

U.C. Berkeley: Economics 115: Spring 2020

20th Century Economic History: Lecture 18: Globalization, Technology, and Organization

Brad DeLong

Department of Economics & Blum Center, U.C. Berkeley; & WCEG

delong@econ.berkeley.edu

last revised: 2020-04-20

for delivery: 2020-04-27

<<https://bcourses.berkeley.edu/courses/1487684>>
<<https://github.com;braddelong/public-files/blob/master/econ-115-lecture-18.pptx>>
<<https://www.icloud.com/keynote/0IMJ4CGSNSe9HI8O6bsHfbfk>>

Final Paper

Final Paper Topic: Due May 15 11:59pm: Up to 3000 words

 Published

 Edit

Submit Assignment

:

Write up to 3000 words on this topic:

Given what you have seen in this course about what has happened in the Long 20th Century, set out what you think are reasonable scenarios for how the world economy might develop in the Short 21st Century—between 2016 and 2100...

URL: <<https://bcourses.berkeley.edu/courses/1487684/assignments/8052158/>>

Globalization, Technology, and Organization

Income distribution:

- Steep fall in demand for “lesser-skilled” workers in the global north 1975-1995
 - Blamed by both left and right on increasing world trade
 - A striking turnaround from 1960s and 1970s
- Was this argument right?
 - Trade deficits?
 - But average wage rising in countries exporting to the U.S.
- Countries joined the global north faster than countries became exporters

17:00 minutes of audio

Why the Decline in Blue-Collar Jobs?

Regional shifts in the United States

- The decline of New England manufacturing
 - Brockton, MA-South Paris, ME-and then the jobs went to NC
 - Lakeland, FL
 - Wellman-Lord company
 - Wellman-Lord process
 - Shift in blue-collar job location
- 2000s: shift out of midwestern manufacturing, into sunbelt construction
 - But then comes the Great Recession

Why the Decline in Manufacturing Jobs?

1943 the high point—World War II demand

- Normal share: 30%
- Had the U.S. followed the economic policy strategy of Japan or Germany...
 - Technology would have brought that 30% down to 12% today
 - Instead, we are at 8.6%
- 12% to 9.2% due to dysfunctional macroeconomic policies
 - Reagan and Bush budget deficits
 - Reagan and Bush trade deficits
- Derangement of U.S. away from its standard role as capital exporter
- The China shock
 - Hits manufacturing, not blue collar...

Why Blame Globalization?

**It does receive the lion's share of the blame:
why?**

- As trade barriers drop, ratio of total win to redistribution rises for further drops
- Distribution of wealth and power by gender
- Easy to blame foreigners
- Rise of China coincides with a shaky period
 - The China shock hit a shaky economy
- Cannot run an open, global economy without a full employment guarantee

What Has Globalization Actually Done?

The Belle Epoque world was globalized

- Are there significant differences? In trade? In embedded factor content? In migration? Some
- Limited bandwidth: commodities could move and securities could be traded back in the Belle Epoque
 - Ford could not achieve U.S. productivity levels in Britain
- Today we have high bandwidth globalization
 - Integrated value chains
 - Blame “rootless cosmopolitans”
 - But not advanced very far

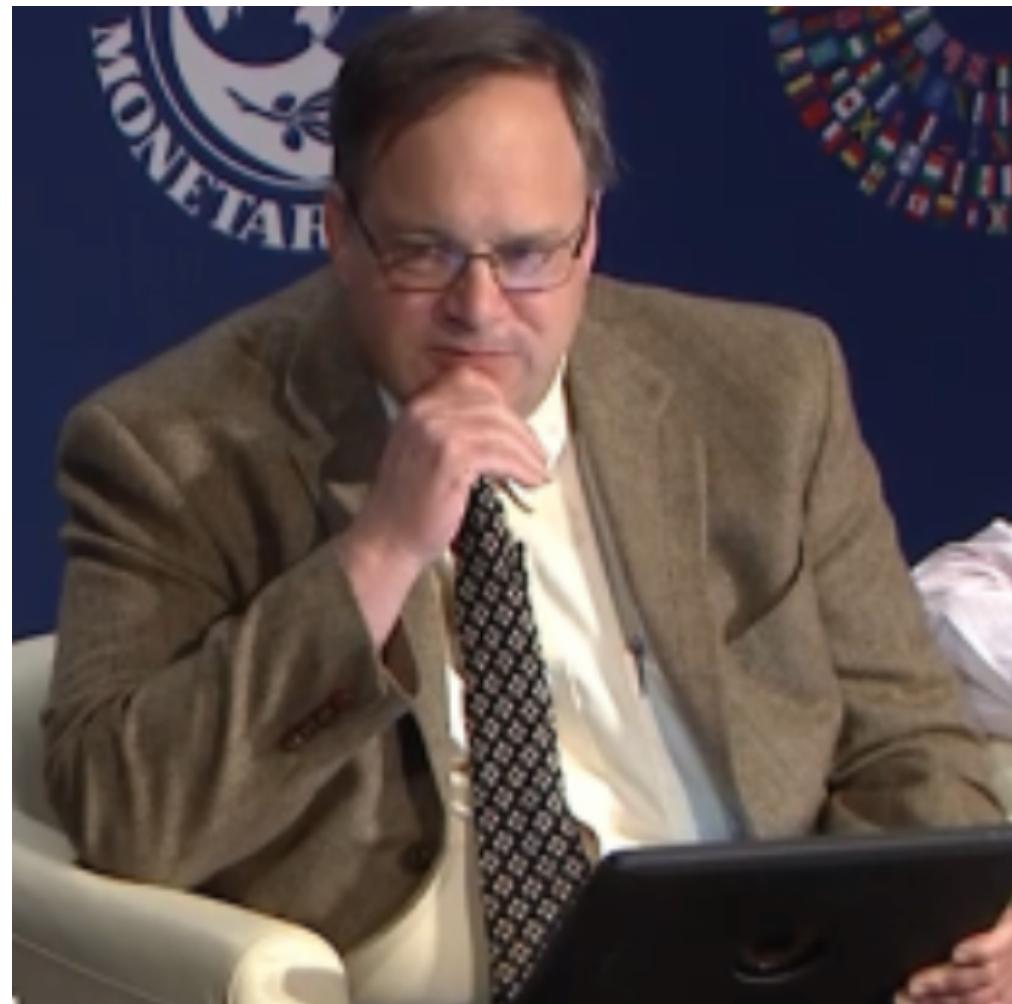
But Perhaps It Has Not Yet Wreaked Its Effects

Is the right answer: “not yet”?

- Robert Reich’s *The Work of Nations*
 - A more fine-grained international division of labor
 - Value chains
 - Heaven help “unskilled” workers int eh global north
- Effects of growing international inequality
 - Will that come to the domestic side
 - How will societies survive?
 - What will the world of 2050 look like?

Catch Our Breath...

- Ask a couple of questions?
- Make a couple of comments?
- Any more readings to recommend?



About the Course

The long 20th century will in all likelihood be seen in the future as *the watershed in human experience*:

- Nine aspects:
 1. History was *primarily* economic—and that was true for the first time...
 2. Explosion of wealth: 2%+ per year...
 3. Cornucopia of technology...
 4. Demographic transition...
 5. Feminist revolution...
 6. Empowered tyrannies...
 7. Wealth gulfs...
 8. Inclusion and hierarchy attenuation...
 9. Mismanagement and insecurity...
 10. The global public health system and global epidemic transmission
- Humanity is unlikely to see as *transformative*—for good and ill, but mostly for good, so far at least, I think—a century again...

Questions...

Things we would like to know:

1. Where do you expect to be located for the rest of the semester?
2. What aspect of our class are you most worried about?
3. What outside factors do we need to be aware of that impact your ability to participate in this class for the rest of the semester?
4. Beyond our class, what is your main worry for the upcoming weeks?
5. Do you have Wi-fi where you are staying?
6. Yes - on a computer or tablet
7. What kinds of devices do you have access to currently? Computer with a camera and microphone? Computer without a camera or microphone? Phone with a camera that can do video? Tablet with a camera that can do video?
8. Is s data usage a concern when viewing videos where you are?
9. Are you able to keep up with the lectures and class work? Is there anything challenging or beneficial to your learning in the new format?
- 10.What questions do you have for us?

Coronavirus!

Members of the public were told to avoid gatherings of 10 or more



ABC News



Trump warns coronavirus crisis could stretch into summer

Watch

Members of the public were told to avoid gatherings of 10 or more and older people and those with underlying condition were asked to stay home.

Coronavirus

Where we think we are, as of Mo Apr 6:

- We really do not know
- No random samples...
- Best thing I have read comes from Jim Stock <<https://drive.google.com/file/d/12MV466ZZy5xHir4xdPhoTrL1oO8CbZU-/view>>:
 - The basic SIR epidemiological model of contagion
 - The effect of social distancing and business shutdowns on epidemic dynamics enters the model through a single parameter: the case transmission rate β
- Re-express the model in terms of β and the asymptomatic (or not very symptomatic) hence non-tested rate—the fraction of the infected who are not tested
- The COVID-19 non-testing rate is unidentified in our model
- Estimates in the epidemiological literature range from 0.18 to 0.86.
 - The asymptomatic rate could be estimated accurately and quickly by testing a random sample
- The optimal policy response and its economic consequences hinge critically on the asymptomatic rate

Coronavirus Extrapolations						
Date	Deaths	Cases = Deaths x 100	Constant Weekly New Cases	Cases = 5 x Cases(-3)	Cases = 20 x Cases (-3)	Cases = Cases (-3) x exp(3 x week ch)
2020-04-05	9618		3,102,000	4,809,000	19,236,000	55,832,145
2020-03-29	2484		869,400	1,242,000	4,968,000	53,654,400
2020-03-22	414		144,900	207,000	828,000	8,942,400
2020-03-15	69	961,800	19,800	34,500	138,000	128,966
2020-03-08	26	248,400	10,100	13,000	52,000	45,697,600
2020-03-01	1	41,400	370	500	2,000	100,000
2020-02-23		6,900	37	50	200	10,000
2020-02-16		2,600	4	5	20	
2020-02-09		100				
2020-02-02		10				
2020-01-26		1				
		0				

<https://www.incloud.com/numbers/0FzRFArAOnIAin4VJWWIWIC0>

Coronavirus Cases:  United States

1,342,235

[view by country](#)

Coronavirus Cases:

364,059

Deaths:

74,554

Deaths:

10,792

Recovered:

278,182

Recovered:

19,536

USA State	Tot Cases/ 1M pop	Deaths/ 1M pop
USA Total	1,100	33
New York	6,662	243
New Jersey	4,626	113
Michigan	1,729	73
California	404	10
Louisiana	3,188	110
Massachusetts	2,026	38
Florida	662	12
Pennsylvania	1,016	13
Illinois	956	24
Washington	1,095	46
Texas	263	5
Georgia	710	22

Where we think we are, as of Mo Apr 6:

- We really do not know
- No random samples...
- Best thing I have read comes from Jim Stock <<https://drive.google.com/file/d/12MV466ZZy5xHir4xdPhoTrL1oO8CbZU-/view>>:
 - The basic SIR epidemiological model of contagion
 - The effect of social distancing and business shutdowns on epidemic dynamics enters the model through a single parameter: the case transmission rate β
 - Re-express the model in terms of β and the asymptomatic (or not very symptomatic) hence non-tested rate—the fraction of the infected who are not tested
 - The COVID-19 non-testing rate is unidentified in our model
 - Estimates in the epidemiological literature range from 0.18 to 0.86.
 - The asymptomatic rate could be estimated accurately and quickly by testing a random sample
 - The optimal policy response and its economic consequences hinge critically on the asymptomatic rate

Coronavirus Extrapolations

Date	Deaths	Cases = Deaths x 100	Constant Weekly New Cases	Cases = 5 x Cases(-3)	Cases = 20 x Cases (-3)	Cases = Cases (-3) x exp(3 x week ch)
2020-04-05	9618		3,102,000	4,809,000	19,236,000	55,832,145
2020-03-29	2484		869,400	1,242,000	4,968,000	53,654,400
2020-03-22	414		144,900	207,000	828,000	8,942,400
2020-03-15	69	961,800	19,800	34,500	138,000	128,966
2020-03-08	26	248,400	10,100	13,000	52,000	45,697,600
2020-03-01	1	41,400	370	500	2,000	100,000
2020-02-23		6,900	37	50	200	10,000
2020-02-16		2,600	4	5	20	
2020-02-09		100				
2020-02-02		10				
2020-01-26		1				
		0				

<https://www.icloud.com/numbers/0FzRFAoAQoiAin4V.IWYWIWICQ>

Coronavirus Case



United States

1,342,235

[view by country](#)

Coronavirus Cases:

364,059

Deaths:

74,554

Deaths:

10,792

Recovered:

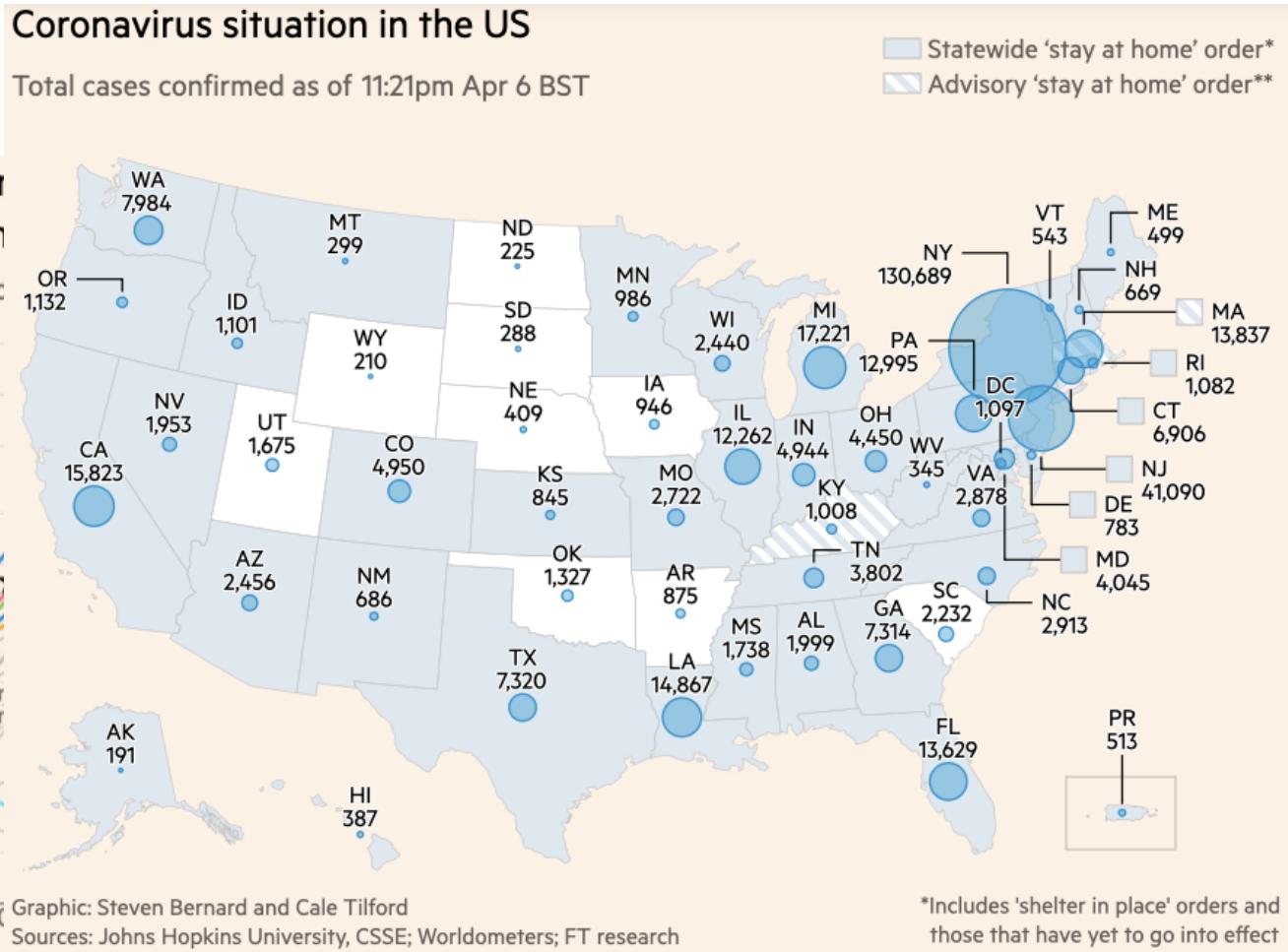
278,182

Recovered:

19,536

USA State	Tot Cases/ 1M pop	Deaths/ 1M pop
USA Total	1,100	33
New York	6,662	243
New Jersey	4,626	113
Michigan	1,729	73
California	404	10
Louisiana	3,188	110
Massachusetts	2,026	38
Florida	662	12
Pennsylvania	1,016	13
Illinois	956	24
Washington	1,095	46
Texas	263	5
Georgia	710	22

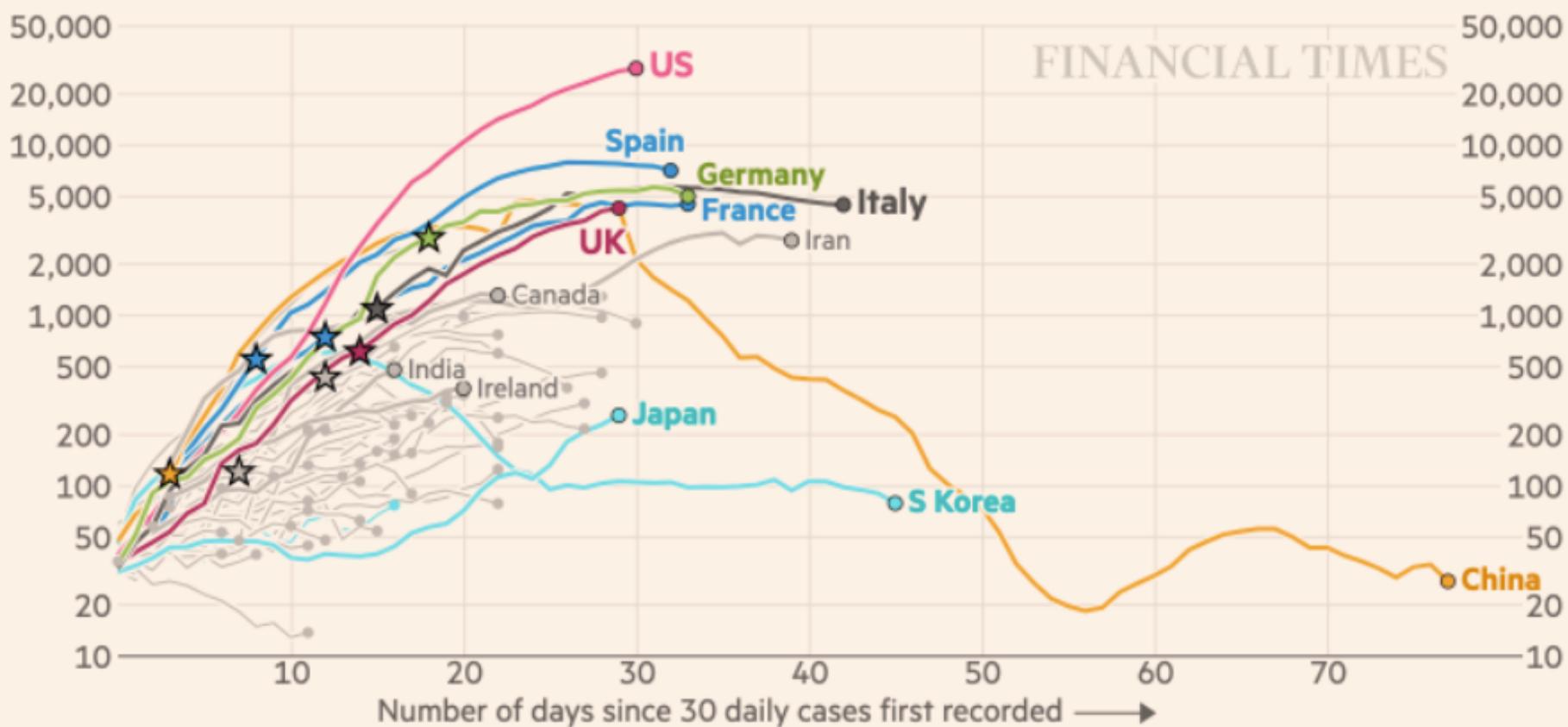
Financial Times Graphs Blown Up...



Italy has turned the corner, with numbers of new cases now in decline, following in China's footsteps

Daily confirmed cases (7-day rolling avg.), by number of days since 30 daily cases first recorded

Stars represent national lockdowns ★



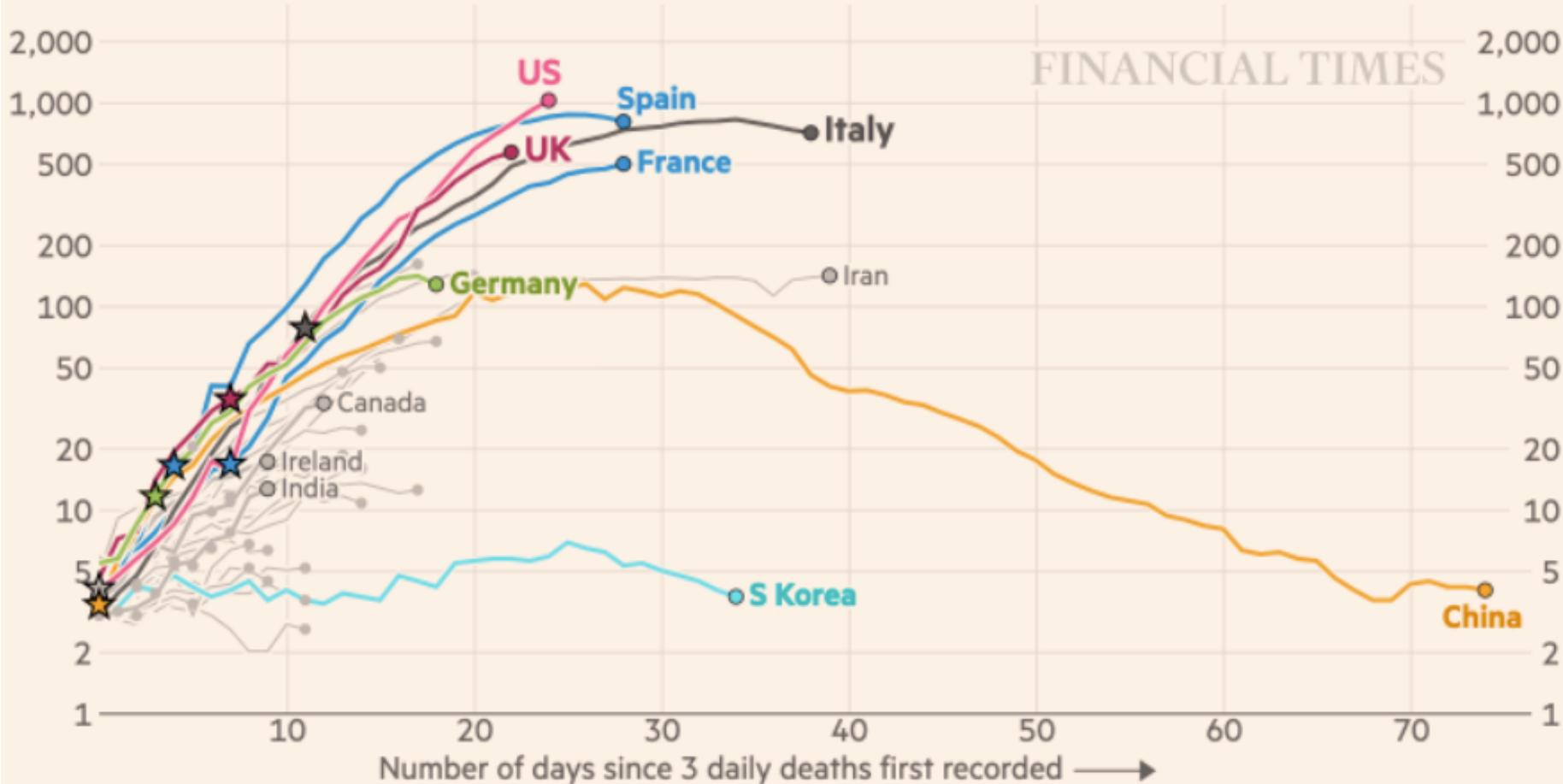
FT graphic: John Burn-Murdoch / @jburnmurdoch

Source: FT analysis of European Centre for Disease Prevention and Control; Worldometers; FT research. Data updated April 06, 19:00 GMT

© FT

Italy and Spain's daily death tolls are plateauing, but in the UK and US every day brings more new deaths than the last

Daily coronavirus deaths (7-day rolling avg.), by number of days since 3 daily deaths first recorded



FT graphic: John Burn-Murdoch / @jburnmurdoch

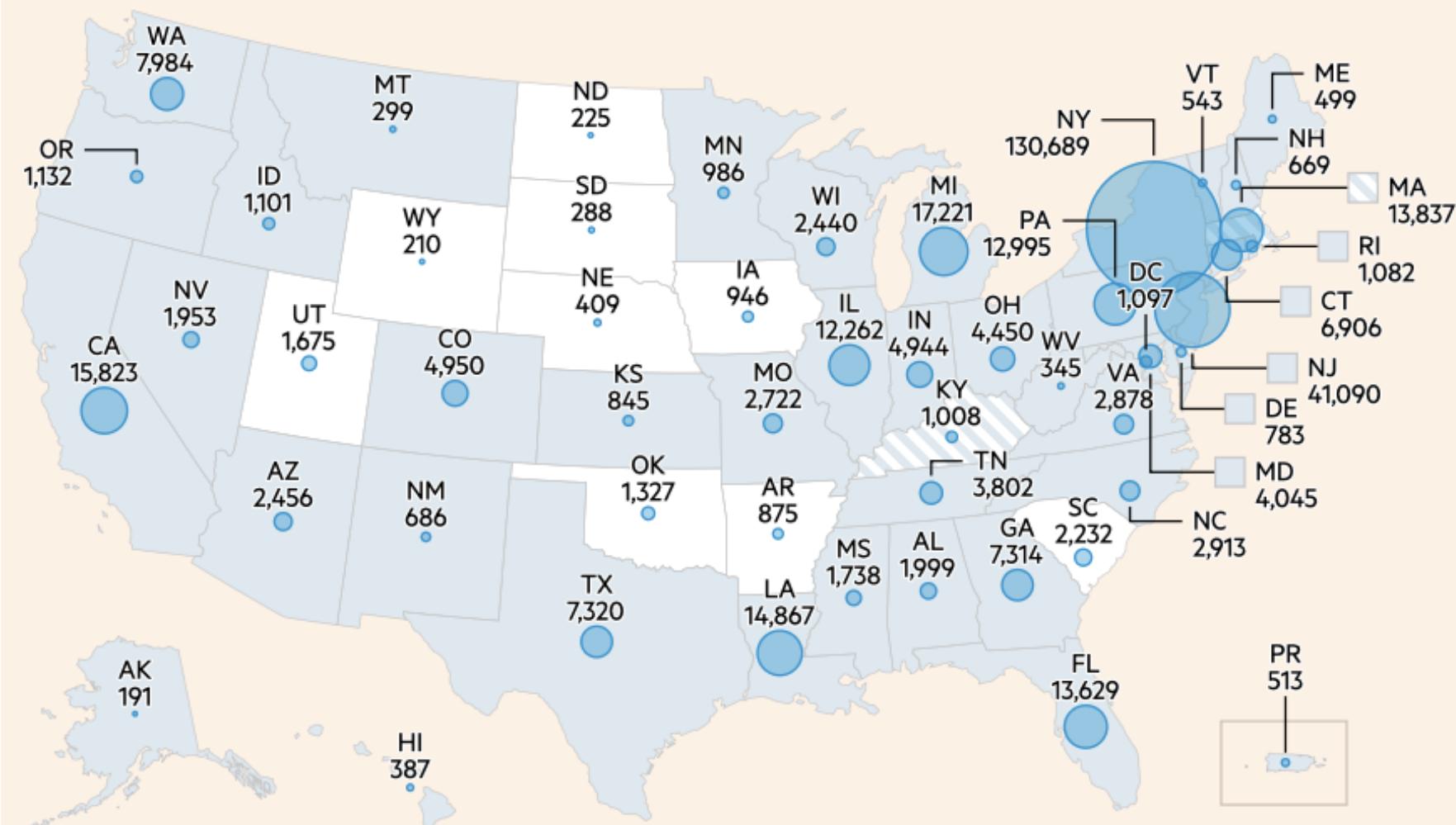
Source: FT analysis of European Centre for Disease Prevention and Control; Worldometers; FT research. Data updated April 06, 19:00 GMT

