

Lecture 2

Jobs, Unemployment, Participation

Barometers Meant to
Measure the Labor Market

September 3, 2019

Macroeconomics: We Analyze
Economy wide Issues. To do so
We Focus on Aggregate Economic Statistics

- We care about total output and income:
Real GDP
National income
- We care about employment and joblessness:
non-farm payroll employment
unemployment rate
- We care overall prices and their rate of change
GDP deflator
inflation rate

**How much will your generation have to share,
when you are all retiring?**

(We want to design policies that deliver strong growth)

	<u>2020</u>	<u>2070</u>
3.4%/Yr. Real GDP Growth	100	540
1%/Yr. Population Growth	10	16
Real GDP/Person	10	34
2%/Yr. Real GDP Growth	100	269
1%/Yr. Population Growth	10	16
Real GDP/Person	10	17

We construct **basic models**
that **link** these key
macroeconomic **barometers**

How do we produce more output?

We add additional labor input (L) and/or

We increase the productivity of already
employed workers (LP)

$$\% \Delta Y = \% \Delta L + \% \Delta LP$$

Actually: $\% \Delta Y = ((1 + \% \Delta L) \cdot (1 + \% \Delta LP)) - 1$

Monetary policy: Step on the **Gas** or the **Brake**?

- Central banks set key interest rates.
- Their goal? Deliver growth that is as STRONG as can be handled without driving INFLATION up.
- For today's lecture: how fast can the U.S. jobs market grow?
- What is the ideal **% Δ L** ?

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 = 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 July of 2019, 63.0% said “Yes”.
- BLS extrapolation for the working age population is 259 MILLION, 07/19
- BLS multiplies 0.630×259 million
- *BLS estimates labor force of 163.4 million.*

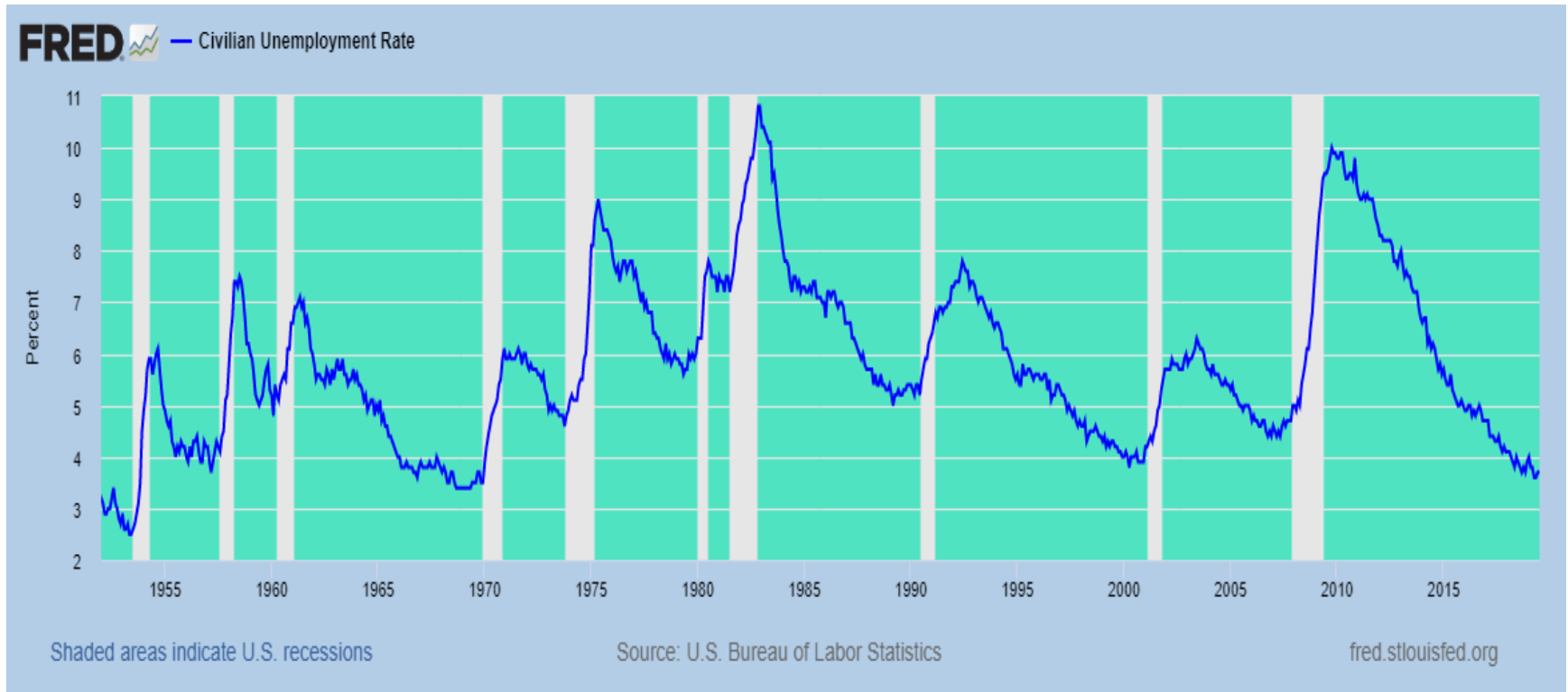
The BLS survey: the U3 unemployment rate

- BLS tallies those who identify as “out of work, but looking for work”
- In August of 2017, 2.3% self-identified as such.
- The number of unemployed:
 $2.3\% \times \text{Population} = 6.06 \text{ million}$
- BLS estimated the labor force to be 163.4 million
- BLS U3 rate = $(\# \text{ of unemployed}) / (\# \text{ in labor force})$.
- **BLS, July 2019, U3 rate = $6.06 / 163.4 = 3.7\%$**

To summarize the household survey:

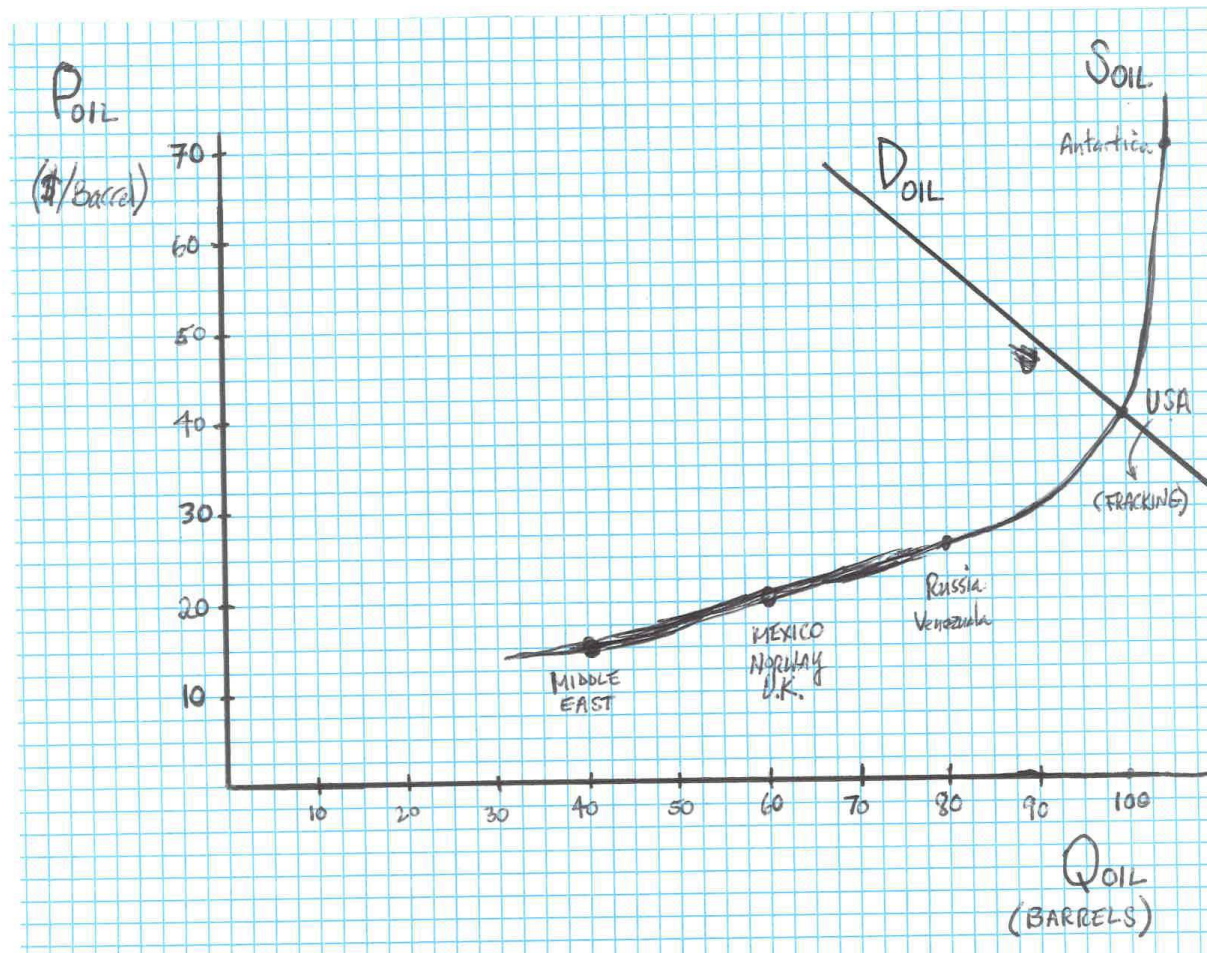
- **How does the household survey build into an unemployment rate?**
- (A) Population estimate (extrapolation from census data)
- (B) Labor force participation rate (% of the survey labeling themselves employed or jobless but looking for work)
- (C) Labor force level: $(B) \times (A)$
- (D) Household employment level (percent of phone survey labeled employed times "A").
- (E) Household unemployment level (percent of tally labeled unemployed times "A").
- (F) Unemployment rate: $(E/C) \times 100$

The BLS **U3 unemployment rate**: Unemployment falls amid a growing economy. A **jump for joblessness** is a defining characteristic of a **recession**.



We say that Adam Smith's invisible hand works when

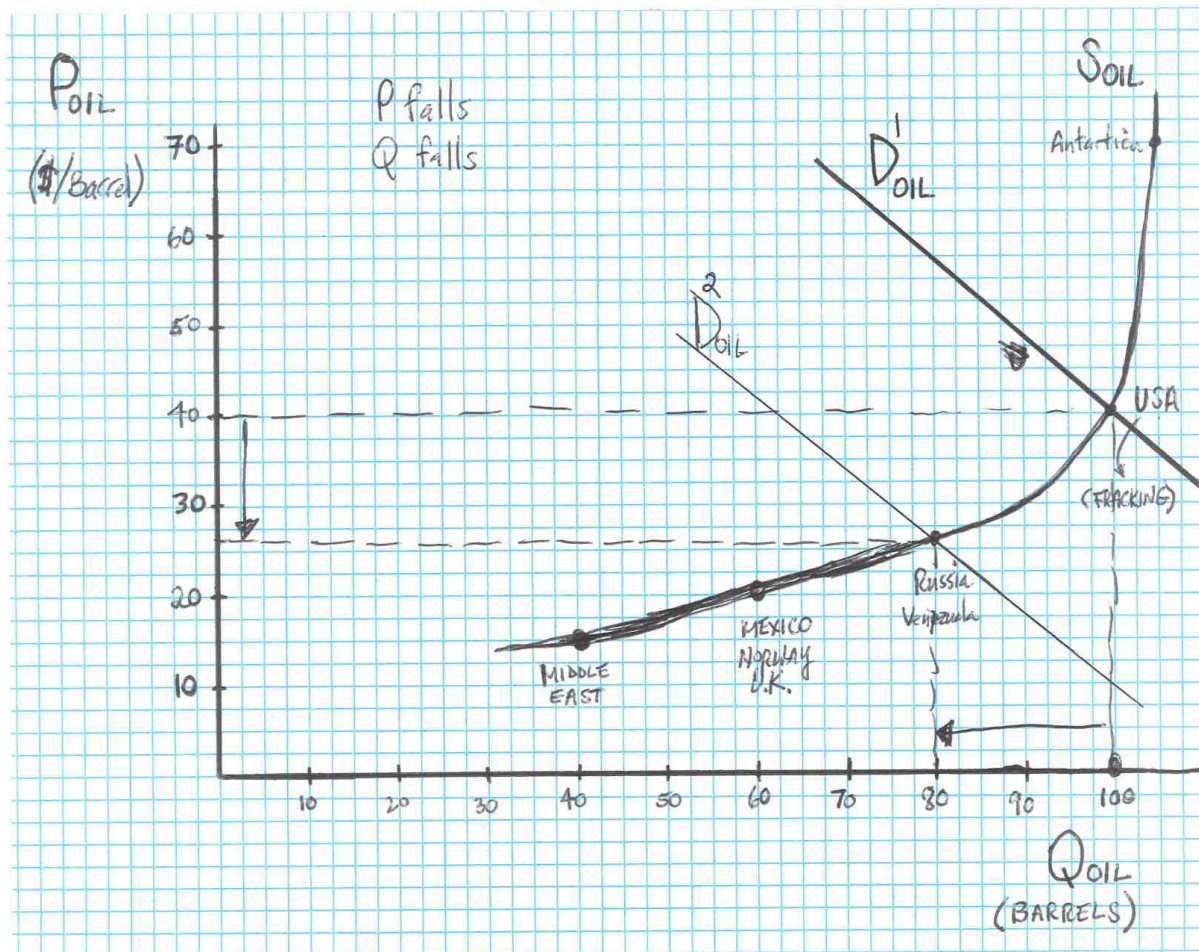
Supply and Demand, via price signals, drives us to Equilibrium:



Suppose people begin staying home, fearing a virulent flu.

Falling demand we assert, would lower the P_{oil} .

