Lecture 8
Jobs, Unemployment, Participation
Barometers Meant to Measure the Labor Market
September 26, 2018
The Jobs Picture in the USA

• The Bureau of Labor and Statistics (BLS), the first Friday of each month, provides a detailed look at the jobs market.

• They perform two separate surveys:
  – The Household survey, an interview of 60,000 individuals.
  – The payroll survey, a review of 300,000 companies’ payrolls
The U3 Unemployment Rate

(BLS offers other versions of unemployment, besides U3)

\[ U_t = \text{Unemployment Rate} \]

\[ = \frac{\text{Number of Workers Unemployed}}{\text{Labor Force}} \]
From Population Estimates to measures of employment

• The BLS Household survey combines population statistics with survey responses

• Once per decade the BLS does a census.
  – We learn the population size
  – We learn the gender and ages of the population
  – We learn the racial/ethnic character of the population
Population Extrapolations: the underpinning of BLS jobs data

- BLS uses census data and estimates monthly population figures.
- The BLS household survey asks 60,000 individuals a series of questions.
- By multiplying the percentage of yes answers times their population extrapolations, they provide estimates on employment and unemployment.
The BLS household survey: size of the labor force

• BLS asks, “Are you employed, or jobless but looking for work?”

• In August of 2018, 62.7% said “Yes”.

• BLS extrapolation for the working age population is 258 MILLION, 08/17

• BLS multiplies $0.627 \times 258 \text{ million}$

• BLS estimates labor force of 161.8 million.
The BLS survey: the U3 unemployment rate

- BLS tallies those who identify as “out of work, but looking for work”
- In August of 2017, 2.4% self-identified as such.
- The number of unemployed:
  \[ 2.4\% \times \text{Population} = 6.23 \text{ million} \]
- BLS estimated the labor force to be 161.8 million
- BLS U3 rate = (# of unemployed)/(# in labor force).
- **BLS, August 2018, U3 rate = \frac{6.23}{161.8} = 3.9\%**
To summarize the household survey:

- **How does the household survey build into an unemployment rate?**
- **(A) Population estimate** (extrapolation from census data)
- **(B) Labor force participation rate** (% of the survey labeling themselves employed or jobless but looking for work)
- **(C) Labor force level**: (B) X (A)
- **(D) Household employment level** (percent of phone survey labeled employed times “A”).
- **(E) Household unemployment level** (percent of tally labeled unemployed times “A”).
- **(F) Unemployment rate**: (E/C) X 100
The BLS U3 unemployment rate: Clearly, the labor market swings in and out of equilibrium.
We say that Adam Smith’s invisible hand works when

Supply and Demand, via price signals, drives us to Equilibrium:

![Graph showing supply and demand relationship for oil](image)
Suppose people begin staying home, fearing a virulent flu. Falling demand we assert, would lower the $P_{\text{oil}}$. Oil supplied would fall, as high cost producers shut off pumping.
We can imagine a supply curve for LABOR:

• At or above $15/hour prime agers will work, rather than collect unemployment benefits.

• At or above $20/hour some over 65 will work, rather than remain in retirement.

• At or above $30/hour some school age will work, rather than remain in school.
The economy is strong, wages are high, pulling many into the workforce.
Sticky Wages (it is very hard to cut someone’s salary) help explain the recession pattern of the jobs market.
“Don’t believe these phony numbers when you hear 4.9% and 5% unemployment,” Mr. Trump said in his victory speech after the New Hampshire primary Tuesday night. “The number’s probably 28, 29, as high as 35. In fact, I even heard recently 42%.” (from NY Times, 2016)

What percent of the U.S. working age population is not working?

Pop = 258 million  Employed = 155 million

ERGO  NOT WORKING = 258 − 155 = 103 million

\[
\frac{103}{258} = 40\%
\]

Is the President Correct? No.

But it is true that the unemployment rate is an incomplete measure of labor market health.
The U3 Unemployment Rate: An Incomplete Measure of the Labor Market

[Graph showing the Civilian Unemployment Rate from 1950 to 2010, with shaded areas indicating U.S. recessions and source credited to U.S. Bureau of Labor Statistics]
Two obvious things missing from the unemployment rate?

• Some workers may have recently given up looking for a job, so they are not counted as out of the workforce, and are not counted as unemployed [marginally attached workers].

