

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)

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 illustrates the decomposition of per capita GDP into three components. The equation $\frac{Q}{P_t} = \left(\frac{Q}{E} \right) \cdot \left(\frac{E}{P_w} \right) \cdot \left(\frac{P_w}{P_t} \right)$ is shown at the top. Below it, four arrows point from text labels to the terms in the equation: 'Per capita GDP' points to $\frac{Q}{P_t}$, 'Worker productivity' points to $\left(\frac{Q}{E} \right)$, 'Employment-population ratio' points to $\left(\frac{E}{P_w} \right)$, and '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)

The employment-population ratio can be decomposed

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

The diagram illustrates the decomposition of the employment-population ratio. The equation $\frac{E}{P_w} = \frac{E}{LF} \cdot \frac{LF}{P_w}$ is shown. Three arrows point from the text labels below to the corresponding terms in the equation: one from 'Employment-population ratio' to $\frac{E}{P_w}$, one from 'Employed proportion of labor force' to $\frac{E}{LF}$, and one from 'Labor force participation rate' to $\frac{LF}{P_w}$. The terms 'Labor force participation rate' and the fraction $\frac{LF}{P_w}$ are highlighted in blue.

Employment-population ratio

Employed proportion of labor force

Labor force participation rate

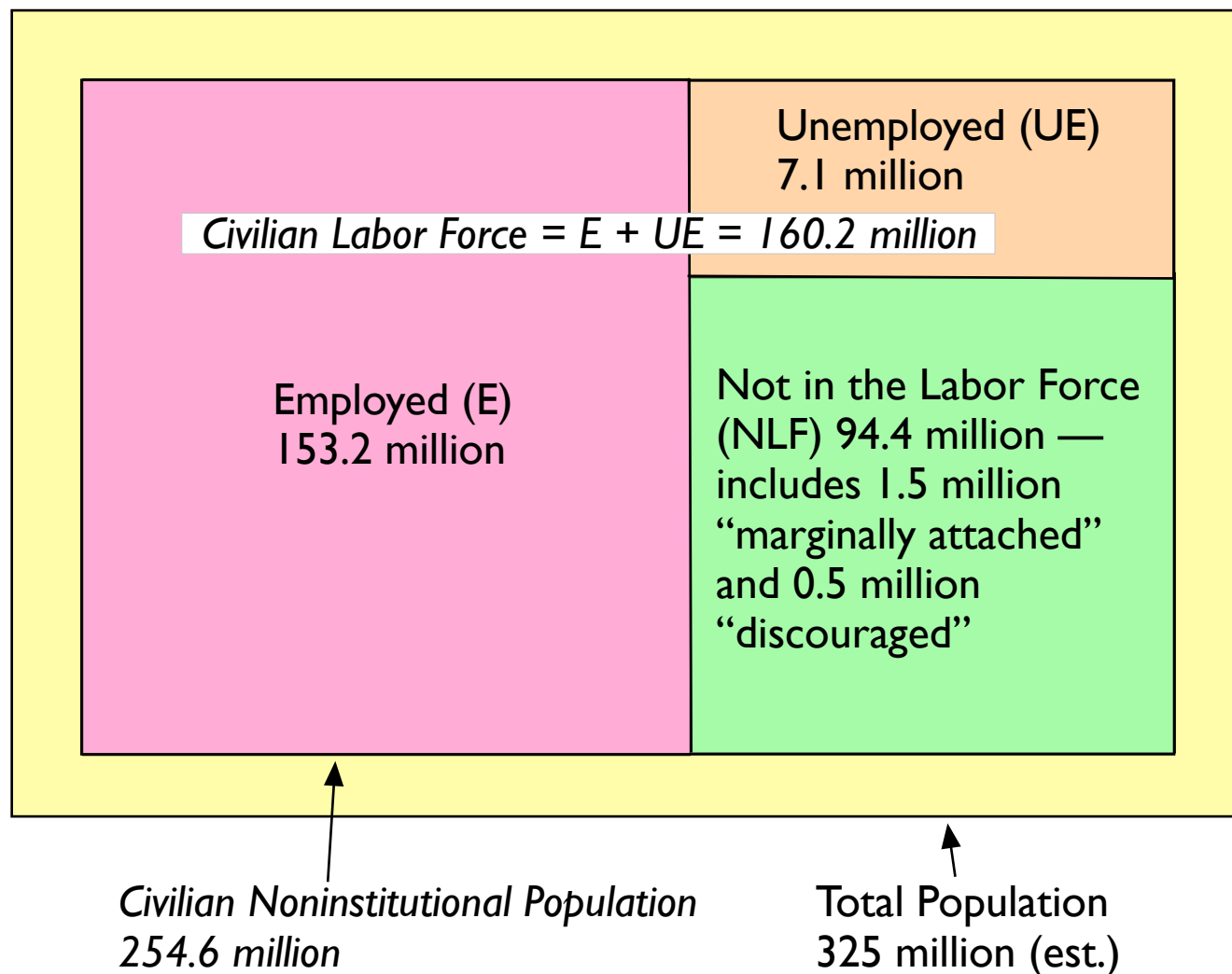
- These are the central element of labor market health

2. Importance of the Labor Market

How tight is the labor market?

