

# Unemployment and the Labor Market

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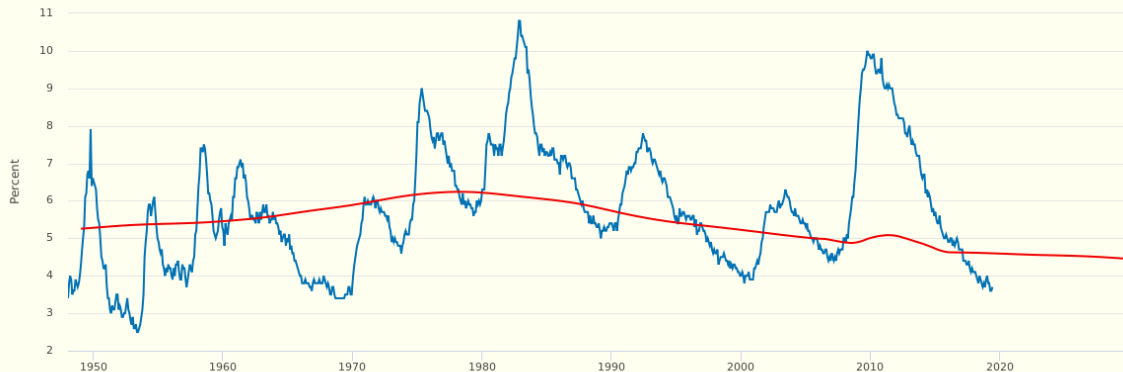
*A man willing to work, and unable to find work is perhaps, the saddest sight that fortune's inequality exhibits under the sun.*

*—Thomas Carlyle*

- Unemployment affects people most directly and severely
- Economists study unemployment to determine which policies best aid the unemployed
  - Job training programs
  - Unemployment insurance
  - Minimum wage laws
- In all free-market economies, some people are unemployed



— Civilian Unemployment Rate  
— Natural Rate of Unemployment (Long-Term)



Sources: BLS, CBO

[fred.stlouisfed.org](https://fred.stlouisfed.org)

In this chapter, we will examine the determinants of the **natural rate of unemployment** —the average rate of unemployment around which the economy fluctuates.

# Job Loss, Job Finding, and the Natural Rate of Unemployment

## **Stock**

- Employed
- Unemployed

## **Flow**

- Separation
- Finding

# Transitions Between Employment and Unemployment

*Employed*  $\rightarrow$  *Job Separation*(*s*)  $\rightarrow$  *Unemployed*  $\rightarrow$  *Job Finding*(*f*)  $\rightarrow$  *Employed*



# Modeling Labor Dynamics

## Variables

- $L$  - labor force
- $E$  - number employed
- $U$  - number unemployed
- $U/L$  - unemployment rate
- $s$  - rate of job separation
- $f$  - rate of job finding

## Assumptions

- $L$  is fixed

If the unemployment rate is neither rising or falling —that is, if the labor market is in a *steady state* —then the number of people finding jobs  $fU$  must equal the number of people losing jobs  $sE$ .

$$fU = sE$$

We know  $E = L - U$ , so we can substitute this in

$$fU = s(L - U)$$

Divide both sides by  $L$

$$f \frac{U}{L} = s \left( 1 - \frac{U}{L} \right)$$

No we can solve for unemployment

$$\begin{aligned}\frac{U}{L} &= \frac{s}{s+f} \\ &= \frac{1}{1+f/s}\end{aligned}$$

The steady-state of unemployment  $U/L$  depends on the rates of job separation and job finding.

- $s \uparrow \rightarrow U \uparrow$
- $f \uparrow \rightarrow U \downarrow$

## A Numerical Example

- 1% of the employed lose their jobs each month
- 20% of the unemployed find a job each month

$$\begin{aligned}\frac{U}{L} &= \frac{0.01}{0.01 + 0.20} \\ &= 0.0476\end{aligned}$$

## Finding

*Any policy aimed at lowering the natural rate of unemployment must either reduce the rate of job separation or increase the rate of finding. Similarly, any policy that affects separation or finding also changes the natural rate of unemployment.*

This model does not address why there is unemployment in the workplace.

# Job Search and Frictional Unemployment

One reason for unemployment is that it takes time to match workers and jobs.