• Some workers may be working in low pay, part-time jobs. These workers are underemployed [part-time for economic reasons].
One legacy of the 2008-2009 recession? Much higher than normal levels for those stuck in part time jobs, and those who gave up looking for jobs.
Consider U3 Unemployment rates, relative to these other measures, for previous high jobless experiences:

<table>
<thead>
<tr>
<th></th>
<th>Jan-94</th>
<th>Jan-14</th>
<th>Jan-03</th>
<th>Jul-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>U3 rate</td>
<td>6.6%</td>
<td>6.6%</td>
<td>6.2%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Additional</td>
<td>5.2%</td>
<td>6.1%</td>
<td>4.1%</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sep-07</th>
<th>Aug-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>U3 rate</td>
<td>3.9%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Additional</td>
<td>3.1%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>
Question: What change is evident in this picture?
Answer: Participation has fallen dramatically:

$$\text{LFPR} = \frac{\text{labour force}}{\text{working age population}} \times 100$$
Leading the BLS to **Surrender**
All Hope For a **Participation Rebound**

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2004</th>
<th>2014</th>
<th>2015</th>
<th>2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total 16 and over</strong></td>
<td>67.1</td>
<td>66</td>
<td>62.8</td>
<td>62.6</td>
<td>62.5</td>
</tr>
<tr>
<td><strong>16-24</strong></td>
<td>65.4</td>
<td>61.1</td>
<td>54.5</td>
<td>55.1</td>
<td>48.2</td>
</tr>
<tr>
<td><strong>25-54</strong></td>
<td>84</td>
<td>82.7</td>
<td>81.1</td>
<td>80.9</td>
<td>81.3</td>
</tr>
<tr>
<td><strong>55-64</strong></td>
<td>59.3</td>
<td>61.9</td>
<td>63.9</td>
<td>64.2</td>
<td>68.8</td>
</tr>
<tr>
<td><strong>65 and older</strong></td>
<td>12.5</td>
<td>14.5</td>
<td>18.3</td>
<td>19.0</td>
<td>22.2</td>
</tr>
</tbody>
</table>

*BLS 2014 Forecast*
Over the past 36 months, some mildly good news, participation has stabilized.
Why? The prime age workforce is mounting a LFPR rebound.
A rebound for LFPR, by age cohort, must swim against the tide of an aging population.

(Almost 19 million of the 23 million gain for population will be over 65 years old)

<table>
<thead>
<tr>
<th>Age Cohort</th>
<th>2016 Population</th>
<th>Population Forecast</th>
<th>Population Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 and over</td>
<td>253724</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-24</td>
<td>38469</td>
<td>-0.28%</td>
<td>37405</td>
</tr>
<tr>
<td>25-54</td>
<td>125675</td>
<td>0.32%</td>
<td>129755</td>
</tr>
<tr>
<td>55-64</td>
<td>41378</td>
<td>0.32%</td>
<td>42721</td>
</tr>
<tr>
<td>65 and over</td>
<td>48202</td>
<td>3.35%</td>
<td>67015</td>
</tr>
</tbody>
</table>
One reason this is important? What is a reasonable speed limit for job gains/month?

• The aging workforce = more and more retirees.
• Absent a BIG rebound for prime age LFP, the labor force will grow less than 100,000 per month.

• If the Federal Reserve wants unemployment to settle in at 4%, they must root for, or orchestrate, a BIG SLOWDOWN for jobs growth.
Trump Administration’s goal?
25 million jobs, over 10 years.
Is that a reasonable goal?

- BLS suggests 23 million population gain, but only 7.2 million gain for the labor force:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2016 LF</th>
<th>Labor force 2016</th>
<th>2026 Labor force assume steady LFPR</th>
<th>Labor Force Growth</th>
<th>2026 total LFPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 and over</td>
<td>158757</td>
<td>62.6%</td>
<td>166018</td>
<td>7261</td>
<td>60.0%</td>
</tr>
<tr>
<td>16-24</td>
<td>21197</td>
<td>55.1%</td>
<td>20611</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-54</td>
<td>101944</td>
<td>81.1%</td>
<td>105254</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>26369</td>
<td>63.7%</td>
<td>27225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 and over</td>
<td>9299</td>
<td>19.3%</td>
<td>12928</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- How many net new jobs? $0.951 \times 7.261 = 6.9$ million (Way less than 25 million)
Let’s let LFPR go to its maximum recorded values, for all age cohorts:

<table>
<thead>
<tr>
<th>LFPR 2016</th>
<th>LFPR 2026</th>
<th>2026 Labor force</th>
<th>Labor Force</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>assume maximum</td>
<td>assume maximum</td>
<td>Growth</td>
</tr>
<tr>
<td>16 and over</td>
<td>62.6%</td>
<td>for each age cohort</td>
<td>for each age cohort</td>
</tr>
<tr>
<td>16-24</td>
<td>55.1%</td>
<td>66.0%</td>
<td>24688</td>
</tr>
<tr>
<td>25-54</td>
<td>81.1%</td>
<td>84.4%</td>
<td>109513</td>
</tr>
<tr>
<td>55-64</td>
<td>63.7%</td>
<td>65.4%</td>
<td>27940</td>
</tr>
<tr>
<td>65 and over</td>
<td>19.3%</td>
<td>19.4%</td>
<td>13001</td>
</tr>
</tbody>
</table>

- If we leave U3 at 4.4%?

\[ 0.956 \times 16,384 = 15,663 \]

Jobs rise by 15.6 million. Still well below 25 million
How about if we combine record high levels of LFPR, by age cohort, with drastically lower unemployment?

