Business Cycle Mechanics

... the pathology of the business cycle

What journey ahead??

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What is a business cycle?

The business cycle is an economic phenomenon measured by, in terms of the real GDP growth rate, the movement from a peak to a trough (recession) back to a peak (expansion). A recession is loosely defined to be two or more consecutive quarters when the real GDP growth rate is negative.

Business cycles are investigated by a private research organization called The National Bureau of Economic Research (see http://www.nber.org). The NBER has a more subtle definition of recessions:

"A recession is a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales. A recession begins just after the economy reaches a peak of activity and ends as the economy reaches its trough. Between trough and peak, the economy is in an expansion."

For a detailed explanation of how the NBER determines the turning points of cycles, see http://www.nber.org/cycles/recessions.html

How we explore the phenomena ... ?

Most business cycles follow a given pattern, up to a point: you often see the same triggers for the turning points from one cycle to the next. So therefore we can generalize common features that we tend to see in most cycles. That is the emphasis of the business cycle essay and most of **this** lecture.

Having said that, every downturn and recovery will have unique, non-patterned characteristics that are peculiar to only that cycle. For example, a downturn may be explained by a very specific catalyst that had either not been seen before, or not seen for a very long time.

For example, the mortgage meltdown that initiated the last global economic crisis was truly unique in its scope and impact.

To really understand the business cycle we must understand both the common repeating element and that component that is truly unique.

Post WWII business cycles

		Duration in Months	
		Contraction:	**Expansion:**
Peak	Trough	Peak to Trough	Trough to Peak (pre)
April 1960-2	February 1961-1	10	
December 1969-4	November 1970-4	11	106
November 1973-4	March 1975-1	16	36
January 1980-1	July 1980-3	6	58
July 1981-3	November 1982-4	16	12
July 1990-3	March 1991-1	8	92
March 2001-1	November 2001-4	8	120
December 2007-4	June 2009-2	18	122+

Note the relative duration of contractions relative to expansions.

Source: National Bureau of Economic Research, current to January 2020.

Historical average of all cycles

Average, all cycles:	Duration in Months Contraction: Peak to Trough	 Expansion: Trough to Peak
1854-1919 (16 cycles)	22	27
1919-1945 (6 cycles)	18	35
1945-2009 (11 cycles)	11	58

Note how much milder business cycles have become in the modern (post WWII) era.

Source: Same as previous slide. Data are current to January 2020.

The point here is to examine some general features of all business cycles.

... at the trough

- ✓Low interest rates
  - ... and a monetary stimulus
- ✓Pent up consumer demand
  - ... average auto age an example
- ✓Businesses lean and mean

... the expansion

- ✓Consumer-led (durables and real estate)
- ✓Sometimes 5+% growth very early
- ✓Real estate often lags
- ✓Productivity gains can substantially increase the time period and the rate of gain

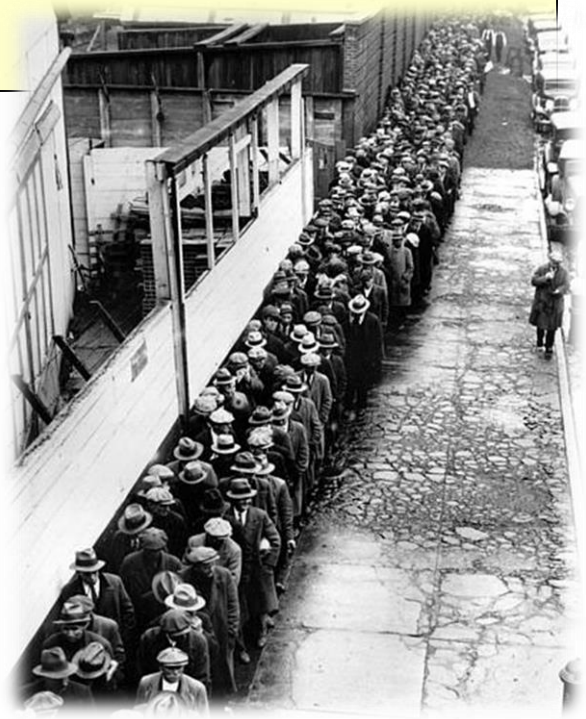
… near the peak

- ✓Bottlenecks in supply arise
- ✓Inflation/interest rates rising
  - … produces an FRS policy reaction
- ✓Rates of profit are squeezed
  - … which sometimes impacts the stock market
  - … which can engender a negative “wealth effect”
- ✓Sometimes speculative excess

Unemployment

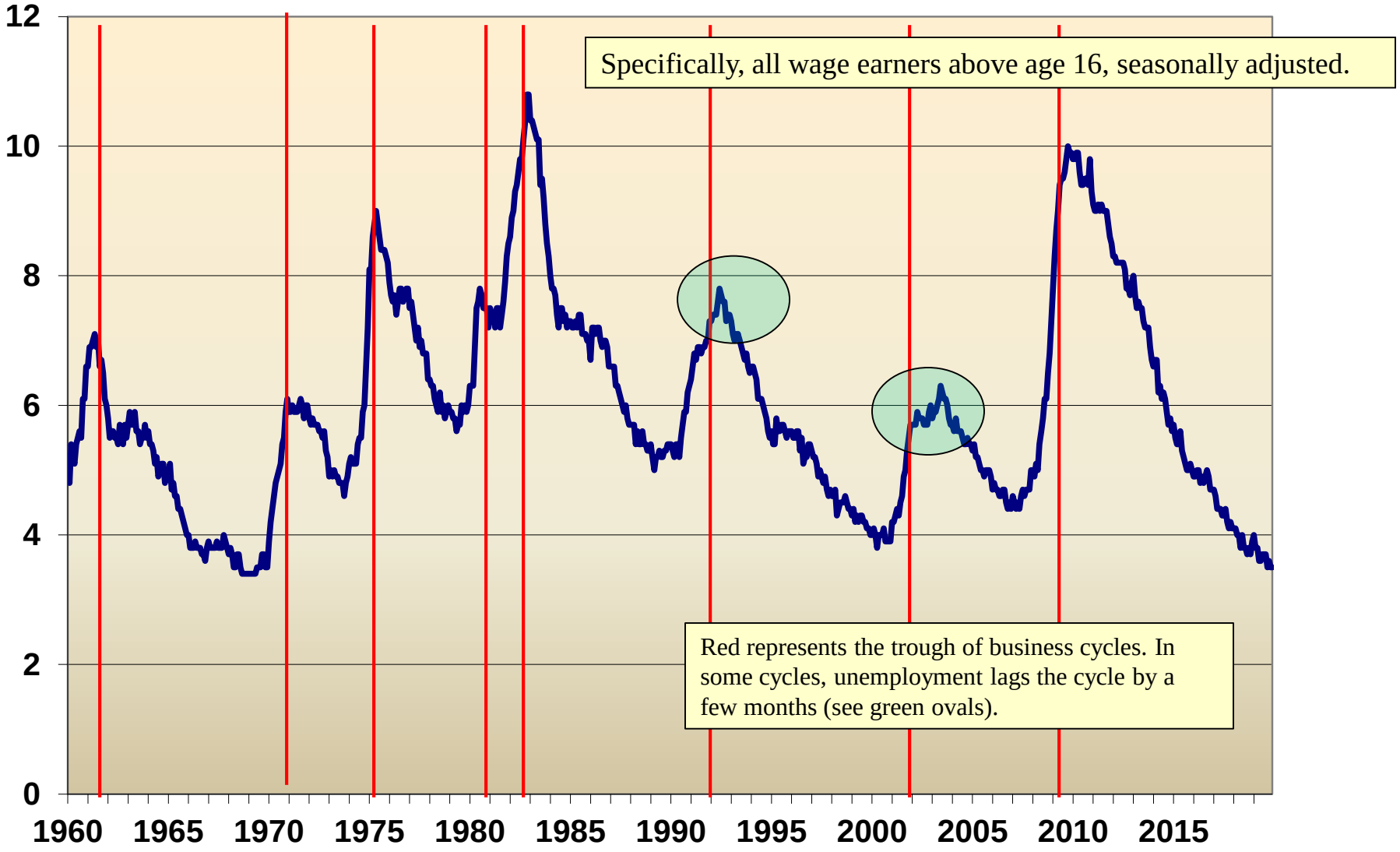
- ✓ ... rises sharply during the recession
- ✓ ... sometimes continues to rise into the recovery

