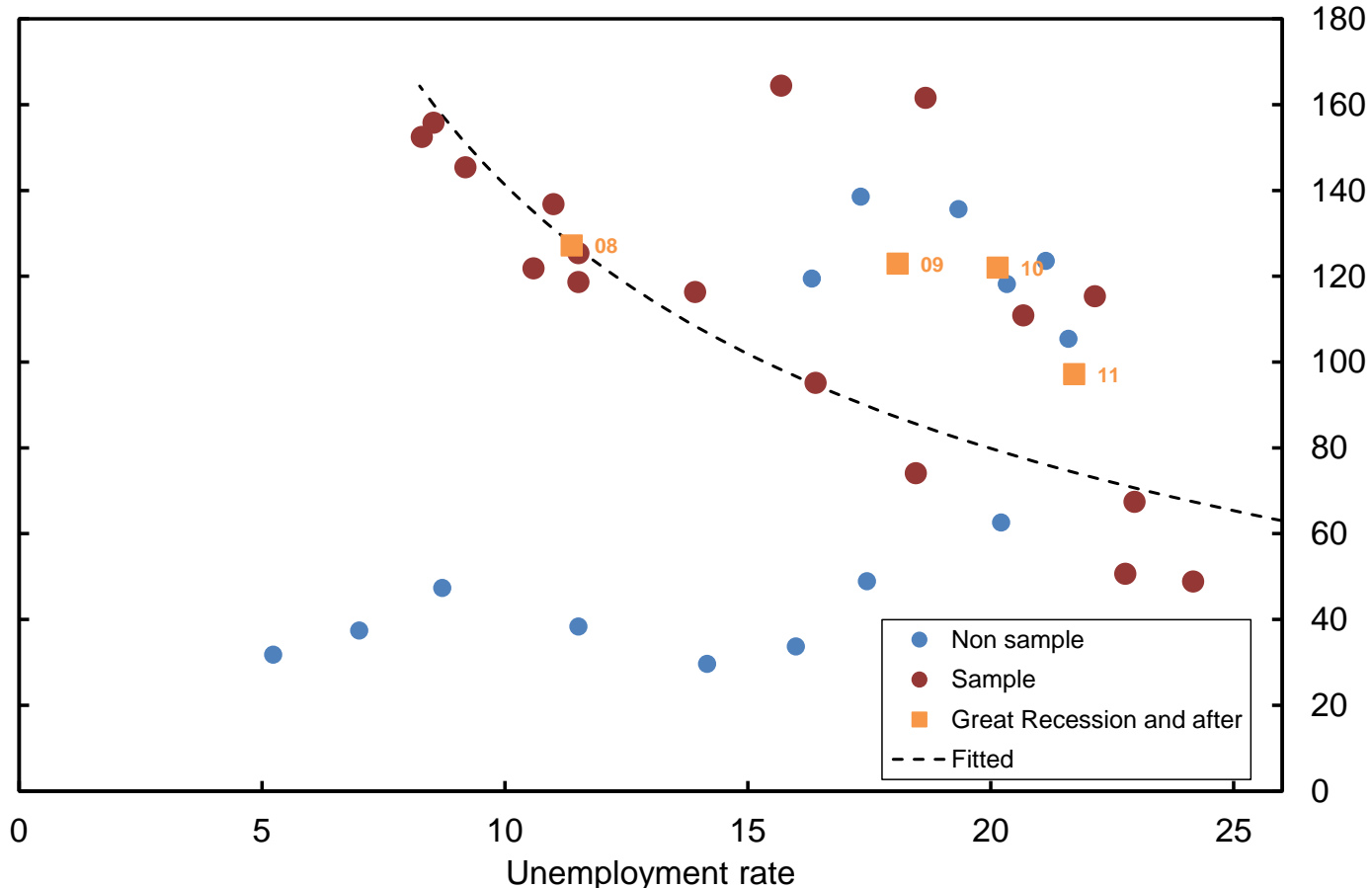


Elsby, Hobijn, and Şahin (2010)

# ... result in “loose” Beveridge curve

## Actual and Fitted Beveridge Curve: Spain

Annual data; fitted curved based on pre-2007 data on tenure. Vacancy rate (index avg=100)



Source: OECD, Nickell and Nunziata (2004), Eurostat (2012), and authors' calculations

Hobijn and Şahin (2012)