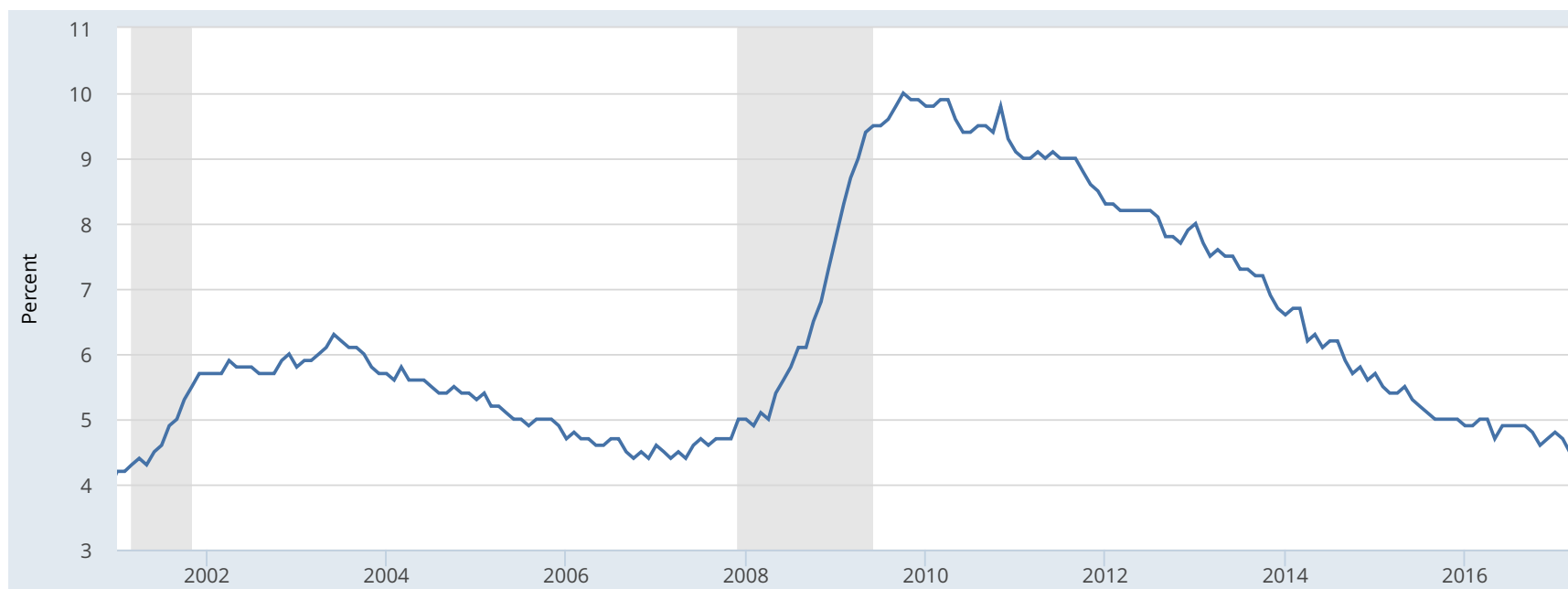
- Matters due to implications for earnings and Federal Reserve policy (among other things)
- Unemployment rate and vacancy data suggest tightness
- But other key indicators — employment/population ratio, labor force participation rate — suggest slack

Labor force concepts and statistics for April 2017



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

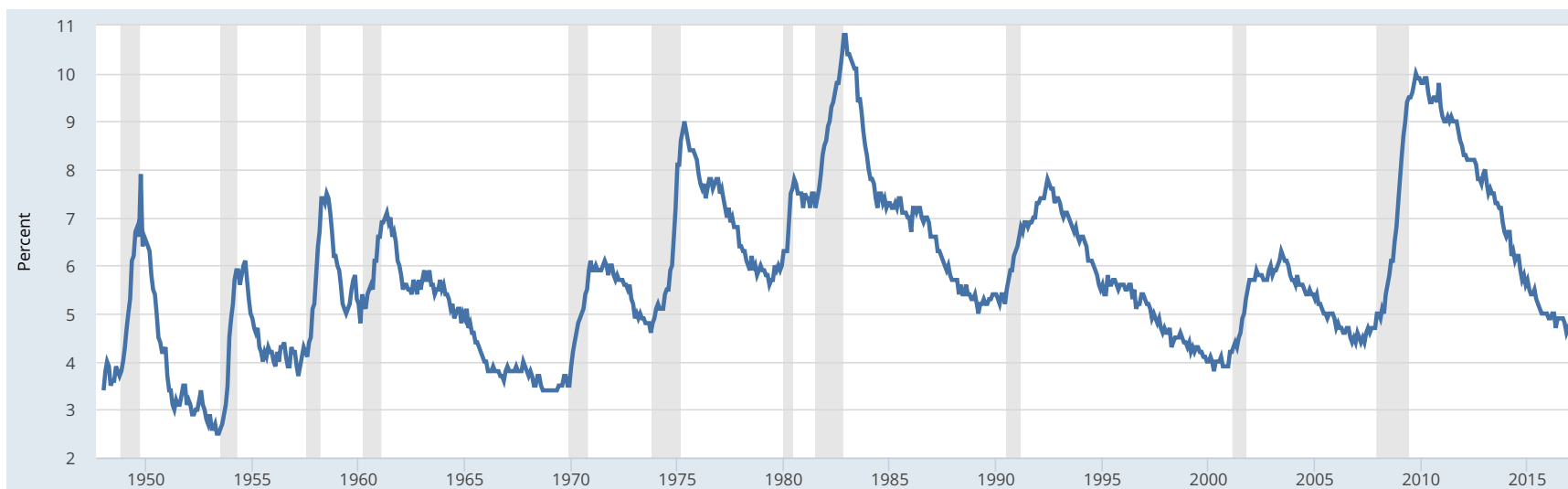
Unemployment rate (U-3, seasonally adjusted), 2000–present



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

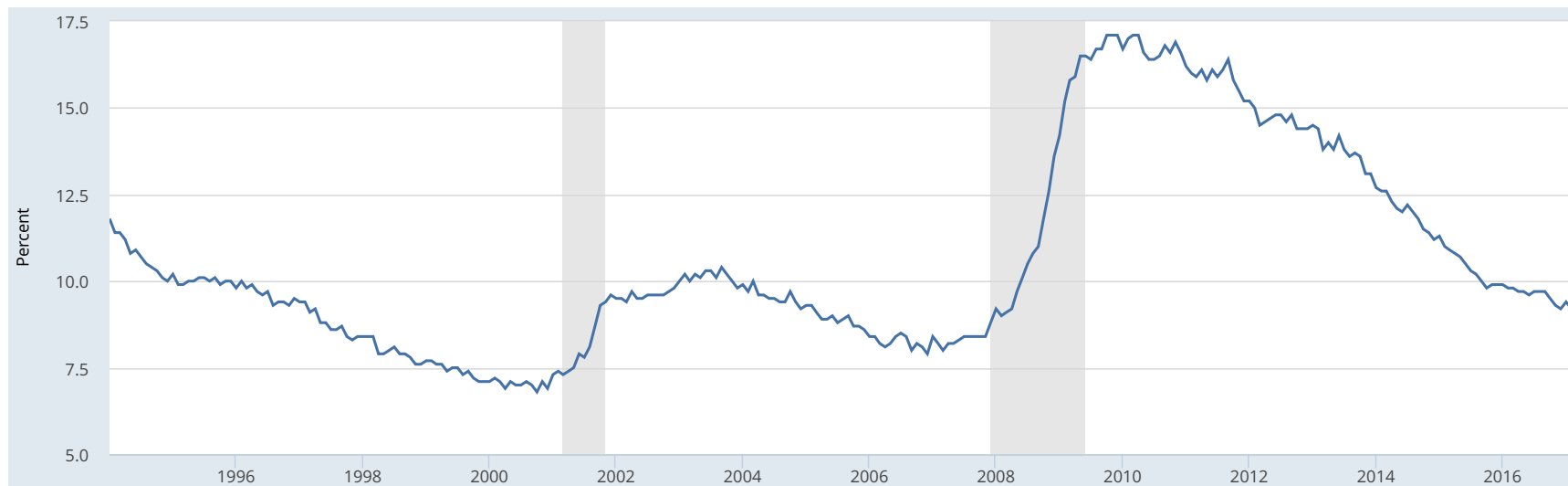
Unemployment rate (U-3, seasonally adjusted), 1948–present



