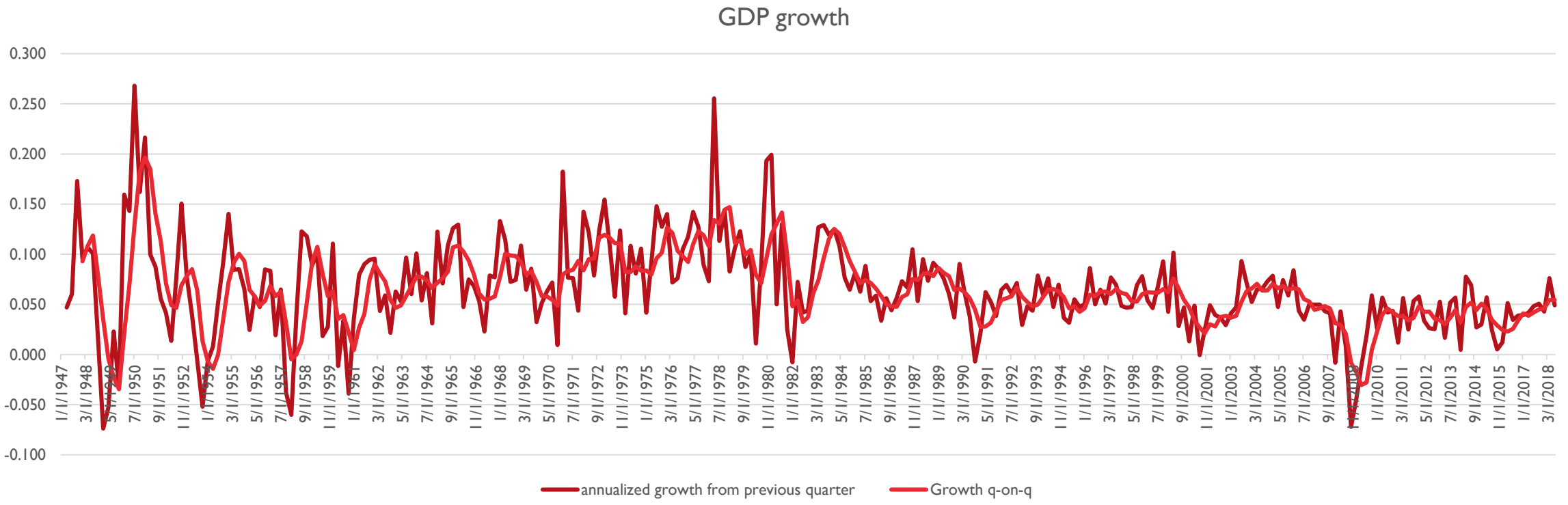
Eco 10350 Principles of Macro

Lecture 4

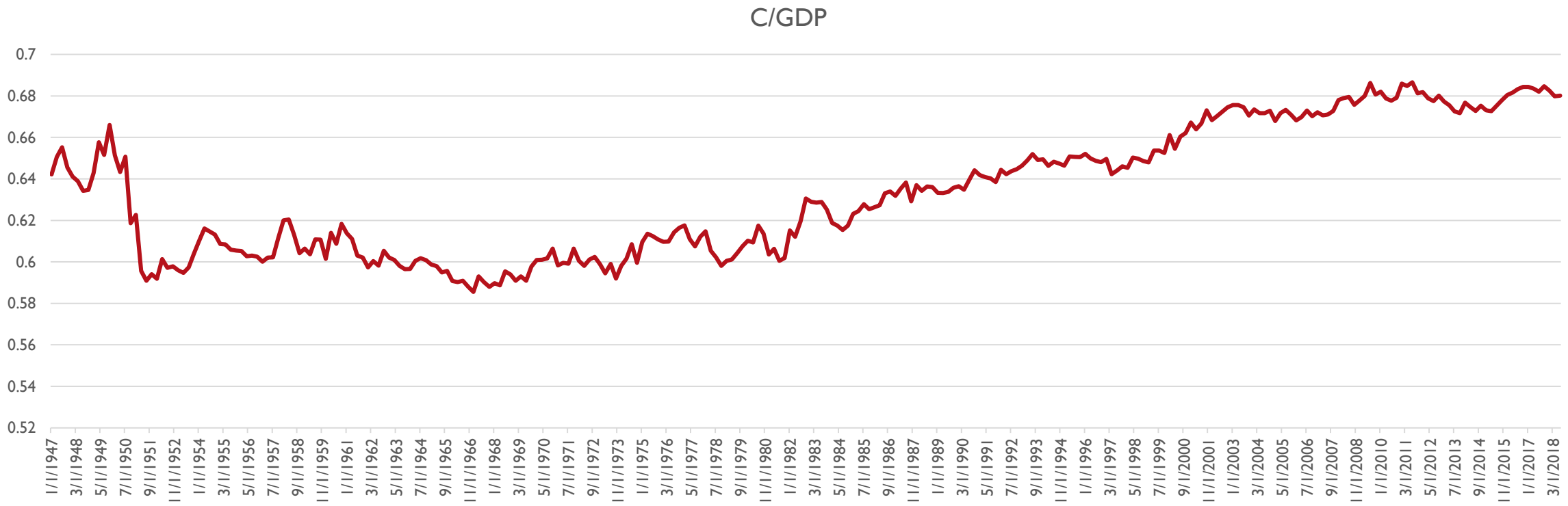
GDP percent changes



Shares of total

- Sometimes it's useful to look at C as a share of GDP, so C/GDP – or similar for I, G, X, M …

C / y


C/GDP
0.7
0.68
0.66
0.64
0.62
0.6
0.58
0.56
0.54
0.52
1/1/1947
3/1/1948
