Lecture 4: Unemployment in the Long Run

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The Problem of Unemployment

- “Job loss means lower living standards in the present, anxiety about the future, and reduced self-esteem.”

- Unemployment in the is usually divided into two categories:
  1. The Natural Rate of Unemployment
     - Frictional Unemployment
     - Wait Unemployment
  2. The Cyclical Rate of Unemployment
Identifying Unemployment

- *Natural Rate of Unemployment* *(trend)* represents persistent joblessness that does not go away on its own even in the long run. Refers to the amount of unemployment that the economy normally experiences.

- *Cyclical Unemployment* *(variation from trend)* refers to the year-to-year fluctuations in unemployment around its natural rate. Deals with short-term fluctuations associated with the ups and downs of the business cycle.
Issues of Natural Unemployment

- How is unemployment measured
  - is it accurate
- Why does unemployment exist at all?
- What affects “duration” of unemployment?
  - What affects it by group?
- Are there policies that can reduce it?
The Monthly Unemployment Rate is calculated by:

- The BLS surveying 60,000 randomly selected households and categorizing each adult (i.e. >16 years old) as:
  1. Currently employed (have a paying job- full or part-time).
  2. Unemployed but actively seeking a job.
  3. Not in the labor force (i.e. neither of above).
Measuring Unemployment

- A person is *employed* if he or she has spent most of the previous week working at a paid job.

- A person is *unemployed* if he or she is:
  - on temporary layoff
  - is looking for a job
  - is waiting for the start of a new job

- A person in *neither* category is *not in the labor force*. 
Measuring Unemployment

- The *Labor Force* is the number of employed persons *plus* the number of unemployed.
- The *Unemployment Rate* is:
  \[ u = \frac{U}{E+U} \]
  - “u” is the unemployment rate
  - “U” is the number of unemployed persons
  - “E+U” is the labor force
The Labor-Force Participation Rate illustrates the fraction of the population that has chosen to participate in the labor market.

The Labor-Force Participation Rate is:

$$PR = \frac{(E+U)}{\text{Population}}$$
For the population as a whole, consider the probability, $s$, of being separated from a job.

- Number of people who lose a job in a given period $= s \times E$.

Likewise, for the unemployed as a whole there is a probability of finding a job, $f$.

- Number of people who lose a job in a given period $= f \times U$. 

**Employment Transitions**
The Transitions Between Employment and Unemployment
In a steady state, $\Delta U = 0$, thus

$$sE = fU$$

Since $E = L-U$

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

divide both sides by $L$

$$\frac{fU}{L} = s(1-U/L) = s-s\frac{U}{L}$$

$$U/L(s+f) = s$$

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

**Natural rate of $U$** depends on $s$ and $f$. 

Steady State Unemployment
Example:

- If \( s = 0.01 \) (jobs last 100 months on average).
- If 20% of unemployed find a job each month (\( f = 0.2 \))
  \[
  \frac{U}{L} = \frac{s}{(s+f)} = \frac{0.01}{(0.01+0.2)} = 0.0476
  \]
- Natural rate of U is about 4.8%. 
Unemployment Policy

- Policy aimed at reducing the Natural Rate of U must reduce $s$ or increase $f$.

- For Frictional U:
  - must improve economy’s ability to match the right person to the right job.
  - Reduces turnover ($s$) and increases matches ($f$).
Situations of Frictional Unemployment

- Search unemployment is inevitable because the economy is always changing. Situations that cause this type of unemployment include:
  - New entrants into the job market
  - Re-entrants into the labor force
  - Relocations
  - Layoffs due to competition in the economy
  - Job quitters
Structural Unemployment

- This is the term used to refer to unemployed who have difficulty finding jobs due to a lack of job skills or *sectoral shifts in the economy*.
  - i.e. - unskilled or uneducated workers. In a modern economy, they may experience very long periods of unemployment.
  - Examples: fishermen, assembly-line and textile workers.
  - This has been used to explain persistent U in the EU.
Public Policy and Frictional U

- Government-run employment agencies:
  - Better information about job vacancies and potential workers in order to match workers and jobs more quickly (reduces search costs).

- Public training programs:
  - Aim to ease the transition of workers from declining to growing industries and to help disadvantaged groups escape poverty (more people can do more jobs).
Public Policy and Frictional U

- **Unemployment insurance:**
  - Partial payment of former wages for a limited time period only to those “who were laid off…”
  - Increases the amount of search unemployment without intending to.
  - Reduces “costs” of joblessness.
    - May reduce incentive to find job ($f_{decreases}$).
  - This has been used to explain persistent unemployment in the EU, in combination with structural U.
What if wages do not adjust to clear markets?