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

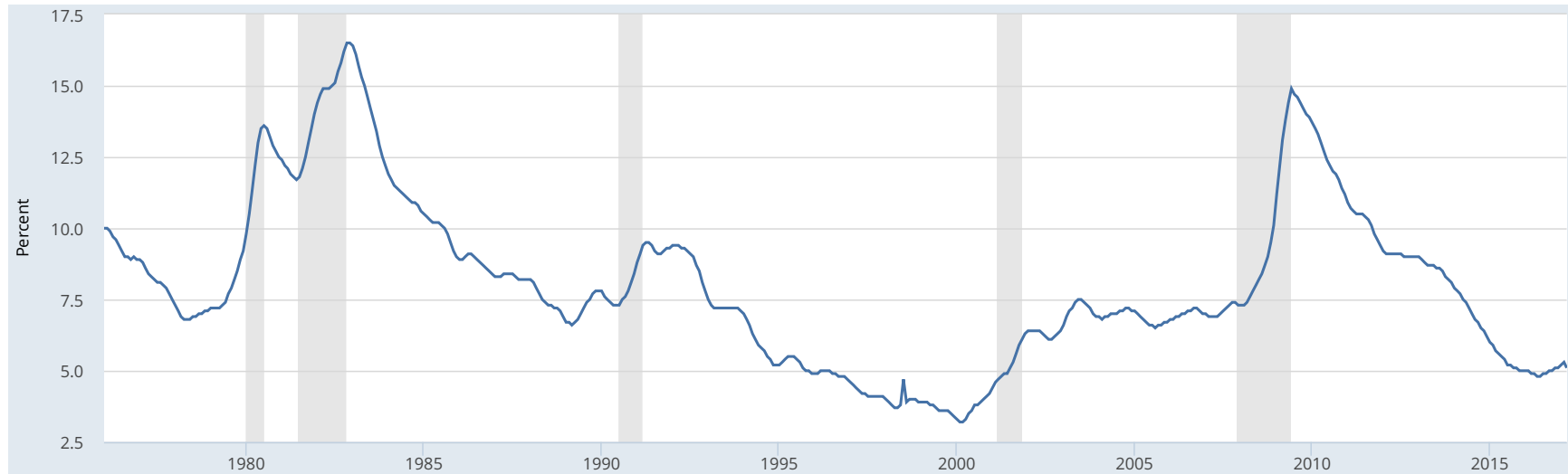
Broadened unemployment rate (U-6): Unemployed, plus marginally attached, plus employed part-time for economic reasons, as percent of the CLF plus all marginally attached workers, 1994–present



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

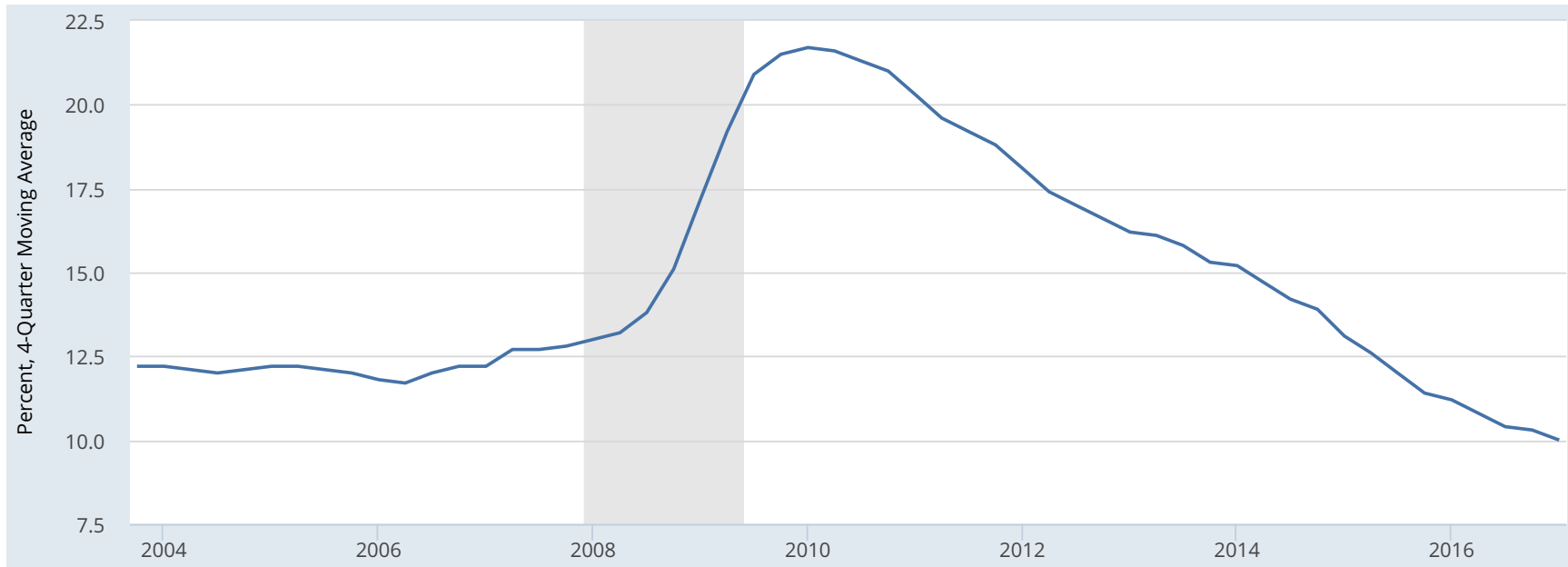
Michigan unemployment rate (U-3, seasonally adjusted), 2000–present



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 ...