# Match efficiency decline in Spain

## Estimated Vacancy Yield: Spain

annual data

log hires per vacancy

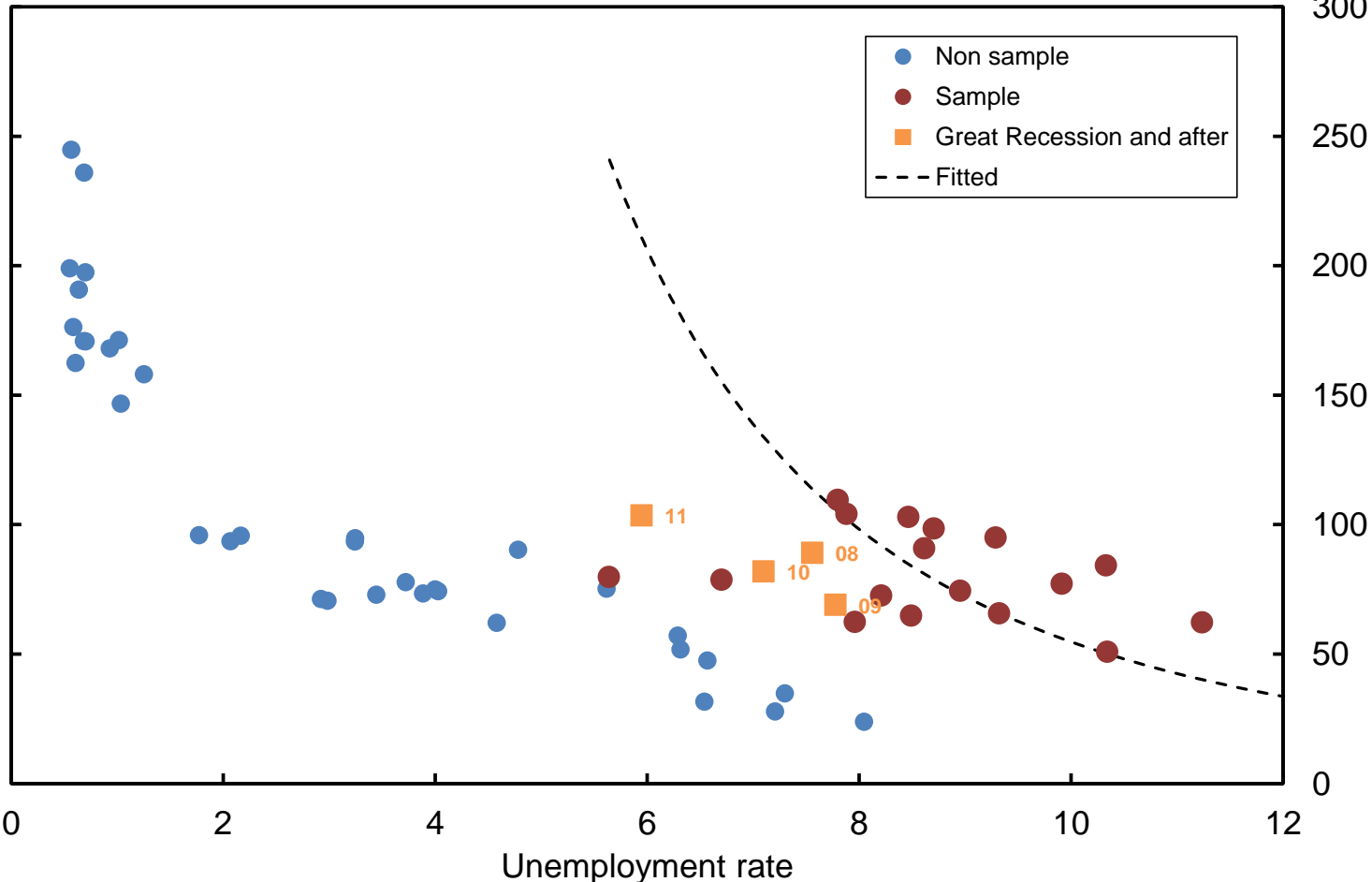


Source: OECD and authors' calculations

# Continued effect of reforms in Germany

## Actual and Fitted Beveridge Curve: Germany

Annual data; fitted curved based on pre-2007 data on tenure. Vacancy rate (index avg=100)



Source: OECD, Nickell and Nunziata (2004), Eurostat (2012), and authors' calculations

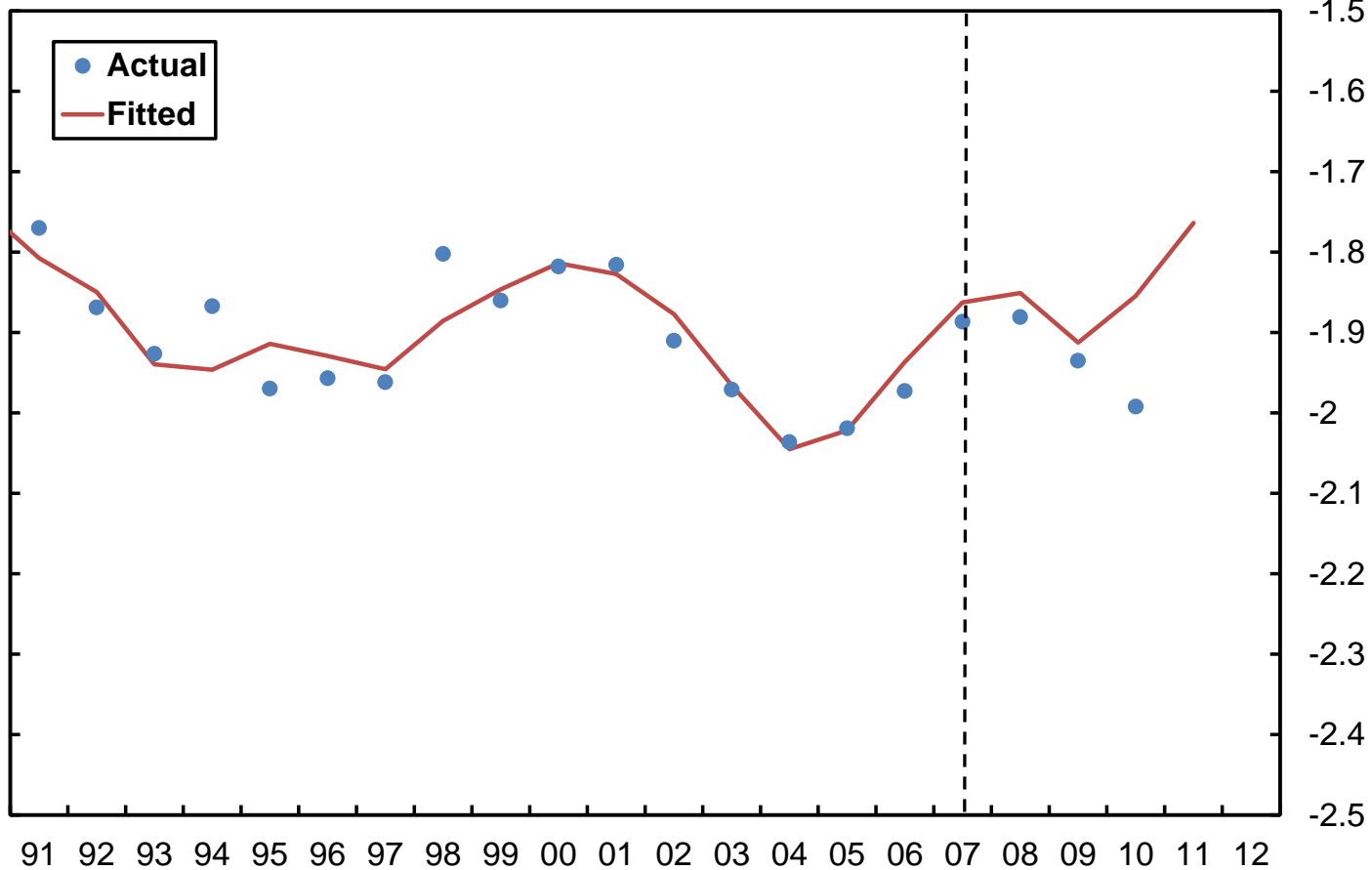


# Very few separations in Germany

## Estimated Separations Rate: Germany

Annual observations

log separations over



Source: OECD and authors' calculations

Burda and Hunt (2011)