- In earlier chapters, we consider all workers identical, thus, equally capable at all jobs
- Workers have different preferences and abilities, and jobs have different requirements
- The unemployment caused by the time it takes workers to search for a job is called **frictional unemployment**

# Causes of Frictional Unemployment

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- *Going concerns*, unsatisfactory job performance, skills lapse are additional examples
- As long as the supply and demand for labor among firms is changing frictional unemployment is unavoidable

# Public Policy and Frictional Unemployment

Many public policies aim at decreasing the natural rate of unemployment.

- Publicly dissemination of job availability
- Job retraining programs

Some programs, however, increase the amount of frictional unemployment.

- **unemployment insurance**, a program where unemployed workers can collect a fraction of their wages for a certain period after losing their jobs.
- There's some variation, but typically a worker can collect 50 percent of their current wages for half a year
- This has the unintended effect of decreasing the costs of unemployment, thus, increasing its desirability

## Additional Effects of UI

- Raises the natural unemployment rate
- Because workers' incomes are partially protected by UI, they are less likely to seek jobs with stable employment prospects
- Less likely to bargain for guarantees of job security
- On the positive, it likely leads to better firm-worker matches (less likely to accept first offer)
- Reduces income uncertainty

## Proposed Reforms to UI

- implement *100 percent experience rate* UI system
- Shorten benefit window
- Decrease fraction of wage or lower cap

# Real Wage Rigidity & Structural Unemployment

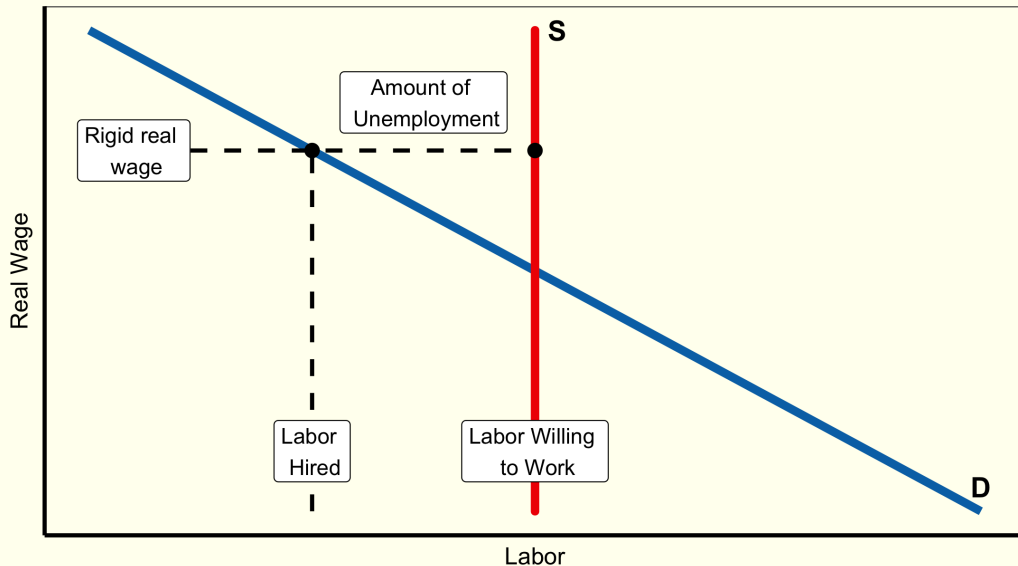
**Wage rigidity** is the failure of wages to adjust to a level at which labor supply equals labor demand.

# Real Wage Rigidity & Structural Unemployment

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The unemployment resulting from wage rigidity and job rationing is sometimes called **structural unemployment**

# Real Wage Rigidity





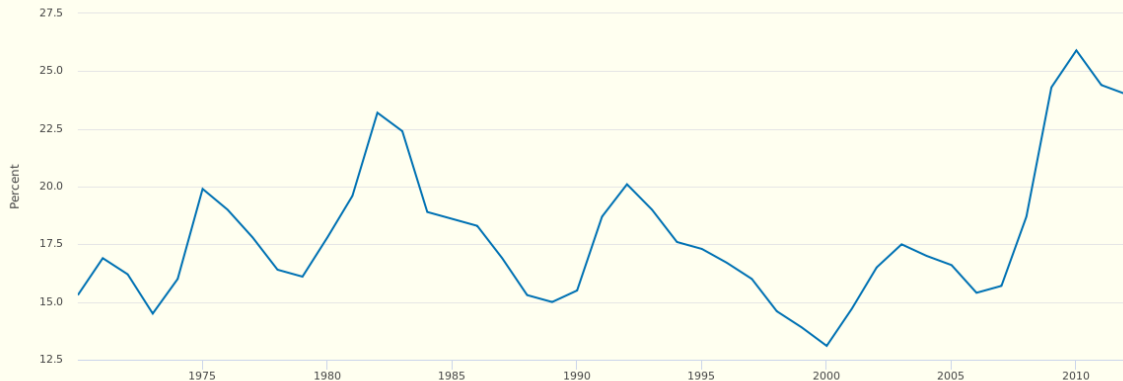
# Minimum-Wage Laws

Minimum-wage laws set a legal minimum on the wages firms pay their employees.