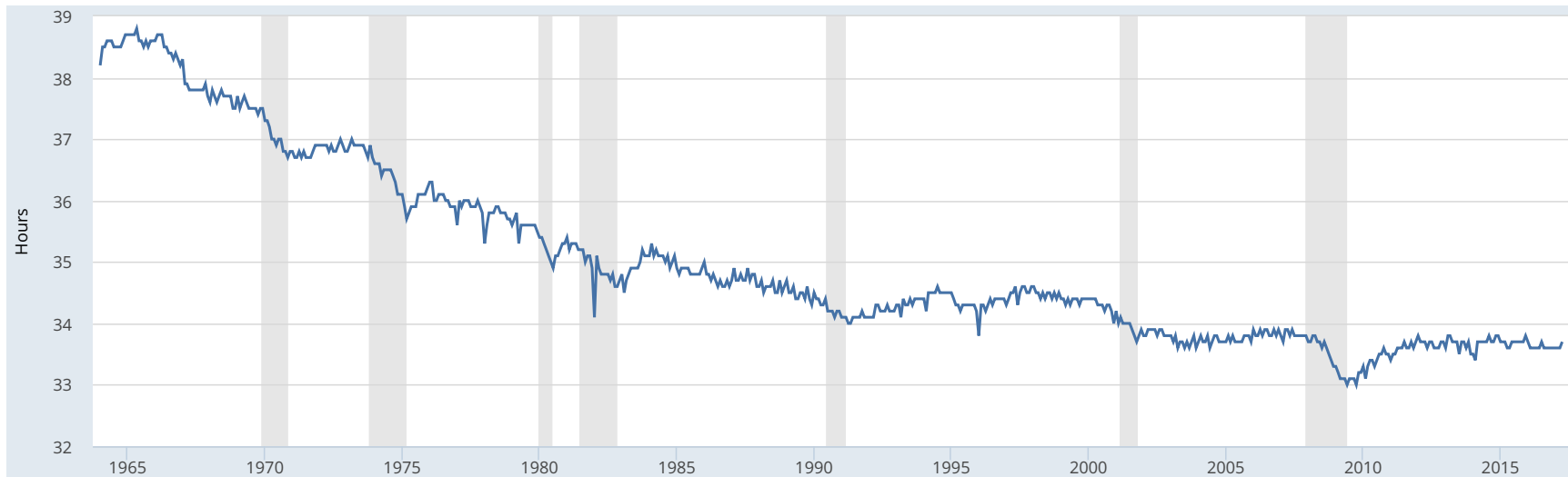
Michigan U-6: Total unemployed, plus all marginally attached workers, plus total employed part-time for economic reasons, as percent of the CLF plus all marginally attached workers, 2003–present



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)

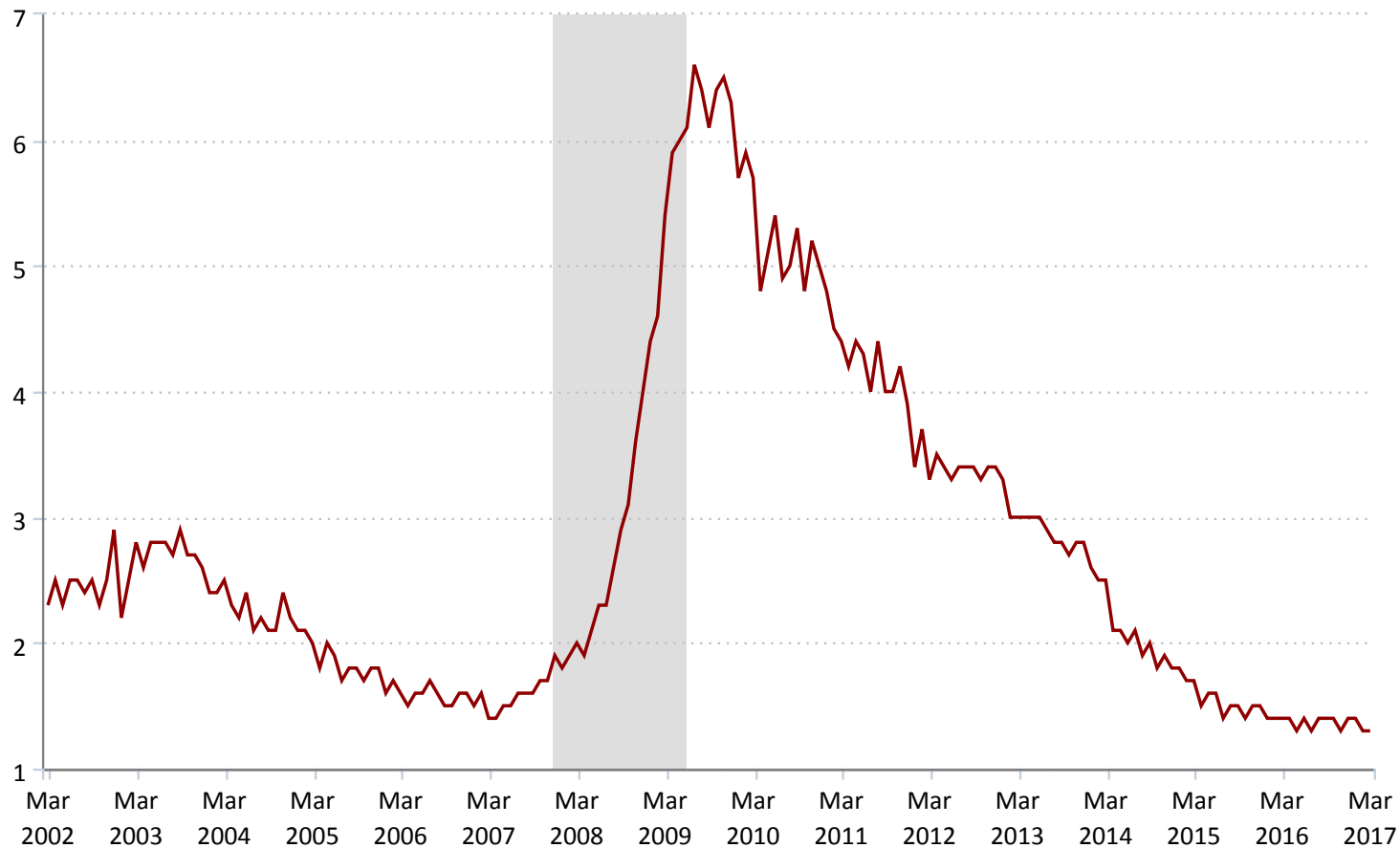
Average Weekly Hours of Production and Nonsupervisory Employees: Total Private