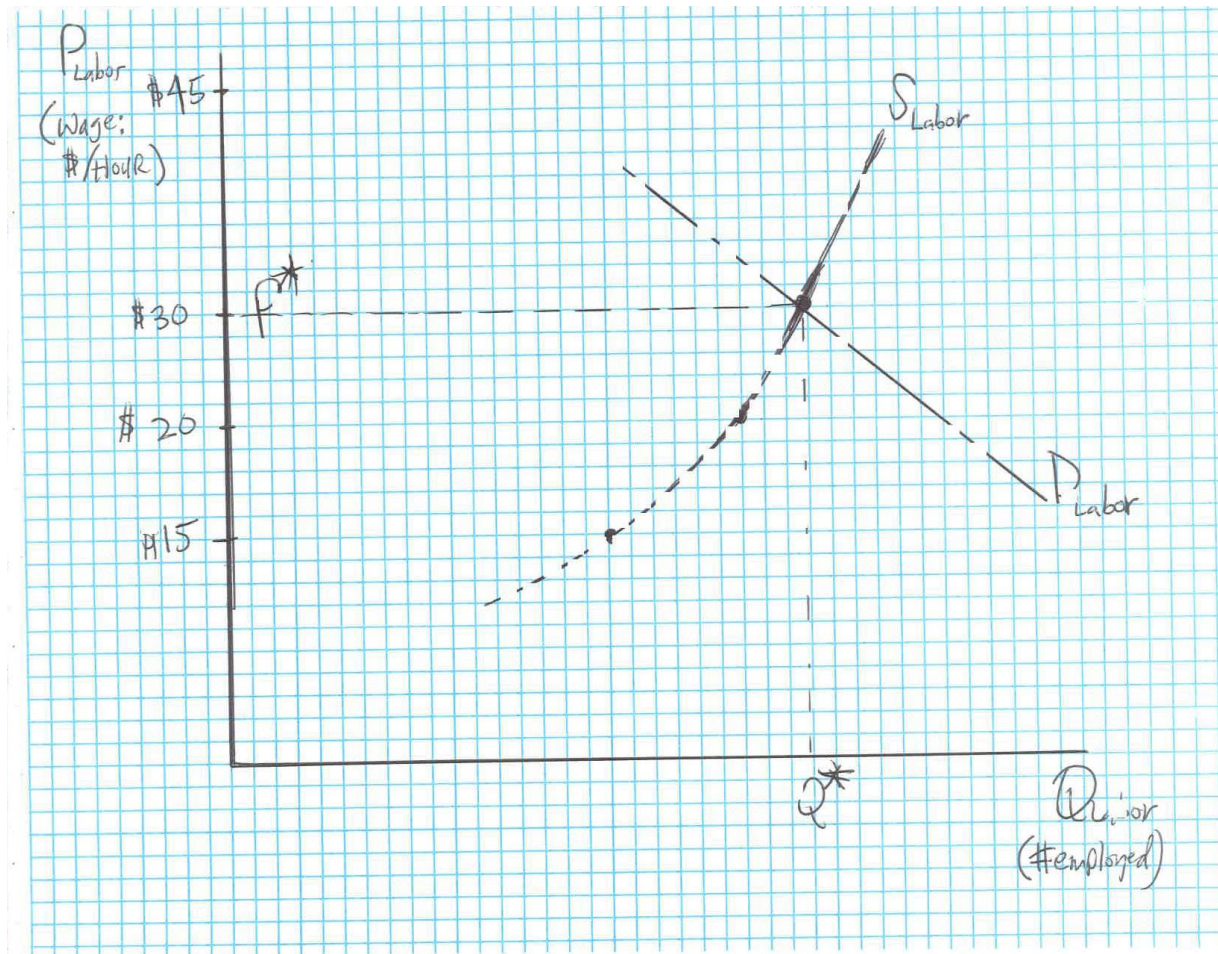
Oil supplied would fall, as high cost producers shut off pumping.



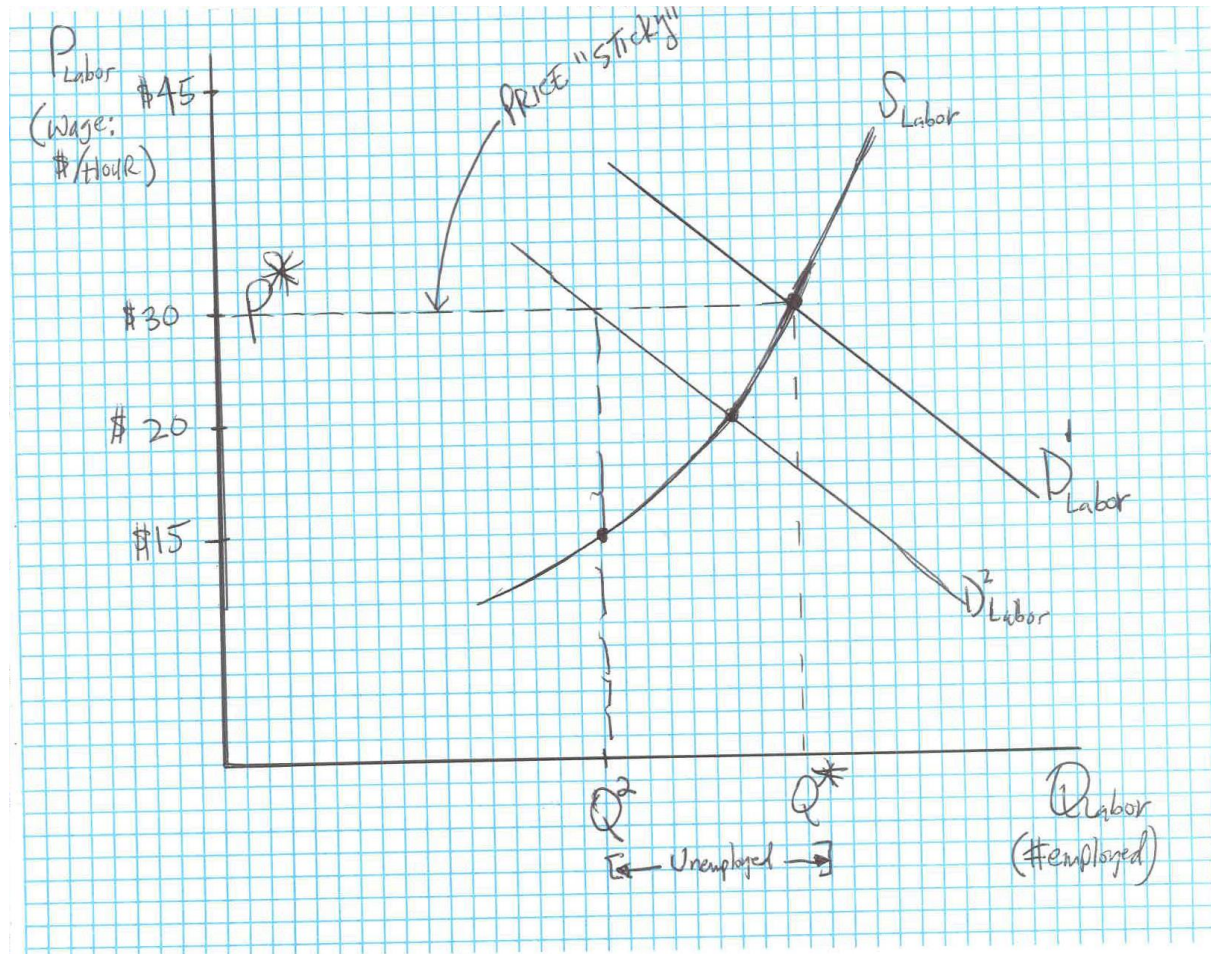
We can imagine a supply curve for LABOR:

- 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. “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 = 259 million