© FT

Coronavirus situation in the US

Total cases confirmed as of 11:21pm Apr 6 BST

- Statewide 'stay at home' order*
- Advisory 'stay at home' order**



Graphic: Steven Bernard and Cale Tilford

Sources: Johns Hopkins University, CSSE; Worldometers; FT research

© FT

*Includes 'shelter in place' orders and those that have yet to go into effect

**Includes Kentucky's 'healthy at home' order

James Stock (2020)

Standard SIR model:<<https://drive.google.com/file/d/12MV466ZZy5xHir4xdPhoTrL1oO8CbZU-/view>>:

- Susceptible, Infected, Recovered (& immune), transmission rate β , recovery rate γ , reproduction number R_0 , asymptomatic hence non-tested rate π_0
- Calibration: half-life of infection one week: $\gamma = 0.5$, $s_0 = 0.02$, 50 cases on Jan 24
- For March 21, 2020, the positive test

$$\Delta S_t = -\beta I_{t-1} \frac{S_{t-1}}{N}$$

$$\Delta R_t = \gamma I_{t-1},$$

$$\Delta I_t = \beta I_{t-1} \frac{S_{t-1}}{N} - \gamma I_{t-1}$$

<<https://drive.google.com/file/d/12MV466ZZy5xHir4xdPhoTrL1oO8CbZU-/view>>

Figure 2. High asymptomatic rate, short-duration policy

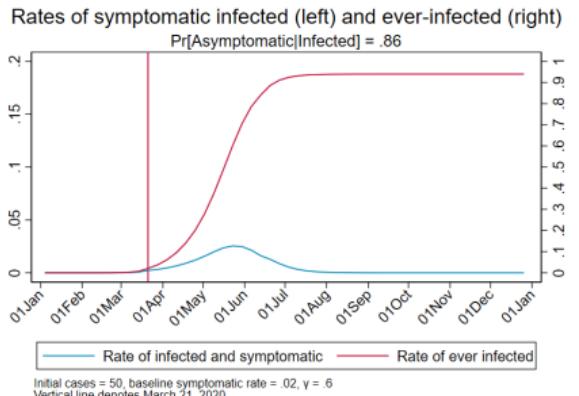


Figure 3. Low asymptomatic rate, short-duration policy

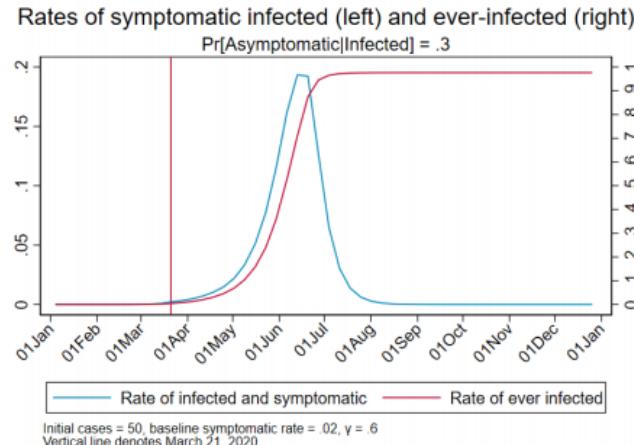


Figure 4. Low asymptomatic rate, severe long-duration policy

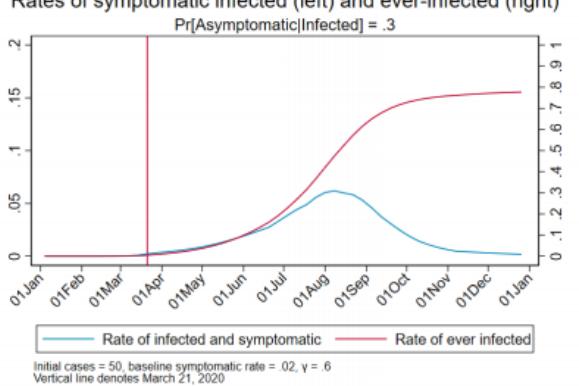
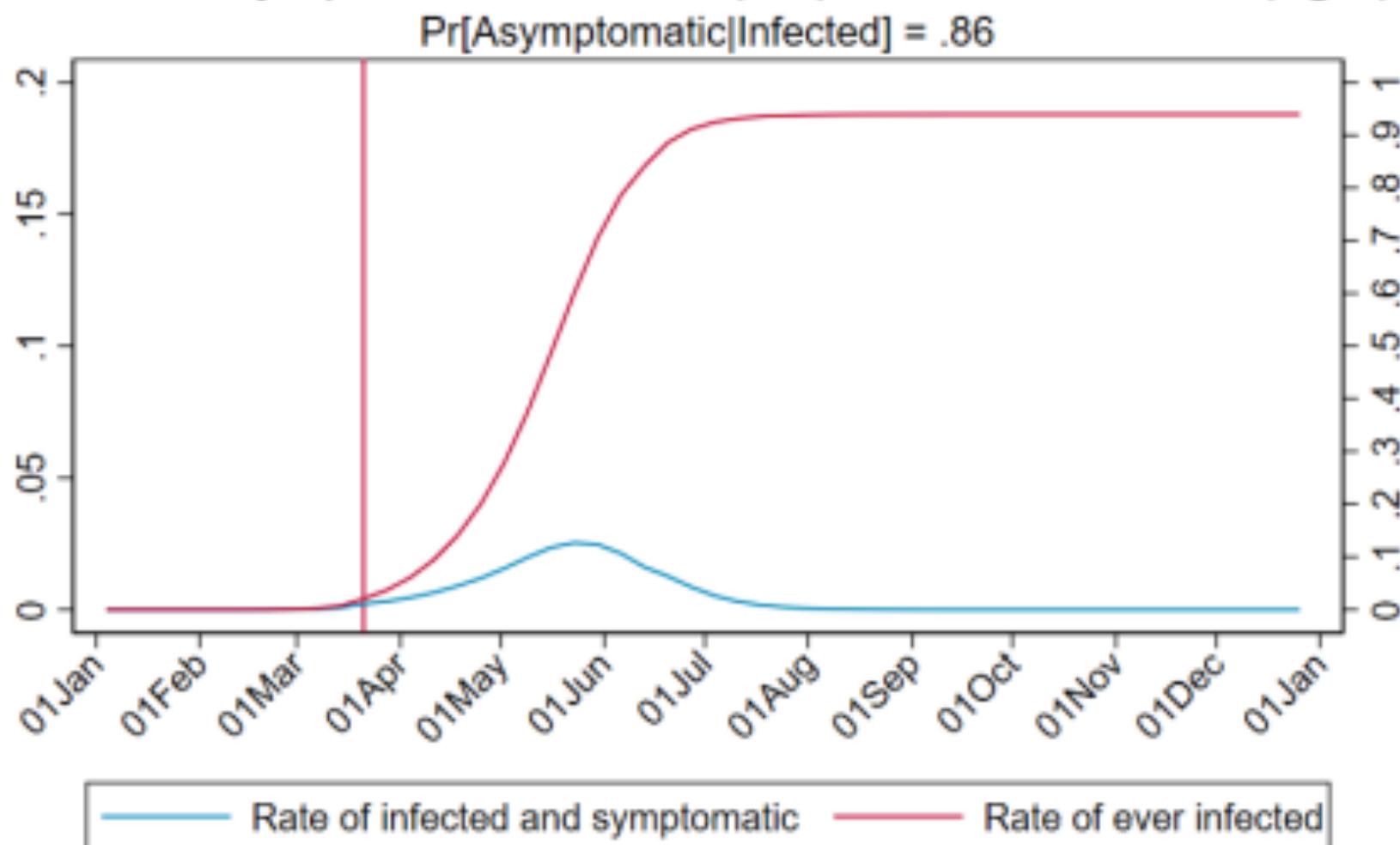


Figure 2. High asymptomatic rate, short-duration policy

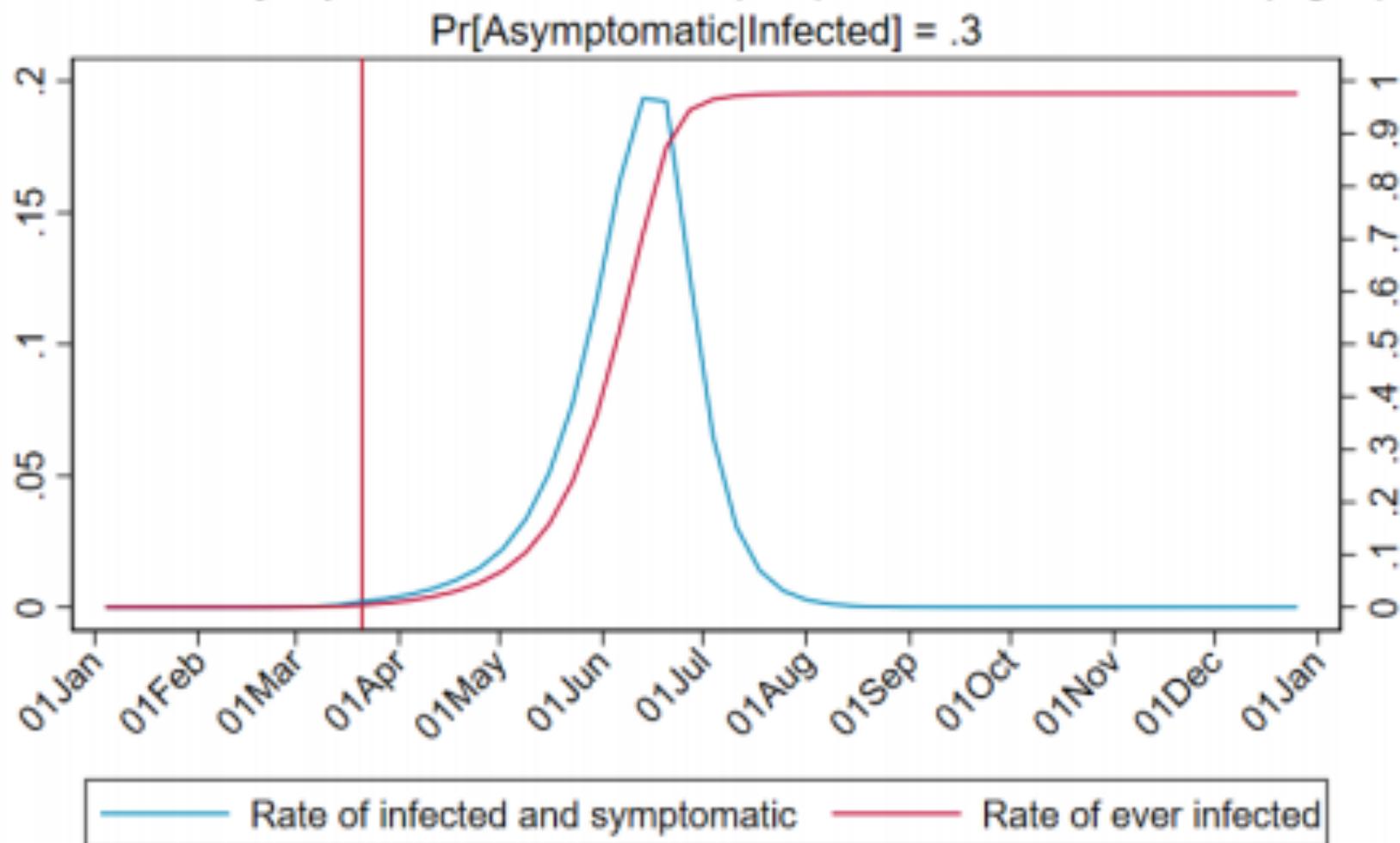
Rates of symptomatic infected (left) and ever-infected (right)



Initial cases = 50, baseline symptomatic rate = .02, $\gamma = .6$
Vertical line denotes March 21, 2020

Figure 3. Low asymptomatic rate, short-duration policy

Rates of symptomatic infected (left) and ever-infected (right)

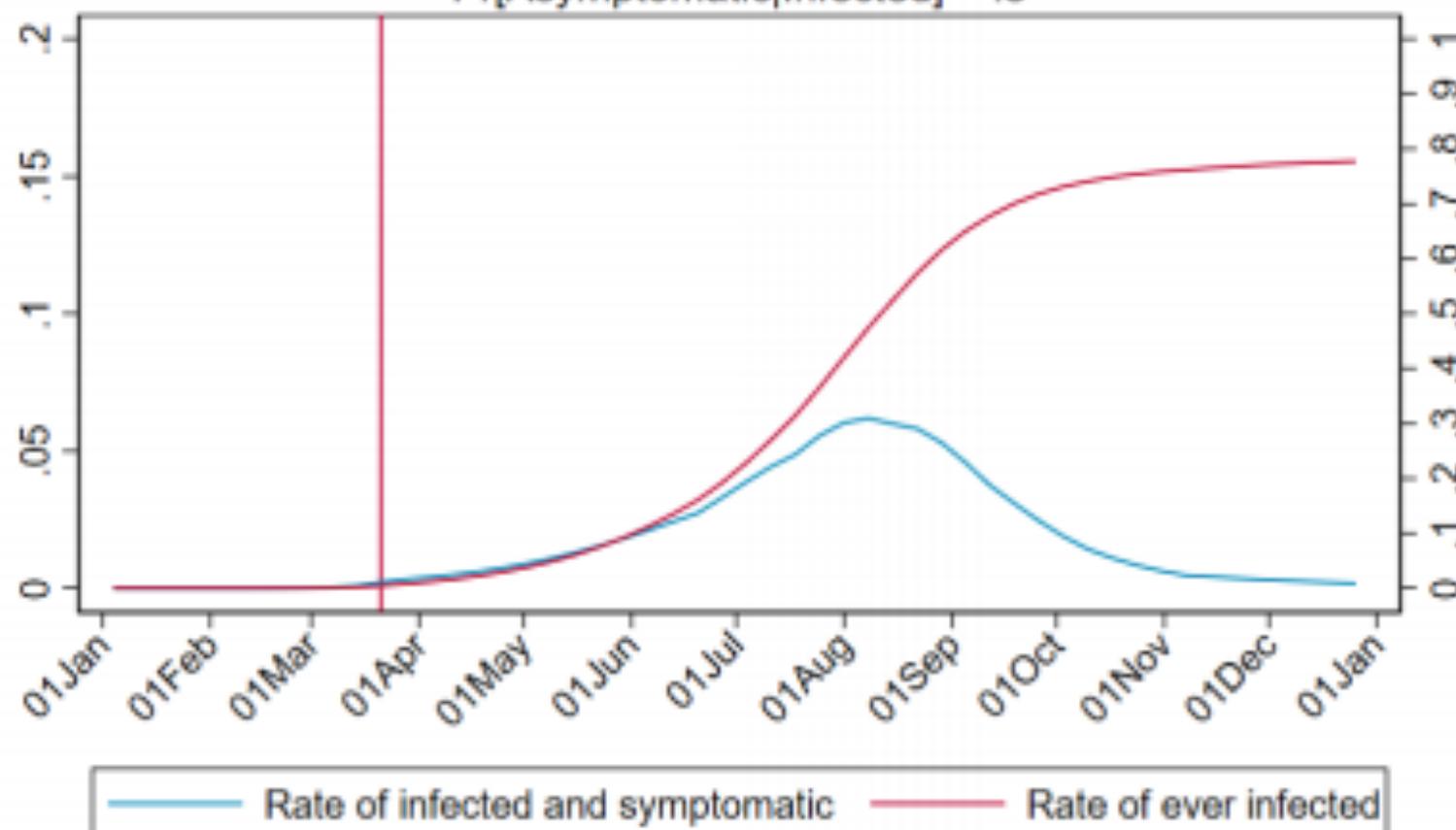


Initial cases = 50, baseline symptomatic rate = .02, $\gamma = .6$
Vertical line denotes March 21, 2020

Figure 4. Low asymptomatic rate, severe long-duration policy

Rates of symptomatic infected (left) and ever-infected (right)

$$\Pr[\text{Asymptomatic} | \text{Infected}] = .3$$



Initial cases = 50, baseline symptomatic rate = .02, $\gamma = .6$
Vertical line denotes March 21, 2020

$$\Delta S_t = -\beta I_{t-1} \frac{S_{t-1}}{N}$$

$$\Delta R_t = \gamma I_{t-1},$$

$$\Delta I_t = \beta I_{t-1} \frac{S_{t-1}}{N} - \gamma I_{t-1}$$

Bringing the Economy Back Up from Anæsthesia

Major issues:

- Certificates of immunity:
 - Which requires test, test, test:
 - And not just disease virus tests
 - Presence-of-antibodies tests
- How quickly can we match the immune with public-contact jobs?
- What jobs can be done with minimal infection risk?
- What minimal-infection substitutes can we find for previous jobs?
- How quickly can restrictions be relaxed without the virus coming roaring back?
- How do we avoid having the market give a “shutdown” signal to enterprises we in fact want restarted?
 - Which is pretty much all of them
- How much of the potential caseload do we want to push out beyond the vaccine-arrival date?

ALL THESE QUESTIONS ARE ANSWERABLE IF WE LEARN THE ASYMPTOMATIC HENCE NON-TESTED RATE!!

Keeping the Economy from Crashing During the Lockdown

Nick Rowe: We have a 50% output cut in 100% of the sectors:

- A temporary 100% output cut in 50% of the sectors (what the Coronavirus does) is very different from a 50% output cut in 100% of the sectors
- Nick's thought experiment:
 - In three months we are going to invent unobtanium:
 - Substantial intertemporal substitutability
 - Plus lower cross-good contemporaneous substitutability
 - Hence high desired savings rate now
 - Flex-price market thus produces a nominal rate at the zero lower bound and a high inflation rate over the next three to six months
 - Plus liquidity-constrained workers in affected sectors see their demand go to zero immediately
 - Can we get there? Should we get there? What should we do instead?
 - We need a good RBC economist: are there any?...

Keeping the Economy from Crashing During the Lockdown II

Nick Rowe <https://worthwhile.typepad.com/worthwhile_canadian_initi/2020/03/relative-supply-shocks-unobtainium-walras-law-and-the-coronavirus.html>:

- Plus: to extend the thought experiment:
 - We just lost the ability to make “unobtainium”
 - So we *should* be substituting leisure for work, and moving workers into relatively unproductive labor, making the commodities we can still produce right now
 - How should relative prices move as a result? How should we make them move?

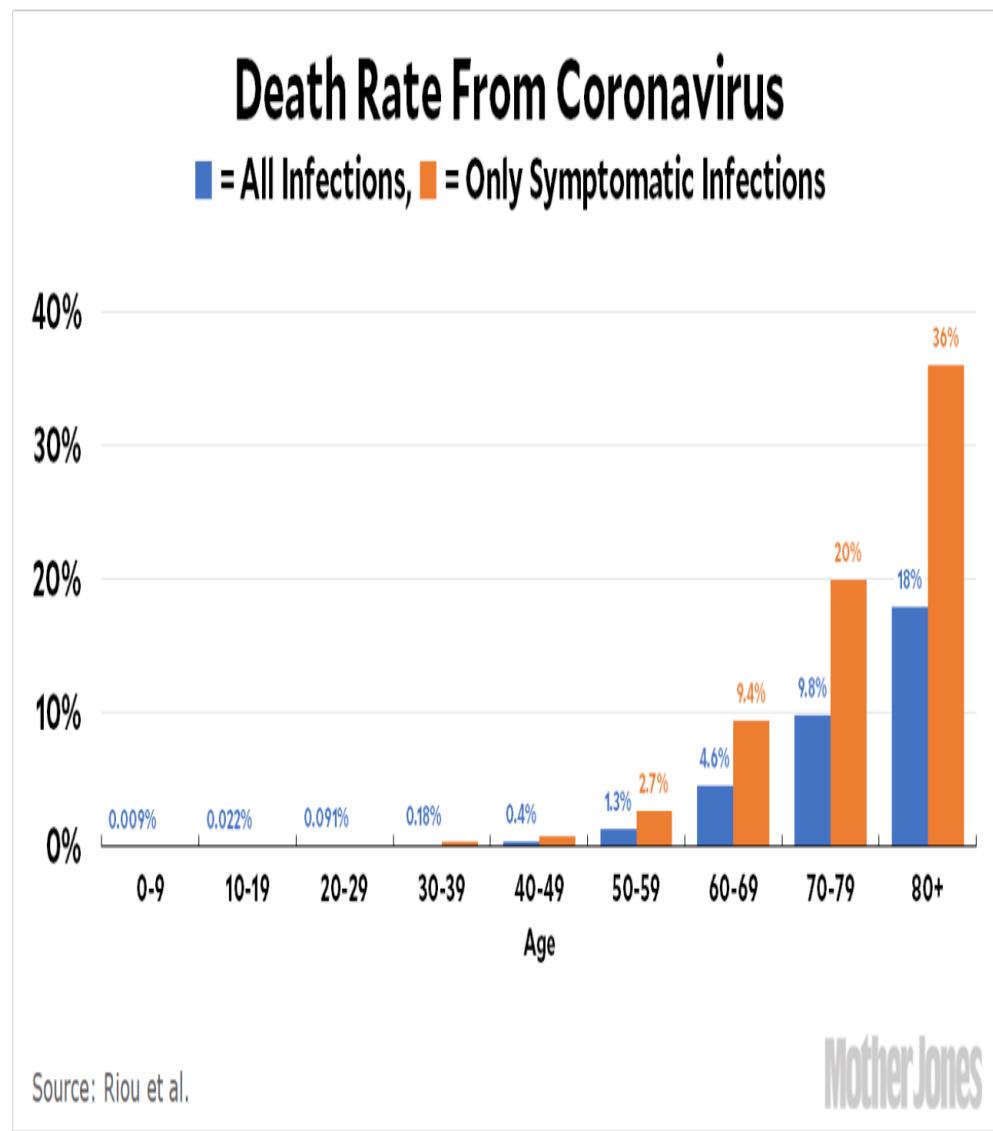
Plus: distributional issues

Plus: bankruptcy and credit chain issues

MOAR Coronavirus!

Death for Geezers!

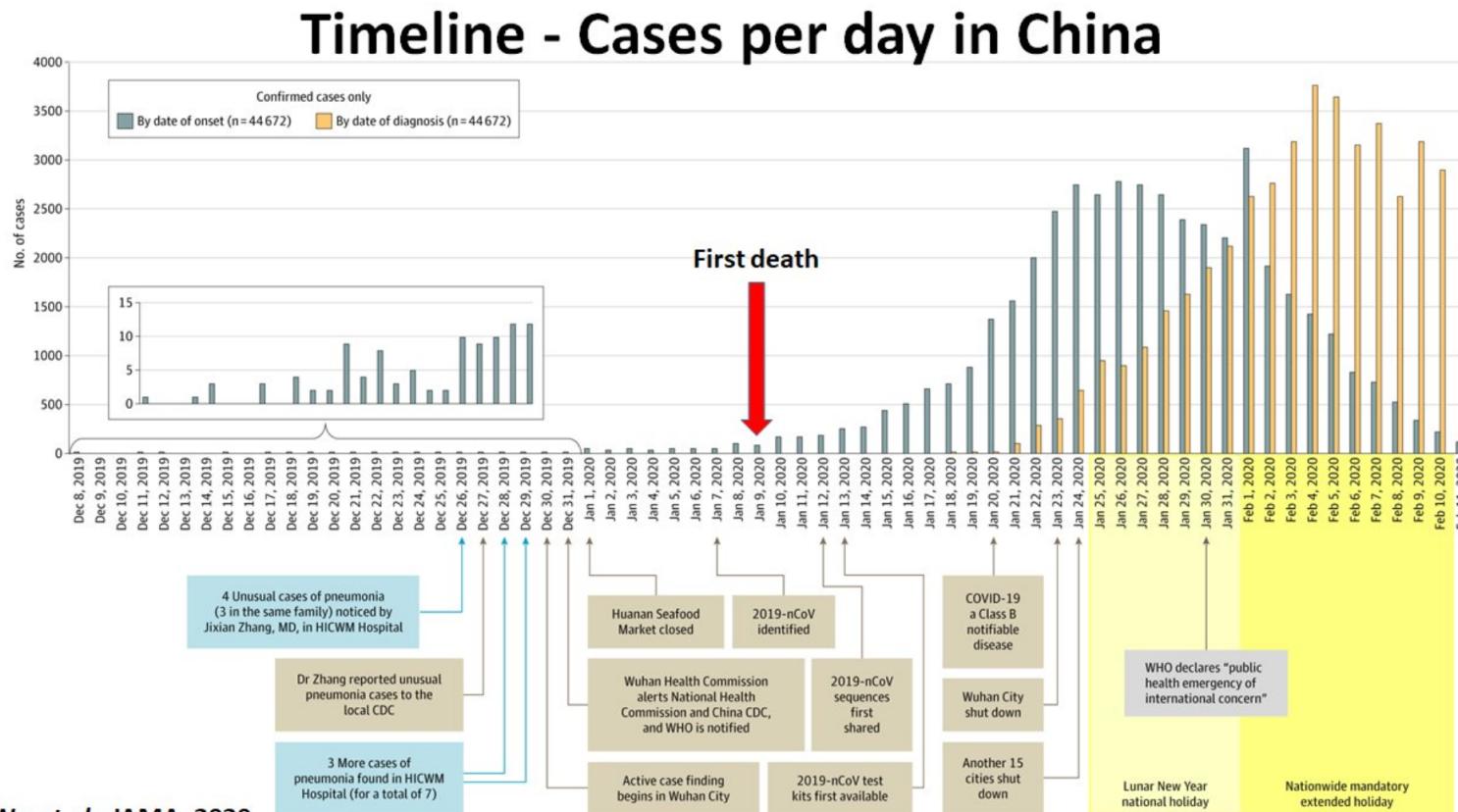
- Mortality for the Youngs very low...
- It's the flu for them—for you...
- And an extra doubling—or is it 5%?—mortality for the asthmatic
- And an extra doubling—or is it 5%?—mortality for the overweight



What We Think Happened in Wuhan

China beat it quickly & relatively easily!