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#>>

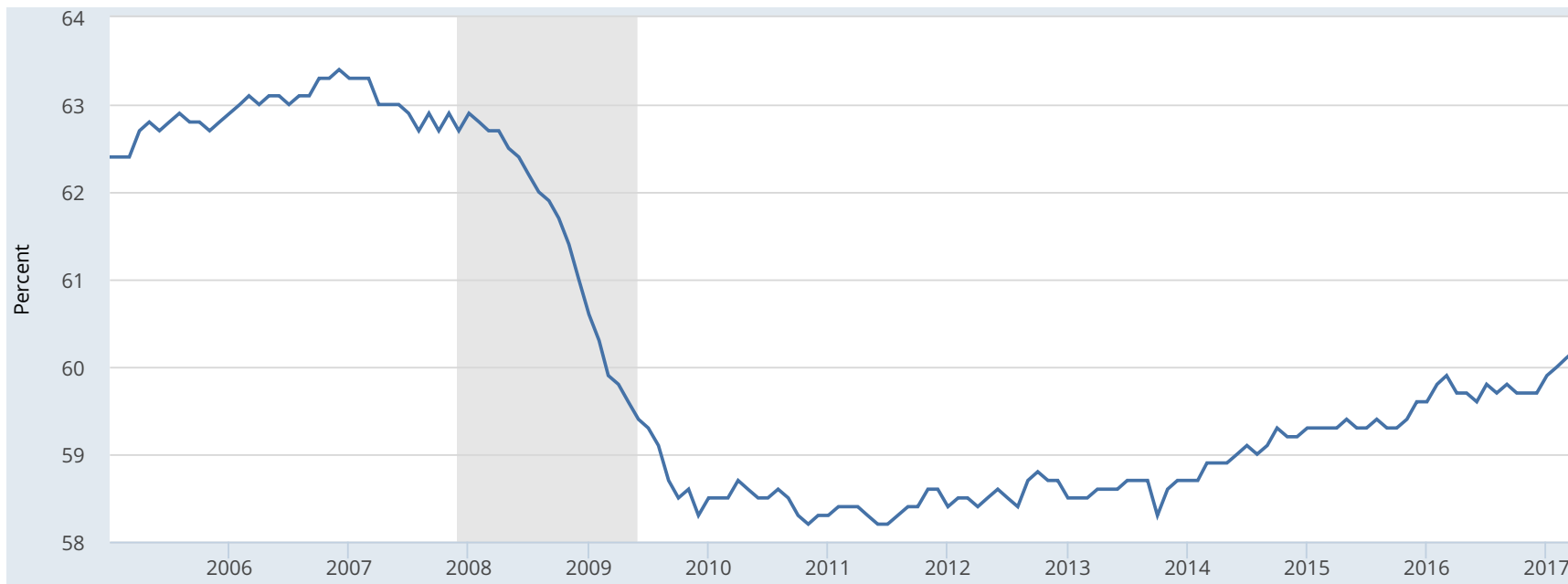
- Number of unemployed persons per job opening was as low as it has ever been

But other indicators suggest a less healthy labor market

Some economists still believe the labor market has some slack

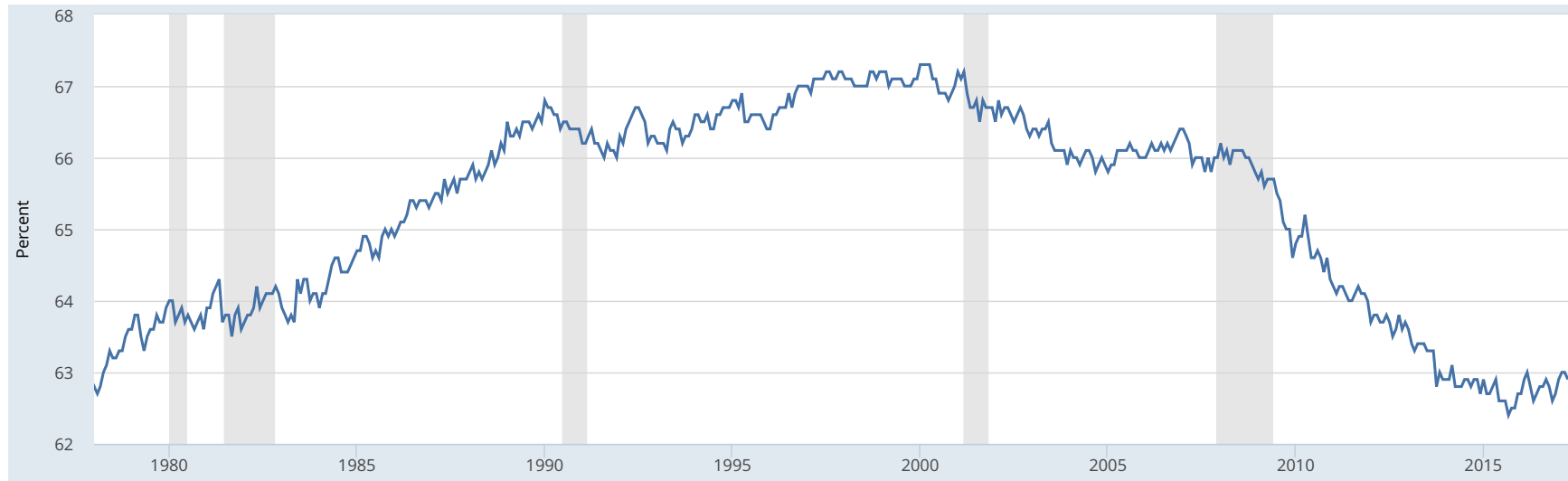
- The employment population ratio has not recovered
- The labor force has been falling
- The Beveridge Curve has shifted out dramatically

