

# **Will the Post-Recession Labor Market Constrain Economic Growth?**

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## **I. Labor and Living Standards**

Per capita GDP and its growth depend on:

- Productivity (output per worker)
- The employment-population ratio
  - Employed proportion of the labor force (demand)
  - Labor force participation rate (supply)
- The proportion of the total population aged 16 or older, not in the military, and not institutionalized (demographics and immigration)

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### **The key relationship written out**

$$\frac{Q}{P_t} = \left( \frac{Q}{E} \right) \cdot \left( \frac{E}{P_w} \right) \cdot \left( \frac{P_w}{P_t} \right)$$

The diagram shows the equation  $\frac{Q}{P_t} = \left( \frac{Q}{E} \right) \cdot \left( \frac{E}{P_w} \right) \cdot \left( \frac{P_w}{P_t} \right)$  with four arrows pointing from labels below to the terms in the equation. The label 'Per capita GDP' points to  $\frac{Q}{P_t}$ . The label 'Worker productivity' points to  $\left( \frac{Q}{E} \right)$ . The label 'Employment-population ratio' points to  $\left( \frac{E}{P_w} \right)$ . The label 'Civilian LF proportion' points to  $\left( \frac{P_w}{P_t} \right)$ .

- Per capita GDP is our best measure of living standards
- Output ( $Q$ ) per employed worker ( $E$ ) is a good measure of productivity
- The employment-population ratio is an overall measure of labor market health
- The civilian labor force proportion is the proportion of the total population ( $P_t$ ) that is aged 16 or more, not in the military, and not institutionalized ( $P_w$ )

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### **The employment-population ratio can be decomposed**

$$\frac{E}{P_w} = \frac{E}{LF} \cdot \frac{LF}{P_w}$$

The diagram shows the equation  $\frac{E}{P_w} = \frac{E}{LF} \cdot \frac{LF}{P_w}$  with three arrows pointing from labels below to the terms in the equation. The label 'Employment-population ratio' points to  $\frac{E}{P_w}$ . The label 'Employed proportion of labor force' points to  $\frac{E}{LF}$ . The label 'Labor force participation rate' points to  $\frac{LF}{P_w}$ .

- These are the central element of labor market health

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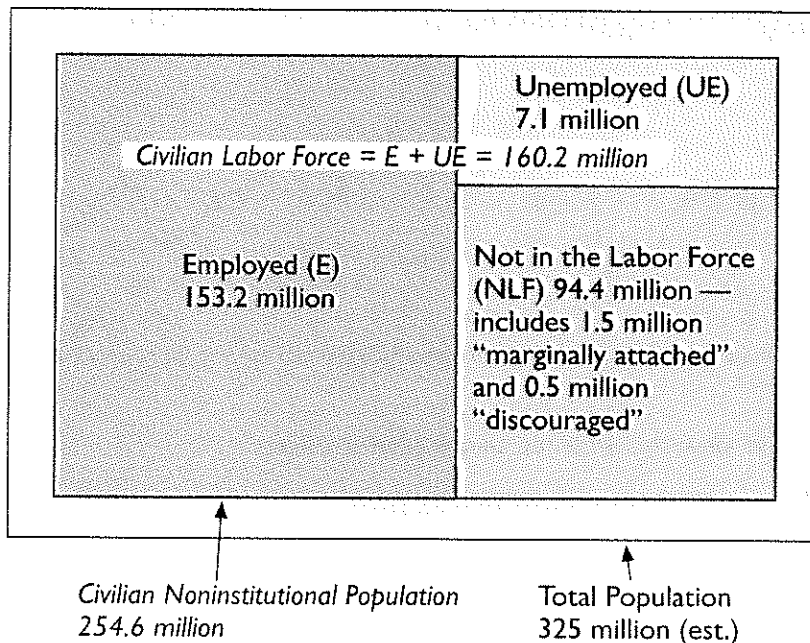
## 2. Importance of the Labor Market

How tight is the labor market?