.. this is sometimes a **long lag** variable



"Official" Unemployment Rate

1960-Jan 2020, monthly, % of civilian workforce



Source: Bureau of Labor Statistics database, Series ID LNS140000000, S.A.

Policy Stimulators

On the fiscal side (U.S. Government spending and taxing) - Huge budget deficits from high spending levels relative to taxes:

CBO Baseline Budget Projection: January 21, 2019

	(Billions $)	FY2019 (actual)	FY 2020 (est.)
	Outlays (spending)	4,677	4,849
less:	Revenues (mostly taxes)	3,632	3,833
equals:	Budget Deficit	**-1,045**	**-1,016**

The budget deficit is then financed through the sale of U.S Treasury Marketable Debt (totals Sept. 2019 Billions $):

Asset	Maturity	Amount Out	Total
Bills	1 year or less	2,376.4	
Notes	More than 1 to 10 years	9,756.0	
Bonds	More than 10 years	2,311.5	
Other		2,365.2	**16,809.1**

Source: **U.S. Treasury Bulletin**, December 2019, Tables FF01 & FD-2

On the monetary side (Federal Reserve Policy) - Easy credit & low interest rate policy, such as "quantitative easing," much of which monetizes these federal deficits:

U.S. and foreign buyers

The FRS system

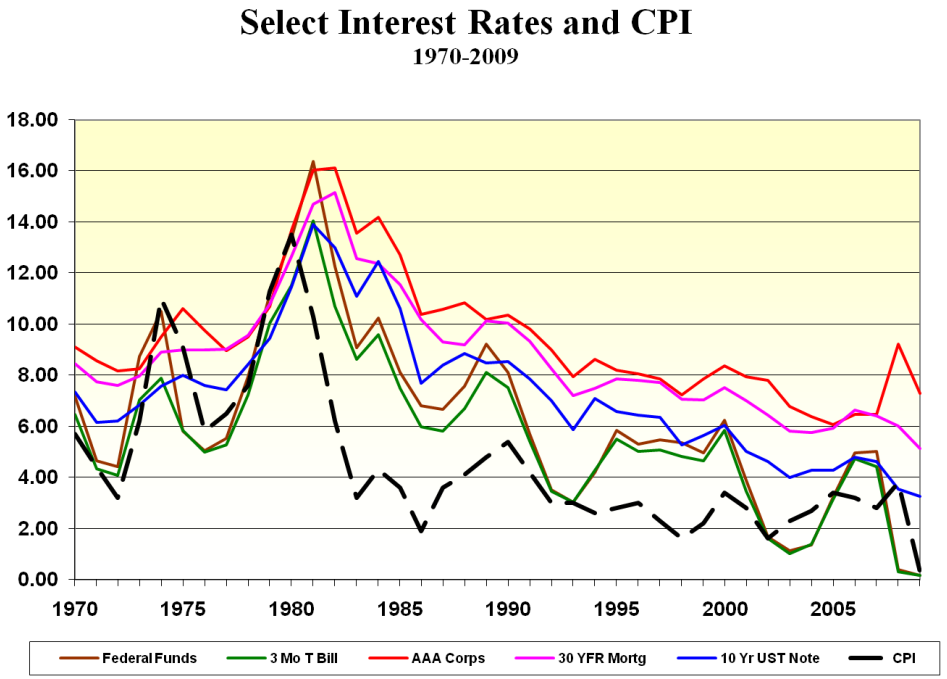
Why no bad recession in the early 2000s?

- 1995-2000: Wealth effect of rising stock market
- 2000-2004: Wealth effect of rising home equity
- Easy monetary policy … record low interest rates (which led to a wild speculation in housing)
- Generous fiscal policy … heavy tax cuts

Inflation, deflation, and interest rates

... and the business cycle

Source: All CPI numbers are from *The Bureau of Labor Statistics*



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Inflation: why a problem?

- Reallocates income and wealth unfairly
  - from lender to borrower
  - from salaried
  - from elderly (unless prepared)
  - to speculators
- Injects tremendous uncertainty
  - curbs investment

Inflation: (continued)

- Seriously threatens financial markets
  - especially stocks
- Invites a policy response
  - the modern FRS crunch
- As goes inflation, so go interest rates

