Chapter 7: Unemployment and the labor market

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Chapter 7: Labor Market

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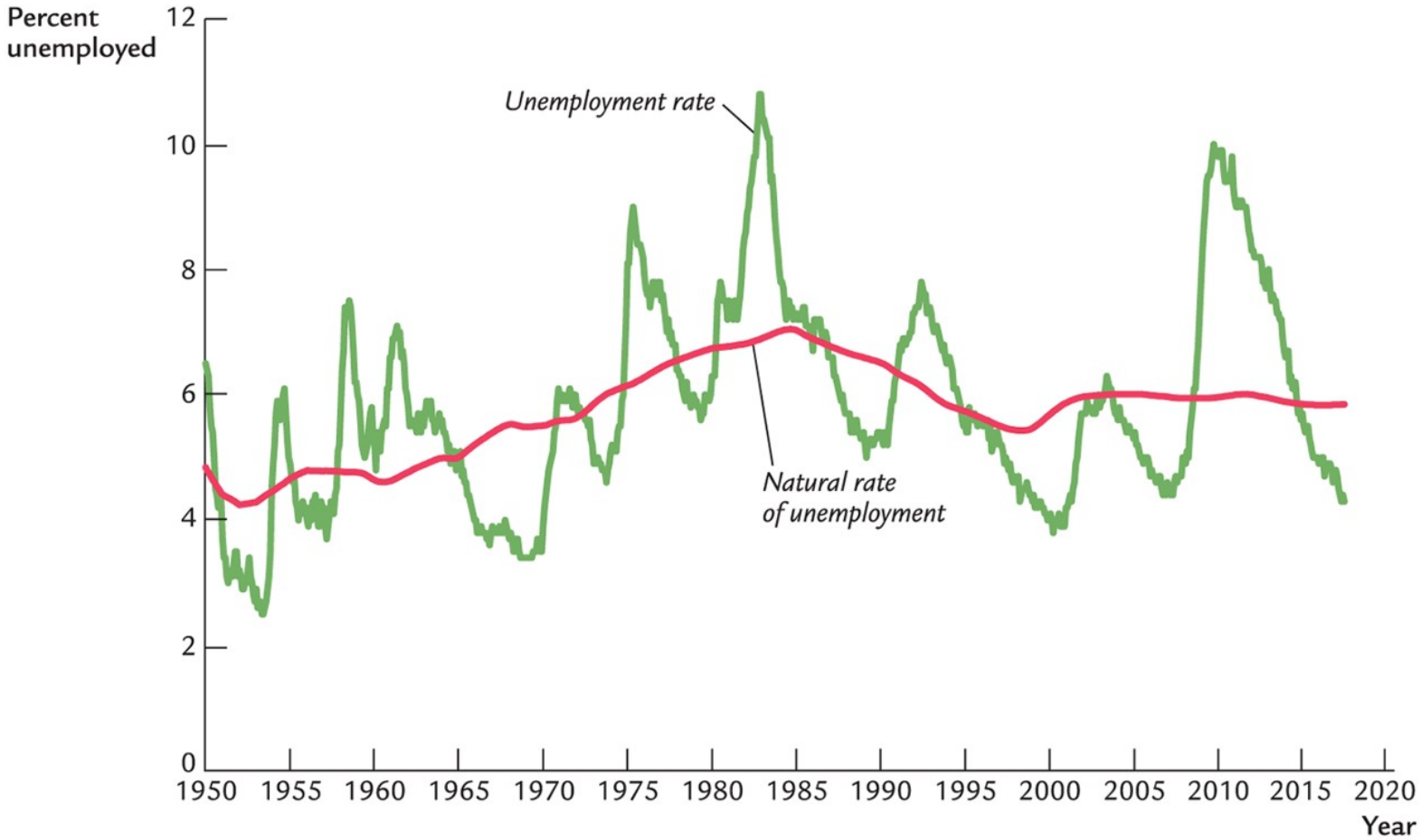
Introduction

- There is always some unemployment: What determines its level?
- In this chapter we do NOT study year-to-year fluctuations of the unemployment rate.
- We examine the determinants of the natural rate of unemployment.

Unemployment rate and natural rate in the US



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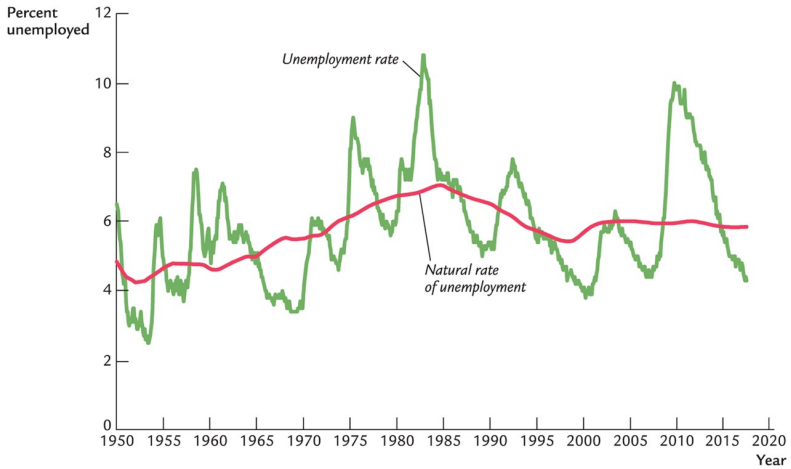
Unemployment rate and natural rate in the US