- Matters due to implications for earnings and Federal Reserve policy (among other things)
- Unemployment rate and vacancy data suggest tightness
- But other key indicators — employment/population ratio, labor force participation rate — suggest slack

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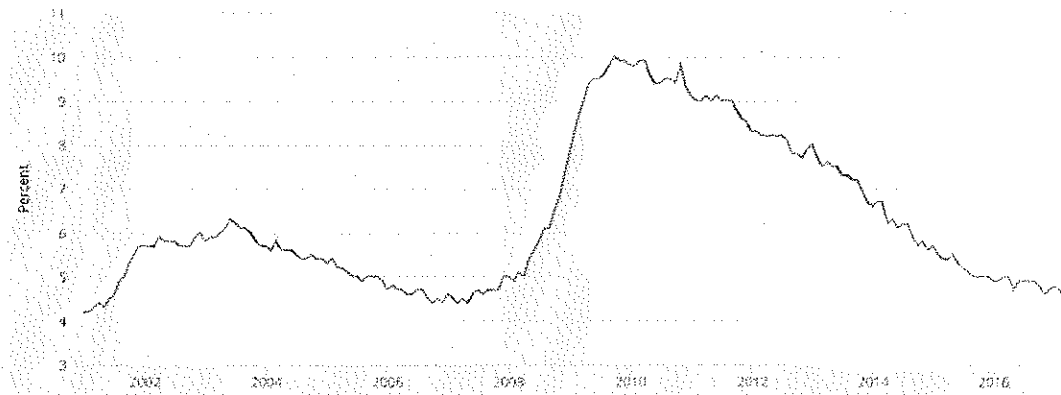
### ***Labor force concepts and statistics for April 2017***



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The unemployment rate and vacancy data suggest the labor market is healthy (a tight labor market)

### **Unemployment rate (U-3, seasonally adjusted), 2000–present**

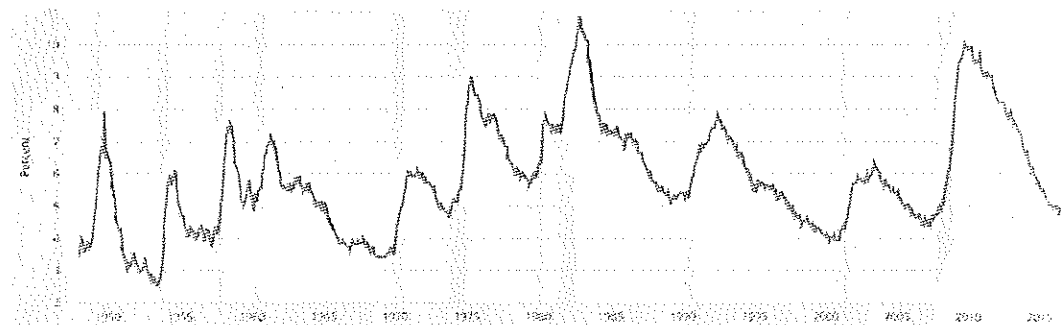


Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- The official unemployment rate (U-3) suggests the labor market is at full employment — we are back where we were before the Great Recession

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### **Unemployment rate (U-3, seasonally adjusted), 1948–present**

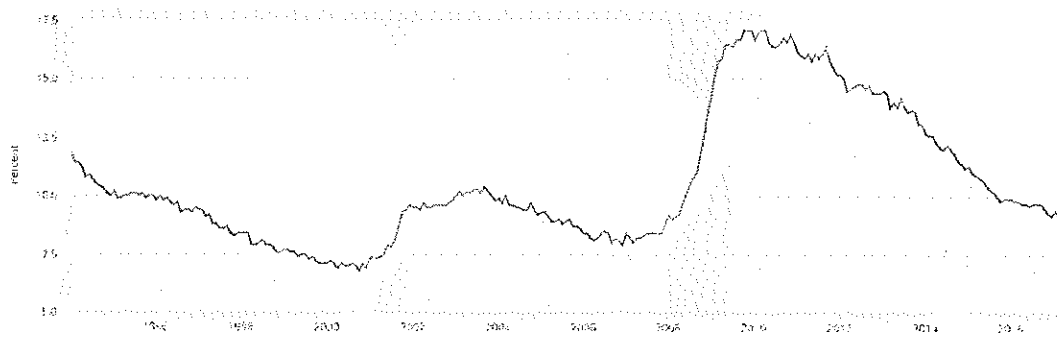


Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- Taking a longer view, the evidence seems even stronger