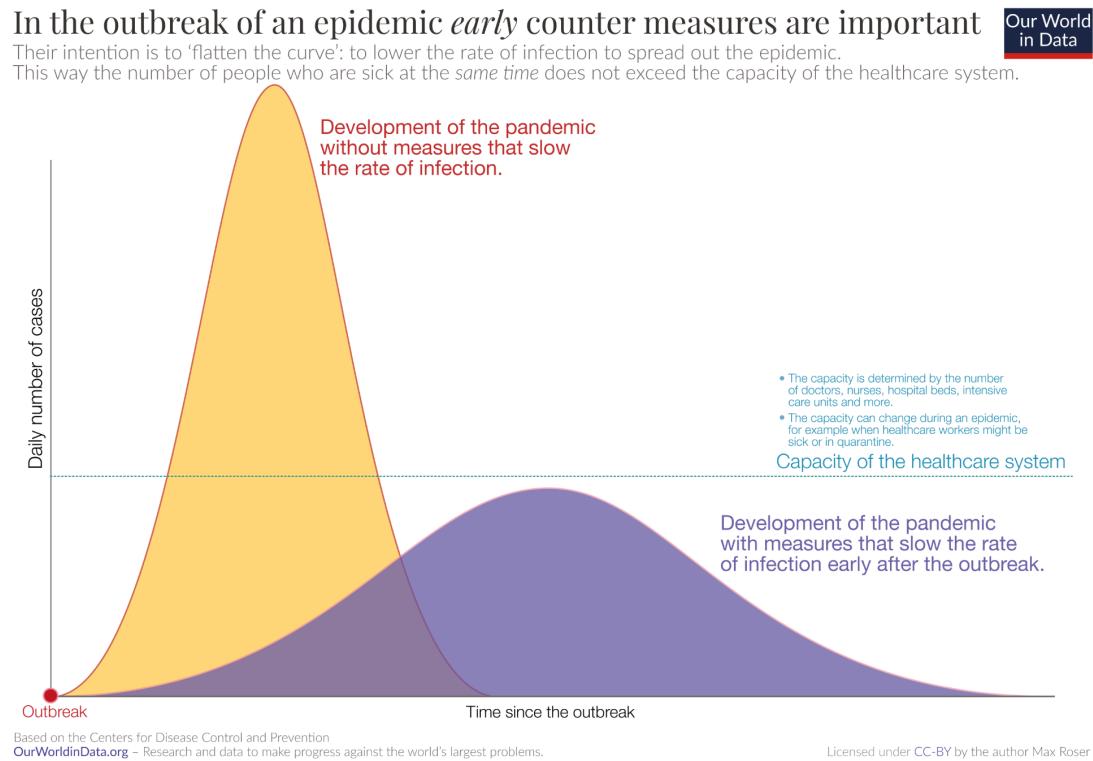
- We think
- Shut down Wuhan when 200 cases per day
- That seems to have been a good decision



The Goal

When Is It Appropriate to Move on This?

- Immediate social distancing...
- Self-isolate if you have a cough and a fever...
- Hope that warmer temperatures will do to this what they did to SARS...
- Otherwise, when do you want to start spreading out transmission. It seems that early is as good as later, so do it early...
 - I have no good intuition on why you want to move early
 - Plus your moving early will be wasted if you get reinfected
 - Plus the sparks you throw off making others' lives more difficult



References

- **Financial Times** (2020): Coronavirus Tracked: The Latest Figures as the Pandemic Spreads <<https://www.ft.com/coronavirus-latest>>
- **Nick Rowe** (2020): *Relative Supply Shocks, Unobtainium, Walras' Law, and the Coronavirus* <https://worthwhile.typepad.com/worthwhile_canadian_initi/2020/03/relative-supply-shocks-unobtainium-walras-law-and-the-coronavirus.html>
- **Jim Stock** (2020): *Coronavirus Data Gaps and the Policy Response* <<https://drive.google.com/file/d/12MV466ZZy5xHir4xdPhoTrL1oO8CbZU-/view>>

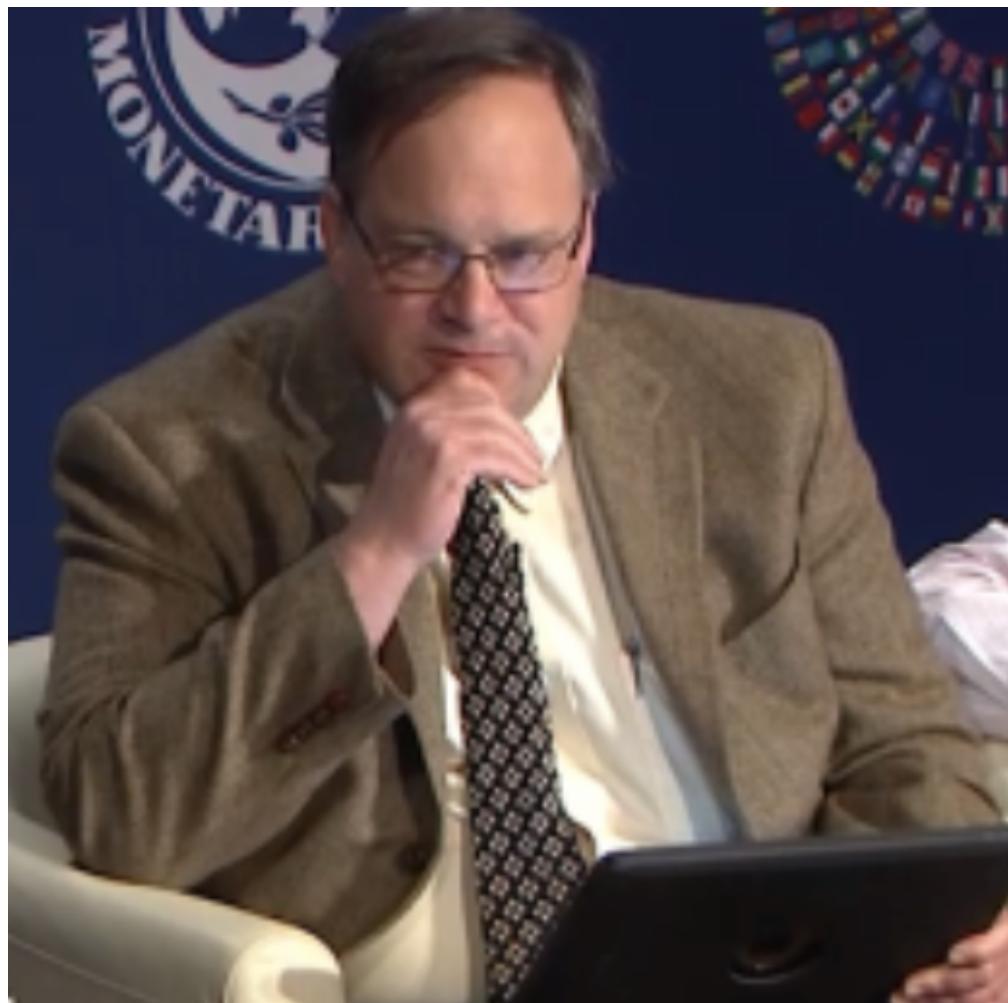
MOAR Coronavirus!

What I am watching:

- **Max Roser & Hannah Ritchie:** *Coronavirus Disease (COVID-19)* <<https://ourworldindata.org/coronavirus>>...
- **Worldometer:** *Coronavirus Update (Live)* <<https://www.worldometers.info/coronavirus/>>: '125,599 Cases and 4,605 Deaths from COVID-19 Virus Outbreak...'
- *FT Coronavirus Tracker* <<https://www.ft.com/content/a26fbf7e-48f8-11ea-aeb3-955839e06441>>
- Josh Marshall's COVID Twitter List <<https://twitter.com/i/lists/1233998285779632128>>
- NEJM Group: Updates on the Covid-19 Pandemic <http://m.n.nejm.org/nl/jsp/m.jsp?c=%40kxNtXckRDOq8oG0jJvAXsIzN4mPECIPhltxoTSdTU9k%3D&cid=DM89089_NEJM_COVID-19_Newsletter&bid=173498255>: 'From the New England Journal of Medicine, NEJM Journal Watch, NEJM Catalyst, and other trusted sources...'

Catch Our Breath...

- Ask a couple of questions?
 - Make a couple of comments?
 - Any more readings to recommend?
-
- <<https://www.icloud.com/keynote/0YKEi7HeOrVGvKYtt9FEqH7nA>>



Coronavirus! (March 16)

~~With 31 deaths in the U.S. as of March 11, a 1% death rate, and up to 4 weeks between infection and death, that means that as of Feb 12 there were 3100 coronavirus cases in the United States.~~

~~With 87 deaths in the U.S. as of Mar 16, a 1% death rate, and up to 4 weeks between infection and death, that means that as of Feb 17 there were 8700 coronavirus cases in the United States~~

If it is doubling every seven days, then now about 150,000 people have and in the next week about 150,000 more people in the U.S. will catch coronavirus—which means 1/2200, currently 3500 of the 7.6 million inhabitants of San Francisco Bay. Touch a hard surface that any of those 3500 has touched in the last 48 hours, and the virus has a chance to jump to you...

These numbers could be five times too big. These numbers are probably not five times too small unless the thing is a lot less deadly, and there are a lot of asymptomatic cases...

- What is wrong with this analysis?

MOAR Coronavirus!

As of March 21: Things are not moving in the right direction:

- What is the R_0 ?
- How can the R_0 be changed?
- How will the R_0 change?
- What is the asymptote share of the population?
- What is the mortality rate?

Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/1M pop
China	80,880	+36	3,213	+14	67,819	9,848	3,226	56.2
Italy	27,980	+3,233	2,158	+349	2,749	23,073	1,851	462.8
Iran	14,991	+1,053	853	+129	4,590	9,548		178.5
Spain	9,428	+1,440	335	+41	530	8,563	272	201.6
S. Korea	8,236	+74	75		1,137	7,024	59	160.6
Germany	7,241	+1,428	15	+2	65	7,161	2	86.4
France	5,423		127		12	5,284	400	83.1
USA	4,186	+506	73	+5	73	4,040	12	12.6
Switzerland	2,353	+136	19	+5	4	2,330		271.9
UK	1,543	+152	55	+20	52	1,436	20	22.7
Netherlands	1,413	+278	24	+4	2	1,387	45	82.5
Norway	1,323	+67	3		1	1,319	27	244.0

Coronavirus Cases:

179,836

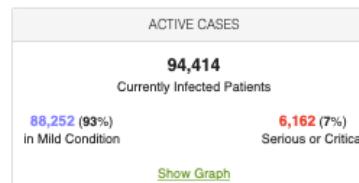
[view by country](#)

Deaths:

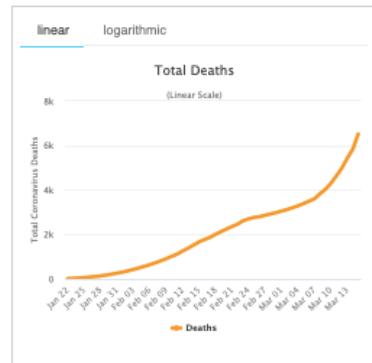
7,098

Recovered:

78,324



[More Case Statistics](#)

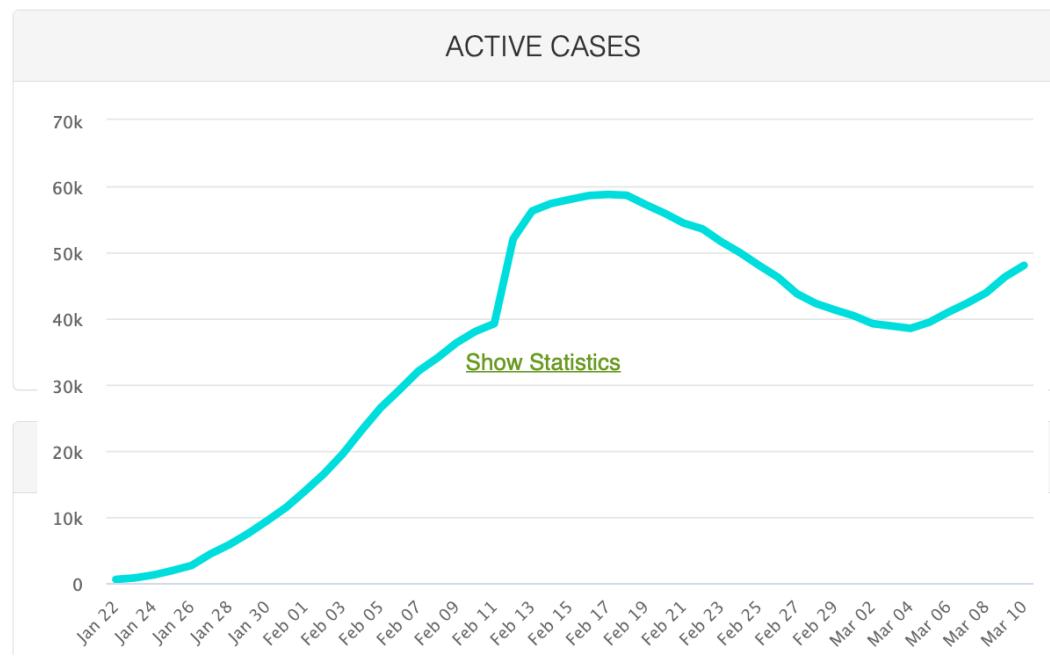


[More Death Statistics](#)

MOAR Coronavirus!

As of March 10: Things are not moving in the right direction:

- What is the R_0 ?
- How can the R_0 be changed?
- How will the R_0 change?
- What is the asymptote share of the population?
- What is the mortality rate?



Coronavirus Cases:

125,599

[view by country](#)

Deaths:

4,605

Recovered:

67,051

ACTIVE CASES

53,943

Currently Infected Patients

48,025 (89%)
in Mild Condition **5,918** (11%)
Serious or Critical

[Show Graph](#)

CLOSED CASES

71,656

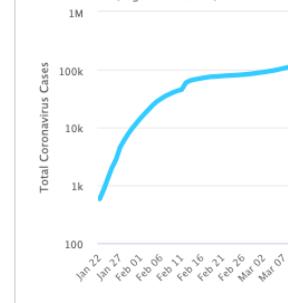
Cases which had an outcome:

67,051 (94%)
Recovered / Discharged **4,605** (6%)
Deaths

[Show Graph](#)

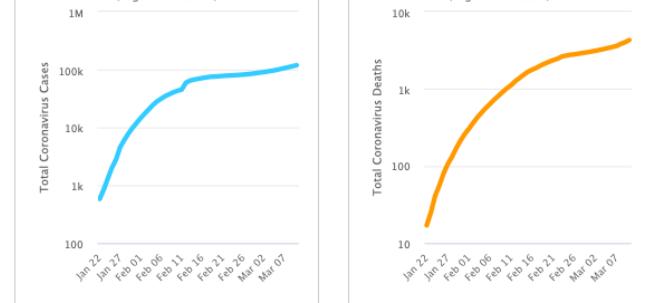
linear logarithmic

Total Cases
(Logarithmic Scale)

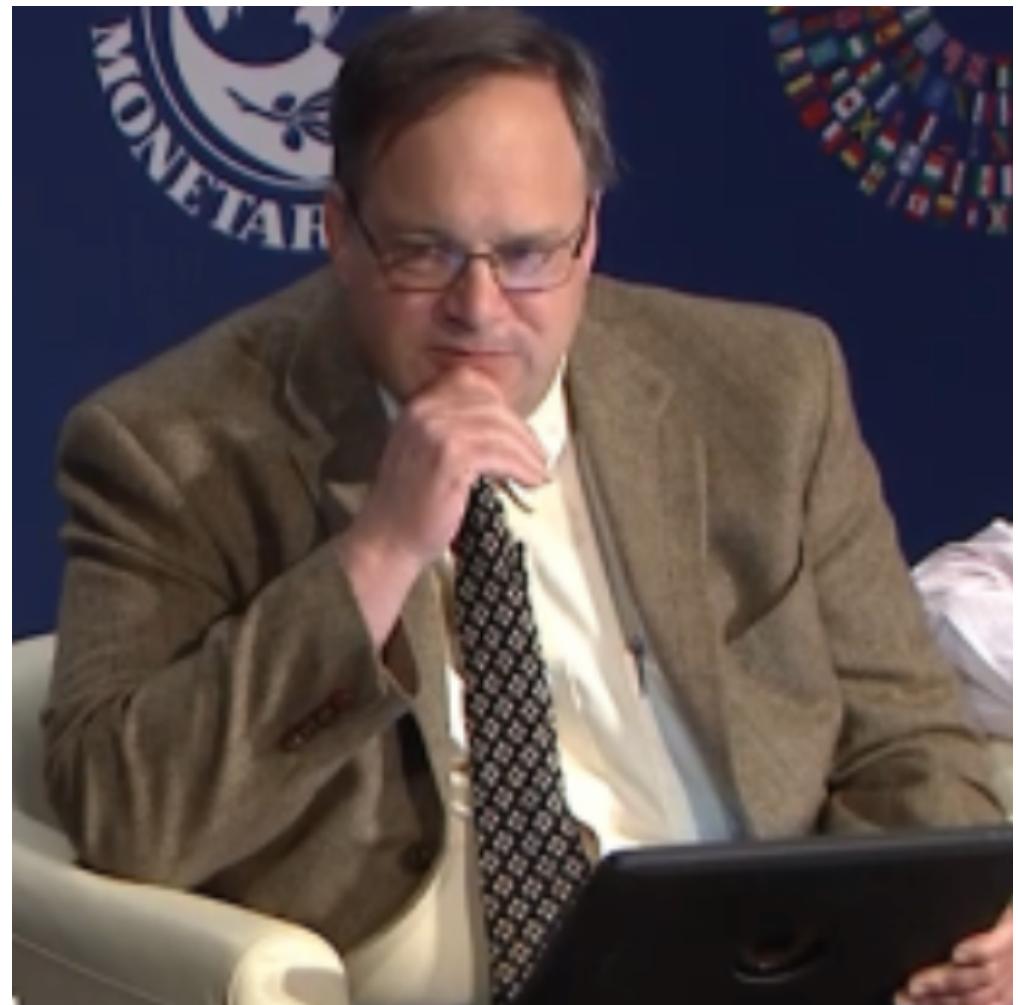


linear logarithmic

Total Deaths
(Logarithmic Scale)



Notes



Reviews

Post-1870 is the miracle:

Date	ideas Level H	Total Real World Income Y (billions)	Average Real Income per Capita y (per year)	Total Human Population L (millions)	Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Rate of Ideas-Stock Growth h
-68000	1.0	\$0	\$1,200	0.1			
-8000	5.0	\$3	\$1,200	2.5	0.005%	0.000%	0.003%
-6000	6.3	\$6	\$900	7	0.051%	-0.014%	0.011%
-3000	9.2	\$14	\$900	15	0.025%	0.000%	0.013%
-1000	16.8	\$45	\$900	50	0.060%	0.000%	0.030%
0	30.9	\$153	\$900	170	0.122%	0.000%	0.061%
800	41.1	\$270	\$900	300	0.071%	0.000%	0.035%
1500	53.0	\$450	\$900	500	0.073%	0.000%	0.036%
1770	79.4	\$825	\$1,100	750	0.150%	0.074%	0.149%
1870	123.5	\$1,690	\$1,300	1300	0.550%	0.167%	0.442%
2020	2720.5	\$90,000	\$11,842	7600	1.177%	1.473%	2.061%

Review: The Broad Sweep

Post-1870 is the miracle:

Date	ideas Level H	Total Real World Income Y (billions)	Average Real Income per Capita y (per year)	Total Human Population L (millions)	Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Rate of Ideas-Stock Growth h
-68000	1.0	\$0	\$1,200	0.1			
-8000	5.0	\$3	\$1,200	2.5	0.005%	0.000%	0.003%
-6000	6.3	\$6	\$900	7	0.051%	-0.014%	0.011%
-3000	9.2	\$14	\$900	15	0.025%	0.000%	0.013%
-1000	16.8	\$45	\$900	50	0.060%	0.000%	0.030%
0	30.9	\$153	\$900	170	0.122%	0.000%	0.061%
800	41.1	\$270	\$900	300	0.071%	0.000%	0.035%
1500	53.0	\$450	\$900	500	0.073%	0.000%	0.036%
1770	79.4	\$825	\$1,100	750	0.150%	0.074%	0.149%
1870	123.5	\$1,690	\$1,300	1300	0.550%	0.167%	0.442%
2020	2720.5	\$90,000	\$11,842	7600	1.177%	1.473%	2.061%

“The West”

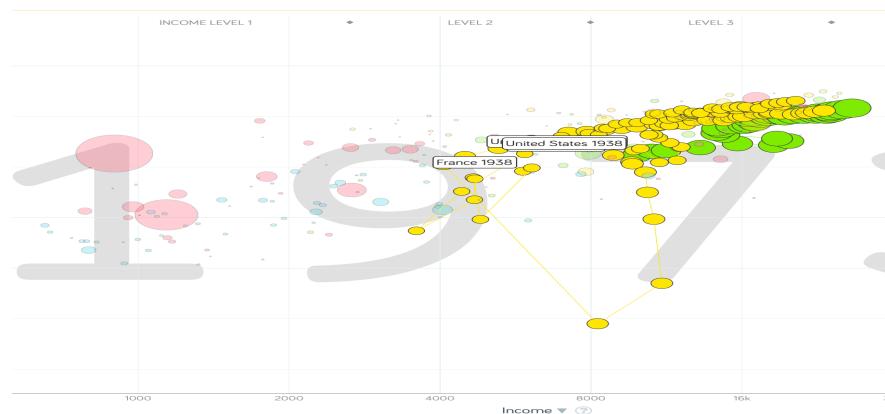
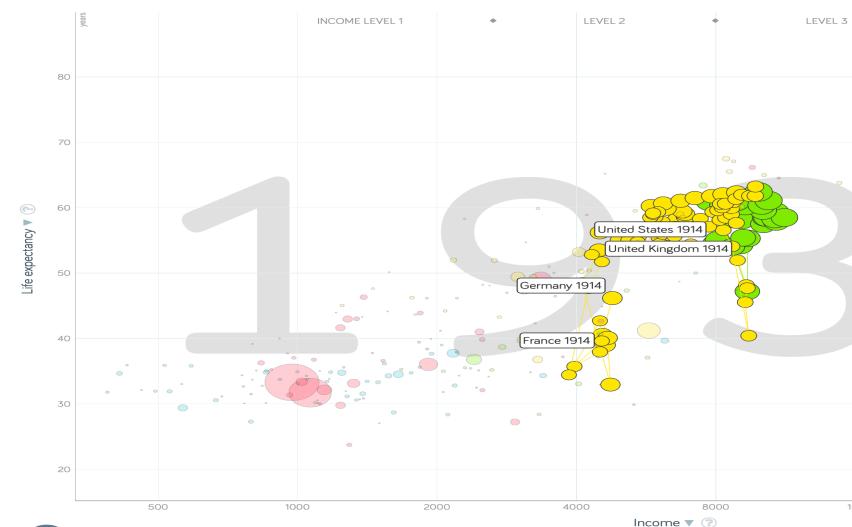
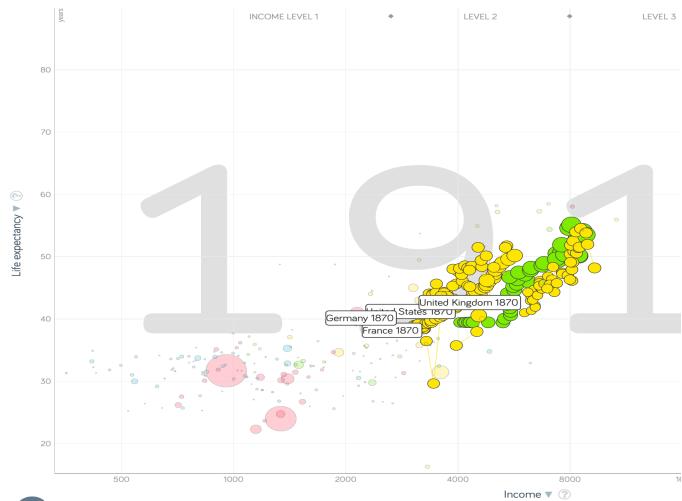
800, 1500, 1770, or 1870?:

Date	ideas Level H	Total Real Income Y (billions)	Average Real Income per Capita y (per year)	Total “West” Population L (millions)		Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Increasing Resources ρ	Rate of Ideas-Stock Growth h
-68000	1.0	\$0.01	\$1,200	0.005					
-8000	4.5	\$0.12	\$1,200	0.1		0.005%	0.000%	0.000%	0.002%
-6000	4.7	\$0.18	\$900	0.2		0.035%	-0.014%	0.000%	0.003%
-3000	7.5	\$0.45	\$900	0.5		0.031%	0.000%	0.000%	0.015%
-1000	15.0	\$1.80	\$900	2		0.069%	0.000%	0.000%	0.035%
0	23.7	\$4.50	\$900	5		0.092%	0.000%	0.000%	0.046%
800	30.0	\$7.20	\$900	8		0.059%	0.000%	0.000%	0.029%
1500	58.9	\$25.00	\$1,000	25		0.163%	0.015%	0.000%	0.096%
1770	101.0	\$105.00	\$1,400	75		0.407%	0.125%	0.257%	0.200%
1870	252.0	\$490.00	\$2,800	175		0.847%	0.693%	0.405%	0.914%
2020	8439.5	\$40,000.00	\$50,000	800		1.013%	1.922%	0.175%	2.341%

“The West”

1914-1938, 1870-1913, & 1938-1973

- Rate of growth in the North Atlantic industrial core halves comparing 1870-1913 to 1914-1938; then triples afterwards over 1938-1973
- Slows again after 1973



To Your iClickers

What was the growth rate of *ideas* in the industrial core of the world economy over 1870-2020?

- A. About 2.3%/year
- B. About 0.9%/year
- C. About 0.23%/year
- D. About 4%/year
- E. None of the above

To Your iClickers

What was the growth rate of *ideas* in the industrial core of the world economy over 1770-1870?

- A. About 2.3%/year
- B. About 0.9%/year
- C. About 0.23%/year
- D. About 4%/year
- E. None of the above

Review: The Belle Époque Broken

John Maynard Keynes:

- “Very few of us realise[d] with conviction the intensely unusual, unstable, complicated, unreliable, temporary nature of the economic organisation by which Western Europe has lived for the last half century. We assume some of the most peculiar and temporary of our late advantages as natural, permanent, and to be depended on, and we lay our plans accordingly.
- “On this sandy and false foundation we scheme for social improvement and dress our political platforms, pursue our animosities and particular ambitions, and feel ourselves with enough margin in hand to foster, not assuage, civil conflict in the European family....
- “France, Germany, Italy, Austria, and Holland, Russia and Roumania and Poland, throb together, and their structure and civilisation are essentially one. They flourished together, they have rocked together in a war which we, in spite of our enormous contributions and sacrifices (like though in a less degree than America), economically stood outside, and they may fall together...”

Aristocracy & Social Democracy

The aristocrats had rolled the dice:

- Europe in 1914 was a Europe of national populations, of industrialists and socialists, of factory workers and technicians...
- Europe's governments in 1914—especially the defense and foreign affairs ministries—had been populated by aristocrats, ex-aristocrats, and would-be aristocrats.
- Landed, aristocratic, military elites had control of many of the levers of propaganda and power...
- Aristocrats had had help. Industrialists and entrepreneurs were eager to provide their political support in return for economic benefits, as in the 1879 German “marriage of iron and rye”: the imposition of tariffs on imports of British steel (to protect the positions of German manufacturers) and on imports of American grain (to protect the positions of German landlords)...
- On the eve of World War I, these landed military service aristocrats, ex-aristocrats, and would-be aristocrats increasingly found themselves members of a social caste that had no societal function...
- But power—in the form of office and of vast (if declining relative) wealth—and propaganda—in the form of pageantry and the press—were reinforced by ideologies: Social darwinism...
- The aristocrats rolled the dice—and lost...