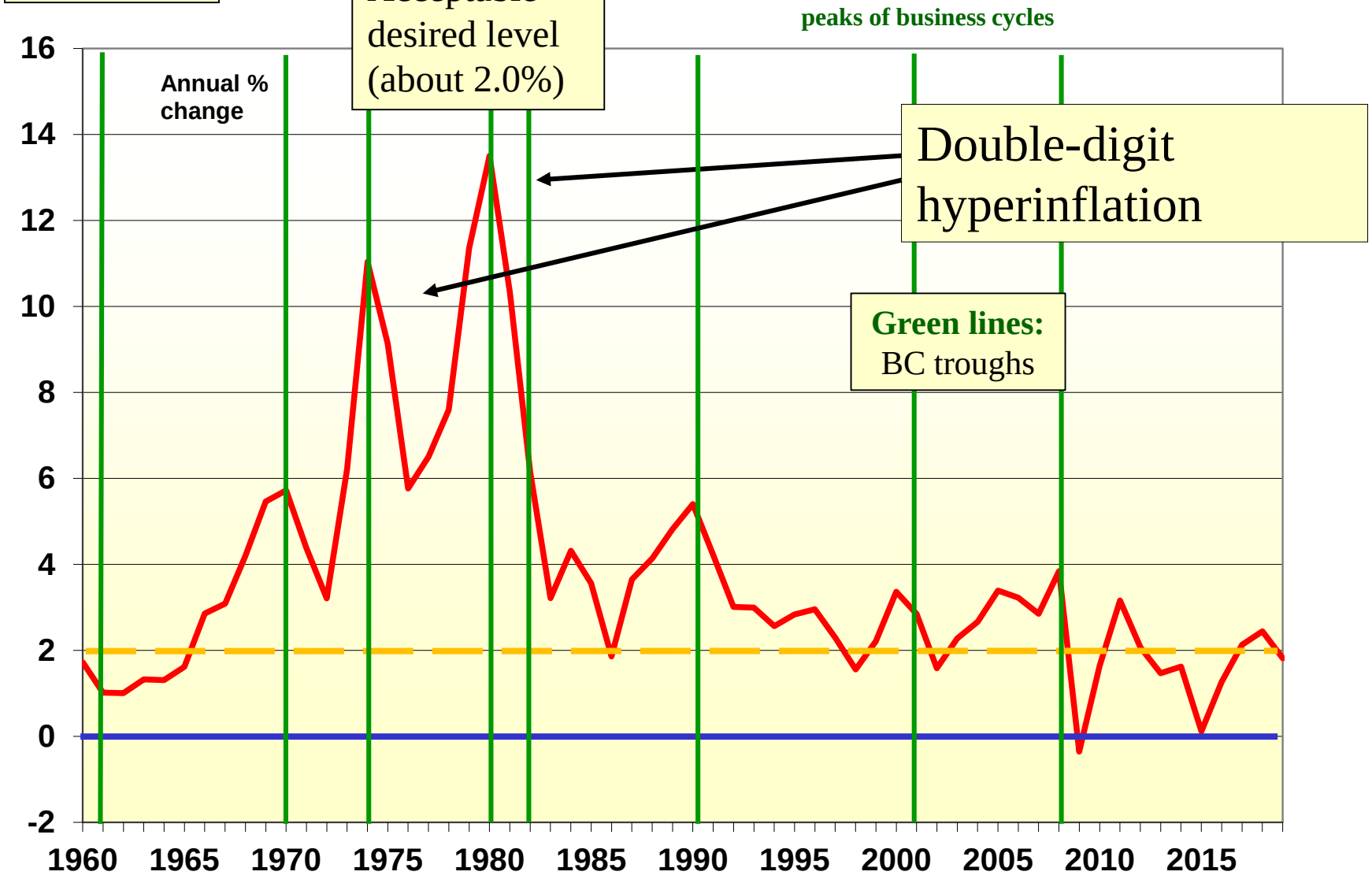
Deflation: why a problem?

- Threatens financial institutions and lenders
  - nominal amortized payment obligations are harder to meet, forcing default
  - interest rates are low or negative

    forcing savers towards speculation
- Compounding affect ... buyers postpone purchases
- Injects tremendous uncertainty
  - curbs investment