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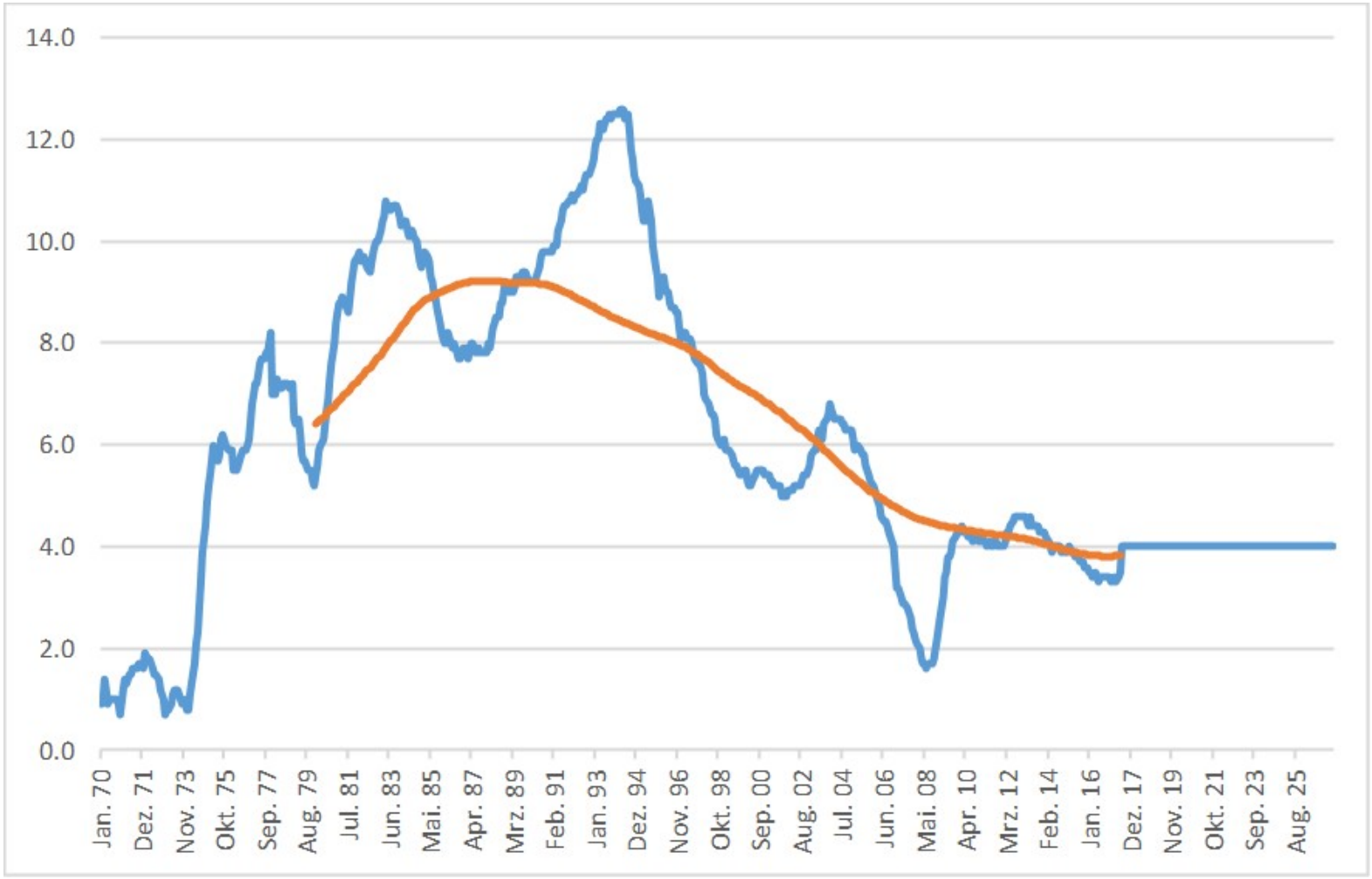
Notes:

- The natural rate for any particular month is estimated here by averaging all the unemployment rates from ten years earlier to the years later.
- The first data point in Jan. 1950: Average between Jan. 1940 – Dec. 1959!?!
- The last data point in Dec. 2019: Average between Dec. 2009 – Nov. 2029 !?!
- Future employment rates are set at 5.5 %.

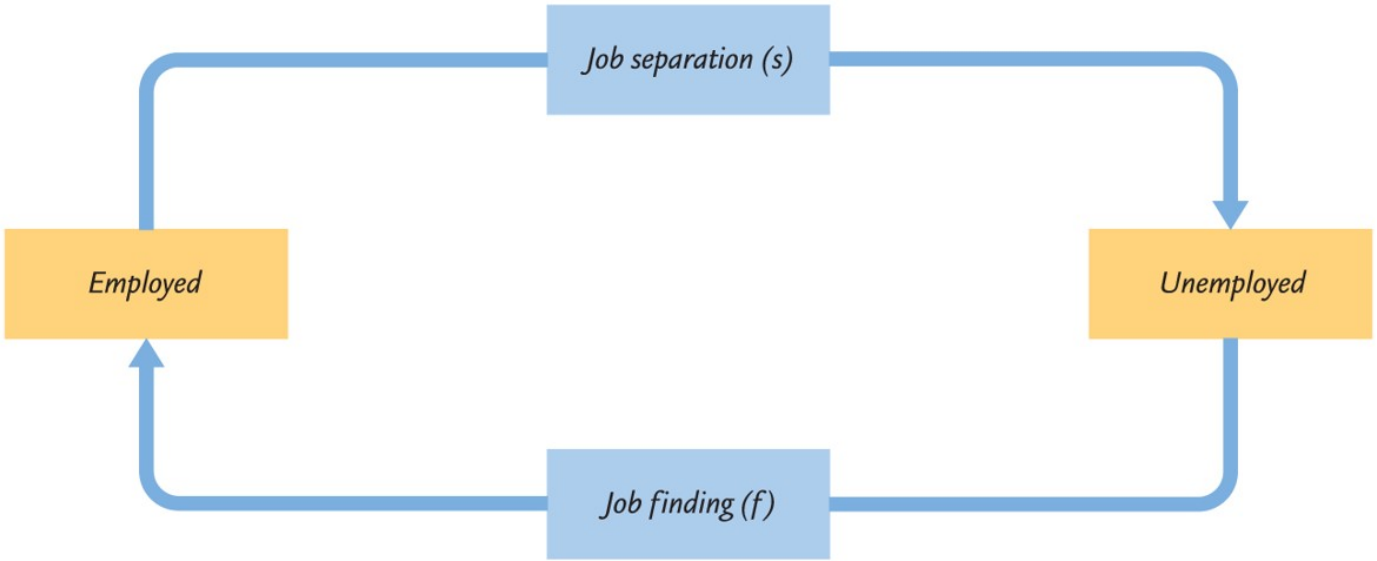
Unemployment rate and natural rate in the Denmark



Notes:

- Federal Reserve Economic Data `https://fred.stlouisfed.org`
- Registered Unemployment Rate for Denmark, Percent, Monthly, Seasonally Adjusted (LMUNRRTTDKM156S)
- Jan. 1970 – Jun. 2017

The transition between employment and unemployment



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Labor force and unemployment rate

$$L = E + U \tag{1}$$

- L: Labor force (Important assumption: Labor force is fixed)
- E: Number of employed workers
- U: Number of unemployed workers

Unemployment rate:

$$\frac{U}{L} = \frac{U}{E + U} \tag{2}$$

Rate of job separation

- The fraction of employed individuals who lose or leave their jobs each month *(rate of job separation)*:

$$s \cdot E \tag{3}$$

- When $s = 0.01 = 1\ \%$
- 1 % of the employed loose their jobs each month.
- The average spell of employment last $1/0.01 = 100$ months ≈ 8 years.

Rate of job finding

- The fraction of unemployed individuals who find a job each month *(rate of job finding)*:

$$f \cdot U \tag{4}$$

- When $f = 0.2 = 20\ \%$
- 20 % of the unemployed find a job each month.
- The average spell of unemployment last $1/0.2 = 5$ months.