- Fair Labor Standards Act of 1938 created the federally imposed minimum-wage
- For some workers —the unskilled and the unexperienced —a minimum-wage raises their wage above equilibrium level
- Disemployment effects have been empirically mixed
- Some argue it's poorly targeted
  - EITC does a better job



— Unemployment Rate for Teenagers in the United States (DISCONTINUED)



Source: U.S. Bureau of Labor Statistics

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## Characteristics of Minimum Wage Workers: 2017

- 80.4 M workers are paid hourly (58.3 percent of all workers), of that 1.8M workers paid at or below minimum wage
  - 1.3M below
  - 542,000 at federal minimum
- Minimum wage workers tend to be young
- 3 percent of women and 2 percent of men were paid the federal minimum
- Marginal differences among race/ethnicity —one divergence being that African-Americans are about one percentage point higher compared to other races and ethnicity

# Characteristics of Minimum Wage Workers: 2017

- Minimum-wage workers tend to be less educated
- Southern states over-represented
- Never, married workers (who tend to be young) more likely than married workers

# Unions & Collective Bargaining

The wages of unionized workers are not determined by supply and demand but by bargaining between union heads and firm management

Unions will also indirectly affect the wages of non-unionized workers

The unemployment caused by unions and by the threat of unionization is an instance of conflict between different groups

- **insiders** —those already employed by the firm
- **outsiders** —those unemployed

## Percent of Workers Covered by Collective Bargaining

|             |     |
|-------------|-----|
| South Korea | 10% |
| U.S.        | 13  |
| Canada      | 29  |
| U.K.        | 31  |
| Germany     | 61  |
| Sweden      | 91  |
| France      | 92  |

# Efficiency Wages

**Efficiency wage** theories posit that higher wages make workers more productive.

- 1 higher wages directly influence nutrition
- 2 high wages reduce turnover
- 3 average quality of firm depends on the wage —Outcome due to *adverse selection* (hidden information)
- 4 high wages improve worker effort —Outcome due to *moral hazard* (hidden action)

## Historical Lesson: Ford Motors

- In 1914 the Ford Motor Co. paid workers \$5/day, sometimes twice the prevailing wage
- Absenteeism fell by 75 percent





# Labor-Market Experience: The United States

# Duration of Unemployment

When a person becomes unemployed, is the spell of employment likely to be short or long?

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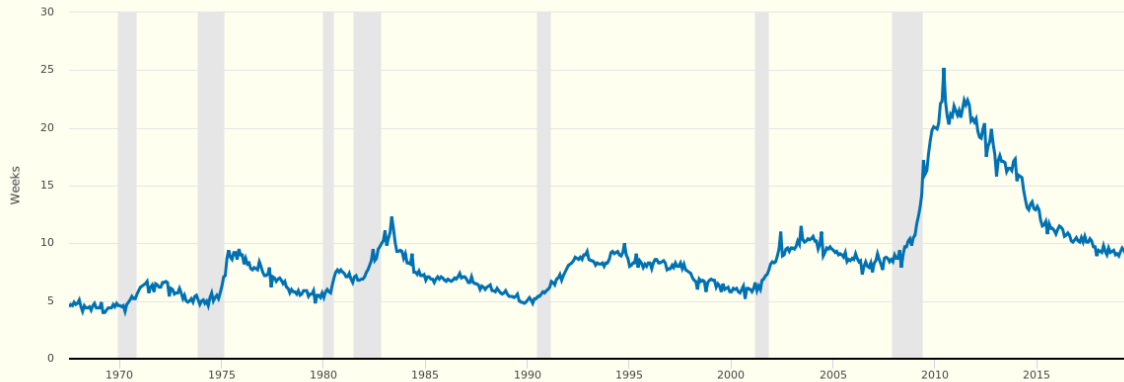
Suppose 10 people are unemployed. Of these 10, 8 are unemployed for 1 month and 2 are unemployed for 12 months, totaling 32 months of unemployment.