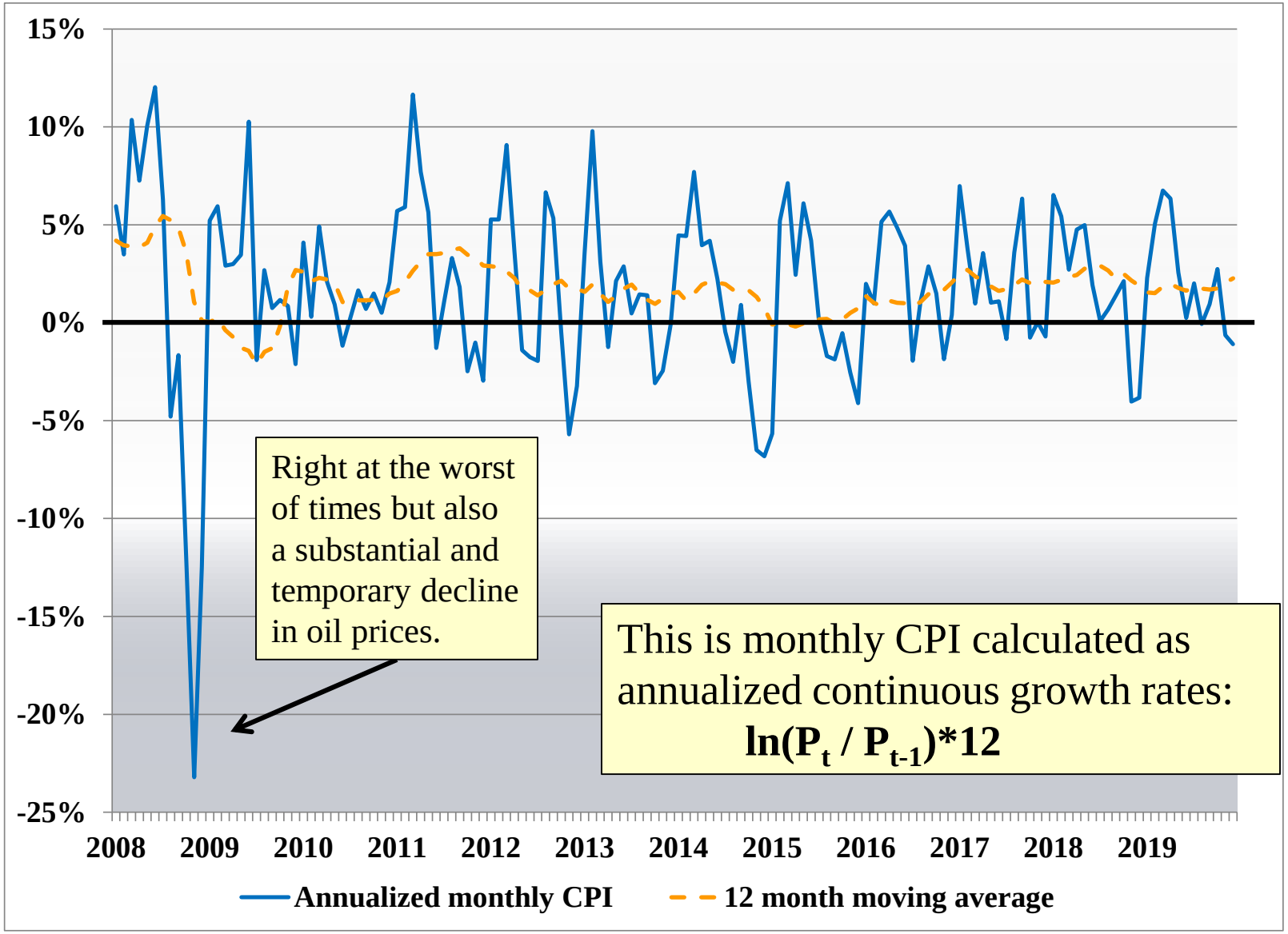
CPI Inflation Rate: 1960-2019

Average: 3.72%

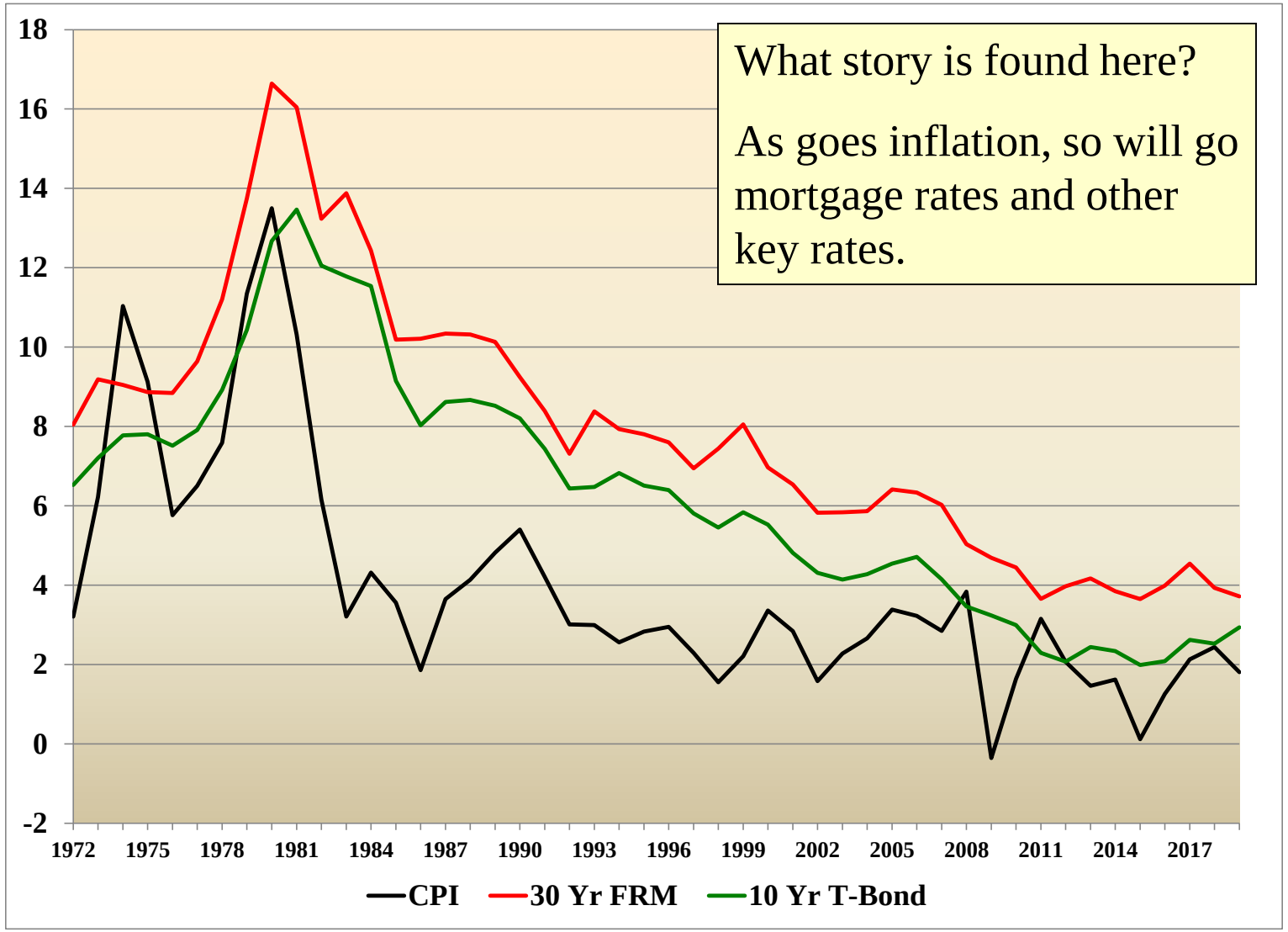


CPI for urban consumers, U.S. city average, all items, NSA. Source: Bureau of Labor Statistics

2019: Still a low-inflation era ...



CPI and Mortgage and 10-year Treasury Bond Rates: 1972-2019

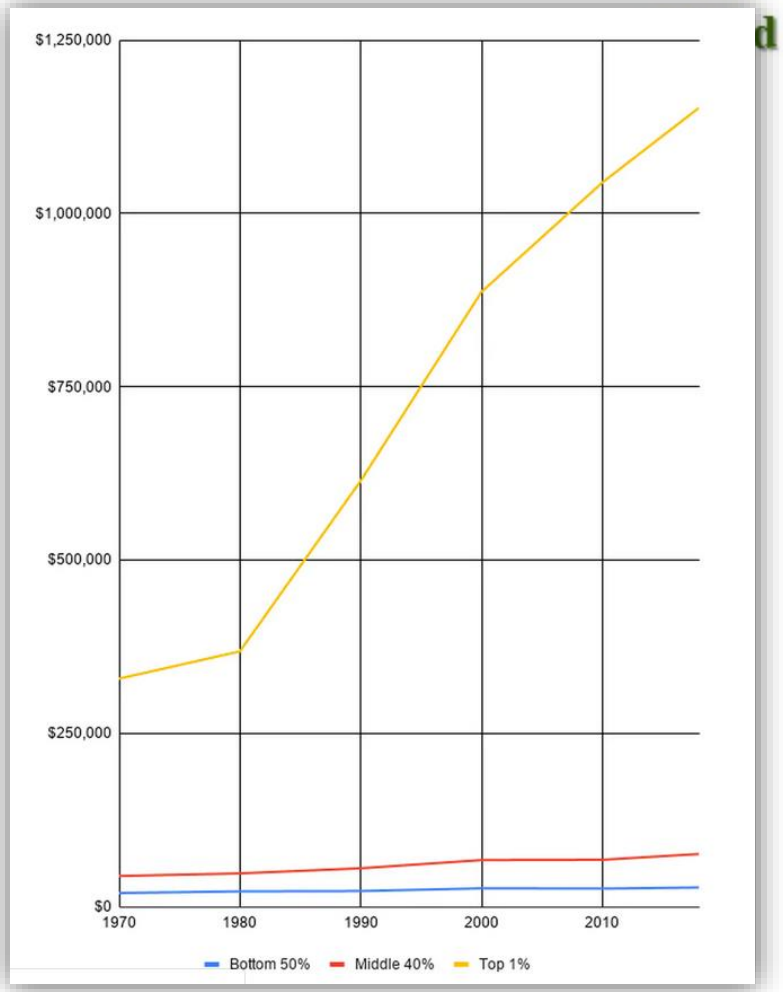


Source for interest rates: **Federal Reserve Board data download program, H-15 series**