Steady state

- When the unemployment rate is neither rising or falling, the labor market has reached its *steady state*.
- The number of people finding a job each month ($f \cdot U$) must equal
- the losing jobs ($s \cdot E$).

$$f \cdot U = s \cdot E \tag{5}$$

Steady state unemployment rate

$$f \cdot U = s \cdot E$$

under consideration of $L = E + U \quad \rightarrow \quad E = L - U$, we get:

$$f \cdot U = s \cdot (L - U) \tag{6}$$

Dividing both sides by L, yields:

$$f \cdot \frac{U}{L} = s \cdot \left(1 - \frac{U}{L}\right) \tag{7}$$

Solve for U/L!

$$f \cdot \frac{U}{L} + s\frac{U}{L} = s \tag{8}$$

Steady state unemployment rate

$$f \cdot \frac{U}{L} + s\frac{U}{L} = s$$

$$(s+f) \cdot \frac{U}{L} = s \tag{9}$$

$$\frac{U}{L} = \frac{s}{s+f} \tag{10}$$

Equation (10) could also be written as:

$$\frac{U}{L} = \frac{s}{s+f} \quad \Big| \cdot \frac{\frac{1}{s}}{\frac{1}{s}} \quad \Rightarrow \quad \frac{U}{L} = \frac{1}{1+\frac{f}{s}} \tag{11}$$

Steady state unemployment rate

We work with equation (10)!

$$\frac{U}{L} = \frac{s}{s+f} = \frac{0.01}{0.01+0.2} = 0.04762 \tag{12}$$

The steady state unemployment rate is 4.762 % which is about 5%.

Steady state unemployment rate

$$\frac{U}{L} = \frac{s}{s+f} = \frac{1}{1+\frac{f\uparrow}{s\downarrow}}$$

- Any policy aimed at lowering the natural rate of unemployment must either
  - reduce the rate of job separation ($s \downarrow$) or
  - increase the rate of job finding ($f \uparrow$).
- Any policy that affects
  - rate of job separation or
  - the rate of job finding
- also changes the natural rate of unemployment.

But why is there unemployment in the *first* place?

Frictional unemployment

- Assumption until now: Labor is homogeneous – jobs are homogeneous.
- BUT: Workers have different preferences and abilities
- Jobs have different attributes
- Flow of information about job candidates and job vacancies is imperfect
- Geographic mobility of workers is not instantaneous
- The unemployment – caused by the time it takes to search for workers/jobs – is called *frictional unemployment*.

Frictional unemployment

- *Sectoral shift*: Change in the composition of demand among industries or regions.
- Firms might fail (insolvencies)
- Job performance is unacceptable.
- Workers want to change careers or move to different parts of the country.

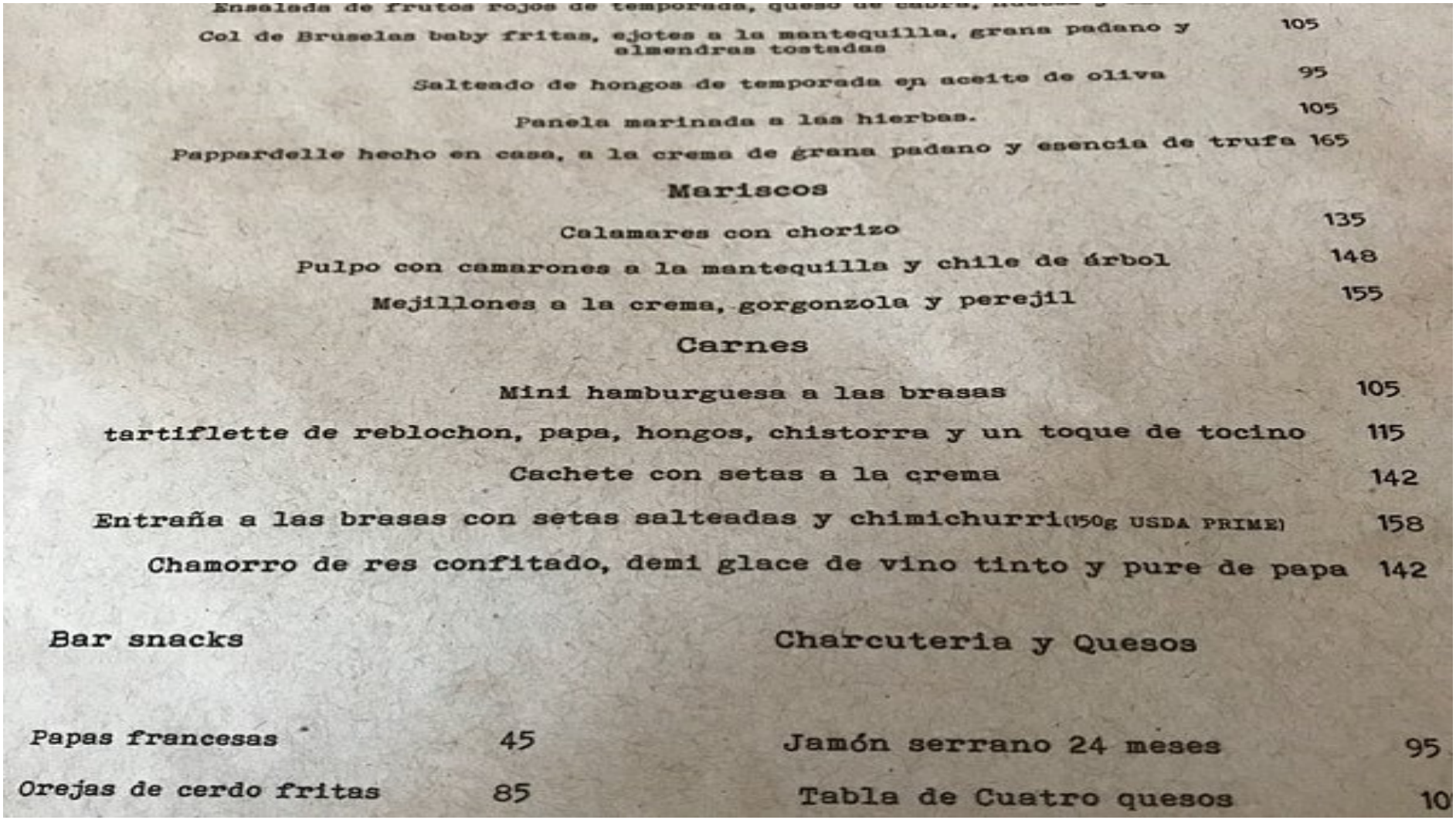
Public polices

- Governmental employment agencies disseminate information about job vacancies
- Publicly funded training programs.
- Unemployment insurance
  - Increases the duration of unemployment and causes frictional unemployment.
  - But might lead to a better fit between workers and jobs in the longer run.
  - There is always a trade-off.

Definitions

- Wage Rigidity: Failure of real wages to adjust to a level at which labor supply equals labor demand.
- Structural unemployment: Unemployment resulting from wage rigidity and job rationing
- Three causes of wage rigidity
  1. Minimum-wage laws.
  2. Monopoly power of unions.
  3. Efficiency wages.