Employed = 157 million

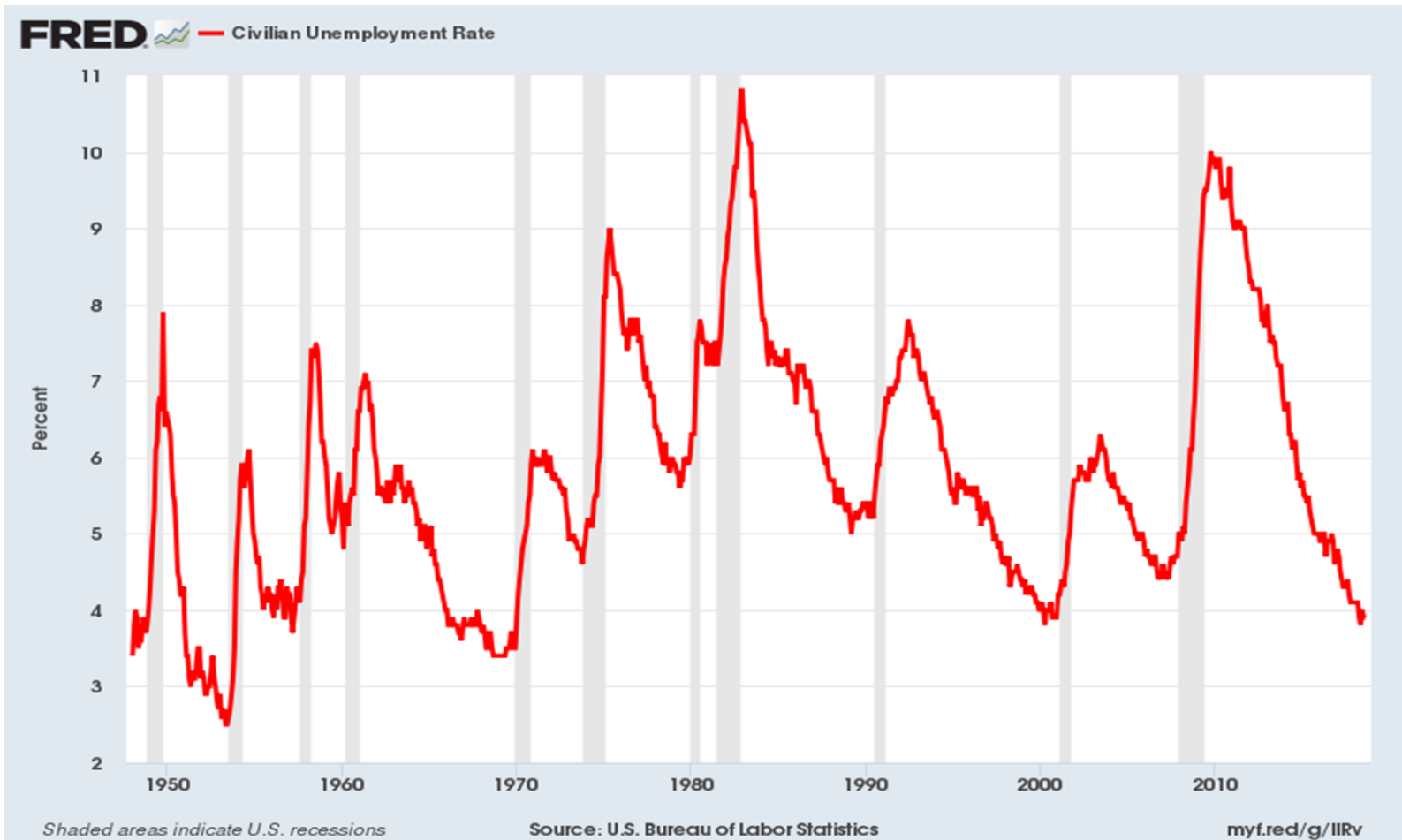
ERGO NOT WORKING = 259 – 157 = 102 million

$$\frac{102}{259} = 39\%$$

Is the President Correct? No.

But it is true that the unemployment rate is an incomplete measure of labor market health.

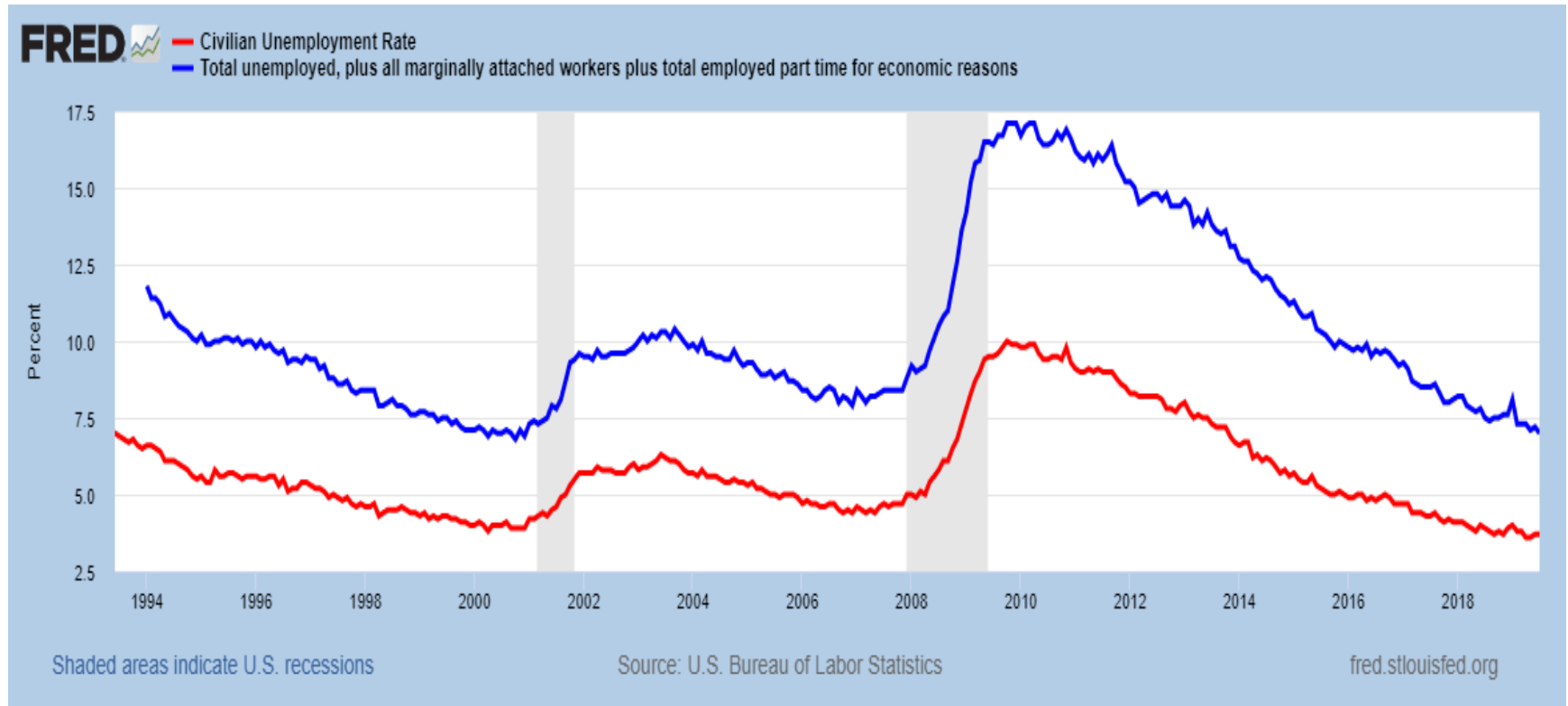
The U3 Unemployment Rate: An Incomplete Measure of the Labor Market



Two obvious things missing from the unemployment rate?

- Some workers may have recently given up looking for a job, so they are 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: Much higher underemployment in the jobs expansion, 2010-2015.