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

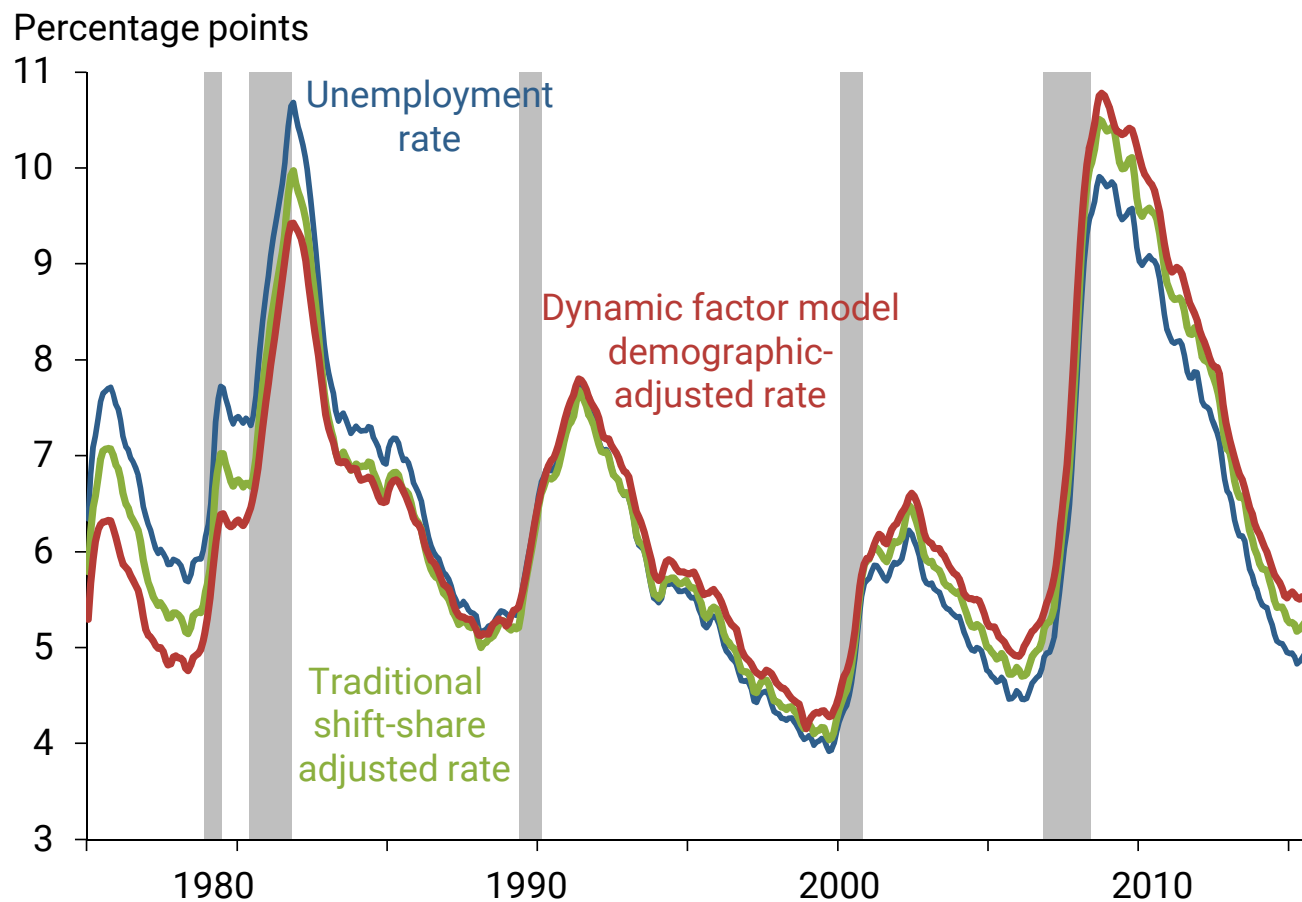


Source: Data from U.S. Bureau of Labor Statistics; graph from FRED (Federal Reserve Economics Data, Federal Reserve Bank of St. Louis)

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

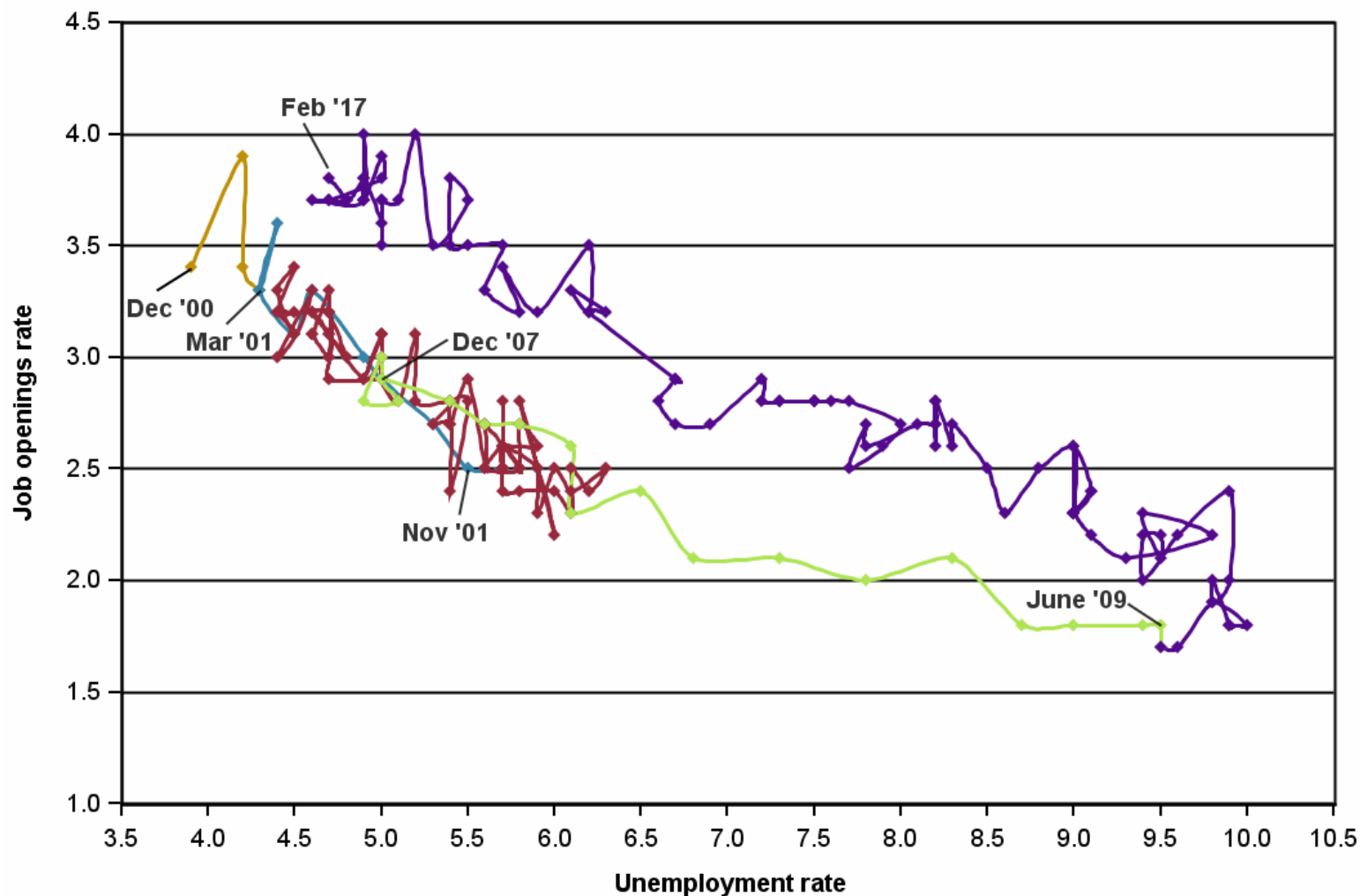
Unemployment rate with two demographic adjustments