3 VINOS
BODEGA
ARDOSA
LICORES
AGUARDIENTES
VIÑEDOS PROPIOS
VERMUT
CERVEZAS DE LAS MEJORES MARCAS
VINOS FINOS
COCINA CASERA
TAPAS FINAS
MORAPIO DE VALDEPEÑAS
Pilsner Urquell
BODEGA ARDOSA
CASA FUNDADA
1892
VERMUT DE REUS
CONSERVAS
ENCURTIDOS
SALAZONES
ESCABECHES
CHACINAS
AHUMADOS
ANCHOAS DE CANTABRIA



Ensalada de frutos rojos de temporada, queso de cabra, [illegible]

Col de Bruselas baby fritas, ejotes a la mantequilla, grana padano y almendras tostadas 105

Salteado de hongos de temporada en aceite de oliva 95

Panela marinada a las hierbas. 105

Pappardelle hecho en casa, a la crema de grana padano y esencia de trufa 165

Mariscos

Calamares con chorizo 135

Pulpo con camarones a la mantequilla y chile de árbol 148

Mejillones a la crema, gorgonzola y perejil 155

Carnes

Mini hamburguesa a las brasas 105

tartiflette de reblochon, papa, hongos, chistorra y un toque de tocino 115

Cachete con setas a la crema 142

Entraña a las brasas con setas salteadas y chimichurri(150g USDA PRIME) 158

Chamorro de res confitado, demi glace de vino tinto y pure de papa 142

Bar snacks

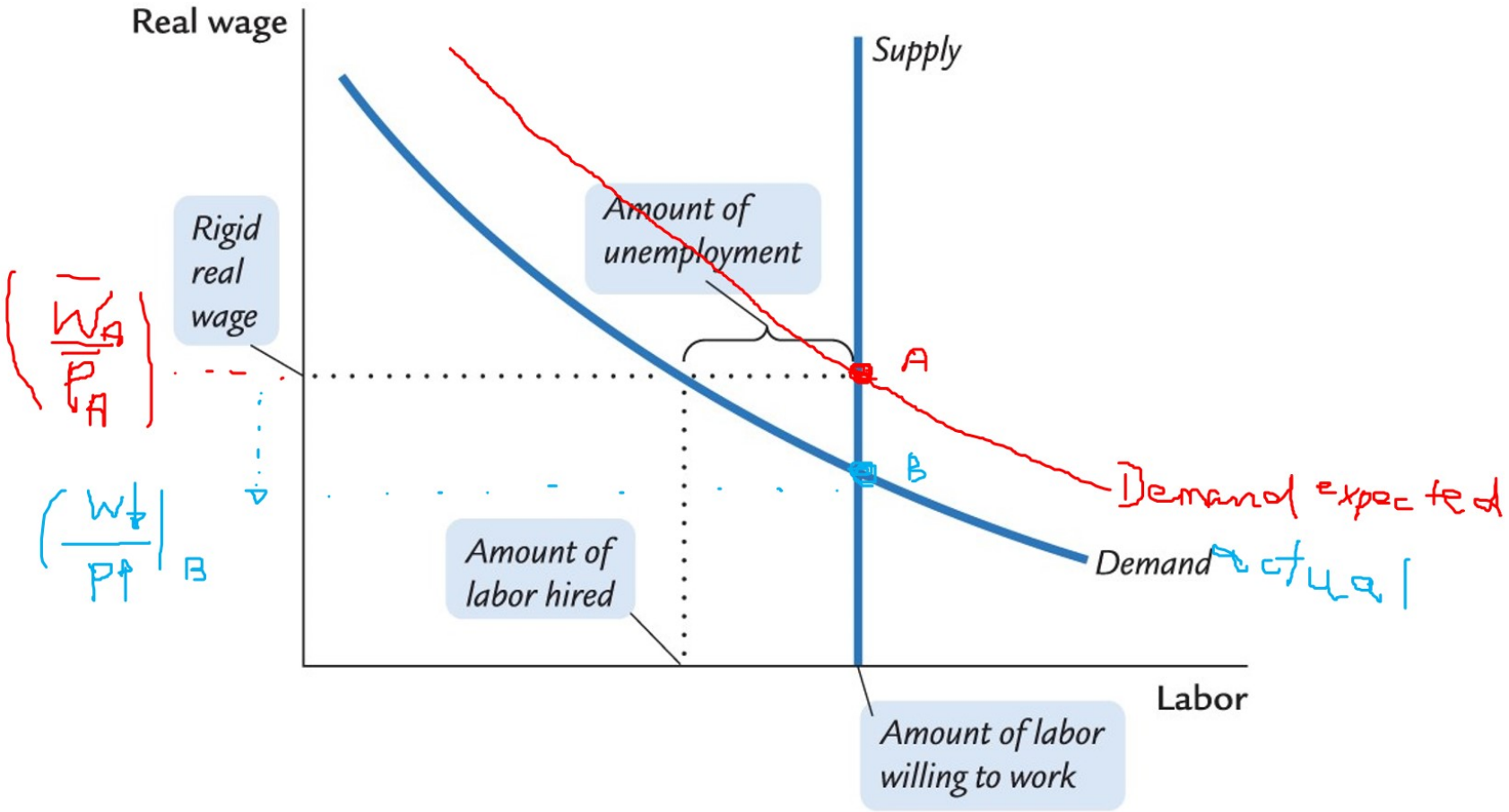
Papas francesas 45

Orejas de cerdo fritas 85

Charcuteria y Quesos

Jamón serrano 24 meses 95

Tabla de Cuatro quesos 10



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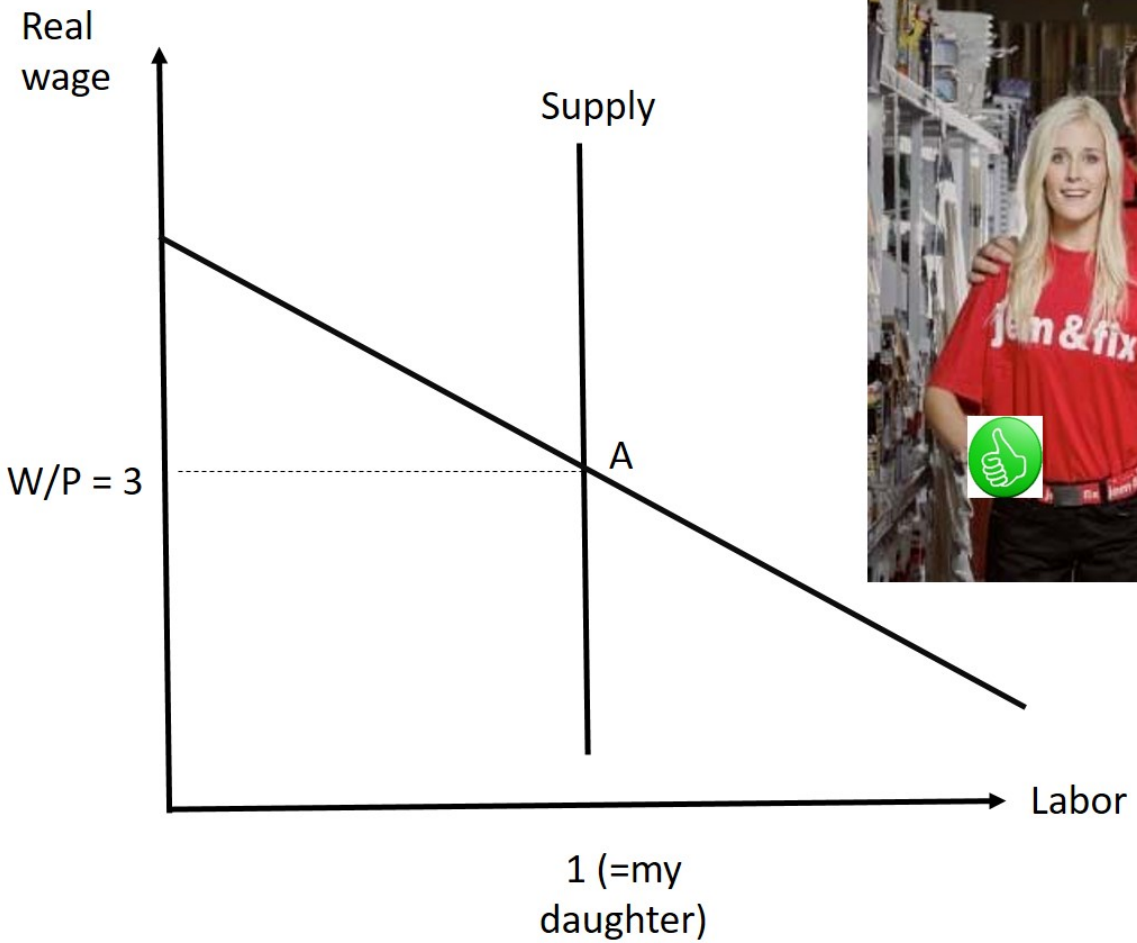
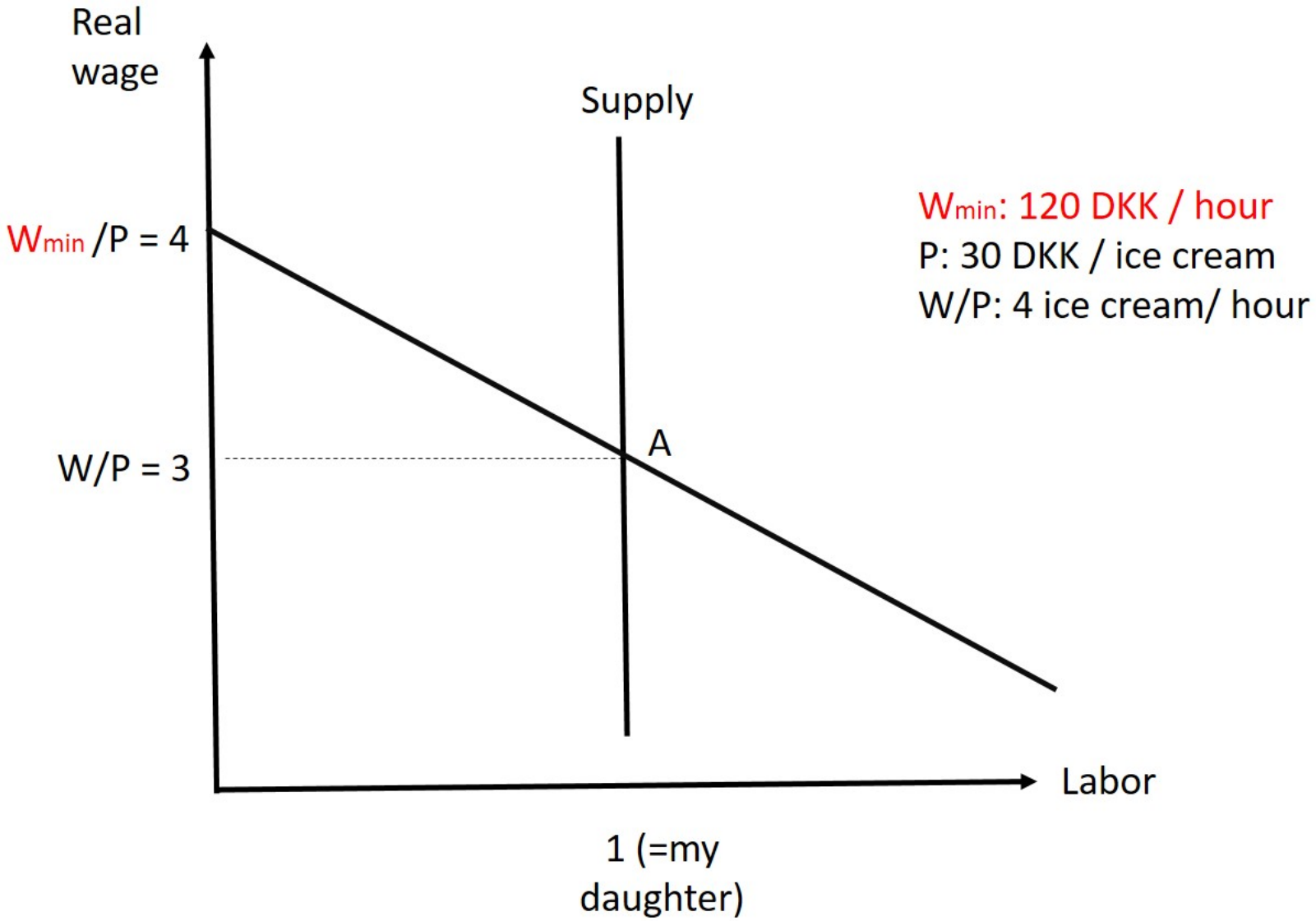