5/1/1949
7/1/1950
9/1/1951
11/1/1952
1/1/1954
3/1/1955
5/1/1956
7/1/1957
9/1/1958
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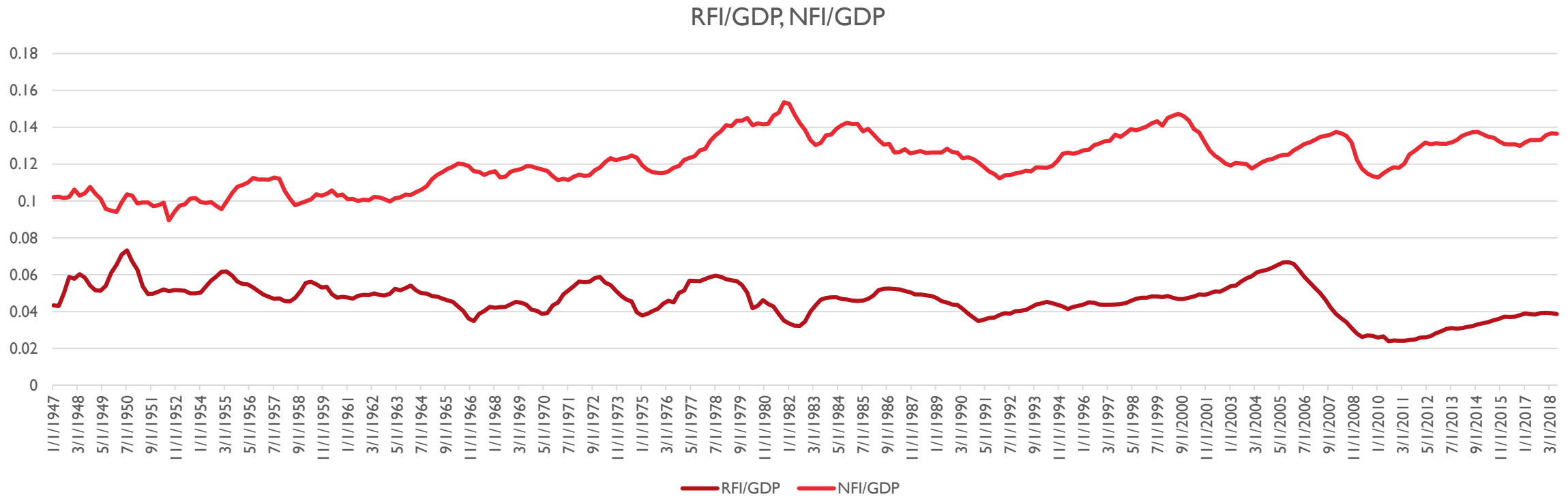
7/1/1999
9/1/2000
11/1/2001
1/1/2003
3/1/2004
5/1/2005
7/1/2006
9/1/2007
11/1/2008
1/1/2010
3/1/2011
5/1/2012
7/1/2013
9/1/2014
11/1/2015
1/1/2017
3/1/2018