75 percent of the unemployed months are experienced by two people

# Increase in U.S. Long-Term Unemployed

**FRED**

— Median Duration of Unemployment



*Shaded areas indicate U.S. recessions*

Source: U.S. Bureau of Labor Statistics

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# Demographic Variation in Unemployment

The rate of unemployment varies substantially across different groups within the population.

| <b>Age</b> | <b>White Men</b> | <b>White Women</b> | <b>Black Men</b> | <b>Black Women</b> |
|------------|------------------|--------------------|------------------|--------------------|
| 16-19      | 19.2             | 15.5               | 36.5             | 29.7               |
| 25-54      | 4.4              | 4.6                | 10.1             | 9.1                |

Table: Unemployment Rate by Demographic Group (2014)

Why is the unemployment rate for young workers so much higher?

- Our model isolates two causes
  - 1 Low rate of job finding
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- Our model isolates two causes
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- There seems to be little difference in the rate of job finding
- The differences seem to be highly related to separation
  - Less attachment to a particular job when young
  - Lower productivity on average

Unemployment is also much higher for blacks. This seems to be driven by both lower rates of job finding and higher rates of separation.

- Possible causes include
  - Less access to informal job-finding networks
  - Discrimination
    - Statistical
    - Taste-based

## Transitions Into and Out of the Labor Force

Our model of the natural rate of unemployment has assumed that the labor force is fixed. The dynamics of those that enter and leave the labor force is important too.

- $\approx 1/3$  of the unemployed have recently entered the labor force
- $\approx 1/2$  of all unemployment spells end with withdrawal from the labor force
  - This muddles the interpretation of the unemployment rate
- The BLS calculates several measures of labor utilization to assuage concerns related to the UR's interpretation

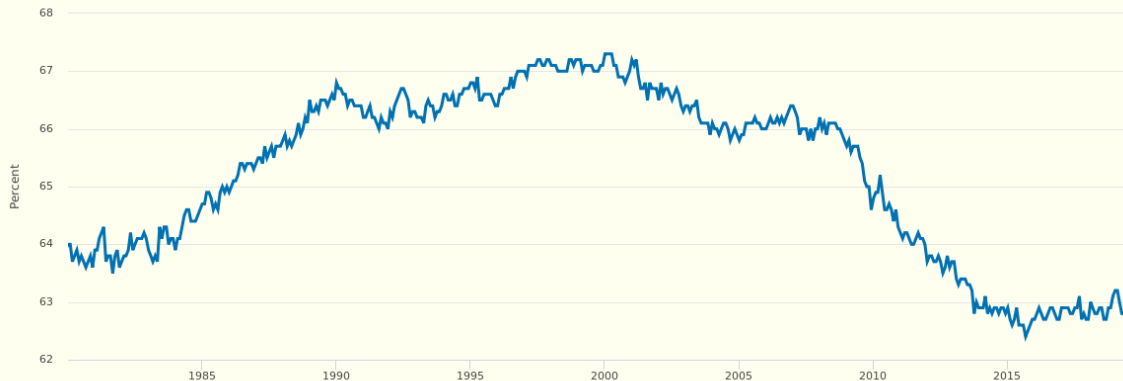
## Alternative Measures of Labor Underutilization

| Variable | Description  | Rate |
|----------|--|------|
| U-1      | Persons unemployed 15 weeks or longer                    | 2.8% |
| U-2      | Job losers and leavers who have completed temporary jobs | 2.8  |
| U-3      | Total unemployed   | 5.8  |
| U-4      | Total unemployed plus discouraged workers                | 6.2  |
| U-5      | Total unemployed plus marginally attached workers        | 7.1  |

**Table:** *Marginally attached workers* are person who currently are neither working nor looking for work.



— Civilian Labor Force Participation Rate



Source: U.S. Bureau of Labor Statistics

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# The Decline in Labor Force Participation

From December of 2007 – June 2019, the labor force participation rate has dropped 3.1 percentage points —roughly six million fewer workers were looking for work in 2019 than otherwise would have been the case. What explains the drop?

