

macro

Topic 6:
Unemployment
 CHAPTER SIX

macroeconomics
 fifth edition

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Chapter objectives

The natural rate of unemployment:

- what it means
- what causes it
- understanding its behavior in the real world

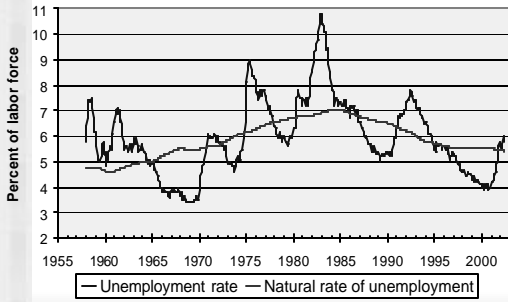
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Natural Rate of Unemployment

- **Natural rate of unemployment :**
 _____.
- In a recession, the actual unemployment rate _____ the natural rate.
- In a boom, the actual unemployment rate _____ the natural rate.

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U.S. Unemployment, 1958-2002



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A first model of the natural rate

Notation:

L = # of workers in labor force

E = # of employed workers

U = # of unemployed

u = unemployment rate

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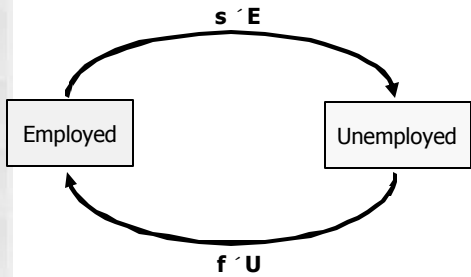
Assumptions:

1. L is exogenously fixed.
2. During any given month,
 δ = fraction of employed workers
that become _____ from their jobs,
 β = fraction of unemployed workers
that _____ jobs.

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The transitions between employment and unemployment



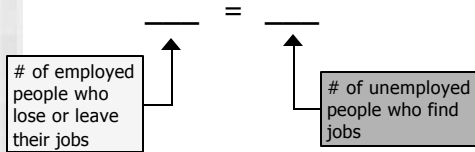
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The steady state condition

- Definition: the labor market is in _____.

- The steady-state condition is:



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Solving for the "equilibrium" U rate

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

$$= \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

Solve for **U/L**:

$$(f + s) \cdot U = s \cdot L$$

so,

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Example:

- Each month, 1% of employed workers lose their jobs ($s = 0.01$)
- Each month, 19% of unemployed workers find jobs ($f = 0.19$)
- Find the natural rate of unemployment:

$$\frac{U}{L} = \frac{0.01}{0.01 + 0.19} = 0.05, \text{ or } 5\%$$

policy implication

- A policy that aims to reduce the natural rate of unemployment will succeed only _____.

Why is there unemployment?

- If job finding were instantaneous ($f = 1$), then all spells of unemployment would be brief, and the natural rate would be near zero.
- There are two reasons why $f < 1$:
 - 1.
 - 2.

Job Search & Frictional Unemployment

- **frictional unemployment:** _____

- occurs even when wages are flexible and there are enough jobs to go around
- occurs because
 - workers have _____, preferences
 - jobs have _____ requirements
 - geographic _____ of workers not instantaneous
 - flow of information about vacancies and job candidates is imperfect

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Sectoral shifts

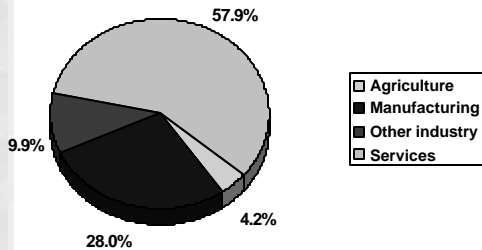
- def: _____

- example: Technological change increases demand for computer repair persons, decreases demand for typewriter repair persons
- example: A new international trade agreement causes greater demand for workers in the export sectors and less demand for workers in import-competing sectors.
- It takes time for workers to change sectors, so sectoral shifts cause frictional unemployment.