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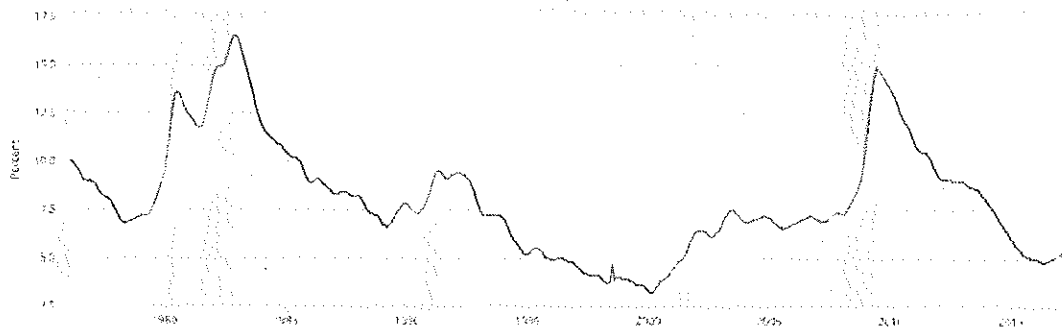
**Broadened unemployment rate (U-6): Unemployed, plus marginally attached, plus employed part-time for economic reasons, as percent of the CLF plus all marginally attached workers, 1994–present**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- The broader U-6 is only slightly less positive — within 1 point of where it was before the Great Recession and within 2 points of its lowest-ever level

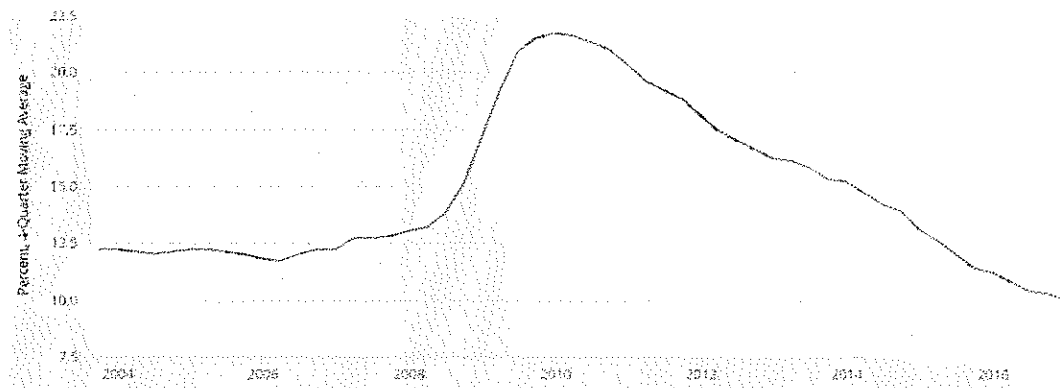
**Michigan unemployment rate (U-3, seasonally adjusted), 2000–present**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- The story is slightly less positive for the official Michigan unemployment rate ...

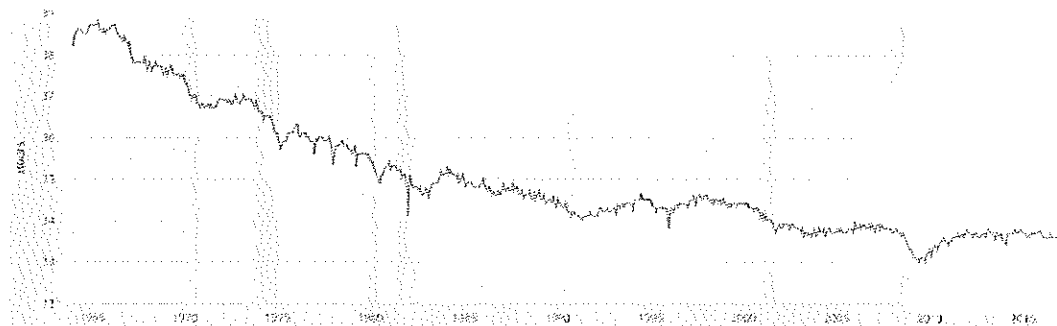
**Michigan U-6: Total unemployed, plus all marginally attached workers, plus total employed part-time for economic reasons, as percent of the CLF plus all marginally attached workers, 2003–present**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- But slightly more positive for the broadened Michigan unemployment rate (U-6)