Controversy 2020: income and wealth distribution

	Bottom 50%	50-90%	Top 10-1%	Top 1%	Top 0.1%	Top .01%
1970	$19,640	$44,178	$91,404	$328,816	$1,011,357	$3,689,308
1980	$22,043	$47,912	$100,689	$368,189	$1,186,317	$4,139,295
1990	$22,468	$55,288	$122,262	$614,184	$2,279,033	$8,176,832
2000	$26,380	$67,152	$160,836	$886,682	$3,520,058	$14,141,155
2010	$25,969	$67,561	$162,679	$1,044,445	$4,870,471	$23,706,233
2018	$27,642	$75,913	$187,478	$1,152,232	$5,174,621	$24,178,499

Source: Gabriel Zucman and Emmanuel Saez (Gabriel Zucman/Greg Sargent)



Zucman and fellow economist Emmanuel Saez, his co-author of the new book "The Triumph of Injustice," provided a chart showing how each group of earners' take-home pay has changed since 1970. The wealthiest Americans' assets skyrocketed by millions of dollars even in the first decade of the 21st century—when people in the bottom 50% saw their average take-home income decrease.

Source: Los Angeles Times, December 10, 2019

Remember to read:

Figure 1.2 - Today's young adults with debt and a degree earn same as workers with no degree earned in 1989

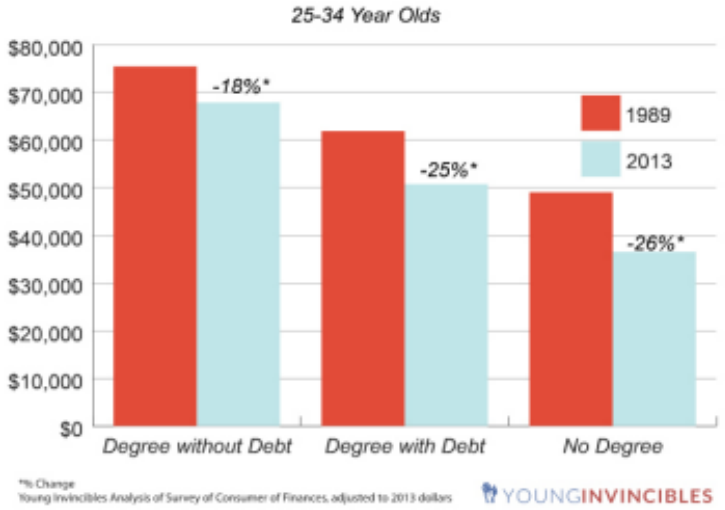
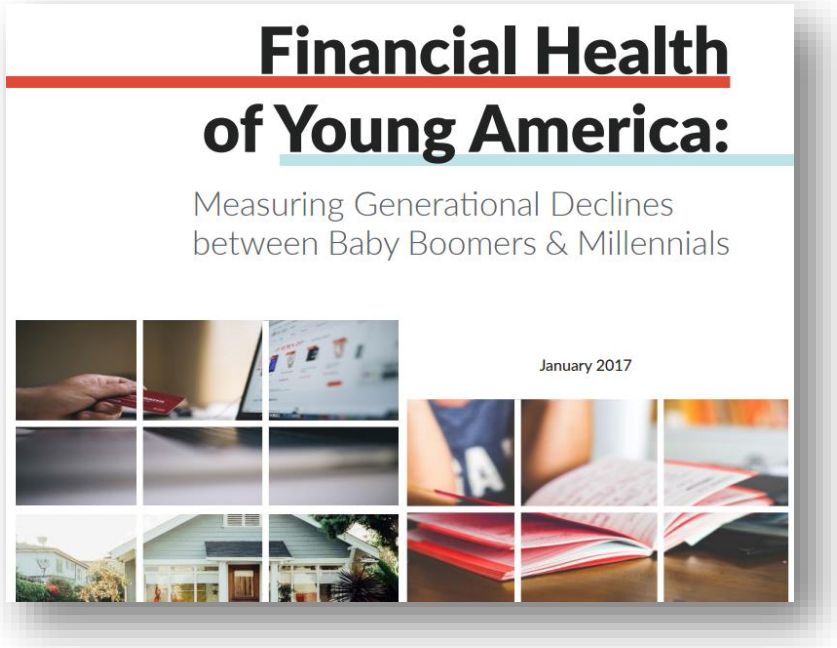


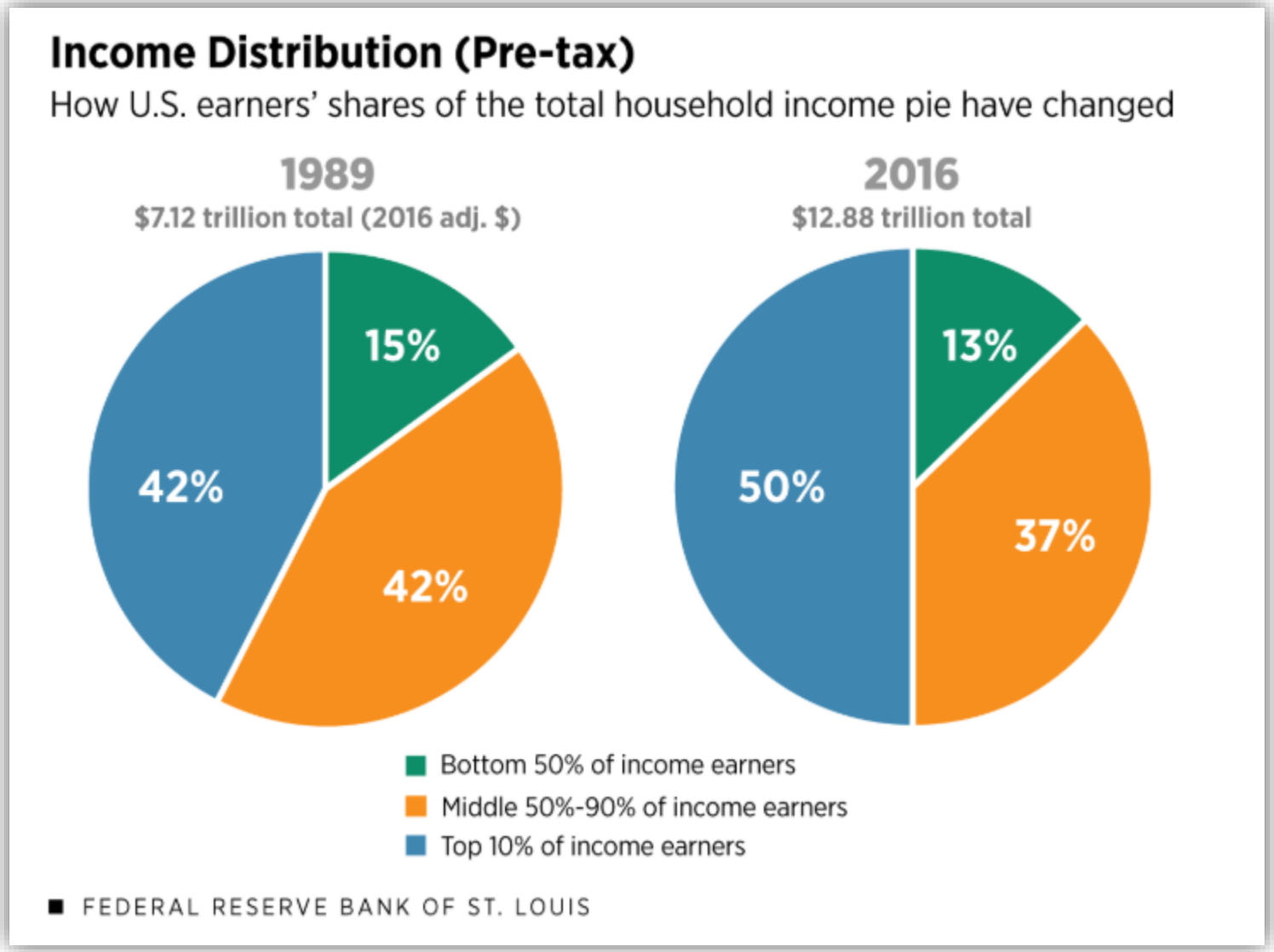
Table 1.2 - Median Income			
25-to-34 year-olds	Degree without Debt	Degree with Debt	No Degree
1989	$75,422	$67,880	$49,024
2013	$61,886	$50,727	$36,523