I/Y


RFI/GDP, NFI/GDP
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1/1/1947
3/1/1948
5/1/1949
7/1/1950
9/1/1951
11/1/1952
1/1/1954
3/1/1955
5/1/1956
7/1/1957
9/1/1958
11/1/1959
1/1/1961
3/1/1962
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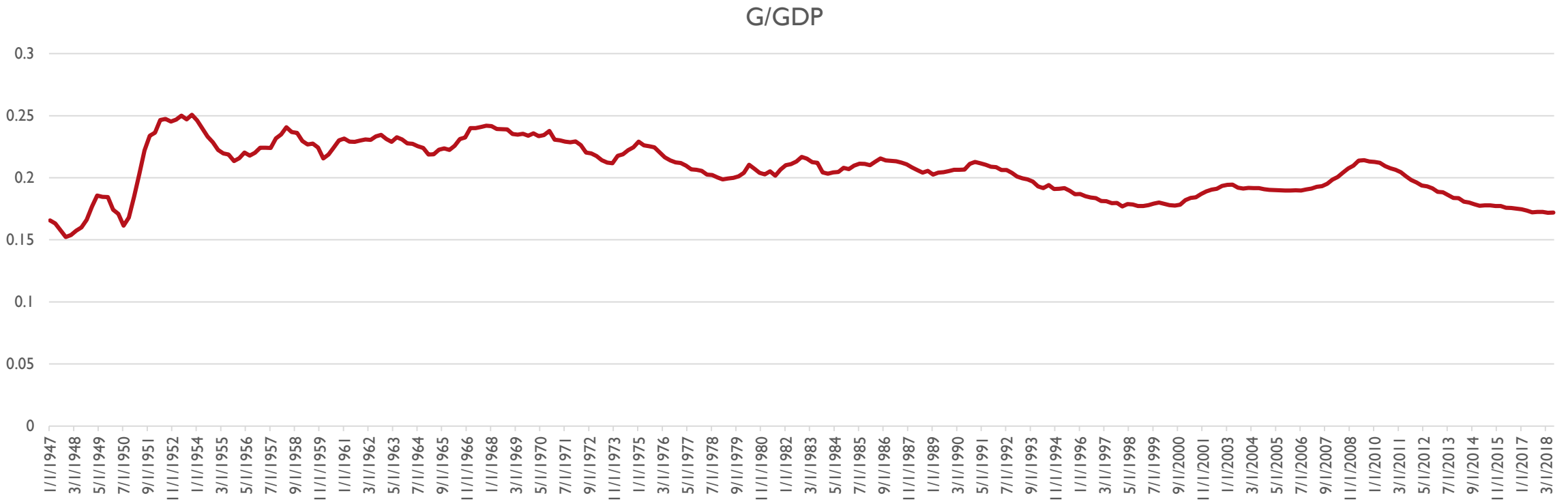
11/1/2001
1/1/2003
3/1/2004
5/1/2005
7/1/2006
9/1/2007
11/1/2008
1/1/2010
3/1/2011
5/1/2012
7/1/2013
9/1/2014
11/1/2015
1/1/2017
3/1/2018
RFI/GDP
NFI/GDP