Social democrats picked up the chips:

- Expanded suffrage...
- Proportional representation...
- “Lands fit for heroes...”
- How to provide for the benefits politicians promised?

Reparations, Taxes, and Inflation

Reparations

- A peace “without annexations and indemnities”...
- But not without *reparations*...
- Two years’ of Germany’s national income demanded:
 - Much of it “boob bait for the babbas...” on the part of Allied politicians...
 - But a powerful shaper of post-WWI Germany

Taxes

- High and progressive tax rates...
- A powerful impact on inequality...
- Class war...

Inflation

- U.S.: price level x1.5
- Britain: price level x2.0
- France: price level x7.0
 - French government had encouraged investment in Russian bonds...
- German: price level x1,000,000,000,000
 - Austria, Hungary, Czechoslovakia the same...

Keynes's Protest

Jan Christian Smuts:

- “Poor Keynes often sits with me at night after a good dinner and we rail against the world and the coming flood. And I tell him that this is the time for Grigua’s prayer (the Lord to come himself and not to send his Son, as this is not a time for children). And then we laugh, and behind the laughter is [Herbert] Hoover’s horrible picture of thirty million people who must die unless there is some great intervention. But then again we think that things are never really as bad as that; and something will turn up, and the worst will never be. And somehow all these phases of feeling are true and right in some sense...”

Keynes's Protest II

John Maynard Keynes:

- “If we aim deliberately at the impoverishment of Central Europe, vengeance, I dare predict, will not limp. Nothing can then delay for long that final civil war between the forces of reaction and the despairing convulsions of revolution, before which the horrors of the late German war will fade into nothing, and which will destroy... the civilization and progress of our generation...”

Review: World War I

Nationalism

- Max Weber: “The vulgar conception of political economy is that it consists in working out recipes for making the world happy.... However... elbow-room... can [only] be won... through the hard struggle.... That standard of value adopted by a German economic theorist, can... be nothing other than a German policy and a German standard.... Our successors will... hold us responsible... for the amount of elbow-room we conquer.... The science of political economy is... a servant of... the lasting political-power interests of... our nation's power, and the vehicle of that power, the German national state...”
- Erich von Manstein: von Manstein, von Lewinsky, Lewinski, Levi...
- “We offered 4 battleships a year, the navy demanded 6, and we compromised at 8”



The Catastrophe of World War I: Origins

- In the summer of 1914 the empires of Russia and Austria-Hungary are skirmishing diplomatically and threatening each other militarily about the latest Balkan crisis
 - Began when in the summer of 1914 the Archduke Franz Ferdinand and his wife Sophie were assassinated in Sarajevo
 - By terrorists with very close links to the intelligence service of the Kingdom of Serbia
 - What would Austria's response be?
- And then Germany attacks Belgium
- And then Australia attacks Turkey



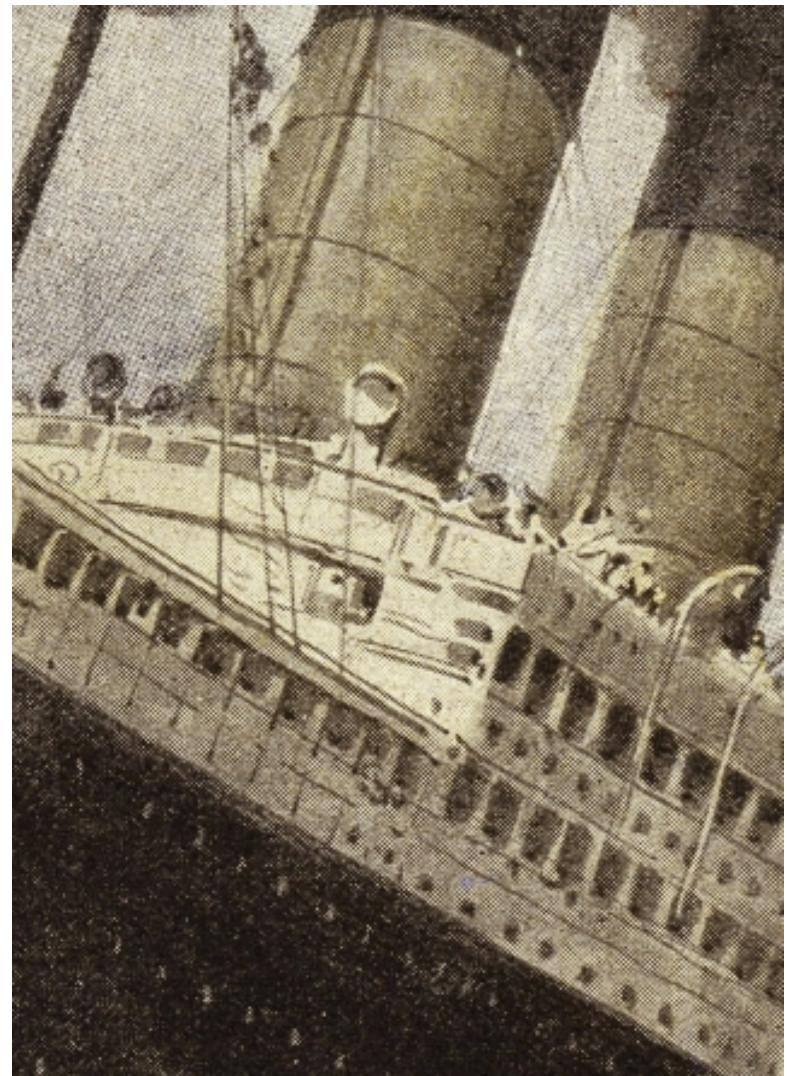
The Catastrophe of World War I: Causes

- Why?: “If there is a war, let it come now...”
 - Russia thought it would have to fight Germany *someday*, and might as well while France was interested...
 - Austria, France, Britain (as a result of the German battle fleet) the same
- “Busy giddy minds with foreign quarrels...”
- A wiser man: Otto von Bismarck:
 - “There is nothing in the Balkans worth the bones of a single Pomeranian grenadier...”



How Does the U.S. Get Involved?

- British policy: binding the U.S. upper class to Britain since the 1840s
- The Law of the Sea
 - Neutrals
 - Blockade
- The submarine
 - Unrestricted submarine warfare
 - Zimmerman Telegram
- Woodrow Wilson
 - “Teach the Mexicans to elect good men...”
 - “The war to end war...”



The Catastrophe of World War I: Outcome—Human

- Combatants had mobilized 65M out of 100M men of military age
 - 10M killed
 - 10M maimed
 - Civilian casualties less than 10% of military
 - Costs of 1.5x a year's GDP
 - Plus a 15M global flu epidemic
- Russian, Austro-Hungarian, German, Ottoman Turkish Empires all gone...
- Representative governments destabilized—or weak...
- The Russian Revolution...
- Hungarian, Bavarian socialist republics (short-lived)
- Spartacist...
- Allies demand 2 years of German GDP as “reparations”...



Catch Our Breath...

- Comments?
- Questions?

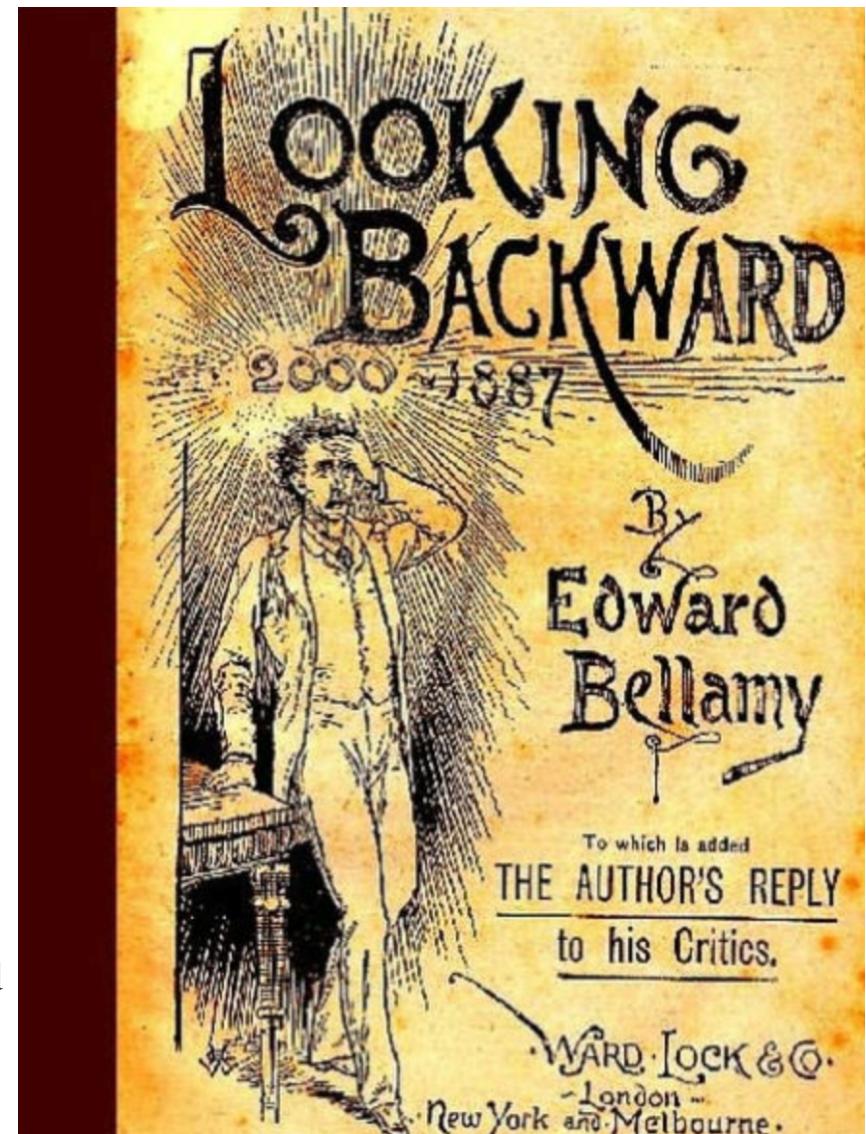


Review: Edward Bellamy: *Looking Backward*

Edward Bellamy: *Looking Backward* <<https://delong.typepad.com/files/bellamy-backward.pdf>>

Perhaps the third best-selling novel of the 19th century in the United States

- 2000 is a utopia...
- The narrator is carried forward in time from 1887-2000 by an implausible plot device:
 - ““This is the tenth day of September in the year 2000, and you have slept exactly one hundred and thirteen years, three months, and eleven days...””
- He then wanders around, looking at the utopia of 2000...
- The opening:
 - ““How could I live without service to the world?”” you ask.... The answer is that my great-grandfather had accumulated a sum of money on which his descendants had ever since.... The sum had been originally by no means large. It was, in fact, much larger now that three generations had been supported upon it in idleness, than it was at first...’



The Stagecoach of Society

Those who ride and this who pull:

- ‘Commiseration was frequently expressed by those who rode for those who had to pull the coach, especially when the vehicle came to a bad place in the road, as it was constantly doing, or to a particularly steep hill. At such times, the desperate straining of the team, their agonized leaping and plunging under the pitiless lashing of hunger, the many who fainted at the rope and were trampled in the mire, made a very distressing spectacle, which often called forth highly creditable displays of feeling on the top of the coach.
- ‘At such times the passengers would call down encouragingly to the toilers of the rope, exhorting them to patience, and holding out hopes of possible compensation in another world for the hardness of their lot, while others contributed to buy salves and liniments for the crippled and injured. It was agreed that it was a great pity that the coach should be so hard to pull, and there was a sense of general relief when the specially bad piece of road was gotten over. This relief was not, indeed, wholly on account of the team, for there was always some danger at these bad places of a general overturn in which all would lose their seats.
- ‘It must in truth be admitted that the main effect of the spectacle of the misery of the toilers at the rope was to enhance the passengers’ sense of the value of their seats upon the coach, and to cause them to hold on to them more desperately than before...’

The Stagecoach of Society II

“Finer clay”:

- ‘The other fact is yet more curious, consisting in a singular hallucination which those on the top of the coach generally shared, that they were not exactly like their brothers and sisters who pulled at the rope, but of finer clay, in some way belonging to a higher order of beings who might justly expect to be drawn. This seems unaccountable, but, as I once rode on this very coach and shared that very hallucination, I ought to be believed.
- ‘The strangest thing about the hallucination was that those who had but just climbed up from the ground, before they had outgrown the marks of the rope upon their hands, began to fall under its influence. As for those whose parents and grand-parents before them had been so fortunate as to keep their seats on the top, the conviction they cherished of the essential difference between their sort of humanity and the common article was absolute. The effect of such a delusion in moderating fellow feeling for the sufferings of the mass of men into a distant and philosophical compassion is obvious.
- ‘To it I refer as the only extenuation I can offer for the indifference which, at the period I write of, marked my own attitude toward the misery of my brothers...’

The Stagecoach of Society III

Class war:

- ‘The sanguine argued very forcibly that it was in the very nature of things impossible that the new hopes of the workingmen could be satisfied, simply because the world had not the wherewithal to satisfy them. It was only because the masses worked very hard and lived on short commons that the race did not starve outright, and no considerable improvement in their condition was possible while the world, as a whole, remained so poor.
- ‘It was not the capitalists whom the laboring men were contending with, these maintained, but the iron-bound environment of humanity, and it was merely a question of the thickness of their skulls when they would discover the fact and make up their minds to endure what they could not cure.
- The less sanguine admitted all this. Of course the workingmen’s aspirations were impossible of fulfillment for natural reasons, but there were grounds to fear that they would not discover this fact until they had made a sad mess of society. They had the votes and the power to do so if they pleased, and their leaders meant they should. Some of these desponding observers went so far as to predict an impending social cataclysm. Humanity, they argued, having climbed to the top round of the ladder of civilization, was about to take a header into chaos...’

The Limit of Human Felicity I

In the music room:

- ‘She made me sit down comfortably, and, crossing the room, so far as I could see, merely touched one or two screws, and at once the room was filled with the music of a grand organ anthem; filled, not flooded, for, by some means, the volume of melody had been perfectly graduated to the size of the apartment. I listened, scarcely breathing, to the close. Such music, so perfectly rendered, I had never expected to hear.
- ““Grand!” I cried, as the last great wave of sound broke and ebbed away into silence. “Bach must be at the keys of that organ; but where is the organ?”...
- ““There are a number of music rooms in the city, perfectly adapted acoustically to the different sorts of music. These halls are connected by telephone with all the houses of the city.... Any one of the four pieces now going on that you prefer, you can hear by merely pressing the button which will connect your house-wire with the hall where it is being rendered...””

The Limit of Human Felicity III

Four live orchestras you can listen to on the speakerphone!

- ““It appears to me, Miss Leete,” I said, “that if we could have devised an arrangement for providing everybody with music in their homes, perfect in quality, unlimited in quantity, suited to every mood, and beginning and ceasing at will, we should have considered the limit of human felicity already attained, and ceased to strive for further improvements...””

Review: The View from 3000: Themes & Big Ideas

Science reaches critical mass and from it springs engineering—all of the engineering subdisciplines, including the management of human resources and of organizations. From a liberal political order spring national and then the global market economy. And from engineering and the market, and the large bureaucratic corporation then, over the course of 1870-2016, spring...

- History was economic...
- Explosion of wealth...
- Cornucopia of technology...
- Demographic transition...
- Feminist revolution...
- Inclusion and hierarchy attenuation...
- Empowered tyrannies...
- Wealth gulfs...
- Mismanagement and insecurity...

Measuring Growth

What are my estimates of the rate of growth of economically-useful human knowledge over 1-1500, 1500-1800, 1800-1870, and 1870-2000?

- A. 0.02%/year, 0.2%/year, 0.5%/year, and 0.8%/year
- B. 0.000%/year, 0.02%/year, 0.2%/year, and 0.8%/year
- C. **0.02%/year, 0.2%/year, 0.8%/year, and 2.3%/year**
- D. 0.2%/year, 0.8%/year, 2.3%/year, and 4.7%/year
- E. None of the above.

What Is the Key Factor in the Explosion of Wealth in the 20th Century?

**Yes, many things contributed. But suppose you have to
pick just one**

What Are the Four Factors That I See as Making for the Explosion of Wealth in the 20th Century?

**Yes, there are many, many more things that contributed.
But suppose you have to pick just four:**

Demography II

What is the principal cause of the demographic transition?

- A. Female wealth and control of property.
- B. Female literacy.
- C. Falling infant and child mortality.
- D. Land shortages and high unemployment.
- E. Something else.

Feminism

How many pregnancies do we think Abigail Smith Adams had between when she was 20 and 34?

- A. 2.
- B. 4.
- C. 6.
- D. 8.
- E. 18.

Empowered Tyrannies II

How many world leaders are members of the 10-million club?

- A. 2.
- B. 4.
- C. 6.
- D. 8.
- E. 18.

Inclusion and Hierarchy Attenuation

At the start of the 1970s, future President Ronald Reagan said that diplomats from Tanzania appeared uncomfortable:

- A. resisting pressure to vote with the Soviet Union at the United Nations.
- B. making small talk with New York socialites.
- C. wearing shoes.
- D. in formal tuxedos.
- E. None of the above.

Economic Mismanagement and Insecurity II

According to Karl Polanyi, what rights does the market economy respect?

- A. rights to *land* (a stable community).
- B. rights to *labor* (a “just” income).
- C. rights to *finance* (a stable economic place).
- D. rights to *property* (the ability to keep what you manage to claim to earn).
- E. None of the above.

Review: The Watershed: 1870 as an Inflection Point

As of 1870, had the Industrial Revolution raised the standard of living or lightened the toil of the working class in England, the country at its center?

- A. Yes
 - B. No
 - C. It's not clear
-
- Why? Malthusian forces—population explosion & thus smaller farm sizes. Growth, the growth had been slow 0.8%/year?



Globalization

Who called the era of globalization and growth from 1870 to 1914 an “economic El Dorado”?

- A. Karl Marx
 - B. John Stuart Mill
 - C. Thomas Robert Malthus
 - D. John Maynard Keynes
 - E. None of the above
-
- What would the others have said?

Migration

How many people of the roughly 1.5 billion then-population of the world left their continents of origin between 1870-1913?

- A. 10 million
- B. 50 million
- C. 100 million
- D. 200 million
- E. 400 million

Before 1870, Ideas Growth Not Fast Enough

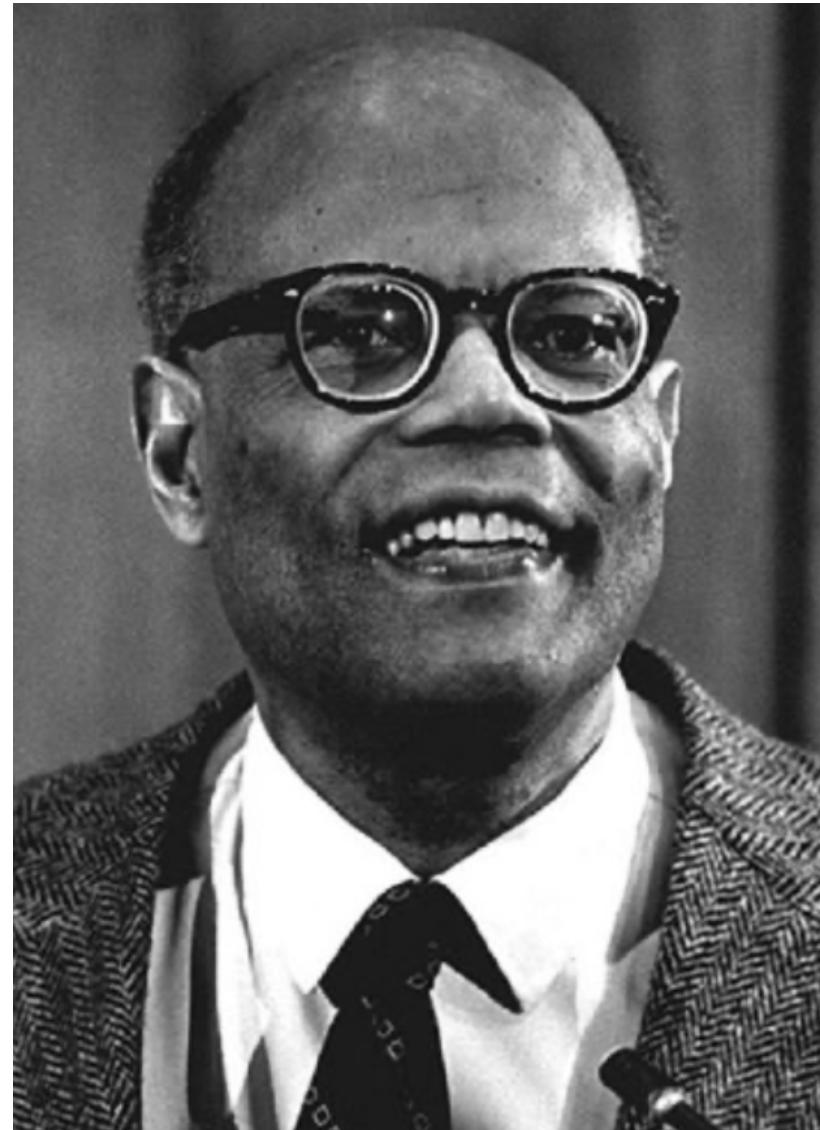
And population growth accelerates as the world is not rich enough to undergo the demographic transition:

- Value of useful and deployed ideas about technology and organization
 - -8000: 1
 - 1: 3.5
 - 1500: 4.75
 - 1800: 9
 - 1870: 16
 - 2020: 421
- Growth Rates:
 - -8000 to 1500: 0.02%/year
 - 1500 to 1800: 0.2%/year
 - 1800 to 1870: 0.8%/year
 - 1870 to 2020: 2.3%/year
- What caused these accelerations? What caused this last acceleration?

The Last Acceleration

The industrial research lab to routinize invention, and the modern corporation to routinize diffusion and deployment

- Plus general purpose technologies—machine tools, non-human power sources
- Arthur Lewis:
 - “New commodities: telephones, gramophones, typewriters, cameras, automobiles, and so on, a seemingly endless process whose latest twentieth-century additions include aeroplanes, radios, refrigerators, washing machines, television sets, and pleasure boats. Thus a rich man in 1870 did not possess anything that a rich man of 1770 had not possessed; he might have more or larger houses, more clothes, more pictures, more horses and carriages, or more furniture than say a school teacher possessed, but as likely as not his riches were displayed in the number of servants whom he employed rather than in his personal use of commodities...”
- Not so much the particular technologies, as the grasping of the fact that there was a broad and deep range of new technologies to be discovered.
- As much as it was new technologies, it was large-scale corporate organizations that could and did plan the division of labor to make use of and then market technologies.
- And as much, it was that the global market meant that there was now a great deal of money to be made from the routinization of the exploration, development, and deployment of technological possibilities



Worldwide: The Broad Sweep

Post-1870 is the miracle:

Date	ideas Level H	Total Real World Income Y (billions)	Average Real Income per Capita y (per year)	Total Human Population L (millions)	Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Rate of Ideas-Stock Growth h
-68000	1.0	\$0	\$1,200	0.1			
-8000	5.0	\$3	\$1,200	2.5	0.005%	0.000%	0.003%
-6000	6.3	\$6	\$900	7	0.051%	-0.014%	0.011%
-3000	9.2	\$14	\$900	15	0.025%	0.000%	0.013%
-1000	16.8	\$45	\$900	50	0.060%	0.000%	0.030%
0	30.9	\$153	\$900	170	0.122%	0.000%	0.061%
800	41.1	\$270	\$900	300	0.071%	0.000%	0.035%
1500	53.0	\$450	\$900	500	0.073%	0.000%	0.036%
1770	79.4	\$825	\$1,100	750	0.150%	0.074%	0.149%
1870	123.5	\$1,690	\$1,300	1300	0.550%	0.167%	0.442%
2020	2720.5	\$90,000	\$11,842	7600	1.177%	1.473%	2.061%

“The West”

800, 1500, 1770, or 1870?:

Date	ideas Level H	Total Real Income Y (billions)	Average Real Income per Capita y (per year)	Total “West” Population L (millions)		Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Increasing Resources ρ	Rate of Ideas-Stock Growth h
-68000	1.0	\$0.01	\$1,200	0.005					
-8000	4.5	\$0.12	\$1,200	0.1		0.005%	0.000%	0.000%	0.002%
-6000	4.7	\$0.18	\$900	0.2		0.035%	-0.014%	0.000%	0.003%
-3000	7.5	\$0.45	\$900	0.5		0.031%	0.000%	0.000%	0.015%
-1000	15.0	\$1.80	\$900	2		0.069%	0.000%	0.000%	0.035%
0	23.7	\$4.50	\$900	5		0.092%	0.000%	0.000%	0.046%
800	30.0	\$7.20	\$900	8		0.059%	0.000%	0.000%	0.029%
1500	58.9	\$25.00	\$1,000	25		0.163%	0.015%	0.000%	0.096%
1770	101.0	\$105.00	\$1,400	75		0.407%	0.125%	0.257%	0.200%
1870	252.0	\$490.00	\$2,800	175		0.847%	0.693%	0.405%	0.914%
2020	8439.5	\$40,000.00	\$50,000	800		1.013%	1.922%	0.175%	2.341%

Who Is This Man?

And is he in any real danger?

- A. Thomas Edison, and no
- B. Andrew Carnegie, and no
- C. Nicola Tesla, and no
- D. Thomas Edison, and yes
- E. Herbert Hoover, and yes



Lev Bronstein

Why did he say this?

- “I had had no time to more than catch the general life-rhythm of the monster known as New York...”
- “I left for Europe with the feeling of a man who has had only a peek into the furnace where the future is being forged...”



Review: Political Economy

From “Divine Right” and “Natural Order” to Enlightenment values...

Who was the *first* person to draft these words?:?

- “We hold these truths to be sacred & undeniable:
 - that all men are created equal & independant,
 - that from that equal creation they derive rights inherent & inalienable,
 - among which are the preservation of life, & liberty, & the pursuit of happiness;
 - that to secure these ends, governments are instituted among men, **deriving their just powers from the consent of the governed...**”

- A. John Locke
- B. Niccolo Machiavelli
- C. Thomas Hobbes
- D. Thomas Jefferson**
- E. George Washington

- Why did he write them?

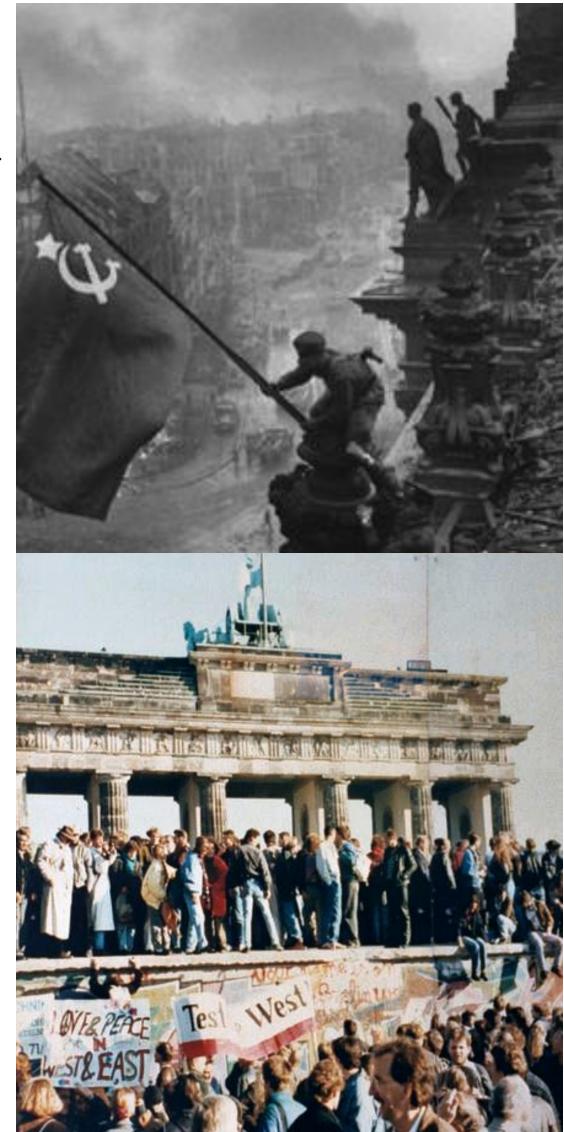


Houses of Parliament, from the River: temp. Hampden.