- Increase in retired workers
- Increase in disabled workers
- Increase in discouraged workers
- Increase in school attendance

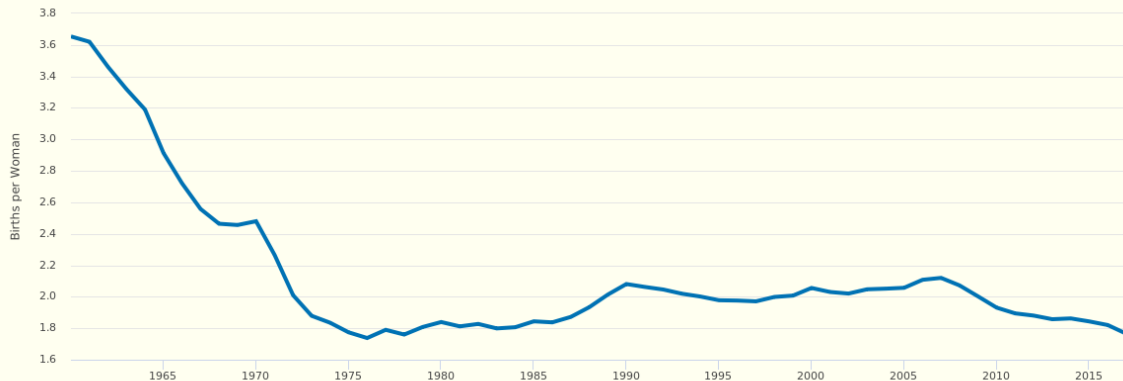
# Baby Boomers

- The baby boom began in 1946 at the end of WWII
- The first of the baby boomers turned 62 in 2008
- As more baby boomers retire, the labor force is certain to shrink even more





— Fertility Rate, Total for the United States

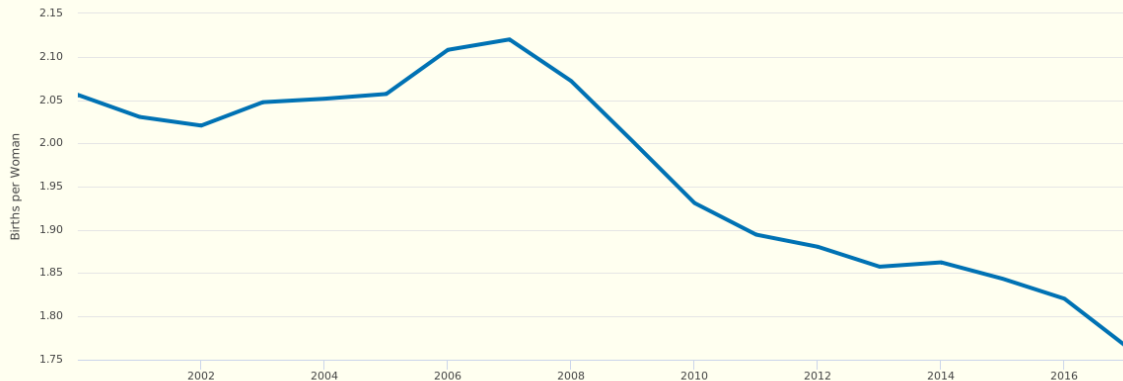


Source: World Bank

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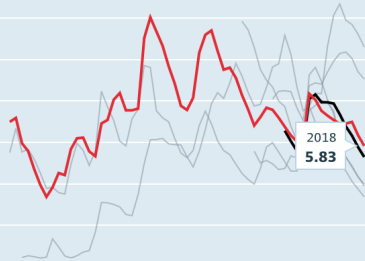


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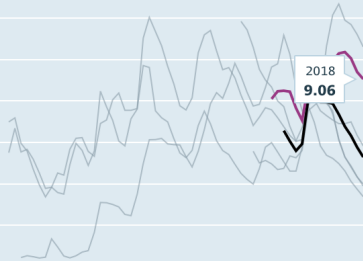
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# Labor Market Experiences: Europe