G /Y


G/GDP
0.3
0.25
0.2
0.15
0.1
0.05
0
1/1/1947
3/1/1948
5/1/1949
7/1/1950
9/1/1951
11/1/1952
1/1/1954
3/1/1955
5/1/1956
7/1/1957
9/1/1958
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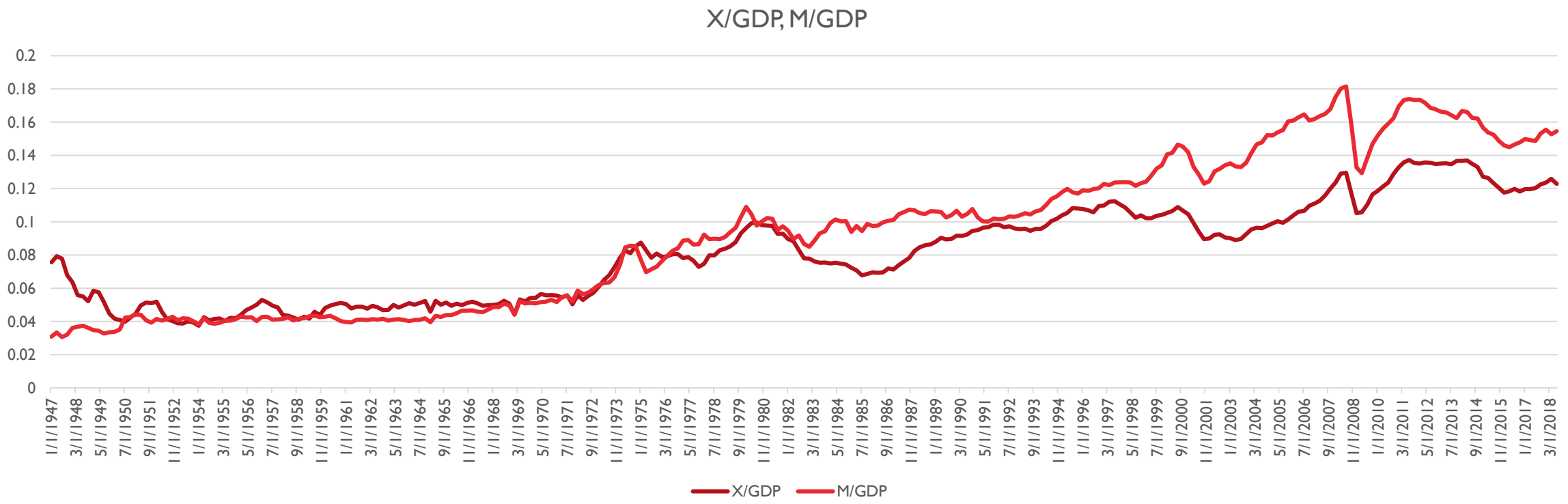
9/1/2007
11/1/2008
1/1/2010
3/1/2011
5/1/2012
7/1/2013
9/1/2014
11/1/2015
1/1/2017
3/1/2018

X/Y & M/Y


X/GDP, M/GDP
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1/1/1947
3/1/1948
5/1/1949
7/1/1950
9/1/1951
11/1/1952
1/1/1954
3/1/1955
5/1/1956
7/1/1957
9/1/1958
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7/1/2006
9/1/2007
11/1/2008
1/1/2010
3/1/2011
5/1/2012
7/1/2013
9/1/2014
11/1/2015
1/1/2017
3/1/2018
X/GDP
M/GDP

Basic Income Identity

- $Y = C + I + G + (X - M)$
- FRED version is:
- GDP = PCEC + [PRFI + PNFI + CBI] + GCE + (EXPGS – IMPGS)
  - (no need to memorize!)