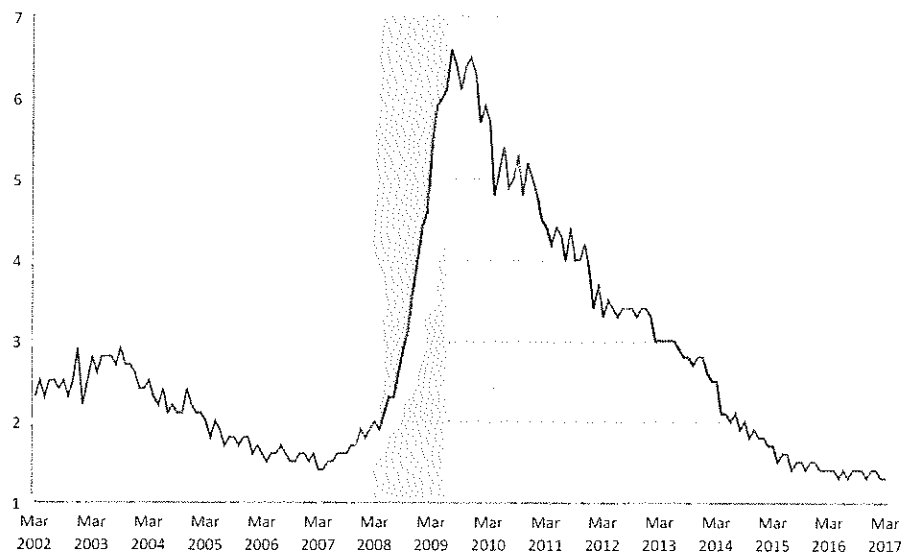
**Average Weekly Hours of Production and Nonsupervisory Employees: Total Private**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- Average weekly hours have also nearly returned to their pre-recession level

**Number of unemployed persons per job opening (seasonally adjusted), 2002–present**



Source: U.S. Bureau of Labor Statistics <<https://www.bls.gov/charts/job-openings-and-labor-turnover/unemp-per-job-opening.htm#>>

- Number of unemployed persons per job opening was as low as it has ever been

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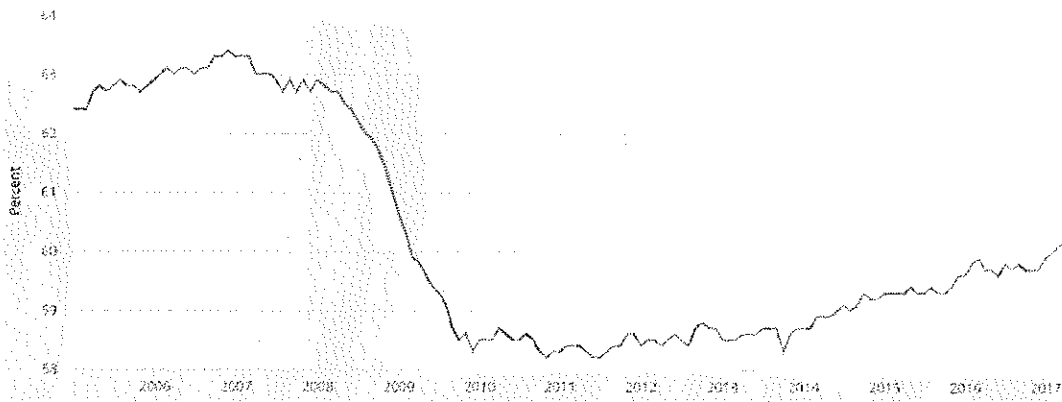
**But other indicators suggest a less healthy labor market**

Some economists still believe the labor market has some slack

- The employment population ratio has not recovered
- The labor force has been falling
- The Beveridge Curve has shifted out dramatically