Wage too high:
- the result is a surplus of labour or wait unemployment (lower f)

What institutions or economy characteristics cause wait unemployment?
Real-Wage Rigidity Leads to Job Rationing

- Rigid real wage
- Amount of unemployment
- Amount of labor hired
- Amount of labor willing to work
Why is there wait Unemployment?
Minimum-Wage Laws

- When a minimum-wage law forces the wage to remain above the level that balances supply and demand, it creates a *surplus of labor*.
- In market for unskilled labour, a minimum wage may lead to persistent *wait unemployment*.
- This reduces the rate of finding new jobs ($f$).
Minimum-Wages

Price of Labor (wage)

Supply

Demand

Equilibrium without Minimum Wage

Quantity of Labor
Minimum-Wages

Price of Labor (wage) $P^M$

Supply

Demand

Minimum Wage Law Established

Quantity of Labor

$Q^D$

$Q^S$
Minimum-Wages

Price of Labor (wage) $P^m$

Surplus or Unemployment

Supply

Demand

Quantity of Labor

$Q^D$

$Q^S$
**Drawbacks to this Theory**

- Research has shown that minimum wage laws may be too low for unskilled workers because of firm’s monopsony power.
  - In New Jersey the minimum wage was increased while in Pennsylvania it was not.
  - Unemployment rate fell in NJ- support that firms were exploiting monopsony power.
Why is there unemployment? Unions and Collective Bargaining

- A union is a worker association that bargains with employers over wages and working conditions.
  - A union is a type of cartel.
- Unions benefit *insiders* (higher wages) but not the *outsiders* (wait unemployment).
- Unions may explain some of the differences in Unemployment across countries.
<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
<th>Country</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>84</td>
<td>Germany</td>
<td>33</td>
</tr>
<tr>
<td>Denmark</td>
<td>75</td>
<td>Netherlands</td>
<td>28</td>
</tr>
<tr>
<td>Italy</td>
<td>47</td>
<td>Switzerland</td>
<td>28</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>41</td>
<td>Japan</td>
<td>26</td>
</tr>
<tr>
<td>Australia</td>
<td>34</td>
<td>United States</td>
<td>16</td>
</tr>
<tr>
<td>Canada</td>
<td>33</td>
<td>France</td>
<td>11</td>
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Why is there unemployment? The Theory of Efficiency Wage

- Wages are higher than market clearing wage (\textit{increasing} \( f \)) to promote the following goals of the firm:
  - \textit{Worker Health}: Better paid workers eat better and thus are more productive.
  - \textit{Worker Turnover}: A higher paid worker is less likely to look for another job.
  - \textit{Worker Effort}: Higher wages motivate workers to put forward their best effort.
  - \textit{Worker Quality}: Higher wages attract a better pool of workers to apply for jobs.
Is Unemployment Measured Correctly?

- It is hard to distinguish between a person who is unemployed and a person who is not in the labor force.
- It is suggested that the “unemployment rate is inaccurately low” because it doesn’t reflect:
  - Underemployed
  - Discouraged workers
Is Unemployment Measured Correctly?

- The “underemployed” are those who are working part time when they really want full-time work.
- Discouraged Workers are those who have given up looking for work and report that they are no longer in the labor force, when in fact, they would be willing to work if offered a suitable, stable job (they should actually count as unemployed).
Is Unemployment Measured Correctly?

- Discouraged workers reduce measured unemployment because they are not included when actually they should be. In the calculation, U should increase, increasing the numerator proportionately more than the denominator.

\[ u = \frac{U}{(E+U)} \]

so should be bigger in the presence of discouraged workers.
Patterns of Unemployment: Demographics

- Although we usually hear only about the national unemployment rate, unemployment rates and participation rates vary significantly by gender, age and race.
- This indicates possible structural differences among groups
  - access to education
  - discrimination
  - lack of connections?
<table>
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<tbody>
<tr>
<td>Adults:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.6</td>
<td>66.6</td>
</tr>
<tr>
<td>White, male</td>
<td>4.9</td>
<td>75.7</td>
</tr>
<tr>
<td>White, female</td>
<td>4.8</td>
<td>59.0</td>
</tr>
<tr>
<td>Black, male</td>
<td>10.6</td>
<td>69.0</td>
</tr>
<tr>
<td>Black, female</td>
<td>10.2</td>
<td>59.5</td>
</tr>
<tr>
<td>Teenagers: (16-19 yrs. old)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17.3</td>
<td>53.5</td>
</tr>
<tr>
<td>White, male</td>
<td>15.6</td>
<td>58.5</td>
</tr>
<tr>
<td>White, female</td>
<td>13.4</td>
<td>55.5</td>
</tr>
<tr>
<td>Black, male</td>
<td>37.1</td>
<td>40.1</td>
</tr>
<tr>
<td>Black, female</td>
<td>34.3</td>
<td>39.8</td>
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Duration of Unemployment

- The rate of unemployment is determined by the number of jobless and the average duration of joblessness they experience.
  - The average duration of unemployment is very short (< 10 weeks) for 75% of the unemployed.
  - 25% are unemployed for much longer.
- Policy must target long-term unemployed without hurting the majority.
Summary:

- Measured using a national survey.
- \((u)nemployment rate = \frac{U}{(E+U)} \times 100\)
- To reduce natural U rate requires affecting separation and finding rates for jobs.
- Policy may be aimed at \textit{frictional U} or \textit{wage rigidities} that cause \textit{wait U}.
- Unemployment rates differ by race, age and gender, indicating race and group specific problems.
- Official u-rates may understate true problem due to underemployment and discouraged workers.
- Public policies may have conflicting and sometimes contradictory effects (UI or minimum wage laws).