Nominal vs Real GDP

- Suppose an economy produced, in year 1:
  - 10 apples that sold for $3 each
  - 15 bananas that sold for $1 each
  - 12 carrots that sold for $2 each
- Then, in year 2:
  - 11 apples that sold for $3.10 each
  - 12 bananas that sold for $.90 each
  - 13 carrots that sold for $1.95 each

Did GDP grow? Nominal or real? What about inflation?

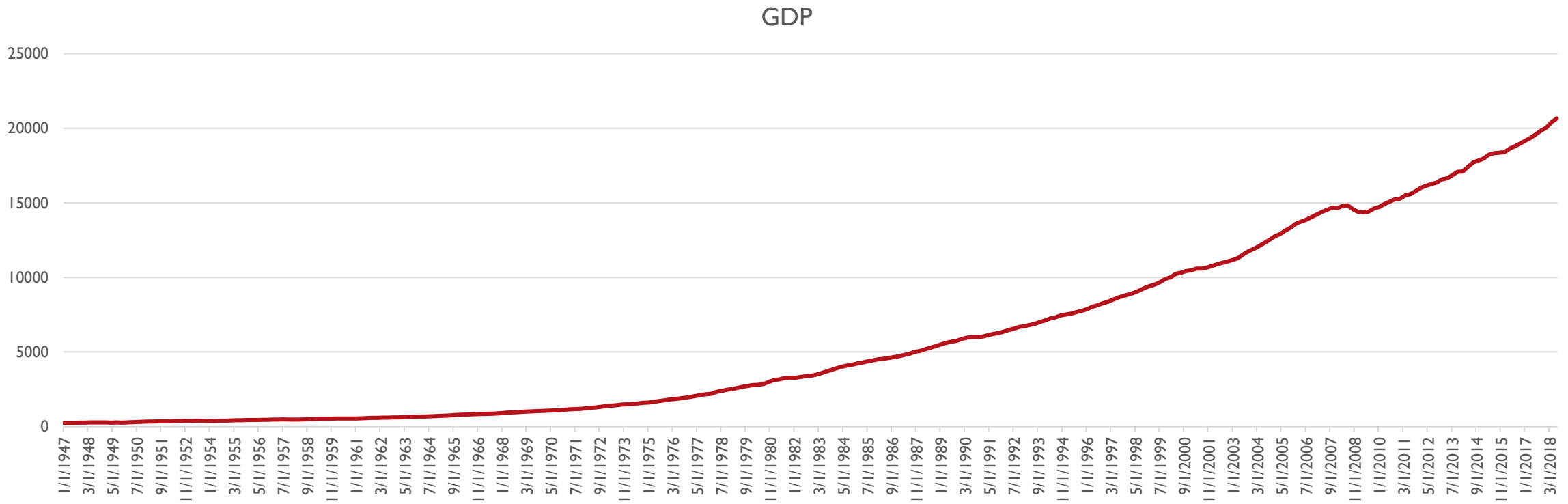
Basic Idea:
Nominal GDP calc's P*Q for each year, summed up
But to measure just change in Q or just change in P, we need to hold the other one constant. So to measure change in just Q, hold P constant; vice versa to measure change in just P
So use year-1-prices to value year-2-quantities to see how real GDP changes

Actual practicalities: find a good baseline?

GDP Deflator

- GDP deflator is $\frac{nominal\ GDP}{real\ GDP}$ *100
- can think of it as $\frac{\$_{date}}{\$_{2012}}$
- so to change GDP from $\$_{2017}$ to $\$_{2012}$, recall how to deal with units from HS science class:
  - if I have units in one thing, then find a ratio with old units in denominator and new units in numerator, then cross out
  - like I have 36 inches so multiply by ${}^{1foot}/_{12inches}$ and get 3ft because $\frac{36\cancel{inches}}{1}\frac{1foot}{12\cancel{inches}}$
  - so GDP-in-2017 has units of $\$_{2017}$ but want to get it into $\$_{2012}$, find a ratio with ${}^{\$2012}/_{\$2017}$ which is ${}^{1}/_{GDPdeflator*}$
    - the * just reminds to divide the deflator by 100 because it's a percent
  - GDP on July 1 2017 was 19,588.1 bn of $\$_{2017}$. The GDP deflator for that quarter was 108.097 so we divide by 100 to get 1.08097. So GDP on July 1 2017 in $\$_{2012}$ (which we call real GDP) then is 18,120.8 bn (=19588.1/1.08097)