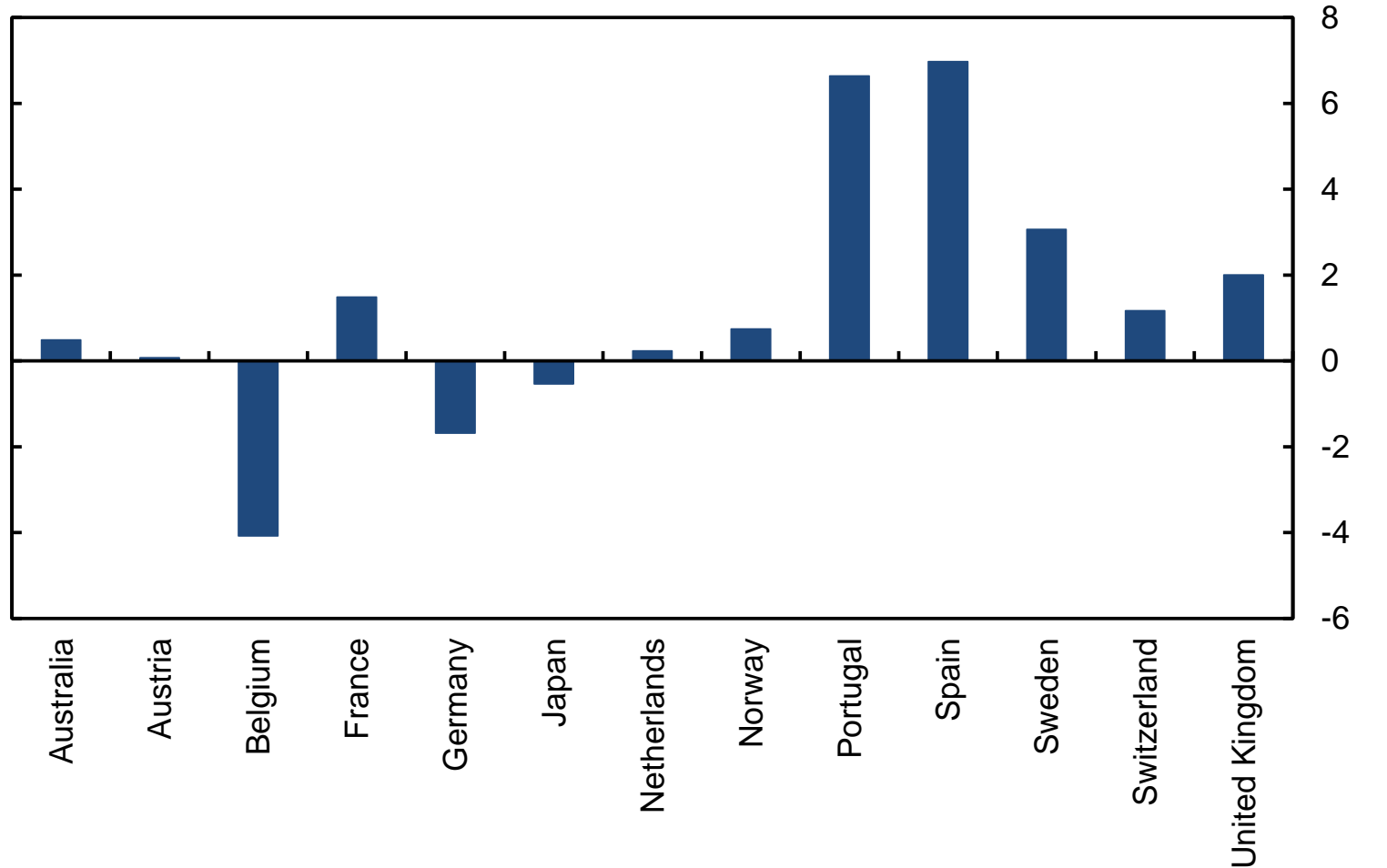
Part 5:

## **SHIFTS SINCE 2007 ACROSS COUNTRIES**

# Shifts in Beveridge curves since 2007

## Deviations from fitted Beveridge Curve: 2010-2011

Average percentage point deviation in the unemployment rate, 2010-2011

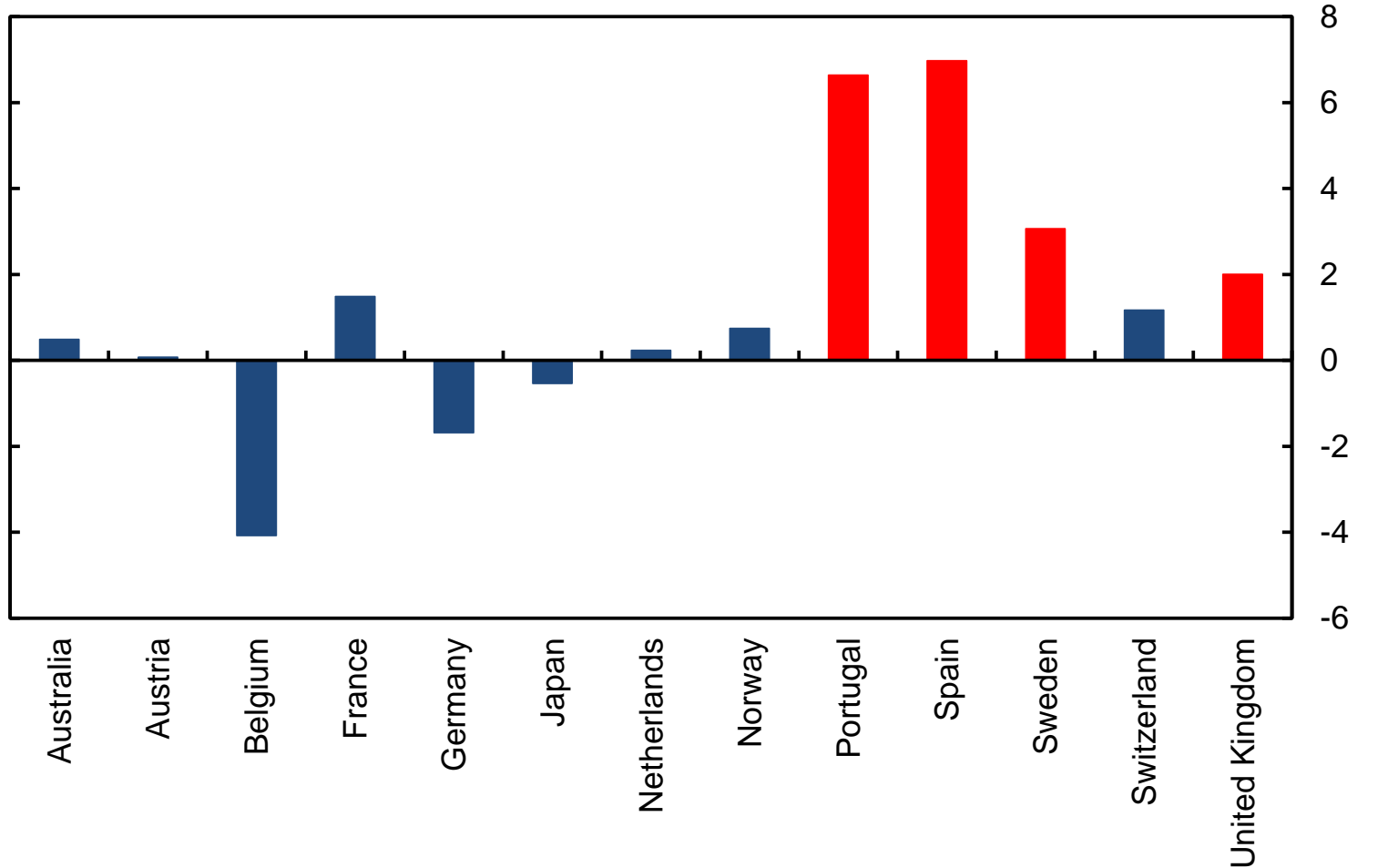


Source: Authors' calculations

# Portugal, Spain, Sweden, U.K. stand out

## Deviations from fitted Beveridge Curve: 2010-2011

Average percentage point deviation in the unemployment rate, 2010-2011