	Unemployment (rate, U3)	marginally attached + involuntary part-timer (rate)	Unemployment rate, U6 (U6 = U3 + marg. +part timers)
1997	5.0%	3.3%	8.3%
2006	5.0%	3.3%	8.3%
2015	5.0%	5.0%	10.0%
2000	3.80%	3.10%	6.90%
2019	3.70%	3.30%	7.00%

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

	Nonfarm Payrolls		Changes
	Original	Revised	difference
Apr-08	-20	-149	-129
May-08	-49	-231	-182
Jun-08	-62	-193	-131
Jul-08	-51	-210	-159
Aug-08	-81	-334	-253
<i>April-August Average</i>	-52.6	-223.4	-170.8

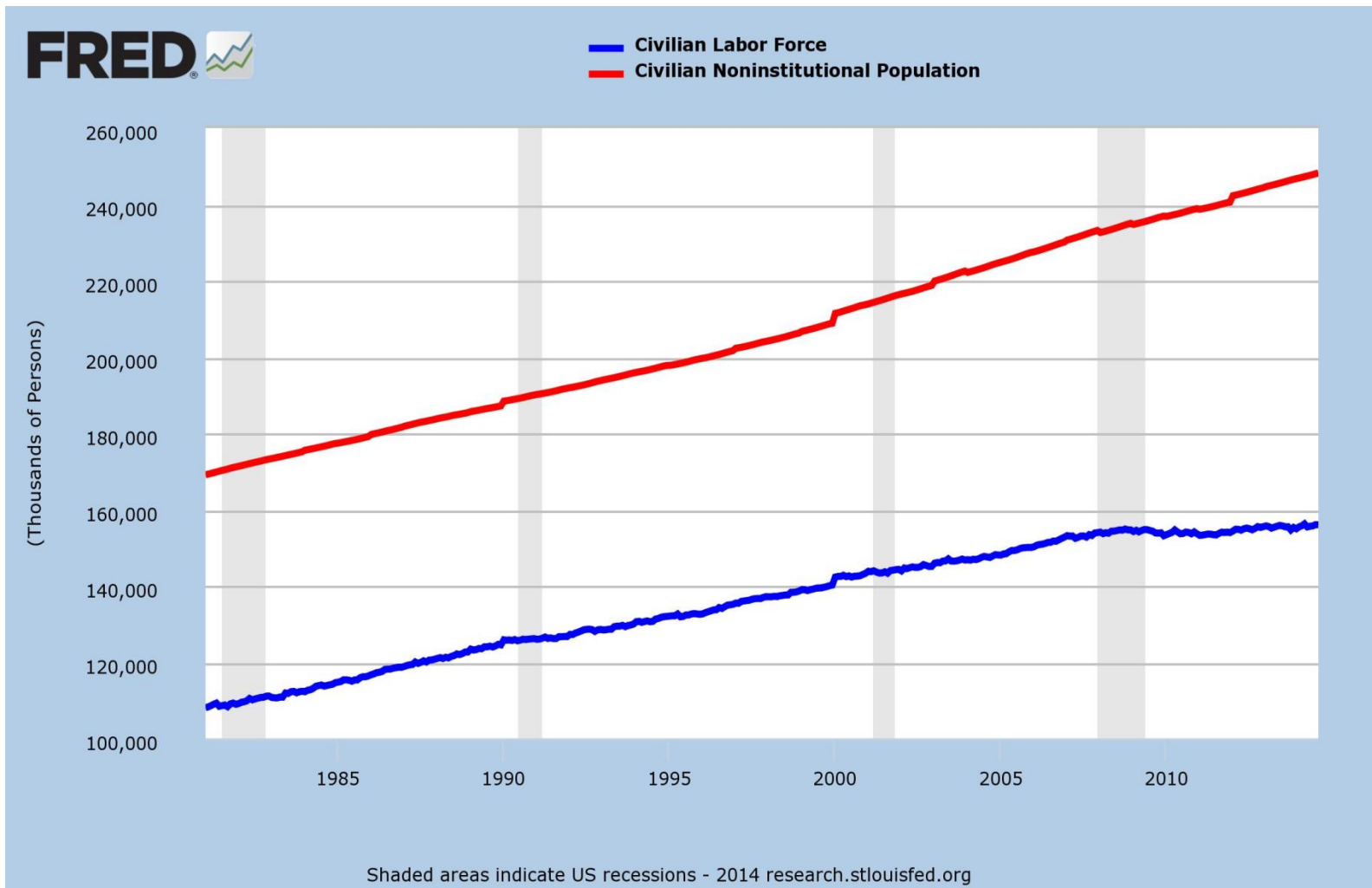
Is that Fair? Some will argue **Trump's Economy Begins**, In 2018, **after the Trump Tax cuts** are enacted:

Employment Changes	(After Trump Tax Cut)
Total employment, 12/30/2017	147,596,000
Total employment, 7/30/2019	151,431,000
total gain	3,835,000
average yearly gain	2,422,105
average monthly gain	201,842

And **decisions** and **revisions**,
 which **a moment can reverse**
 (T.S. Eliot)

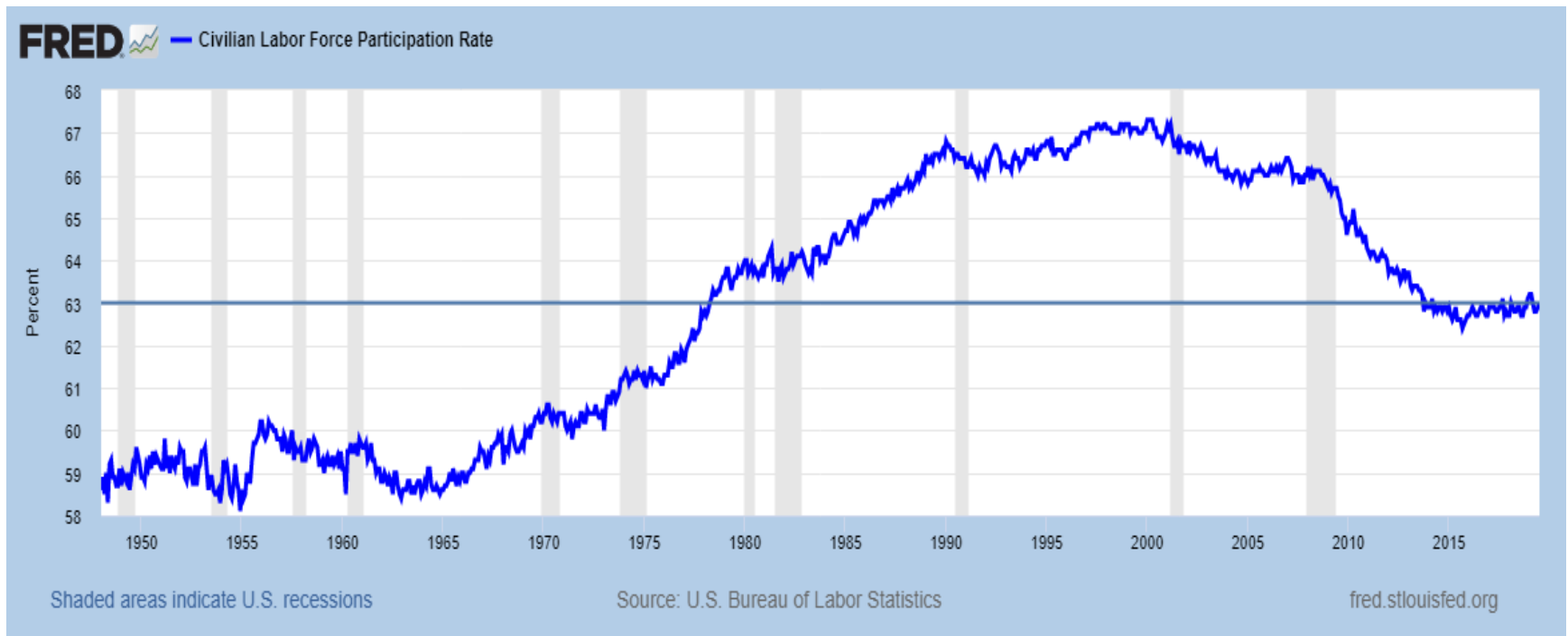
		<u>AFTER JULY BENCHMARK REVISION</u>	
Employment Changes (Trump's First 2.5 Years)		Employment Changes (Trump's First 2.5 Years)	
Total employment, 1/30/2017	145,695,000	Total employment, 1/30/2017	145,695,000
Total employment, 7/30/2019	151,431,000	Total employment, 7/30/2019	150,931,000
total gain	5,736,000	total gain	5,236,000
average yearly gain	2,294,400	average yearly gain	2,094,400
average monthly gain	191,200	average monthly gain	174,533
Employment Changes (After Trump Tax Cut)		Employment Changes (After Trump Tax Cut)	
Total employment, 12/30/2017	147,596,000	Total employment, 12/30/2017	147,596,000
Total employment, 7/30/2019	151,431,000	Total employment, 7/30/2019	150,931,000
total gain	3,835,000	total gain	3,335,000
average yearly gain	2,422,105	average yearly gain	2,106,316
average monthly gain	201,842	average monthly gain	175,526