What Was the Proper Political Order?

Fears of “democracy” among American founders:

- **Madison**: “Democracies have ever been spectacles of turbulence and contention... incompatible with personal security or the rights of property... as short in their lives as... violent in their deaths...”
- **Jefferson**: “Gen'l Washington had not a firm confidence in the durability of our government... [& this] had some weight in his adoption of... ceremonies... calculated to prepare us gradually for a change which he believed possible...”
- **Hamilton**: “the British government... best” as the only one “unit[ing] public strength with individual security...”
- **Adams**: The American president should be announced as: “His Highness, the President of the United States, and Protector of the Rights of the Same...”
- Question of political order thought settled: first in the rubble of Berlin in 1945, and then in the streets of East Germany in 1991:
 - Settled in favor of representative democracy, private property, & social insurance—late-1900s liberal democracy
 - But now reopened? Min Zhu (朱民) to me in 2015: “What are you Americans going to do to fix your broken political system?”



Franchise Restricted to the Rich Could Not Maintain Itself

The dynamic of franchise extension

- Liberals in power would try extend on the principle that the new, poorer voters would be less conservative and would support them.
- Threatening revolution would lead even conservatives to seek to extend the franchise in order to peel off of the revolutionary coalition those of the disenfranchised who had the most social power:
 - Earl Grey (yes, the tea): “The Principal... is to prevent... revolution.... I am reforming to preserve, not to overthrow...”
- Charismatic leaders with popular followings would seek to give them votes, and then rule via plebiscites—going around the traditional elites
 - (Peculiar thing about Trump-Johnson: minority, and core is a minority of a minority...)
- Conservatives: “dish the Whigs”—opportunities to form winning coalitions by appealing to those who were no profiting from the market economy, or felt that they were losing relative status in some ways...



Popular Government and the Market Economy: Society's Revenge

Karl Polanyi

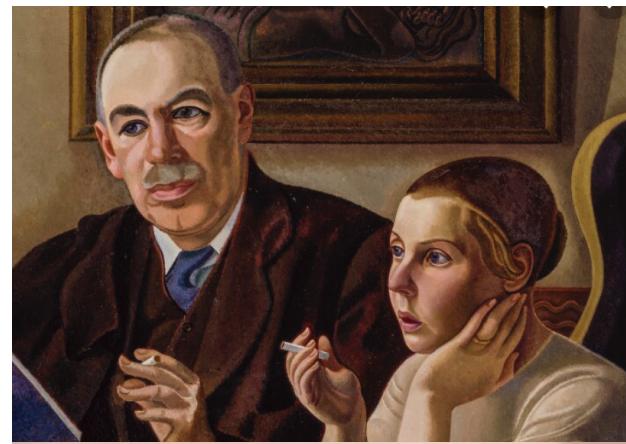
- People believe they have rights—to stable, supportive, nurturing communities; to incomes commensurate with their skills and status; and to money flows that will provide economic stability...
- But a market society turns these things—land, labor, and finance—into commodities...
- But they are not *real* commodities, they are *fictitious* commodities
- And so you get your rights only if they satisfy a market profitability test
- The only rights a market society respects are property rights:
 - & the only property rights that are worth anything are those that help you produce things for which rich people have a serious jones
- Society will have its revenge: it will protect itself against the market logic, somehow, some way...



Digression: 5 Thinkers

**Who shape my thought about the long 20th century—
and how should, I think, shape yours**

- Beware! They are all deeply flawed...
- But they are also geniuses, each in his way...
- Beware of their followers! An iron law of ideology: a thinker's most extravagant and aggressive followers will latch onto the stupidest and most shortsighted and wrong of their doctrines...
- In historical order: Marx, Keynes, Hayek, Polanyi, Gellner
- The other three thinkers:
 - **Keynes:** All that we need to produce general prosperity is technical adjustments to our system. Then the kingdom of freedom and prosperity will be within our grasp—and our major problems will no longer be economic ones
 - **Gellner:** The energy that most 19th century thinkers thought would go to “class“ went to “ethnos“ or “umma“ instead. The construction of ideological legitimations that makes sense both to dominants and to submissives who nevertheless believe they are part of some in-group is the key to understanding how societies stabilize themselves
 - **Marx:** Only the market economy will focus society’s energy on paying through the nose to boost the economy’s capital stock and to harvest the fruits of science and technology and then deploy them in production. But because the only demands in a market economy that matter are effective demands, the market economy also becomes a more “effective” means of slavery, for private property leads the proletariat to enslave themselves



Hayek and Polanyi

Thumbnails on our first two:

- **Hayek:**

- Only the market economy can use society's knowledge.
- But the market economy cannot produce "social justice" and should not be asked to try—in fact, we need to recognize that all we can attain is freedom, and that will bring general prosperity, but that justice will be forever outside our reach

- **Polanyi:**

- The market economy turns land, labor, and finance into "fictitious commodities"
- Society will have its revenge via a "double movement"



Plus Tocqueville

Toqueville on the rich as “elder brothers” in 1848:

- “In the country all the landed proprietors, whatever their origin, antecedents, education or means, had come together, and seemed to form but one class: all former political hatred and rivalry of caste or fortune had disappeared from view. There was no more jealousy or pride displayed between the peasant and the squire, the nobleman and the commoner; instead, I found mutual confidence, reciprocal friendliness, and regard. Property had become, with all those who owned it, a sort of badge of fraternity. The wealthy were the elder, the less endowed the younger brothers; but all considered themselves members of one family, having the same interest in defending the common inheritance. As the French Revolution had infinitely increased the number of land-owners, the whole population seemed to belong to that vast family. I had never seen anything like it, nor had anyone in France within the memory of man...”
- “The territorial aristocracy of past ages... [was] obliged... to come to the help of its servants and relieve their distress” no such reciprocal ties of obligation bound the aristocrats of manufactures to their workers: thus “the manufacturing aristocracy which we see rising before our eyes is one of the hardest that have appeared on the earth...”



Plus Acheson

Dean Acheson, Secretary of State for Harry S Truman:

- On the Republican Party as the party of wealth, enterprise, and opportunity:
- “This business base of the Republican Party is stressed not in any spirit of criticism. The importance of business is an outstanding fact of American life. The achievements of business have been phenomenal. It is altogether appropriate that one of the major parties should represent its interests and its point of view...”
 - The subsequent transformation of the Republican Party from those who were going to become millionaires, or become even greater millionaires; to those who fear that they would lose it all...



Review: Empire

By 1810 the tide of empire had been clearly ebbing...

- But then things turned around: the power gradient:

6.1.2: The Power Gradient

Yet after 1870 empires grew. The power gradient—technological, organizational, political—had become immense. The improvements in transport and communications made war and conquest and occupation vastly easier. There was no part of the world in which western Europeans could not—if they wished—impose their will by armed force at moderate cost. And proconsuls were rarely focused on just what resources would flow back to the imperial metropolis from this extension of empire, and whether it might not be cheaper in the long run to simply trade and pay for them.

At the battle of Omdurman in the Sudan in 1898, 10,000 soldiers of the Mahdist Sudanese regime died. Only 48 British and Egyptian soldiers died. The difference was not entirely due to superior European military technology. The Mahdist regime did have proto-machine-guns, telegraphs, and mines—all bought from European suppliers. What it did not have was the organizational capacity and discipline to make effective use of them.

The outcome all across the globe was integration into the European dominated world economy, political submission—either formal or informal—to rule by European proconsuls, and the spread of European languages and European views

To Your iClickers!

According to Eichengreen, graphing international capital flows and mobility since 1850 over time produces a graph that is:

- A. V-shaped
- B. U-shaped
- C. W-shaped
- D. An upward line
- E. None of the above

To Your iClickers!

According to Eichengreen, the responsibilities of a pre-World War I central bank as steward of the global gold standard and also as lender-of-last-resort in domestic financial crises were:

- A. in complete harmony
- B. in irresolvable tension
- C. for the most part manageable, before World War I at least, via fancy footwork and good luck
- D. not understood
- E. none of the above

To Your iClickers!

According to Eichengreen, the experience of being on the gold standard for North Atlantic economies in the 1870-1914 period was by and large a happy one, and the experience of countries at the world economy's periphery was:

- A. also by and large a happy one.
- B. a mixed one.
- C. a source of considerable tension, instability, and political upset.
- D. once again, manageable with fancy footwork and a little good luck.
- E. none of the above.

To Your iClickers!

In Eichengreen's view, if World War I had somehow been avoided, would the global gold standard have remained stable in the 1920s and 1930s?

- A. There are no guarantees, but probably yes.
- B. There are no guarantees, but probably no.
- C. Certainly not!
- D. Certainly yes—unless several North Atlantic economies experienced a socialist revolution
- E. None of the above.

Empire



India

Why didn't the British transform India into an industrial power?

The failure of the British Raj to transform India or perhaps to transform India faster poses an enormous problem for all of us economists. We are all, even the Marxists (back when there were Marxist economists), the intellectual children of the Adam Smith who wrote:

Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes, and a tolerable administration of justice: all the rest being brought about by the natural course of things...

Under the British Raj in the late nineteenth and early twentieth centuries India had a remarkable degree of internal and external peace, a tolerable administration of justice, and easy taxes. Yet no sign of progress “to the highest degree of opulence” had occurred.

“Self-Strengthening”

- The puzzle of China vs. Japan
- Great Qing (大清)(1644-1912)
 - Wu Sangui (吳三桂)
 - The Rebellion of the Three Feudatories (三藩之亂)
- Kangxi and Qianlong: “revere the emperor and expel the barbarians” is difficult to pursue when the emperor and his clan identify themselves as “barbarians”
- Tai-Ping Rebellion (太平天國運動)
- Cixi (慈禧太后)
- Li Hongzhang (李鴻章)the Kai-Ping coal mine, Chang Yen-Mao, and Herbert Hoover



Located in northwest Beijing, Yuanmingyuan, built from 1709 onwards, had once been a resort for the imperial families of the Qing Dynasty (1644-1911). Yuanmingyuan was pillaged and burned down by British and French aggressor troops in 1860.[File photo/Xinhua]



Lin supervising the destruction of opium

More details

Formal Empires

There were, broadly, three views as to why European late-1800s empires rose to such domination, each of which with its own view of what was to be done to fix the situation:

- One view is that of John Hobson: The major economic problem was the business cycle. Equipping the military needed to maintain the empire puts people to work. And an empire is a good source of consumers for the products of domestic factories. European governments that pursued empire, Hobson thought, were less likely to face economic distress and so more likely to continue in office.
- A second view was that of Joseph Schumpeter: imperialism as the last gasp of military status aristocracy.
- The third view was that empires were ordained by God—or at least morally required or desirable, for European powers had a civilizing mission. The Europeans were lucky enough to be the grownups, and it was the obligation of the grownups to civilize the world. But perhaps civilization is best spread by newspapers and books and merchants and engineers, rather than by alien proconsuls? Just a thought.

Informal Empires

But even where Britain (or France, or Germany, or Portugal, or Spain, or those who thought of themselves as descended from the *conquistadores* of Castile, or Anglo-Saxon settlers) did not rule, they reigned:

- Britain seemed successful: playing by Britain's rules seemed wise...
- Britain was powerful: playing by Britain's rules seemed likely to keep it from getting annoyed...
- Britain was working very hard to make itself attractive—to make becoming a Briton-by-proxy of some sort straightforward and profitable in both money and cultural terms...
- Britain was the first-mover *hegemon*: international cooperation was on its terms...

Catch Our Breath...

- Comments?
- Questions?

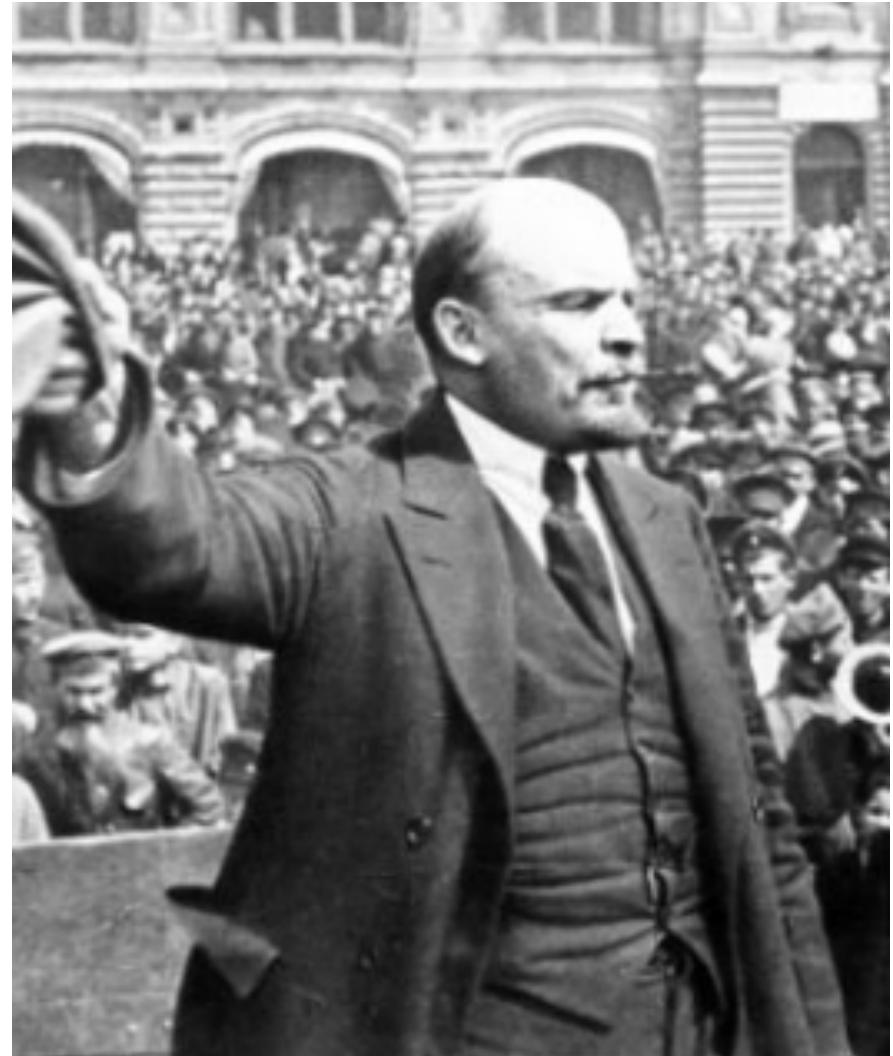


Review: Revolutions

- “Petty Officer Lemmgen... arrived at the Ministry [of War]... found... Lieutenant HambuRger.... Lemmgen produced a typed document with the following text: ‘Comrades and Workers! The Ebert-Scheidemann government have made themselves impossible.... The undersigned Revolutionary Council has provisionally assumed power.’
- “Lieutenant Hamburger inspected the document and became properly indignant. ‘But where are the signatures? Before I can comply with this order, you’ll have to go back and get it properly signed. Otherwise any little shorthand typist could declare the government deposed.’ Petty Officer Lemmgen... saw the logic.... So he and his men saluted... and made their way back to the Revolutionary Council to obtain the necessary signatures....
- “But by the time he had obtained the signatures, Lemmgen had learned that the People’s Naval Division had declared itself neutral. So he did not return to the Ministry of War...”

Lenin

- A quick power grab...
- Confidently expecting a German revolution, and then massive aid...
- Brutal civil war
 - Kerenskyites
 - Reds
 - Whites
 - Nationalists
- What was the revolutionary government to do?
 - Ludendorff's German war economy...



Red Rosa on Lenin

- “Without general elections, without unrestricted freedom of press and assembly, without a free struggle of opinion, life dies out in every public institution.... Only the bureaucracy remains.... A few dozen party leaders of inexhaustible energy and boundless experience direct and rule....
- “An elite of the working class is invited from time to time to meetings where they are to applaud the speeches of the leaders, and to approve proposed resolutions unanimously—at bottom, then, a clique affair.... Such conditions must inevitably cause a brutalization of public life: attempted assassinations, shooting of hostages, etc...
- “Freedom only for the supporters of the government, only for the members of one party—however numerous they may be—is no freedom at all. Freedom is always and exclusively freedom for the one who thinks differently. Not because of any fanatical concept of “justice” but because all that is instructive, wholesome and purifying in political freedom depends on this essential characteristic, and its effectiveness vanishes when ‘freedom’ becomes a special privilege...



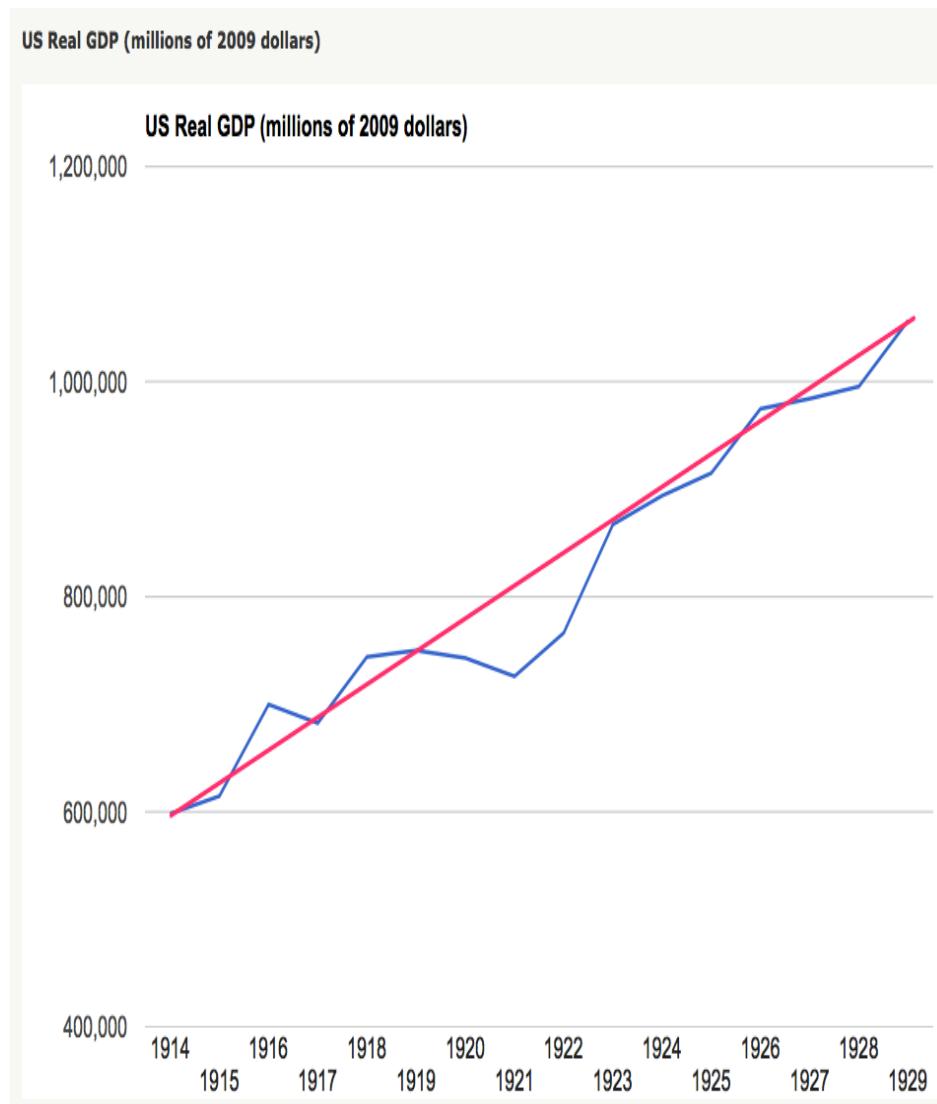
Review: The U.S.: The Roaring Twenties

- The boom of the 1920s
- Mass production—the flowering of the Second Industrial Revolution
- “The business of America is business”
- Structural changes in the 1920s...



Structural Changes in the 1920s

- Mass production—Henry Ford and the Model T
- End of mass immigration —immigration restrictions of 1924
 - What do these do to the demand for construction, and construction workers?
- The role of the stock market...
- The role of the banking system...



Review: To Your iClickers

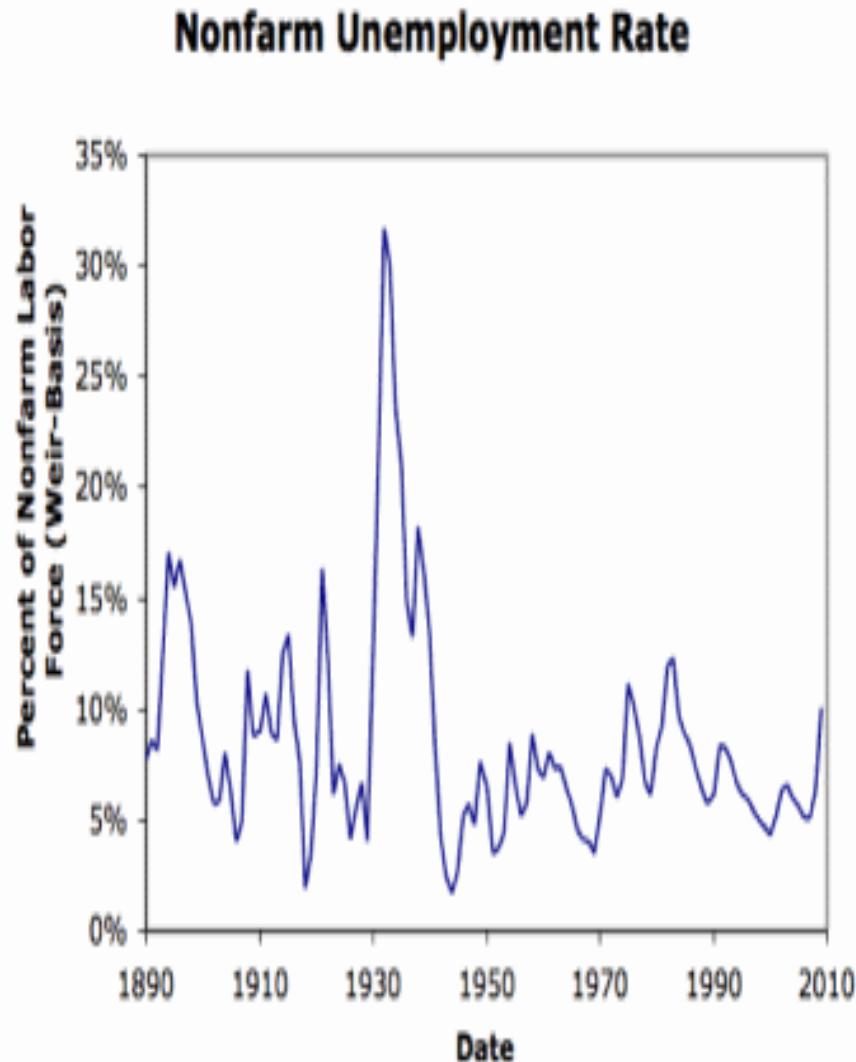
John Maynard Keynes thought that the prosperity of the pre-WWI years was:

- A. Natural and stable: a logical development out of human drives that went from strength to strength, and could only be overthrown by a very unlikely disaster.
- B. Artificial and unstable, and based on a very complicated system in which, largely by chance, a lot happened to go right.
- C. Natural but unstable, in that it was a logical development out of humanity's trading nature but could be disturbed by other human drives—like tribalism, and the lust for domination.
- D. Artificial but stable, as constructed by the greatest minds of the age, and only overthrown by a very unlikely disaster.
- E. None of the above



Review: Why the “Perfect Storm” of 1929-1933?

- Previous Cycles:
 - 1873—railroad
 - 1884—railroad redux
 - 1893—free silver
 - 1904—Northern Securities
 - 1907—gold drain to Britain
 - 1914—disruption of the start of WWI
 - 1920—deflation; return to “normalcy”
- What brought previous downturns to a halt?
- What made the Great Depression so great?

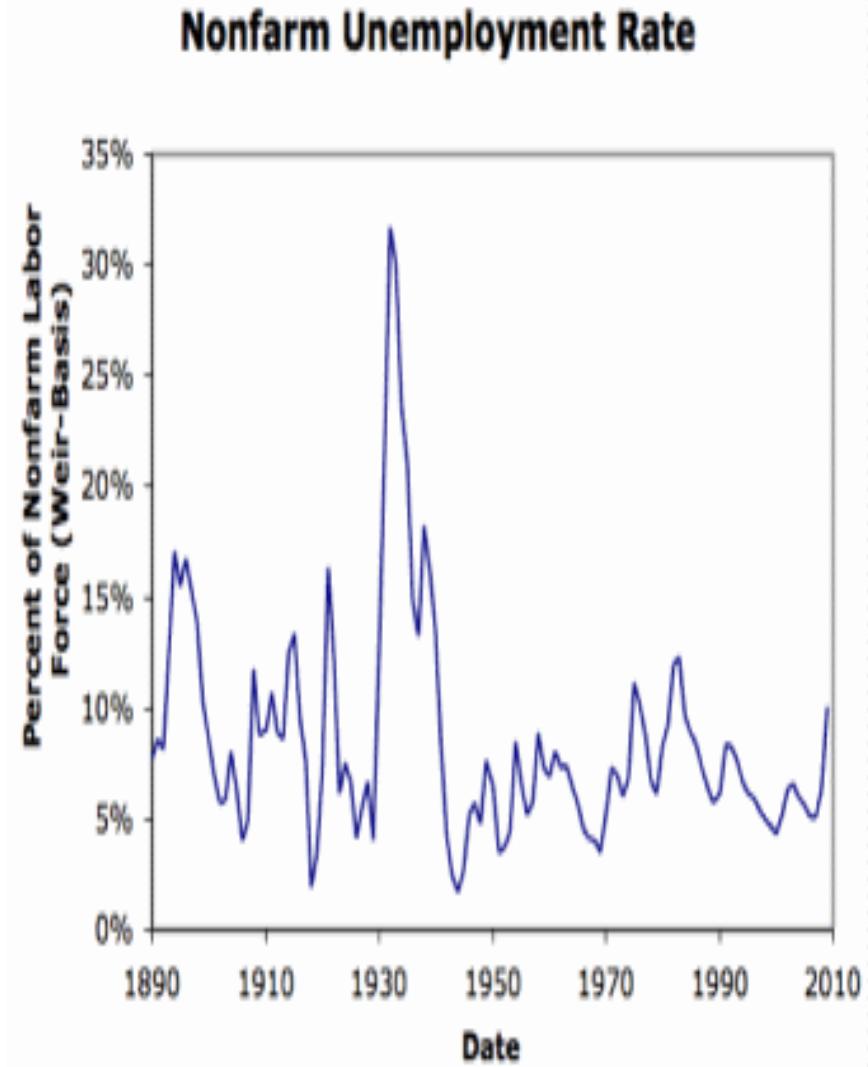


General Glut

- How is it that there can be a "general glut" in which pretty much every produced commodity and the labor of workers are in excess supply, given that humans are far from satiated with production goods and given that one person's expenditure is another person's income?
- Remember: you can take your income and use it either to buy things that are useful or to build up your stock of cash money. If there is excess demand for useful commodities, people can switch from producing whatever they were making to producing whatever is in short supply.
- But the only way to build up your stock of cash is to try to cut your spending below your income. And since one person's spending is another person's income, that simply cannot be done in general.
- If people in general try, the result is that spending and incomes fall economywide until they are both at such a low level that people de-prioritize building up their cash holdings.