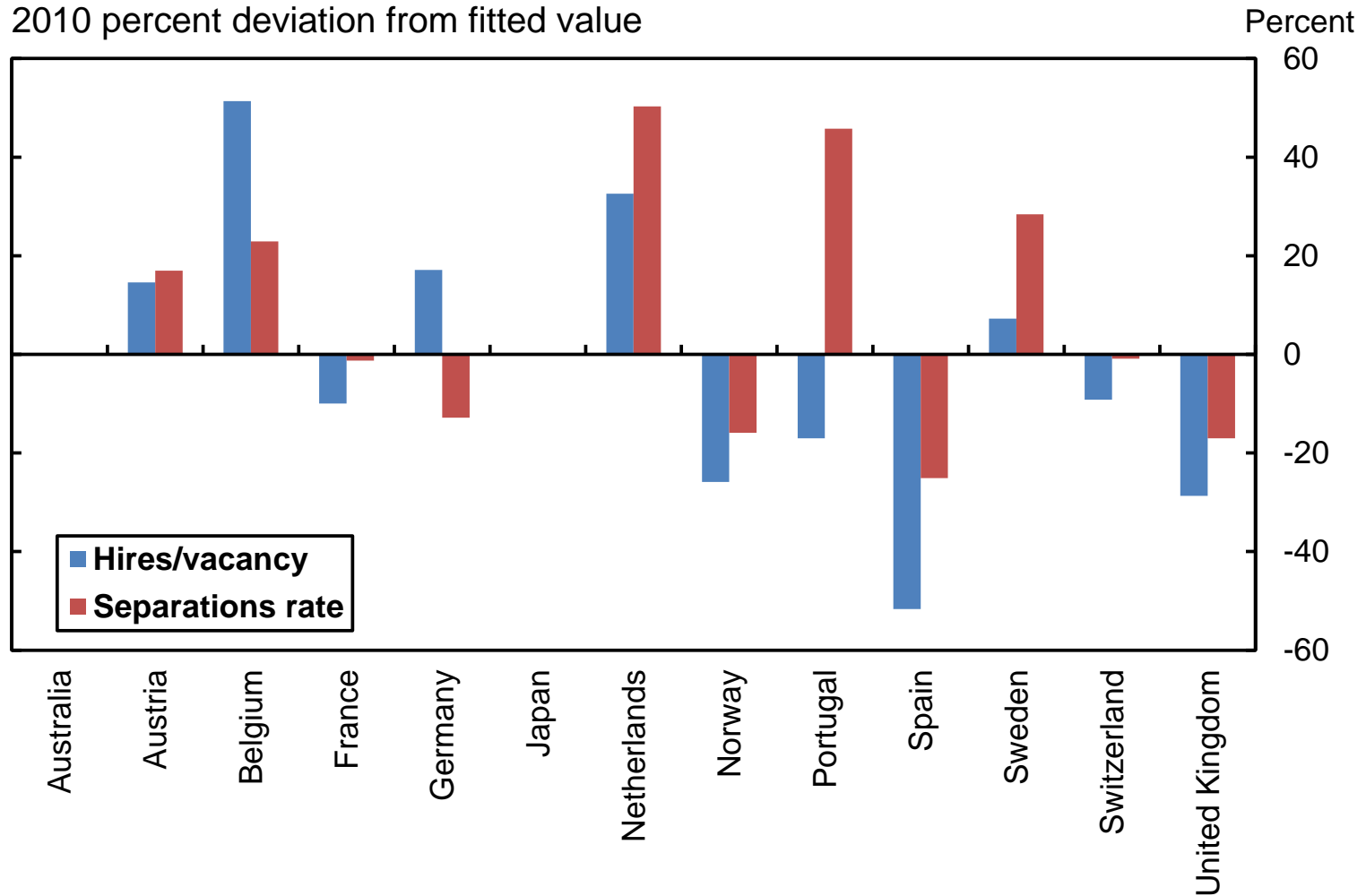


Source: Authors' calculations

# Shifts reflected in labor turnover

## Shortfall/excess in labor turnover

2010 percent deviation from fitted value

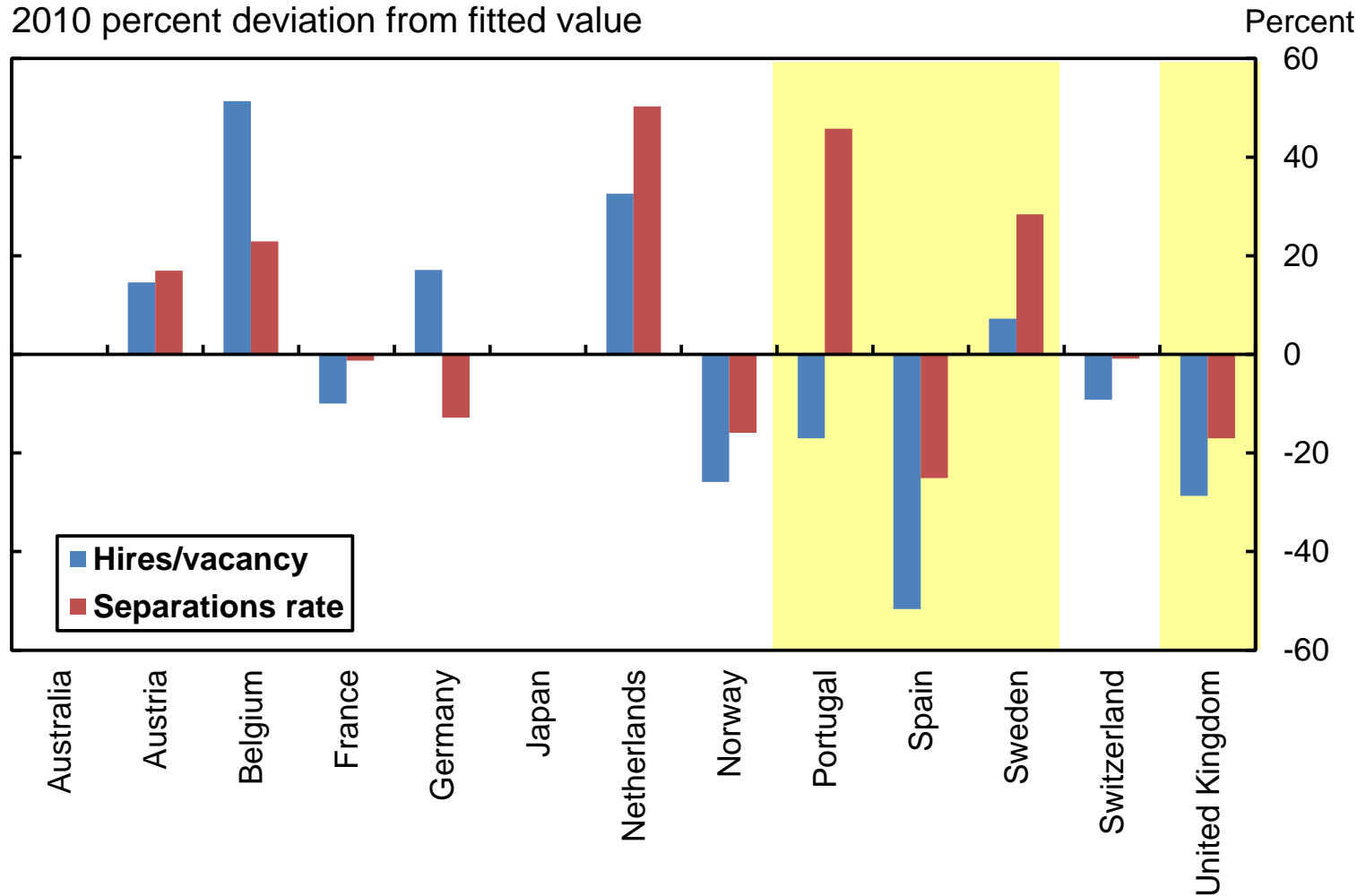


Source: Authors' calculations

# Shifts reflected in labor turnover

## Shortfall/excess in labor turnover

2010 percent deviation from fitted value



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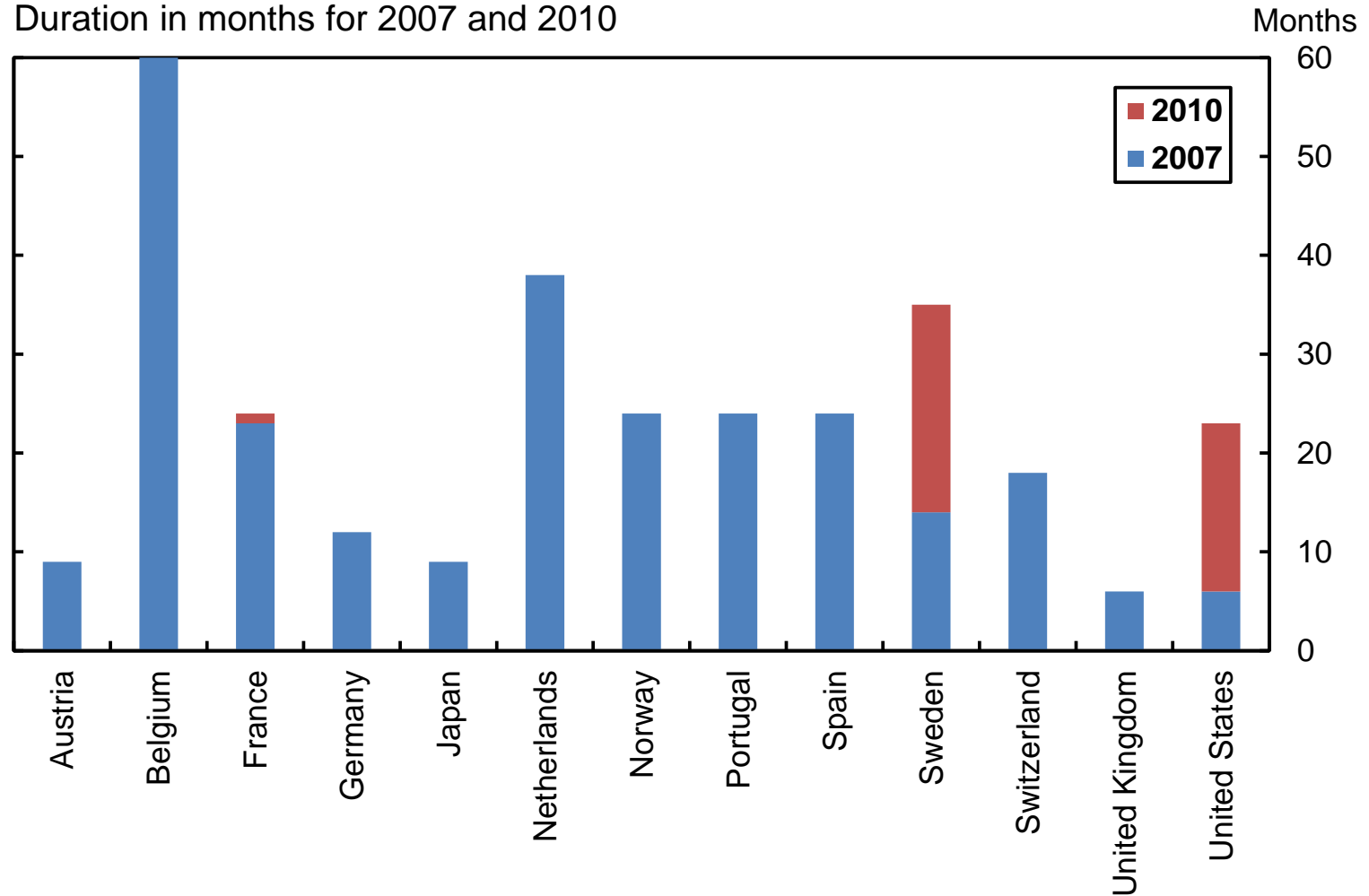
Part 6:

## **CAUSES AND HISTORICAL PERSPECTIVE**

# U.S. and Sweden extended UI

## Duration of Unemployment Insurance Benefits

Duration in months for 2007 and 2010



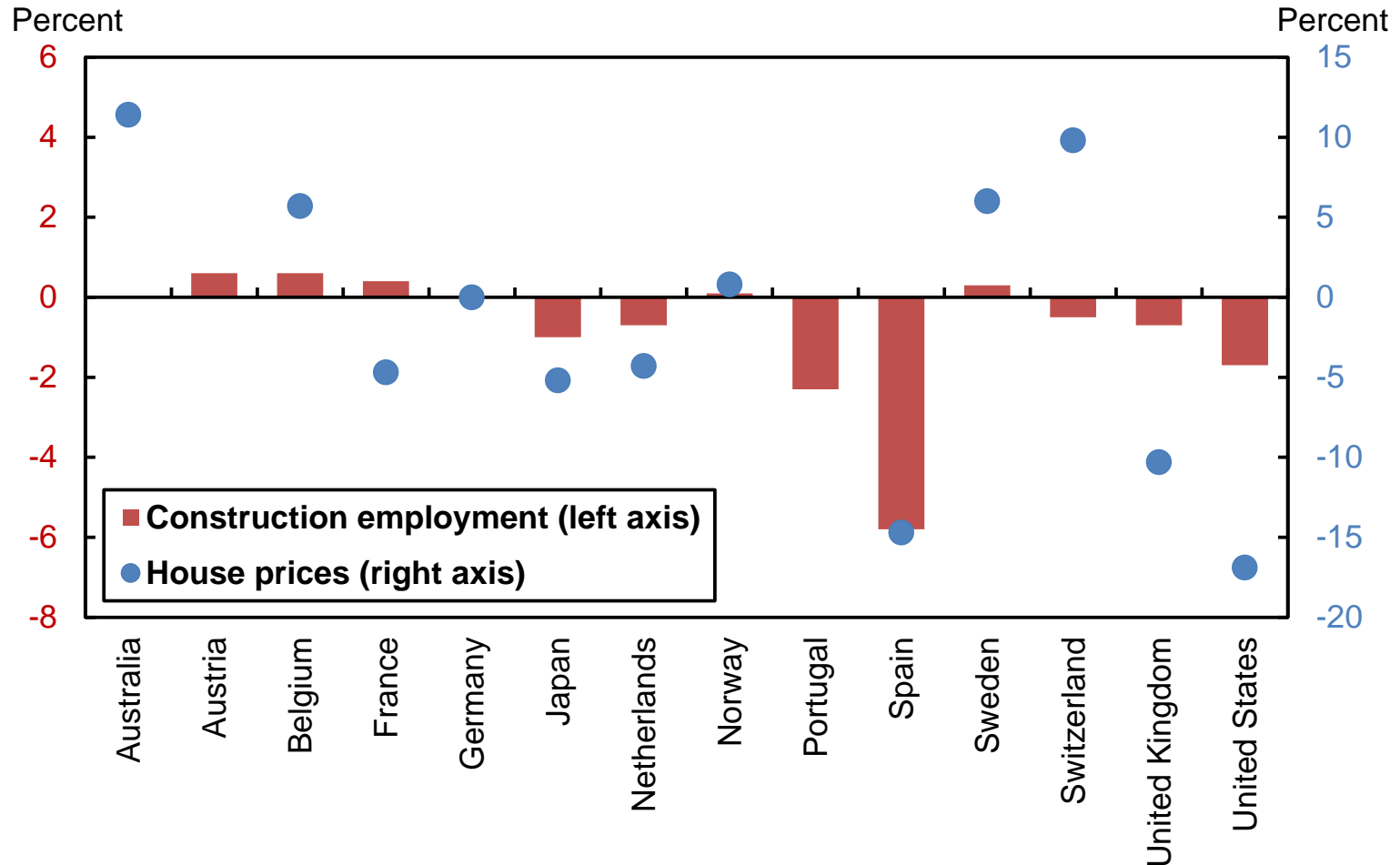
Source: OECD (2012)