Question: What change is evident in this picture?



Answer: Participation has fallen dramatically:

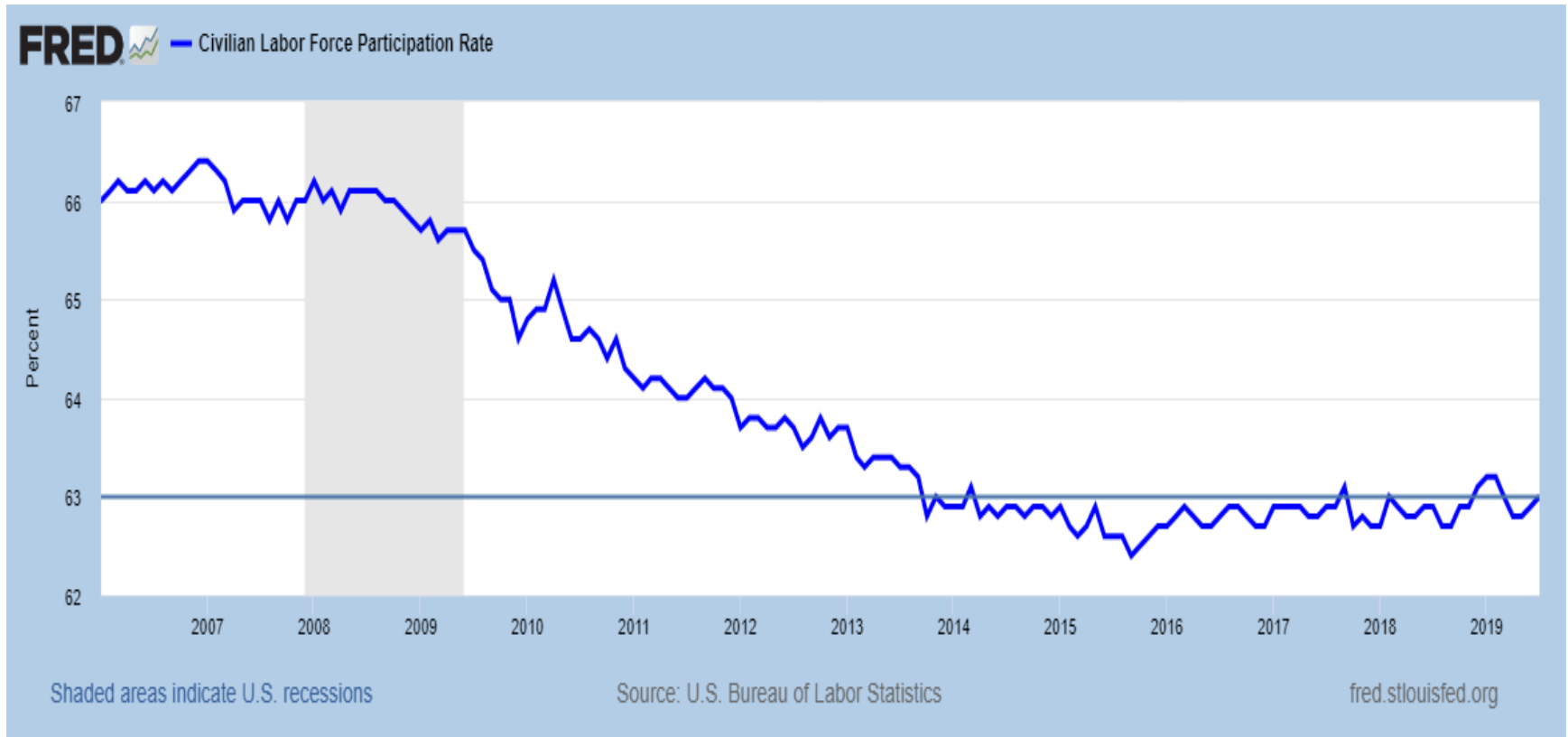
$$\text{LFPR} = \frac{\textit{labor force}}{\textit{working age population}} \times 100$$



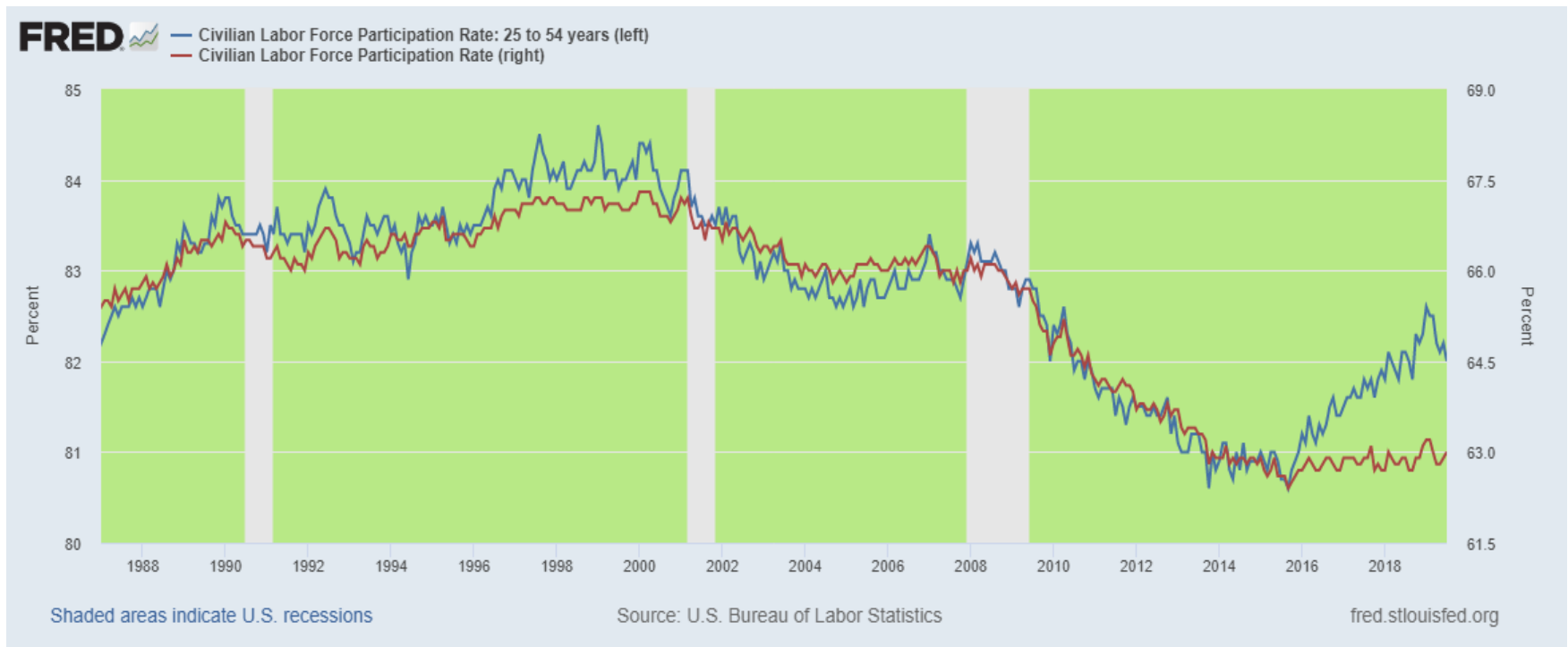
Leading the BLS to **Surrender** All Hope For a **Participation Rebound**