What Had Ended Previous Downturns?

- Previous Cycles:
 - 1873—RR investment drops to zero
 - 1884—RR investment drops to zero
 - 1893—confidence that gold standard will be kept
 - 1904—Theodore Roosevelt
 - 1907—J.P. Morgan constitutes himself a pick-up central bank
 - 1914—profits from European war demand WWI
 - 1920—Federal Reserve reverses course

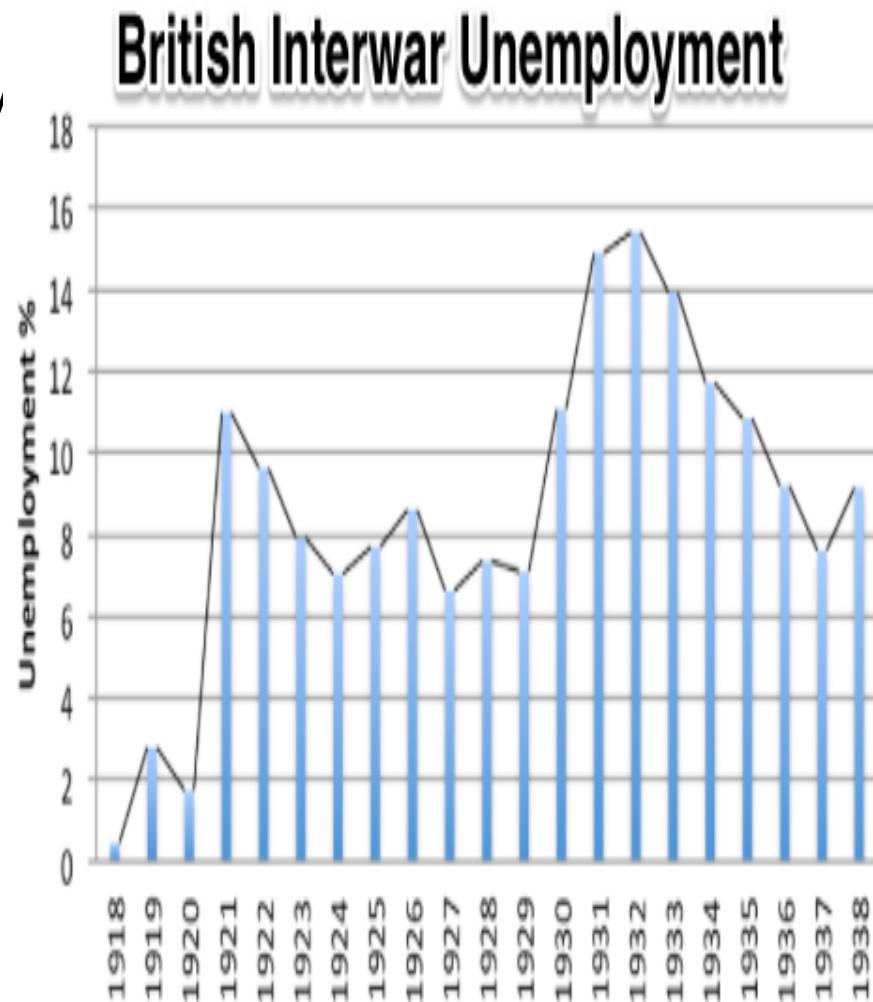


Interwar Gold Standard

- The interwar gold standard caused, deepened, and definitely did nothing toward curing or ameliorating the Great Depression?
- There is nothing worse than attempting to credibly commit to an incredible policy
 - The fear that the gold standard would break down caused people to want to hoard cash—to build up their cash holdings.
 - The fear that the gold standard would break down caused governments to be extremely unwilling to boost their economies' cash supplies—such boosts might, governments feared, undermine confidence that their country would stay on the gold standard.
- Big depressions happen when the popular demand for cash outstrips the government's supply
- The interwar gold standard was thus a powerful motivator and stage-setter pushing both people and governments into the patterns of behavior that produced the Great Depression

“Crying ‘Fire! Fire!’ in Noah’s Flood...”

- France gold acquisition policy
- American gold acquisition policy
- The weakness of the gold-exchange standard—that people knew the gold standard could and would be abandoned
 - Labor-side pressure...
 - Nothing worse than an attempt to credibly commit to an incredible policy...
- And then the belief that inflation was always just around the corner...



The Role of the Stock Market

- Stock market doubles between the start of 1927 and late 1929
- Positive-feedback margin trading
 - And a large number of people coming into the market who do not understand what is going on
- Castles in the air
 - Prohibition?
 - Monetary policy?
 - Mass production?
- The expectations shock produced

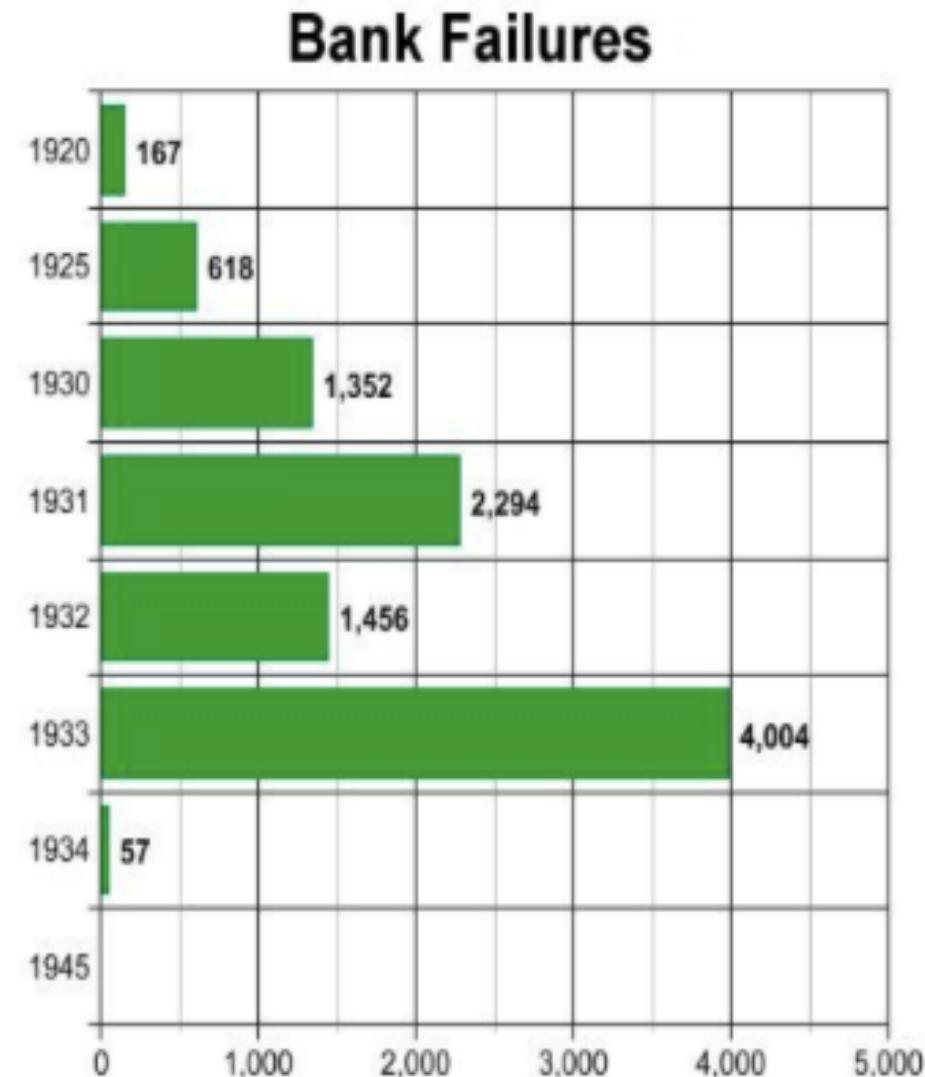


Why Was the Great Depression so Great?

- John Maynard Keynes:
 - “When once the recovery has been started, the manner in which it feeds on itself and cumulates is obvious. But during the downward phase, when both fixed capital and stocks of materials are for the time being redundant and working-capital is being reduced, the schedule of the marginal efficiency of capital may fall so low that it can scarcely be corrected, so as to secure a satisfactory rate of new investment, by any practicable reduction in the rate of interest.
 - “Thus with markets organised and influenced as they are at present, the market estimation of the marginal efficiency of capital may suffer such enormously wide fluctuations that it cannot be sufficiently offset by corresponding fluctuations in the rate of interest. Moreover, the corresponding movements in the stock-market may, as we have seen above, depress the propensity to consume just when it is most needed. In conditions of laissez-faire the avoidance of wide fluctuations in employment may, therefore, prove impossible without a far-reaching change in the psychology of investment markets such as there is no reason to expect.
 - “I conclude that the duty of ordering the current volume of investment cannot safely be left in private hands....”

The Role of the Banking System

- In the United States in the 1920s, about 600 banks failed a year—largely small rural banks
- But banks set out to make riskier and riskier loans
 - Do they count on rescue from the Federal Reserve?
- And when the Great Depression hits, bank failures rise to previously-unimaginable heights
 - Is there anything that could do more to boost the demand for or reduce the supply of cash?
 - And so call forth a general glut?
- Lenders of “last resort”?



The Presumption Before the Great Depression

- The presumption before the Great Depression that the government was not responsible for managing and curing the business cycle...
- Two strands reinforced each other.
 - The first was the strength of the idea of *laissez-faire*: that government (protecting property and enforcing contracts aside) was overwhelmingly a problem and not a solution. As John Maynard Keynes wrote in his essay *The End of Laissez-Faire*, a powerful drive behind that was: “the corruption and incompetence of eighteenth-century government.... Almost everything which the State did in the eighteenth century in excess of its minimum functions was, or seemed, injurious or unsuccessful. [And] on the other hand, material progress between 1750 and 1850 came from individual initiative...”
 - The second was social Darwinism—that, in the words of steelmaster Andrew Carnegie, the second-richest man in America circa 1905 and a man who gave away his entire fortune: “The price we pay for [our civilization]... is, no doubt, great.... The employer of thousands is forced into the strictest economies... [in] the rates paid to labor.... The law of competition... is here; we cannot evade it; no substitutes for it have been found; and while the law may be sometimes hard for the individual, it is best for the race, because it insures the survival of the fittest in every department...”
- The result was a dominant belief—at least among the rich and powerful—that:
 - The market giveth, the market taketh away: blessed be the name of the market.

The Hoover Administration's Reaction to the Great Depression

- The 1929-1933 Hoover administration believed that little could be done.
- That the only good things that could be done were to (a) repeatedly state that "prosperity is just around the corner" and (b) try to cut federal government spending and raise taxes in order to restore confidence and scotch the fear of high inflation.
- As economist R.G. Hawtrey wrote, to worry about inflation in the midst of the Great Depression was like "crying 'FIRE! FIRE!' in Noah's Flood..."
- Herbert Hoover himself wrote afterwards about how his administration had been dominated by the "'leave-it-alone liquidationists' headed by Secretary of the Treasury Mellon, [who] felt that government must keep its hands off and let the slump liquidate itself. Mr. Mellon had only one formula:
 - 'Liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate'. He held that even panic was not altogether a bad thing. He said: 'It will purge the rottenness out of the system. High costs of living and high living will come down. People will work harder, live a more moral life. Values will be adjusted, and enterprising people will pick up the wrecks from less competent people'..."
- Hoover went on to state that he did not share this view...
- That raises lots of questions about how his administration worked...

To Your iClickers

The largest automobile manufacturer in the world in 1928 was:

- A. Toyota
- B. Daimler-Benz
- C. Peugeot
- D. Ford
- E. General Motors

To Your iClickers...

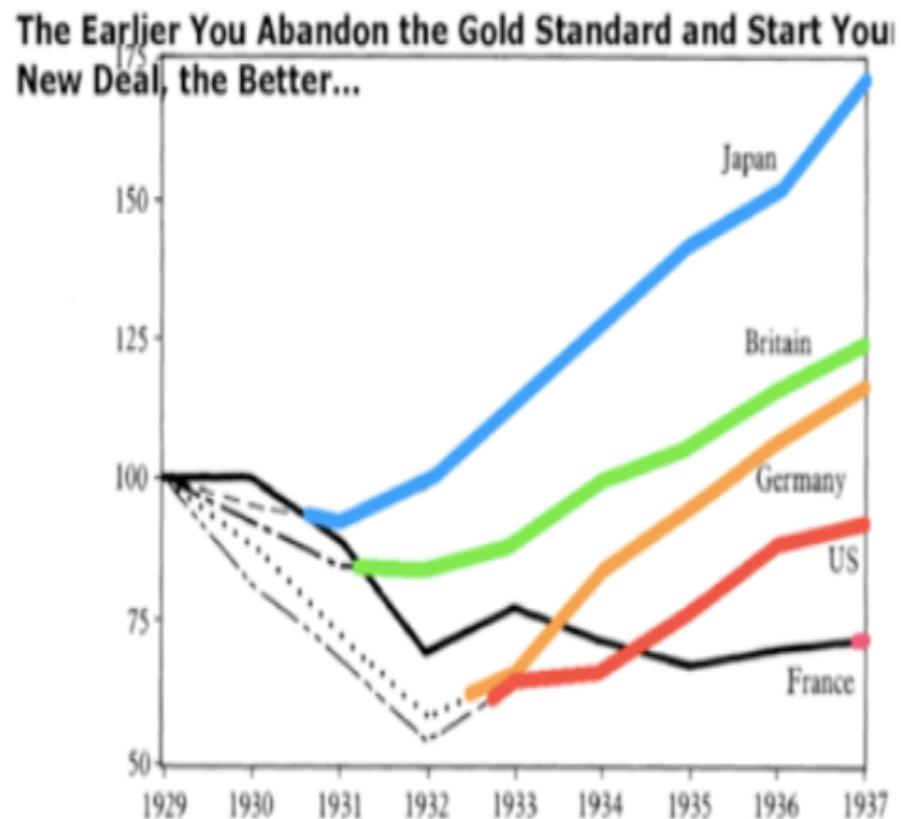
Worldwide, the Great Depression was was:

- A. In relative terms, equalled by the Cleveland Depression of 1893-6
- B. In relative terms, smaller than the depression that followed the Crash of 1873
- C. In relative terms, equalled by the Great Recession of 2008-2020
- D. In relative terms, by far the largest depression ever
- E. None of the above

Review: New Deals

- Japan: Takahashi Korekiyo
 - moved early to maintain full employment
- Britain: MacDonald-Snowden-Baldwin
 - Forced off...
- Germany: Adolf Hitler
 - Succeeds Bruening
- America: Franklin Delano Roosevelt
 - Succeeds Herbert Hoover
- France: Leon Blum

Recovery in the Great Depression
Does Not Begin Until the Gold
Standard Is Abandoned



Recovery

- Japan recovered the fastest,
- Germany second,
- Britain third,
- The U.S. fourth,
- France last.
- By-and-large, the sooner you abandon the gold standard, expand the money supply, and undertake a "New Deal" to boost government spending, the better...

The Polanyian Perplex

- People believe that the rights they have are broader and deeper than simply property rights, but the market economy disagrees.
- Thus either governments will find a way to guarantee their populations these extra rights to community stability, general prosperity, and full employment, or society will react somehow against the liberal market-oriented political-economic system.
- “Fictitious commodities”:
 - Land
 - Labor
 - Finance
- Society’s “double movement”

The Permanent Problem of the Human Race

- John Maynard Keynes thought that the economic problem would not be the "major problem of the human race"
- By the end of the twentieth century the human race would be so rich that people would be practically satiated with commodities.
- Thus the "economic problem" of how to economize and be efficient, and allocate scarce means among alternative uses, was not the permanent problem of the human race.
- Instead, "for the first time since his creation man will be faced with his real, his permanent problem-how to use his freedom from pressing economic cares, how to occupy the leisure, which science and compound interest will have won for him, to live wisely and agreeably and well.... It will be those peoples, who can keep alive, and cultivate into a fuller perfection, the art of life itself and do not sell themselves for the means of life, who will be able to enjoy the abundance when it comes..."
- Yet Keynes was not sure that having to confront this problem would be a net plus for humanity: "Will this be a benefit? If one believes at all in the real values of life, the prospect at least opens up the possibility of benefit. Yet I think with dread of the readjustment of the habits and instincts of the ordinary man, bred into him for countless generations, which he may be asked to discard within a few decades..."

Digression: How to Study

Will I ask you about Jan Christian Smuts? About the prayer (and theology) of the Grigua?

- No...
- Themes and concepts...
 - But you need narratives and stories to hang onto them...
 - And our brains are very good at deep-sixing useless information
- Andy Matuschak: *Why Books Don't Work* <<https://andymatuschak.org/books/>>:
 - “Picture some serious non-fiction tomes. *The Selfish Gene*; *Thinking, Fast and Slow*; *Guns, Germs, and Steel*; etc.
 - “Have you ever had a book like this—one you’d read—come up in conversation, only to discover that you’d absorbed what amounts to a few sentences? I’ll be honest: it happens to me regularly. Often things go well at first. I’ll feel I can sketch the basic claims, paint the surface; but when someone asks a basic probing question, the edifice instantly collapses. Sometimes it’s a memory issue: I simply can’t recall the relevant details. But just as often, as I grasp about, I’ll realize I had never really understood the idea in question, though I’d certainly thought I understood when I read the book. Indeed, I’ll realize that I had barely noticed how little I’d absorbed until that very moment. I know I’m not alone here...

Skipped Topic: Pre-1914 Political Economy: Over in Europe

The June Days of 1848 in Paris:

- Tocqueville:
 - “The insurrection of June [1848]... class against class... a blind and rude, but powerful, effort on the part of the workmen to escape from the necessities of their condition, which had been depicted to them as one of unlawful oppression.... The closing of the national workshops... occasioned the rising...”
 - “Thousands... hastening to our aid from every part of France.... Thanks to the railroads, some had already come from fifty leagues' distance... every class of society... peasants... shopkeepers... landlords and nobles all mingled together... they rushed into Paris with unequalled ardour: a spectacle as strange and unprecedented in our revolutionary annals.... The insurgents received no reinforcements, whereas we had all France for reserves...”

French Politics

Régimes stability is not on the menu:

1. the terrorist dictatorship of the Jacobins (the mainspring of popular government... amid revolution it is at once virtue and terror: virtue, without which terror is fatal; terror, without which virtue is impotent...)
2. a corrupt and gerrymandered 5-man executive of the Directory, defended on October 5, 1795 by the “whiff of grapeshot” of Napoleon Bonaparte and Joachim Murat, that managed to generate the first modern hyperinflation, defended itself against a royalist coup plotted by two of its five members (Barthelemy and Carnot) and its most successful general (Pichegru), and was then overthrown by the same Napoleon in 1799.
3. a dictatorship, with Napoleon Bonaparte as “First Consul”, until 1804.
4. an empire, with Napoleon Bonaparte as Emperor of the French, until suppressed by the other European powers in 1815.
5. a restored Bourbon monarchy, with first Louis XVIII and then Charles X, until 1830.
6. an alternative Orleanist monarchy, with King Louis-Philippe as the king-citizen, overthrown in 1848.
7. a second republic, overthrown by its own president, Napoleon’s nephew Louis Napoleon, which collapsed under pressure of military defeat in 1870.
8. a socialist commune, in Paris at least.
9. a third republic, which suppressed the commune—but promptly chose a royalist Marshal MacMahon, as president.
10. a failed attempt by third republic president Marshal MacMahon to replace himself by a King Henry V.
11. a failed attempt by the ex-Minister of War Georges Boulanger to seize power for his RRR movement: Revanche, Révision, Restauration (revenge on Germany, revision of the constitution, restoration of the monarchy).

Left-Wing Normal European Politics I

Disjunction between policies and rhetoric:

- The Socialist Party of Germany's Erfurt and Gotha programs seek things like: holidays for elections, two-year legislative terms, the right to bear arms, equal rights for women, the prohibition of spending public funds for religious purposes, free public schools and colleges, free medical care including midwifery, an eight-hour working day, no child labor under 14, a 36-hour minimum weekend, an occupational safety and health administration...

Left-Wing Normal European Politics II

Disjunction between policies and rhetoric:

- But also: “By every lawful means to bring about a free state and a socialistic society, to effect the destruction of the iron law of wages by doing away with the system of wage labor.” And they sought: “the transformation of the capitalist private ownership of the means of production—land and soil, pits and mines, raw materials, tools, machines, means of transportation—into social property and the transformation of the production of goods into socialist production carried on by and for society.” And they believed: “This... emancipation... of the entire human race.... But it can only be the work of the working class, because all other classes... have as their common goal the preservation of the foundations of contemporary society.”

Center and Right-Wing Normal European Politics

The touchstone was “fairness”: it was not fair that those who did not work hard and did not play by the rules got lots of good things:

- Those who did not play by the rules could be on either end of the wealth-and-power spectrum:
 - Parasitic aristocrats and cruel plutocrats
 - Those poor who wanted something for nothing, or got above their station
 - A middle-class, social order movement
- Focus voters’ attention on the disruptive utopian aspirations of the left, and electoral coalitions could be preserved...
- Preserve as much as possible of old orders of hierarchy in changing times:
 - Reform to preserve; change so things could stay the same
 - Find new reasons why hierarchy is good: social darwinism

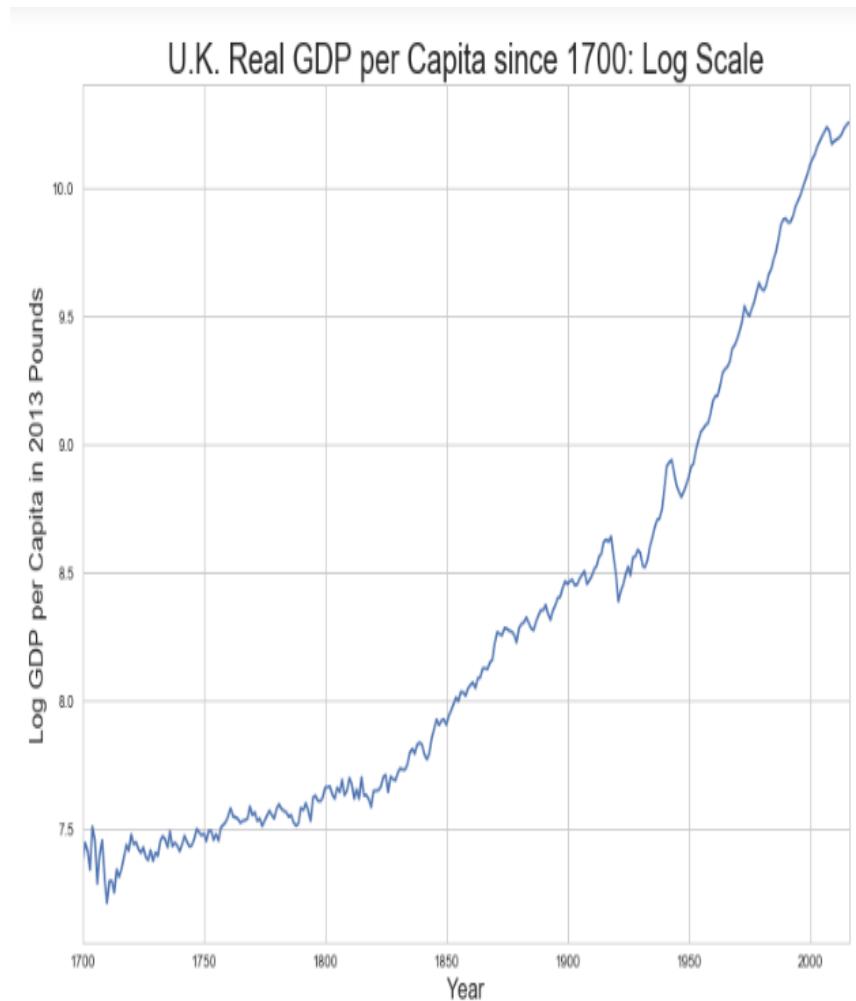
Magnifying Non-Economic Cleavages Had Dangers

Society under threat not by economic inequality but by social disorder—or aliens—or other nations. Plus:

- A right-wing landed and bureaucratic upper class that had, by and large, lost its social role.
- A belief by politicians anxious to paper over class divisions that they could be papered over with national or ethnic unity.
- A growing social-darwinist current that struggle was good, and the victors should be rewarded
 - Even or especially military struggle by peoples-in-arms, over not what language a province would be administered in but who would live there
- These stored up trouble as 1914 approached.
- In 1919 John Maynard Keynes was to write, bitterly, that he, his peers, and his elders had regarded:
 - “the projects and politics of militarism and imperialism, of racial and cultural rivalries, of monopolies, restrictions, and exclusion, which were to play the serpent to this paradise... [as] little more than the amusements of his daily newspaper...”

Skipped Topic: Passing the Baton: From Britain to America

- The Industrial Revolution took place in Britain
- The standard explanation four or five largely independent strands coming together.:
 - Limited government, security of property, and freedom of contract
 - Science and the technological tradition of sustained inquiry
 - Victory in the wars of the Commercial Revolution era
 - Machinery making, "tinkering", and "gadgets"—primarily made out of metal.
 - Coal in Britain—the only thing that made a steam engine potentially profitable.
- Plus high elasticity of demand for leading-sector products...



iClickers: Why Breakthrough?