nominal GDP


GDP
25000
20000
15000
10000
5000
0
1/1/1947
3/1/1948
5/1/1949
7/1/1950
9/1/1951
11/1/1952
1/1/1954
3/1/1955
5/1/1956
7/1/1957
9/1/1958
11/1/1959
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9/1/2007
11/1/2008
1/1/2010
3/1/2011
5/1/2012
7/1/2013
9/1/2014
11/1/2015
1/1/2017
3/1/2018

real GDP


real GDP in $2012
While nominal GDP rose by almost 100x,
real GDP rose by only 10x
Of course the population also rose
so per-capita-GDP (real or nominal)
implicitly using Solow growth
decomposition
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1/1/1947
3/1/1948
5/1/1949
7/1/1950
9/1/1951
11/1/1952
1/1/1954
3/1/1955
5/1/1956
7/1/1957
9/1/1958
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11/1/2008
1/1/2010
3/1/2011
5/1/2012
7/1/2013
9/1/2014
11/1/2015
1/1/2017
3/1/2018

Recessions

- NBER, National Bureau of Economic Research, dates 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"
- note sometimes hear people who think it's 2 quarters of negative growth (WRONG!)
- peak is highest point before a recession; trough is lowest point before next expansion begins
- diff between recession and depression is … umm … well, in the 1930s there was "Great Depression" and after that we've called them recessions including the 2008 event sometimes called "Great Recession"

Google image search for "Great Depression"

Great Depression: Causes and Definiti...
history.com

Great Depression History - HISTORY
history.com

Weapon Against the Great Depression ...
history.com

December since the Great Depression ...
wgno.com

What Caused the Great Depression ...
fee.org

worst of the Great Depression ...
moneyweek.com

The Great Depression
u-s-history.com

Great Depression
investopedia.com

The Great Depression and the Trut...
history101.com

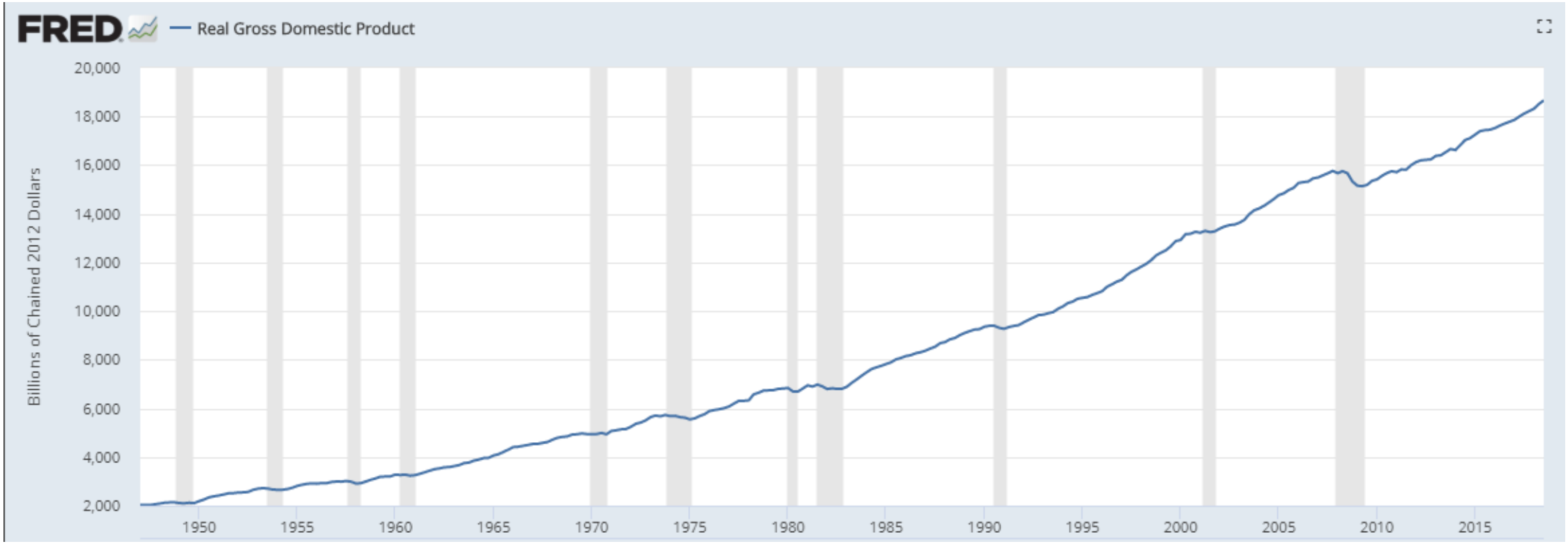
Great Depression - Wikipedia
en.wikipedia.org