	2000	2004	2014	2015	2020*
Total 16 and over	67.1	66	62.8	62.6	62.5
16-24	65.4	61.1	54.5	55.1	48.2
25-54	84	82.7	81.1	80.9	81.3
55-64	59.3	61.9	63.9	64.2	68.8
65 and older	12.5	14.5	18.3	19.0	22.2
*BLS 2014 Forecast					

Over the past 4 years, 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)

		BLS		
		pop growth		Population
	2016 population	forecast	2026 Population	Growth
16 and over	253724		276896	23172
16-24	38469	-0.28%	37405	
25-54	125675	0.32%	129755	
55-64	41378	0.32%	42721	
65 and over	48202	3.35%	67015	

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%, to avoid destabilizing excesses, they will design policy consistent with slower jobs growth, going forward.
- **How slow must job growth be?**

Let's project the labor force, using two scenarios:

		<u>2019</u>	
	Population		labor force
	level, 1,000s	LFPR	level, 1,000s
Total (16 and over)	259,037	62.9%	162,964
16 to 24	37,740	55.9%	21,097
25 to 54	126,294	82.2%	103,814
55 to 64	42,247	65.1%	27,503
65 and over	52,756	20.0%	10,551
		<u>2020</u>	
STABLE LFPR, BY AGE COHORT	Population		labor force
	level, 1,000s	LFPR	level, 1,000s
Total (16 and over)	260,909	62.7%	163,496
16 to 24	37,363	55.9%	20,886
25 to 54	126,673	82.2%	104,125
55 to 64	42,374	65.1%	27,585
65 and over	54,500	20.0%	10,900
		<u>2020</u>	
RISING LFPR, BY AGE COHORT	Population		labor force
	level, 1,000s	LFPR	level, 1,000s
Total (16 and over)	260,909	63.2%	164,766
16 to 24	37,363	56.4%	21,058
25 to 54	126,673	83.0%	105,138
55 to 64	42,374	65.3%	27,670
65 and over	54,500	20.0%	10,900

Job growth averaged 180,000/month, over the past 12 months.
 What happens to the U3 Unemployment rate, for our two scenarios,
 if job growth remains at 180,000 over the two scenarios:

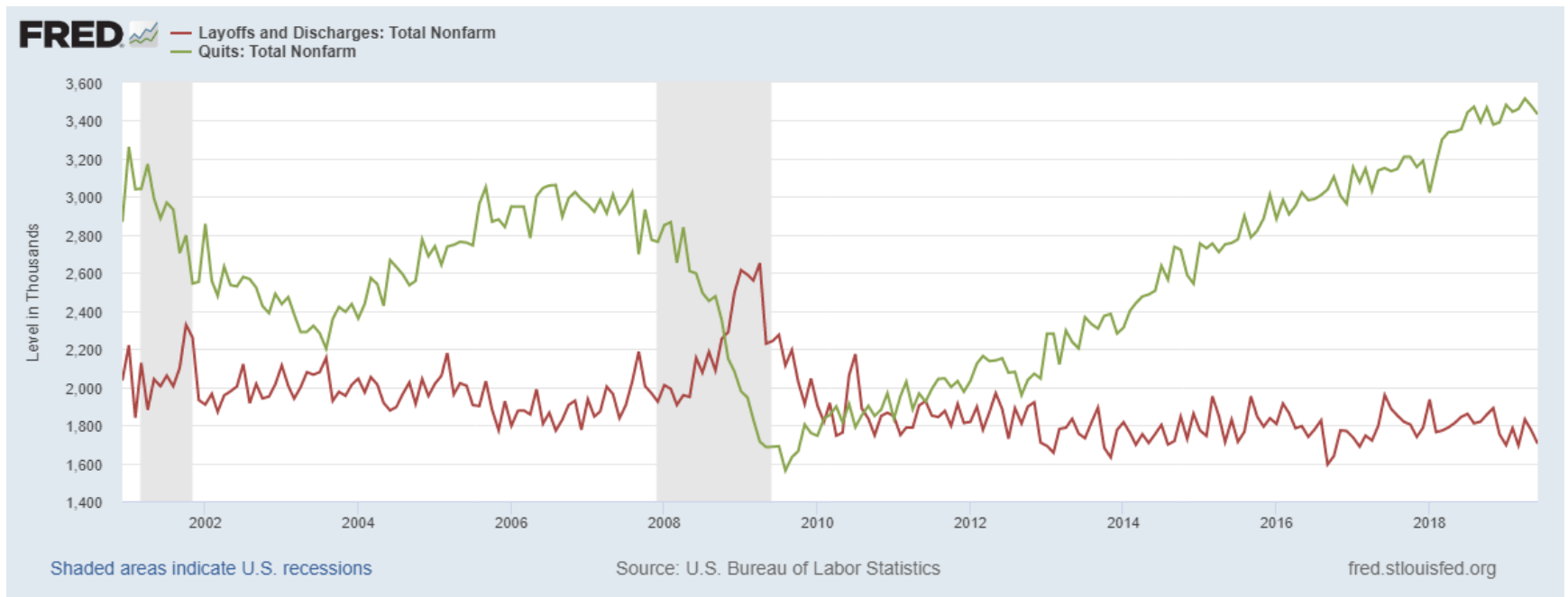
	Total labor force level, 1,000s	Labor Force Growth Rate monthly, 1,000s		
2019: Current Situation	162,964			
2020: Scenario A	163,496	44		
2020: Scenario B	164,766	150		
	Total labor force level, 1,000s	Total employment level, 1,000s	Total Unemployment level, 1,000s	Unemployment Rate percent
2018: Current Situation	162,964	156,935	6,030	3.7%
2020: Scenario A	163,496	159,095	4,401	2.7%
2020: Scenario B	164,766	159,095	5,671	3.4%

Why not celebrate a 2.7% unemployment rate?