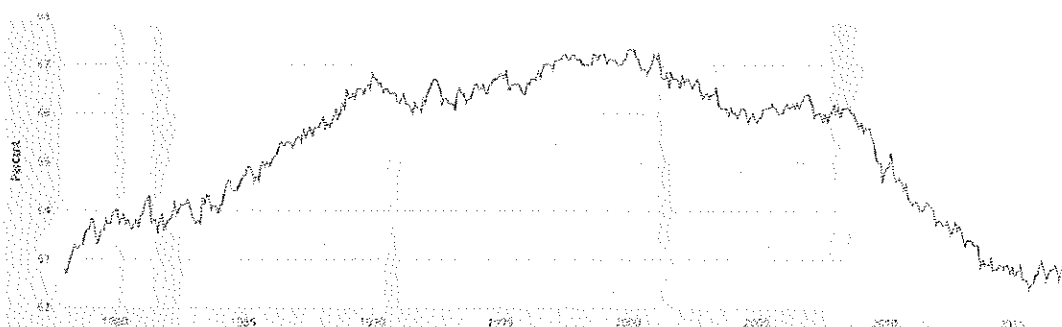
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### **Employment-population ratio (seasonally adjusted), 2005–present**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

### **Civilian labor force participation rate (seasonally adjusted), 1978–present**



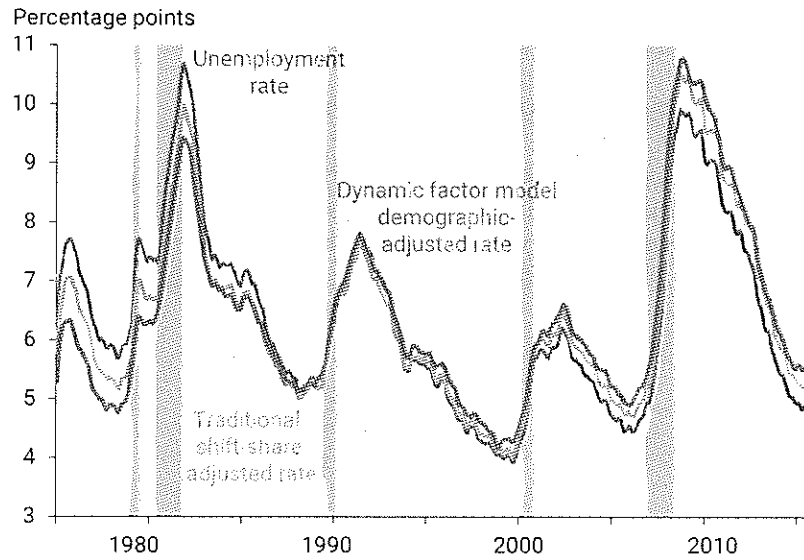
Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- Only about half the decline since 2008 can be attributed to changing demographics (like the aging of the labor force)



## Unemployment rate with two demographic adjustments

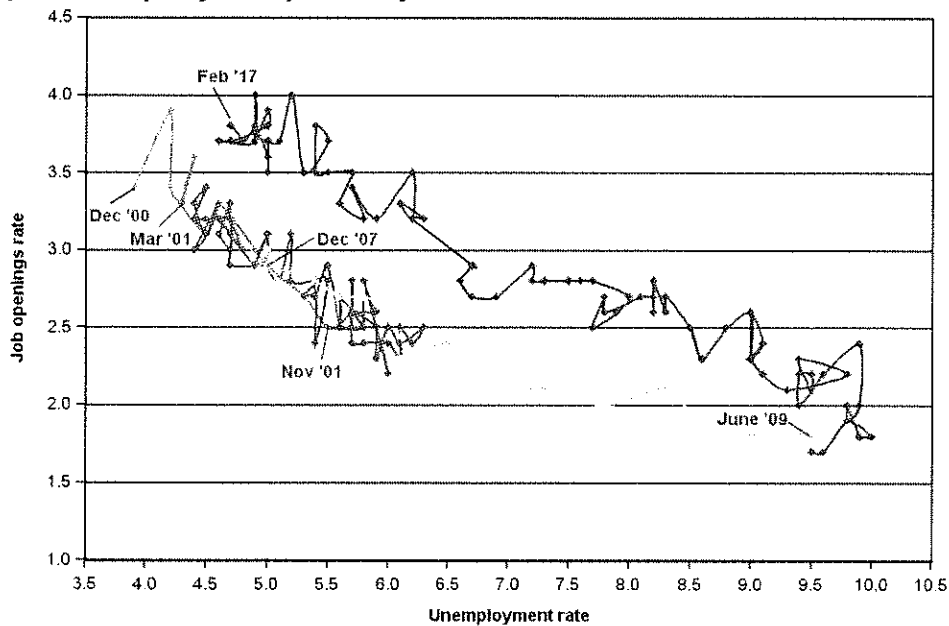
Source: Barnichon & Mesters, "How Tight Is the U.S. Labor Market?" *FRBSF Economic Letter* 2017-07, March 2017



