Chapter 6 Classical Theory of Unemployment

- A crucial assumption for the labor market equilibrium in the benchmark model (Chapter 3):
  
  Homogeneity of labor and jobs

- Allowing for heterogeneity of labor and jobs leads to another type of labor market equilibrium:

  Inflow = Outflow
Natural rate of unemployment

- **Natural rate of unemployment**: The average rate of unemployment at which inflow is equal to outflow (a long-run concept).
- In a boom, the actual unemployment rate falls below the natural rate.
- In a recession, the actual unemployment rate rises above the natural rate.
Actual and natural rates of unemployment, U.S., 1960-2010

Unemployment rate

Natural rate of unemployment
A first model of the natural rate

Notation:

\( L = \) # of workers in labor force
\( E = \) # of employed workers
\( U = \) # of unemployed
\( U/L = \) unemployment rate
Assumptions:

1. $L$ is exogenously fixed.

2. During any given month,

   $s = \text{rate of job separations}$, 
   the fraction of employed workers that become separated from their jobs

   $f = \text{rate of job finding}$, 
   fraction of unemployed workers that find jobs

   $s$ and $f$ are exogenous
The transitions between employment and unemployment

\[ s \times E \quad f \times U \]
The steady state condition

- Definition: the labor market is in **steady state**, or long-run equilibrium, if the unemployment rate is constant.

- The steady-state condition is:

\[ s \times E = f \times U \]
Why is there unemployment?

- There is no unemployment if
  - Job separation is 0 \( (s = 0) \) OR
  - If job finding were instantaneous

- There are two reasons for unemployment:
  - Frictional unemployment
    - Sectoral shift
    - Heterogeneity of workers and jobs
  - Structural unemployment
    - Minimum wage laws
    - Union premium
    - Efficiency Wage Theory
Job search & frictional unemployment

- **frictional unemployment**: caused by the time it takes workers to search for a job
- occurs even when wages are flexible and there are enough jobs to go around
- occurs because
  - workers have different abilities, preferences
  - jobs have different skill requirements
  - geographic mobility of workers not instantaneous
  - flow of information about vacancies and job candidates is imperfect
Sectoral shifts

- **def:** Changes in the composition of demand among industries or regions.

- **example:** *Technological change*
more jobs repairing computers, fewer jobs repairing typewriters

- **example:** *A new international trade agreement*
labor demand increases in export sectors, decreases in import-competing sectors

- These scenarios result in frictional unemployment
CASE STUDY:
Structural change over the long run

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture</th>
<th>Manufacturing</th>
<th>Other industry</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>9.9%</td>
<td>28.0%</td>
<td>4.2%</td>
<td>57.9%</td>
</tr>
<tr>
<td>2006</td>
<td>1.1%</td>
<td>13.9%</td>
<td>8.5%</td>
<td>76.5%</td>
</tr>
</tbody>
</table>
More examples of sectoral shifts

- Industrial revolution (1800s): agriculture declines, manufacturing soars
- Energy crisis (1970s): demand shifts from larger cars to smaller ones
- Health care spending as % of GDP:
  - 1960: 5.2%  
  - 1980: 9.1%  
  - 2000: 13.8%  
  - 2008: 16.2%

In our dynamic economy, smaller sectoral shifts occur frequently, contributing to frictional unemployment.
Public policy and job search

Govt programs affecting unemployment include:

- *Govt employment agencies*
  disseminate info about job openings to better match workers & jobs.

- *Public job training programs*
  help workers displaced from declining industries get skills needed for jobs in growing industries.

- *Unemployment Insurance Program*
  - Reducing the opportunity cost of being unemployed
  - Maybe better matches between jobs and workers.
Why is there unemployment?

The natural rate of unemployment:

\[ \frac{U}{L} = \frac{s}{s + f} \]

- Two reasons for unemployment:
  1. Friction unemployment
  2. Structural unemployment: the unemployment resulting from real wage rigidity and job rationing
Unemployment from real wage rigidity

If real wage is stuck above its eq’m level, then there aren’t enough jobs to go around.

Real wage

Supply

Unemployment

Demand

Labor

Rigid real wage

Amount of labor hired

Amount of labor willing to work
Reasons for wage rigidity

1. Minimum wage laws
2. Monopoly power of labor unions
3. Efficiency wages
1. The minimum wage

- The min. wage may exceed the eq’m wage of unskilled workers, especially teenagers.
- Studies: a 10% increase in min. wage reduces teen unemployment by 1-3%
- But, the min. wage cannot explain the majority of the natural rate of unemployment, as most workers’ wages are well above the min. wage.
2. Labor unions

- Unions exercise monopoly power to secure higher wages for their members.
- When the union wage exceeds the eq’m wage, unemployment results.
- **Insiders**: Employed union workers whose interest is to keep wages high.
- **Outsiders**: Unemployed non-union workers who prefer eq’m wages, so there would be enough jobs for them.
3. Efficiency wage theory

- Theories in which higher wages increase worker productivity by:
  - attracting higher quality job applicants
  - increasing worker effort, reducing “shirking”
  - reducing turnover, which is costly to firms
  - improving health of workers
    (in developing countries)

- Firms willingly pay above-equilibrium wages to raise productivity.

- Result: structural unemployment.
The duration of U.S. unemployment, 
*average, 1960 – 2009*

<table>
<thead>
<tr>
<th># of weeks unemployed</th>
<th># of unemployed persons in group (% of all unemployed persons)</th>
<th>time spent unemployed by this group (% of time spent unemployed by all groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>42%</td>
<td>8.1%</td>
</tr>
<tr>
<td>5-14</td>
<td>30%</td>
<td>21.5%</td>
</tr>
<tr>
<td>15 or more</td>
<td>27%</td>
<td>70.4%</td>
</tr>
</tbody>
</table>
The duration of unemployment

The data:

- More spells of unemployment are short-term than medium-term or long-term.
- Yet, most of the total time spent unemployed is attributable to the long-term unemployed.
- This long-term 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 work.
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).
Unemployment in Europe, 1960-2009

Percent of labor force


France
Germany
Italy
United Kingdom
Percent of workers covered by collective bargaining, selected countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>United States</td>
<td>18%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>47</td>
</tr>
<tr>
<td>Switzerland</td>
<td>53</td>
</tr>
<tr>
<td>Spain</td>
<td>68</td>
</tr>
<tr>
<td>Sweden</td>
<td>83</td>
</tr>
<tr>
<td>Germany</td>
<td>90</td>
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<tr>
<td>France</td>
<td>92</td>
</tr>
<tr>
<td>Austria</td>
<td>98</td>
</tr>
</tbody>
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Chapter Summary

1. The natural rate of unemployment
   - definition: 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
Chapter Summary

3. Structural unemployment
   - results from wage rigidity: the real wage remains above the equilibrium level
   - caused by: 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
5. European unemployment
   - has risen sharply since 1970
   - probably due to generous unemployment benefits, strong union presence, and a technology-driven shift in demand away from unskilled workers