# Mismatch/house lock is rest of story

## Change in construction employment and house prices

2007-2010 change in share of construction employment and house prices

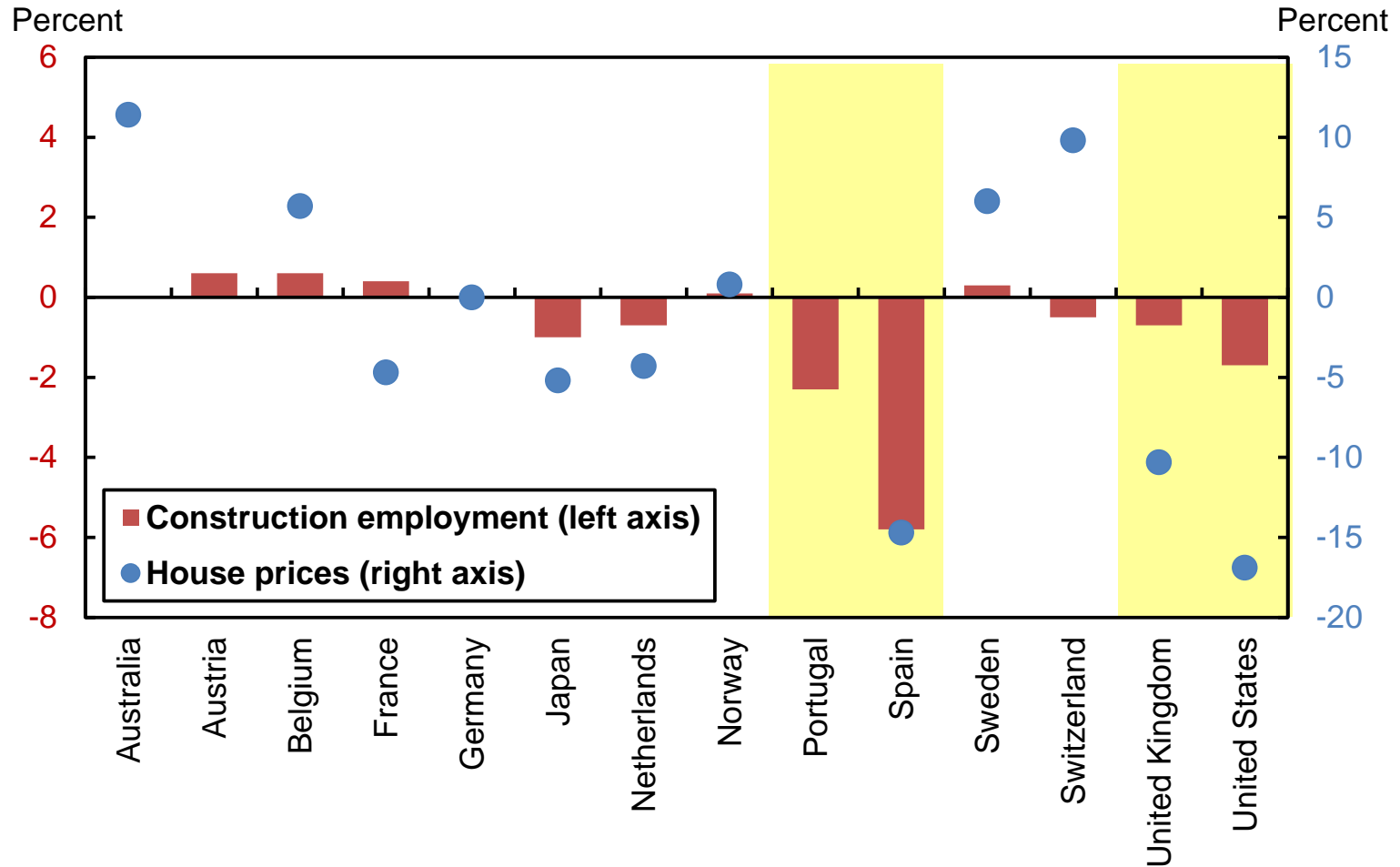


Source: OECD

# Mismatch/house lock is rest of story

## Change in construction employment and house prices

2007-2010 change in share of construction employment and house prices

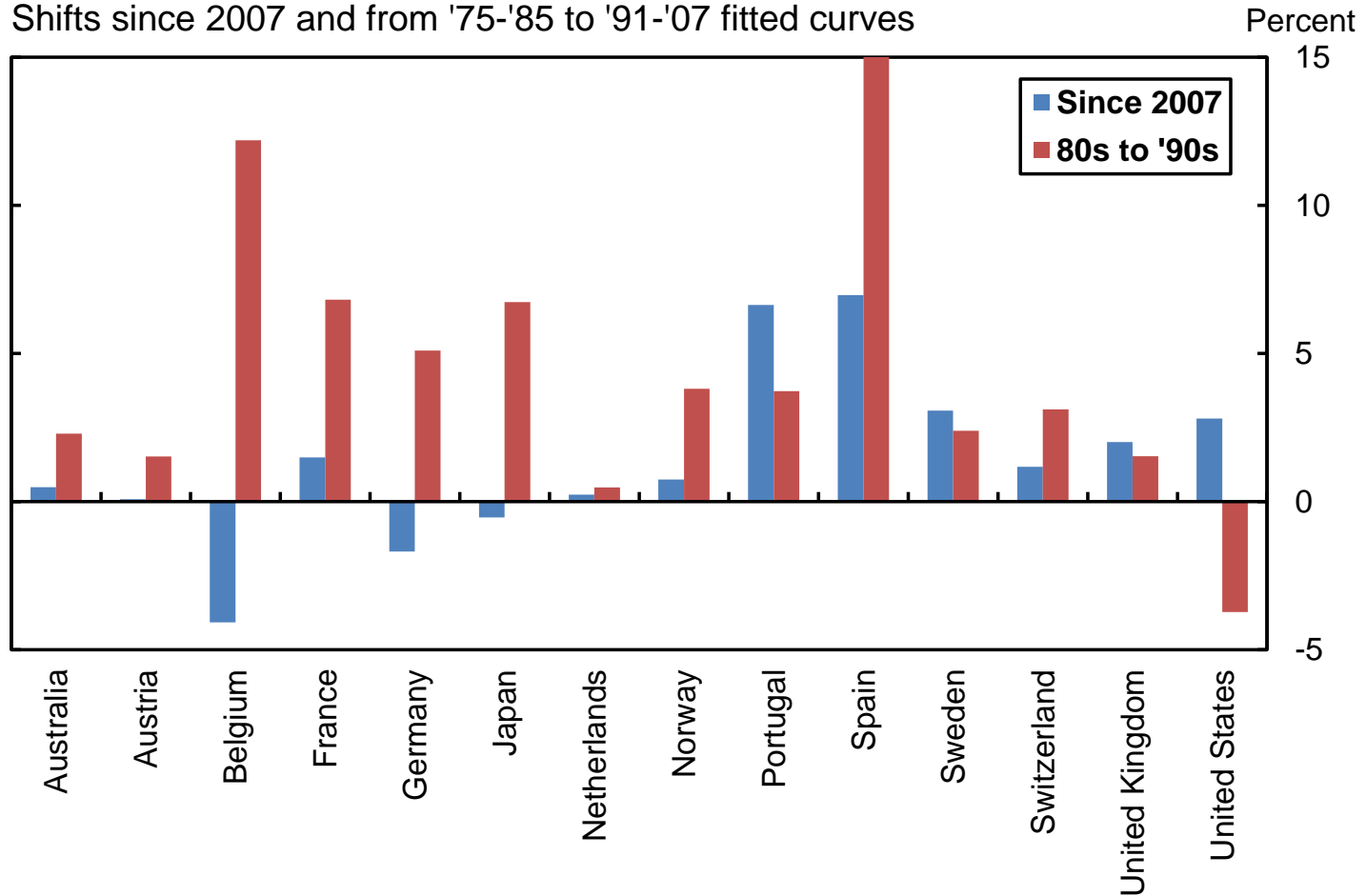


Source: OECD

# Shifts small compared to '80s

## Current and historical Beveridge curve shifts

Shifts since 2007 and from '75-'85 to '91-'07 fitted curves



Source: authors' calculations