- Further dissent comes from economists who believe a more reliable picture of labor market tightness requires adjustments for demographic changes

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## The Beveridge curve: Job openings rate and the unemployment rate (seasonally adjusted), 2000–present



Source: U.S. Bureau of Labor Statistics, *Job Openings and Labor Turnover Survey Highlights*, February 2017 <[https://www.bls.gov/web/jolts/jlt\\_labstatgraphs.pdf](https://www.bls.gov/web/jolts/jlt_labstatgraphs.pdf)>

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### **Notes on the Beveridge curve**

- The vacancy rate and the unemployment rate vary systematically over the business cycle — when the unemployment rate is high, employers have fewer vacancies
- Where the curve lies depends on several factors
- The most common interpretation is that, the farther the curve is from the origin, the less efficient the labor market — matching between workers and vacancies could be worse if workers' skills and the available jobs were mismatched, or if unemployed workers were in different locations than vacancies
- But there are other interpretations (see below)

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### **3. Has the Structure of the Labor Market Changed?**

Two key pieces of evidence suggest it has

- The labor force has been shrinking more than can be explained by demographic change
- The Beveridge Curve has shifted out dramatically

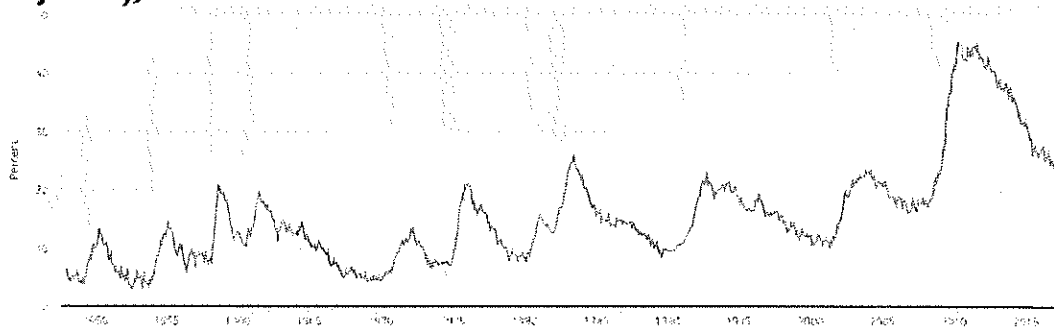
**Why?**

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### **The shrinking labor force**

- One main possibility: Long-term effects of the Great Recession due to long-term unemployment
- Alan Krueger (among others) has shown that many of the long-term unemployed never returned to the labor force

### **Of total unemployed, percent unemployed $\geq 27$ weeks (seasonally adjusted), 1948–2015**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

### What about the Beveridge Curve?

- The reason(s) for the outward shift of the Beveridge Curve are even less clear
  - Has the labor market become less efficient?
  - Have employers been having trouble replacing aging baby-boomers with younger workers?
  - Has the behavior of employers in posting vacancies may have changed? Are they now more selective in hiring? (Steven Davis and John Haltiwanger)
- When (if) the Beveridge Curve snaps back to its earlier path, we may know more, but the outward shift suggests “something” fundamental or structural has changed

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### 4. Productivity Stagnation?