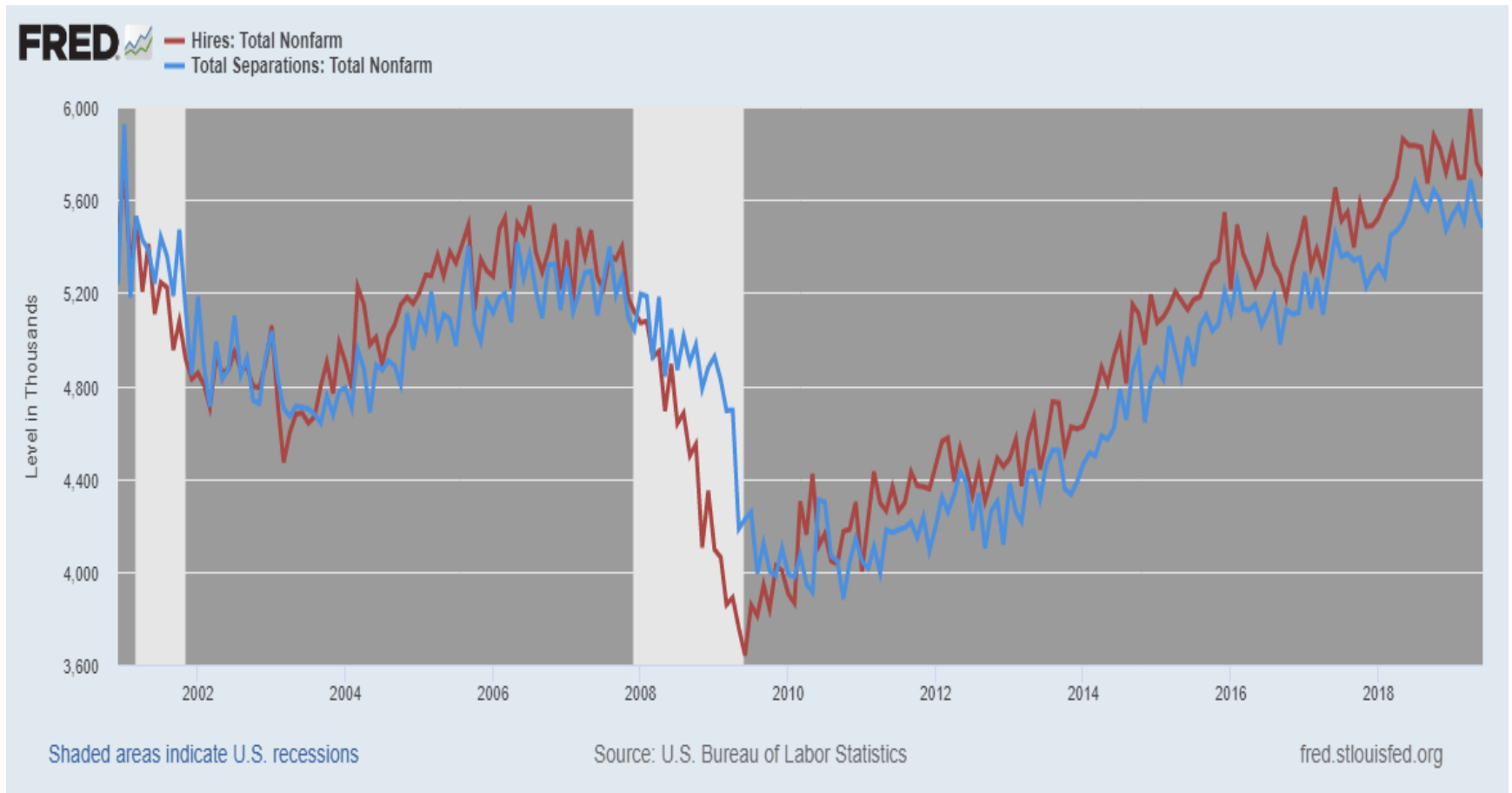
Let us **dissect unemployment**:

- **Cyclical Unemployment**: I lost my job amid a big recession. I am ready willing and able to work. Stimulate the economy, generate strong growth, and I will take a new job.
- **Frictional Unemployment**: I hated my last job and I quit. It took me 4 months to find a new job.
- **Structural Unemployment**: I was a coal miner for 30 years. Coal has lost its role as an energy source. And I am too old and tired to want to learn a new skill

“Sorry but you’re Fired” vs. “You know What, I Quit”



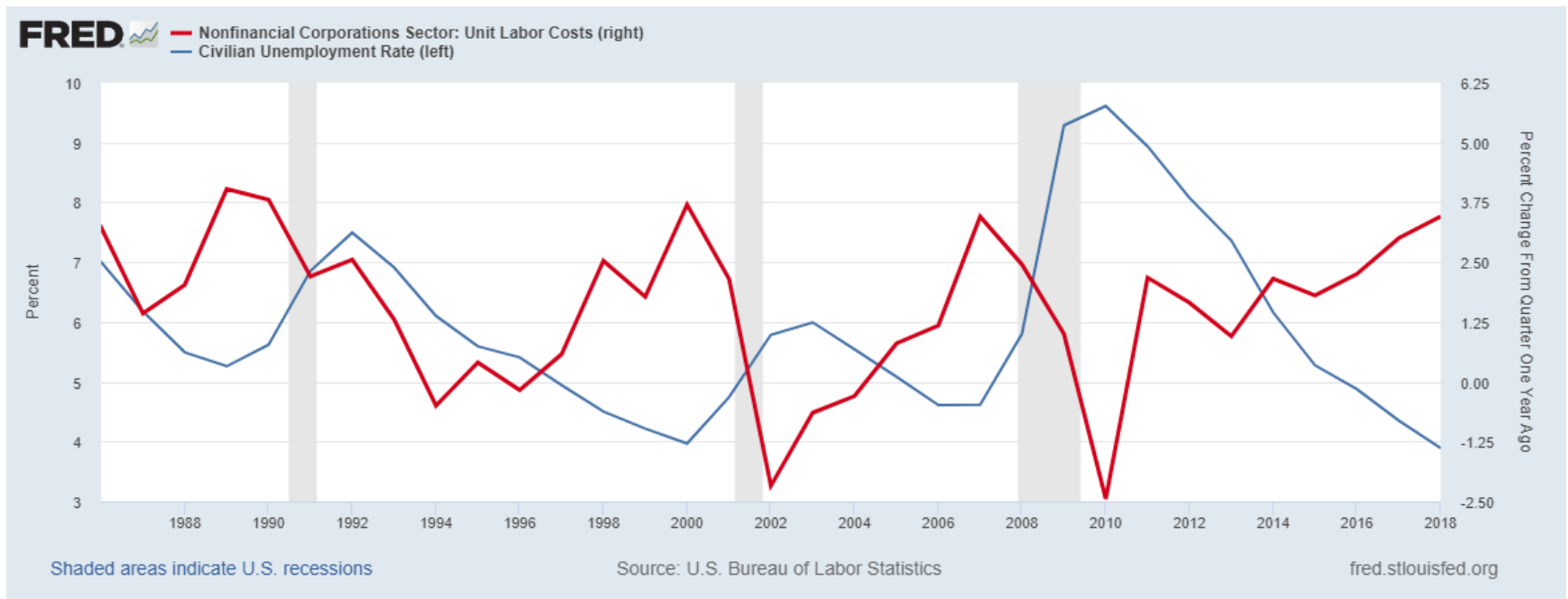
The BLS JOLTS Data (Jobs Opening and Labor Turnover)



The JOLTs Survey: Gross Hires and Separations

	MONTHLY	MONTHLY	HIRES-	JOB
	HIRES	SEPARATIONS	SEPARATIONS	OPENINGS
	(MILLIONS)	(MILLIONS)	(THOUSANDS)	(MILLIONS)
2000	5.40	5.27	130	4.93
2005	5.32	5.04	280	4.05
2009:Q2	3.75	4.31	-560	2.36
2010:Q4	4.11	3.95	160	3.01
2015:Q2	5.09	4.87	220	5.34

Why not celebrate 2% Unemployment? Evidence suggests that super tight labor markets push up labor costs and invite inflation



That said, Wage earners have been getting less and less of the pie, for 40 years.