trigger the Great Depression ...
moneyweek.com

Recent cycles

- Most recent recessions:
  - Dec 2007 - June 2009 – "Great Recession" & Financial Crisis
  - March 2001 – Nov 2001 – Internet Bubble burst
  - July 1990 – March 1991 – S&L Lending Crisis
  - July 1981 – Nov 1982 & Jan 1980 – July 1980 (Double Dip) – Fed raised rates to double digits
    - https://www.nber.org/cycles.html
  - in FRED graphs often shown as shaded areas

Shaded bars often show recession



International Comparisons

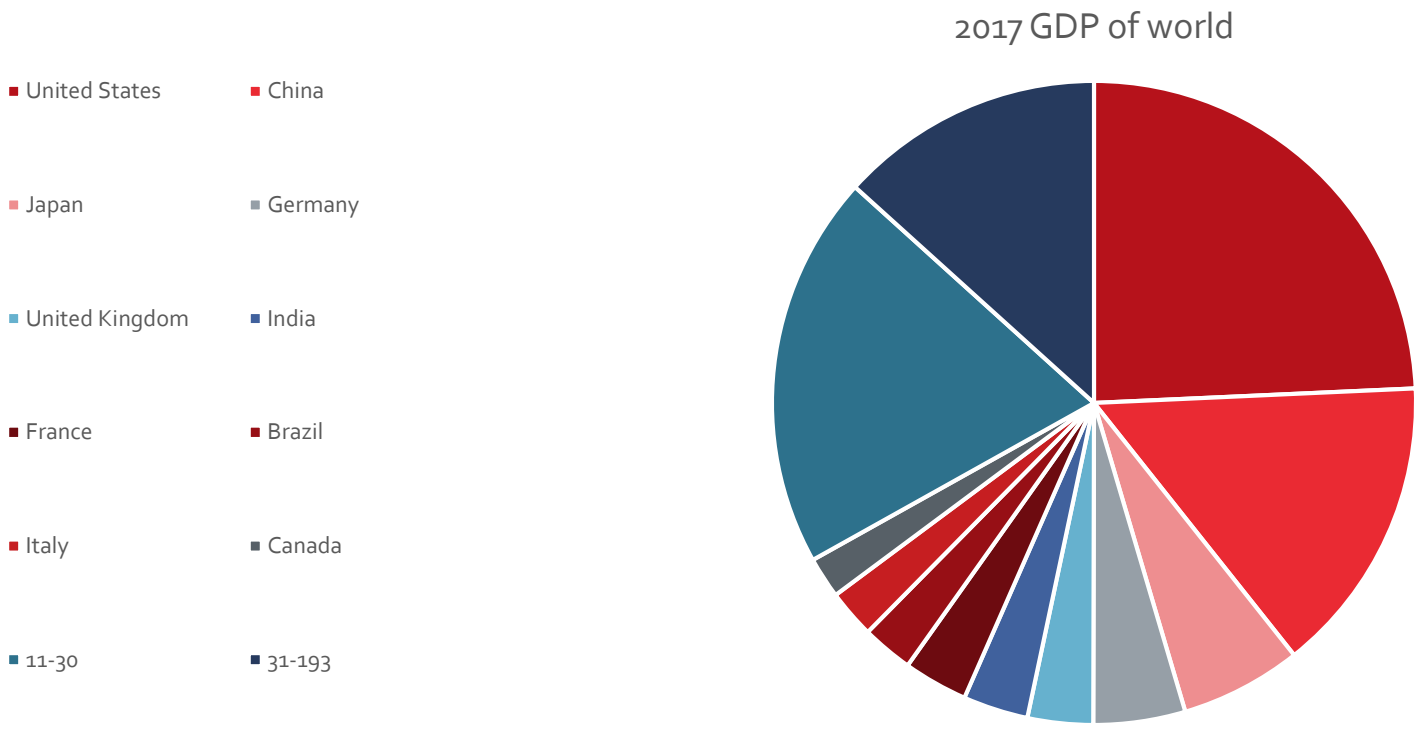
- We need to use an exchange rate for comparisons (FX)
- For this course, I will always use the form of amount of foreign currency per US dollar (sometimes people use the inverse, which I know gets confusing)
- eg today Google tells me that rate is 0.89€/1$ {although it also offered 1.12 $/ € which is NOT what I'll use}
- Later we'll talk about difference between market exchange rates, and Purchasing Power Parity (PPP) exchange rates, and real effective exchange rates…
- IMF has good data from World Economic Outlook, https://www.imf.org/external/pubs/ft/weo/2018/01/weodata/index.aspx