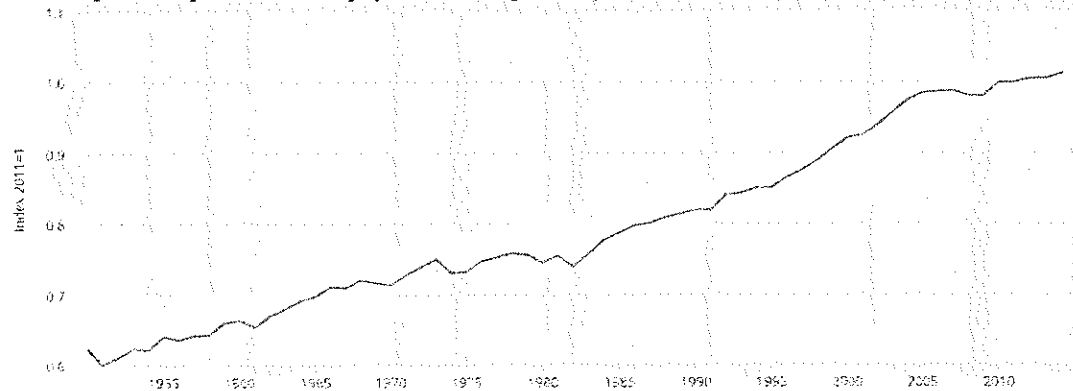
$$\frac{Q}{P_t} = \left( \frac{Q}{E} \right) \cdot \left( \frac{E}{LF} \cdot \frac{LF}{P_w} \right) \cdot \left( \frac{P_w}{P_t} \right)$$

Per capita GDP    Worker productivity    Employed proportion of labor force    Labor force participation rate    Civilian LF proportion

What about productivity?

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### **Total factor productivity (constant prices), 1950–present**



Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

- 1948–1972: Fairly steady productivity growth
- 1972–1983: Weak productivity growth (with declines in some years)
- 1983–1995: Resumption of productivity growth
- 1995–2004: Brief productivity “burst”
- 2004–present: substandard productivity growth (decline in 2007 and below normal since — on the order of 0.5 percent or less annually)

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### **Why the slow growth of productivity in the aftermath of the Great Recession?**

Robert Hall has attributed the decline mainly to three factors:

- A depleted stock of physical capital (low investment since the Great Recession)
- Slower technological change (possibly due in part to the recession)
- Reduced human capital per worker (replacement of the Baby Boomer with younger workers)

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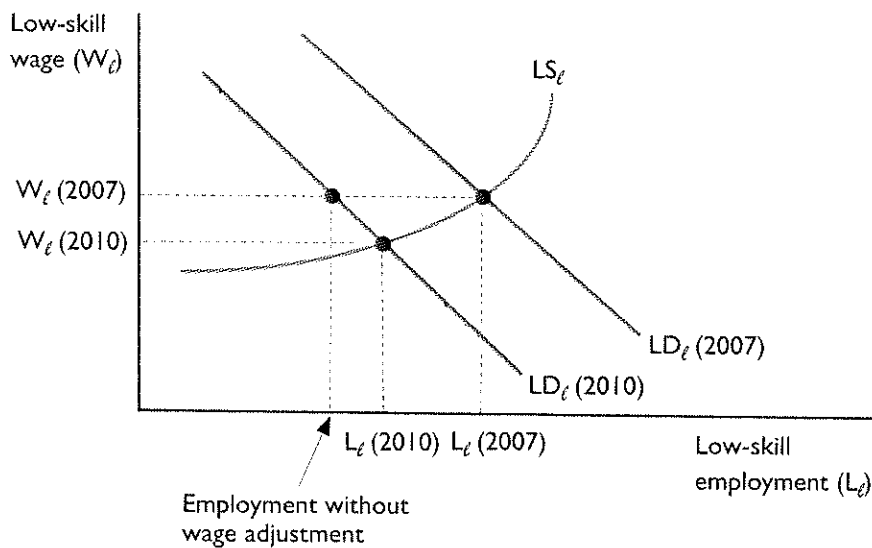
**One last time**

$$\frac{Q}{P_t} = \left(\frac{Q}{E}\right) \cdot \left(\frac{E}{LF} \cdot \frac{LF}{P_w}\right) \cdot \left(\frac{P_w}{P_t}\right)$$

Per capita GDP      Worker productivity      Employed proportion of labor force      Labor force participation rate      Civilian LF proportion

- Weak productivity growth
- Falling labor force participation (and other forms of structural change in the labor market)
- Possibly sluggish growth of demand for labor
- All raise concerns about long-term growth, with the labor market playing an significant (unfortunately negative) role

**Appendix: A note on the unemployment rate**



To a first (VERY rough) approximation, we could simply be in a lower-employment, lower-wage equilibrium — so the unemployment rate may not get us very far in thinking about the health of the labor market