W: 90 DKK / hour
P: 30 DKK / ice cream
W/P: 3 ice cream/ hour



W_{min}: 120 DKK / hour
P: 30 DKK / ice cream
W/P: 4 ice cream/ hour

Real

W_{min}: 120 DKK / hour
P: 30 DKK / ice cream
W/P: 4 ice cream/ hour

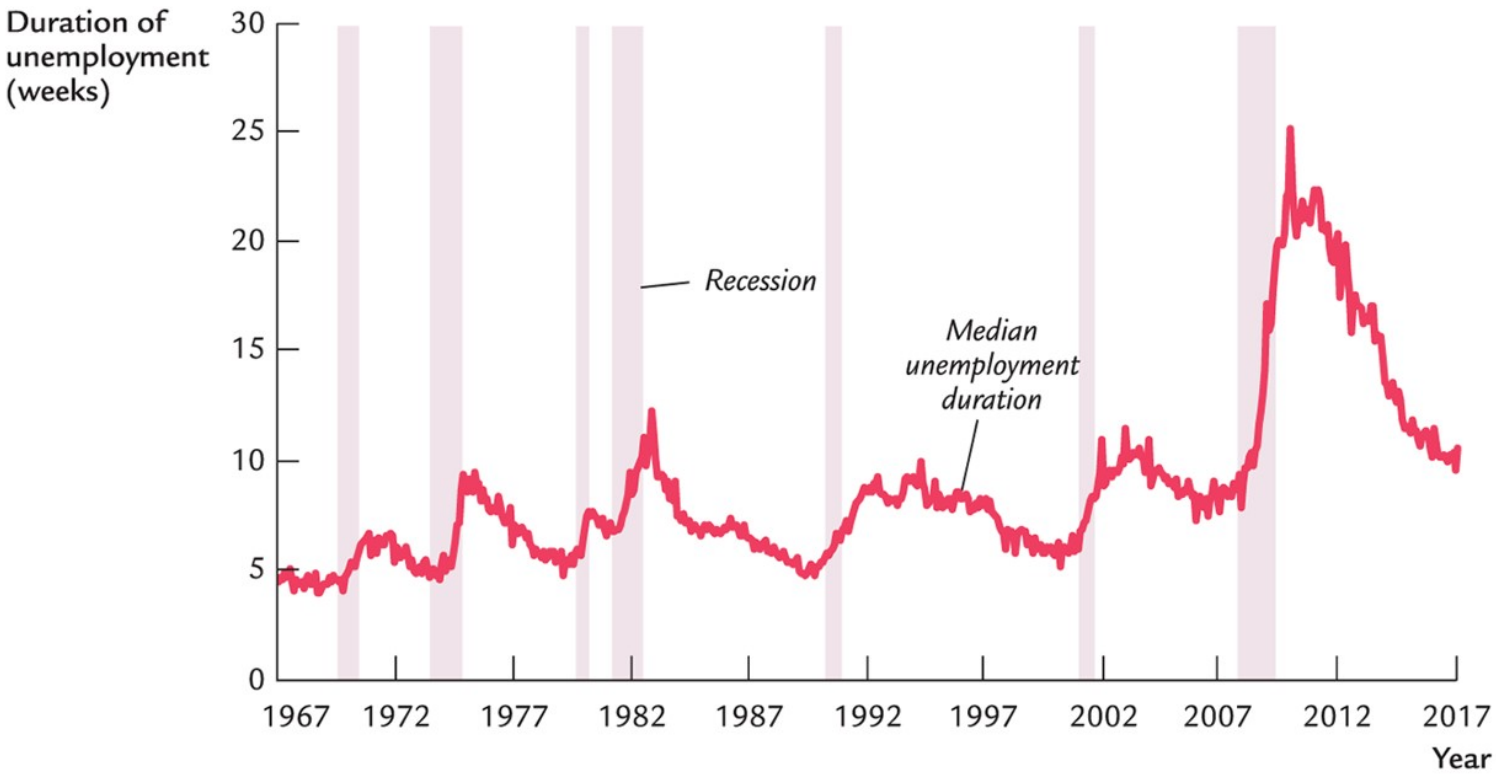
Labor unions

- Insiders: Members of the labor force, who are employed – and therefore members of the labor union.
- Outsiders: Members of the labor force, who are unemployed – and therefore NOT members of the labor union.
- A labor union finances itself by the membership fees of the insiders.
- Insiders are interested in a relatively high real wage...
- When the bargained real wage is above the equilibrium real wage: Structural unemployment!
- *"Labor unions are creating outsiders!"*

Efficiency wages

1. High wages make workers more productive (because they have a better nutrition)
2. High wages reduce worker turnover
   - Ford company increased wage rate from 2.3 USD/9 hours to 5 USD/8 hours.
   - Turnover rate decreases from 370 % (1913) towards 16 % (1915).
3. Adverse selection: Good workers go, bad workers stay *"The lemons stay in the company"*
4. Moral hazard: Workers promise to work hard during the job interview, but are lazy after the contract is signed.
   - Make a potential job loss more costly for the employee.
   - Monitoring increases the chance to detect misbehavior.
   - Pay more than necessary, because this makes a job loss more costly for the worker.

Duration of unemployment in the US



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Discussion

Robert Barro

- Unemployment insurance increased from 26 weeks to 99 weeks.
- Generous unemployment insurance programs raise long term unemployment.
- Reckless expansion of unemployment-insurance was unwise – economically and politically.

Paul Krugman

- Problem: Low consumer demand. Putting money into the pockets of people who badly need it, helps support consumer spending.
- Cutting off benefits to the unemployed will make them even more desperate for work – but they can't take jobs – there aren't any.

Age	White Men	White Women	Black Men	Black Women
16–19	14.9	13.2	30.9	22.8
20–24	8.0	6.3	17.0	12.3
25–54	3.6	3.7	7.3	7.0