Country	GDP in 2017 (bn USD)	Country	GDP in 2017 (bn USD)	Country	GDP in 2017 (bn USD)
United States	19391	Korea	1538	Argentina	638
China	12015	Russia	1527	Taiwan	579
Japan	4872	Australia	1380	Sweden	539
Germany	3685	Spain	1314	Poland	525
United Kingdom	2625	Mexico	1149	Belgium	495
France	2584	Indonesia	1015	Thailand	455
India	2611	Turkey	849	Nigeria	376
Italy	1938	Nether lands	826	Iran	432
Brazil	2055	Switzer land	679	Austria	417
Canada	1652	Saudi Arabia	684	Norway	396

per capita GDP in dollars 2017

Qatar	113,429	Hong Kong	55,921	Denmark	45,437
Macao	101,679	United States	54,198	Austria	45,424
Luxembourg	96,892	San Marino	54,166	Bahrain	44,181
Singapore	85,535	Saudi Arabia	49,895	Canada	43,963
Brunei Darussalam	71,226	Netherlands	48,854	Belgium	42,404
Ireland	68,805	Iceland	47,221	Oman	41,132
Norway	65,428	Sweden	46,887	Finland	40,381
United Arab Emirates	61,703	Germany	45,931	United Kingdom	40,185
Kuwait	60,266	Australia	45,847	France	39,860
Switzerland	55,947	Taiwan	45,811	Japan	39,014

Shares of GDP



Economic Growth

- Lots of big questions!
- What makes some countries rich & others poor?

  - Natural resources
  - Population
  - Education
  - Inventions & Tech
  - Trade
  - Institutions
  - Entrepreneurship
  - Colonialism & war
  - …

Good reads:
Angus Maddison, *The Great Escape*
Daron Acemoglu & James Robinson, *Why Nations Fail*

Economic Growth

- Quite recent in world history
- Before 1800s, most of world was Malthusian
  - Malthus pointed out that for most animals (incl humans) more food means more animals
  - Indeed in most of the world, more income meant more people but little longterm change in standard of living
- Economic growth remains unusual and weird – as Dasgupta points out, lots of ways to make mistakes but few to prosper
- Deaton's Great Escape gives details on how big the change has been