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

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>

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)

3. Has the Structure of the Labor Market Changed?

Two key pieces of evidence suggest it has

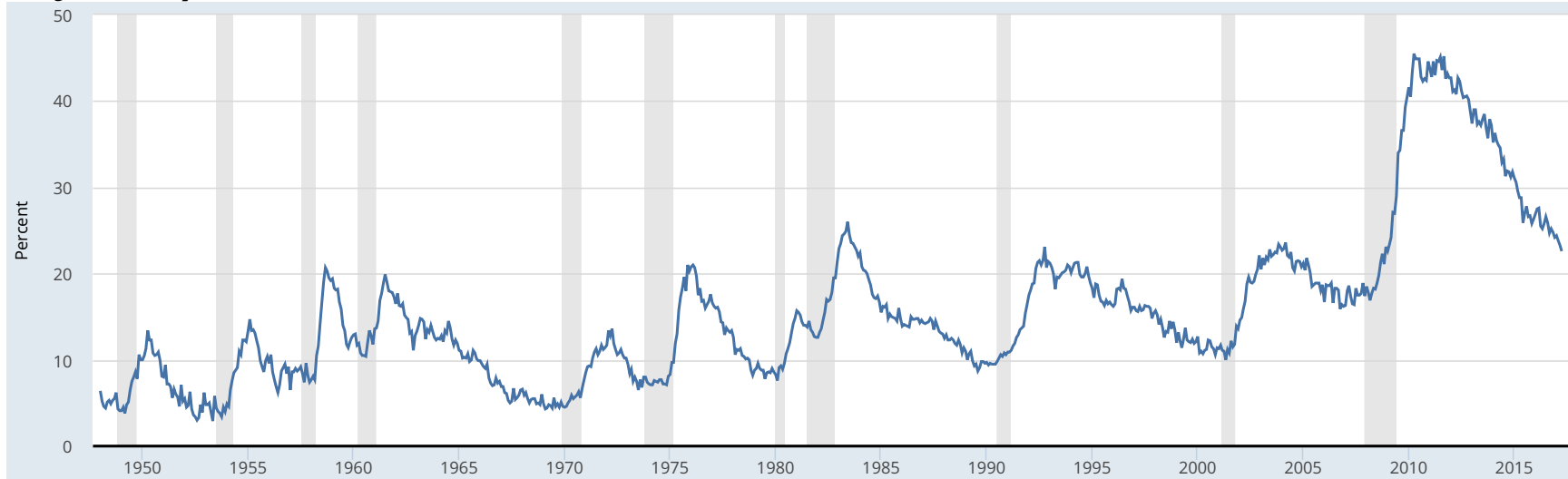
- The labor force has been shrinking more than can be explained by demographic change
- The Beveridge Curve has shifted out dramatically

Why?

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 ≥ 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