Sample slide shown here, but by no means the most important slide. To remember for exam, "generalize the message of this document."

Research material from the Federal Reserve Bank of St. Louis ...

https://www.stlouisfed.org/open-vault/2019/august/wealth-inequality-in-america-facts-figures


Income Distribution (Pre-tax)
How U.S. earners' shares of the total household income pie have changed
1989
$7.12 trillion total (2016 adj. $)
15%
42%
42%
2016
$12.88 trillion total
13%
50%
37%
Bottom 50% of income earners
Middle 50%-90% of income earners
Top 10% of income earners
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Wealth Distribution

1989

The top **10%** of Americans owned the majority of U.S. wealth — 67% of wealth

The next **40%** owned less than a third — 30% of wealth

The bottom **50%** owned a sliver — 3% of wealth

= Represents 9.3 million families

= Total U.S. household wealth in 1989: $32.87 trillion (2016 adj. $)

2016

The top **10%** of Americans owned more of total U.S. wealth — 77% of wealth

The next **40%** owned less — 22% of wealth

The bottom **50%** saw its sliver of wealth shrink — 1% of wealth

Also, **about 1 in 10** families in 2016 had negative net worth

= Represents 12.6 million families

= Total U.S. household wealth in 2016: $86.87 trillion

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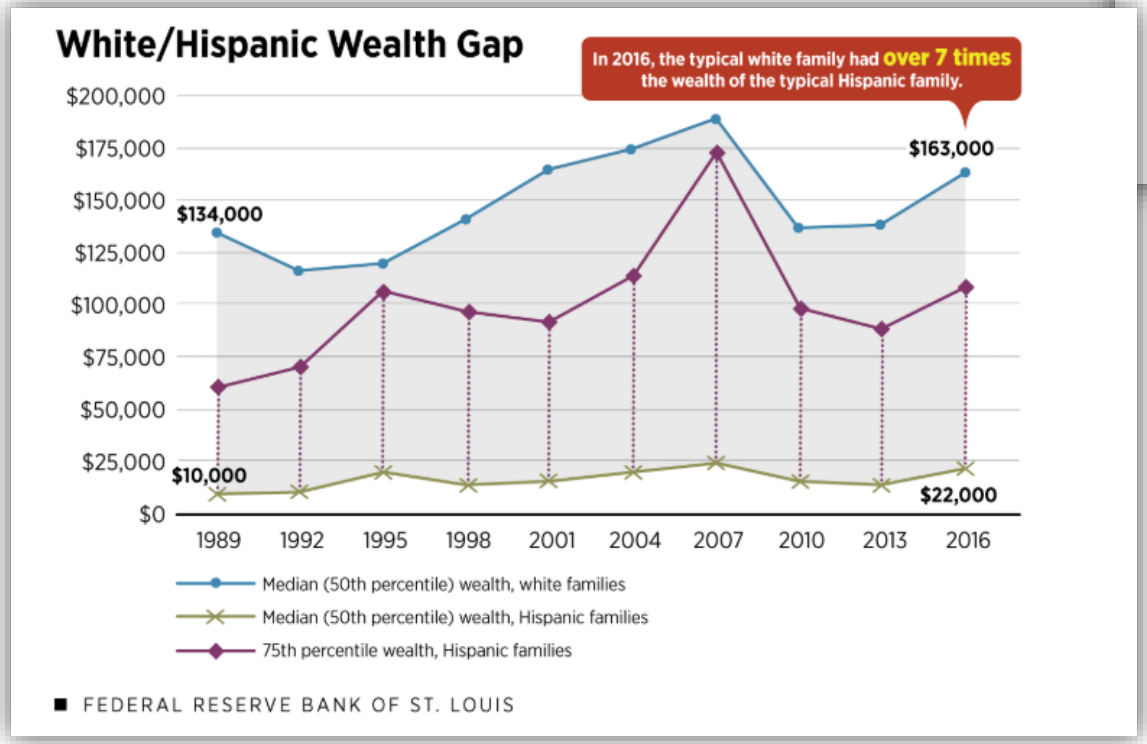
White/Hispanic Wealth Gap
In 2016, the typical white family had over 7 times the wealth of the typical Hispanic family.
$200,000
$175,000
$150,000
$125,000
$100,000
$75,000
$50,000
$25,000
$0
$134,000
$163,000
$10,000
$22,000
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
Median (50th percentile) wealth, white families
Median (50th percentile) wealth, Hispanic families
75th percentile wealth, Hispanic families
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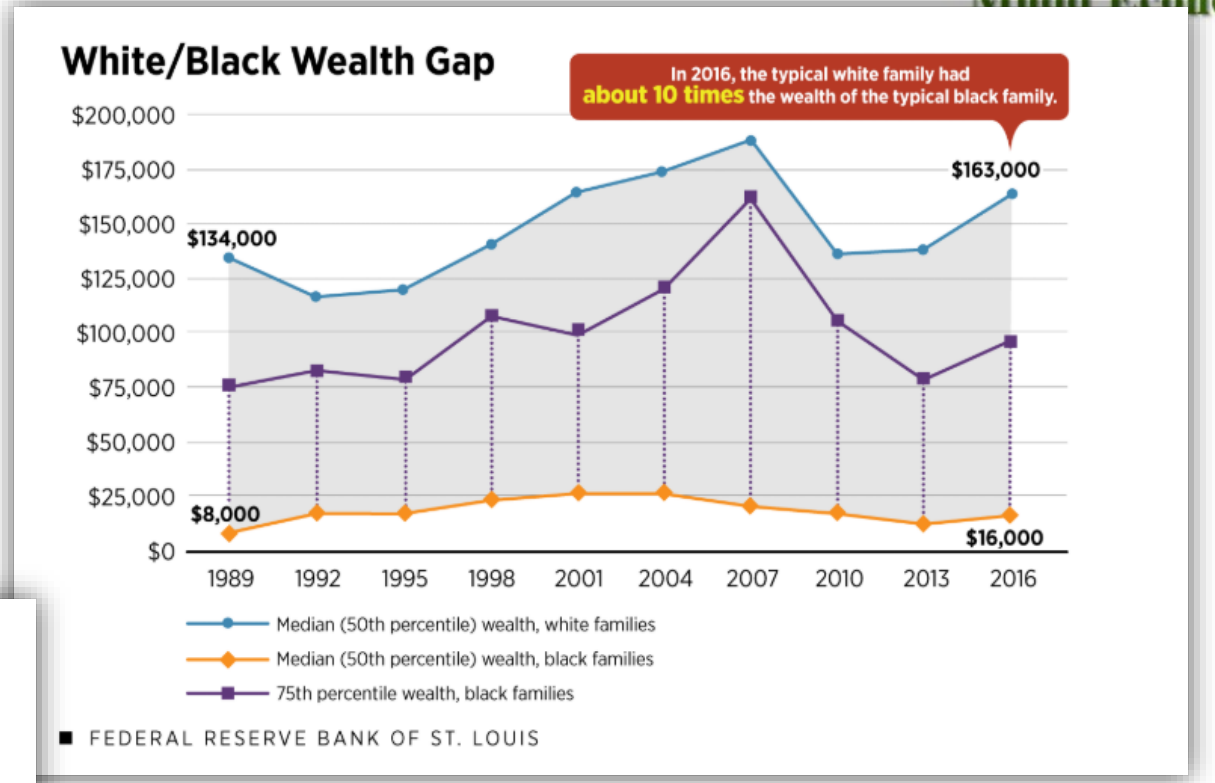
White/Black Wealth Gap
In 2016, the typical white family had about 10 times the wealth of the typical black family.
$200,000
$175,000
$150,000
$125,000
$100,000
$75,000
$50,000
$25,000
$0
$134,000
$163,000
$8,000
$16,000
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
Median (50th percentile) wealth, white families
Median (50th percentile) wealth, black families
75th percentile wealth, black families
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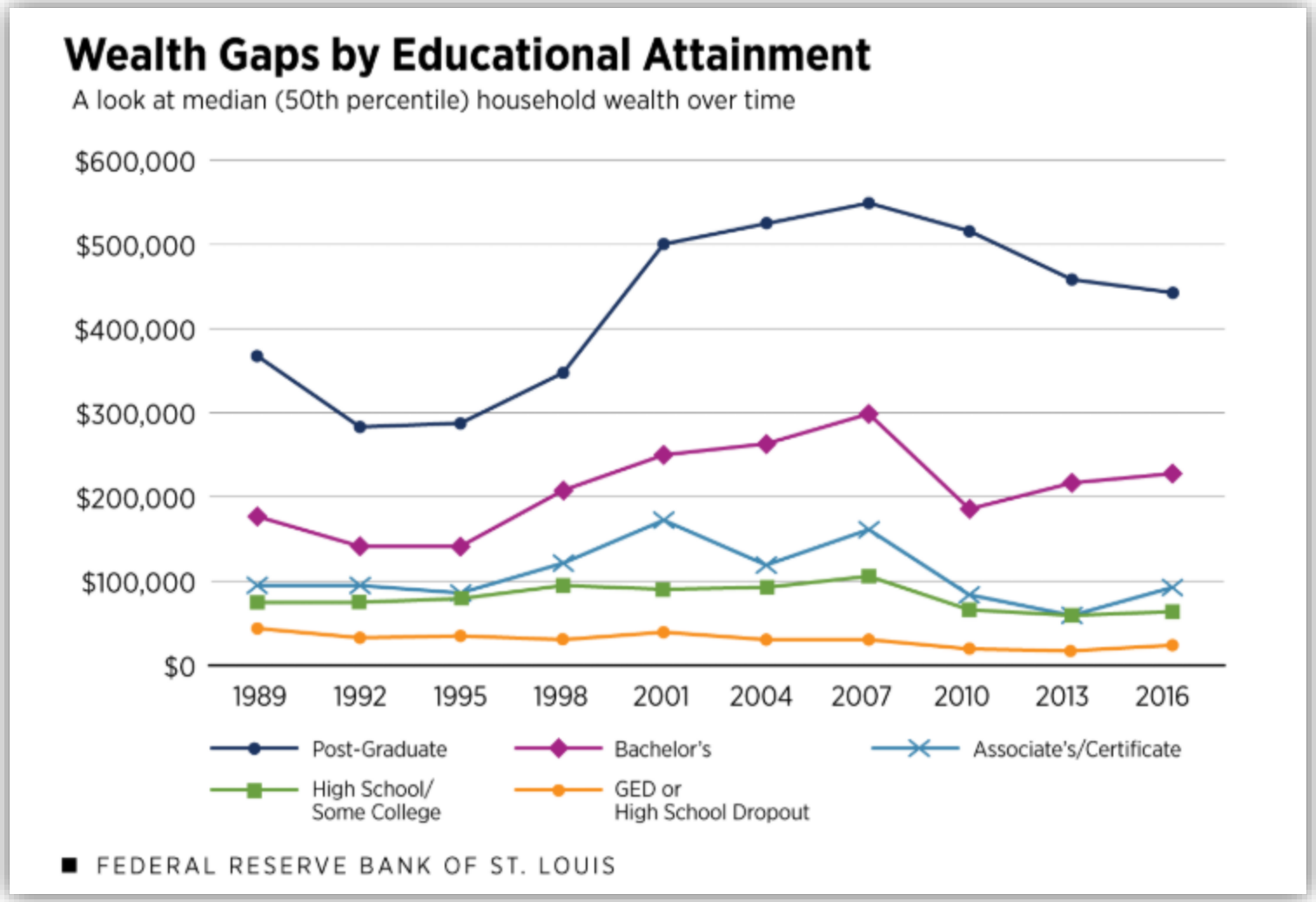
Wealth Gaps by Educational Attainment
A look at median (50th percentile) household wealth over time
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