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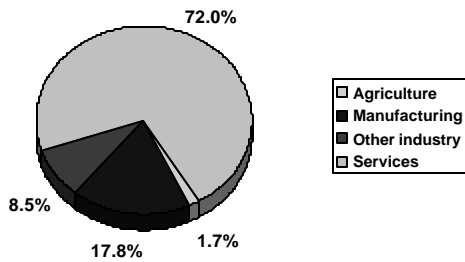
Industry shares in U.S. GDP, 1960



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Industry shares in U.S. GDP, 1997



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Sectoral shifts abound

- more examples:
 - Late 1800s: decline of agriculture, increase in manufacturing
 - Late 1900s: relative decline of manufacturing, increase in service sector
 - 1970s energy crisis caused a shift in demand away from huge gas guzzlers toward smaller cars.
- In our dynamic economy, smaller (though still significant) sectoral shifts occur frequently, contributing to frictional unemployment.

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Public Policy and Job Search

Govt programs affecting unemployment

- _____:
disseminate info about job openings to better match workers & jobs
- _____:
help workers displaced from declining industries get skills needed for jobs in growing industries

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Unemployment insurance (UI)

- UI pays part of a worker's former wages for a limited time after losing his/her job.
- UI increases search unemployment, because it:
 - _____
 - _____
 - hence, reduces f
- Studies: The longer a worker is eligible for UI, the longer the duration of the average spell of unemployment.

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Benefits of UI

- By allowing workers more time to search, UI may lead to better matches between jobs and workers, which would lead to greater productivity and higher incomes.

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Why is there unemployment?

The natural rate of unemployment: $\frac{U}{L} = \frac{s}{s + f}$

- There are two reasons why $f < 1$:

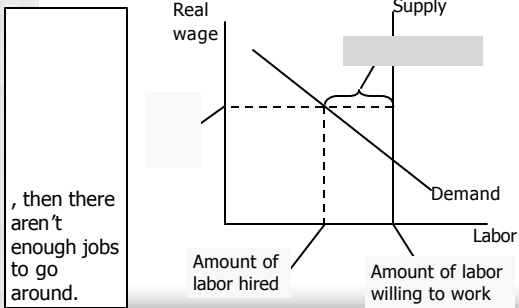
DONE ✓ 1. job search

Next → 2. wage rigidity

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Unemployment from real wage rigidity



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Unemployment from real wage rigidity

Then, firms must ration the scarce jobs among workers.

Structural unemployment:

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Reasons for wage rigidity

- 1.
- 2.
- 3.

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The minimum wage

- The minimum wage is well below the eq'm wage for most workers, so it cannot explain the majority of natural rate unemployment.
- However, the minimum wage may exceed the eq'm wage of unskilled workers, especially teenagers.
- If so, then we would expect that increases in the minimum wage would increase unemployment among these groups.

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The minimum wage in the real world:

- In Sept 1996, the minimum wage was raised from \$4.25 to \$4.75. Here's what happened:

Unemployment rates, before & after		
	3 rd Q 1996	1 st Q 1997
Teenagers	16.6%	17.0%
Single mothers	8.5%	9.1%
All workers	5.3%	5.3%

- Other studies: A 10% increase in the minimum wage increases teenage unemployment by 1-3%.

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Labor unions

- Unions _____
_____.
- When the union wage exceeds the eq'm wage, unemployment results.
- Employed union workers are _____ whose interest is to keep wages high.
- Unemployed non-union workers are _____ and would prefer wages to be lower (so that labor demand would be high enough for them to get jobs).

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Union membership and wage ratios by industry, 2001

industry	# employed (1000s)	U % of total	RBU % of total	wage ratio
mining	531	12.3%	12.9%	103.4
construction	6,881	18.4	19.0	151.0
manufacturing	18,149	14.6	15.5	105.9
transportation	4,441	24.1	25.4	127.8
comm. and pub util	2,981	22.6	23.7	104.2
wholesale trade	4,540	5.5	5.9	105.8
retail trade	20,505	4.5	5.0	117.8
fin, insu and real est	7,648	2.1	2.8	90.1
services	34,261	5.9	6.8	103.3
government	19,155	37.4	41.8	121.1
all	119,092	13.6%	15.0%	118.0

RBU = nonunion workers represented by a union
 wage ratio = $100 \times (\text{union} + \text{RBU wage}) / (\text{nonunion wage})$

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The duration of U.S. unemployment, average over 1993-2002

# of weeks unemployed	# of unemployed persons as % of total # of unemployed	amount of time these workers spent unemployed as % of total time all workers spent unemployed
1-4	39%	6.5%
5-14	31%	20.5%
15 or more	30%	73.0%

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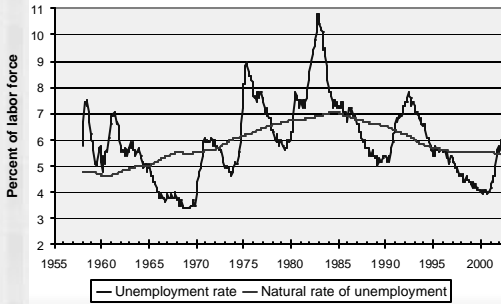
The duration of unemployment

- The data:
 - More spells of unemployment _____.
 - Yet, most of the total time spent unemployed is attributable to the _____ unemployed.
- This _____ unemployment is probably structural and/or due to sectoral shifts among vastly different industries.
- Knowing this is important because it can help us craft policies that are more likely to succeed.