4. Productivity Stagnation?

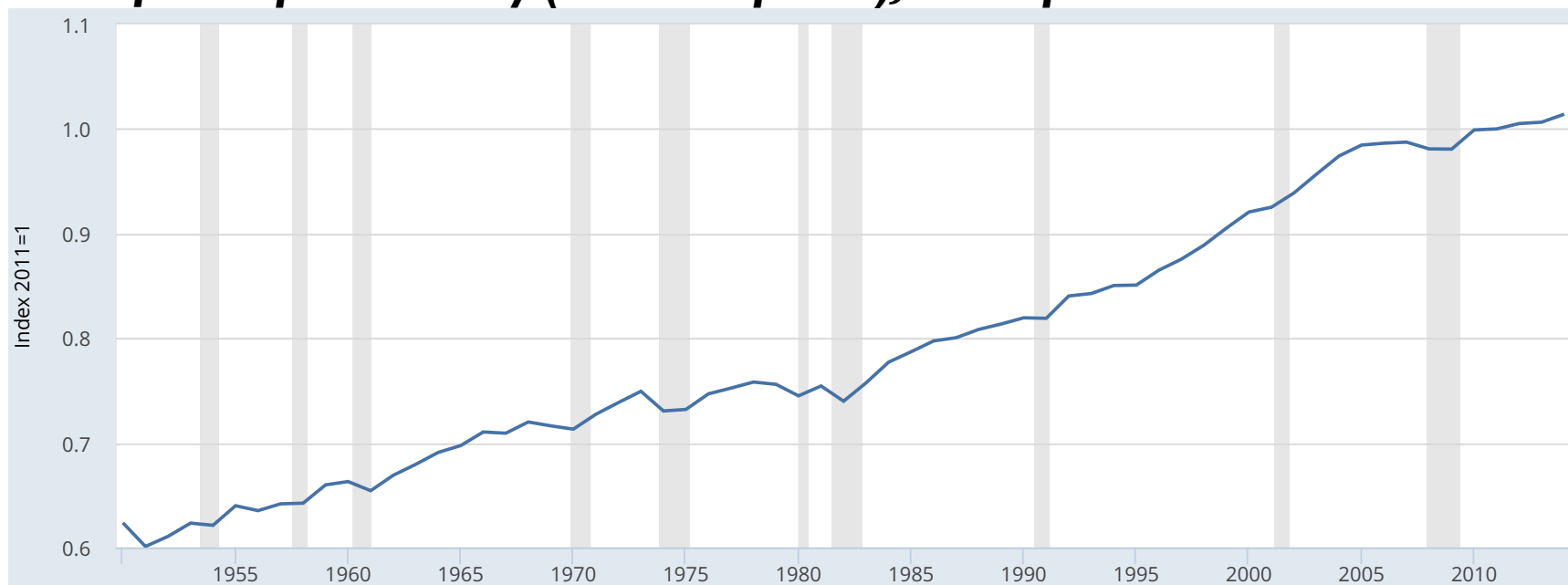
$$\frac{Q}{P_t} = \left(\frac{Q}{E} \right) \cdot \left(\frac{E}{LF} \cdot \frac{LF}{P_w} \right) \cdot \left(\frac{P_w}{P_t} \right)$$

The diagram illustrates the decomposition of per capita GDP into three components. The equation is $\frac{Q}{P_t} = \left(\frac{Q}{E} \right) \cdot \left(\frac{E}{LF} \cdot \frac{LF}{P_w} \right) \cdot \left(\frac{P_w}{P_t} \right)$. Arrows point from the following text labels to the corresponding terms in the equation:

- Per capita GDP points to $\frac{Q}{P_t}$
- Worker productivity points to $\frac{Q}{E}$
- Employed proportion of labor force points to $\frac{E}{LF}$
- Labor force participation rate (in blue) points to $\frac{LF}{P_w}$
- Civilian LF proportion points to $\frac{P_w}{P_t}$

What about productivity?

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)

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)

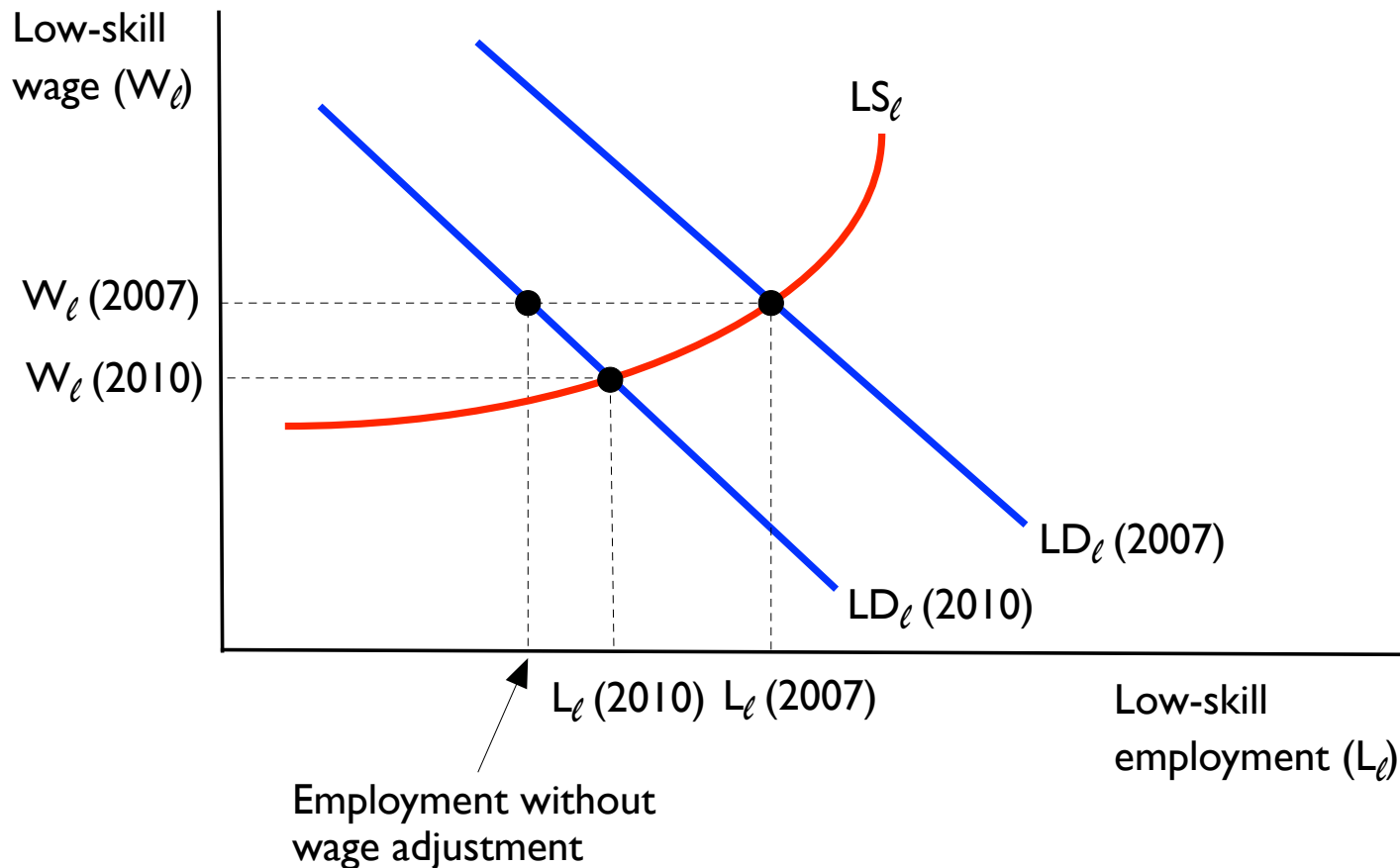
One last time

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

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