The principal reason that the Industrial Revolution took place in late eighteenth century Britain (rather than in Sung China, or Abbasid Baghdad, or Antonine Dynasty Rome, or during the Hellenistic Age) is:

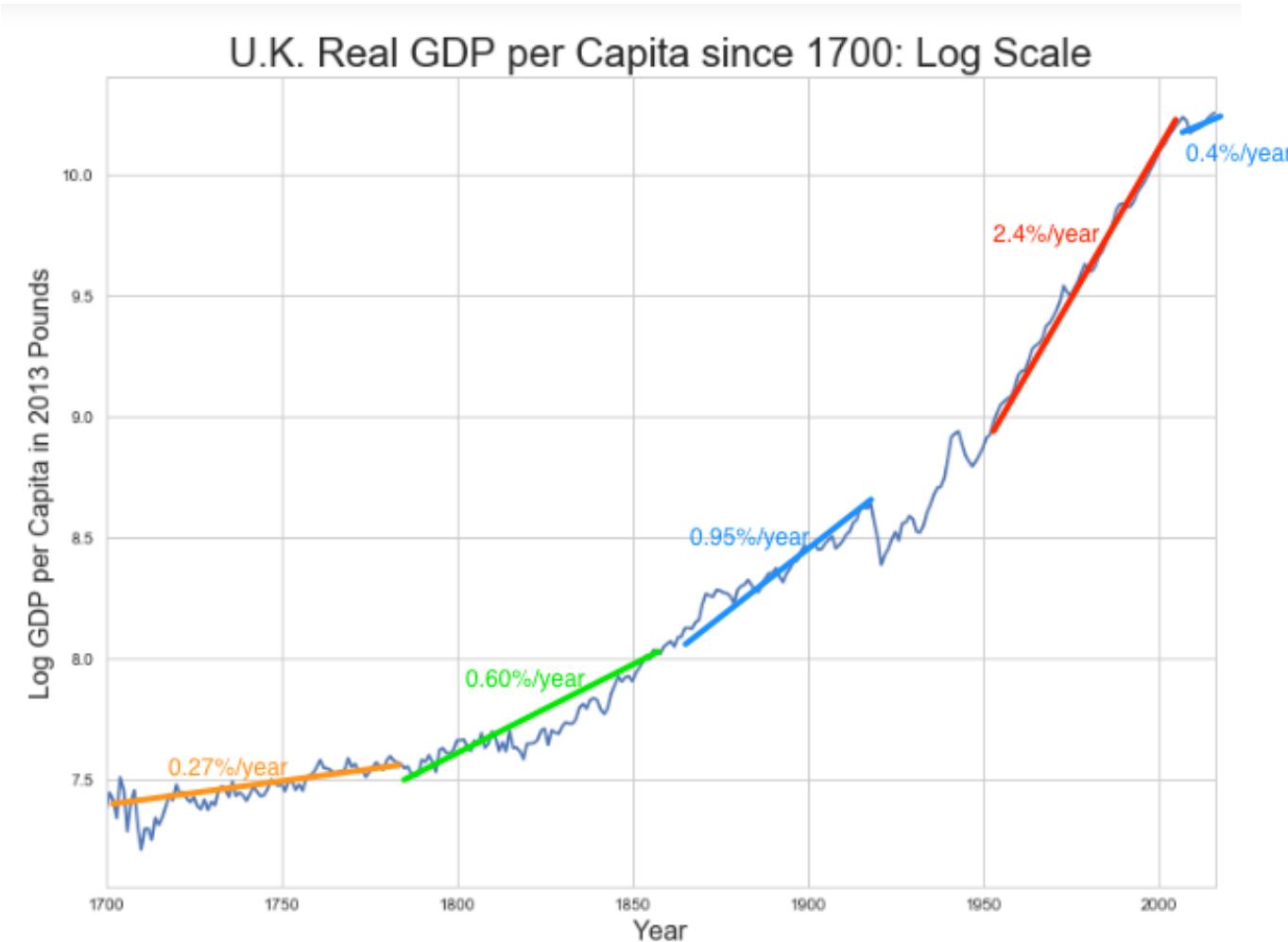
- A. A lack of human numbers thinking about problems of production
- B. A lack of good means of communication—e.g. printing—for diffusing information about how to solve problems of production
- C. A lack of experience using coal as an energy source
- D. A lack of the incentive created by high real wages leading to a strong desire to make labor more productive
- E. None of the above/not enough information

iClicker: Why Passing the Baton

The principal reason that the twentieth century was an American rather than a second British century was:

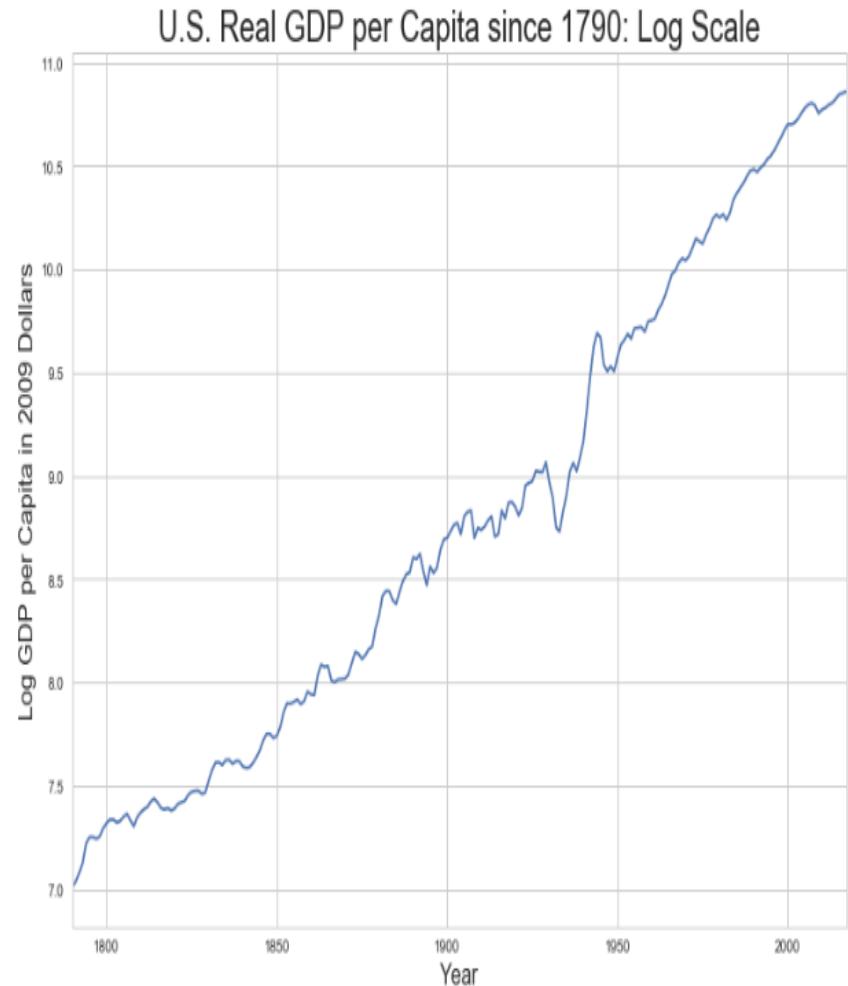
- A. The United States's aggressive and enthusiastic welcome of immigrants
- B. The United States's focus on broad-based technical education
- C. The United States's extraordinary abundance of natural resources driving high real wages and enormous incentives to build machines to manipulate matter
- D. A U.S. government that took industrial development as a key policy goal, rather than being comfortable with *laissez-faire*
- E. None of the above/not enough information

British Productivity Growth Acceleration



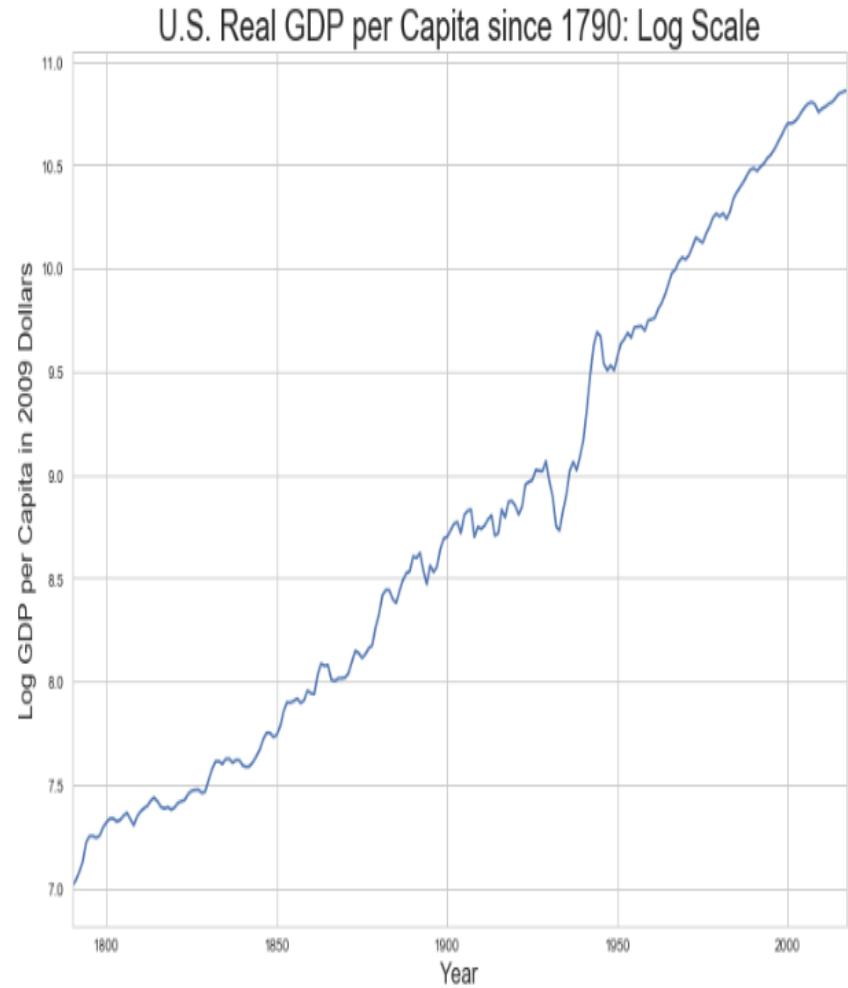
But Even in the First Half of the Nineteenth Century the U.S. Was Outpacing Britain in Growth...

- Even in the first half of the nineteenth century—the period in which the British Industrial Revolution made it the wonder of the world—economic growth in the United States was proceeding faster than in Britain.
 - While British real GDP per capita was increasing at less than 0.6 percent per year
 - American was growing at a hair over one percent per year.
- And a significantly larger share of GDP was going to the white working class in the United States, in the north at least:
 - The extraordinary abundance of land and the possibility of "lighting out for the territory", in the words of American author Mark Twain, gave even workers without property or notably scarce skills substantial economic bargaining power.



And Starting in the Late Nineteenth Century

- Second Industrial Revolution...
 - Why the U.S. and Germany, and not Britain?
- Immigration and Population
 - Was resource scarcity no longer a factor?
 - Was the differential in the growth rate h of the stock of useful economic knowledge even greater than the differential in the growth rate g of the efficiency-of-labor?

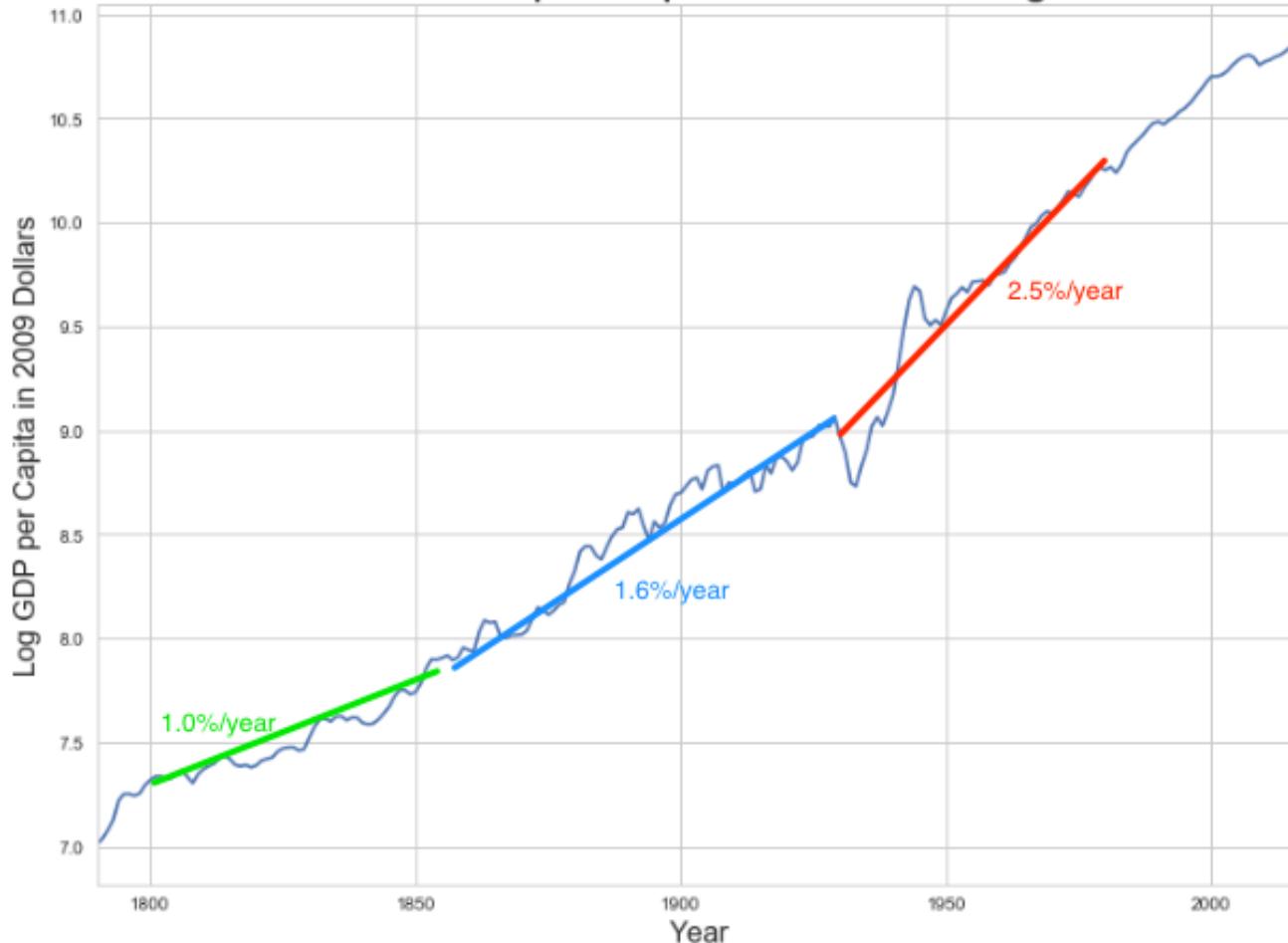


Phases of American Growth

- 1.0% per year in GDP per capita from 1760-1860: resource abundance
- 1.6% per year in GDP per capita from 1860-1929:
 - “Great traverse”: K/Y ratio up from 2.5 to 4
 - Half of it an increase in savings rates
 - Half of it a fall in the price of capital goods
- 2.5% per year in GDP per capita from 1929-1973
 - “Fordism”
 - Expected further acceleration: it did not happen
- Post-1973
 - Productivity slowdown 1973-1995 (environment, oil, baby boom, feminism)
 - “New economy” 1995-2006
 - Post-2006 collapse of growth

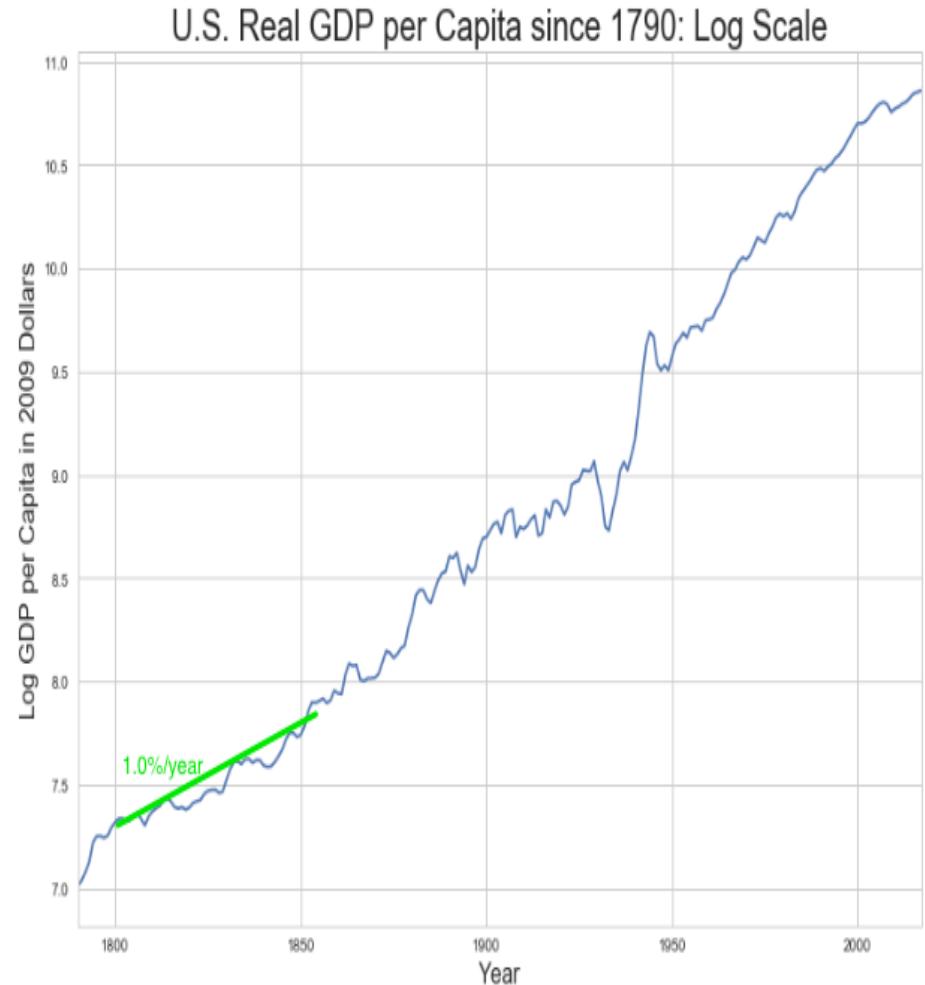
American Productivity Growth Acceleration

U.S. Real GDP per Capita since 1790: Log Scale



Early Nineteenth Century: Westward Expansion

- Westward expansion
- The “American System”
 - Abundant natural resources
 - Very high real wages
 - Focus on raising labor productivity
 - Hence fast efficiency-of-labor growth
 - Britain, by contrast, focused on economizing on (non-coal) raw materials



The Importance of Resources

1760-1860

- Major westward expansion and "Amerindian removal"
- The century 1760 to 1860 before the Civil War.
- We have U.S. output-per-worker growth then at about 1.0% per year...
 - ...in contrast to British output-per-worker growth at about 0.5% per year.
- We have the U.S. population and labor force growing at 2.5% per year...
 - ...from 2.5 to 30 million.

The Importance of Resources

1760-1860

Recall our basic Solow Model:

$$\ln(y) = \ln\left(\frac{Y}{L}\right) = \left(\frac{\alpha}{1-\alpha}\right) \ln\left(\frac{K}{Y}\right) + \ln(E)$$

$$\ln(E) = \left(\frac{\gamma}{1+\gamma}\right) \ln(H) + \left(\frac{1}{1+\gamma}\right) (\ln(R) - \ln(L))$$

The Importance of Resources

1760-1860

Recall our basic Solow Model:

$$\ln(y) = \ln\left(\frac{Y}{L}\right) = \left(\frac{\alpha}{1-\alpha}\right) \ln\left(\frac{K}{Y}\right) + \ln(E)$$

$$\ln(E) = \left(\frac{\gamma}{1+\gamma}\right) \ln(H) + \left(\frac{1}{1+\gamma}\right) (\ln(R) - \ln(L))$$

- Assume K/Y constant, so the growth rate g of the efficiency of labor and the growth rate of output-per-worker are the same:

$$\frac{d \ln(y)}{dt} = \left(\frac{\gamma}{1+\gamma}\right) h + \left(\frac{1}{1+\gamma}\right) (\rho - n)$$

The Importance of Resources

1760-1860

Recall our basic Solow Model:

$$\ln(y) = \ln\left(\frac{Y}{L}\right) = \left(\frac{\alpha}{1-\alpha}\right) \ln\left(\frac{K}{Y}\right) + \ln(E)$$

$$\ln(E) = \left(\frac{\gamma}{1+\gamma}\right) \ln(H) + \left(\frac{1}{1+\gamma}\right) (\ln(R) - \ln(L))$$

- Assume K/Y constant, so the growth rate g of the efficiency of labor and the growth rate of output-per-worker are the same:

$$\frac{d \ln(y)}{dt} = \left(\frac{\gamma}{1+\gamma}\right) h + \left(\frac{1}{1+\gamma}\right) (\rho - n)$$

The Importance of Resources

1760-1860

Recall our basic Solow Model:

$$\ln(y) = \ln\left(\frac{Y}{L}\right) = \left(\frac{\alpha}{1-\alpha}\right) \ln\left(\frac{K}{Y}\right) + \ln(E)$$

$$\ln(E) = \left(\frac{\gamma}{1+\gamma}\right) \ln(H) + \left(\frac{1}{1+\gamma}\right) (\ln(R) - \ln(L))$$

- Assume K/Y constant, so the growth rate g of the efficiency of labor and the growth rate of output-per-worker are the same:

$$\frac{d \ln(y)}{dt} = \left(\frac{\gamma}{1+\gamma}\right) h + \left(\frac{1}{1+\gamma}\right) (\rho - n)$$

- Let's, last, fit this to history in the century before the 1860 election of President Abraham Lincoln and the ensuing American Civil War:

The Importance of Resources

1760-1860

Recall our basic Solow Model:

$$\ln(y) = \ln\left(\frac{Y}{L}\right) = \left(\frac{\alpha}{1-\alpha}\right) \ln\left(\frac{K}{Y}\right) + \ln(E)$$

$$\ln(E) = \left(\frac{\gamma}{1+\gamma}\right) \ln(H) + \left(\frac{1}{1+\gamma}\right) (\ln(R) - \ln(L))$$

- Assume K/Y constant, so the growth rate g of the efficiency of labor and the growth rate of output-per-worker are the same:

$$\frac{d \ln(y)}{dt} = \left(\frac{\gamma}{1+\gamma}\right) h + \left(\frac{1}{1+\gamma}\right) (\rho - n)$$

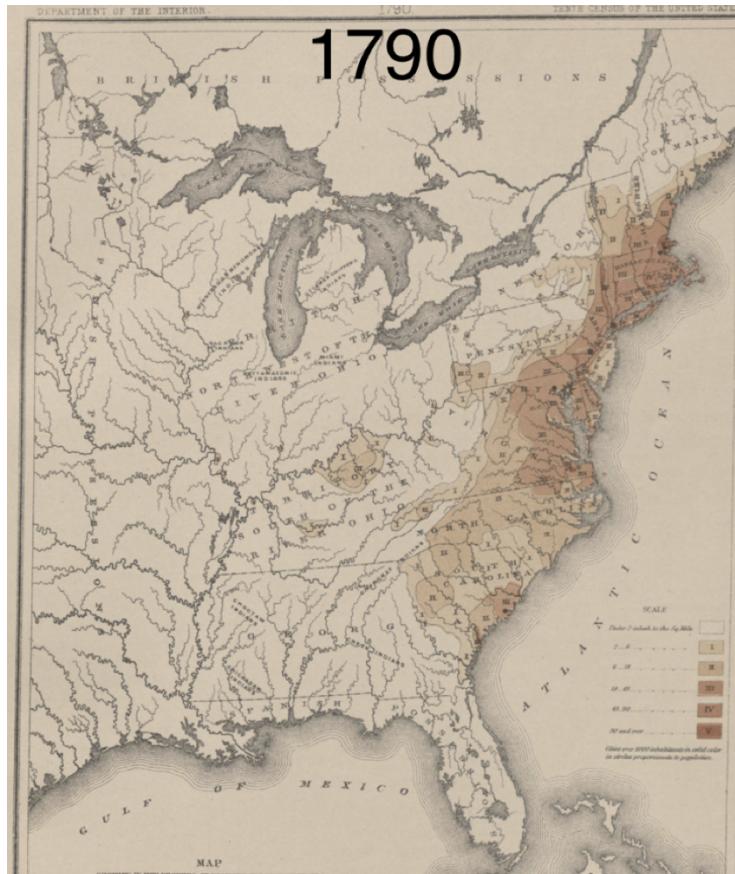
- Let's, last, fit this to history in the century before the 1860 election of President Abraham Lincoln and the ensuing American Civil War:

output-per-worker growth $\frac{d \ln(y)}{dt} = 1.0$ per year

labor-force growth $n = 2.5$ per year

natural-resource growth from westward expansion $\rho = 4.5$ per year

Westward Expansion



The Importance of Resources

1760-1860

We have two parameters left: γ and h , the weight of ideas in efficiency-of-labor growth and the rate of growth of the stock of useful ideas for the economy in American heads, respectively:

$$0.010 = \left(\frac{\gamma}{1+\gamma} \right) h + \left(\frac{1}{1+\gamma} \right) (0.045 - 0.025)$$

The Importance of Resources

1760-1860

We have two parameters left: γ and h , the weight of ideas in efficiency-of-labor growth and the rate of growth of the stock of useful ideas for the economy in American heads, respectively:

$$0.010 = \left(\frac{\gamma}{1+\gamma} \right) h + \left(\frac{1}{1+\gamma} \right) (0.045 - 0.025)$$

$$(1 + \gamma) 0.010 = \gamma h + 0.020$$

$$(1 + \gamma) 0.010 - 0.020 = \gamma h$$

$$-0.010 + 0.010\gamma = \gamma h$$

$$h = 0.010 - \frac{0.010}{\gamma}$$

The Importance of Resources

1760-1860

- Thus if $\gamma \rightarrow \infty$ then $h \rightarrow 0.010$

The Importance of Resources

1760-1860

- Thus if $\gamma \rightarrow \infty$ then $h=0.010$
- Thus if $\gamma=3.0$ then $h=0.00667$

The Importance of Resources

1760-1860

- Thus if $\gamma \rightarrow \infty$ then $h=0.010$
- Thus if $\gamma=3.0$ then $h=0.00667$
- Thus if $\gamma=1.0$ then $h=0.00$

The Importance of Resources

1760-1860

- Thus if $\gamma \rightarrow \infty$ then $h=0.010$
- Thus if $\gamma=3.0$ then $h=0.00667$
- Thus if $\gamma=1.0$ then $h=0.00$
- Looking across the Atlantic Ocean to Great Britain, we see that over there it is indeed the case that $h=0.005$ from 1760 to 1860. Faster growth of h in America due to some catchup with the world's first and leading industrial nation seems likely. So $\gamma=3.0$ has some claim to be the most likely value...

A Counterfactual

The Royal Proclamation of October 1763:

- Our Royal Will and Pleasure... no... Governor or Commander in Chief in... our... Colonies or Plantations in America do... grant Warrants of Survey, or pass Patents for any Lands beyond the Heads or Sources of any of the Rivers which fall into the Atlantic Ocean from the West and North West, or upon any Lands whatever, which, not having been ceded to or purchased by Us as aforesaid, are reserved to the said Indians, or any of them...

What If This Royal Proclamation Had Stuck?

What if $\rho=0$?

$$h = 0.010 - \frac{0.010}{\gamma}$$

- If $\gamma \rightarrow \infty$ and $h=0.010$ then $g=0.01$
- If $\gamma=3.0$ and $h=0.00667$ then $g=-0.00125$
- If $\gamma=1.5$ and $h=0.000$ then $g=-0.01$

What If This Royal Proclamation Had Stuck?

What if $\rho=0$?

$$h = 0.010 - \frac{0.010}{\gamma}$$

- If $\gamma \rightarrow \infty$ and $h=0.010$ then $g=0.01$
- If $\gamma=3.0$ and $h=0.00667$ then $g=-0.00125$
- If $\gamma=1.5$ and $h=0.000$ then $g=-0.01$
- An America penned behind the Appalachians would probably have seen its living standards and productivity levels not growing at 1% per year from 1760 to 1860 but shrinking.
- For $\gamma=3.0$, living standards and productivity levels would have shrunk at a pace of -0.125% per year

What If This Royal Proclamation Had Stuck?

What if $\rho=0$?

$$h = 0.010 - \frac{0.010}{r}$$

- Of course, a poorer America would probably have seen fewer immigrants.
- But it might not have seen that many fewer immigrants.
 - It would no longer have been quite as attractive to move from Britain to America over 1760 to 1860.
 - But it still would have been very attractive to move from France, Germany, Scotland—or most of all from Potato Blight-ridden Ireland...
- In what other ways might this counterfactual alternate-history "little America" would likely have been different in 1860 than America actually was?