Blanchard and Wolfers (2000), Nickell et al. (2001)

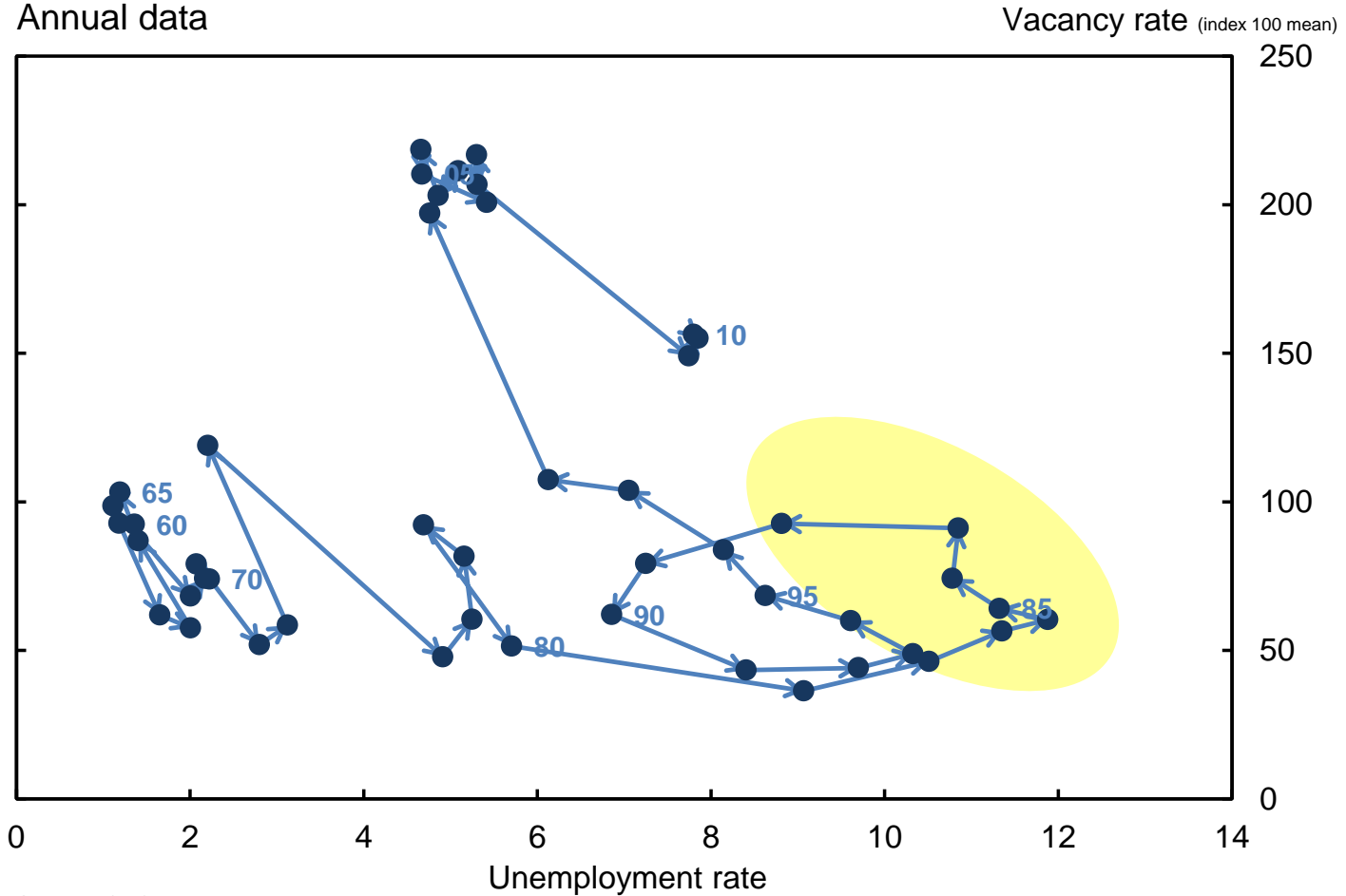
# In case you just walked in...

- Use cross-country evidence to put recent shift in U.S. Beveridge curve in global and historical perspective
- Current U.S. Beveridge curve shift fits **standard profile** (across countries and over time)
  - Deep recession leads to large displacement of workers, resulting in mismatch.
  - Policy response of increased UI generosity to alleviate burden of displacement.

# U.K. experience a roadmap for U.S.?

## Beveridge Curve: United Kingdom

Annual data



Pissarides (2006)