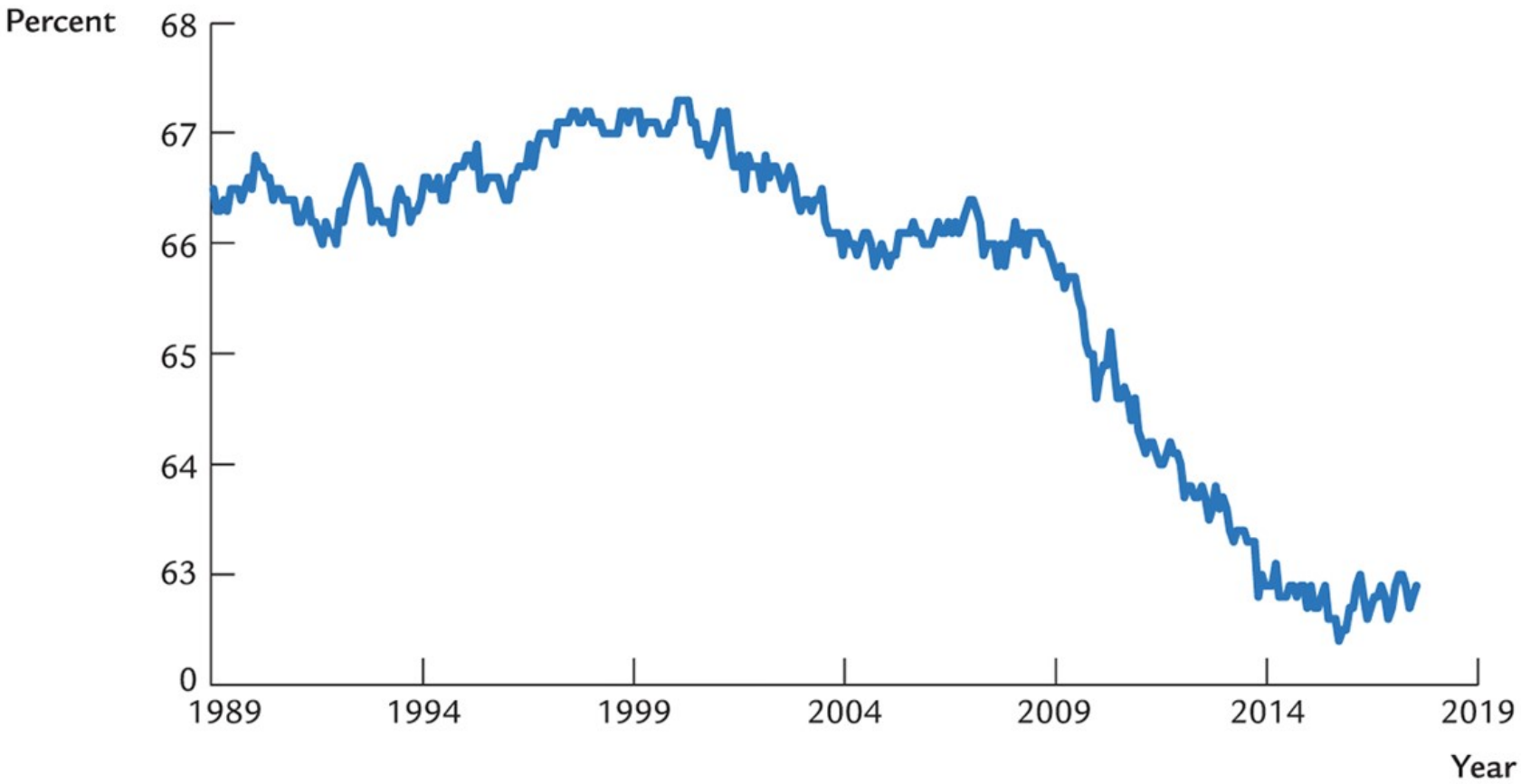

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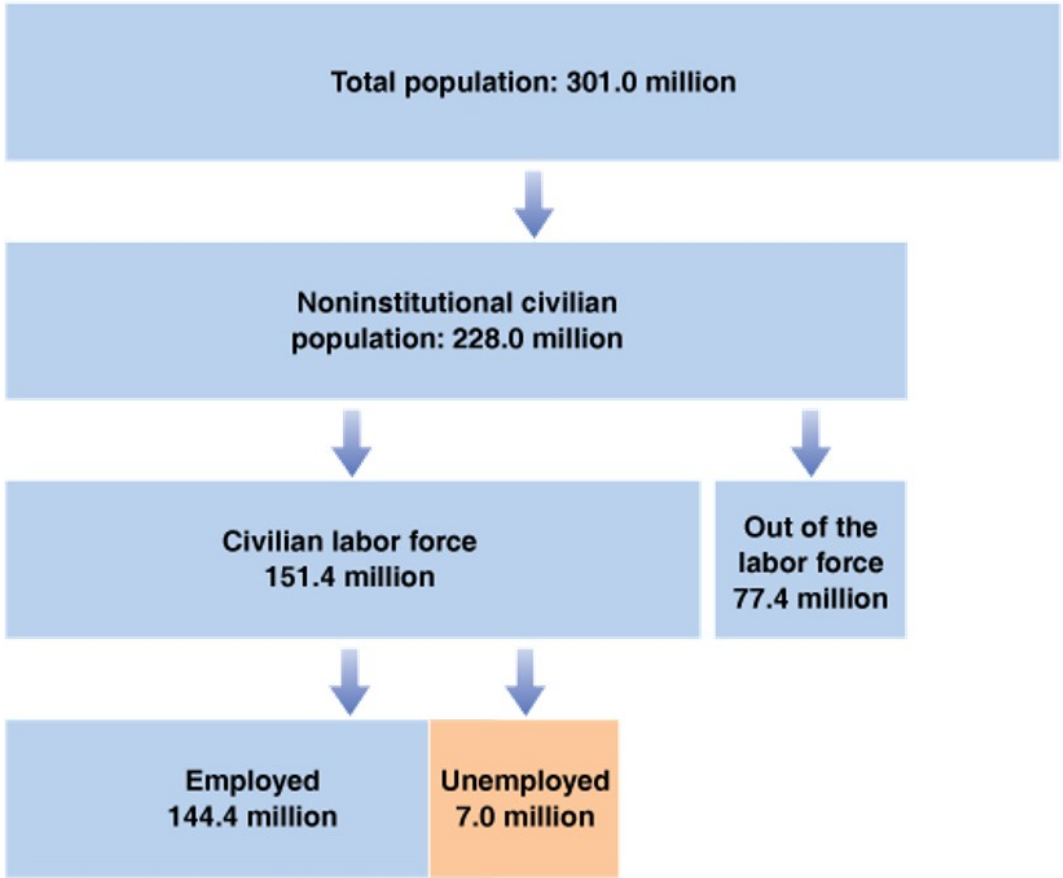
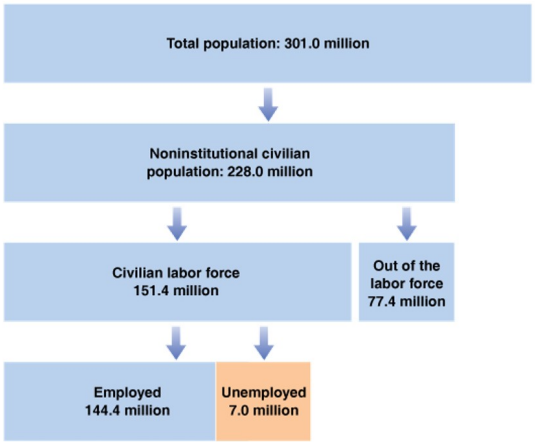
Figure 6.1: Population, Labor Force, Employment, and Unemployment in the United States (in millions), 2006



Non-institutional civilian population = *"population in the working age"*

Figure 6.1: Population, Labor Force, Employment, and Unemployment in the United States (in millions), 2006