- The record low for U3? 2.6%
- If 97.4% of the labor force is working?
- We now have 19.6 million gain.
- What about if U3 = 0
- Jobs go up by 24.2 million
- Will jobs rise by 25 million over the next 10 years?
- Only if we embrace widespread welcoming of immigrants!
The JOLTs Survey:
Gross Hires and Separations

<table>
<thead>
<tr>
<th>Year</th>
<th>MONTHLY HIRES</th>
<th>MONTHLY SEPARATIONS</th>
<th>HIRES-SEPARATIONS</th>
<th>JOB OPENINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(MILLIONS)</td>
<td>(MILLIONS)</td>
<td>(THOUSANDS)</td>
<td>(MILLIONS)</td>
</tr>
<tr>
<td>2000</td>
<td>5.40</td>
<td>5.27</td>
<td>130</td>
<td>4.93</td>
</tr>
<tr>
<td>2005</td>
<td>5.32</td>
<td>5.04</td>
<td>280</td>
<td>4.05</td>
</tr>
<tr>
<td>2009:Q2</td>
<td>3.75</td>
<td>4.31</td>
<td>-560</td>
<td>2.36</td>
</tr>
<tr>
<td>2010:Q4</td>
<td>4.11</td>
<td>3.95</td>
<td>160</td>
<td>3.01</td>
</tr>
<tr>
<td>2015:Q2</td>
<td>5.09</td>
<td>4.87</td>
<td>220</td>
<td>5.34</td>
</tr>
</tbody>
</table>
“Oh Yeah, well I Quit!”

(A good measure of labor market strength)

The quits rate is the number of quits during the entire month as a percent of total employment)

Source: U.S. Bureau of Labor Statistics
fred.stlouisfed.org
A Challenge for Policy Makers

• The unemployment rate has fallen to 3.9% from 10%, at the peak in 2009.
• This occurred despite slow GDP growth and moderate job creation.
• Part time jobs explains some of the decline.
• Falling participation explains some more.
• Fiscal policy stepped on the gas. Can the economy grow safely at this faster pace?
Non-Farm Payrolls
the second jobs survey

• Calling and visiting 60,000 people, and asking for answers, leaves a lot of room for error

• The non-farm payroll tally, in its final estimation, is a much less volatile descriptor of the labor market.

• The problem? The first estimates are very preliminary, with only a small sample.
Note to Self: Revisions Go in direction of the inflection

<table>
<thead>
<tr>
<th></th>
<th>Nonfarm Payrolls</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Original</td>
<td>Revised</td>
</tr>
<tr>
<td>Apr-08</td>
<td>-20</td>
<td>-149</td>
</tr>
<tr>
<td>May-08</td>
<td>-49</td>
<td>-231</td>
</tr>
<tr>
<td>Jun-08</td>
<td>-62</td>
<td>-193</td>
</tr>
<tr>
<td>Jul-08</td>
<td>-51</td>
<td>-210</td>
</tr>
<tr>
<td>Aug-08</td>
<td>-81</td>
<td>-334</td>
</tr>
<tr>
<td>April-August Average</td>
<td>-52.6</td>
<td>-223.4</td>
</tr>
</tbody>
</table>
Payroll Surveys: good sector level breakdown

• The payrolls report provides estimates of:
  – Total non-farm jobs
  – Private payroll jobs: 84.3% of total
  – Manufacturing jobs: 8.7% of total
  – Construction jobs: 4.4% of total
  – Private services: 70.5% of total
  – Government jobs: 15.7% of total
Construction jobs: Still Remarkably Depressed
Manufacturing Job Losses: Productivity + Globalization?

Source: U.S. Bureau of Labor Statistics
fred.stlouisfed.org
Government Jobs as a Percent of total non-farm workforce:

1975: 18%  
1990: 17%  
2006: 15%  
2017: 14%
The Government Deficit Problem? (if there is one)

• We agreed, decades ago, that retirees, deserve Medicare and social security.

• We didn’t count on them living so long.

• As baby boomers retire, we promised them benefits.
In addition? We promised them health coverage. Health care costs have relentlessly risen, relative to other costs in the economy.