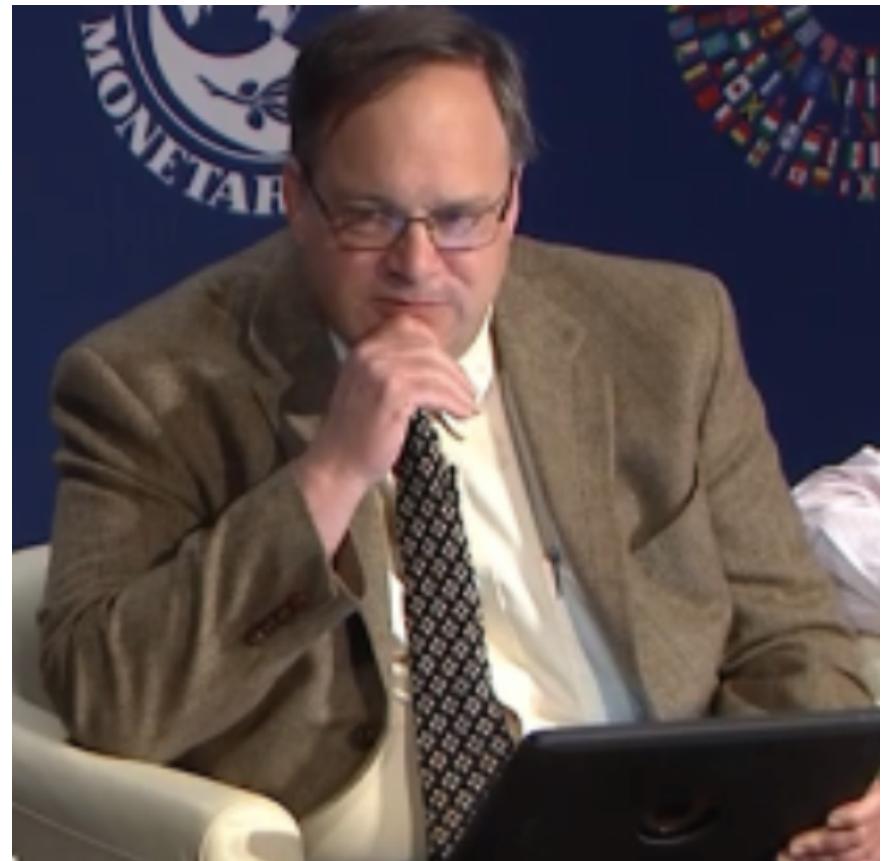
“Trail of Tears”



A large chunk of America's pre-1860 visible growing prosperity was based not just on African-American slavery, but also on "Amerindian removal"

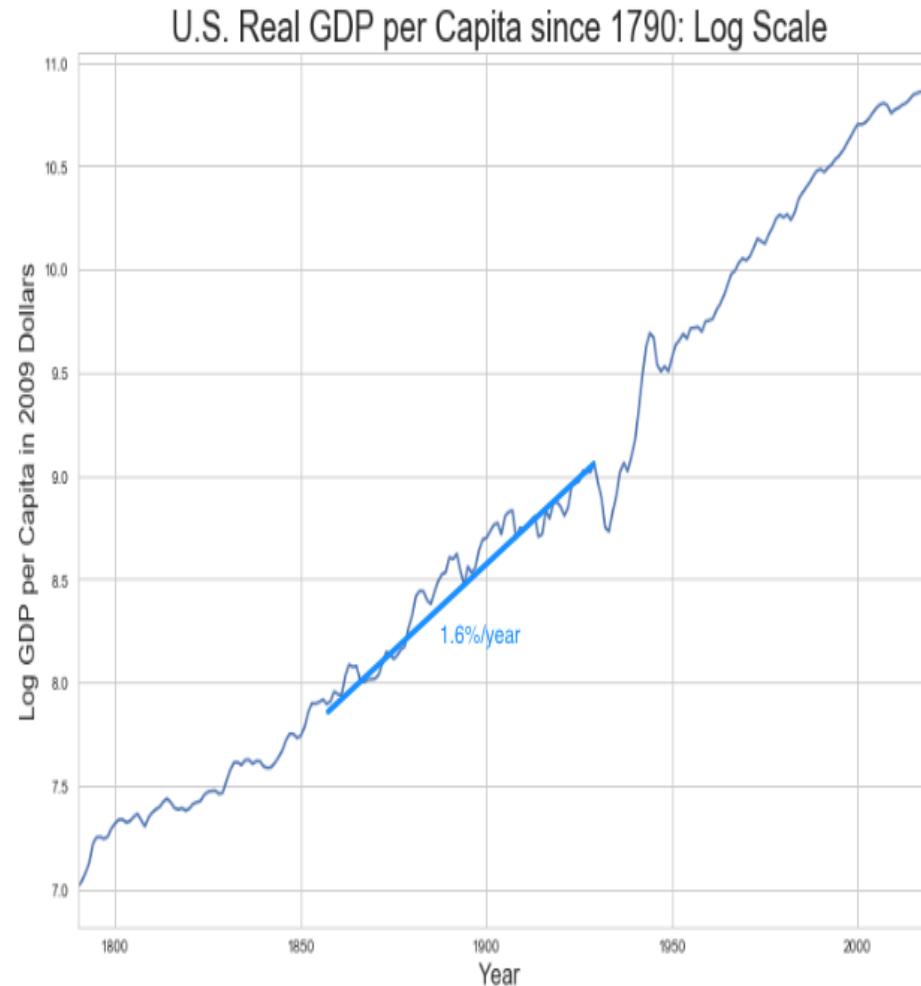
Catch Our Breath...

- Ask me two questions...
- Make two comments...



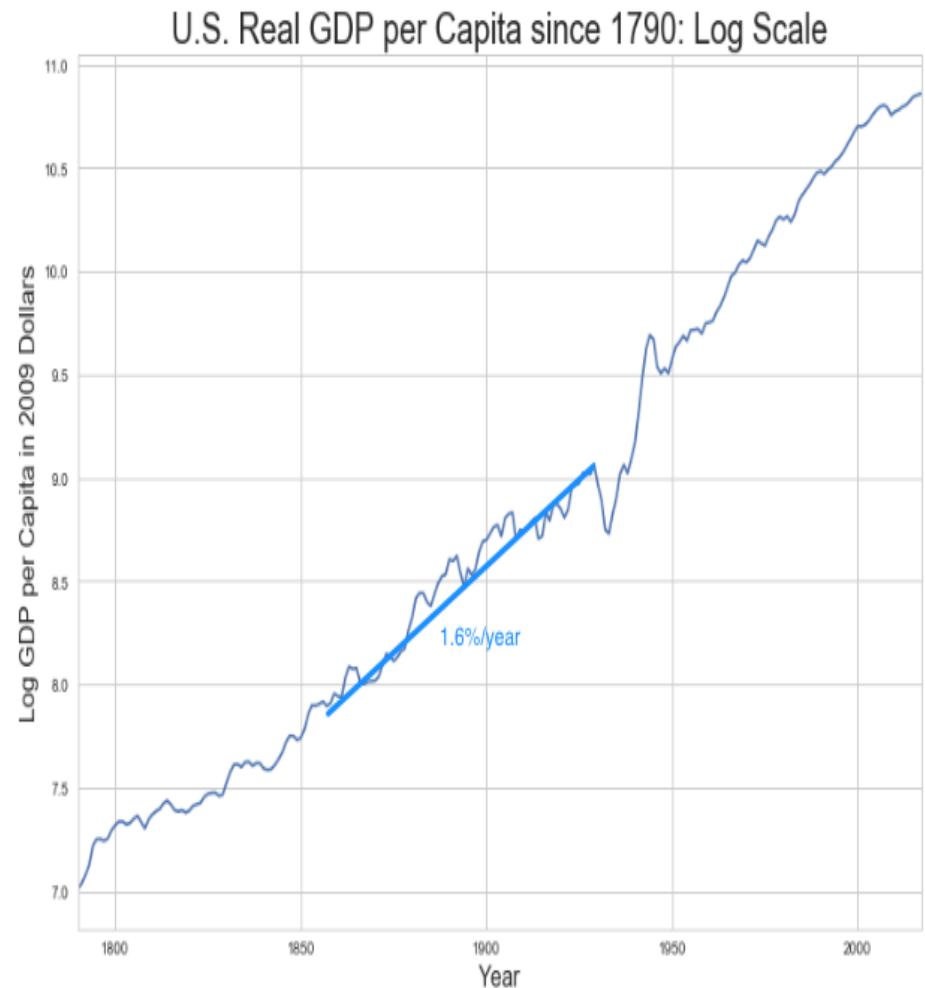
Late Nineteenth-Early Twentieth Century: “Great Traverse”

- Invention of the industrial research lab
- First globalization
- Technologies of Second Industrial Revolution
 - Economies of scale and mass production
 - Falling price of capital goods
 - Greater savings effort
- Plus mass immigration
- Rapidly rising inequality
 - Or was it? Emancipation...



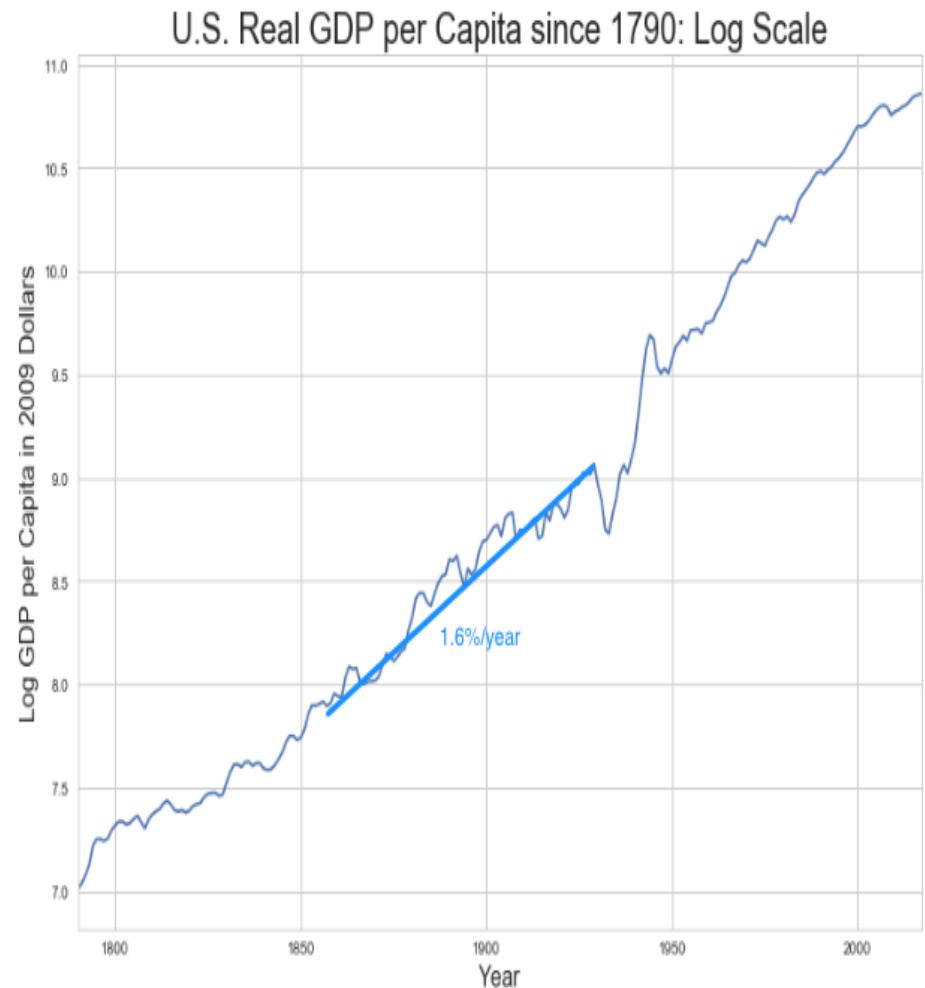
Capital Deepening

- Lowered depreciation rate δ
 - From 5% to 3% per year



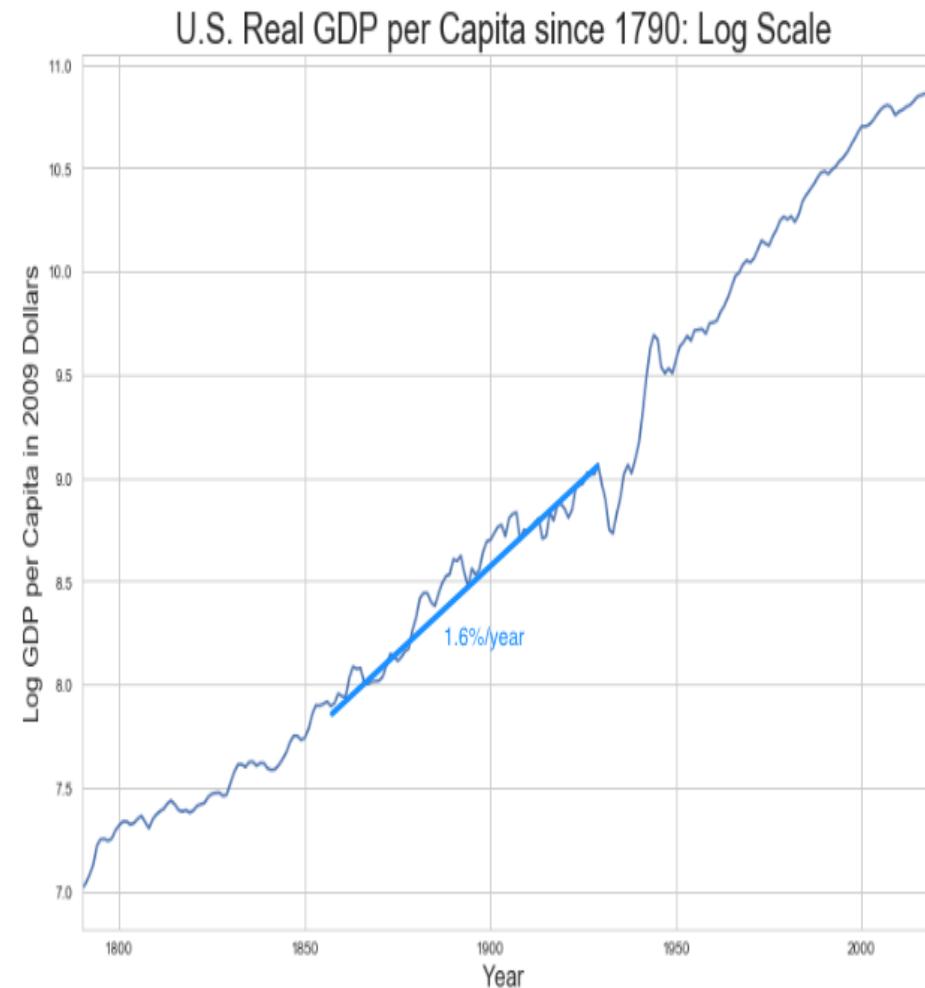
Capital Deepening

- Lowered depreciation rate δ
 - From 5% to 3% per year
- Increased savings rate s
- Capital-output ratio goes from 2.5 to 4 across 70 years



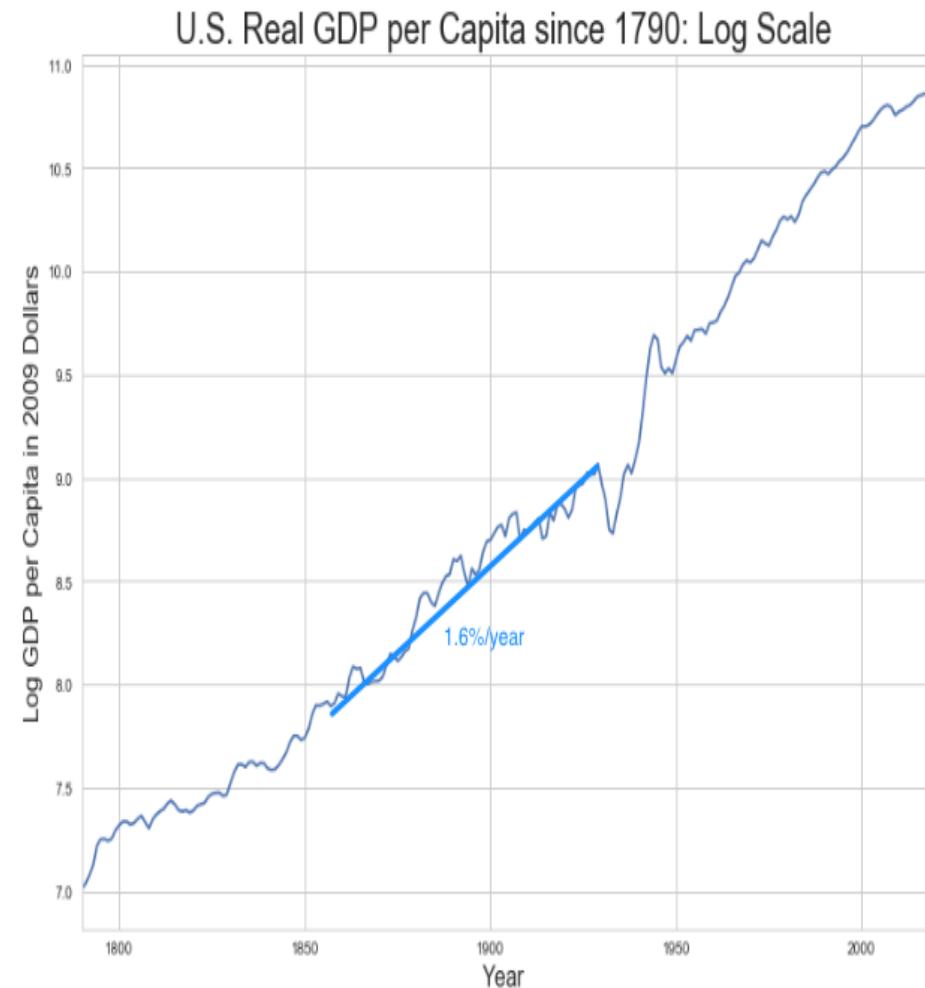
Capital Deepening

- Lowered depreciation rate δ
 - From 5% to 3% per year
- Increased savings rate s
- Capital-output ratio goes from 2.5 to 4 across 70 years
- with an $a=1$, output-per-worker proportional to the capital-output ratio
 - $\ln(4/2.5)/70 = 0.007$
 - $g = 0.9\%\text{year}$



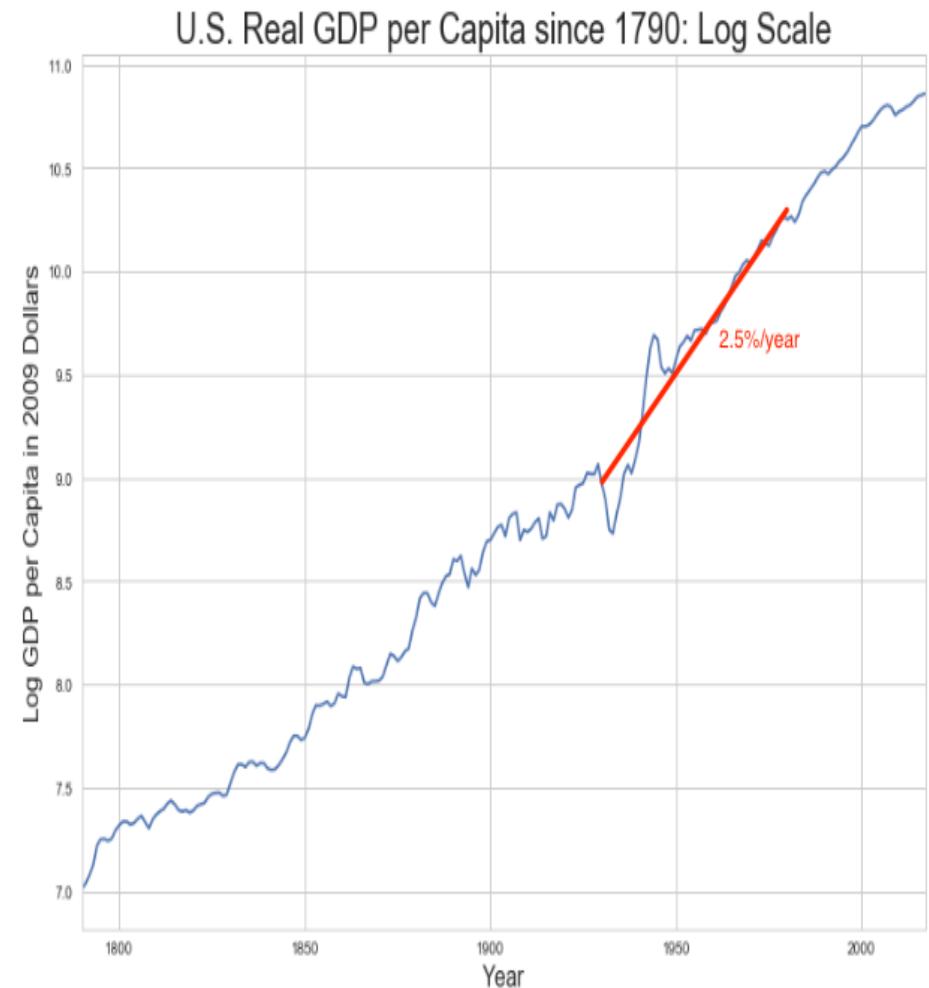
Capital Deepening

- Capital-output ratio goes from 2.5 to 4 across 70 years
- with an $\alpha=1$, output-per-worker proportional to the capital-output ratio
 - $\ln(4/2.5)/70 = 0.007$
 - $g = 0.9\%/\text{year}$
- Second Industrial Revolution
- Large managerial corporation
- Large-scale investment banking
- Industrial research lab
- Continent-wide market
- Globalization



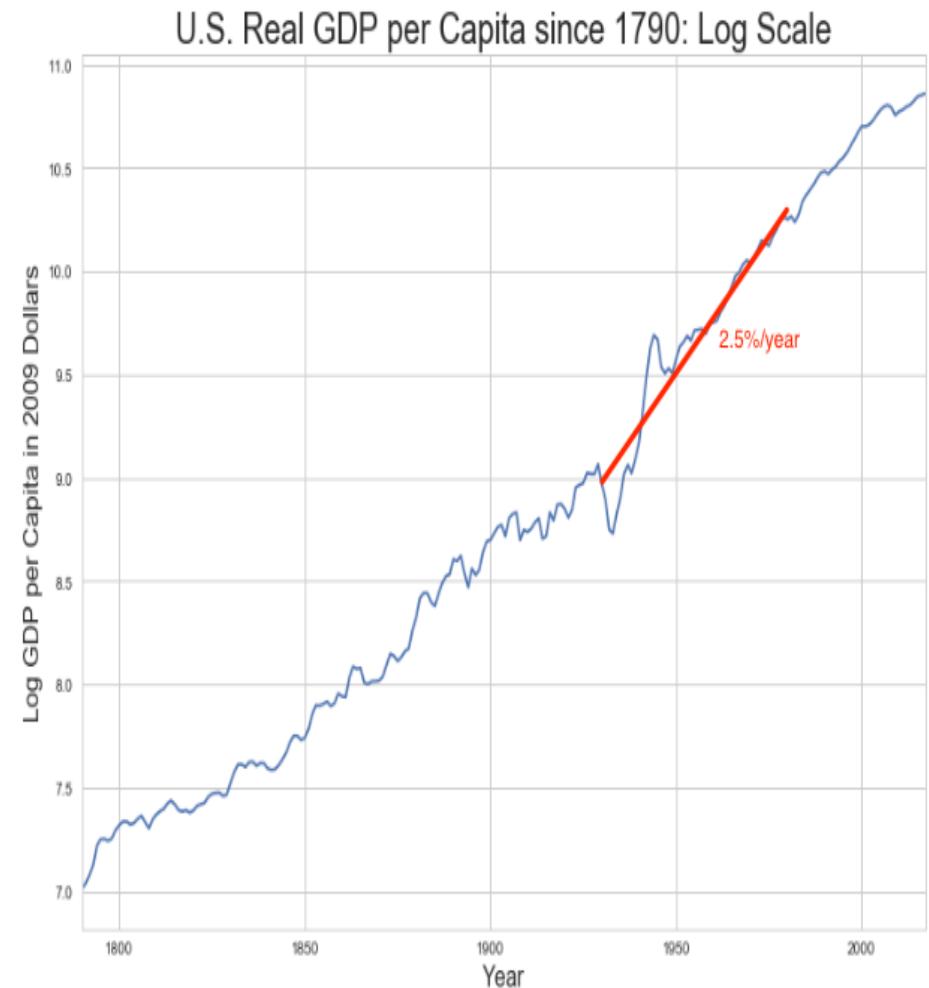
Mid Twentieth Century: Drive to High Mass Consumption

- DARPA, etc.: two heads are better than one
- “Fordist” oligopolies
- Second globalization
- Keynesian stabilization policies
- Falling and then low inequality
 - For white guys...



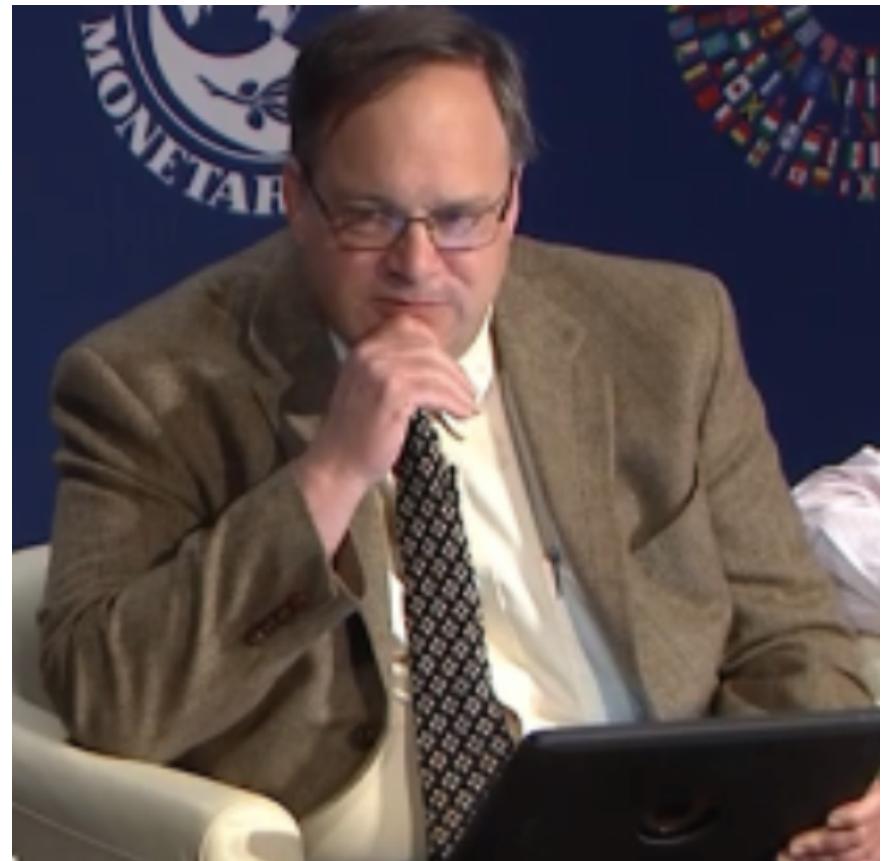
Mid Twentieth Century: Drive to High Mass Consumption

- DARPA, etc.: two heads are better than one
- “Fordist” oligopolies
- Second globalization
- Keynesian stabilization policies
- Falling and then low inequality
 - For white guys...



Catch Our Breath...

- Ask me two questions...
- Make two comments...



Notes