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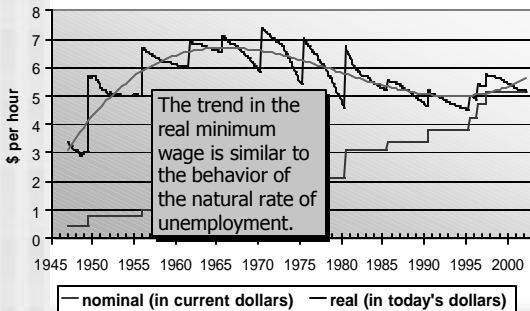
Actual & natural rates of unemployment in the U.S.



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EXPLAINING THE TREND: The minimum wage



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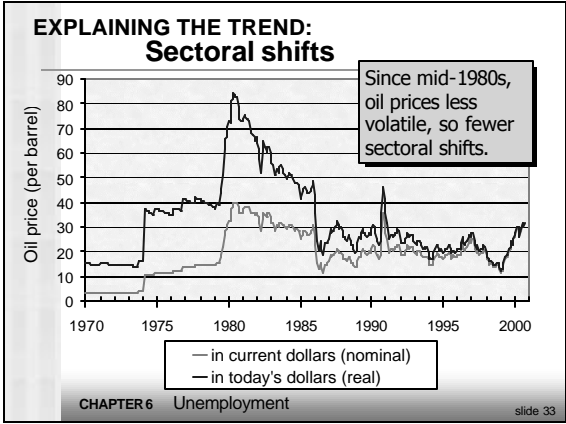
EXPLAINING THE TREND: Union membership

Union membership selected years	
year	percent of labor force
1930	12%
1945	35%
1954	35%
1970	27%
1983	20.1%
2001	13.5%

Since the early 1980s, the natural rate of unemployment and union membership have both fallen. But, from 1950s to about 1980, the natural rate rose while union membership fell.

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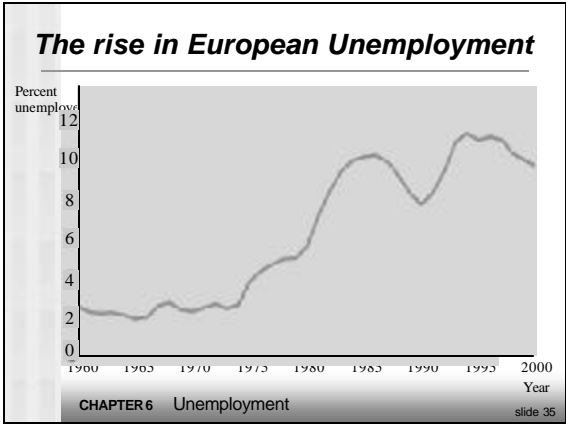
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EXPLAINING THE TREND: Demographics

- 1970s:
The Baby Boomers were young.
Young workers change jobs more frequently (high value of **s**).
- Late 1980s through today:
Baby Boomers aged. Middle-aged workers change jobs less often (low **s**).

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The rise in European Unemployment

Two explanations:

- 1.
- 2.

This demand shift occurred in the U.S., too. But wage rigidity is less of a problem here, so the shift caused an increase in the skilled-to-unskilled wage gap instead of an increase in unemployment.

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Chapter summary

1. The natural rate of unemployment
 - the long-run average or "steady state" rate of unemployment
 - depends on the rates of job separation and job finding
2. Frictional unemployment
 - due to the time it takes to match workers with jobs
 - may be increased by unemployment insurance

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Chapter summary

3. Structural unemployment
 - results from wage rigidity - the real wage remains above the equilibrium level
 - causes: minimum wage, unions, efficiency wages
4. Duration of unemployment
 - most spells are short term
 - but most weeks of unemployment are attributable to a small number of long-term unemployed persons

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