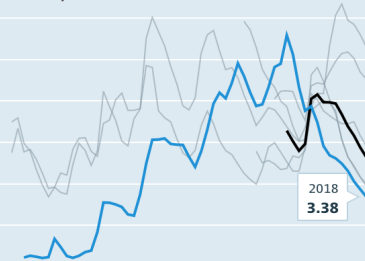
Canada



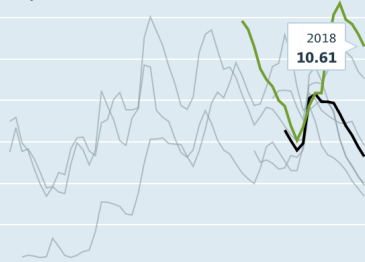
France



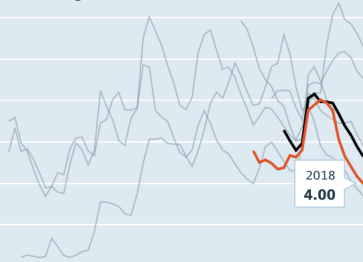
Germany



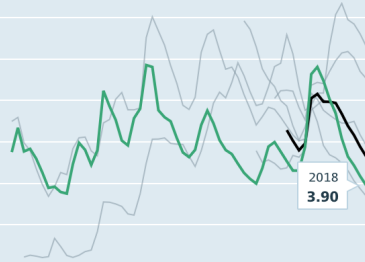
Italy



United Kingdom



United States



# What is the Cause of Rising European Unemployment?

The prevailing theory is the interaction between a long-standing policy and a new shock.

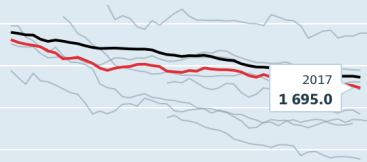
- Generous unemployment benefits
  - Many countries allow the unemployed to collect benefits for years
- Fall in the demand for unskilled workers relative to skill workers
  - In the U.S. rather than this affecting employment, the wage falls

# Unemployment Variation Within Europe

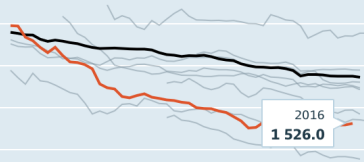
Europe is a collection of national labor markets each with separate policies, cultures, and languages.

- 1 The UR varies substantially from country to country
- 2 A significant portion of the UR can be attributed to the long-term unemployed
- 3 Differences in *replacement rates* across countries
- 4 Differences in *active* labor market policies (e.g. Spain - UR of  $\approx 15\%$ )
- 5 Differences in the strength of unions

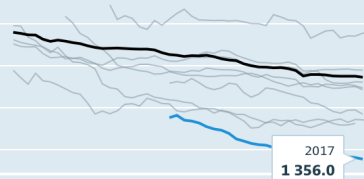
Canada



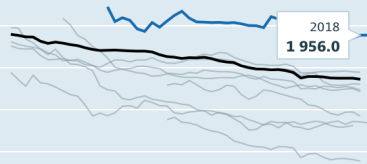
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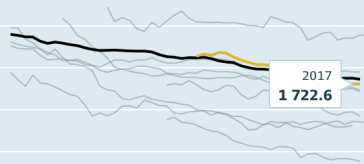
Germany



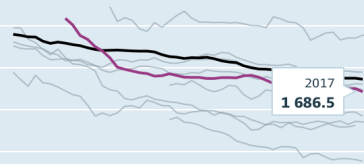
Greece



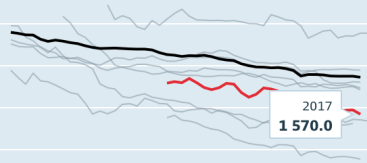
Italy



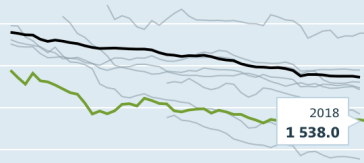
Spain



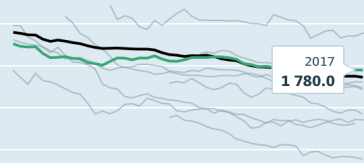
Switzerland



United Kingdom



United States



# Why do Americans Work More

- Differences in taxes (Edward Prescott)
  - Europeans face higher tax rates than Americans
  - European tax rates have risen significantly over the past several decades
- Larger underground economy in Europe
- Union power (Glaeser, Sacerdote, Alesina)
  - If unions are successful in bargaining for higher wages, there is simply a gap between supply and demand.
- Differing preferences for leisure
  - Economist Olivier Blanchard says, "the main difference (between the continents) is that Europe has used some of the increase in productivity to increase leisure rather than income, while the U.S. has done the opposite."



# Conclusion

- Zero unemployment is not a plausible goal for free-market economies
- The natural rate of unemployment depends on the rates of job separation and job findings
- Structural unemployment happens when the real wage remains above the equilibrium wage
- Frictional unemployment occurs because there is some time between job separations and job findings
- Unemployment rates vary between demographic and age cohorts