Post-Graduate
Bachelor's
Associate's/Certificate
High School/ Some College
GED or High School Dropout
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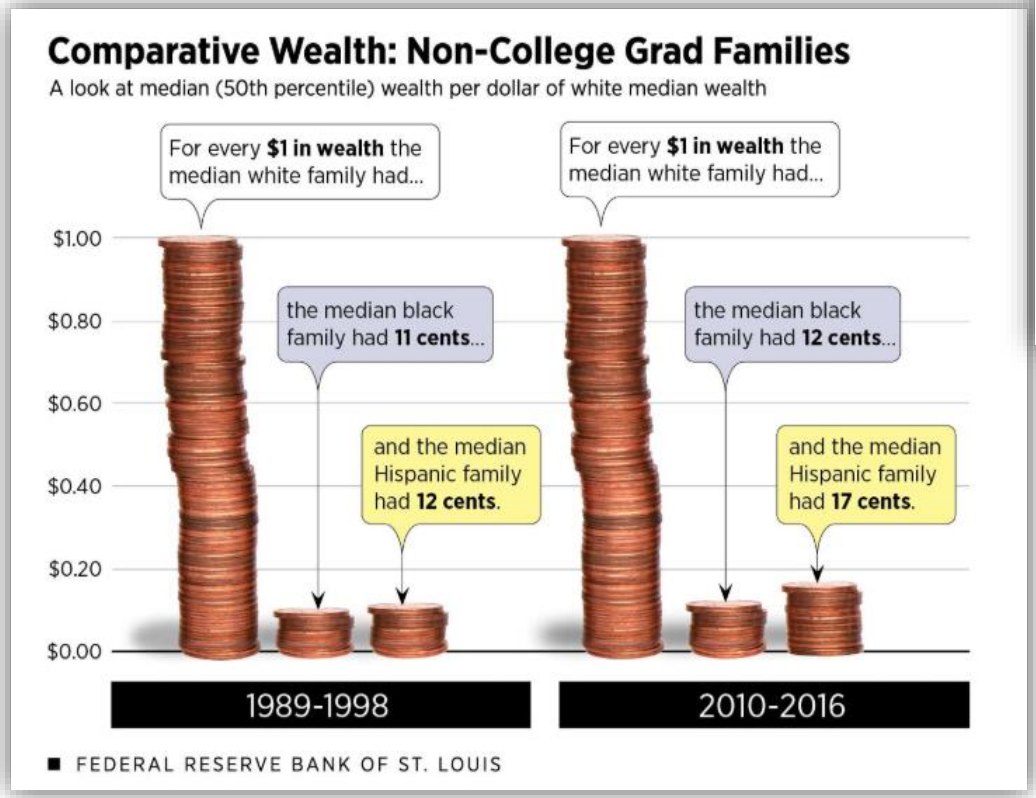
Comparative Wealth: Non-College Grad Families
A look at median (50th percentile) wealth per dollar of white median wealth
For every $1 in wealth the median white family had...
the median black family had 11 cents...
and the median Hispanic family had 12 cents.
For every $1 in wealth the median white family had...
the median black family had 12 cents...
and the median Hispanic family had 17 cents.
$1.00
$0.80
$0.60
$0.40
$0.20
$0.00
1989-1998
2010-2016
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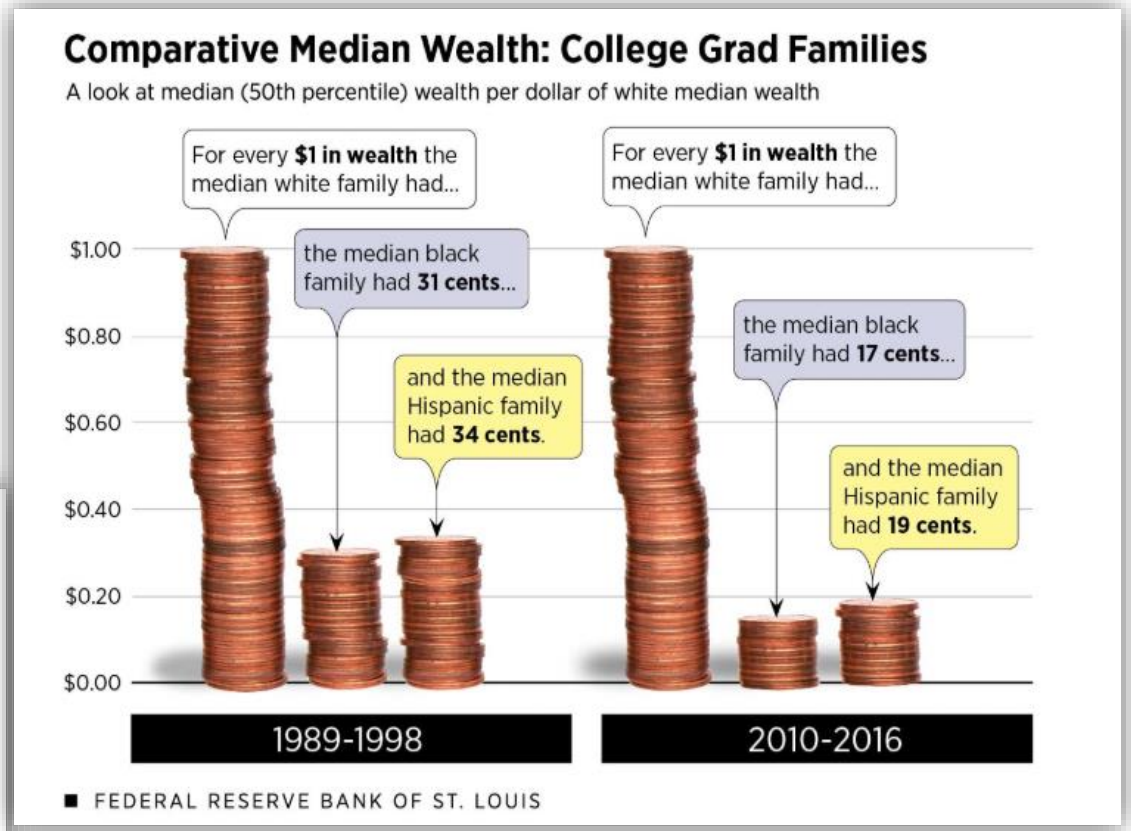
Comparative Median Wealth: College Grad Families
A look at median (50th percentile) wealth per dollar of white median wealth
For every $1 in wealth the median white family had...
the median black family had 31 cents...
and the median Hispanic family had 34 cents.
For every $1 in wealth the median white family had...
the median black family had 17 cents...
and the median Hispanic family had 19 cents.
$1.00
$0.80
$0.60
$0.40
$0.20
$0.00
1989-1998
2010-2016
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