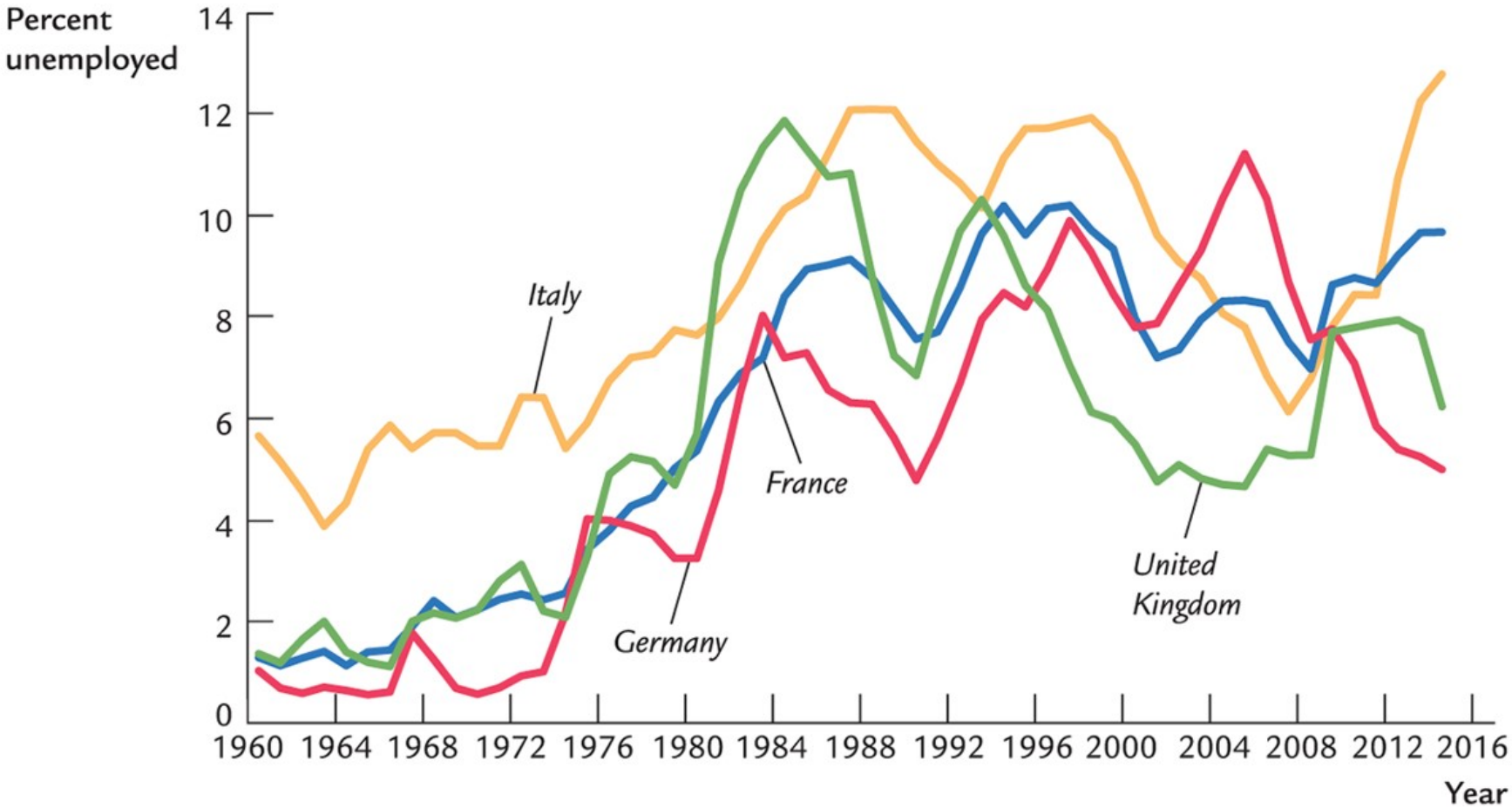


Non-institutional civilian population = *"population in the working age"*

$$\text{Labor force participation rate} = \frac{\text{labour force}}{\text{non-institutional civilian population}}$$

$$\text{Labor force participation rate}_{2006} = \frac{151.4}{228.0} = 66.4\%$$

Quarter	Nonparticipation	By Reason for Nonparticipation: Retired	By Reason for Nonparticipation: Disabled	By Reason for Nonparticipation: Discouraged	By Reason for Nonparticipation: In School	By Reason for Nonparticipation: Other
2007: Q4	33.9%	15.5%	4.9%	1.9%	4.6%	7.1%
2017: Q1	37.2	17.7	5.5	2.0	4.9	6.9
Change	+3.3	+2.2	+0.6	+0.1	+0.3	−0.2



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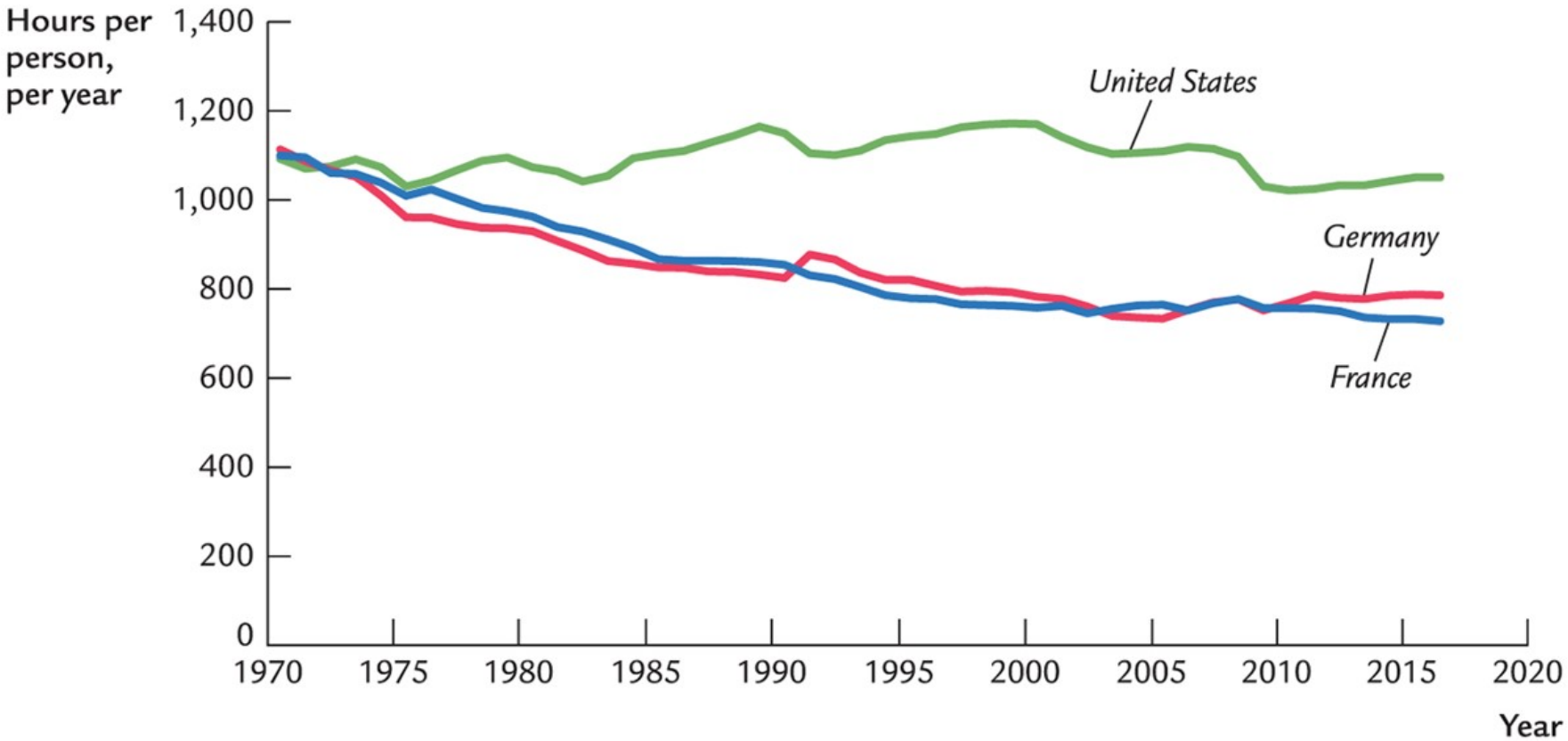
Rise in unemployment in Europe

Demand for skilled workers has increased and demand for unskilled workers has decreased.

- USA: Adjustment process is reflected in wages, not in unemployment
- USA: The wages of unskilled workers have fallen substantially relative to the wage of skilled workers.
- Europe: Welfare state provides unskilled workers with an alternative to working for low wages.
- Europe: Generous unemployment benefits causes long term unemployment

Annual hours worked per person



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Rise of leisure

- Higher taxes
- Higher taxes $\Rightarrow$ shadow economy
- Role of unions
- Different preferences: USA – consumption versus Europe – leisure